William Llewellyn's

ANABOLICS

2006 EDITION

DISCLAIMER: This information was gathered from sources including textbooks, medical journals, and pharmaceutical reports, as well as interviews with athletes, steroid distributors, and medical experts. Neither the author nor publisher assume any liability for the information presented in this text. This book is not intended to provide medical or legal advice. The purpose of this reference book is only to provide a compendium of information for the reader, for entertainment purposes only. None of the information in this book is meant to be applied. Readers are advised that many of the substances described in this reference book may be prohibited or used only under a physician's care in many jurisdictions. Readers should consult with appropriate medical authorities before using any drug, and the proper legal authorities if unsure of the status of substances described herein. Neither the publisher nor author advocate readers engage in any illegal activities.

Contributing Researchers/Photographers

S.C. Flanker
Patrick Iden
Marko Lalic
Rui Machado
Marcos Sergio Teran Cruz
Steven C. Thomas
Ronny Tober

Copyright © 2006 and published by Body of Science in Jupiter, FL 33458. All rights reserved.
None of the content in this publication may be reproduced, stored in a retrieval system, resold, redistributed, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise) without the prior written permission of the publisher. William Llewellyn's ANABOLICS are trademarks used herein under license.

Distributed by Molecular Nutrition, 5500 Military Trail, Ste. 22-308, Jupiter, FL 33458
Tel. 561-745-1881 www.molecularnutrition.net

Published by Body of Science
www.bodyofscience.com

TABLE OF CONTENTS

PART I: ANABOLIC OVERVIEW

The Science of Progress	5	**NEW
The Endocrinology of Muscle Growth	6	**NEW
An Introduction to Testosterone	12	
Direct and Indirect Anabolic Effects	14	
Free vs. Bound Testosterone	16	
Estrogen Aromatization	17	UPDATED
DHT Conversion	19	
A Brief History of Anabolic/Androgenic Steroids	20	
Synthetic AAS Development	21	
Synthetic AAS Chemistry	26	
Steroid Nomenclature	31	
Side Effects	32	
Assessing Steroid Safety: Studies with Real-World Dosages	41	UPDATED

PART II: PRACTICAL APPLICATION

Steroid Cycles	47	
Sample Steroid Stacks	50	
PCT: Post Cycle Therapy	67	**NEW
Giving the Injection	71	
Paper Steroids	73	UPDATED
Underground Steroids	74	UPDATED
Counterfeit Steroids	76	
Country Specifics	79	
Security Stickers	82	UPDATED
Designer Steroids	85	
Anabolic Steroids and the Law	87	

PART III: DRUG PROFILES

ANABOLIC/ANDROGENIC STEROIDS

1-Testosterone (dihydroboldenone)	95		
Anabolic NA® (nandrolone/methandriol blend)	97		
Anabolicum Vister® (quinbolone)	98		
Anadrol® (oxymetholone)	99	E-1	UPDATED
Anadur® (nandrolone hexyloxyphenylpropionate)	103		
Anatrofin (stenbolone acetate)	104		
Anavar (oxandrolone)	106	E-6	UPDATED
Andractim® (dihydrotestosterone)	109		
Andriol® (testosterone undecanoate)	110	E-9	
Androderm® (testosterone)	113	E-10	
Androgel® (testosterone)	114	E-11	
Boldabol (boldenone acetate)	116		**NEW
Cheque Drops® (mibolerone)	118	E-11	UPDATED

Danocrine® (danazol)	120		
Deca-Durabolin® (nandrolone decanoate)	121	E-11	UPDATED
Deposterona® (testosterone blend)	125	E-23	
Dianabol® (methandrostenolone)	126	E-23	UPDATED
Dimethyltrienolone	131		**NEW
Dinandrol (nandrolone blend)	133	E-31	
Drive® (boldenone undecylenate/methylandrostenediol dipropionate)	134	E-31	
Durabolin® (nandrolone phenylpropionate)	135	E-32	UPDATED
Dynabol® (nandrolone cypionate)	137	E-33	UPDATED
Dynabolon® (nandrolone undecanoate)	139	E-33	
Equilon 100 (boldenone blend)	140		
Equipoise® (boldenone undecylenate)	141	E-33	UPDATED
Equitest 200 (testosterone blend)	144	E-39	
Esiclene® (formebolone)	145		
Estandron (testosterone/estrogen blend)	146	E-40	**NEW
Genabol (norbolethone)	147		
Halotestin® (fluoxymesterone)	149	E-40	
Hydroxytestosterone (4-hydroxy-testosterone)	151		
Laurabolin® (nandrolone laurate)	153	E-40	
Libriol (nandrolone/methandriol blend)	155	E-41	
Madol (desoxymethyltestosterone)	156		**NEW
Masteron® (drostanolone propionate)	158	E-41	UPDATED
Megagrisevit-Mono® (clostebol acetate)	160		
MENT (7-methylnortestosterone)	161		**NEW
Mestanolone (methyldihydrotestosterone)	164		
Methandriol (methylandrostenediol)	166	E-43	UPDATED
Methyl-1-testosterone	168		
Methyldienolone	170		
Methylhydroxynandrolone	172		
Methyltestosterone	174	E-43	
Metribolone (methyltrienolone)	176		
Miotolan® (furazabol)	178		
Myagen (bolasterone)	179		
Nebido (testosterone undecanoate)	180		**NEW
Neotest 250 (testosterone decanoate)	181		
Nilevar® (norethandrolone)	182	E-43	
Omnadren® (testosterone blend)	184	E-44	
Orabolin® (ethylestrenol)	186	E-45	
Oral Turinabol (4-chlorodehydromethyltestosterone)	188	E-45	UPDATED
Oranabol (oxymesterone)	190		
Orgasteron (normethandrolone)	192		**NEW
Parabolan® (trenbolone hexahydrobenzylcarbonate)	194	E-45	
Primobolan® (methenolone acetate)	196	E-50	UPDATED
Primobolan® Depot (methenolone enanthate)	198	E-46	UPDATED
Prostanozol (demethylstanozolol tetrahydropyranyl)	201		**NEW
Protabol (thiomesterone)	203		
Proviron® (mesterolone)	205	E-51	
Sanabolicum (nandrolone cyclohexylpropionate)	207	E-53	UPDATED
Spectriol (testosterone/nandrolone/methandriol blend)	208	E-53	
Sten (testosterone blend)	209	E-53	
Steranabol Ritardo (oxabolone cypionate)	210		
Superdrol (methyldrostanolone)	211		**NEW

Sustanon® 100 (testosterone blend)	213		**NEW
Sustanon® 250 (testosterone blend)	214	E-53	UPDATED
Synovex® (testosterone propionate & estradiol)	217	E-60	
Test 400® (testosterone blend)	218	E-60	
Testolent (testosterone phenylpropionate)	219	E-61	
Testosterone buciclate	220		
Testosterone butyrate	222	E-61	
Testosterone cyclohexylpropionate	223		
Testosterone cypionate	224	E-61	UPDATED
Testosterone enanthate	228	E-67	UPDATED
Testosterone propionate	232	E-78	UPDATED
Testosterone suspension	235	E-84	UPDATED
Testoviron® (testosterone blend)	238	E-87	
THG (tetrahydrogestrinone)	240		
Trenbolone acetate	242	E-88	UPDATED
Trenbolone enanthate	246	E-92	UPDATED
Tribolin (nandrolone/methandriol blend)	248	E-92	
Trinabol 150 (trenbolone blend)	249	E-93	UPDATED
Triolandren (testosterone blend)	250		
Winstrol® (stanozolol)	251	E-93	UPDATED

ANABOLIC AGENTS (NON-STEROID)

Arachidonic acid (eicosa-5,8,11,14-enoic acid)	257		UPDATED
Kynoselen®	260	F-10	
Lutalyse® (diniprost)	261		

ANALGESICS

NSAIDs (Non-Steroidal Anti-Inflammatory Drugs)	265		
Nubain® (nalbuphine hydrochloride)	266	F-11	
Opiate Analgesics	267		

ANTI-ACNE

Accutane (isotretinoin)	271		**NEW

ANTI-ESTROGENS

Arimidex® (anastrozole)	275	F-1	
Aromasin® (exemestane)	276		
ATD (androstatrienedione)	277		**NEW
Clomid® (clomiphene citrate)	278	F-3	
Cyclofenil	280	F-3	
Cytadren® (aminoglutethimide)	281	F-4	
Evista (raloxifene)	283		
Fareston® (toremifene citrate)	284		
Faslodex® (fulvestrant)	285		
Femara® (letrozole)	286	F-4	
Lentaron® (formestane)	287	F-10	
Nolvadex® (tamoxifen citrate)	288	F-11	
Teslac® (testolactone)	290		

ANTI-PROLACTIN

Dostinex (cabergoline)	293		**NEW
Parlodel® (bromocriptine mesylate)	295	F-12	

APPETITE STIMULANTS

Periactin (cyproheptadine hydrochloride)	299		

DIURETICS

Aldactazide® (spironolactone/hydrochlorthiazide)	303	F-1	
Aldactone® (spironolactone)	304	F-1	
Dyazide® (triamterene and hydrochlorthiazide)	305		
Hydrodiuril® (hydrochlorthiazide)	306		
Lasix® (furosemide)	307	F-10	
Lasilactone® (spironolactone/furosemide)	309		

ENDURANCE/ERYTHROPOIETIC DRUGS

Aranesp® (darbepoetin alfa)	313		
Carnosine (beta-alanyl-L-histidine injectable solution)	314		**NEW
Epogen® (epoetin alfa)	315	F-4	
Provigil® (modafinil)	316		

FAT LOSS AGENTS – SYMPATHOMIMETICS

Albuterol (albuterol sulfate)	321	F-1	
Clenbuterol (clenbuterol hydrochloride)	322	F-2	
Ephedrine (ephedrine hydrochloride)	324	F-4	
HELIOS (clenbuterol/yohimbine hydrochloride blend)	326	F-9	
Meridia® (sibutramine hydrochloride monohydrate)	327	F-10	
Paylean® (ractopamine hydrochloride)	328		**NEW
Yohimbine hydrochloride	329	F-13	
Zaditen® (ketotifen fumarate)	330	F-13	
Zilmax® (zilpaterol hydrochloride)	331		**NEW

FAT LOSS AGENTS – THYROID

Cytomel® (liothyronine sodium)	335	F-4	
Synthroid® (levothyroxine sodium)	336	F-13	
Triacana® (tiratricol)	337	F-13	

FAT LOSS AGENTS – OTHER

Adipex-P® (phentermine hydrochloride)	341		
Capoten® (captopril)	342	F-1	
DNP (2,4-dinitrophenol)	343		
Lipostabil N (phosphatidylcholine/sodium deoxycholate)	344	F-10	**NEW
Thiomucase® (mucopolysaccharidase)	346	F-13	

GROWTH HORMONES & RELATED

Catapres® (clonidine hydrochloride)	349	F-2	
Geref® (sermorelin acetate)	350	F-5	UPDATED
Human Growth Hormone (somatropin)	351	F-5	
IGF-1 Long R3	354	F-9	UPDATED

Increlex® (mecasermin)	357		**NEW
iPlex® (mecasermin rinfibate)	359		**NEW
MK-677 (ibutamoren mesylate)	360		**NEW
Nutropin AQ® (somatropin aqueous suspension)	361		
Nutropin Depot® (somatropin)	362		
Protropin® (somatrem)	363	F-5	
HYPOGLYCEMICS			
Glucophage® (metformin hydrochloride)	367		
Insulin	368	F-9	
Rezulin® (troglitazone)	371		
LIVER DETOXIFICATION			
LIV-52®	375		
Silymarin (Milk Thistle Extract)	376	F-12	
Tationil® (reduced glutathione)	377	F-13	
MASKING AGENTS			
Epitestosterone	381		
Probenecid	382		
REDUCTASE INHIBITORS			
Avodart® (dutasteride)	385	F-1	
Proscar® (finasteride)	387	F-12	
SITE ENHANCEMENT			
Caverject® (alprostadil)	391		
Nolotil® (metamizol)	392	F-11	
Synthol	393	F-12	
TANNING AGENTS			
Trisoralen® (trioxsalen)	397		
Oxsoralen (methoxsalen)	398		
TESTOSTERONE STIMULATING DRUGS			
HCG (human chorionic gonadotropin)	401	F-7	
BIBLIOGRAPHY	403		

APPENDIX

STEROID LAB TEST RESULTS	A-1	
Anadrol® (oxymetholone)	A-2	UPDATED
Anavar (oxandrolone)	A-7	UPDATED
Cheque Drops® (mibolerone)	A-11	UPDATED
Deca-Durabolin® (nandrolone decanoate)	A-12	UPDATED
Dianabol® (methandrostenolone)	A-17	UPDATED
Durabolin® (nandrolone phenylpropionate)	A-30	UPDATED
Equipoise® (boldenone undecylenate)	A-31	UPDATED
Halotestin® (fluoxymesterone)	A-38	UPDATED
Masteron® (drostanolone propionate)	A-40	UPDATED
Primobolan® (methenolone acetate)	A-41	UPDATED
Primobolan® Depot (methenolone enanthate)	A-42	UPDATED
Sustanon® 250 (testosterone blend)	A-46	UPDATED
Test 400® (testosterone blend)	A-49	UPDATED
Testosterone cypionate	A-50	UPDATED
Testosterone enanthate	A-54	UPDATED
Testosterone propionate	A-64	UPDATED
Trenbolone acetate	A-67	UPDATED
Winstrol® (stanozolol)	A-70	UPDATED
DRUG AVAILABILITY TABLES: GENERIC	B-1	UPDATED
DRUG AVAILABILITY TABLES: BRAND	C-1	UPDATED
DRUG AVAILABILITY TABLES: COUNTRY	D-1	UPDATED
STEROID PHOTO LIBRARY	E-1	UPDATED
DRUG PHOTO LIBRARY (NON-STEROID)	F-1	UPDATED
SECURITY STICKERS	G-1	UPDATED

Sections updated or new since the release of William Llewellyn's ANABOLICS 2005 are indicated in the right column.



ANABOLIC OVERVIEW

ANABOLIC OVERVIEW

The Science of Progress

Any longtime follower of bodybuilding will tell you the face of the sport has changed considerably since the first Mr. Olympia took place back in 1965. Over the past 40 years, the 185-205lbs. symmetrically chiseled physiques of early winners like Larry Scott and Frank Zane have slowly given way to the massive 245lbs+ frames of Lee Haney, Dorian Yates, and Ronny Coleman. Ronny Coleman actually tops the scales at almost 290lbs., and this is his contest, not his off-season weight! When Arnold Schwarzenegger won the Olympia back in 1972, the top 5 competitors weighed about 1,050lbs. in total, which was an average of 210lbs. (Arnold was 235lbs). By 2002, the top 5 were tipping the scales at over 1,280lbs, an average of more than 257lbs. each. Thirty years ago, you could still see guys placing at under 200lbs. Not today. Examine the history of almost any bodybuilding competition, and you are likely to see a very similar trend.

Bodybuilding competitors in general seem to be getting more massive every year. The fact is undeniable. The athletes are changing, and the sport of bodybuilding is changing with them. We are seeing more "freakish" physiques (if you will) by the day, and the fans seem to love it. But what accounts for this steady progression of the show-winning physique? How is it that athletes today seem to be generally more developed than those of decades past? Some may say that the sport is growing, and is attracting more people. After all, Larry Scott was lucky to walk away with $1,000 for his Olympia win in 1966. The purse today is approaching a half a million dollars, a figure that must attract many more to the bodybuilding stage than in Scott's day. The pool of potential "the next Ronny Coleman's" is growing as general attention to the sport (and the revenue it generates) grows, indeed. But I believe it is much more than that.

While the much-publicized Mass Revolution was underway, a quiet revolution was also taking place in the field of bodybuilding science. Our understanding of training, nutrition, and drug pharmacology was growing rapidly. The drugs themselves began changing too. When commenting on this, Dan Duchaine once said that steroids were passé, old news. While I wouldn't go quite that far, I agree that we have advanced beyond steroids alone. Back in the 1960's and 1970's, steroids were "It". Growth hormone was still a rare and expensive drug, and few other agents but diuretics and thyroid hormones were in general use. The tools were different. The whole playing field was different. We live in the times of cheap synthetic GH, potent IGF-1 analogs, designer steroids, prostaglandins, and the accepted use of insulin. Bodybuilders today know far more about building muscle than they did 40 years ago, have access to more, and their physiques are showing it! If you want to win a high level show today, and the word "steroid" is the only one in your repertoire, you are probably in trouble.

Indeed the tools of anabolism have been expanding in number over the years. A comprehensive understanding of how each ties into the process of muscle building as a whole, however, has been a little slower to develop. This has been one of the things I have been working long hours on for some time now. I have been attempting to bring together the various snapshots provided in the modern medical literature, even funding two university studies of my own, for a deeper and more complete biological understanding of how muscle is built in the body, from the initiation of damage, to adaptation and growth. We find that the process goes far beyond the mere interaction of testosterone and its receptor, and involves literally a myriad of different hormones, growth factors, and enzymatic reactions. We also find numerous classes of hormones/hormone-like compounds that promote anabolism in the body, not just one or two, which gives us numerable distinct areas to target for manipulation and muscle mass augmentation. A comprehensive look at the science of muscle growth today is very telling, and gives us the understanding of not only how and why certain drugs work, but perhaps more importantly to some, how and why certain drug combinations work so well together.

The primary focus of this book is to explain anabolic steroids, but at the same time to take you beyond them. I believe this new deeper understanding of muscle growth will be indispensable to you, even if it is not your goal to win the next Mr. Olympia. It will arm you with the tools you need to intelligently identify strategies for reaching your own goals, whether they are large or small. On this note, the 2006 edition opens with a new section entitled "The Endocrinology of Muscle Growth". This is perhaps one of the more technical sections of the book, and goes very deep into exactly how we humans grow muscle. Although some may be tempted to skip over it and jump right into the juicier drug-related stuff, I want to emphasize that I believe this section is one of the most important in the book. I also feel it represents some of my most important work to date, especially when it comes to investigating the early events that first trigger growth. It is in this chapter that you will be introduced to the various anabolic actors, and learn the role of each in the anabolic process. I urge you to pay a tad bit of extra attention to this section, in fact. I promise that it will be time well spent.

The Endocrinology of Muscle Growth

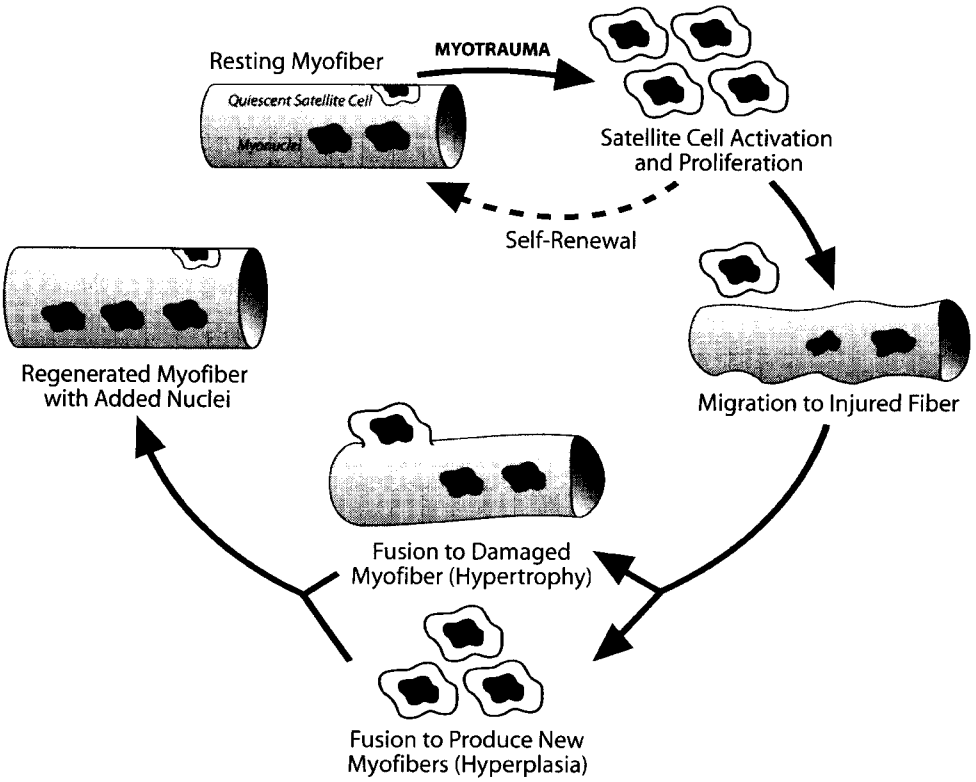
Although the Allied invasion of Europe during World War II took place on June 6, 1944, the decision and planning began long before this date. The Allies understood that Germany was a formidable enemy, and that winning a war on mainland Europe would not be easy. To be successful, they knew they needed to study their enemy very closely, and prepare their actions meticulously. They needed to learn German military strengths and weaknesses - its weaponry, troop encampments, airpower, sources for fuel, food, and other necessary resources, its ability to move troops and equipment. In short, military tacticians understood that information would be their most valuable weapon. They wanted all potential opportunities for success to be made apparent, even if they would not all be utilized, before any invasion was made.

The same strategy should apply to bodybuilding and performance enhancement. In our case the opponent is our bodies, or more specifically those systems in our bodies that regulate the growth of skeletal muscle tissue. We want some control over these systems, some ability to bend our physiological machinery to meet our own particular goals regarding the growth and sustenance of muscle mass. To do this effectively we need to understand muscle growth as completely as possible. We need to identify all of our opportunities for success, even if we do not plan on exploiting every one of them. It is often in seeing the whole battlefield that the best strategy presents itself. In this section I intend on doing just that. I want to bring you closer to the fighting than anyone has before, and give you the ability to better identify your own plan of attack.

Muscle Hypertrophy

The first step on the road to anabolic insight must be an understanding of what muscle growth really means. Often simplified by the term "protein synthesis", muscle growth is actually a highly complex process involving much more than just building proteins from amino acids. Muscle hypertrophy, the correct scientific term for the way we adult humans build skeletal muscle, actually requires the fusion of new cells (called satellite cells) with existing muscle fibers. Since this discovery of satellite cells in 1961, a great deal of research into the mechanisms of muscle hypertrophy has been undertaken. Scientists have come to understand that unlike normal muscle cells, these satellite cells can be regenerated throughout adult life. Furthermore, they serve not as functional units of their own, but provide some of the necessary components to repair and rebuild damaged muscle cells. These satellite cells are normally dormant, and sit resting in small indentations on the outer surface of the muscle fibers, waiting for something to trigger them into activation.

Injury or trauma will provide the stimulus necessary to *activate* satellite cells. Once activated, they will begin to divide, multiply, and form into myoblasts (myoblasts are essentially donor cells that express myogenic genes). This stage of hypertrophy is often referred to as satellite cell *proliferation*. The myoblasts will then fuse with existing muscle fibers, donating their nuclei. This stage of the process is usually called *differentiation*. Skeletal muscle cells are multinucleated, which means they possess many nuclei. Increasing the number of nuclei allows the cell to regulate more cytoplasm, which allows more actin and myosin, the two dominant contractile proteins in skeletal muscle, to be produced. This increases the overall cell size and protein content of the muscle cell. Incidentally, the number of nuclei in relation to cross-sectional area also helps to determine the fiber type of the cell, namely slow twitch (aerobic) or fast twitch (anaerobic)[1??]. It is important to note that we are not increasing muscle cell number with muscle hypertrophy. We are only increasing cell size and protein content, even though we are using satellite cells to help accomplish this. It is possible for myoblasts to fuse together and actually form new muscle fibers. This is called muscle hyperplasia, and equates to the legitimate growth of new muscle tissue. This is, however, not the primary mechanism of muscle growth in adult life.



MUSCLE HYPERTROPHY AND THE 4 STAGES OF THE SATELLITE CELL CYCLE

During the *Activation* stage, dormant satellite cells are stimulated to enter the cell cycle. *Proliferation* marks the formation of new myoblasts (active donor cells). These myoblasts will fuse with existing damaged muscle fibers during the *Differentiation* phase. This allows for greater protein synthesis and the expansion of cell size. Quiescence marks the return to a dormant state, where the inactive satellite cells will again rest on the outer layer of the fibers. Myostatin, a known inhibitor of muscle growth, is believed to be a key regulator in this stage[3]. Source: Muscle Nerve #31 (2005)[4].

THE ANABOLIC CHAIN

Now that we know what muscle hypertrophy is really about, let's look at anabolic stimulus and ongoing regulation. The following is a rundown of the chain of hormones and growth factors that mediate muscle growth, from the initiation of damage, to final recovery, repair, and growth. For the sake of organization, I have presented them in what I consider to be three logical phases of action. These are not scientifically accepted definitions. Additionally, we could continue to go deeper and deeper into each of the various compounds, messengers, binding proteins, and receptors involved in this intricate and amazing biological activity. I believe the included text will demonstrate the process of muscle anabolism in a very tangible way, however, without too much unnecessary information. Each of the key areas of this section can be further researched for more detail if you are interested. For one so inclined, the medical references in the endnotes would be an excellent place to start.

Trigger

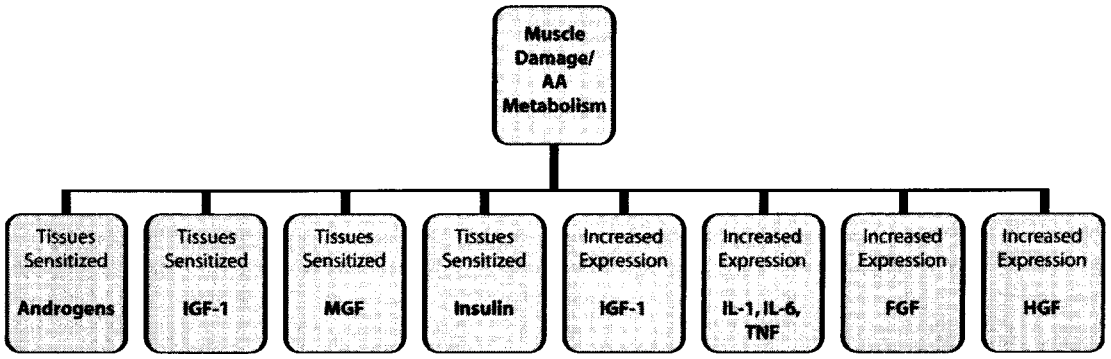
We all understand that weight training is fundamental to growing muscle tissue. To date, no "sit on your ass and get huge and ripped" pill has been invented. The reason is that a number of changes take place in your local muscle tissues during intense training that are vital to the growth process. Without these early changes, growth is difficult if not impossible to stimulate. So for our purposes, we will start here. Training is the "trigger" in the anabolic process. More specifically, it is the localized cellular damage that weight training produces that will first set us down the road of anabolism. The body will respond by repairing this damage, and in the process will try to adapt by making itself stronger. Muscle growth is always a circular process, with a step back (damage) being necessary to take any steps forward.

Phase II: Localized Tissue Priming

Phase II is characterized by a localized increase in growth factor expression and tissue sensitivity to anabolic hormones. Those who have always wondered why anabolic drugs do not work without training will find a good explanation right here. Simply put, your muscles need to be primed for the actions of these drugs first. One way the body accomplishes this is to increase the density of certain receptors in those specific muscles (fibers really) where it needs to initiate repair. This includes, among others, androgen, IGF-1, MGF, and insulin receptors. Stretch-induced muscle damage and the Phase I response are both principle triggers here. Receptor density regulation is important because it prevents anabolic hormones from stimulating tissue growth in areas of the body that do not require it. Receptor density can, therefore, be as strong a regulating force on the pharmacological activity of anabolic drugs as the serum levels of the drugs themselves.

To put it in perspective, we need to remember that there are two separate components that interact before any message is sent to a muscle cell telling it to increase growth. We have a hormone or growth factor on one hand, such as testosterone, IGF-1, MGF, or insulin, and its corresponding receptor on the other. Injecting exogenous anabolic drugs facilitates greater receptor binding and anabolic signaling by providing more messenger hormones/growth factors (obviously). The more hormones or growth factors you have around the cell, the more binding and activation of receptor sites will take place. We cannot forget, however, that having more receptor sites (instead of more hormones) can also facilitate the process too. More receptors mean the existing hormones or growth factors will find them faster. Faster binding means the anabolic message is sent more quickly, and once completed that the anabolic messenger will be more likely to find another receptor site (to send another message) before it is broken down by enzymes. It is all about how much signal can be sent in a given time period, and both sides of the equation are equally important in determining this.

While on one hand we have an increase in tissue sensitivity to anabolic hormones and growth factors, also vital during the Localized Tissue Priming phase is an increase in the localized expression of certain vital growth factors themselves. This includes IGF-1, MGF, FGF, HGF, TNF, IL-1, and IL-6. These compounds will be released, and will work together on the existing damaged muscle fibers and satellite cells, in a sort of grand symphony of muscle anabolism, with each paying its own very vital role in the process. In many cases, the actions of one compound will support the other, either by enhancing its levels, suppressing restricting binding proteins, or supporting its signaling via intertwined mechanisms. A detailed roadmap to all such interactions would go well beyond the scope of this book, and in fact are as of yet not even fully understood to science. A general overview of what is going on with each compound itself, however, is provided in our review of Phase III.



Phase III: Repair

Your local muscle tissues are primed during Phases I and II. During Phase III, the hormones and growth factors go to work to finish the job. We categorize this phase as one of ongoing anabolic action, action mediated by the combined effects of many anabolic hormones and growth factors including androgens, insulin, IGF-1, IGF-2, MGF, FGF, HGF, TNF, IL-1, and IL-6. This is the time when repair and hypertrophy are physically taking place in your muscles, and each compound will play an intricate role in the process. We must not forget, however, that everything leading up to this point (the actions in Phase I & II) has still been determining how strong the growth response will be, via modifying receptor densities and hormone/growth factor expression. We will follow the individual actions of the anabolic components very closely here. During the third phase, tissue repair and growth will be finalized with the help of the following hormones and growth factors.

Bringing it All Together

So that, in a very loose nutshell, is what is going on inside your body from the time you pick up a weight to the time your muscles are repaired, stronger, and ready for more. If the above seems confusing to you, it should. The fact is, the whole process of muscle growth has been confounding scientists for decades, and undoubtedly will for decades more. We still have a great way to go before being able to explain fully how it is that muscle hypertrophy occurs in humans. But as you can see, we have traveled a great distance as well. During the reign of Larry Scott, scientists were only first learning that we grow muscle with the help of satellite cells. Forty years later we have identified, and are experimenting with, dozens of growth factors that were unheard of back then. It is a new world today, and despite not having all the answers, we know enough to enhance human performance in many exciting new ways. But please don't mistake the intention of this section. It is not here to give you a functional roadmap of the entire anabolic process, or to guide you in the ultimate polydrug program. It is here simply to open your mind to the true complexity of anabolism. When we start to see muscle growth from its various angles and intricacies, we begin to see our own potential opportunities for successful exploitation. How many of these opportunities you act upon will depend on your own goals and interests. But no matter how much or how little you actually apply this information, I hope you feel better armed for the biological battle at hand by having it.

An Introduction to Testosterone

Anabolic steroids are a class of medications that contain a synthetically manufactured form of the hormone testosterone, or a related compound that is derived from (or similar in structure and action to) this hormone. In order to fully grasp how anabolic steroids work, it is, therefore, important to understand the basic functioning of testosterone.

Testosterone is the primary male sex hormone. It is manufactured by the Leydig's cells in the testes at varying amounts throughout a person's life span. The effects of this hormone become most evident during the time of puberty, when an increased output of testosterone will elicit dramatic physiological changes in the male body. This includes the onset of secondary male characteristics such as a deepened voice, body and facial hair growth, increased oil output by the sebaceous glands, development of sexual organs, maturation of sperm, and an increased libido. Indeed the male reproductive system will not function properly if testosterone levels are not significant. All such effects are considered the masculinizing or "androgenic" properties of this hormone.

Increased testosterone production will also cause growth promoting or "anabolic" changes in the body, including an enhanced rate of protein synthesis (leading to muscle accumulation). Testosterone is the reason males carry more muscle mass than women, as the two sexes have vastly contrasting amounts of this hormone. More specifically, the adult male body will manufacture between 2.5 and 11mg per day[23] while females only produce about 1/4 mg. The dominant sex hormone for women is estrogen, which has a significantly different effect on the body. Among other things, a lower androgen and higher estrogen level will cause women to store more body fat, accumulate less muscle tissue, have a shorter stature, and become more apt to bone weakening with age (osteoporosis).

The actual mechanism in which testosterone elicits these changes is somewhat complex. When free in the blood stream, the testosterone molecule is available to interact with various cells in the body. This includes skeletal muscle cells, as well as skin, scalp, kidney, bone, central nervous system, and prostate tissues. Testosterone binds with a cellular target in order to exert its activity, and will, therefore, effect only those body cells that posses the proper hormone receptor site (specifically the androgen receptor). This process can be likened to a lock and key system, with each receptor (lock) only being activated by a particular type of hormone (key). During this interaction, the testosterone molecule will become bound to the intracellular receptor site (located in the cytosol, not on the membrane surface), forming a new "receptor complex". This complex (hormone + receptor site) will then migrate to the cell's nucleus, where it will attach to a specific section of the cell's DNA, referred to as the hormone response element. This will activate the transcription of specific genes, which in the case of a skeletal muscle cell will ultimately cause (among other things) an increase in the synthesis of the two primary contractile proteins, actin and myosin (muscular growth). Carbohydrate storage in muscle tissue may be increased due to androgen action as well.

Once this messaging process is completed, the complex will be released, and the receptor and hormone will disassociate. Both are then free to migrate back into the cytosol for further activity. The testosterone molecule is also free to diffuse back into circulation to interact with other cells. The entire receptor cycle, including hormone binding, receptor-hormone complex migration, gene transcription and subsequent return to cytosol is a slow process, taking hours, not minutes, to complete. For example, in studies using a single injection of nandrolone, it is measured to be 4 to 6 hours before free androgen receptors migrate back to the cytosol after activation. It is also suggested that this cycle includes the splitting and formation of new androgen receptors once returned to cytosol, a possible explanation for the many observations that androgens are integral in the formation of their own receptor sites[24].

An Introduction to Testosterone

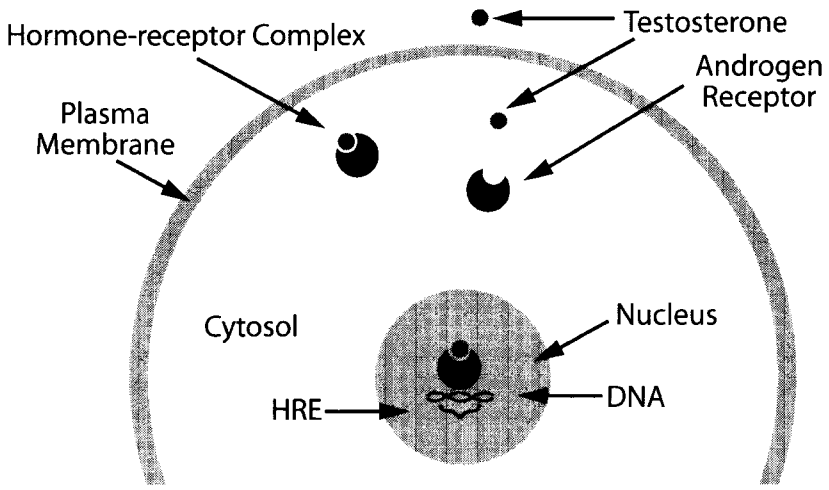
Anabolic steroids are a class of medications that contain a synthetically manufactured form of the hormone testosterone, or a related compound that is derived from (or similar in structure and action to) this hormone. In order to fully grasp how anabolic steroids work, it is, therefore, important to understand the basic functioning of testosterone.

Testosterone is the primary male sex hormone. It is manufactured by the Leydig's cells in the testes at varying amounts throughout a person's life span. The effects of this hormone become most evident during the time of puberty, when an increased output of testosterone will elicit dramatic physiological changes in the male body. This includes the onset of secondary male characteristics such as a deepened voice, body and facial hair growth, increased oil output by the sebaceous glands, development of sexual organs, maturation of sperm, and an increased libido. Indeed the male reproductive system will not function properly if testosterone levels are not significant. All such effects are considered the masculinizing or "androgenic" properties of this hormone.

Increased testosterone production will also cause growth promoting or "anabolic" changes in the body, including an enhanced rate of protein synthesis (leading to muscle accumulation). Testosterone is the reason males carry more muscle mass than women, as the two sexes have vastly contrasting amounts of this hormone. More specifically, the adult male body will manufacture between 2.5 and 11mg per day[23] while females only produce about 1/4 mg. The dominant sex hormone for women is estrogen, which has a significantly different effect on the body. Among other things, a lower androgen and higher estrogen level will cause women to store more body fat, accumulate less muscle tissue, have a shorter stature, and become more apt to bone weakening with age (osteoporosis).

The actual mechanism in which testosterone elicits these changes is somewhat complex. When free in the blood stream, the testosterone molecule is available to interact with various cells in the body. This includes skeletal muscle cells, as well as skin, scalp, kidney, bone, central nervous system, and prostate tissues. Testosterone binds with a cellular target in order to exert its activity, and will, therefore, effect only those body cells that posses the proper hormone receptor site (specifically the androgen receptor). This process can be likened to a lock and key system, with each receptor (lock) only being activated by a particular type of hormone (key). During this interaction, the testosterone molecule will become bound to the intracellular receptor site (located in the cytosol, not on the membrane surface), forming a new "receptor complex". This complex (hormone + receptor site) will then migrate to the cell's nucleus, where it will attach to a specific section of the cell's DNA, referred to as the hormone response element. This will activate the transcription of specific genes, which in the case of a skeletal muscle cell will ultimately cause (among other things) an increase in the synthesis of the two primary contractile proteins, actin and myosin (muscular growth). Carbohydrate storage in muscle tissue may be increased due to androgen action as well.

Once this messaging process is completed, the complex will be released, and the receptor and hormone will disassociate. Both are then free to migrate back into the cytosol for further activity. The testosterone molecule is also free to diffuse back into circulation to interact with other cells. The entire receptor cycle, including hormone binding, receptor-hormone complex migration, gene transcription and subsequent return to cytosol is a slow process, taking hours, not minutes, to complete. For example, in studies using a single injection of nandrolone, it is measured to be 4 to 6 hours before free androgen receptors migrate back to the cytosol after activation. It is also suggested that this cycle includes the splitting and formation of new androgen receptors once returned to cytosol, a possible explanation for the many observations that androgens are integral in the formation of their own receptor sites[24].



CELLULAR DIAGRAM: Testosterone freely diffuses through the plasma membrane and binds with an intracellular androgen receptor. The hormone-receptor complex then enters the cell nucleus to bind with a specific segment of DNA (the Hormone Response Element), activating the transcription of specific genes.

In the kidneys, this same process works to allow androgens to augment erythropoiesis (red blood cell production)[25]. It is this effect that leads to an increase in red blood cell concentrations, and possibly increased oxygen transport capacity, during anabolic/androgenic steroid therapy. Many athletes mistakenly assume that oxymetholone and boldenone are unique in this ability, due to specific uses or mentions of this effect in drug literature. In fact, stimulation of erythropoiesis occurs with nearly all anabolic/androgenic steroids, as this effect is simply tied with activation of the androgen receptor in kidney cells. The only real exceptions might be compounds such as dihydrotestosterone and some of its derivatives[26], which are rapidly broken down upon interaction with the 3alpha-hydroxysteroid dehydrogenase enzymes (kidney tissue has a similar enzyme distribution to muscle tissue, see "anabolic/androgenic dissociation" section), and therefore display low activity in these tissues.

Adipose (fat) tissues are also androgen responsive, and here these hormones support the lipolytic (fat mobilizing) capacity of cells[27]. This may be accomplished by an androgen-tied regulation of beta-adrenergic receptor concentrations or general cellular activity (through adenylate cyclase)[28]. We also note that the level of androgens in the body will closely correlate (inversely) with the level of stored body fat. As the level of androgenic hormones drops, typically the deposition of body fat will increase[29]. Likewise as we enhance the androgen level, body fat may be depleted at a more active rate. The ratio of androgen to estrogen action is in fact most important, as estrogen plays a counter role by acting to increase the storage of body fat in many sites of action[30]. Likewise, if one wished to lose fat during steroid use, estrogen levels should be kept low. This is clearly evidenced by the fact that non-aromatizing steroids have always been favored by bodybuilders looking to increase the look of definition and muscularity while aromatizing compounds are typically relegated to bulking phases of training due to their tendency to increase body fat storage. Aromatization is discussed in more detail in a following section (see: Estrogen Aromatization).

As mentioned, testosterone also elicits androgenic activity, which occurs by its activating receptors in what are considered to be androgen responsive tissues (often through prior conversion to dihydrotestosterone. See: DHT Conversion). This includes the sebaceous glands, which are responsible for the secretion of oils in the skin. As the androgen level rises, so does the release of oils. As oil output increases, so does the chance for pores becoming clogged (we can see why acne is such a common side effect of steroid use). The production of body and facial hair is also linked to androgen receptor activation in skin and scalp tissues. This becomes most noticeable as boys mature into puberty, a period when testosterone levels rise rapidly, and androgen activity begins to stimulate the growth of hair on the body and face. Some time later in life, and with the contribution of a genetic predisposition, androgen activity in the scalp may also help to initiate male-pattern hair loss. It is a misconception that dihydrotestosterone is an isolated culprit in the promotion of hair loss, however; as in actuality it is the general activation of the androgen receptor that is to blame (see: DHT Conversion). The functioning of sex glands and libido are also tied to the activity of androgens, as are numerous other regions of the central nervous/neuromuscular system.

Direct and Indirect Anabolic Effects

Although testosterone has been isolated, synthesized, and actively experimented with for many decades now, there is still some debate today as to exactly how steroids affect muscle mass. At this point in time, the primary mode of anabolic action with all anabolic/androgenic steroids is understood to be direct activation of the cellular androgen receptor and increases in protein synthesis. As follows, if we are able to increase our androgen level from an external source by supplementing testosterone or a similar anabolic steroid, we can greatly enhance the rate in which protein is retained by the muscles. This is clearly the primary cause for muscle growth with all anabolic/androgenic steroids. As our hormone levels increase, so does androgen receptor activation, and ultimately the rate of protein synthesis.

But other indirect mechanisms could possibly affect muscle growth outside of the normally understood androgen action on protein synthesis. An indirect mechanism is one that is not brought about by activation of the androgen receptor, but the affect androgens might have on other hormones, or even the release of locally acting hormones or growth promoters inside cells (perhaps mediated by other membrane bound receptors). We must remember also that muscle mass disposition involves not only protein synthesis, but also other factors such as tissue nutrient transport and protein breakdown. We need to look at androgenic interaction with these factors as well to get a compete picture. Concerning the first possibility, we note that studies with testosterone suggest that this hormone does not increase tissue amino acid transport[31]. This fact probably explains the profound synergy bodybuilders have noted in recent years with insulin, a hormone that strongly increases transport of nutrients into muscle cells. But regarding protein breakdown, we do see a second important pathway in which androgens might affect muscle growth.

Anti-Glucocorticoid Effect of Testosterone

Testosterone (and synthetic anabolic/androgenic steroids) may help to increase mass and strength by having an anti-catabolic effect on muscle cells. Considered one of the most important indirect mechanisms of androgen action, these hormones are shown to affect the actions of another type of steroid hormone in the body, glucocorticoids (cortisol is the primary representative of this group)[32]. Glucocorticoid hormones actually have the exact opposite effect on the muscle cell than androgens, namely sending an order to release stored protein. This process is referred to as catabolism, and represents a breaking down of muscle tissue. Muscle growth is achieved when the anabolic effects of testosterone are more pronounced overall than the degenerative effects of cortisol. With intense training and a proper diet, the body will typically store more protein than it removes, but this underlying battle is always constant.

When administering anabolic steroids, however, a much higher androgen level can place glucocorticoids at a notable disadvantage. With their effect reduced, fewer cells will be given a message to release protein, and more will be accumulated in the long run. The primarily mechanism believed to bring this effect out is androgen displacement of glucocorticoids bound to the glucocorticoid receptor. In fact, in-vitro studies have supported this notion by demonstrating that testosterone has a very high affinity for this receptor[33], and further suggesting that some of its anabolic activity is directly mediated through this action[34]. It is also suggested that androgens may indirectly interfere with DNA binding to the glucocorticoid response element[35]. Although the exact underlying mechanism is still in debate, what is clear is that steroid administration inhibits protein breakdown, even in the fasted state, which seems clearly indicative of an anti-catabolic effect.

Testosterone and Creatine

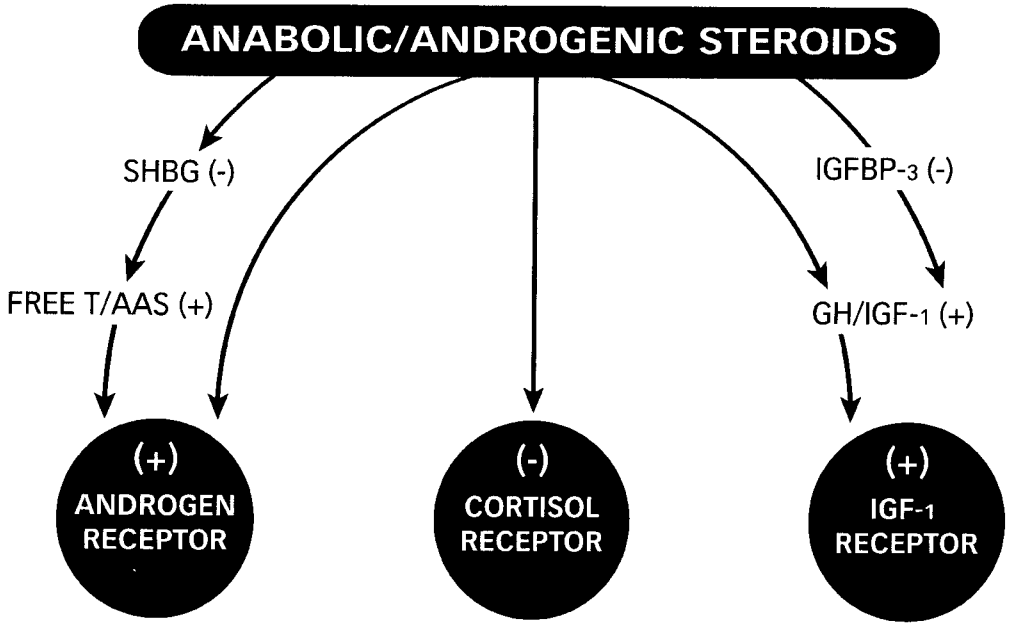
In addition to protein synthesis, a rise in androgen levels should also enhance the synthesis of creatine in skeletal muscle tissues[36]. Creatine, as creatine phosphate (CP), plays a crucial role in the manufacture of ATP (adenosine triphosphate), which is a main store of energy for the muscles. As the muscle cells are stimulated to contract, ATP molecules are broken down into ADP (adenosine diphosphate), which releases energy. The cells will then undergo a process using creatine phosphate to rapidly restore ADP to its original structure, in order to replenish ATP concentrations. During periods of intense activity, however, this process will not be fast enough to compensate and ATP levels will become lowered. This will cause the muscles to become fatigued and less able to effort a strenuous contraction. With increased levels of CP available to the cells, ATP is replenished at an enhanced rate and the muscle is both stronger and more enduring. This effect will account for some portion of the early strength increases seen during steroid therapy. Although perhaps not technically considered an anabolic effect as tissue hypertrophy is not a direct result, androgen support of creatine synthesis is certainly still looked at as a positive and growth-supporting result in the mind of the bodybuilder.

Testosterone and IGF-1

It has also been suggested that there is an indirect mechanism of testosterone action on muscle mass mediated by Insulin-Like Growth Factor. To be more specific, studies note a clear link between androgens and tissue release of[37], and responsiveness to, this anabolic hormone. For example, it has been demonstrated that increases in IGF-1 receptor concentrations in skeletal muscle are noted when elderly men are given replacement doses of testosterone[38]. In essence, the cells are becoming primed for the actions of IGF-1, by testosterone. Alternately we see marked decreases in IGF-1 receptor protein levels with androgen deficiency in young men. It also appears that androgens are necessary for the local production and function of IGF-1 in skeletal muscle cells, independent of circulating growth hormone, and IGF-1 levels[39]. Since we do know for certain that IGF-1 is at least a minor anabolic hormone in muscle tissue, it seems reasonable to conclude that this factor, at least at some level, is involved in the muscle growth noted with steroid therapy.

Direct and Indirect Steroids?

In looking over the proposed indirect effects of testosterone, and pondering the effectiveness of the synthetic anabolic/androgenic steroids, we must resist the temptation to believe we can categorize steroids as those which directly, and those which indirectly, promote muscle growth. The belief that there are two dichotomous groups or classes of steroids ignores the fact that all commercial steroids promote not only muscle growth but also androgenic effects. There is no complete separation of these traits at this time, making clear that all activate the cellular androgen receptor. I believe the theory behind direct and indirect steroid classifications originated when some noted the low receptor binding affinity of seemingly strong anabolic steroids like oxymetholone and methandrostenolone[40]. If they bind poorly, yet work well, something else must be at work. This type of thinking fails to recognize other factors in the potency of these compounds, such as their long half-lives, estrogenic activity, and weak interaction with restrictive binding proteins (see: Free vs. Bound Testosterone). While there may possibly be differences in the way various compounds could foster growth indirectly, such that advantages might even be found with certain synergistic drug combinations, the primary mode of action with all of these compounds is the androgen receptor. The notion that steroid X and Y must never be stacked together because they both compete for the same receptor when stimulating growth, while X and Z should be combined because they work via different mechanisms, should likewise not be taken too seriously. Such classifications are based on speculation only, and upon reasonable investigation are clearly invalid.



MECHANISM OF ACTION DIAGRAM: The mechanism of anabolic action due to the administration of anabolic/androgenic steroids. AAS causes not only direct stimulation of the androgen receptor, but also supports muscle growth by increasing the levels of free androgens, increasing androgen receptor density, inhibiting corticosteroid action, increasing GH/IGF-1, and suppressing IGF-1 binding proteins.

Free vs. Bound Testosterone

A very small amount of testosterone actually exists in a free state, where interaction with cellular receptors is possible. The majority will be bound to the proteins SHBG (sex hormone binding globulin, also referred to as sex steroid binding globulin and testosterone-estradiol binding globulin) and albumin, which temporarily prevent the hormone from exerting activity. Steroid hormones actually bind much more avidly to SHBG than albumin (with approximately 1,000 times greater affinity), however albumin is present in a level 1,000 times greater than SHBG. Therefore, the activity of both binding proteins in the body is relatively equal. The distribution of testosterone in men is typically 45% of testosterone bound to SHBG, and about 53% bound to albumin. The remaining 2% of the average blood concentration exists in a free, unbound state. In women, the percentage of free testosterone is lower, measured to be approximately 1%. A binding protein called ABP (androgen binding protein) also helps to mediate androgen activity in the reproductive system, although since it is found exclusively in these tissues, it is not relevant to muscle growth.

The level of free testosterone available in the blood is likewise an important factor mediating its activity, as only a small percentage is really active at any given time. It must also be noted that as we alter testosterone to form new anabolic/androgenic steroids, we also typically alter the affinity in which the steroid will bind to plasma proteins. This is an important consideration, as the higher percentage we have of free hormone, the more active the compound should be on a milligram for milligram basis. And the variance can be substantial between different compounds. For example, Proviron® (1-methyl dihydrotestosterone) binds with SHBG many times more avidly than testosterone[41], while mibolerone (7,17 dimethyl-nandrolone) and bolasterone (7,17 dimethyl-testosterone) show virtually no affinity for this protein at all (clearly the reason these steroids are such potent androgens).

The level of SHBG present in the body is also variable, and can be altered by a number of factors. The most prominent seems to be the concentration of estrogen and thyroid hormones present in the blood. We generally see a reduction in the amount of this plasma binding protein as estrogen and thyroid content decreases, and a rise in SHBG as they increase. A heightened androgen level due to the administration of anabolic/androgenic steroids has also been shown to lower levels of this protein considerably. This is clearly supported by a 1989 German study, which noted a strong tendency for SHBG reduction with the oral anabolic steroid stanozolol (Winstrol®)[42]. After only 3 days of administering a daily dose of .2mg/kg body-weight (about 18mg for a 200lb man), SHBG was lowered nearly 50% in normal subjects. Similar results have been obtained with the use of injectable testosterone enanthate; however, milligram for milligram, the effect of stanozolol was much greater in comparison. The form of administration may have been important in reaching this level of response. Although the injectable was not tried in the German study, we can refer to others comparing the effect of oral vs. transdermal estrogen[43]. These show a much greater response in SHBG levels when the drug is given orally. This is perhaps explained by the fact that SHBG is produced in the liver. Therefore, we cannot assume that injectable Winstrol® (or injectable steroids in general) will display the same level of potency in this regard.

Lowering the level of plasma binding proteins is also not the only mechanism that allows for an increased level of free testosterone. Steroids that display a high affinity for these proteins may also increase the level of free testosterone by competing with it for binding. Obviously if testosterone finds it more difficult to locate available plasma proteins in the presence of the additional compound, more will be left in an unbound state. A number of steroids including dihydrotestosterone, Proviron®, and Oral-Turinabol (chlorodehydromethyltestosterone) display a strong tendency for this effect. If the level of free-testosterone can be altered by the use of different anabolic/androgenic steroids, the possibility also exists that one steroid can increase the potency of another through these same mechanisms. For example, Proviron® is a poor anabolic, but its extremely high affinity for SHBG might make it useful by allowing the displacement of other steroids that are more active in these tissues.

We must not let this discussion lead us into thinking that binding proteins serve no valuable function. In fact they play a vital role in the transport and functioning of endogenous androgens. Binding proteins act to protect the steroid against rapid metabolism, ensure a more stable blood hormone concentration, and facilitate an even distribution of hormone to various body organs. The recent discovery of a specific receptor for Sex Hormone-Binding Globulin (SHBG-R) located on the membrane surface of steroid responsive body cells also suggests a much more complicated role for this protein than solely hormone transport. However, it remains clear that manipulating the tendency of a hormone to exist in an unbound state is an effective way to alter drug potency.

Estrogen Aromatization

Testosterone is the primary substrate used in the male body for the synthesis of estrogen (estradiol), the principal female sex hormone. Although the presence of estrogen may seem quite unusual in men, it is structurally very similar to testosterone. With a slight alteration by the enzyme aromatase, estrogen is produced in the male body. Aromatase activity occurs in various regions of the male body, including adipose[44], liver[45], gonadal[46], central nervous system[47], and skeletal muscle[48] tissues. In the context of the average healthy male, the amount of estrogen produced is generally not very significant to one's body disposition, and may even be beneficial in terms of cholesterol values (See Side Effects: Cardiovascular Disease). However, in larger amounts it does have potential to cause many unwanted effects including water retention, female breast tissue development (gynecomastia), and body fat accumulation. For these reasons, many focus on minimizing the build-up or activity of estrogen in the body with aromatase inhibitors such as Arimidex and Cytadren, or anti-estrogens such as Clomid or Nolvadex, particularly at times when gynecomastia is a worry or the athlete is attempting to increase muscle definition.

We must, however, not be led into thinking that estrogen serves no benefit. It is actually a desirable hormone in many regards. Athletes have known for years that estrogenic steroids are the best mass builders, but it is only recently that we are finally coming to understand the underlying mechanisms why. It appears that reasons go beyond the simple size, weight, and strength increases that one would attribute to estrogen-related water retention, with this hormone actually having a direct effect on the process of anabolism. This is manifest through increases in glucose utilization, growth hormone secretion, and androgen receptor proliferation.

Glucose Utilization and Estrogen

Estrogen may play a very important role in the promotion of an anabolic state by affecting glucose utilization in muscle tissue. This occurs via an altering of the level of available glucose 6-phosphate dehydrogenase, an enzyme directly tied to the use of glucose for muscle tissue growth and recuperation[49] [50]. More specifically, G6PD is a vital part of the pentose phosphate pathway, which is integral in determining the rate nucleic acids and lipids are to be synthesized in cells for tissue repair. During the period of regeneration after skeletal muscle damage, levels of G6PD are shown to rise dramatically, which is believed to represent a mechanism for the body to enhance recovery when needed. Surprisingly, we find that estrogen is directly tied to the level of G6PD that is to be made available to cells in this recovery window.

The link between estrogen and G6PD was established in a study demonstrating levels of this dehydrogenase enzyme to rise after administration of testosterone propionate. The investigation further showed that the aromatization of testosterone to estradiol was directly responsible for this increase, and not the androgenic action of this steroid[51]. The non-aromatizable steroids dihydrotestosterone and fluoxymesterone were tested alongside testosterone propionate, but failed to duplicate the effect of testosterone. Furthermore, the positive effect of testosterone propionate was blocked when the aromatase inhibitor 4-hydroxyandrostenedione (formestane) was added, while 17-beta estradiol administration alone caused a similar increase in G6PD to testosterone propionate. The inactive estrogen isomer 17-alpha estradiol, which is unable to bind the estrogen receptor, failed to do anything. Further tests using testosterone propionate and the anti-androgen flutamide showed that this drug also did nothing to block the positive action of testosterone, establishing it as an effect independent of the androgen receptor.

Estrogen and GH/IGF-1

Estrogen may also play an important role in the production of growth hormone and IGF-1. IGF-1 (insulin-like growth factor) is an anabolic hormone released in the liver and various peripheral tissues via the stimulus of growth hormone (See Drug Profiles: Growth Hormone). IGF-1 is responsible for the anabolic activity of growth hormone such as increased nitrogen retention/protein synthesis and cell hyperplasia (proliferation). One of the first studies to bring this issue to our attention looked at the effects of the anti-estrogen tamoxifen on IGF-1 levels, demonstrating it to have a suppressive effect[52]. A second, perhaps more noteworthy, study took place in 1993, which looked at the effects of testosterone replacement therapy on GH and IGF-1 levels alone, and compared them to the effects of testosterone combined again with tamoxifen[53]. When tamoxifen was given, GH and IGF-1 levels were notably suppressed, while both values were elevated with the administration of testosterone enanthate alone. Another study has shown 300mg of testosterone enanthate weekly to cause a slight IGF-1 increase in normal men. Here the 300mg of testosterone ester caused an elevation of estradiol levels,

which would be expected at such a dose. This was compared to the effect of the same dosage of nandrolone decanoate; however, this steroid failed to produce the same increase. This result is quite interesting, especially when we note that estrogen levels were actually lowered[54] when this steroid was given. Yet another demonstrated that GH and IGF-1 secretion is increased with testosterone administration on males with delayed puberty, while dihydrotestosterone (non-aromatizable) seems to suppress GH and IGF-1 secretion[55].

Estrogen and the Androgen Receptor

It has also been demonstrated that estrogen can increase the concentration of androgen receptors in certain tissues. This was shown in studies with rats, which looked at the effects of estrogen on cellular androgen receptors in animals that underwent orchiectomy (removal of testes, often done to diminish endogenous androgen production). According to the study, administration of estrogen resulted in a striking 480% increase in methyltrienolone (a potent oral androgen often used to reference receptor binding in studies) binding in the levator ani muscle[56]. The suggested explanation is that estrogen must either be directly stimulating androgen receptor production, or perhaps diminishing the rate of receptor breakdown. Although the growth of the levator ani muscle is commonly used as a reference for the anabolic activity of steroid compounds, it is admittedly a sex organ muscle, and different from skeletal muscle tissue in that it possesses a much higher concentration of androgen receptors. This study, however, did look at the effect of estrogen in fast-twitch skeletal muscle tissues (tibialis anterior and extensor digitorum longus) as well, but did not note the same increase as the levator ani. Although discouraging at first glance, the fact that estrogen can increase androgen receptor binding in any tissue remains an extremely significant finding, especially in light of the fact that we now know androgens to have some positive effects on muscle growth that are mediated outside of muscle tissue.

Estrogen and Fatigue

"Steroid Fatigue" is a common catchphrase these days, and refers to another important function of estrogen in both the male and female body, namely its ability to promote wakefulness and a mentally alert state. Given the common availability of potent third-generation aromatase inhibitors, bodybuilders today are (at times) noticing more extreme estrogen suppression than they had in the past. Often associated with this suppression is fatigue. Under such conditions, the athlete, though on a productive cycle of drugs, may not be able to maximize his or her gains due to an inability to train at full vigor. This effect is sometimes also dubbed "steroid lethargy". The reason is that estrogen plays an important supporting role in the activity of serotonin. Serotonin is one of the body's principle neurotransmitters, vital to mental alertness and the sleep/wake cycle[57 58]. Interference with this neurotransmitter is also associated with chronic fatigue syndrome[59 60], so we can see how vital it is to fatigue specifically. Estrogen suppression in menopause has also been associated with fatigue[61], as has the clinical use of newer (more potent) aromatase inhibitors like anastrozole[62], letrozole[63], exemestane[64], and fadrozole[65] in some patients. These things may be important to consider when planning your next cycle. Although not everyone notices this problem when estrogen is low, for those that do, a little testosterone or estrogen can go a long way in correcting this. It is also of note that the use of strictly non-aromatizable steroids sometimes causes this effect as well, likely due to the suppression of natural testosterone production (cutting off the main substrate used by the male body to make estrogen).

Anti-Estrogens and the Athlete

So what does this all mean to the bodybuilder looking to gain optimal size? Basically I think it calls for a cautious approach to the use of estrogen maintenance drugs if mass is the key objective (things change, of course, if we are talking about cutting). Obviously, anti-estrogens should be used if there is a clear need for them due to the onset of estrogenic side effects, or at the very least, the drugs being administered should be substituted for non-estrogenic compounds. Gynecomastia is certainly an unwanted problem for the steroid user, as are noticeable fat mass gains. But if these problems have not presented themselves, the added estrogen due to a cycle of testosterone or Dianabol, for example, might indeed be aiding in the buildup of muscle mass, or keeping you energetic. An individual confident they will notice, or are not prone to getting, estrogenic side effects, may therefore want to hold off using estrogen maintenance drugs so as to achieve the maximum possible gains in tissue mass.

DHT Conversion

As we see from our discussion with estrogen, in considering the physiological effects of any steroid, we must look at all of its active metabolites, and not just the initial compound. This includes not only estrogenic products, but androgenic metabolites as well. With this in mind, it is important to note that the potency of testosterone is considerably increased in many androgen responsive tissues when it converts to dihydrotestosterone. More commonly referred to by the three-letter abbreviation DHT, this hormone is, in fact, measured to be approximately three to four times stronger than testosterone. It is the most potent steroid found naturally in the human body, and important to discuss if we are to understand the full activity of testosterone, as well as other anabolic/androgenic steroids that undergo a similar conversion.

Testosterone is converted to dihydrotestosterone upon interaction with the 5-alpha reductase enzyme. More specifically, this enzyme removes the C4-5 double-bond of testosterone by the addition of two hydrogen atoms to its structure (hence the name di-hydro testosterone). The removal of this bond is important, as in this case it creates a steroid that binds to the androgen receptor much more avidly than its parent steroid. 5-alpha reductase is present in high amounts in tissues of the prostate, skin, scalp, liver, and various regions of the central nervous system, and as such represents a mechanism for the body to increase the potency of testosterone specifically where strong androgenic action is needed. In these areas of the body little testosterone will actually make its way to the receptor without being converted to dihydrotestosterone, making DHT by far the active form of androgen here.

DHT and Androgenic Side Effects

In some regards this local potentiation of testosterone's activity may be unwelcome, as higher androgenic activity in certain tissues may produce a number of undesirable side effects. Acne, for example, is often triggered by dihydrotestosterone activity in the sebaceous glands, and the local formation of dihydrotestosterone in the scalp is typically blamed for triggering male pattern hair loss. You should know that it is a terrible misconception among bodybuilders that dihydrotestosterone is an isolated culprit when it comes to these side effects. All anabolic/androgenic steroids exert their activities, both anabolic and androgenic, through the same cellular androgen receptor. Dihydrotestosterone is no different than any other steroid except that it is a more potent activator of this receptor than most, and can be formed locally in certain androgen-sensitive tissues. All steroids can cause androgenic side effects in direct relation to their affinity for this receptor, and DHT has no known unique ability in this regard.

Benefits of DHT

While a lot of attention is being paid to the negative side effects of the androgen dihydrotestosterone, you should know that there are some known benefits to the strong androgenic activity brought about by this hormone as well. For example, DHT plays an important role in the organization and functioning of the central nervous system. Many neural cells contain active androgen receptors, and it is thought that there may even be a specific importance of dihydrotestosterone in this area of the body. Studies have shown DHT to have a profoundly greater impact in these cells compared to testosterone. More specifically, animal models demonstrated that both testosterone and DHT would result in increased androgen receptor proliferation in neural cells three and seven hours after being administered, however only DHT was able to sustain this increase at the twenty-one hour mark[66]. Although some might contend that this difference is simply due to DHT forming a more stable and lasting complex with the androgen receptor, others suggest that DHT and testosterone might even be affecting neural cells differently, such that the dihydrotestosterone-receptor complex and testosterone-receptor complex might be activating the transcription of different target genes.

The strong interaction between the central nervous system and skeletal muscles, collectively referred to as the neuromuscular system, is of key importance to the athlete. There appears to be little doubt that the ability of the body to adapt to training, and to activate nerve endings in muscle tissue, is reliant on the interactions of the neuromuscular system. Inhibiting the formation of DHT during a testosterone cycle may therefore inadvertently interfere with strength and muscle mass gains. This would explain why bodybuilders commonly report a drop in steroid potency when they add the 5-alpha reductase inhibitor finasteride to a testosterone cycle. Many complain strength and even muscle mass gains slow significantly when this medication is added, which would not make sense if testosterone and androgen receptor activation in muscle tissue were solely responsible for growth. Clearly more is involved, and we cannot look at dihydrotestosterone simply as a side-effect hormone.

A Brief History of Anabolic/Androgenic Steroids

While it had been clear for many centuries that the testicles were crucial for the male body to properly develop, it was not until modern times that an understanding of testosterone began to form. The first solid scientific experiments in this area, which eventually led to the discovery and replication of testosterone (and related androgens), were undertaken in the 1800s. During this century a number of animal experiments were published, most of which involved the removal and/or implantation of testicular material from/in a subject. Although very crude in design by today's standards, these studies certainly laid the foundation for the modern field of endocrinology (the study of hormones). By the turn of the century, scientists were able to produce the first experimental androgen injections. These were actualized either through the filtering of large quantities of urine (for active hormones), or by extracting testosterone from animal testicles. Again, the methods were rough but the final results proved to be very enlightening.

Chemists finally synthesized the structure of testosterone in the mid 1930s, sparking a new wave of interest in this hormone. With the medical community paying a tremendous amount of attention to this achievement, the possible therapeutic uses for a readily available synthetic testosterone quickly became an extremely popular focus. Many believed the applications for this type of a medication would be extremely far-reaching, with uses ranging from the maintenance of an androgen deficiency, to that of a good health and well-being treatment for the sickly or elderly. During the infancy of such experimentation, many believed they had crossed paths with a true "fountain of youth".

Dihydrotestosterone and nandrolone, two other naturally occurring steroids, were also isolated and synthesized in the early years of steroid development. To make things even more interesting, scientists soon realized that the androgenic, estrogenic, and anabolic activity of steroid hormones could be adjusted by altering their molecular structure. The goal of many researchers thereafter became to manufacture a steroid with extremely strong anabolic activity, but will display little or no androgenic/estrogenic properties. This could be very beneficial, because side effects will often become pronounced when steroid hormones are administered in supraphysiological amounts. A "pure" anabolic would theoretically allow the patient to receive only the beneficial effects of androgens (lean muscle mass gain, increased energy and recuperation, etc.), regardless of the dosage. Some early success with the creation of new structures convinced many scientists that they were on the right track. Unfortunately none of this progress led researchers their ultimate goal. By the mid 1950s, well over one thousand testosterone, nandrolone, and dihydrotestosterone analogues had been produced, but none proved to be purely anabolic compounds.

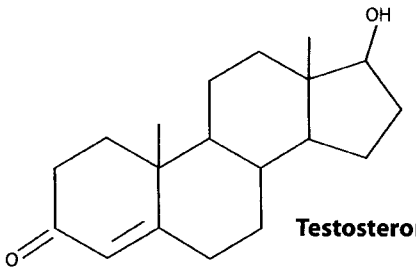
The failure to reach this goal was primarily due to an initial flawed understanding of testosterone's action. Scientists had noticed high levels of DHT in certain tissues, and believed this indicated an unusual receptor affinity for this hormone. This led to the belief that the human body had two different androgen receptors. According to this theory, one receptor site would respond only to testosterone (eliciting the beneficial anabolic effects), while the other is activated specifically by the metabolite, dihydrotestosterone. With this understanding, eliminating the conversion of testosterone to DHT was thought capable of solving the problem of androgenic side effects, as these receptors would have little or none of this hormone available for binding. More recently, however, scientists have come to understand that only one type of androgen receptor exists in the human body. It is also accepted that no anabolic/androgenic steroid can possibly be synthesized that would participate only with receptors in tissues related to anabolism. DHT, which was once thought not to bind to the same receptor as testosterone, is now known to do so at approximately three to four times the affinity of its parent, and the unusual recovery of DHT from androgen responsive tissues is now attributed to the distribution characteristics of the 5a-reductase enzyme.

Synthetic AAS Development

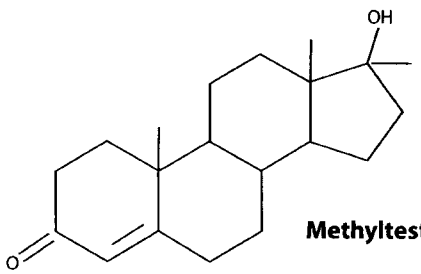
In order to develop products that would be effective therapeutically, chemists needed to solve a number of problems with using natural steroid hormones for treatment. For example, oral dosing was a problem, as our basic steroids testosterone, nandrolone, and dihydrotestosterone are ineffective when administered this way. The liver would efficiently break down their structure before reaching circulation, so some form of alteration was required in order for a tablet or capsule to be produced. Our natural steroid hormones also have very short half-lives in the body, so when administered by injection, an extremely frequent and uncomfortable dosing schedule is required if a steady blood level is to be achieved. Therefore, extending steroid activity was a major goal for many chemists during the early years of synthetic AAS development. Scientists also focused on the nagging problems of possible excess estrogenic buildup in the blood, particularly with testosterone, which can become very uncomfortable for patients undergoing therapy.

Methylated Compounds and Oral Dosing

Chemists realized that by replacing the hydrogen atom at the steroid's 17th alpha position with a carbon atom (a process referred to as *alkylation*), its structure would be notably resistant to breakdown by the liver. The carbon atom is typically added in the form of a methyl group (CH3), although we see oral steroids with an added ethyl (C2H5) grouping as well. A steroid with this alteration is commonly described as a C-17 alpha alkylated oral, although the terms methylated or ethylated oral steroid are also used. The alkyl group cannot be removed metabolically, and therefore inhibits reduction of the steroid to its inactive 17-ketosteroid form by occupying one of the necessary carbon bonds. Before long, pharmaceutical companies had utilized this advance (and others) to manufacture an array of effective oral steroids including methyltestosterone, Dianabol, Winstrol®, Anadrol 50®, Halotestin®, Nilevar, Orabolin, and Anavar. The principle drawback to these compounds is that they place a notable amount of stress on the liver, which in some instances can lead to actual damage to this organ.



Testosterone



Methyltestosterone

Because the alkyl group cannot be removed, it mediates the action of the steroid in the body. Methyltestosterone, for example, is not simply an oral equivalent of testosterone, as the added alkylation changes the activity of this steroid considerably. One major change we see is an increased tendency for the steroid to produce estrogenic side effects, despite the fact that it actually lowers the ability of the hormone to interact with aromatase[67]. Apparently with 17-alkylation present on a steroid, aromatization (when possible) produces a more active form of estrogen (typically 17alpha-methyl or 17alpha-ethyl estradiol). These estrogens are more biologically active than estradiol due to their longer half-life and weaker tendency to bind with serum proteins. In some instances, 17alpha-alkylation will also enhance the ability of the initial steroid compound to bind with and activate the estrogen or progesterone receptor[68]. An enhancement of estrogenic properties is also obvious when we look at methandrostenolone, which is an alkylated form of boldenone (Equipoise®), and Nilevar, which is an alkylated form of the mild anabolic nandrolone. Dianabol is clearly more estrogenic than Equipoise®, a drug not noted for producing strong side effects of this nature. The same holds true for the comparison of Nilevar to Deca-Durabolin, a compound that we also know to be extremely mild in this regard.

C17 alpha alkylation also typically lowers the affinity in which the steroid binds to the androgen receptor, as is noted with the weak relative binding affinity of such popular agents as Dianabol and Winstrol (stanozolol). However, since this alteration also greatly prolongs the half-life of a steroid, as well as increases the tendency for it to exist in an unbound state, it creates a more potent anabolic/androgenic agent in both cases. This explains why Dianabol and stanozolol are notably effective in relatively lower weekly doses (often 140mg weekly will produce notable growth) compared to injectables such as testosterone and nandrolone, which often need to reach doses of 300-400mg weekly for a similar level of effect.

Non-Alkylated Orals

In an attempt to solve the mentioned problems with liver toxicity we see with c17-alpha alkylated compounds, a number of other orals with different chemical alterations (such as Primobolan®, Proviron®, AndriolË, and Anabolicum Vister) were created. Primobolan® and Proviron® are alkylated at the one position (methyl), a trait which also slows ketosteroid reduction. Andriol® uses a 17beta carboxylic acid ester (used with injectable compounds, discussed below), however, here the oil-dissolved steroid is sealed in a capsule and is intended for oral administration. This is supposed to promote steroid absorption through intestinal lymphatic ducts, bypassing the first pass through the liver. In addition to 1 methylation, Primobolan® also utilizes a 17 beta ester (acetate) to further protect against reduction to inactive form (here there is no lymphatic system absorption). Anabolicum Vister uses 17beta enol ether linkage to protect the steroid, which is very similar to esterification as the ether breaks off to release a steroid base (boldenone in this case). While all of these types of compounds do not place the same stress on the liver, they are also much less resistant to breakdown than 17 alkylated orals, and are ultimately less active milligram for milligram.

Esters and Injectable Compounds

You may notice that many injectable steroids will list long chemical names like testosterone cypionate and testosterone enanthate, instead of just testosterone. In these cases, the cypionate and enanthate are esters (carboxylic acids) that have been attached to the 17-beta hydroxyl group of the testosterone molecule, which increase the active life span of the steroid preparation. Such alterations will reduce the steroid's level of water solubility, and increase its oil solubility. Once an esterified compound has been injected, it will form a deposit in the muscle tissue (depot) from which it will slowly enter circulation. Generally the larger the ester chain, the more oil soluble the steroid compound will be, and the longer it will take for the full dosage to be released. Once free in circulation, enzymes will quickly remove the ester chain and the parent hormone will be free to exert its activity (while the ester is present the steroid is inert).

There are a wide number of esters, which can provide varying release times, used in medicine today. To compare, an ester like decanoate can extend the release of active parent drug into the blood stream for three to four weeks, while it may only be extended for a few days with an acetate or propionate ester. The use of an ester allows for a much less frequent injection schedule than if using a water-based (straight) testosterone, which is much more comfortable for the patient. We must remember when calculating dosages, that the ester is figured into the steroid's measured weight. 100mg of testosterone enanthate, therefore, contains much less base hormone than 100mg of a straight testosterone suspension (in this case it equals 72mg of testosterone). In some instances, an ester may account for roughly 40% or more of the total steroid weight, but the typical measure is somewhere around 15% to 35%. Below are the free base equivalents for several popular steroid compounds.

100mg of steroid as:	Approximate Free Equivalent:
Trenbolone acetate	87mg
Testosterone propionate	83mg
Testosterone enanthate	72mg
Testosterone cypionate	70mg
Testosterone undecanoate	63mg
Nandrolone phenylpropionate	67mg
Nandrolone decanoate	64mg

It is also important to stress the fact that esters do not alter the activity of the parent steroid in any way. They work only to slow its release. It is quite common to hear people speak about the properties of different esters, almost as if they can magically alter a steroid's effectiveness. This is really nonsense. Enanthate is not more powerful than cypionate (perhaps a few extra milligrams of testosterone released per injection, but nothing to note), nor is Sustanon some type of incredible testosterone blend. Personally, I have always considered Sustanon a very poor buy in the face of cheaper 250mg enanthate ampules. Your muscle cells see only testosterone; ultimately there is no difference. Reports of varying levels of muscle gain, androgenic side effects, water retention, etc. are only issues of timing. Faster-releasing testosterone esters will produce estrogen buildup faster simply because there is more testosterone free in the blood from the start of the cycle. The same is true when we state that Durabolin® is a milder nandrolone for women compared to Deca. It is simply easier to control the blood level with a faster acting drug. Were virilization symptoms to become apparent, hormone levels will drop much faster once we stop administration. This should not be confused with the notion that the nandrolone in Durabolin® acts differently in the body than that released from a shot of Deca-Durabolin®.

It is also worth noting that while the ester is typically hydrolyzed in general circulation, some will be hydrolyzed at the injection site where the steroid depot first contacts blood. This will cause a slightly higher concentration of both free steroid and ester in the muscle where the drug had been administered. On the plus side, this may equate to slightly better growth in this muscle, as more hormone is made available to nearby cells. Many bodybuilders have come to swear by the use of injection sites such as the deltoids, biceps, and triceps, truly believing better growth can be achieved if the steroid is injected directly into these muscles. The negative to this is that the ester itself may be irritating to the tissues at the site of injection once it is broken free. In some instances it can be so caustic that the muscle itself will become swollen and sore due to the presence of the ester, and the user may even suffer a low-grade fever as the body fights off the irritant (the onset of such symptoms typically occurs 24-72 hours after injection). This effect is more common with small chain esters such as propionate and acetate, and can actually make a popular steroid such as Sustanon (which contains testosterone propionate) off-limits for some users who experience too much discomfort to justify using the drug. Longer chain esters such as decanoate and cypionate are typically much less irritating at the site of injection, and therefore are preferred by sensitive individuals.

Anabolic/Androgenic Dissociation

Although never complete, scientists had some success in their quest to separate the androgenic and anabolic properties of testosterone. A number of synthetic anabolic steroids had been developed as a result, with many being notably weaker and stronger than our base androgen. In order to first assess the anabolic and androgenic potential of each newly developed steroid, scientists had generally used rats as a model. To judge androgenic potency the typical procedure involved the post-administration measure (% growth) of the seminal vesicles and ventral prostate. These two tissues will often respond unequally to a given steroid, however, so an average of the two figures is used. Anabolic activity was most commonly determined by measuring the growth of the levator ani, a sex organ (not skeletal) muscle. This tissue may not be the most ideal one to use though, as it contains more androgen receptor than most skeletal muscles (the AR is still less abundant here than in target tissues such as the ventral prostate)[69 70]. In integrating both measures, the anabolic index is used, which relates the ratio of anabolic to androgenic response for a given steroid. An anabolic index greater than one indicates a higher tendency for anabolic effect, and therefore classifies the drug as an anabolic steroid. A measure lower than one in turn assesses the steroid as androgenic. There is some variance between experimental results and the actual real world experiences with humans, but (with a few exceptions) designations based on the anabolic index are generally accepted. Below are discussed a few factors that greatly affect anabolic/androgenic dissociation.

Nandrolone and 19-norandrogens

The section of this book dealing with DHT conversion is important, because it helps us understand the anabolic steroid nandrolone and many of its derivatives. Nandrolone is identical to testosterone except it lacks a carbon atom in the 19th position, hence its other given name 19-nortestosterone. Nandrolone is very interesting because it offers the greatest ratio of anabolic to androgenic effect of the three natural steroids (see: Synthetic AAS Chemistry). This is because it is metabolized into a less potent structure (dihydronandrolone) in androgen target tissues with high concentrations of the 5-alpha reductase enzyme, which is the exact opposite of what happens with testosterone. Apparently the removal of the c4-5 double bond, which normally increases the androgen receptor binding capability of testosterone, causes an unusual lowering of this ability with nandrolone. Instead of becoming three to four times more potent, it becomes several times weaker. This is a very desirable trait if you want to target anabolic effects over androgenic. This characteristic also carries over to most synthetic steroids derived from nandrolone, making this an attractive base steroid to use in the synthesis of new, primarily anabolic, steroids.

5-alpha Irreducible Steroids

When we look at the other mild anabolic steroids Primobolan®, Winstrol®, and Anavar, none of which are derived from nandrolone, we see another interesting commonality. These steroids are DHT derivatives that are unaffected by 5alpha-reductase, and therefore become neither weaker nor stronger in androgen responsive target tissues with high concentrations of this enzyme. In essence, they have a very balanced effect between muscle and androgen tissues, making them outwardly less androgenic than testosterone. This is why these steroids are technically classified as anabolics, and are undeniably less troublesome than many other steroids in terms of promoting androgenic side effects. However, if we wanted to look for the absolute least androgenic steroid, the title would still go to nandrolone (or perhaps one of its derivatives). Female bodybuilders should likewise take note that despite the recommendations of others, steroids like Anavar, Winstrol and Primo are not the least risky steroids to use. This is of great importance, as male sex hormones can produce many undesirable and permanent side effects when incorrectly taken by females (See: Side Effects, Virilization).

3-alpha Hydroxysteroid Dehydrogenase

The 3-alpha hydroxysteroid dehydrogenase enzyme is also important, because it can work to reduce the anabolic potency of certain steroids considerably. As follows, not all potent binders of the androgen receptor are, as a rule, great muscle-building drugs, and this enzyme is an important factor. Dihydrotestosterone is a clear example. Just as the body converts testosterone to DHT as a way to potentiate its action in certain tissues (skin, scalp, prostate, etc.), it also has ways of countering the strong activity of DHT, in other tissues where it is unneeded. This is accomplished by the rapid reduction of DHT to its inactive active metabolites, namely androstanediol, before it reaches the androgen receptor. This activity occurs via interaction with the 3-alpha hydroxysteroid dehydrogenase enzyme. This enzyme is present in high concentrations in certain tissues, including skeletal muscle, and DHT is much more open to alteration by it than other steroids that possess a c4-5 double-bond (like testosterone)[71]. This causes dihydrotestosterone to be an extremely poor anabolic, despite the fact that it actually exhibits a much higher affinity for the cellular androgen receptor than most other steroids. Were it able to reach the cellular androgen receptor without first being metabolized by 3a-HSD, it certainly would be a formidable muscle-building steroid. Unfortunately this is not the case, explaining why injectable dihydrotestosterone preparations (no longer commercially produced) were never favorite drugs among athletes looking to build mass. This trait is also shared by the currently popular oral androgen Proviron®, which is, in essence, just an oral form of DHT (1-methyl dihydrotestosterone to be specific) and known to be an extremely poor tissue builder.

Anabolics and Potency

One must remember that being classified as an anabolic just means that the steroid is more inclined to produce muscle growth than androgenic side effects. Since both effects are mediated through the same receptor, and growth is not produced by androgen receptor activation in muscle tissue alone (other CNS tissues, for example, are integral to this process as well), we find that a reduction in the androgenic activity of a compound will often coincide with a similar lowering of its muscle-building effectiveness. If we are just looking at overall muscle growth, androgenic steroids (usually potent due to their displaying a high affinity to bind with the androgen receptor in all tissues) are typically much more productive muscle-builders than anabolics, which usually bind with lower affinity in many tissues. In fact, with all of the analogues produced throughout the years, the base androgen testosterone is still considered to be one of the most effective bulking agents. The user must simply endure more side effects when acquiring his or her new muscle with this type of drug. Individuals wishing to avoid the stronger steroids will, therefore, make a trade-off, accepting less overall muscle gain in order to run a more comfortable cycle.

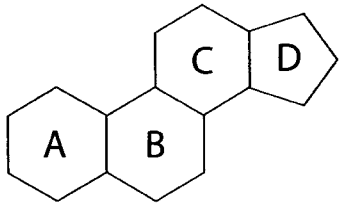
RBA Assay:

Another way of evaluating the potential ratio of anabolic to androgenic activity is the practice of comparing the relative binding affinity (RBA) of various steroids for the androgen receptor in rat skeletal muscle versus prostate. When we look at the detailed study published in 1984, we see some recognizable (and expected) trends. Aside from dihydrotestosterone and Proviron® (mesterolone), which undergo rapid enzymatic reduction in muscle tissue to inactive metabolites, the remaining anabolic/androgenic steroids seem to bind with near equal affinity to receptors in both tissues. They seem to be relatively "balanced" in effect. This study also discusses the unique activity of testosterone and nandrolone compounds, which are good substrates for the 5a-reductase enzyme found in androgen target tissues (such as the prostate), and seem to provide the most notable variance between anabolic and androgenic effect in humans due to this local metabolism. When it comes to real-world use in humans, anabolic steroids do not always behave in 100% uniformity with their anabolic and androgenic profiles as determined by animal models, so all such figures need to be taken with a small grain of salt.

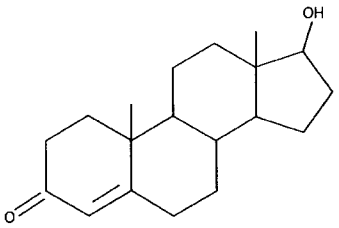
Compound	Human SHBG	Rabbit Muscle	Rat Muscle	Rat Prostate	Ratio M vs. P
methyltrienolone	<.01	1	1	1	1
dihydrotestosterone	1	.07	<.01	.46	.03
mesterolone	4.4	.21	.08	.25	.32
testosterone	.19	.07	.23	.15	1.53
nandrolone	.01	.20	.24	.60	.4
methyltestosterone	.05	.1	.11	.13	.85
methenolone	.03	.09	.24	.14	1.67
stanozolol	.01	.03	.02	.03	.6
methandrostenolone	.02	.02	.02	.03	.75
fluoxymesterone	<.01	.02	.01	.02	.77
oxymetholone	<.01	<.01	<.01	<.01	1.54
ethylestrenol	<.01	.01	<.01	<.01	2

RBA of various anabolic/androgenic steroids as competitors for human SHBG binding of DHT, and for receptor binding of methyltrienolone in cytosol from rabbit, rat skeletal muscle and prostate. Source: Endocrinology 114(6):2100-06 1984 June, "Relative Binding Affinity of Anabolic-Androgenic Steroids...", Saartok T; Dahlberg E; Gustafsson JA.

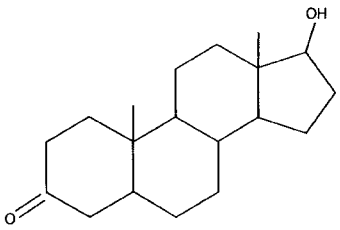
Synthetic AAS Chemistry



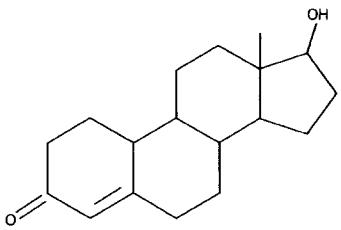
Steran Nucleus
(All natural and synthetic AAS hormones share this base structure)



Testosterone



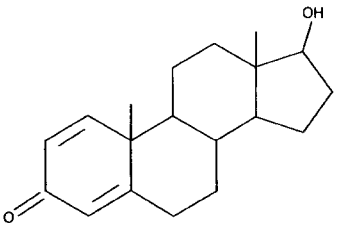
Dihydrotestosterone



Nandrolone

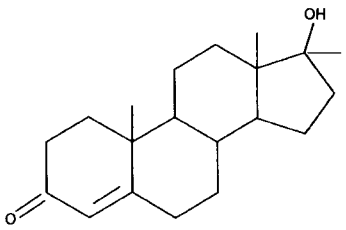
All anabolic/androgenic steroids are preparations containing one of the above three natural steroid hormones, or chemically altered derivatives thereof. In creating new synthetic compounds, one of the three natural hormones is selected as a starting point, typically due to the possession of particular traits that may be beneficial for the new compound. For instance, of the three natural steroids above, dihydrotestosterone is the only steroid devoid of the possibility of aromatization and 5-alpha reduction. It was likewise a very popular choice in the creation of synthetics that lack estrogenic activity and/or exhibit a more balanced androgenic to anabolic activity ratio. Nandrolone was typically used when even lower androgenic action is desired, due to its weakening upon interaction with the 5-alpha reductase enzyme. Nandrolone also aromatizes much more slowly than testosterone. Testosterone is our most powerful muscle-building hormone, and also exhibits strong androgenic activity due to its conversion to a more potent steroid (dihydrotestosterone) via 5-alpha reductase.

Testosterone derivatives



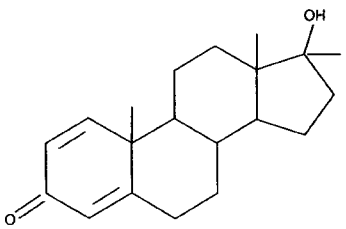
Boldenone (+c1-2 double bond)

Boldenone is testosterone with an added double-bond between carbon atoms one and two. However, this bond changes the activity of the steroid considerably. First, it dramatically slows aromatization, such that boldenone converts to estradiol at about half the rate of testosterone. Secondly, this bond causes the steroid to be a very poor substrate for the 5-alpha reductase enzyme. The more active 5-alpha reduced metabolite 5alpha-dihydroboldenone is produced only in very small amounts in humans. The hormone instead tends to convert via 5-beta reductase to 5beta-dihydroboldenone (a virtually inactive androgen). This makes it lean towards being an anabolic instead of an androgen, although both traits are still notably apparent with this steroid. The c1-2 double bond also slows the hepatic breakdown of the structure, increasing its resistance to 17-ketosteroid deactivation and its functional half-life and oral bioavailability.



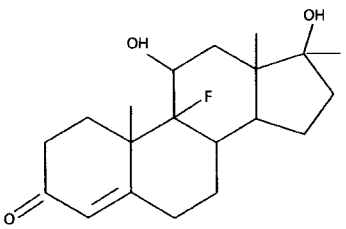
Methyltestosterone
(+ 17alpha methyl)

This is the most basic derivative of testosterone, differing only by the added 17-alpha methylation that makes the steroid orally active. Conversion to 17-alpha methylestradiol makes this steroid extremely estrogenic, despite the fact that this alteration actually reduces interaction with the aromatase enzyme.



Methandrostenolone
(+c 1-2 double bond;
17-alpha methyl)

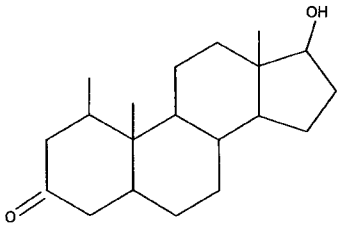
In many regards, methandrostenolone is very similar to boldenone, as it too exhibits reduced estrogenic and androgenic activity due to the c1-2 double-bond. However, this steroid does have a reputation of being somewhat estrogenic, owing to the fact that it converts to a highly active form of estrogen (17alpha-methylestradiol See: Methylated Compounds and Oral Dosing). Methandrostenolone is also much more active milligram for milligram, as the 17-alpha methyl group also gives it a longer half-life and allows it to exist in a more free state than its cousin boldenone.



Fluoxymesterone
(+11-beta hydroxyl; 9-fluoro;
17-alpha methyl)

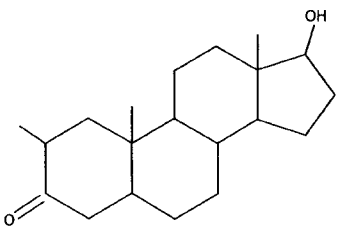
Halotestin is a c-17alpha alkylated oral derivative of testosterone. The 11-beta group functions to inhibit aromatization, so there is no estrogen conversion at all with this steroid. It also works to lower the affinity of this steroid toward restrictive serum binding proteins. I have no specific explanation for the function of the 9-fluoro group at this time, however, I can say that it neither blocks aromatization nor 5-alpha reduction. This is supported by the fact that other 9-fluoro steroids have been shown to aromatize, as well as studies showing fluoxymesterone to be an active substrate for the 5-alpha reductase enzyme.

Dihydrotestosterone derivatives



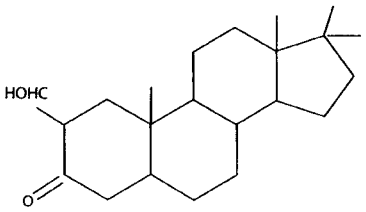
Mesterolone (+ 1-methyl)

Mesterolone is a potent orally active derivative of dihydrotestosterone. Similar to methenolone, it possesses a non-toxic 1-methyl group, which increases its resistance to hepatic breakdown. This alteration does not increase the stability of the 3-keto group however, and as such, this steroid is a poor anabolic like its parent.



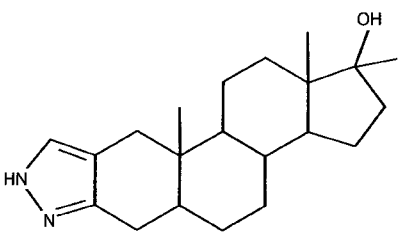
Drostanolone (+ 2-methyl)

Drostanolone is simply dihydrotestosterone with an added 2-methyl group. This addition greatly increases the stability of the 3-keto group, vital to androgen binding. As such, the activity of this steroid in muscle tissue is greatly enhanced (see: Anabolic/Androgenic Dissociation).



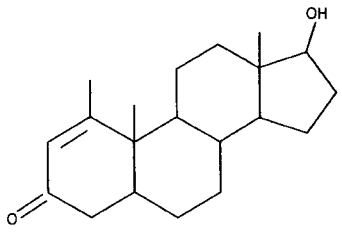
Oxymetholone
(+2 hydroxymethylene; 17alpha-methyl)

Oxymetholone is an orally active derivative of dihydrotestosterone. The 17-methyl group is well understood at this point as we have discussed it with many steroids, however, the 2-hydroxymethylene group is not seen on any other commercial steroid. We do know that this group greatly enhances anabolic potency by increasing the stability of the 3-keto group, and that the configuration of this substituent also appears to allow this steroid to bind and activate the estrogen receptor.



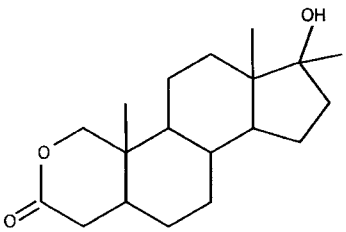
Stanozolol
(+ 3,2 pyrazol; 17-alpha methyl)

Stanozolol is a potent anabolic steroid, owing to the fact that the 3-2 pyrazol group creates a stable configuration off the A-ring that allows for androgen receptor binding (this steroid is one of the few that does not possess an actual 3-keto group). As such, it is highly active in muscle tissue, unlike dihydrotestosterone.



Methenolone
(+ 1-methyl; 1-2 double bond)

Methenolone also is a potent anabolic steroid, due to the fact that the c1-2 double bond increases the stability of the 3-keto group. The 1-methyl group works to increase its oral bioavailability, making methenolone (as methenolone acetate) one of the few orally active non-17-alkylated orals. The c 1-2 bond may also help increase hepatic resistance (slightly) to 17-ketosteroid deactivation as well.



Oxandrolone
(2-oxygen substitution;
17-alpha methyl)

Oxandrolone is an orally active derivative of dihydrotestosterone, due to its 17-methylation. It also differs from DHT by the substitution of its 2-carbon molecule with oxygen. This is the only commercial steroid to carry this group, and further, the only to have a modification to the base carbon structure of the Steran nucleus. The 2-oxo group increases resistance of the 3-keto group to metabolism considerably, making oxandrolone a potent anabolic.

Steroid Nomenclature

Perhaps not obvious at first glance, there is a naming convention in place that was used to create identities for the various anabolic/androgenic steroid hormones. This typically involves forming a root word to convey the structural base of the steroid, and signifying other unique structural characteristics by including appropriate prefixes or suffixes. Below, we will look at the common roots, prefixes, and suffixes used in steroid nomenclature, and identify them, as they are used in the various commercial compound names. As you will see, the adoption of names like nandrolone, methandrostenolone, and ethylestrenol were not as arbitrary as one might imagine. This section is also helpful if you wish to understand the deeper chemical designations for the various substances that one might find in the medical literature, which involve the exclusive use of this terminology (such as is the representation of methandrostenolone as 17b-hydroxy-17a-methylandrosta-1, 4-dien-3-one).

Common prefixes and suffixes used in steroid naming:

Structural Property	Prefix	Suffix
Carbonyl (C=O)	oxo-; keto-	-one
Hydroxyl	hydroxy-	-ol
Double Bnd (C=C)		-ene; -en
Methyl	meth-; methyl-	
Ethyl	eth-; ethyl-	

Common roots used in steroid naming:

Androstane	Base carbon structure of dihydrotestosterone (no double-bond)
Androstene	Base carbon structure of or similar to testosterone (one double-bond)
Androstadiene	Base carbon structure similar to methandrostenolone (two double-bonds; di-ene)
Estren; Estra *also: Norandrostene*	Base structure of nandrolone (19-norandrostene) and estrogen

Common Commercial Compound Names:

Name	Taken From	Incorporated Into Name As
Boldenone	[17b-ol, androstadiene, 3-one]	BOL DEN ONE
Ethylestrenol	[17a ethyl, estren, 17b-ol]	ETHYL ESTREN OL
Fluoxymesterone	[9-fluoro, 11b-hydroxyl, 17a-methyl, testosterone, 3-one]	FLU OXY ME STER ONE
Mesterolone	[1-methyl, dihydrotestosterone, 17b-ol, 3-one]	ME STER OL ONE
Methandienone	[17a-methyl, androstadiene, 3-one]	METH ANDIEN ONE
Methandrostenolone	[17a-methyl, androstadiene, 17b-ol, 3-one]	METH ANDROSTEN OL ONE
Methenolone	[1-methyl, c1-2 double bond (en), 17b-ol, 3-one]	METH EN OL ONE
Nandrolone	[norandrostene, 17b-ol, 3-one]	NANDR OL ONE
Norethandrolone	[19-nor, 17a-ethyl, (nor)androstene, 17b-ol, 3-one]	NOR ETH ANDR OL ONE
Oxandrolone	[2-oxy, androstane, 17b-ol, 2-one]	OX ANDR OL ONE
Oxymetholone	[2-hydroxymethylene, 17a-Methyl, 17b-ol, 3-one]	OXY METH OL ONE
Stanozolol	[Stanolone (androstanolone, DHT), 2-pyrazol, 17b-ol]	STANO ZOL OL
Trenbolone	[tri-en, 17b-ol, 3-one]	TREN BOL ONE

Steroid Side Effects

The action of testosterone can be both beneficial and detrimental to the body. On the plus side, this hormone has a direct impact on the growth of muscle tissues, the production of red blood cells, and overall well-being of the organism. But it may also negatively effect (among other things) the production of skin oils, growth of body, facial and scalp hair, and the level of both "good" and "bad" cholesterol in the body. In fact, men have a shorter average life span than women, which is believed to be largely due to the cardiovascular defects that this hormone may help bring about. Testosterone will also naturally convert to estrogen in the male body, a hormone with its own unique set of effects. As we have discussed earlier, raising the level of estrogen in men can increase the tendency to notice water retention, fat accumulation, and the development of female tissues in the breast (gynecomastia). Clearly we see that most of the "bad" side effects from steroids are simply those actions of testosterone that we are not looking for when taking a steroid. Raising the level of testosterone in the body will simply enhance both its good and bad properties, but for the most part we are not having "toxic" reactions to these drugs. A notable exception to this is the possibility of liver damage, which is a worry isolated to the use of c17-alpha alkylated oral steroids. Unless the athlete is taking anabolic/androgenic steroids abusively for a very long duration, side effects rarely amount to little more than a nuisance.

One could make a case that periodic steroid use might even be a healthy practice. Clearly a person's physical shape can relate closely to one's overall health and well-being. Provided some common sense is paid to health checkups, drug choice, dosage, and off-time, how can we say for certain that the user is worse off for doing so? This position is, of course, very difficult to publicly justify with steroid use being so deeply stigmatized. Since this can be a very lengthy discussion, I will save the full health, moral, and legal arguments for another time. For now I would like to run down the list of popularly discussed side effects, and include any current treatment/avoidance advice where possible.

Acne

Rampant acne is one of the more obvious indicators of steroid use. As you know, teenage boys generally endure periods of irritating acne as their testosterone levels begin to peak, but this generally subsides with age. But when taking anabolic/androgenic steroids, an adult will commonly be confronted with this same problem. This is because the sebaceous glands, which secrete oils in the skin, are stimulated by androgens. Increasing the level of such hormones in the skin may therefore enhance the output of oils, often causing acne to develop on the back, shoulders, and face. The use of strongly androgenic steroids in particular can be very troublesome, in some instances resulting in very unsightly blemishes all over the skin. To treat acne, the athlete has a number of options. The most obvious is to be very diligent with washing and topical treatments, so as to remove much of the dirt and oil before the pores become clogged. If this proves insufficient, the prescription acne drug Accutane® might be a good option. This is a very effective medication that acts on the sebaceous glands, reducing the level of oil secreted. The athlete could also take the ancillary drug Proscar®/Propecia® (finasteride) during steroid treatment, which reduces the conversion of testosterone into DHT, lowering the tendency for androgenic side effects with this hormone. It is of note however that this drug is more effective at warding off hair loss than acne, as it more specifically effects DHT conversion in the prostate and hair follicles. It is also important to note that testosterone is the only steroid that really converts to dihydrotestosterone, and only a few others actually convert to more potent steroids via the 5a-reductase enzyme at all. Many steroids are also potent androgens in their own right, such as Anadrol 50® and Dianabol. As such, they can exert strong androgenic activity in target tissues without 5a-reduction to a more potent compound, which makes Propecia® useless. One can also simply opt to take lower doses of primarily "anabolic" compounds, which impart comparable less androgenic activity. For sensitive individuals attempting to build mass, nandrolone would, therefore, be a much better option than testosterone.

Aggression

Aggressive behavior can be one of the scarier sides to steroid use. Men are typically more aggressive than women because of testosterone, and likewise the use of steroids (especially androgens) can increase a person's aggressive tendencies. In some instances this can be a benefit, helping the athlete hit the weights more intensely or perform better in a competition. Many professional powerlifters and bodybuilders take a particular liking to this effect. But on the other hand, there is nothing more unsettling than a grown man, bloated with muscle mass, who cannot control his temper. A steroid user who displays an uncontrollable rage is clearly a danger to himself and others. If an athlete is finding himself getting agitated at

minor things during a steroid cycle, he should certainly find a means to keep this from getting out of hand. Remembering to take a couple of deep breaths at such times can be very helpful. If such attempts prove to be ineffective, the offending steroids should be discontinued. The bottom line is that if you lack the maturity and self-control to keep your anger in check, you should not be using steroids.

Anaphylactic Shock

Anaphylactic shock is an allergic reaction to the presence of a foreign protein in the body. It most commonly occurs when an individual has an allergy to things like a specific medication (e.g., penicillin), insect bites, industrial/household chemicals, foods (commonly nuts, shellfish, fruits), and food additives/preservatives (particularly sulfur). With this sometimes-fatal disorder the smooth muscles are stimulated to contract, which may restrict a person's breathing. Symptoms include wheezing, swelling, rash or hives, fever, a notable drop in blood pressure, dizziness, unconsciousness, convulsions, or death. This reaction is not really seen with hormonal products like anabolic/androgenic steroids, but this may change with the rampant manufacture of counterfeit pharmaceuticals. Being that there are no quality controls for black market producers, toxins might indeed find their way into some preparations (particularly injectable compounds). My only advice would be to make every attempt to use only legitimately produced drug products, preferably of First World origin. When anaphylactic shock occurs, it is most commonly treated with an injection of epinephrine. Individuals very sensitive to certain insect bites are familiar with this procedure, many of whom keep an allergy kit (for the self administration of epinephrine) close at hand.

Birth Defects

Anabolic/androgenic steroids can have a very pronounced impact on the development of an unborn fetus. Adrenal Genital Syndrome in particular is a very disturbing occurrence, in which a female fetus can develop male-like reproductive organs. Women who are, or plan to become pregnant soon, should never consider the use of anabolic steroids. It would also be the best advice to stay away from these drugs completely for a number of months prior to attempting the conception of a child, so as to ensure the mother has normal hormonal chemistry. Although anabolic/androgenic steroids can reduce sperm count and male fertility, they are not linked to birth defects when taken by someone fathering a child.

Blood Clotting Changes

The use of anabolic/androgenic steroids is shown to increase prothrombin time, or the duration it will take for a blood clot to form. This basically means that while an individual is taking steroids, he/she may notice that it takes slightly longer than usual for a small cut or nosebleed to stop seeping blood. During the course of a normal day this is hardly cause for alarm, but it can lead to more serious trouble if a severe accident occurred, or an unexpected surgery was needed. Realistically, the changes in clotting time are not extremely dramatic, so athletes are usually only concerned with this side effect if planning for a surgery. The clotting changes brought about by anabolic steroids are amplified with the use of medications like Aspirin, Tylenol, and especially anticoagulants, so your doctor should be informed of their use (steroids) if undergoing any notable treatment with these types of drugs.

Cancer

Although it is a popular belief that steroids can give you cancer, this is actually a very rare phenomenon. Since anabolic/androgenic steroids are synthetic versions of a natural hormone that your body can metabolize quite easily, they usually place a very low level of stress on the organs. In fact, many steroidal compounds are safe to administer to individuals with a diagnosed liver condition, with little adverse effect. The only real exception to this is with the use of c17 alpha alkylated compounds, which due to their chemical alteration are somewhat liver toxic. In a small number of cases (primarily with Anadrol 50®), this toxicity has lead to severe liver damage and subsequently cancer. But we are speaking of a statistically small number in the face of millions of athletes who use steroids. These cases also tended to be very ill patients, not athletes, who were using extremely large dosages for prolonged periods of time. Steroid opponents will sometimes point out the additional possibility of developing Wilm's Tumor from steroid abuse, which is a very serious form of kidney cancer. Such cases are so rare, however, that no direct link between anabolic/androgenic steroid use and this disease has been conclusively established. Provided the athlete is not abusing methylated oral substances, and is visiting a doctor during heavier cycles, cancer (at least specifically associated with steroid use) probably does not need to be a serious concern.

Cardiovascular Disease

As mentioned earlier, the use of anabolic/androgenic steroids may have an impact on the level of LDL (low density lipoprotein), HDL (high density lipoprotein), and total cholesterol values. As you probably know, HDL is considered the "good" cholesterol, since it can act to remove cholesterol deposits from the arteries. LDL has the opposite effect, aiding in the buildup of cholesterol on the artery walls. The general pattern seen with steroid use is a lowering of HDL concentrations, while total and LDL cholesterol numbers increase. The ratio of HDL to LDL values is usually more important than one's total cholesterol count, as these two substances seem to balance each other in the body. If these unfavorable changes in ratio are exacerbated by the long-term use of steroidal compounds, it can logically be detrimental to the cardiovascular system. This may be additionally heightened by a rise in blood pressure, which is common with the use of strongly aromatizable compounds.

It is also important to note that due to their structure and form of administration, most 17alpha alkylated oral steroids have a much stronger negative impact on these levels compared to injectable steroids. Using a milder drug like Winstrol® (stanozolol), in hopes HDL level changes will also be mild, may therefore not turn out to be the best option. One study comparing the effect of a weekly injection of 200mg testosterone enanthate vs. only a 6mg daily oral dose of Winstrol® demonstrates this well[72]. After only six weeks, stanozolol was shown to reduce HDL and HDL-2 (good) cholesterol by an average of 33% and 71% respectively. The HDL reduction (HDL-3 subfraction) with the testosterone group was only an average of 9%. LDL (bad) cholesterol also rose 29% with stanozolol, while it actually dropped 16% with the use of testosterone. Those concerned with cholesterol changes during steroid use may likewise wish to avoid oral steroids, and opt for the use of injectable compounds exclusively.

We must also note that estrogens generally have a favorable impact on cholesterol profiles. For example, estrogen replacement therapy in postmenopausal women is regularly linked to a rise in HDL cholesterol and a reduction in LDL values. Likewise the aromatization of testosterone to estradiol may be beneficial in preventing a more dramatic change in serum cholesterol due to the presence of the hormone. A recent study investigated just this question by comparing the effects of testosterone alone (280 mg testosterone enanthate weekly), vs. the same dose combined with an aromatase inhibitor (250mg testolactone 4 times daily)[73]. Methyltestosterone was also tested in a third group, at a dose of 20mg daily. The results were quite enlightening. The group using only testosterone enanthate showed no significant decrease in HDL cholesterol values over the course of the 12-week study. After only four weeks, the group using testosterone plus an aromatase inhibitor displayed a reduction on average of 25%. The methyltestosterone group noted an HDL reduction of 35% by this point, and also noted an unfavorable rise in LDL cholesterol. This clearly should make us think a little more closely about estrogen maintenance during steroid therapy. Aside from deciding whether or not it is actually necessary in any given circumstance, drug choice may also be an important consideration. For example, the estrogen receptor antagonist Nolvadex® does not seem to exhibit anti-estrogenic effects on cholesterol values, and in fact often raises HDL levels. Using this to combat the side effects of estrogen instead of an aromatase inhibitor such as Arimidex® or Cytadren® may therefore be a good idea, particularly for those who are using steroids for longer periods of time.

Since heart disease is one of the top killers worldwide, steroid-using athletes (particularly older individuals) should not ignore these risks. If nothing else, it is a very good idea to have your blood pressure and cholesterol values measured during each cycle, making sure to discontinue the drugs if a problem becomes evident. It is also advisable to limit the intake of foods high in saturated fats and cholesterol while on cycle, which should help minimize (a small bit anyway, as diet is not an effective way of controlling this side effect) the impact of steroid treatment. Since blood pressure and cholesterol levels will usually revert back to their pre-treated norms soon after steroids are withdrawn, long-term damage is not a common worry with short-term use.

Depression

Obviously steroid use will have an impact on hormone levels in the body, which in turn may result in a change in one's general disposition or mood. On the one hand, we might see very aggressive behavior. But for some people there is also, at times, the other extreme side, depression. This can occur in individuals who are psychologically sensitive to an imbalance in androgen and estrogen levels. This is most common with male bodybuilders, at times when anabolic/androgenic steroids are discontinued. Given a deeply suppressed endogenous testosterone level, it may take time for one's normal hormonal balance to return. During this period, estrogen levels may be more stable than testosterone, as our bodies can produce it from adrenal hormones. The result may be a protracted window of time in which estrogen seems to be the more dominant sex hormone. For some, this window can be filled with feelings of emotional sensitivity, sadness, and lack of motivation (symptoms of depression).

Depression may also occur during the course of a steroid cycle, particularly with the sole use of anabolics. Although these compounds are mild in comparison to androgens, many can still suppress the endogenous production of testosterone. If the testosterone level drops significantly during treatment, the administered anabolics may not provide enough of an androgen level to compensate, and a marked loss of motivation and sense of well-being may result. The best advice when looking to avoid cycle or post-cycle depression is to closely monitor drug intake and withdrawal. The use of a small weekly testosterone dose might prove very effective if added to a mild dieting/anabolic cycle, warding off feelings of boredom and apathy to training. Of course a strong steroid cycle should always be discontinued with the proper use of ancillary drugs (Nolvadex®, Arimidex®, HCG, Clomid®, etc.). Although tapering schedules are very common, they are not an effective way to restore endogenous testosterone levels.

Gynecomastia

Gynecomastia is the medical term for the development of female breast tissues in the male body. This occurs when the male is presented with an unusually high level of estrogen, particularly with the use of strong aromatizing androgens such as testosterone and Dianabol. The excess estrogen can act upon receptors in the breast and stimulate the growth of mammary tissues. If left unchecked, this can lead to an actual obvious and unsightly tissue growth under the nipple area, in many cases taking on a very feminine appearance. To fight this side effect during steroid therapy, many find it necessary to use some form of estrogen maintenance medication. This includes an estrogen antagonist such as Clomid® or Nolvadex®, which blocks estrogen from attaching to and activating receptors in the breast and other tissues, or an aromatase inhibitor such as Femara® or Arimidex®, which blocks the enzyme responsible for the conversion of androgens to estrogens. Aromatase inhibitors like this are currently the most effective options, but also the most costly.

It is worth noting, however, that many believe a slightly elevated estrogen level may help the athlete achieve a more pronounced muscle mass gain during a cycle (see: Estrogen Aromatization). With this in mind many athletes decide to use anti-estrogens only when it is necessary to block gynecomastia. It is of course still a good idea to always keep an anti-estrogen on-hand when administering an aromatizable steroid, so that it is readily accessible should trouble become evident. Puffiness or swelling under the nipple is one of the first signs of pending gynecomastia, often accompanied by pain or soreness in this region (an effect termed gynecodynea). This is a clear indicator that some type of anti-estrogen is needed. If the swelling progresses into small, marble-like lumps, action absolutely must be taken immediately to treat it. Otherwise, if the steroids are continued at this point without ancillary drug use, the user will likely be stuck with unsightly tissue growth that can only be removed with a surgical procedure.

It is also important to mention that progestins seem to augment the stimulatory effect of estrogens on mammary tissue growth. There appears to be a strong synergy between these two hormones here, such that gynecomastia might even be able to occur with the help of progestins, without excessive estrogen levels being necessary. Since many anabolic steroids, particularly those derived from nandrolone, are known to have progestational activity, we must not be lulled into a false sense of security. Even a low estrogen producer like Deca can potentially cause gyno in certain cases, again fostering the need to keep anti-estrogens close at hand if you are very sensitive to this side effect.

Hair Loss

The use of highly androgenic steroids can negatively impact the growth of scalp hair. In fact, the most common form of male pattern hair loss is directly linked to the level of androgens in such tissues, most specifically the stronger DHT metabolite of testosterone. The technical term for this type of hair loss is androgenetic alopecia, which refers to the interplay of both the male androgenic hormones and a genetic predisposition in bringing about this condition. Those who suffer from this disorder are shown to posses finer hair follicles and higher levels of DHT in comparison to a normal, hairy scalp. But since there is a genetic factor involved, many individuals will not ever see signs of this side-effect, even with heavy steroid use. Clearly those individuals who are suffering from (or have a familial predisposition for) this type of hair loss should be very cautious when using the stronger drugs like testosterone, Anadrol 50®, Halotestin®, and Dianabol.

In many instances, the renewal of lost hair can be very difficult, so avoiding this side-effect before it occurs is the best advice. For those who need to worry, the decision should probably be made to either stick with milder substances (Deca-Durabolin® most favored), or use the ancillary drug Propecia®/Proscar® (finasteride) when taking testosterone, methyltestosterone, or Halotestin. Propecia® is a very effective hair loss medication, which inhibits the 5-alpha reductase enzyme specifically in the hair follicles and prostate. However, it offers us little benefit with drugs that are highly

androgenic without 5alpha reduction, the most notable offenders being Anadrol 50® and Dianabol. We must also remember that all anabolic/androgenic steroids activate the androgen receptor, and can, likewise, all promote hair loss given the right dosage and conditions.

Headaches

Athletes sometimes report an increased frequency of headaches when using anabolic/androgenic steroids. This seems to be most common during heavier bulking cycles, when an individual is utilizing strongly estrogenic compounds. One should not simply take an aspirin and ignore this problem, as it may indicate a more troubling side effect of steroid use, high blood pressure. Since high blood pressure invites a number of unwanted health risks, monitoring it on a regular schedule is important during heavy steroid use, especially if the individual is experiencing headaches. Some athletes choose to lower their blood pressure in such cases with a prescription medication like Catapres, but most find this an appropriate time to discontinue steroid use. Milder anabolics, which generally display little or no ability to convert to estrogen, are also more acceptable options for individuals sensitive to blood pressure increases. Less seriously, many headaches are due to simple strain on the neck and scalp muscles. The athlete may be lifting with much more intensity during a steroid cycle, and as a result may place added strain on these muscles. In this case, a short break from training, and some general rest, will often take care of the problem. Of course if anyone is experiencing a very serious or persistent headache, a visit to the doctor may be in order.

High Blood Pressure/Hypertension

Athletes using anabolic/androgenic steroids will commonly notice a rise in blood pressure during treatment. High blood pressure is most often associated with the use of steroids that have a high affinity for estrogen conversion, such as testosterone and Dianabol. As estrogen builds in the body, the level of water and salt retention will typically elevate and lead to increased blood pressure. This may be further amplified by the added stress of intense weight training and rapid weight gain. Since hypertension (high blood pressure) can place a great deal of stress on the body, this side effect should not be ignored. If it is left untreated, high blood pressure can increase the likelihood for heart disease, stroke, or kidney failure. Warning signs that one may be suffering from hypertension include an increased tendency to develop headaches, insomnia, or breathing difficulties. In many instances these symptoms do not become evident until BP is seriously elevated, so a lack of these signs is no guarantee that the user is safe. Obtaining your blood pressure reading is a very quick and easy procedure (either at a doctor's office, pharmacy, or home); steroid-using athletes should certainly be monitoring BP values during stronger cycles so as to avoid potential problems.

If an individual's blood pressure values are becoming notably elevated, some action should/must be taken to control it. The most obvious is to avoid the continued use of the offending steroids, or at least to substitute them with milder, non-aromatizing compounds. It is also of note that although aromatizing steroids are typically involved, non-aromatizing androgens like Halotestin® or trenbolone are occasionally also linked to high blood pressure, so these are perhaps not the ideal alternatives in such a situation. The athlete also has the option of seeking the benefit of high blood pressure medications such as diuretics, which can dramatically lower water and salt retention. Catapres (clonidine HCL) is also a popular medication among athletes, because in addition to its blood pressure lowering properties, it has also been documented to raise the body's output of growth hormone.

Immune System Changes

The use of anabolic/androgenic steroids has been shown to produce changes in the body that may impact an individual's immune system. These changes can be both good and bad for the user. For instance, during steroid treatment, many athletes find they are less susceptible to viral illnesses. New studies involving the use of compounds like oxandrolone and Deca-Durabolin® with HIV+ patients seem to support this claim, clearly showing that these drugs can have a beneficial effect on the immune system. Such therapies are, in fact, catching on in recent years, and many doctors are now less reluctant to prescribe these drugs to their ill patients. But just as a person may be less apt to notice illness during steroid treatment, the discontinuance of steroids can produce a rebound effect in which the immune system is less able to fight off pathogens. This most likely coincides with the rebound activity/production of cortisol, a catabolic hormone in the body, which may act to suppress immune system functioning. When the administered steroids are withdrawn, an androgen deficient state is often endured until the body is able to rebalance hormone production. Since testosterone and cortisol seem to counter each other's activity in many ways, the absence of a normal androgen level may place cortisol in an

unusually active state. During this period of imbalance, cortisol will not only be stripping the body of muscle mass, but may also cause the athlete to be more susceptible to colds, flu, etc. The proper use of ancillary drugs (anti-estrogens, testosterone stimulating drugs) is the most common suggestion for helping to avoid this problem, which will hopefully allow the user to restore a proper balance of hormones once the steroids are removed.

We also cannot ignore the other possibility that steroids could actually increase cortisol levels in the body during treatment. Termed hypercortisolemia, this effect is a common occurrence with anabolic/androgenic steroid therapy. This is because anabolic/androgenic steroids may interfere with the ability for the body to clear corticosteroids from circulation, due to the fact that in their respective pathways of metabolism these hormones share certain enzymes. When overloaded with androgens competing for the same enzymes, cortisol may be broken down at a slower rate, and levels of this hormone will in turn begin to build. Due to their strong tendency to inhibit the activity of the 3beta hydroxysteroid dehydrogenase enzyme, oral c17 alpha alkylated orals may be particularly troublesome in regards to elevated cortisol levels, as again this is a common pathway for corticosteroid metabolism. Though an elevated cortisol level is not a common concern during typical steroid cycles, problems can certainly become evident when these drugs are used at very high doses or for prolonged periods of time. This, of course, may lead to the athlete becoming "run-down" and more susceptible to illness, as well as foster a more over-trained and static (less anabolic) state of metabolism.

Kidney Stress/Damage

Since your kidneys are involved in the filtration and removal of byproducts from the body, the administration of steroidal compounds (which are largely excreted in the urine) may cause them some strain. Actual kidney damage is most likely to occur when the steroid user is suffering from severe high blood pressure, as this state can place an undue amount of stress on these organs. There is actually evidence to suggest that steroid use can be linked to the onset of Wilm's Tumor in adults, which is a rapidly growing kidney tumor normally seen in children and infants. However, such cases are so rare that no conclusive link has been established. Obviously the kidneys are vital to one's heath, so the possibility of any kind of damage (although low) should not be ignored during heavy steroid treatment. If the user is noticing a darkening of color (in some cases a distinguishable amount of blood), or pain/difficulty when urinating, kidney strain might be a legitimate concern. Other warning signs include pain in the lower back (particularly in the kidney areas), fever, and edema (swelling). If organ damage is feared, the administered steroidal compounds should be discontinued immediately, and the doctor paid a visit to rule out any serious trouble.

Since kidney stress/damage is generally associated with the use of stronger aromatizing compounds such as testosterone and Dianabol (which often raise blood pressure), individuals sensitive to high blood pressure/kidney stress should avoid such compounds until health concerns are safely addressed. If steroid use is still necessitated by the individual, it may be a good idea to avoid the stronger compounds and opt for one of the milder anabolics. Primobolan®, Anavar, and Winstrol®, for example, do not convert to estrogen at all, and may be acceptable options. Also favorable drugs in this regard are Deca-Durabolin® and Equipoise®, which have only a low tendency to convert to estrogen.

Liver Stress/Damage

Liver stress/damage is not a side-effect of steroid use in general, but is specifically associated with the use of c17 alpha alkylated compounds. As mentioned earlier, these structures contain chemical alterations that enable them to be administered orally. In surviving a first pass by the liver, these compounds place some level of stress on the organ. In some instances, this has led to severe damage, even fatal liver cancer. The disease peliosis hepatitis is one worry, which is an often life-threatening condition in which the liver develops blood-filled cysts. Liver cancer (hepatic carcinoma) has also been noted in certain cases. While these very serious complications have occurred on certain occasions where liver-toxic compounds were prescribed for extended periods, it is important to stress that this is not very common with steroid-using athletes. Most of the documented cases of liver cancer have in fact been in clinical situations, particularly with the use of the powerful oral androgen Anadrol 50® (oxymetholone). This may be directly related to the high dosage of this preparation, as Anadrol 50® contains a whopping 50mg of active steroid per tablet. This is a considerable jump from other oral preparations, most of which contain 5mg or less of a substance. With one Anadrol 50® tablet, the liver will therefore have to process (roughly) the equivalent of 10 Dianabol tablets. This obvious stress is further amplified when we look at the unusually high dosage schedule for ill patients receiving this medication. With Anadrol 50®, the manufacturer's recommendations may call for the use of as many as 8 or 10 tablets daily. This is a far greater amount than most athletes would ever think of consuming, with three or four tablets per day being considered the upper limit of safety. It is also

important to note that the actual number of cases involving liver damage have been few, and have not been a significant enough of a problem to warrant discontinuing this compound. Methyltestosterone, the first steroid shown to cause liver trouble, is also still available as a prescription drug in this country. The average recreational steroid user who takes toxic orals at moderate dosages for relatively short periods is therefore unlikely to face devastating liver damage.

Although severe liver damage may occur before the onset of noticeable symptoms, it is common to notice jaundice during the early stages of such injury. Jaundice is characterized by the buildup of bilirubin in the body, which in this case will usually result from the obstruction of bile ducts in the liver. The individual will typically notice a yellowing of the skin and eye whites as this colored substance builds in the body tissues, a clear sign to terminate the use of any c17 alpha alkylated steroids. In most instances, the immediate withdrawal of these compounds is sufficient to reverse and prevent any further damage. Of course, the athlete should avoid using orals for an extended period of time, if not indefinitely, should jaundice occur repeatedly during treatment. It is also a good idea to visit your physician during oral treatment in order to monitor liver enzyme values. Since liver stress will be reflected in your enzyme counts well before jaundice is noticed, this can remove much of the worry with oral steroid treatment.

Prostate Enlargement

Prostate cancer is currently one of the most common forms of cancer in males. Benign prostate enlargement (a swelling of prostate tissues often interfering with urine flow) can precede/coincide this cancer, and is clearly an important medical concern for men who are aging. Prostate complications are believed to be primarily dependent on androgenic hormones; particularly the strong testosterone metabolite DHT in normal situations, much in the same way estrogen is linked to breast cancer in women. Although the connection between prostate enlargement/cancer and steroid use is not fully established, the use of steroids may theoretically aggravate such conditions by raising the level of androgens in the body. It is, therefore, a good idea for older athletes to limit/avoid the intake of strong 5-alpha reducible androgens like testosterone, methyltestosterone, and Halotestin, or otherwise use Proscar® (finasteride), which was specifically designed to inhibit the 5-alpha reductase enzyme in scalp and prostate tissues. This may be an effective preventative measure for older athletes who insist on using these compounds. Drugs like Dianabol, Anadrol 50®, and Proviron, however, which do not convert to DHT yet are still potent androgens, are not effected by its use. It is also important to mention that not only androgens, but also estrogens, are believed necessary for the advancement of this condition. It appears that the two work synergistically to stimulate prostatic tissue growth, such that one without the other would not be enough to cause it. It has, therefore, been suggested that a non-aromatizable compound like DHT may be a safer option for older men looking for androgen replacement therapy than testosterone. MENT is also being looked at as an androgen replacement option for the same reason. Anti-estrogens might even turn out to be more effective at treating BPH than a drug like finasteride, which is used to lower androgenic activity in the prostate. Estrogen suppression is easier to accomplish in males, and should be accompanied with less side effects. It would also be very sound advice, regardless of steroid use, for individuals over 40 to have a physician check the prostate on a regular basis, and never consider self-administering steroids if prostate health is compromised.

Sexual Dysfunction

The functioning of the male reproductive system depends greatly on the level of androgenic hormones in the body. Therefore, the use of synthetic male hormones may have a dramatic impact on an individual's sexual wellness. On one extreme, we may see a man's libido and erection frequency become significantly heightened. This is most commonly seen with the use of strongly androgenic steroids, which seem to have the most dramatic stimulating impact on this system. In some instances, this can reach the point of becoming problematic, although more often than not, the athlete is simply much more active and sexually aggressive during the intake of steroids.

On the other extreme, we may also see a lack of sexual interest, possibly to the point of impotency. This occurs mainly when androgenic hormones are very low. This will often happen after a steroid cycle is discontinued, as the endogenous production of testosterone is commonly suppressed during the cycle. Removing the androgen (from an outside source) leaves the body with little natural testosterone until this imbalance is corrected. The loss of its metabolite DHT is particularly troubling, as this hormone may have a strong effect on the reproductive system that may not be apparent with other less androgenic hormones. Therefore, it is a very good idea to use testosterone-stimulating drugs like HCG and/or Clomid®/Nolvadex® when coming off of a strong cycle, so as to reduce the impact of steroid withdrawal. Impotency/sexual apathy may also occur during the course of a steroid cycle, particularly when it is based strictly on anabolic compounds.

Since all "anabolics" can suppress the manufacture of testosterone in the body, the administered drugs may not be androgenic enough to properly compensate for the testosterone loss. In such a case, the user might opt to include a small androgen dosage (perhaps a weekly testosterone injection), or again reverse/prevent the androgen suppression with the use of a medication like HCG.

It is also interesting to note that it is not always simply an androgen vs. anabolic issue. People will often respond very differently to an equal dose of the same drug. While one individual may notice sexual disinterest or impotency, another may become extremely aggressive. It is, therefore, difficult to predict how someone will react to a particular drug before having used it.

Stunted Growth

Many anabolic/androgenic steroids have the potential to impact an individual's stature if taken during adolescence. Specifically, steroids can stunt growth by stimulating the epiphyseal plates in a person's long bones to prematurely fuse. Once these plates are fused, future linear growth is not possible. Even if the individual avoids steroid use subsequently, the damage is irreversible and he/she can be stuck at the same height forever. Not even the use of growth hormone can reverse this, as this powerful hormone can only thicken bones when used during adulthood. Interestingly enough, it is not the steroids themselves, but the buildup of estrogen that causes the epiphyseal plates to fuse. Women are shorter than men on average because of this effect of estrogen, and likewise the use of steroids that readily convert to estrogen can prematurely suppress/halt a person's growth. In fact, the use of steroids like Anavar, Winstrol®, and Primobolan® (which do not convert to estrogen) can actually increase one's height if taken during adolescence, as their anabolic effects will promote the retention of calcium in the bones. This would also hold true for non-aromatizing androgens such as trenbolone, Proviron®, and Halotestin®. It is still good common sense to advise adolescents to avoid steroid use, at least until their bodies are fully mature and steroid use will have a less dramatic impact.

Testicular Atrophy

The human body always prefers to remain in a very balanced hormonal state, a tendency known as homeostasis. When the administration of androgens from an outside source causes a surplus of hormone, it will cause the body to stop manufacturing its own testosterone. Specifically, this happens via a feedback mechanism where the hypothalamus detects a high level of sex steroids (including androgens, progestins, and estrogens) and shuts off the release of GnRH (Gonadotropin Releasing Hormone, formerly referred to as luteinizing hormone releasing hormone). This, in turn, causes the pituitary to stop releasing luteinizing hormone and FSH (follicle stimulating hormone), the two hormones (primarily LH) that stimulate the Leydig's cells in the testes to release testosterone (negative feedback inhibition has been demonstrated at the pituitary level as well). Without stimulation by LH and FSH, the testes will be in a state of production limbo, and may shrink from inactivity. In extreme cases the steroid user can notice testicles that are unusually and frighteningly small. However, this effect is temporary, and once the drugs are removed (and hormone levels rebalanced) the testicles should return to their original size. Many regular steroid users find this side effect quite troubling, and use HCG during a steroid cycle in order to try to maintain testicular activity (and size) during treatment. The more estrogenic androgens (testosterone, Anadrol 50®, and Dianabol) are most dramatic in this regard, and are not the best choices for individuals who seriously want to avoid testicle shrinkage. Non-aromatizing anabolics would be a better option, however, be warned that all steroids will suppress the production of testosterone if taken at an anabolicly effective dosage (yes, even Anavar and Primobolan®).

Water and Salt Retention

Many anabolic/androgenic steroids can increase the amount of water and sodium stored in body tissues. In some instances, steroid-induced water retention can bring about a very bloated appearance to the body (hands, arms, face, etc.), which will also reduce the visibility of muscle features (loss of definition). Athletes often ignore this side effect, particularly during bulking cycles when the excess water stored in the muscles, joints, and connective tissues will help to improve an individual's overall strength. With the use of many strong androgens, water retention can account for much of the initial strength and body weight gain during steroid treatment, with "water-weight" sometimes amounting to ten or more pounds.

Assessing Steroid Safety: Studies with Real-World Dosages

If you so much as mention anabolic steroids to the average person, you usually get some cross looks in response. State that you are actually considering a cycle, and you are likely to be lectured about the tremendous heath risks you are about to undertake; how your hair might fall out and testicles disappear, or your body eaten away by cancer. Or maybe you will just lose you mind to uncontrolled fits of psychotic rage, or suffer a life-threatening heart attack. You'll probably hear something like, "Is all that really worth it. .. to build a little more muscle?" Clearly, the American public has been given a very strong message about steroids: stay far away from them, they are DEADLY! You can't convince too many people that smoking a joint will *REALLY* cause a 16-year-old kid to pull out his dad's gun and shoot his friend in the face, but, for some reason, the "over the top" anti-drug message with steroids seems to have worked. Most people are terrified of them.

Those actually taking anabolic steroids usually see things very differently. They believe the dangers are terribly exaggerated in the media. In fact, these athletes will routinely point out that the medical literature for the past 50 years fails to make much note of any serious consequences of steroid use, with most clinical studies looking quite favorably on these drugs. Steroid opponents, on the other hand, will still make sure you know that bodybuilders take much larger doses of steroids than those used in medical situations, and, therefore, are in much greater danger than the patients using them. Who is right? Is that occasional cycle really a serious health risk? In this section I would like to touch on this debate by looking closely at three medical studies that were published recently. They concern not small clinical doses, but a level of steroid usage that any recreational bodybuilder would recognize as sufficient for building muscle. Many markers of safety are assessed in these papers, giving us a fairly good indication of what dangers, realistically, are presented.

600mg/wk of Testosterone

The first is a testosterone dose-response study published in the American Journal of Physiology Endocrinology and Metabolism in July of 2001, which looked at the effects of various doses of testosterone enanthate on body composition, muscle size, strength, power, sexual and cognitive functions, and various markers of health[74]. 61 normal men, ages 18-35, participated in this investigation. They were divided into five groups, with each receiving weekly injections of 25, 50, 125, 300, or 600 milligrams for a period of 20 weeks. This treatment period was preceded by a control (no drug) period of 4 weeks, and followed by a recovery period of 16 weeks. Markers of strength and lean body mass gains were the greatest with larger doses of testosterone, with the 600mg group gaining slightly over 17 pounds of fat-free mass on average over the 20 weeks of steroid therapy. There were no significant changes in prostate-specific antigen (PSA), liver enzymes (liver stress), sexual activity, or cognitive functioning at any dose. The only negative trait noted was a slight HDL (good) cholesterol reduction in all groups except those taking 25mg. The worst reduction of 9 points was noted in the 600mg group, which still averaged 34 points after 20 weeks of treatment. All groups, except this one, remained in the normal reference range for males (40-59 points).

600mg/wk of Nandrolone

Next we look at a study conducted with HIV+ men, which charted the lean-mass-building effects of nandrolone decanoate[75]. 30 people participated in this investigation, with each given the same (high) weekly dose of this drug. Half underwent resistance training so that two groups (trained and untrained) were formed. The dosing schedule was quite formidable, beginning with 200mg on the first week, 400mg on the second, and 600mg for the remaining 10 weeks of peak therapy. Doses were slowly reduced from weeks 13 to 16 to withdraw patients slowly from the drug. Potential negative metabolic changes were looked at closely, including cholesterol and lipid levels (including subfractions of HDL and LDL), triglycerides, insulin sensitivity, and fasting glucose levels. Even with the high dosages used here, no negative changes were noted in total or LDL cholesterol, triglycerides, or insulin sensitivity. In fact, the group also undergoing resistance exercise noticed significant improvements in LDL particle size distribution, lipoprotein(a) levels, and triglyceride values, which all indicate improved cardiovascular disease risk. Carbohydrate metabolism was also significantly improved in this group. The only negative impact noted during this study was a reduction in HDL (good) cholesterol values similar to that noted with the testosterone study, with an 8-10 point reduction noted between both groups.

100mg/day of Anadrol

Lastly, we find a study looking at the potent oral steroid oxymetholone (Anadrol)[76]. This steroid is thought to be one of the most dangerous ones around by bodybuilders, who as a group seem to treat it with both a lot of respect and caution. It is not common to find them exceeding the doses and intake durations of this investigation, making it a very good representation of real-world Anadrol usage. This study involves 31 elderly men, between the ages of 65 and 80. The men were divided into three groups, with each taking 50mg, 100mg, or placebo daily for a 12-week period. Changes in lean body mass and strength were measured, as well as common markers of safety including total, LDL and HDL cholesterol levels, serum triglycerides, PSA (prostate-specific antigen), and liver enzymes. Muscle mass and strength gains were again relative to the dosage taken, with the end results being similar to those noted with 20 weeks of testosterone enanthate therapy at 125mg or 300mg per week (about 6.4 and 12 lb of lean body mass gained for the 50mg and 100mg doses respectively). There were no significant changes in PSA, total or LDL cholesterol values, or fasting triglycerides; however, there was a significant reduction in HDL cholesterol values (reduced 19 and 23 points for the 50mg and 100mg groups respectively). Liver enzymes (transaminases AST and ALT) increased only in the 100mg group, but the changes were not dramatic, and were not accompanied by hepatic enlargement or the development of any serious liver condition.

Adding It All Up

One hundred and twenty one men participated in these three studies, which involved the use of moderate to high doses of steroids for periods of three to five months. It may be shocking to most of the staunch opponents of steroid use, but all of the men participating were still alive at the conclusion of their respective investigations. An unbiased assessment of the metabolic changes and health risks does not seem to reveal any short-term significant dangers. The main negative impact of steroid use in all three cases was a reduction in good (HDL) cholesterol values, which is a legitimate concern when it comes to assessing one's risk for developing cardiovascular disease. It is uncertain, however, if a short-lived increase in this particular risk factor will relate to any tangible damage to one's health. It is also unknown how much (if any) this may be offset by the other positive metabolic changes that were seen to accompany combined steroid use and exercise.

Logic would seem to suggest that the *periodic* use of steroids, under parameters similar to these studies, should entail relatively minimal risks to health overall. At the very least, it is extremely difficult to argue that an isolated cycle with a moderate drug dose is tantamount to playing Russian roulette with your body, as most media campaigns against the use of these drugs would seem to suggest. But make no mistake, at the same time it does make clear that even with moderate use, steroids can have negative effects that would (logically) be detrimental if carried into long-term use. There is little doubt that decades of steroid use has contributed to many deaths by cardiovascular disease, but will never be linked to these deaths officially (just like "Fast Food" won't be listed as the cause of a death). The bottom line here is sane respect for these drugs. They can be used safely and responsibly, and are most certainly not as dangerous as the media usually portrays them to be. But they can also be misused and abused as well.



PRACTICAL APPLICATION

Steroid Cycles

With the wide variety of anabolic/androgenic steroids available, planning the most appropriate cycle may seem like a difficult task to the steroid novice. Even if we have settled on a particular drug or drug combination, it is still easy to question whether or not we are using them in the most effective manner. This is one of those topics which can get more confusing with research, as you will find the popular literature filled with various stacking, cycling, tapering, and receptor response (upregulation/downregulation) theories. If you have purchased this book in the hopes it will provide you some new and unusual ways to take anabolic/androgenic steroids, you will probably be disappointed. I have actually developed the opinion that athletes usually place too much importance on cycle construction. Experimenting with fancy dosing patterns, rotation schedules, and (especially) tapering routines, hoping they will bring about enhanced results, is, in my opinion, a very unreliable practice. Therefore, in this section I will be ignoring the more lavish intake regimens, and focus on the more fundamental aspects to using these drugs. This is obvious when you look at the sample cycles included, which you will notice display little fluctuation in drug dosages from start to finish. They are not fashioned as such due to laziness, but simply because my personal experience has led me to a place where picking a dosage and sticking with it (unless there is an obvious need to adjust) seems to make the most sense. It is ultimately up to the individual to find out what works best for him or her, as nobody can rightly claim that there is one "correct" way for everyone to use steroids. Here are a few things to think about when deciding on the right cycle for your needs.

Stacking

It is an extremely common practice for an athlete to take more than one individual steroid during a cycle. By taking a combination of steroids, the user is of course seeking to enhance the amount/quality of muscle mass gained from drug therapy. While I'm sure it is no surprise that stacking is generally an effective practice, you should probably give some thought to expected goals and side effects before simply combining steroids. For example, if you are looking to gain considerable mass, the use of two strong androgens like testosterone and Anadrol 50® would be one of the more potent cycles to attempt. But this combination would also lead to very harsh side effects, and may be too uncomfortable for some individuals. In this case it may be a good suggestion to combine a milder anabolic with a base androgen instead. A stack such as Deca-Durabolin® and Dianabol would still produce very formidable muscle mass gains, but would provide the user much less water/fat retention, gynecomastia, hair loss/growth, and acne than the former.

On the other hand, non-aromatizable anabolics are typically the favored class of steroids for cutting/dieting phases of training. This is because the lack of estrogen conversion makes them less apt to induce fat and water accumulation. It is important to remember, however, that these steroids can still suppress endogenous testosterone production during a cycle. Since the administered drug(s) may not provide the body enough androgen content to compensate for this loss, this type of cycle may sometimes interfere with aggression and libido (Deca is a common offender). In such a state the user might become depressed and unmotivated (see: Side Effects, Depression), seriously reducing the quality (results and comfort) of the cycle. Therefore, it is usually a good idea to include some type of androgen during this type of cycle, especially if you have experienced such problems before. The preference would be a non-aromatizing androgenic compound like Proviron®, Halotestin®, or trenbolone, which will not increase the likelihood for fat/water retention. In the absence of excess estrogen, the heightened androgen level brought about by these drugs can actually enhance the removal of body fat, and noticeably increase the look of hardness/density to the physique (provided the user's body fat percentage is low enough to make this visible). If such compounds were unavailable, perhaps a weekly (low dosage) shot of testosterone would prove sufficient to ward off any problems.

Finally, it is also good to remember that it is not absolutely necessary to take more than one steroid at a time. The term you hear most often is synergy, which implies that two (or more) steroids used together will often compliment (and amplify) each other, and provide a greater muscle gain than if they had been used consecutively. Though not well understood, a number of studies do suggest that different modes of action might exist for steroids outside of the androgen receptor (which would seem to support the notion that cooperative or synergistic effects can be seen with different drug arrangements). Athletes also seem to know that certain drug combinations work extremely well together (Deca & Dianabol, testosterone and Anadrol 50®, trenbolone and Winstrol®, etc.), which is a testament to the notion of drug synergy. But this should not be confused with the idea that you cannot make gains on one drug alone. For example, an athlete new to the world of steroids could make exceptional gains on a cycle of testosterone, Anadrol 50®, or Dianabol, without ever needing to add a second drug. Heavily increased dosages and multi-drug stacks are likewise most prominent among those who are already very familiar with steroid use, and find they are necessary in order to continue to gain or maintain muscle mass.

Dosing and Megadosing

There are many different opinions as to exactly what dosage an individual should use of any particular drug in order to elicit optimal results. Some seem to find they make exceptional gains on relatively low dosages of most steroids, while others insist they need to administer very large amounts of androgens for the proper level of bulk. While I by no means claim to have the solution for everybody, I would say that most steroids seem to work best in a particular range of dosage, and usually fall short of expectations as we go higher or lower. On the one hand we may find that going below what is considered to be a normal dosage for a specific drug will result in very poor gains being achieved, the hormone level perhaps not rising enough above normal to stimulate a considerable response. For example, 200-800mg of testosterone enanthate per week is typically sufficient for a man to receive very formidable gains, while 50-100mg may not provide very noticeable results at all (this is all common sense). On the other extreme, athletes generally find that unusually large doses (let's say 1,000-2,000mg per week) will provide a relatively low quality increase over that of the normal dosage range. Yes, the amount of muscle mass may be considerably more than expected with a typical dose, but this will probably not be proportionate with the gain of new body fat and water weight. The user will typically be stuck with a much more noticeable level of side effects, while receiving a poor return (as in solid muscle mass) on his money. When steroids were abundant and cheap in the 1980', megadosing among recreational steroid users was not all that uncommon. No doubt paying $20 per week as opposed to $5 was not a very difficult decision to make. But today high prices will usually prevent the widespread practice of such excessive dosing, as such a cycle could cost hundreds of dollars each week. The side note to this is that one can reach an extreme level of development where year round high dosage steroid use is a necessity to maintain an anabolic state.

Cycle Duration

There are also many arguments as to how long one should stay on a steroid cycle before taking a break. Opinions range, from those of cautious individuals, who are often vehement about short cycles and long off-periods, to the seriously hard-core user, who suggests year round use for optimal results. Since it is really up to the individual to choose the cycle that is best for him or her, I can only provide some general advice.

For starters, it is very important to watch your intake duration when on stronger or more toxic substances. This includes all c17 alpha alkylated orals, or high-dose cycles of easily aromatized steroids. These compounds place the most stress on your organs, and likewise should be utilized for only limited intervals (preferably less than 8 weeks). Afterwards a break of at least as much time (preferably more) should be taken to give the body ample time to rest/recover. For those who refuse to follow such advice, blood work and regular health checkups are an absolute necessity.

When taking mostly milder anabolics like Deca-Durabolin®, Primobolan®, or Equipoise®, one might opt to administer the drugs for a longer duration. This is due to the fact that these compounds do not act in an extremely dramatic manner, and instead promote a slow but consistent buildup of muscle tissue. With this understanding it is not unusual for an athlete to find a cycle of three, even four or more months, to be the most appropriate. If used for only a short duration, the individual might find the overall gains to be uninspiring.

Year round, on-all-the-time steroid use should be avoided if at all possible, as one should respect the natural hormonal balance your body strives for. The body really should be given time to regain a natural hormonal balance every so often, to ensure that there is little possibility for future problems. Although many believe the effects of these drugs on natural testosterone production to be reversible, it is not uncommon to see lasting problems with virility, libido, etc. after the body had been overloaded with hormones for many years. The health risks associated with elevated cholesterol levels, high blood pressure, or liver toxicity are even more important reasons the athlete should limit the duration of steroid intake. It is important to respect these drugs, not abuse them.

Tapering

One of the most fundamental beliefs among steroid users is that tapering, or the practice of slowly reducing their drug dosage when discontinuing a cycle, is an absolute necessity when wishing to preserve their newly gained muscle mass. It is rare to find an athlete who does not religiously dedicate (at least) three or four weeks to a tapering schedule after every serious cycle. The belief is that the body will notice the lowering androgen level, and compensate by resuming the manufacture of testosterone. Unfortunately, you will see that this theory is, in fact, extremely flawed. This is because in order for the production of testosterone to be fully restored, the body will really need to recognize an androgen deficit, not just a drop in steroid dosage. For example, since even one Dianabol tablet could provide the equivalent of a full day's androgen supply for the average male, tapering from five, to four, to three, etc. will accomplish relatively nothing. In the three or four weeks the athlete will spend doing this, his body is still reading "androgen overload", and will not attempt to restore the output of testosterone. This will hold true for all anabolic steroids, not just the strong androgens. Anecdotal evidence suggests that even tapering with mild anabolics such as Primobolan® or Anavar (normally thought of as mild in terms of testosterone suppression) is enough to prevent or delay a hormonal rebound.

So, if tapering is useless, what should the athlete do in order to properly discontinue a steroid cycle? The obvious answer is to pay much closer attention to ancillary drug use than to tapering. The proper application of testosterone-stimulating compounds like HCG, Clomid®, Nolvadex®, and/or cyclofenil are the most critical, as these can greatly aid in the balancing of body hormones. [The popular methods for using all the above medications are laid out under their individual profiles.] In the few cycles I have illustrated in this section, you will notice that I have not even bothered to lower the drug dosages before the ancillary drugs are added. Simply stated, there is no need to. In my opinion, going "cold turkey" is just the most logical option.

Sample Steroid Stacks

Sample steroid stacks are provided to demonstrate common and/or effective drug combinations in use by bodybuilders. For most of these cycles, the dosages used are in the moderate range. They are intended to represent a balance of peak effectiveness with tolerable side effects, and are also designed so that they can be assembled with very basic and common black market items. For most novice steroid users, stacks like these provide more than a sufficient level of steroid for very dramatic results. Some even find that they can make substantial progress on much less. These represent only common guidelines toward typical use, and by no means are intended to be the perfect cycles for everybody. You will also notice that I have not provided cycles geared towards women. This is simply because I think women should be extremely cautious with these drugs. Those absolutely determined to use them should certainly avoid multiple drug combinations, especially as a novice to these agents.

Beginner Stacks

Deca/D-bol (Mass Builder)

Ingredients: 100 tabs Methandrostenolone 10mg
10mL vial Deca 300mg/mL

Comments: This is a modified version of the Deca/Dbol stack printed in the first edition. The Deca dose has been increased, to reflect the purchase of one of the newer 300mg nandrolone decanoate products. 50mg versions of this steroid are now in extremely low demand due to the influx of new Mexican veterinary steroids. The Dbol dosage has been adjusted to reflect the use of 100 tablets of a 10mg product.

Week	Dianabol	Deca-Durabolin®
1		300 mg
2		300 mg
3		300 mg
4	20 mg/day	300 mg
5	20 mg/day	300 mg
6	20 mg/day	300 mg
7	20 mg/day	300 mg
8	20 mg/day	300 mg
9	20 mg/day	300 mg
10	20 mg/day	300 mg

Non-Toxic Oral (Lean Mass Cycle)

Ingredients: 390 caps (13 30-cap bottles of Mexican product) Andriol
500 tabs 5mg Primo

Comments: By far the most costly cycle of the group, this one is provided for the individual who does not want to use needles, nor liver toxic orals. More Primo could be used, to a dosage of 100-150mg, if available.

Week	Andriol	Primobolan
1	8 caps/day	50 mg/day
2	8 caps/day	50 mg/day
3	8 caps/day	50 mg/day
4	8 caps/day	50 mg/day
5	8 caps/day	50 mg/day
6	8 caps/day	50 mg/day
7	8 caps/day	50 mg/day

Proviron/Deca/Winstrol (Cutting/Lean Mass Cycle)

Ingredients: 140 tabs of Proviron
10mL 200mg/mL Deca
100 tabs 10mg stanozolol

Comments: This is an extremely effective lean-mass-building/cutting cycle. The Proviron adds good androgen content to the nandrolone base, which often is too anabolic to use on its own. The Winstrol, added later, greatly enhances the fat burning and anabolic nature of the combination.

Week	Proviron®	Deca	Winstrol®
1		200 mg	
2	50 mg/day	200 mg	
3	50 mg/day	200 mg	
4	50 mg/day	200 mg	
5	50 mg/day	200 mg	20 mg/day
6	50 mg/day	200 mg	20 mg/day
7	50 mg/day	200 mg	20 mg/day
8	50 mg/day	200 mg	20 mg/day
9	50 mg/day	200 mg	20 mg/day
10	50 mg/day	200 mg	20 mg/day
11	50 mg/day		20 mg/day

Anavar/Primo (Cutting Cycle)

Ingredients: 200 tabs 5mg oxandrolone
14 ampules 100mg Primobolan Depot

Comments: A basic but very efficient cutting stack. This combo provides zero estrogen, and is only moderately androgenic in nature. Low side effects and solid results.

Week	Anavar	Primobolan Depot
1	20 mg/day	200 mg
2	20 mg/day	200 mg
3	20 mg/day	200 mg
4	20 mg/day	200 mg
5	20 mg/day	200 mg
6	20 mg/day	200 mg
7	20 mg/day	200 mg

Tren/Winstrol (Cutting Cycle)

Ingredients: 2 (10mL) bottles Trenbolone acetate 75mg/mL
20mL injectable stanozolol.

Comments: This is a potent cutting/hardening cycle. Do not let the low 300-375mg dose fool you. These are two very active steroids, and the combination is sure to provide quite a pronounced effect.

Week	Trenbolone Acet	Winstrol®
1	150 mg	
2	150 mg	150 mg
3	150 mg	150 mg
4	150 mg	150 mg
5	225 mg	150 mg
6	225 mg	150 mg
7	225 mg	150 mg
8	225 mg	100 mg

Tren/Test/Deca (Mass Builder)

Ingredients: 2 (10mL) bottles Trenbolone acetate 75mg/mL
10mL bottle 200mg/mL cypionate (or enanthate)
10mL bottle 200mg/mL Deca

Comments: This is an excellent bulking cycle based on lower-priced Mexican veterinary steroids. The trenbolone helps to harden up the gains, and the use of only 200mg of testosterone and Deca should keep estrogen levels from getting too far out of hand.

Week	Cypionate	Trenbolone Acet	Deca
1	200 mg		
2	200 mg		
3	200 mg	150 mg	
4	200 mg	150 mg	
5	200 mg	150 mg	200 mg
6	200 mg	150 mg	200 mg
7	200 mg	150 mg	200 mg
8	200 mg	150 mg	200 mg
9	200 mg	150 mg	200 mg
10	200 mg	150 mg	200 mg
11		150 mg	200 mg
12		150 mg	200 mg
13			200 mg
14			200 mg

Equipoise/Test (Mass Builder)

Ingredients: 50mL vial Equipoise® (50mg)
10 amps Testosterone Enanthate

Comments: This is a basic testosterone and Equipoise stack. The Equipoise allows for a lower overall dosage of testosterone, without sacrificing much in terms of expected gains. Estrogen buildup should be controllable with this stack, yet still should reach a point where it is aiding in the promotion of an anabolic state. A great beginner's muscle-building stack.

Week	Equipoise®	Test. Enanthate
1	250 mg	
2	250 mg	250 mg
3	250 mg	250 mg
4	250 mg	250 mg
5	250 mg	250 mg
6	250 mg	250 mg
7	250 mg	250 mg
8	250 mg	250 mg
9	250 mg	250 mg
10	250 mg	250 mg
11		250 mg

Intermediate-Advanced Stacks

Short Anadrol/Test (Mass Builder)

Ingredients: 100 tabs Anadrol 50®
20 amps/preloads/mL of Sustanon

Comments: This is the classic Anadrol/Test stack. If you are looking for sheer mass, you are not going to find a better mix. Be warned, though, estrogenic side effects are likely to be intense. It is a good idea to have Nolvadex® close by.

Week	Anadrol 50®	Sustanon
1		750 mg
2	2 tablets/day	750 mg
3	2 tablets/day	750 mg
4	2 tablets/day	750 mg
5	2 tablets/day	750 mg
6	2 tablets/day	750 mg
7	2 tablets/day	500 mg
8	2 tablets/day	

Super Test Cycle (Mass Builder)

Ingredients: 112 tabs Proviron, 30 mL Sustanon
100 tabs 10mg stanozolol

Comments: This cycle is designed to maximize the level of free testosterone in the body. Proviron competitively inhibits both estrogen aromatization and testosterone to SHBG binding, and Winstrol adds to the androgen-induced lowering of binding protein levels. Gains with this stack should be leaner than the Test and Anadrol cycle, as there is less of an estrogenic component.

Week	Proviron®	Sustanon	Winstrol®
1		500 mg	
2	50 mg/day	1,000 mg	10 mg/day
3	50 mg/day	1,000 mg	10 mg/day
4	50 mg/day	1,000 mg	20 mg/day
5	50 mg/day	1,000 mg	20 mg/day
6	50 mg/day	1,000 mg	20 mg/day
7	50 mg/day	1,000 mg	20 mg/day
8	50 mg/day	1,000 mg	20 mg/day
9	50 mg/day		20 mg/day

EQ/Suspensions Stack (Lean Mass Builder)

Ingredients: 3 (10mL) vials Equipoise (200mg)
1 (20mL) vial 100mg/mL T. Suspension
1 (20mL) vial stanozolol (50mg)

Comments: This is an excellent RAPID lean muscle-building stack. Aromatase inhibitor may be needed during the first 6 weeks, otherwise the remaining 6 (unless you are very sensitive to estrogen) should entail low enough estrogen levels to dramatically increase hardness and definition. A combination building/cutting cycle.

Week	Equipoise	T. Suspension	Winstrol®
1	600 mg	100 mg EOD	
2	600 mg	100 mg EOD	
3	600 mg	100 mg EOD	
4	600 mg	100 mg EOD	
5	600 mg	100 mg EOD	
6	600 mg	100 mg EOD	
7	600 mg		50 mg EOD
8	600 mg		50 mg EOD
9	600 mg		50 mg EOD
10	600 mg		50 mg EOD
11			50 mg EOD
12			50 mg EOD

15-Week Mass Builder

Ingredients: 5 (10mL) bottles 250mg/mL T. cypionate
2 (10mL) bottles 100mg/mL Durabolin
300 5mg tabs stanozolol

Comments: This is an excellent lean bulking cycle, with only periodic use of c-17 alpha alkylated orals. Durabolin serves as a bridge between both treatment periods, giving the liver time to detoxify. This cycle pushes the limits of growth, but does so without pushing the limits of safety.

Week	Cypionate	Dbol	Durabolin	Winstrol
1	750 mg	40 mg		
2	750 mg	40 mg		
3	750 mg	40 mg		
4	750 mg	40 mg		
5	750 mg	40 mg		
6	750 mg		400 mg	
7	750 mg		400 mg	
8	750 mg		400 mg	
9	750 mg		400 mg	
10	750 mg		400 mg	
11	750 mg			40 mg
12	750 mg			40 mg
13	750 mg			40 mg
14	750 mg			40 mg
15	750 mg			40 mg

15-Week Cutting Stack

Ingredients: 2 (10mL) bottles 200mg Equipoise
200 tabs Proviron
150 IU HGH, 420-640 tabs clenbuterol
315 tabs Zaditen

Comments: This is an extremely potent cutting stack. Some may find a need to add in small doses of T-3. However, most will find the low GH dose and thermogenic adjunct products to work excellent for cutting alone. EQ is the only aromatizable steroid used, and adds little estrogen when accompanied by Proviron to inhibit aromatase.

Week	Equipoise	Proviron	HGH	Clen	Zaditen
1	400 mg	50 mg/day	1 IU/day	2 tabs/day	3 tabs/day
2	400 mg	50 mg/day	1 IU/day	3 tabs/day	3 tabs/day
3	400 mg	50 mg/day	1 IU/day	4 tabs/day	3 tabs/day
4	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
5	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
6	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
7	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
8	400 mg	50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
9	400 mg	50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
10	400 mg	50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
11		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
12		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
13		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
14		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
15		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day

22-Week Super-Blitz Lean Mass Cycle

Ingredients 5 (10mL) bottles 100mg T. Propionate
48 amps Primobolan, 84 tabs Anadrol
5 (10mL) bottles 100mg Durabolin
160 tabs (10mg) Dianabol.

Comments: An excellent half-year lean-building stack. Focuses on the periodic use of c-17alpha alkylated orals, bridged with injectable compounds, to minimize chance for liver toxicity.

Week	T. Propionate	Trenbolone	Anadrol	Primobolan	Durabolin	Dbol
1	400 mg		100 mg/day			
2	400 mg		100 mg/day			
3	400 mg		100 mg/day			
4	400 mg		100 mg/day			
5	400 mg		100 mg/day			
6	400 mg		100 mg/day			
7		225 mg		400 mg		
8		225 mg		400 mg		
9		225 mg		400 mg		
10		225 mg		400 mg		
11		225 mg		400 mg		
12		225 mg		400 mg		
13					400 mg	40 mg/day
14					400 mg	40 mg/day
15					400 mg	40 mg/day
16					400 mg	40 mg/day
17					400 mg	40 mg/day
18	400 mg	225 mg		400 mg		
19	400 mg	225 mg		400 mg		
20	400 mg	225 mg		400 mg		
21	400 mg	225 mg		400 mg		
22	400 mg	225 mg		400 mg		
23	400 mg	225 mg		400 mg		
24	400 mg	225 mg		400 mg		

15-Week Cutting Stack

Ingredients: 2 (10mL) bottles 200mg Equipoise
200 tabs Proviron
150 IU HGH, 420-640 tabs clenbuterol
315 tabs Zaditen

Comments: This is an extremely potent cutting stack. Some may find a need to add in small doses of T-3. However, most will find the low GH dose and thermogenic adjunct products to work excellent for cutting alone. EQ is the only aromatizable steroid used, and adds little estrogen when accompanied by Proviron to inhibit aromatase.

Week	Equipoise	Proviron	HGH	Clen	Zaditen
1	400 mg	50 mg/day	1 IU/day	2 tabs/day	3 tabs/day
2	400 mg	50 mg/day	1 IU/day	3 tabs/day	3 tabs/day
3	400 mg	50 mg/day	1 IU/day	4 tabs/day	3 tabs/day
4	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
5	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
6	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
7	400 mg	50 mg/day	1 IU/day	4–6 tabs/day	3 tabs/day
8	400 mg	50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
9	400 mg	50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
10	400 mg	50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
11		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
12		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
13		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
14		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day
15		50 mg/day	2 IU/day	4–6 tabs/day	3 tabs/day

17 Week Pre-Contest Dual Phase (Pro Level)

The following is a 2-phase cycle used by an IFBB professional bodybuilder. He used this cycle leading up to a recent show, in which he placed in the top 5. The total use duration was 17 weeks, or approximately 4 months. This cycle dispels the myth that pros all need to take massive doses of steroids, or exotic and expensive compounds like IGF-1, to be competitive. The 1-2 gram per week range in this program is formidable, but not unreasonable given the level of performance of the athlete. The most exotic drugs taken in this 2-part stack are insulin and GH, which are "basic" bodybuilding drugs by any standard. It does, however, make use of c-17 alpha alkylated compounds for prolonged periods of time, which does legitimately add some level of risk. This bodybuilder was smart enough to have regular health checkups during his cycles, and tried to mitigate the negative cardiovascular side effects as best he could with diet and exercise. Although no adverse health effects were reported, it should be noted the pro level cycles are especially not recommended for beginners, and are definitely "use at your own risk" kind of programs.

Phase I/Bulking

Week	Enanthate	Deca	Dbol	Equipoise	GH	Insulin	Nolvadex
1	1000 mg	500 mg	50 mg/d		4IU/3IU	14IU	20 mg/d
2	1000 mg	500 mg	50 mg/d		4IU/3IU	14IU	20 mg/d
3	750 mg	500 mg	50 mg/d		4IU/3IU	14IU	20 mg/d
4	750 mg	500 mg	50 mg/d		4IU/3IU	14IU	20 mg/d
5	750 mg		50 mg/d	500 mg	4IU/3IU	14IU	20 mg/d
6	750 mg		50 mg/d	500 mg	4IU/3IU	14IU	20 mg/d
7	500 mg		50 mg/d	500 mg	4IU/3IU	14IU	20 mg/d
8	500 mg			500 mg	4IU/3IU	14IU	20 mg/d

Insulin (Humalog) is taken 7IU in the morning and 7IU before training, with a loading of carbohydrates. Growth hormone is taken 4IU on training days, 3IU for non-training days.

Phase II/Cutting

Week	Propionate	Deca	Tren	Winstrol	Halotestin	Proviron	Arimidex
1	1000 mg/d	500 mg				75 mg/d	
2	1000 mg/d	500 mg				75 mg/d	
3	1000 mg/d	500 mg				75 mg/d	
4	1000 mg/d	500 mg				75 mg/d	
5	1000 mg/d	500 mg				75 mg/d	
6			225 mg	100 mg/EOD	20 mg/d	75 mg/d	
7			225 mg	100 mg/EOD	20 mg/d	75 mg/d	
8			225 mg	100 mg/EOD	20 mg/d	75 mg/d	1 tab/d
9			225 mg	100 mg/EOD	20 mg/d	75 mg/d	1 tab/d

Diet begins 7 weeks out from competition. Sodium is not cut. GH is added through much of the cutting phase at a dose of 2IU per day. Injectable Lasix is added the last 3 days, at a dose of 1 ampule twice daily. Arimidex is taken the last 2 weeks, at a dose of 1 tablet per day. Dyazide is taken 1 tablet twice during the last day (competition).

12-Week Serious-Bulk (Pro Level)

Comments: This pro-level bulking stack uses a formidable injectable base (mean dose of 1 gram per week), a rotation of high-dosed orals, and the new IGF-1 analog (IGF-1 Long R3). This is an extremely effective program, but again is not for novice bodybuilders. Arimidex or Nolvadex are alternated to combat estrogenic side effects, depending on the individual's sensitivity to them. Nolvadex is preferred to help keep HDL (good) cholesterol in check (at least from dropping into the toilet completely), but may not be strong enough with this much testosterone, boldenone, and Dianabol. The latter 2/3rds of the cycle should be somewhat less estrogenic due to the discontinuance of Dianabol at week 5, so some may opt to start with Arimidex only. Insulin is also added in most cases, as a post-training anabolic (with carbohydrate loading).

Week	Sustanon	Dianabol	Primobolan Oral	IGF-1lr3	Equipoise
1	1,000 mg	50 mg/d			600 mg/week
2	1,000 mg	50 mg/d			600 mg/week
3	1,000 mg	50 mg/d			600 mg/week
4	1,000 mg	50 mg/d			600 mg/week
5	1,000 mg		50 mg/day		600 mg/week
6	1,000 mg		50 mg/day	30 mcg/d	600 mg/week
7	1,000 mg		50 mg/day	30 mcg/d	600 mg/week
8	1,000 mg		50 mg/day	30 mcg/d	600 mg/week
9	1,000 mg			50 mcg/d	600 mg/week
10	1,000 mg			50 mcg/d	600 mg/week
11	1,000 mg			50 mcg/d	600 mg/week
12				50 mcg/d	

12-Week Anabolic Rotation Cycle. Lean Mass and Cuts (Pro Level)

Comments: This pro-level cutting cycle was used before a recent competition. This particular bodybuilder likes to use clenbuterol on and off, for 4 weeks at a time. He also felt that he didn't like to be on a lot of GH around show time, and preferred to use only 1IU during the last 5 weeks leading up to a show. When we examine the cycle we see no estrogenic steroid being used past week 6. Despite this, the bodybuilder would take an additional tablet of Arimidex daily for the last half of the cycle. 100mg of injectable Winstrol is used every third day during weeks 7-8, and every other day during weeks 9-12.

Week	Primobolan	Parabolan	T. Propionate	Masteron	Winstrol	Clenbuterol	HGH
1	500 mg	300 mg	400 mg			6 tabs/d	2 IU/d
2	500 mg	300 mg	400 mg			6 tabs/d	2 IU/d
3	500 mg	300 mg	400 mg			6 tabs/d	2 IU/d
4	500 mg	300 mg	400 mg			6 tabs/d	2 IU/d
5	500 mg	300 mg	400 mg				2 IU/d
6	500 mg	300 mg	400 mg	300 mg	100 mg/ETD		2 IU/d
7	500 mg			300 mg	100 mg/ETD		2 IU/d
8	500 mg			300 mg	100 mg/EOD		1 IU/d
9	500 mg			300 mg	100 mg/EOD	6 tabs/d	1 IU/d
10	500 mg			300 mg	100 mg/EOD	6 tabs/d	1 IU/d
11	500 mg			300 mg	100 mg/EOD	6 tabs/d	1 IU/d
12	500 mg			300 mg	100 mg/EOD	6 tabs/d	1 IU/d

Andreas Munzer's Last Cycle:

Comments: This cycle was allegedly used leading up to the death of IFBB professional bodybuilder Andreas Munzer. The German magazine Der Spiegel first published Munzer's program shortly after his death, which was reportedly obtained by a source close to him. The death of Andreas Munzer was a shock to the bodybuilding world, and demonstrated well that the precontest regimen of the competitive bodybuilder, which can include heavy drug use, severe calorie and fluid restriction, and marked dehydration, can be a very dangerous undertaking. This is not to suggest that a cycle such as this is "normal" in the IFBB ranks. If you review the cumulative drug intake, you will see that Andreas Munzer was using staggeringly high dosages and a wide variety of drugs. Most professional bodybuilders would not use such high levels of steroids, however, there are indeed some that do. This cycle is too large to place into a chart, so it is divided into segments. It is provided for informational purposes only, and given the circumstances should not be attempted by anyone.

Other things of interest include the fact that Captagon is a trade name for fenethylline. This is an amphetamine-type stimulant. Captagon is a Schedule I drug in the U.S., placed under the tightest controls and classified as a drug with no legitimate medical use. Munzer also reportedly used Cytadren in his contest preparations. There has been a lot of speculation that Cytadren, combined with amphetamines and severe dehydration, were key factors in his death. Since no official autopsy was released, we do not know the exact pathology of his death. With the amount of drugs he used, I doubt the exact cause is even possible to pinpoint.

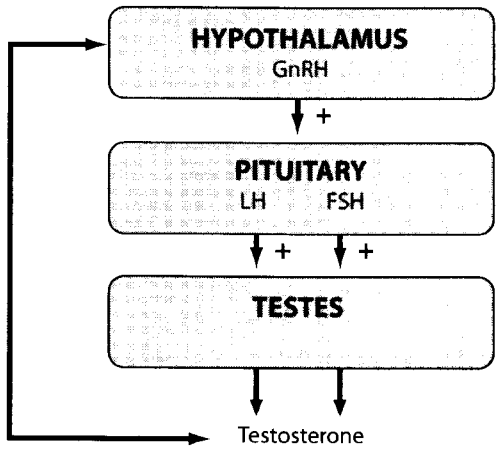
Weeks 1-10:	Ephedrine	
	Aspirin	
	Clenbuterol	
	Valium	
	Captagon	
	Cytomel	
Weeks 1-5:	500 mg/daily	Testosterone Enanthate
	152 mg/daily	Parabolan
	150 mg/daily	Dianabol
	150 mg/daily	Halotestin
	20 IU/daily	HGH
	20 IU/daily	Insulin
Weeks 6-8:	300 mg/daily	Masteron
	152 mg/daily	Parabolan
	250 mg/daily	Winstrol Tab
	150 mg/daily	Halotestin
	50 mg/daily	Winstrol Inj.
	24 IU/daily	HGH
Weeks 9-10:	200 mg/daily	Masteron
	100 mg/daily	Winstrol Inj.
	200 mg/daily	Halotestin
	400 mg/daily	Winstrol Tab
	24 IU/daily	HGH
	Insulin - daily	
	IGF-1 – daily	
Days 1-3 leading up to show:		Aldactone, Lasix to cut water.

PCT: Post-Cycle Therapy

It is called the "post cycle crash", and is one of the more unwelcome aspects of steroid use. As the saying goes, there is a price to be paid for everything, and in the case of steroids, one of those prices (a temporary one anyway) is your natural hormone production. What happens is quite simple; when you take steroids your body stops making them. Once you stop taking steroids, you can be left with a gap until your body starts making its own again. Here, you can be faced with low levels of androgens and normal levels of corticosteroids. Your body will (should) eventually recognize and fix the imbalance, but it can take weeks or even months. This gap is a bad place to be physiologically, as without normal androgen levels to balance the catabolic effects of corticosteroids, a good deal of your new muscle mass may be lost. To help your body maintain its size, you will want to restore endogenous testosterone production quickly. The methods for doing this seem to be different everywhere you look: "Take HCG, don't take HCG, use an aromatase inhibitor, just take Clomid, forget Clomid and just take Nolvadex." What option is really best? Without an understanding of exactly what is going on in your body, and why certain compounds help to correct the situation, choosing the right Post-Cycle Therapy (PCT) program can be quite confusing. In this section, the roles of anti-estrogens and HCG during this delicate window of time are discussed, while detailing an effective strategy for their use.

The HPTA Axis

The Hypothalamic-Pituitary-Testicular Axis, or HPTA for short, is the thermostat for your body's natural production of testosterone. Too much testosterone, and the furnace will shut off. Not enough, and the heat is turned up (to put it very simply). For the purposes of our discussion, we can look at this regulating process as having three levels. At the top is the hypothalamic region of the brain, which releases the hormone GnRH (Gonadotropin-Releasing Hormone) when it senses a need for more testosterone. GnRH sends a signal to the second level of the axis, the pituitary, which releases Luteinizing Hormone in response. LH for short, this hormone stimulates the testes (level three) to secrete testosterone. The same sex steroids (testosterone, estrogen) that are produced serve to counterbalance things, by providing negative feedback signals (primarily to the hypothalamus and pituitary) to lower the secretion of testosterone. Synthetic steroids send the same negative feedback. This quick background of the testosterone-regulating axis is necessary to furthering our discussion, as we need to first look at the underlying mechanisms involved before we can understand why natural recovery of the HPTA post-cycle is a slow process. Only then can we implement an ancillary drug program to effectively deal with it.



The Hypothalamic-Pituitary-Testicular Axis: The hypothalamus releases Gonadotropin Releasing Hormone (GnRH), which stimulates the pituitary to release luteinizing hormone (LH) and follicle stimulating hormone (FSH). This promotes the release of testosterone from the testes. Testosterone, as well as estrogens and progestins, in turn cause negative feedback inhibition at the hypothalamus (and to some extent the pituitary), lowering the output of gonadotropins and testosterone when too much hormone is present.

Testicular Desensitization

Although steroids suppress testosterone production primarily by lowering the level of gonadotropic hormones, the big roadblock to a restored HPTA after we come off the drugs is surprisingly not LH. This problem was made clearly evident in a study published back in 1975[77]. Here, blood parameters, including testosterone and LH levels, were monitored in male subjects who were given testosterone enanthate injections of 250mg weekly for 21 weeks. Subjects remained under investigation for an additional 18 weeks after the drug was discontinued. At the start of the study, LH levels became suppressed in direct relation to the rise in testosterone, which was to be expected. Things looked very different, however, once the steroids had been withdrawn (see Figure I). LH levels went on the rise quickly (by the 3rd week), while testosterone barely budged for quite some time. In fact, on average it was more than 10 weeks before any noticeable movement in testosterone production started at all. This lack of correlation makes clear that the problem in getting androgen levels restored is not necessarily the level of LH, but more so testicular atrophy and desensitization to LH. After a period of inactivation, the testes have lost mass (atrophied), making them unable to perform the required workload. The protracted post-cycle window can, likewise, no longer be looked at as one of low testosterone and low LH. Much of it actually involves low testosterone and normal (even high) LH.

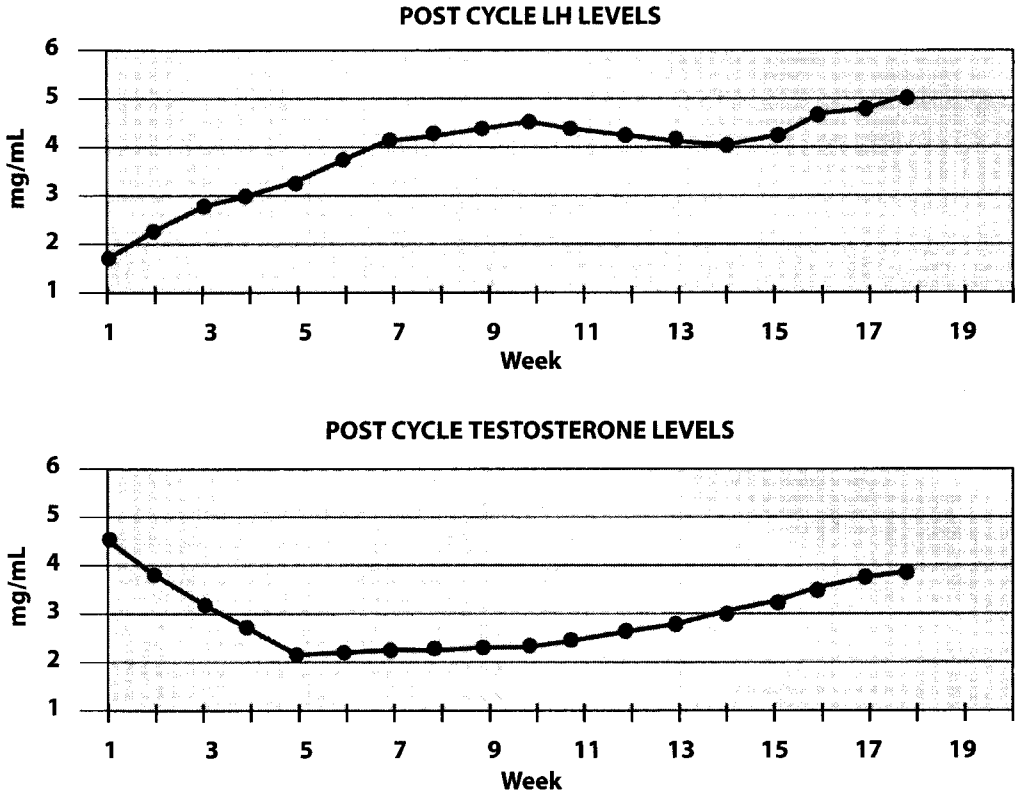


Figure I. LH and Testosterone measurements starting 1 week after the last injection of 250mg of testosterone enanthate (pretreated measures were 5 mU/mL and 4.5 ng/mL respectively). Note that between weeks 1 and 5, as testosterone levels are declining due to the cessation of exogenous androgen administration, LH levels are already rebounding. From weeks 5 to 10, testosterone levels remain at or very near baseline, despite the substantial increases in LH by this point. No notable rebound in testosterone is noted until after the 10-week mark.

The Role of Anti-Estrogens

It is important to understand that anti-estrogens alone are inadequate to restore normal endogenous testosterone production after a cycle. These agents ordinarily increase LH levels by blocking the negative feedback of estrogens. But LH rebounds quickly on its own post-cycle, without help. Plus, there is not an elevated level of estrogen for anti-estrogens to block during this window, as testosterone (now suppressed) is a major substrate used for the synthesis of estrogens in men. Serum estrogen levels are actually lower here, not higher. Any estrogen rebound that occurs post-cycle, likewise, happens with a rebound in testosterone levels, not prior to it (there is an imbalance in the ratio of androgens to estrogens post cycle, but this is another topic altogether). On their own, we are seeing no mechanism in which anti-estrogenic drugs can effectively help here. I can, however, see why this fact would be easy to overlook. The medical literature is filled with references showing anti-estrogenic drugs like Clomid and Nolvadex to increase LH and testosterone levels in men, and in normal situations they indeed perform this function fairly well. Combine this with the fact that just as many studies can be found to show that steroid use lowers LH when suppressing testosterone, and we can see how easy it would be to jump to the conclusion that we need to focus on LH. We would miss the true problem, testicular desensitization, unless we were really looking into the actual recovery rates of the hormones involved. When we do, we immediately see little value in focusing solely on anti-estrogenic drugs.

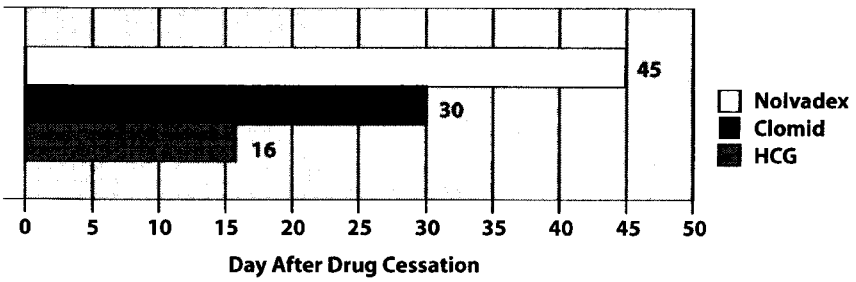
The Role of HCG

With anti-estrogens alone proving to be ineffective, we are left to focus on a very different level of the HPTA in order to hasten recovery: the testes. For this we will need the injectable drug HCG. If you are not familiar, HCG, or Human Chorionic Gonadotropin, is a prescription fertility agent that mimics the body's natural LH. Although the testes are equally desensitized to this drug as they are to LH (they work through the same receptor), we are administering it as a measured drug and are, therefore, not constrained by the limits of our own LH production. In other words, we can give ourselves a good dose of drug (as much LH as we need, really), shocking the testes with unnaturally high levels of stimulation. We want it to reach a level above what our bodies, even when supported by anti-estrogens, could do on its own. The result should be a more rapid restoration of original testicular mass, which would allow normal levels of testosterone to be output much sooner than without such an ancillary program in place. What we are looking at now is HCG actually being the pivotal post-cycle drug, with anti-estrogens playing more of a supportive role.

The PoWeR PCT Program

The PCT program outlined below represents what I consider to be an ideal and effective post-cycle program. It was developed by the doctors at the Program for Wellness Restoration (PoWeR), who have a formidable history helping patients recover normal hormonal functioning following steroid therapy. One of the key doctors on this program, Dr. Michael Scally, claims to have successfully treated more than 100 cases of hypogonadism/hypogonadotrophic hypogonadism, and is very well known in the field of androgen replacement therapy. PoWeR published this program as part of a recent clinical study, which involved 19 healthy male subjects who were taking supraphysiological (highly suppressive) doses of testosterone cypionate and nandrolone decanoate for 12 weeks. Their HPGA Normalization Protocol focuses on the combined use of HCG, Nolvadex, and Clomid, and is perhaps the only clinically documented post-cycle therapy program to be found in the medical literature (it is amazing how little attention has been paid to hormone normalization in clinical medicine). The most notable variation from a classic PCT stack, such that I have been a longtime supporter of, is the combined use of two anti-estrogens. In this case I cannot say that there is a disadvantage to such use; perhaps it is indeed the better option.

HPGA Normalization Protocol (PoWeR)



Examining the program closely, we note that the testes are hit hard with HCG at the onset of therapy. Its intake, however, is limited to only 16 days. The doctors undoubtedly recognize that when HCG is taken for too long or at too high a dosage, it can desensitize the LH receptor[78]. This would only further exacerbate the post-cycle problem, not help it. Anti-estrogens are used during and after HCG, with a dosage of 10mg of Nolvadex and 100mg of Clomid per day rounding out this compliment of drugs. Clomid is used for a shorter period of time than Nolvadex, likely because of the desensitizing effect it too can have (on the pituitary gland) with continued use. Among other things, these two anti-estrogens will continue to foster LH release as testosterone levels start to go back up, as well as combat any potential estrogenic side effects that may be caused by HCG's up-regulation of testicular aromatase activity[79]. Although in the first couple of weeks the anti-estrogens probably do very little, they should be much more helpful towards the middle and end of the program. During this clinical investigation, normal hormonal function was restored in all subjects within 45 days of drug cessation. This is a definite success, far more favorable than the protracted recovery window noted in studies without post-cycle therapy, such as the 250mg/week testosterone enanthate investigation highlighted in Figure I. For me, I believe such a detailed recovery program should follow any serious steroid cycle. It is the best way to maintain your gains at their maximum, and that is, after all, what we are after.

The Role of Anti-Estrogens

It is important to understand that anti-estrogens alone are inadequate to restore normal endogenous testosterone production after a cycle. These agents ordinarily increase LH levels by blocking the negative feedback of estrogens. But LH rebounds quickly on its own post-cycle, without help. Plus, there is not an elevated level of estrogen for anti-estrogens to block during this window, as testosterone (now suppressed) is a major substrate used for the synthesis of estrogens in men. Serum estrogen levels are actually lower here, not higher. Any estrogen rebound that occurs post-cycle, likewise, happens with a rebound in testosterone levels, not prior to it (there is an imbalance in the ratio of androgens to estrogens post cycle, but this is another topic altogether). On their own, we are seeing no mechanism in which anti-estrogenic drugs can effectively help here. I can, however, see why this fact would be easy to overlook. The medical literature is filled with references showing anti-estrogenic drugs like Clomid and Nolvadex to increase LH and testosterone levels in men, and in normal situations they indeed perform this function fairly well. Combine this with the fact that just as many studies can be found to show that steroid use lowers LH when suppressing testosterone, and we can see how easy it would be to jump to the conclusion that we need to focus on LH. We would miss the true problem, testicular desensitization, unless we were really looking into the actual recovery rates of the hormones involved. When we do, we immediately see little value in focusing solely on anti-estrogenic drugs.

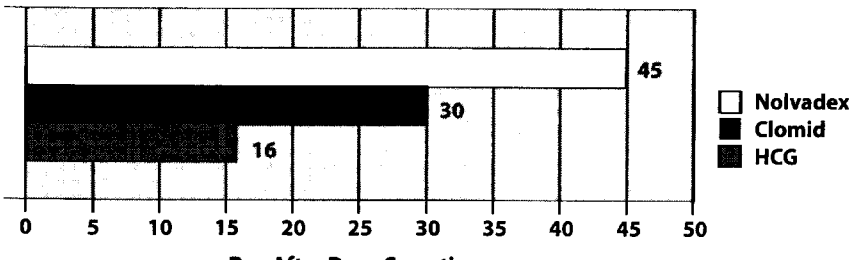
The Role of HCG

With anti-estrogens alone proving to be ineffective, we are left to focus on a very different level of the HPTA in order to hasten recovery: the testes. For this we will need the injectable drug HCG. If you are not familiar, HCG, or Human Chorionic Gonadotropin, is a prescription fertility agent that mimics the body's natural LH. Although the testes are equally desensitized to this drug as they are to LH (they work through the same receptor), we are administering it as a measured drug and are, therefore, not constrained by the limits of our own LH production. In other words, we can give ourselves a good dose of drug (as much LH as we need, really), shocking the testes with unnaturally high levels of stimulation. We want it to reach a level above what our bodies, even when supported by anti-estrogens, could do on its own. The result should be a more rapid restoration of original testicular mass, which would allow normal levels of testosterone to be output much sooner than without such an ancillary program in place. What we are looking at now is HCG actually being the pivotal post-cycle drug, with anti-estrogens playing more of a supportive role.

The PoWeR PCT Program

The PCT program outlined below represents what I consider to be an ideal and effective post-cycle program. It was developed by the doctors at the Program for Wellness Restoration (PoWeR), who have a formidable history helping patients recover normal hormonal functioning following steroid therapy. One of the key doctors on this program, Dr. Michael Scally, claims to have successfully treated more than 100 cases of hypogonadism/hypogonadotrophic hypogonadism, and is very well known in the field of androgen replacement therapy. PoWeR published this program as part of a recent clinical study, which involved 19 healthy male subjects who were taking supraphysiological (highly suppressive) doses of testosterone cypionate and nandrolone decanoate for 12 weeks. Their HPGA Normalization Protocol focuses on the combined use of HCG, Nolvadex, and Clomid, and is perhaps the only clinically documented post-cycle therapy program to be found in the medical literature (it is amazing how little attention has been paid to hormone normalization in clinical medicine). The most notable variation from a classic PCT stack, such that I have been a longtime supporter of, is the combined use of two anti-estrogens. In this case I cannot say that there is a disadvantage to such use; perhaps it is indeed the better option.

HPGA Normalization Protocol (PoWeR)



Giving the Injection

All anabolic/androgenic steroid solutions were designed for deep intramuscular injection. The most common sites of injection are the upper outer quadrant of gluteus (buttock) and the outer side of the mid to upper thigh. This provides an ample area of thick muscle, facilitating the goal of a deep (typically 1 to 1 1/2 inch) deposit of the steroid solution into muscle tissue. Occasionally these solutions are also injected into smaller muscles such as the deltoid, biceps, or triceps.

The chosen site is not crucial, although there are some things to consider in deciding. For starters, the gluteus and thigh muscles are the best for larger injection volumes. They are sufficiently large in size that a 3ml deposit will not be extremely irritating. When using the shoulders and other small muscles, 1-1 1/2 mL is the typical limit for comfort. Administering more may result in a deep soreness and possibly swelling to the muscle. The upper outer gluteus also has the lowest pain sensitivity to needle penetration, and is likewise an easy site to start with. The thickness and level of blood circulation given to a site also affect the rate of steroid release, although this does not amount to a great deal of variation. Technically a steroid deposit will remain in the gluteus muscle for the longest period of time, and release slightly faster in the thigh or shoulder (most rapid). Over the course of a cycle the difference would probably not be noticeable to the athlete.

Syringe/Needle Size

The gauge represents the size (diameter) of a needle. The larger the number, the finer the needle is in thickness. This measurement bears no relation to the size (capacity) of the syringe, which in many cases is sold separately from the needle. The type of needle used for steroid injections varies depending on the type/viscosity of solution (water/oil) and site of injection, ranging from the standard deep intramuscular oil needles of 21-22 gauge to a fine insulin needle of 27-28 gauge. Below are a few stock needle/syringe combinations and their corresponding use with anabolic/androgenic steroids.

3mL syringe, 22-gauge needle, 1 1/2 inch in length
3mL syringe, 23-gauge needle, 1 inch in length

Above are the standard needle sizes used for the injection of oil-based compounds in the gluteus or thigh. Here you should limit injection volume to 3ml. Occasionally this size needle is also used for water-based compounds that contain steroid in the form of unusually large particles. For example, Winstrol-V and some Australian veterinary testosterone suspensions will jam in a needle any smaller. Having to use such a large size makes repeated injections extremely uncomfortable.

3mL syringe, 25-gauge needle, 5/8 inch in length

Often referred to as a vitamin needle, this is a standard sized needle used for the thigh or deltoid injection of oil-based compounds. Water-based steroids are also commonly injected at the same sites with this needle, but solutions with finely ground steroid (Stanazolic and Winstrol from Zambon in Spain, for example) are more comfortably given with an insulin needle.

1mL syringe, 27-gauge needle, 1/2 inch in length
1mL syringe, 28-gauge needle, 1/2 inch in length
1mL syringe, 29-gauge needle, 1/2 inch in length

These are standard insulin needles used by athletes for the injection of water-based steroids, HCG, insulin, and growth hormone into smaller muscles such as the deltoid, biceps, or triceps. These are also the only sized needles comfortable to use for the subcutaneous injection of insulin and growth hormone. In desperate situations insulin needles are sometimes also used for the injection of oil-based compounds in the deltoid. While extremely tedious, there is no immediate danger with such a practice provided normal protocol were followed.

Injection Protocol

1. Sanitize the intended area of injection with an alcohol swab, and wash hands thoroughly.
2. If using a multiple-dose vial, clean the stopper with alcohol also.
3. Remove the syringe's packaging, and fill with an equal amount of air in comparison to the intended dose. Inject the air into the vial, a practice that keeps a balance of internal/external pressure (making future withdrawal easier).
4. Draw solution into the syringe, and remove needle from the vial.
5. Holding it needle side upright, tap the side of the syringe, and expel any extra air bubbles (tiny bubbles are not a danger to health, but this is still correct practice).
6. Stretch the skin over the site of injection with the thumb and forefinger of your free hand, and penetrate the muscle with the needle.
7. Pull back on the stopper to make sure the syringe does not fill with blood. Should blood be present, the needle should be removed, and reinserted into another area (to avoid injecting into a blood vessel).
8. Press the stopper down firmly and steadily until all of the oil has been injected.
9. Remove the needle, and press down on the injection site with an alcohol swab.
10. Repackage and dispose of the needle. If it must be reused, it can be stored in the freezer to minimize contamination.

Paper Steroids

These are U.S. Customs' worst nightmare: Oral anabolic steroids that are sold in sheets of paper instead of the standard dosage units (pills and capsules) used for these drugs. I believe the idea originated from Dan Duchaine, and it is both simple and ingenious. The main point of interest is that these sheets of paper are easily mailed in regular envelopes, so as to attract little attention from the federal agents that screen international mail shipments. Let's face it; Customs lacks the capacity to open most of the packages that are sent to this country from around the world. They are totally lost when it comes to being able to effectively deal with regular letters that contain steroids in sheets of paper.

The manufacturing process works like this. A steroid compound is mixed with alcohol, which is an excellent solvent for steroid hormones. The dissolved solution is placed in a flat tray, and a sheet of blotter paper is placed on it to absorb the liquid. We now have a sheet of blotter paper that is soaked in alcohol and steroid. Now if you leave it out to sit, the alcohol will evaporate pretty quickly, leaving the steroid behind in the process. The hormone is going to be left distributed throughout the blotter sheet, which is now officially serving as the drug carrier. The blotter sheet is usually made so that it is divided into a grid (typically 50 or 100 squares), with each edible square carrying a measured dose of steroid. This idea is actually used, routinely, in a laboratory setting, where you don't always have access to finished tablets or capsules. It is simply being exploited here for a very different purpose. Lab tests on PaperVar confirm the product contains active oxandrolone, however they do note some inconsistencies in dosing from one square to the next. This is likely due to some inherent imperfections in the process, as it is probably much harder to control for error or outside interference than when making tablets or capsules.

Currently PaperRoids are available in the following forms:

PaperVar	oxandrolone	10mg
PaperBol	methandrostenolone	10mg
PaperStrol	stanozolol	10mg
PaperDrol	oxymetholone	50mg
PaperTurin	chlorodehydromethyltestosterone	10mg
PaperMest	mesterolone	25mg
PaperPrimo	methenolone acetate	10mg

Feedback on the paper products, at least those from the main manufacturer that I have been in contact with, has been nothing short of remarkable. People are raving about these steroids, probably because they work as expected, and are so easy to get in the mail. This means a lot less anxiety for many customers, who would normally spend days worrying that their latest steroid order might get snagged in Customs (and their ass arrested for the attempt). Running down a current price sheet, we find that these products are also fairly affordable. The Dianabol and Winstrol version tend to run from about $.50 to $1.00 per dose, while the Anavar and Anadrol run about $2-$3 each. You'll pay about the same price for commercial versions of these steroids anyway, not to mention the added value in being able to avoid another lost shipment.

The current major manufacturer of these products is reporting an extremely high success rate in their mailings. According to them, 95% of the paper products sent from Thailand are making it to customers, while every item sent from the U.K. so far has arrived without a single seizure by customs. Other underground companies have started to follow suit by manufacturing their own paper products, probably owing to the fact that the design is so easy to copy, and the technology is currently in high demand. One manufacturer has even started making something they call a Flexi-Tab, which is more rigid, and less devious in appearance. I was able to see a sample of this recently, and was quite impressed. I expect to see a lot more of the standard blotter sheet "PaperRoids", as well as the new "Flexi-Tabs", in the future.

Underground Steroids

As the name would indicate, an underground steroid manufacturer is an operation that manufactures steroids specifically for sale to athletes on the black market, and not through legitimate pharmaceutical distribution channels. These firms are unlicensed, unregulated, and operate in a completely clandestine manner. An underground maker is different from a counterfeit steroid manufacturer only in that these operations usually produce real steroid products. They are not operating to outright steal money from customers with totally worthless products, but are simply trying to get a piece of the legitimate pie, so to speak. Many of these companies are clearly trying to build good reputations in the marketplace, operating, for the most part, on a small scale, and catering to tight-knit circles of Internet-savvy steroid shoppers.

There has been an amazing explosion of underground steroid manufacturing companies in the past half decade. The Internet, a communications medium that has been able to put bodybuilders in the West in ready contact with bulk raw steroid manufacturers in the East, has no doubt fueled this. It is now quite easy to find places to sell you bulk raw materials, in multi-kilogram amounts. The raw steroid power is usually quite cheap given the amount of final product each kilo can produce (it is food grade instead of pharmaceutical grade). Bottling and encapsulating are usually done with inexpensive low volume manually operated machinery. Let's do a little math. 1kg of methandrostenolone will produce 2,000 bottles with 100 5mg tablets in each. The cost will come to roughly $2 per bottle for the actual steroid. Clearly there are very high profits to be made for anyone willing to do some "basement bottling". Judging by the sheer number of these firms in operation right now, it seems that everyone wants to run an underground steroid manufacturing business.

Below is a sample price list from a raw materials supplier in China. Note the high cost for drugs like oxandrolone, methenolone, and trenbolone. We can see counterfeiters rarely use these actual steroids in their products.

Ethylestrenol	$9,900/kg
Methenolone	$18,000/kg
Methandriol	$2,100/kg
Methandrostenolone	$4,000/kg
Methyltestosterone	$1,150/kg
Nandrolone phenylpropionate	$4,000/kg
Nandrolone decanoate	$4,800/kg
Oxandrolone	$27,000/kg
Oxymetholone	$4,000/kg
Stanozolol	$4,600/kg
Testosterone	$1,900/kg
Testosterone undecanoate	$3,000/kg
Testosterone propionate	$2,500/kg
Trenbolone	$23,000/kg

There are things that must be taken into consideration when thinking about buying an underground steroid product. First, you need to remember that you never truly know what you are getting. These operations are clandestine, and nobody is looking over their shoulders to make sure things are up to code. There is no code in the world of underground gear. Second, almost none of them are making their drugs in a sterile environment. Most, in fact, are being made in someone's living room or basement, with hand-filling and crimping tools. Such products are likely to have dust particles and other contaminants from the air in them, at the very least. Do you want to inject this in your body? Also, most legitimate pharmaceutical products have the air removed during filling, and replace it with some type of inert gas. This helps protect the sterility of the product during its long shelf life. Is your underground product filled like this? The actual steroids inside are probably different too. Does your underground lab manufacture with the proper and very expensive purified USP (pharmaceutical quality) ingredients, or the abundant and comparably very inexpensive "food grade" material currently produced on large scale in China? I know where I'd put my money if I were betting. There may be a few exceptional companies with products made to high human-use-pharmaceutical specs, but they are extremely rare. With virtually all underground companies, you are never ultimately sure that what you are getting is clean and accurately dosed. With this in mind, my recommendation has always been to avoid these companies and stick with the legitimate producers. There are enough risks to be taken here without amplifying them with poor quality "underground" drug products.

Even with the given risks and uncertainties, many bodybuilders still prefer to shop with underground companies, perhaps finding attraction in cheaper prices, higher doses, or easier availability. For whatever reason, these companies do exist, and many people do buy their products regularly. In previous editions I tried keeping a kind of a list of these operations. I quickly found, however, that was an exercise in futility. Due to the entirely secretive and unregulated nature of these companies, they are simply too elusive to keep tabs on. Half of the manufacturers listed in one book will have already gone out of business by the next. Given the illegitimate nature of this market, I have decided the best thing to do is to simply advise on the potential risks associated with underground drugs, and refrain from rating these firms individually. Instead, I will simply display product photographs, and mark them "underground". When possible we will run lab tests on them, as I believe the information presented in the lab testing section will be of much greater value than vague recommendations of what might or might not be good.

Counterfeit Steroids

Counterfeit steroids are products that are made by illegal underground operations, which resemble the packaging of legitimate steroid products. They are made specifically for sale to bodybuilders on the black market. Obviously we cannot verify the contents of these products, as real drug companies do not make them. Sometimes the counterfeit producers use real steroids in their preparations, but most often they do not. One must be aware that money should be a secondary concern when coping with the existence of counterfeit pharmaceuticals. Today we take for granted that the drug products we purchase are manufactured in a sterile environment, with filtered air that is free of contaminants. The illicit producers do not provide us this safety. Money is the issue to them, not safety. Injectables are especially of concern, as this method of delivery bypasses most of your natural defenses. Bacteria or toxins could prove very harmful if injected into your body. It is not uncommon to hear of stories in which an athlete had become very ill from using a counterfeit product. One must stay educated to protect not only money but also health.

Counterfeit steroids remain a significant problem on the black market. When you have a product in high demand and with limited availability, the market will usually fight to exist and meet demand. If need be and possible, this will include counterfeiting legitimate products. With steroids, this is a major problem because fakes are easily made, and the validity of each product difficult to ascertain without using it for a period of time. I would, however, like to report that things have been changing over the years in my observation, in terms of the magnitude of this problem. I think fake steroids became most problematic after two important events in the history of these compounds. The first was the removal of Dianabol in the late 1980s. This was an extremely popular product, and taking it off the market led many to scramble to cash in on the demand by bottling fake Dianabol. From this point forward the term "counterfeit steroid" became woven into the fabric of the black market. I think the true counterfeit explosion occurred in the early '90s, specifically right after these drugs became controlled substances in early 1991. Before this, domestic anabolics were easily diverted toward illicit avenues. I remember seeing a ton of legitimate American pharmaceuticals in 1990 and 1991. Steris suspension, cyp, Deca, it was everywhere. But a year or two later, these had all but dried up and were replaced with loads of copies. Steris clones were everywhere, while the real thing was becoming almost impossible to obtain.

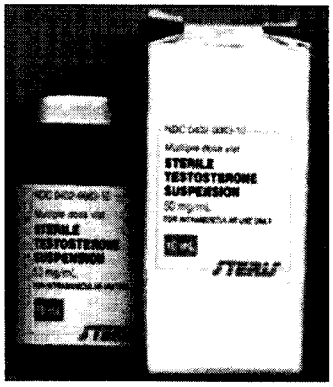
I think the mid to late 1990s was a transition time for the black market. Our domestic avenues for steroids were cut off, and it would take some time to solidify new sources for these drugs. This period of time was a perfect breeding ground for counterfeiters. If the drugs couldn't be located easily, many simply just made passable copies. Sure, as with any industry most people did business honestly and worked hard to find, even import legitimate products. But there is always a bad segment out there, and at that point in time they seemed to actually thrive on the manufacture of counterfeit goods. But we are in a new time now. The black market no longer needs to carry counterfeit products in order to meet an otherwise impossible demand. New, reliable avenues for these drugs have opened up. Most notably, our neighbor to the south, Mexico, has emerged as a world leader in legitimate steroid manufacture and sales. As a result, the U.S. black market is now bursting with Mexican products. I think the actual percentage of fakes on the market is much smaller today than 10 years ago, and your odds of buying a legitimate product are very good. Do not misconstrue these statements into thinking that fakes have gone away. Far from it, they are still a very big problem today, as they probably always will be.

If you do not obtain steroids via a doctor or North American pharmacy, it is my hope this book will provide you with the skills you need to make intelligent purchases. The current situation is not that grim. Counterfeit marketers thrive on ignorance. Most people make purchases with little or no research beforehand, and that is what the counterfeiters are relying on. You will quickly realize that a little bit of research will go a long way when shopping for anabolics, as an educated consumer is much harder to swindle.

The Basics

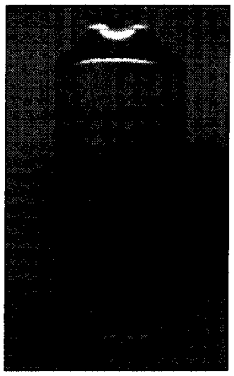
This section deals with the most general attributes to look for when attempting to spot counterfeit anabolics. Before starting, it is important to stress the fact that underground manufacturers are much more advanced today than they were 15 years ago. The fakes of today are generally much better looking, and harder to recognize than they used to be. The methods mentioned in this section are often inadequate for counterfeit identification, as only the sloppiest of fakes will fail here. Marketers have recognized some years back that in order to be competitive (and remain in business), they had to update equipment, and put together a nicer item. So, do not be overconfident if your items pass the following tests.

Matching Labels



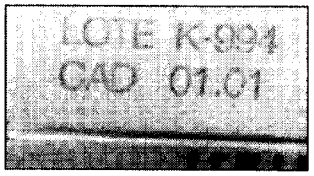
15 years ago, many fakes were put together as was the suspension shown below. The counterfeiter used the same label for both the box and vial to save time and money. In general, be suspicious of any box that carries a sticker instead of print. There are only a few exceptions to this rule, and they tend to be products of Eastern or South East Asian origin.

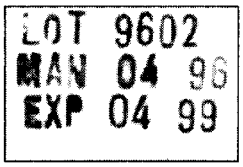
Unusual Ampules



When underground manufacturers first began to duplicate ampules, many were quite unusual in appearance. Some leaked, contained air bubbles in the glass, or were uneven. Some were so crooked, that they would fall over should you try to stand them on a desk. One would want to make sure all ampules are consistent in size and shape, do not leak, and look professional in appearance. Oil levels should be relatively even when they are lined up, and the solution clean (free of particulate) when drawn into a syringe. It should also be sized proportionately to the volume it contains. The below ampule is very odd, as it can hold about 4 or 5mL, but is a 1mL Sustanon clone. Definitely a fake.

Pill Bottles





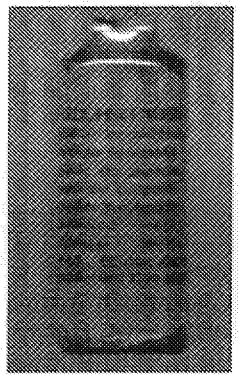
Bottles of loose pills are the crudest of all steroid knockoffs. Very easy to assemble, just about anyone looking to produce a fake could find the resources to do this. In *ANABOLICS 2000*, I mentioned that you would not find many legitimate bottles with loose pills on the black market that are real. Most foreign (human) drug marketers package tablets in foil or foil and plastic strips. In the past five years, however, numerous legitimate veterinary firms have started producing steroid tablets in bottles. Many are legit, and good buys. In fact, legitimate pill bottles are again abundant on the black market. It is, however, still a very good idea to avoid unknown products of this type, just to be safe.

Matching Labels



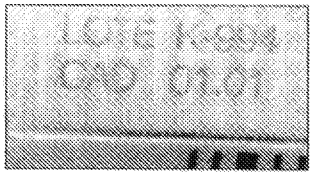
15 years ago, many fakes were put together as was the suspension shown below. The counterfeiter used the same label for both the box and vial to save time and money. In general, be suspicious of any box that carries a sticker instead of print. There are only a few exceptions to this rule, and they tend to be products of Eastern or South East Asian origin.

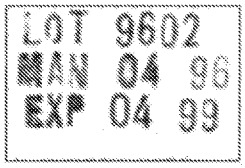
Unusual Ampules



When underground manufacturers first began to duplicate ampules, many were quite unusual in appearance. Some leaked, contained air bubbles in the glass, or were uneven. Some were so crooked, that they would fall over should you try to stand them on a desk. One would want to make sure all ampules are consistent in size and shape, do not leak, and look professional in appearance. Oil levels should be relatively even when they are lined up, and the solution clean (free of particulate) when drawn into a syringe. It should also be sized proportionately to the volume it contains. The below ampule is very odd, as it can hold about 4 or 5mL, but is a 1mL Sustanon clone. Definitely a fake.

Pill Bottles

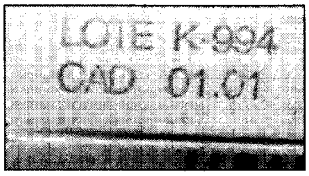


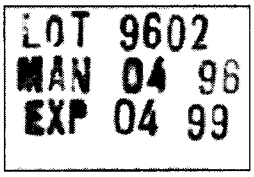


Bottles of loose pills are the crudest of all steroid knockoffs. Very easy to assemble, just about anyone looking to produce a fake could find the resources to do this. In *ANABOLICS 2000*, I mentioned that you would not find many legitimate bottles with loose pills on the black market that are real. Most foreign (human) drug marketers package tablets in foil or foil and plastic strips. In the past five years, however, numerous legitimate veterinary firms have started producing steroid tablets in bottles. Many are legit, and good buys. In fact, legitimate pill bottles are again abundant on the black market. It is, however, still a very good idea to avoid unknown products of this type, just to be safe.

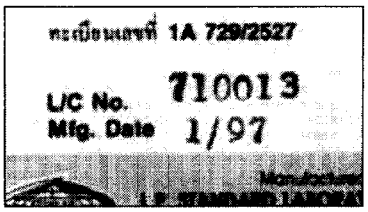
Expiration Dates

One will want to examine the expiration date on the box/vial to determine if it was stamped or printed separately from the rest of the writing. Legitimate drug manufacturers print the boxes and labels in bulk, and then run the lot number/exp. dates at the time of packaging. Counterfeiters often include these dates with the rest of the printing on the box, avoiding the need for an extra piece of equipment. It is best to see some form of stamp or indent that would tell you for certain that it was added at a later time.





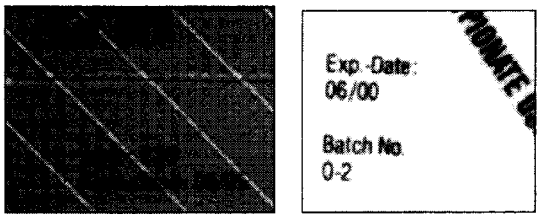
Machine stamping on Spanish Primobolan® and generic Clomid® from Greece.



Stamping on an old Anabol Label.



Computer labeling on a legitimate box of Spanish Winstrol®.



Many counterfeits look like this.

The above two counterfeits clearly have dates printed with the rest of the box. Although there are certainly exceptions to this, notably in areas of Eastern Europe, few legitimate drug manufacturers will use this method of coding their items. It is simply too cost ineffective, and inflexible. Seeing this is a fairly reliable indication you have a fake drug.

Non-Glossy Surfaces

Also take a minute to look at the area where the dates and lot codes are applied on your box and/or label. This is a particularly important thing to look at if your box is made out of glossy cardboard (it will have a shine to it). Many legitimate pharmaceutical companies will leave a small area on their boxes/labels that does not have a glossy surface. This is for the printing of the lot number and expiration date. Doing this prevents smearing of these vital numbers, which is often a problem when ink is applied directly to a glossy surface. You may have tried to jot a number down on a glossy sheet of paper at one time or another, and found that the ink rubs off easily. That is the same thing. Although certainly not done in enough frequency to consider this a rule to live by, finding a small non-gloss area on your product does show there is a little extra intricacy to it. Counterfeit drug makers will often overlook small features like this.

Country Specifics

In most countries, a pharmaceutical company is required to meet a specific set of regulations when manufacturing a drug product. This helps us when evaluating our black market anabolics, as counterfeiters often do not have the resources to keep up with these regulations (few do) and cut corners in order to release a product. Here, I will discuss some attributes to look for which will hold true for all of the drugs produced in the specified country.

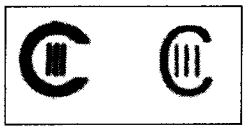
United States:

First, it is very important to stress the fact that steroids are a controlled substance in the United States. If you think this makes little difference to the underground community, think again. Current controls are very effective at keeping American products off of the black market. It is much easier for the illicit dealers to import or manufacture their own products than it is to get any volume of legitimate American anabolics to distribute. Be leery of every American item you see too,; it is in all probability a fake. The best rule is to avoid all American items unless you can personally trace them back to a pharmacy.

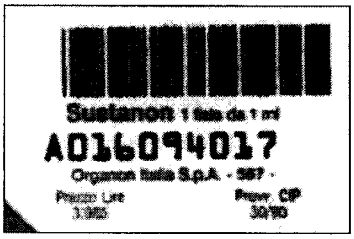
The FDA does provide us with a couple of strict requirements, which, to date, are not being met by most counterfeiters. The most predominant is that all legitimate American drugs cannot carry a label that will easily be removed from the vial/bottle. It is to be so saturated with glue that you would need a razor blade and saintly patience to remove it, small piece by small piece. This is to protect the public from the possibility of drug mislabeling. I have never seen a counterfeit in which the label could not be peeled off the bottle quickly, in one or a few large pieces. Underground labs just do not have the needed machinery, which provides us with the most efficient method for spotting fake American drugs.

If you are unsure, you can also moisten your thumb and rub the expiration date on the box and label. Quite often the ink on the counterfeit will smear and rub off. The real item may streak slightly, but will remain relatively intact and legible.

Also, being a Schedule 3 controlled substance, all human and veterinary steroids are required to bear the following tag (CIII). The only exception would be cattle implant pellets, which are technically not controlled. Some lazy counterfeiters are still duplicating items that were manufactured before 1991, when this tag was not present.

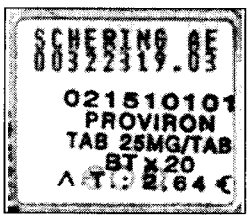


Italy:



All drugs produced in Italy will bear the pictured drug identification sticker. The sticker itself is white, with red and black print. It has also been recently modified, so that like Greek drugs it can be peeled off of a laminated surface. All new Italian drugs will have this peel-off sticker. Do not purchase an Italian drug if it is not present. Likewise, you can probably trust the product if you do see it. Drugs from Italy will also use abbreviations like Prep, Scad, and Del for the counterpart of Lot #, manufacture, and expiration dates.

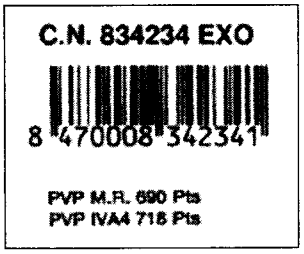
Greece:



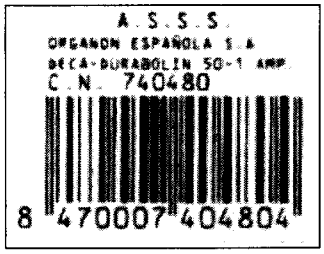
Greece also has a drug ID sticker that must be present on all drugs sold. The sticker itself rests on a laminated surface, so that it can be peeled off of the box and affixed to paperwork when a prescription is filled. Do not purchase any Greek drug without the proper sticker attached. Also of note, drugs from Greece will use the abbreviations Lot, Man, and Exp. for date stampings. Due to its inclusion in the European Union, all stickers will now display the retail price of the drug in Euros. You MUST look for the € symbol on all boxes manufactured after 2002. When looking at the coded numbers, note that two digits under AE reflect the year of manufacture, in this case 2003. More importantly, Greek stickers will show a hidden mark when placed under UV light (see: Security Stickers for more details). Some counterfeiters have copied these stickers with excellent accuracy, right down to the laminated surface. However, as of yet they have not been able to copy the hidden UV watermark.

Spain:

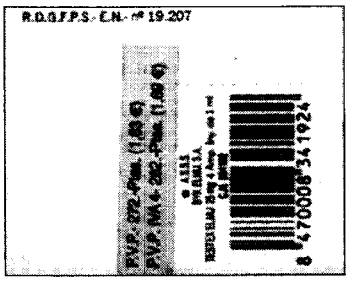
Spanish drugs do not bear a sticker, but have an area on the box that contains a bar code, and some drug information. This area will sometimes have indentations in the cardboard, so as to be removable if you tore the surface. At other times, the barcode is simply printed on the box. Spanish drugs also use the abbreviations Lote and Cad for lot number and expiration date. Recently, many drug boxes are also seen to carry Braille lettering on the box face. Although this is not yet mandatory for all drugs, finding this is certainly a good indicator of a real product. Also, due to recent inclusion in the European Union, all Spanish boxes manufactured after 2002 will display the price in both Pesetas (local currency) and Euros. Look for the € symbol somewhere on the box. Stickers are often seen affixed to boxes with this information, allowing companies to continue to use older boxes already in inventory.



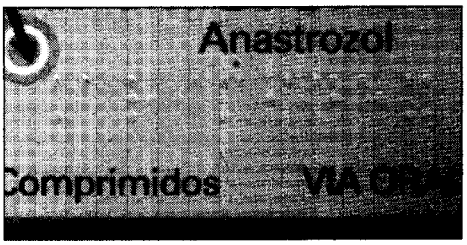
Printed Only



Removable Barcode



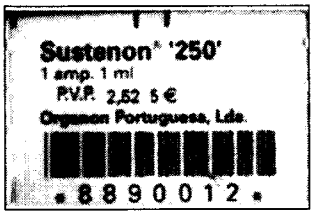
Sticker with Euro Pricing



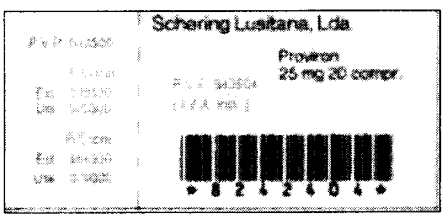
Braille Lettering

Portugal:

Drug boxes from Portugal also contain a specific area to look for. It is rectangular, and contains a bar code along with some pricing information. This is sometimes found as a sticker, but most commonly is printed, not stamped, onto the surface. In many cases, the area is scored, so that it can be removed from the box. It is likely that a counterfeiter would have a little difficulty reproducing this, although it has been done before. Drugs from Portugal will also use the abbreviations "Lote:" and "Val. Ate:" for lot number and expiration date stampings. Again, be sure to find pricing in Euros in this area.



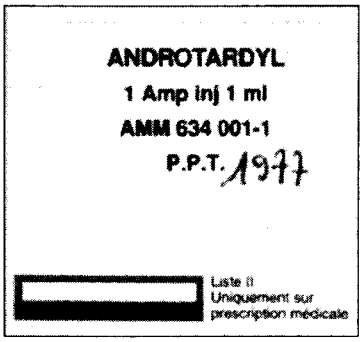
New area with price in Euros

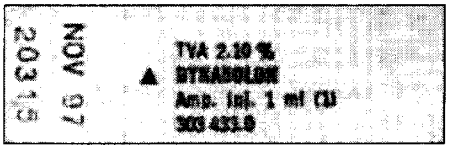


Old one without

France:

All legitimately produced French drugs will bear a rectangular sticker somewhere on the surface of the box. The text and format is often slightly different item to item, so do not rely on these as foolproof indicators of legitimacy. Also, packaging from this country always contains an area with a green and red box. In this case, it is in the lower left side of the Androtardyl box.





Security Stickers

In the multi-billion-dollar international steroid business, counterfeit steroids are big money. They are also perhaps the number one financial concern for all parties involved. These drugs cheat consumers out of their hard-earned money, and chip away millions from the bank accounts of legitimate drug manufacturers. As a company owner you can work hard for years to build a recognizable line, just to have a bunch of crooks come in and devalue your products. It doesn't take much. Once enough fakes are dumped into the marketplace, people start waking away from your company and move on to products they can better trust. The more popular your company is in this business, the more you have to worry about it. The smart ones today are not taking this sitting down.

Numerous companies have invested in security features, which they hope the counterfeiters will not have the resources to copy. These include custom designed holograms, etched vials and bottles, watermarked printing, and other general security stickers. Although to this point counterfeiters have demonstrated the capability and willingness to duplicate just about anything, a number of companies have been very successful in their implementations thus far. In this section we will look at a variety of security features in use by popular steroid companies, so you know exactly what to look for when shopping. If you stay resolved to only purchase products with the features listed in this section, you should be able to make safe purchases for some time to come.

Greek Pharmacy Stickers

As I mentioned in "Country Specifics", Greek drugs all carry a particular pharmacy sticker. What most people do not know, however, is that these stickers show a hidden mark under ultraviolet light. In the "Security Stickers" section in the back of this book you will see several different stickers, from different years of use, taken under blacklight. If you don't have a blacklight, get one! This is an ultra-reliable method for weeding out the best of Greek fakes at this time.

Animal Power (Mexico)

Animal Power is a new company in Mexico, and started operating right from the start with security in mind. In fact, they have among the most intricate set of anti-counterfeiting features in the industry. These include:

A) A hologram with the company name, "Paw" logo background, and the words "Animal Power Original Product" all included inside the holographic image.

B) Etched vials and bottles with the Animal Power Logo.

C) Custom printed flip caps for vial tops, with Animal Power "Paw" logo.

Brovel (Mexico)

Brovel recently instituted a new hologram, repacing the old one that had been a feature on the product for years. The former was a simple hologram sticker withthe word "Securite" (security) imbedded in the background of the holographic image, and the company logo printed in ink on the surface. The new stickers have the Brovel logo embedded in the hologram, and offer a greater level of sophistication for potential counterfeiters. The Brovel holograms appear on all boxes and vials, so be sure to look for them when shopping. Brovel also seals its boxes with tape printed with the company's "BL" logo in yellow ink.

Denkall (Mexico)

Denkall uses a small round hologram sticker on all of its products. This has the Denkall "DK" logo and "Securidad" imbedded in the holographic image. I have seen some good-looking copies of this hologram, so be careful. The first fakes used a hologram made from a plain silver sticker. Holding it to the light immediately revealed that there was no rainbow "prism effect", and thus that it was not really made by QV. Counterfeiters have since updated their technology, however, and are now producing much better looking fakes. The latest actually have the company name and DK logo embedded in the holographic image. They also contain the proper "X" cut in the center of the foil. The only immediate standout from the real sticker is the surface. With the fake it is very easy to turn the sticker to an angle where there is no holographic image visible.

Here, you will see the "X" shaped cut in the sticker very well, with only a shiny dull surface to contrast against. You can do this with the real thing, but it takes much more work, as some part of the holographic image is visible from most angles. If you can find that right position, the sticker will look shiny, not dull. Other than that, excellent fakery here, which opens up all but the most informed Denkall consumer to counterfeiting.

Loeffler (Mexico)

Loeffler uses a generic round silver sticker, which bears the company logo in black ink.

Nutri-Vet (Mexico)

Up until very recently, Nutri-vet had been using a holographic security sticker on all of its products. The sticker itself was rectangular, and was very generic in appearance. It didn't have the company logo, but merely displayed the word "protected" on its face. Perhaps noting less than ideal security in such a generic sticker, Nutri-Vet has since discontinued its use. Your product may or may not have this sticker, so do not let its absence worry you.

Pet's Pharma (Mexico)

Pet's Pharma uses a small circular security sticker. It is half red, half blue (both metallic inks), and printed with the company logo. There is a weak hologram in the background, but it is difficult to see through the ink. It says something generic like "Securite". This logo appears on all products.

Quality Vet (Mexico)

Quality Vet uses a square hologram sticker on all products. This has both the QV logo and "Securidad" inside the holographic image.

SYD Group (Mexico)

SYD Group uses a small round holographic sticker with the company logo, "Securidad", and web address embedded in the holographic image. This sticker is affixed to all boxes, as well as to the top of the vials.

Ttokkyo (Mexico)

Ttokkyo used to use a rectangular hologram sticker, with the company logo imbedded (as both front image and background pattern) in the holographic image. This sticker would seal one of the flaps on each box, and was affixed to the back of all pill bottles. Ttokkyo has since gone out of business, however, and no leftover stock should be remaining on the black market at this time.

Xelox (Philippines)

Xelox uses a rectangular silver sticker (not a hologram) with the company logo printed on the surface. Once the sticker is peeled from the box, the word "VOID" appears. This stick seals one of the flaps on all product boxes.

Zambon (Spain)

In an effort to curb rampant counterfeiting of their stanozolol products, Zambon has recently instituted a holographic sticker. It is a complex sticker, with the company logo embedded in the holographic image. Make sure you see this on both the oral and injectable products before buying!

British Dragon (Thailand)

British Dragon uses a small round hologram sticker on its oral products. It is a generic holographic sticker, with the company name and dragon logo printed onto the surface in regular ink. The sticker itself is affixed to all tablet pouches, and was formerly placed on all vials. The pouches also have the company dragon logo printed on the back. Additionally, make sure your pouch opens to reveal a small silica gel packet inside, which is included to preserve product freshness. This

too should be printed with the BD logo.

The BD security sticker no longer provides 100% assurance of a real purchase, so the company has stopped using it on their injectable products. Instead, they have switched to using several very sophisticated security checks to protect this side of their line. The first is a foil inlay in the paper label, which rests on the right side and displays the company logos. The area looks metallic to the eye, not dull or glossy like ink. This foil inlay is red for products shipped to Western nations, and blue for products exported to countries in Eastern Europe. Most counterfeiters will not invest the money to copy this inlay, and will opt instead to simply use colored inks here. Be sure to look closely. To further protect the line, custom tops have been purchased that have the name of the product formed directly into the plastic. Once removed, the top of the vial will reveal a rubber stopper that was also designed specifically for BD. Instead of a normal circular area, one will pierce their needle through a rubber dragon. If your injectables have all of the above traits, you should be in good shape.

British Dispensary (Thailand)

British Dispensary uses a small round hologram sticker, with the company snake logo and the words "British Dragon" as the background pattern. Both are imbedded in the image. BD has been the victim of numerous very sophisticated counterfeiting operations in the past. The hologram sticker has been doing a lot to help with this, but it has been duplicated. Be sure to examine yours closely, as it may be a copy sticker.

Serono (U.S.)

Serono, makers of Serostim recombinant human growth hormone (rHGH), have seen their share of counterfeiting. Their Serostim kits were being duplicated with such accuracy that they were actually being sold through some pharmacies. They have since adopted the use of a custom-designed hologram sticker, which has the Serono logo imbedded into the graphic. The hologram sticker itself is further imbedded into the box.

Please refer to APPENDIX G for detailed photographs of all Security Stickers

Designer Steroids

There is a fatal flaw in the steroid detection methods used by the various sports agencies. That is, in order to test someone for anabolic steroids, you need to know exactly what you are looking for. You can't just look for "steroids" in the urine, but are forced to test for each specific compound individually. To make things even more complicated, you need to know more than just what these steroids look like chemically before they are administered. You need to know what they are going to look like by the time they appear in the urine, because the original steroids themselves will largely be metabolized into other compounds. For example, nandrolone use is most easily detected by looking for its major metabolites 19-norandrosterone and 19-noretiocholanolone[80], not nandrolone itself. With this in mind, you need to investigate each potential steroid of "misuse" very closely, and each plan of detection is going to be difficult, and time-consuming, to develop. The past couple of decades have seen a lot of progress in identifying the metabolites unique to most commercially available synthetic steroids. As a result, they are almost all detectable in a urine sample now. In reality, this may still only be a drop in the bucket.

You see, several hundred, if not a thousand or more, different steroids were synthesized and investigated in various laboratories around the world during the heyday of steroid research. In most cases, their anabolic and androgenic potencies were measured, with the same methods that have been used on all of the popular steroids we know today. Only a minute fraction of these research compounds ultimately became commercially available drug products, leaving many potentially excellent steroids by the wayside. This is to be expected in any area of drug research though, as there would be no way for hundreds of similar drugs to exist in the same market. But the early research is still out there, and remains a very valuable source of information for the clever chemists of today.

Some of these old research steroids of the '50s and '60s still exist today, due to the diligence of underground chemists and researchers. We refer to these drugs collectively as "Designer Steroids", and they are here only for the purpose of defeating a drug screen. A true designer steroid is structurally unique next to the known anabolic/androgenic steroids, sharing no common metabolites, so as to be undetectable to even the most thorough steroid test. The thought of tracking down metabolites for all possible steroids compounds, to eliminate the designer steroids issue, seems like an impossible task to say the least. Even if somehow this old research were to be exhausted, and metabolites identified for all known steroids, there are still nearly limitless other ways to alter testosterone, nandrolone, or dihydrotestosterone to make unique new steroids. The designer steroid phenomena could obviously present an overwhelming problem to the sports organizations given present drug testing methods. The athletes can easily stay one or two steps ahead, and nobody on the sidelines is the wiser.

At this point in time, the fact that designer steroids exist is no secret to the sports agencies. It became painfully obvious to the IOC (International Olympic Committee) in March of 2002, when the UCLA Olympic Analytical Lab detected norbolethone, a potent c-17 alpha alkylated nandrolone derivative investigated back in the 1960s, in the urine samples from a female athlete[81](see Drug Profiles: Norbolethone). It turned out to be Tammy Thomas, a 32-year-old cyclist from Colorado Springs. This was the second time she failed a drug test actually, which resulted in a lifetime ban from competition. One of the samples in question was actually flagged previously, with a group of others, because it had extremely low endogenous steroid concentrations (suggesting suppression from exogenous steroid administration). Don Catlin, who runs the UCLA Olympic Analytical Laboratory, would connect it to the designer steroid norbolethone much later. The fact that only one of these samples retroactively tested positive suggests that other designer steroids were being used by competitors in addition to norbolethone.

Catlin was able to obtain a sample of pure norbolethone from the drug company Wyeth, and must have been greatly aided by the fact that metabolites of this steroid had been identified in earlier studies[82] The procedure for norbolethone detection has now been made available to all testing agencies, and unfortunately it is now unsafe for competition. Its value as a designer steroid has likewise vanished overnight. Perhaps it was a bad idea to use a steroid that actual made it all the way to the point of clinical trials in the U.S., as there is quite a bit of information to be found on it (not having the urinary metabolites study would have made things a lot harder on Catlin). Honestly, I can think of a number of more effective and safer compounds to use than this hideously progestational one (ooh, the water bloat). I don't think the chemist was really thinking this one through very thoroughly, and next time may want to get some help from someone that really knows these agents.

The norbolethone story quietly fell from the public conscience not long after it broke. The number of athletes that ultimately tested positive for the drug was minimal, so it really never evolved into the big scandal that was initially expected. The USADA thrives on negative media attention to steroids, because it leads to more government funding, so no doubt this lack of public outrage was a disappointment. I would suspect many involved were hoping for the global story on par with what happened when Ben Johnson was stripped of his gold medal during the 1988 summer Olympics. This would be of little matter by January 2004, however, because a much bigger doping scandal was about to hit. It involved the use of the designer steroid tetrahydrogestrinone (see Drug Profiles: THG), and this time would snare some of the biggest figures in amateur and professional sports. Not just Olympic competitors, but professional football and baseball players were being listed as potential violators. Many household names were being thrown around, including Jason Giambi, Barry Bonds, and Gary Scheffield. Over 20 athletes ultimately tested positive for THG, or were specifically named for using it in the evidence. The investigation continues today, so this number may rise. Don Catlin was once again the scientist who helped identify this compound in the first place, as well as a method of its detection in urine. This time around, however, he had a lot more help then he did with norbolethone. THG was actually handed over to the IOC testing laboratory in a syringe, by an anonymous coach who did not approve of its use. With the help of an inside informant, USADA got their Ben Johnson story, and then some. THG was at the center of the biggest organized doping scandal in the history of competitive sports, and would come to spark a more vigorous government fight against steroid use than we had yet seen. The steroid-using community is only now beginning to feel the backlash.

I include these stories not because they illustrate victories for the IOC. Quite the contrary, I believe they underline the major failings in current steroid testing methods. These two incidents logically do not represent the only two designer steroids ever used in competitive sports. For one, we surely cannot expect a 100% success rate for the IOC when we know that THG use went completely unnoticed for months, if not years. Nobody knew anything about this steroid until a sample was handed over to the testing facility, which is the same facility that had unwittingly been passing urine samples containing the same steroid just days before. Were it not for the inside source, THG would probably still be in use today. The norbolethone and THG stories spit in the face of those on the sidelines, who insist that drug testing ensures their favorite athlete is drug free. The fact is, many other potent designer steroids are probably out there, either in the books, or in the gym bags, of many of the world's top competitors. It may take years for the next designer compound to be identified by the IOC labs, and perhaps only a matter of weeks for a new one to be synthesized once it is. It is a game the drug testers simply cannot win given the tools they have available to them now. We may see repeats of these scandals in the future, but such events will only exemplify the proficiency of those working against drug testing. They show the public the unshakable will of the athletes who are going to use these agents, not the testing agencies that police them.

Anabolic Steroids and the Law

If you live outside of the United States, chances are the country that you live in has a reasonable grasp on how minimally anabolic steroids affect society as a whole. Your country is probably not sensing a public health crisis, nor locking up and persecuting bodybuilders for mere possession of these drugs. In the United States, however, things are very different. Here, it is a federal crime to possess anabolic steroids without a doctor's prescription. Get caught with some of the same hormones that you already have in your body naturally, and you could land yourself in serious trouble. The current federal penalty for the possession of anabolic steroids is up to one year in jail and a $100,000 fine for a first offense. The penalties for distribution are much more severe. If you live in the United States, and are not obtaining your drugs through a doctor's prescriptions, this section may be of particular relevance to you.

Although anabolic steroids have been classified as controlled substances in the U.S. since 1991, there was a recent expansion to this law called the Anabolic Steroid Control Act of 2004. It was signed into law by President George W. Bush in October of 2004. The new law is in effect as of January 20th, 2005. Of particular interest are the new compounds that have been added to the list of controlled drugs. They include most steroidal precursor hormones, such as androstenediol, norandrostenediol, and hydroxyandrostenedione (formestane), as well as many of the new synthetic agents, like methyl-1-testosterone, methyldienolone, and hydroxymethylnandrolone. Also added are some old commercial drugs that were missed the first time, including bolasterone, mestanolone (methylDHT), and oxabolone (Steranabol Ritardo). The new law also removes the legal requirement that a compound be proven anabolic in humans before it can be added to the list of controlled substances. This "promotes muscle growth" clause was the key roadblock to removing all of the "legal steroids" that have slipped through to market the past 8 years. The new law effectively eliminates the legal steroid loophole in the U.S.

The main body (drug listings) of the Anabolic Steroid Control Act of 2004 has been included for your review below.

> `(A) The term `anabolic steroid' means any drug or hormonal substance, chemically and pharmacologically related to testosterone (other than estrogens, progestins, corticosteroids, and dehydroepiandrosterone), and includes--
>
> `(i) androstanediol--
> `(I) 3b,17b-dihydroxy-5a-androstane; and
> `(II) 3a,17b-dihydroxy-5a-androstane;
> `(ii) androstanedione (5a-androstan-3,17-dione);
> `(iii) androstenediol--
> `(I) 1-androstenediol (3b,17b-dihydroxy-5a-androst-1-ene);
> `(II) 1-androstenediol (3a,17b-dihydroxy-5a-androst-1-ene);
> `(III) 4-androstenediol (3b,17b-dihydroxy-androst-4-ene); and
> `(IV) 5-androstenediol (3b,17b-dihydroxy-androst-5-ene);
> `(iv) androstenedione--
> `(I) 1-androstenedione ([5a]-androst-1-en-3,17-dione);
> `(II) 4-androstenedione (androst-4-en-3,17-dione); and
> `(III) 5-androstenedione (androst-5-en-3,17-dione);
> `(v) bolasterone (7a,17a-dimethyl-17b-hydroxyandrost-4-en-3-one);
> `(vi) boldenone (17b-hydroxyandrost-1,4,-diene-3-one);
> `(vii) calusterone (7b,17a-dimethyl-17b-hydroxyandrost-4-en-3-one);
> `(viii) clostebol (4-chloro-17b-hydroxyandrost-4-en-3-one);
> `(ix) dehydrochloromethyltestosterone (4-chloro-17b-hydroxy-17a-methyl-androst-1,4-dien-3-one);
> `(x) *1-dihydrotestosterone (a.k.a. `1-testosterone') (17b-hydroxy-5a-androst-1-en-3-one);
> `(xi) 4-dihydrotestosterone (17b-hydroxy-androstan-3-one);
> `(xii) drostanolone (17b-hydroxy-2a-methyl-5a-androstan-3-one);
> `(xiii) ethylestrenol (17a-ethyl-17b-hydroxyestr-4-ene);
> `(xiv) fluoxymesterone (9-fluoro-17a-methyl-11b,17b-dihydroxyandrost-4-en-3-one);
> `(xv) formebolone (2-formyl-17a-methyl-11a,17b-dihydroxyandrost-1,4-dien-3-one);

`(xvi) furazabol (17a-methyl-17b-hydroxyandrostano[2,3-c]-furazan);
`(xvii) 13a-ethyl-17a-hydroxygon-4-en-3-one;
`(xviii) 4-hydroxytestosterone (4,17b-dihydroxy-androst-4-en-3-one);
`(xix) 4-hydroxy-19-nortestosterone (4,17b-dihydroxy-estr-4-en-3-one);
`(xx) mestanolone (17a-methyl-17b-hydroxy-5a-androstan-3-one);
`(xxi) mesterolone (1a-methyl-17b-hydroxy-[5a]-androstan-3-one);
`(xxii) methandienone (17a-methyl-17b-hydroxyandrost-1,4-dien-3-one);
`(xxiii) methandriol (17a-methyl-3b,17b-dihydroxyandrost-5-ene);
`(xxiv) methenolone (1-methyl-17b-hydroxy-5a-androst-1-en-3-one);
`(xxv) methyltestosterone (17a-methyl-17b-hydroxyandrost-4-en-3-one);
`(xxvi) mibolerone (7a,17a-dimethyl-17b-hydroxyestr-4-en-3-one);
`(xxvii) 17a-methyl-*1-dihydrotestosterone (17b-hydroxy-17a-methyl-5a-androst-1-en-3-one) (a.k.a.`17-a-methyl-1-testosterone');
`(xxviii) nandrolone (17b-hydroxyestr-4-en-3-one);
`(xxix) norandrostenediol--
`(I) 19-nor-4-androstenediol (3b, 17b-dihydroxyestr-4-ene);
`(II) 19-nor-4-androstenediol (3a, 17b-dihydroxyestr-4-ene);
`(III) 19-nor-5-androstenediol (3b, 17b-dihydroxyestr-5-ene); and
`(IV) 19-nor-5-androstenediol (3a, 17b-dihydroxyestr-5-ene);
`(xxx) norandrostenedione--
`(I) 19-nor-4-androstenedione (estr-4-en-3,17-dione); and
`(II) 19-nor-5-androstenedione (estr-5-en-3,17-dione;
`(xxxi) norbolethone (13b,17a-diethyl-17b-hydroxygon-4-en-3-one);
`(xxxii) norclostebol (4-chloro-17b-hydroxyestr-4-en-3-one);
`(xxxiii) norethandrolone (17a-ethyl-17b-hydroxyestr-4-en-3-one);
`(xxxiv) oxandrolone (17a-methyl-17b-hydroxy-2-oxa-[5a]-androstan-3-one);
`(xxxv) oxymesterone (17a-methyl-4,17b-dihydroxyandrost-4-en-3-one);
`(xxxvi) oxymetholone (17a-methyl-2-hydroxymethylene-17b-hydroxy-[5a]-androstan-3-one);
`(xxxvii) stanozolol (17a-methyl-17b-hydroxy-[5a]-androst-2-eno[3,2-c]-pyrazole);
`(xxxviii) stenbolone (17b-hydroxy-2-methyl-[5a]-androst-1-en-3-one);
`(xxxix) testolactone (13-hydroxy-3-oxo-13,17-secoandrosta-1,4-dien-17-oic acid lactone);
`(xl) testosterone (17b-hydroxyandrost-4-en-3-one);
`(xli) tetrahydrogestrinone (13b,17a-diethyl-17b-hydroxygon-4,9,11-trien-3-one);
`(xlii) trenbolone (17b-hydroxyestr-4,9,11-trien-3-one); and
`(xliii) any salt, ester, or ether of a drug or substance described in this paragraph.';

State vs. Federal

Things are also more complicated for citizens of the United States than just having to pay attention to Federal laws. Most criminal prosecutions for steroid possession actually take place at the State level, and in accordance with State laws. In many instances, the State law was written with compound names and penalties that are similar to the Federal statutes. Sometimes they are vastly different in structure. In some instances, the States have even enacted more encompassing laws than the Federal government, such as California and Nevada, which already had made some of the "legal steroids" and steroidal precursors illegal when their steroid laws were first enacted. The penalties for mere possession can also vary greatly from State to State, as does the way the dosage units are counted. In some States, 100 tablets of Dianabol is looked at as felony distribution weight, instead of just the personal-use cycle it would actually be. Possession of any steroid in many regions of the country can land you in jail for up to five years, sometimes more. Sometimes the State courts so misunderstand steroids, that they weigh the carriers in a pill or injectable vial when making prosecutions. In such jurisdictions, a single 30ml vial of testosterone can be interpreted as a 30-gram dealing dose of drug. Don't be surprised if you hear a prosecutor saying, "He is a drug dealer your honor. He had more than a full ounce in his trunk!" Two states actually do not have any laws against steroid possession at all. It is a big mess.

There is a tremendous amount of confusion over anabolic steroids in the United States, especially at the State level. Given the recent push from the Federal government for increased prosecutions, as well as heightened controls and expanding laws for possession, things are likely to get even tougher for steroid-using athletes here. If you are not obtaining your medications legally through a physician's prescription, it is a good idea to study the steroid laws closely, particularly those of your State. It is important to understand what particular risks you are taking, so you can make decisions accordingly. For example, the last thing you want to be doing in many of these States is driving around with your bottle of Dianabol in the glove compartment, just so you can pop a few tabs after you workout. The book "Legal Muscle: Anabolics in America" by lawyer Rick Collins [teamlegalmuscle.com] is an excellent review of the legal situation concerning steroids in the U.S., and provides invaluable eye-opening advice, including a detailed breakdown of all State steroid laws to sort out the mess described above. I advise everyone taking legal risks to use these drugs to pick it up. It could save you a great deal of time, money, and grief.



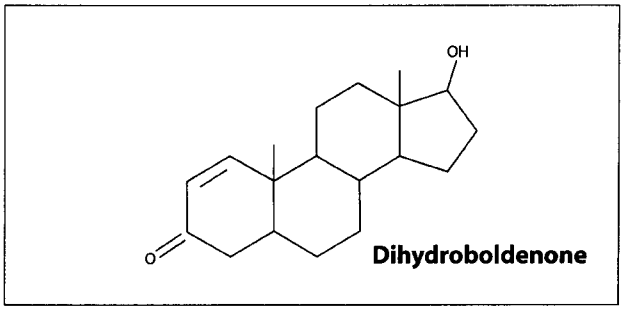
DRUG PROFILES

ANABOLIC/ANDROGENIC STEROIDS Drug Profiles

1-Testosterone (dihydroboldenone)

Androgenic	100
Anabolic	200
Standard[83]	testosterone propionate

Chemical Names	17beta-hydroxyandrost-1-en-3-one 5alpha-androst-1-en-3-one,17beta-ol
Estrogenic Activity	none
Progestational Activity	no data available



Dihydroboldenone

1-Testosterone is a dihydro (5-alpha reduced) form of boldenone, hence its chemical name dihydroboldenone. It is also structurally almost identical to Primobolan (methenolone), except that 1-testosterone lacks the additional 1-methyl group that was used to increase steroid oral bioavailability. There is a definite trade off in this. One the one hand, the lack of 1-methylation makes 1-Testosterone a much more powerful hormone than Primobolan. In standard assays, 1-testosterone exceeds Primobolan in potency by a factor of approximately 10. This is most certainly a good thing if you want a potent steroid, as the two are worlds apart in this regard. But on the other hand, lack of 1-methylation means that it will be more difficult to get 1-testosterone into your body via oral administration. With Primobolan, the 1-methyl group is really the only trait that significant slows hepatic metabolism. Without it, oral dosing is not going to be an easy option. Therefore, we need to be a little crafty in order to get the most out of 1-testosterone, as the traditional oral route would require very high daily doses to produce an anabolic effect.

In looking at its basic structural properties, we can point out a few obvious traits. For starters, as a 5-alpha reduced derivative of boldenone, 1-testosterone is unable to undergo 5-alpha reduction in the human body. Its activity is much more along the lines of a balanced anabolic than an androgenic steroid, as it is not potentiated in androgen-responsive target tissues such as the skin, scalp, and prostate like testosterone is. In terms of its ability to build muscle tissue, its anabolic potency is quite profound. The standard rat assays actually show it to be considerably more active than boldenone, nandrolone, dihydro-testosterone, Primobolan, and even the base androgen testosterone itself. 1-testosterone is without question the most potent naturally occurring steroid to be isolated. Only the synthetics, with their greatly extended half-lives and biological activities, begin to exceed 1-testosterone in milligram for milligram potency.

Being a 5-alpha reduced steroid, 1-testosterone is also incapable of being converted to estrogen. This means there is little chance for gynecomastia, bloating, or fat retention. Users of 1-test are more often than not reporting very lean gains in muscle mass, which are often accompanied by body fat reductions and an increased appearance of hardness to the physique (effects that would be characteristic of a strong non-aromatizing anabolic steroid). The only concern with this is that estrogen plays an important role in not only certain muscle-building (anabolic) processes, but also in the functioning of the central nervous system. One of the few common side effects to be reported with this steroid is tiredness and lethargy, something seen with aromatase inhibitors from time to time. For this reason, many will stack 1-testosterone with some form of aromatizable steroid, so as to bring estrogen back up to near physiologically normal levels.

As I mentioned, 1-testosterone is not intrinsically a very orally active hormone. Therefore, it is a little difficult to create a product of extreme potency with this method of administration. It is very much like taking a powerful hormone like testosterone, and trying to stuff it in a capsule. The liver is too efficient at breaking steroids down for this to be effective. When 1-testosterone was available as a supplement legally in the U.S., I had formulated the first oil-solubilized softgel using 1-testosterone tetrahydropyranyl ether. The design of this product was similar to that of Andriol, which dissolves an ester-modified form of testosterone (undecanoate) in oil to help deliver the steroid to the body via the lymphatic system (bypassing the destructive first-pass through the liver). We later switched to 1-testosterone hexyldecanoate, which was more oil soluble and allowed for a higher per capsule dosage and greater absorption. These are the only oral 1-testosterone products I ever recommended. Some were also formulating this steroid in transdermal gels, which is another moderately effective method of getting this

hormone in your body. Lastly, there were a few products that were made as 1-testosterone injectables (as 1-testosterone cypionate), which reportedly worked very well. This would be the preferred method of using 1-testosterone.

1-testosterone was legally sold on the sports supplement market in the United States starting in early 2002, and remained on the market in various forms until it was finally classified as a Class III controlled substance in January 2005. Old product will likely be found in black market circulation for the next couple of years, until "pre-ban" stockpiles dry up. Many have reported gains in lean mass exceeding 10-15 pounds in only a 6-8 week period with this steroid, which was phenomenal when 1-testosterone was a legal supplement. Unfortunately, 1-testosterone is now just another illegal steroid. Should you still find it, recommended dose for men is usually in the range of 100-250mg per day with oil-solubilized softgels, or roughly 100mg daily when applied transdermally. Injectable dosages would fall in the range of 100-200mg per week (as 1-testosterone cypionate). One must keep in mind that 1-testosterone is several times more potent than testosterone, so a 200mg injection might provide an effect one would expect with as much as 400-600mg of an injectable testosterone ester. 1-Testosterone is probably a little too strong to recommend to women, for fear of virilization symptoms. Should one risk it, it is usually advised to stick with a very low dose, and be sure to discontinue the product immediately if any unwelcome side effects become apparent. I have seen excellent results on a single 25mg 1-testosterone THP softgel capsule per day in women, but again find the steroid a little strong to recommend myself.

1-Testosterone remained lost in the steroid research books for decades before it finally came to market as a supplement. There are probably many reasons for its lack of prior introduction as a prescription drug. For one, there is simply no need to develop an endless catalog of steroid products. The drug market is a business after all, and with every new drug that is released to treat the same condition as existing drugs, the more diluted the market becomes. I could show you books with literally hundreds, if not a thousand or more, of anabolic/androgenic steroids that were researched but never sold as commercial drug products. This is how drug research typically goes. Another point of interest is that 1-testosterone is intrinsically irritating for some unexplained reason. This makes injection with the base hormone, even transdermal delivery at times, a little difficult to do comfortably. However, injections with 1-testosterone cypionate are reportedly much more comfortable. Some even tend to notice a burning sensation when urinating while taking any 1-testosterone product. To my knowledge, this side effect has never been a dangerous to anyone, and is looked at more as an inconvenience than dangerous. This trait is clearly not present in Primobolan, which perhaps explains why only the 1-methylated (and 2-methylated, *see: Drug Profiles for Anatrofin*) form of this steroid really ever made it to market.

Anabolic NA® (nandrolone/methandriol blend)

Androgenic

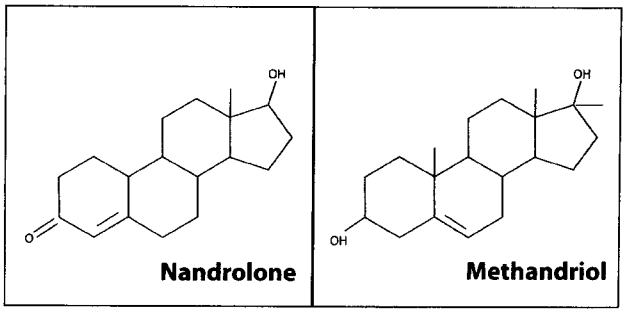
Anabolic

Standard

Chemical Names

Estrogenic Activity

Progestational Activity



Anabolic NA® is another one of those unique blended injectable veterinary steroid products that Australia is so famous for. It contains a mixture of methandriol dipropionate and nandrolone cypionate, the two steroids present in a concentration of 45mg/mL and 30mg/mL respectively. This adds up to a total of 75mg per milliliter of steroid, or 750mg total for the 10ml multi-dose vial it comes in. These two agents are primarily anabolic in nature, and tend to provide their users a very good ratio of muscle growth to androgenic/estrogenic side effects (for a more comprehensive discussion of these two steroids individually, please see their respective profiles). Anabolic NA® is not quite a bulking drug, but its individual component should make it an excellent lean tissue builder.

For a long time Anabolic NA® was sold by Jurox, a company with a 30-year history of manufacturing veterinary drugs in Australia. But not long ago Jurox scaled back its line of steroid products considerably, amidst a great deal of public controversy concerning their exportation of high volumes of steroids to Mexico (known to feed the American black market). Many of their discontinued products are currently being sold under the SYD Group label. SYD is technically a Mexican company, but their steroid products (most which were formerly made by Jurox) were all first manufactured, registered, and sold by their Australian parent company of the same name. SYD Group recently acquired Grupo Comercial Tarasco as well, a company that was formed several years ago specifically to import the Jurox products into Mexico. For a period of time all of these products were being sold in Mexico under the Grupo Comercial Tarasco label, however, SYD is now the sole brand using the trademarks and formulations. They are even sporting a cartoon Kangaroo Mascot called Jim Anabolic to help them out (I am getting serious flashbacks of Joe Camel here). At this time it does not appear that Anabolic NA® is among the products they continue to sell.

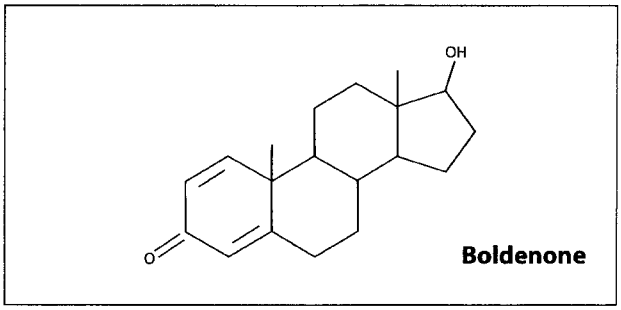
Although Anabolic NA® uses the medium to long acting ester cypionate with its nandrolone base, which would typically need to be injected only once per week, this is complemented by a relatively fast acting methandriol dipropionate. As a result, this drug is probably best administered twice weekly to keep blood levels more uniform. Effective weekly doses for male bodybuilders would be in the range of 300-450mg, which would equate to 4-6cc of oil volume in total. Due to the relatively modest steroid concentration, most will opt to add Anabolic NA® to a cycle based on other drug instead of using it in higher (uncomfortable) doses alone. With this in mind it is usually used at a dose of 2-3mL, or 150-225mg. Stacked with 200-300mg of testosterone per week, the user will likely find a favorable balance of anabolic and androgenic effect.

Anabolic NA® is unavailable at this time. Being that it has been so long since a real version of this drug was being made, no forms located on the black market should be trusted.

Anabolicum Vister (quinbolone)

Androgenic	50
Anabolic	100
Standard	testosterone

Chemical Names	1,4-androstadiene-3-one,17beta-cyclopentenyl 1-dehydrotestosterone cyclopentenyl
Estrogenic Activity	low
Progestational Activity	low



Boldenone

Anabolicum Vister is an oral anabolic steroid that was produced in the 1970's by the Parke Davis Company. Peculiarly this product was only sold in Italy, and never had much commercial success outside of this country. The active substance in this product is quinbolone, which is an oral form of the anabolic steroid boldenone. As such it is chemically identical to the veterinary steroid Equipoise® except in this case the boldenone base has a 17beta cyclopentenyl (enol) ether attached instead of an undecylenate ester. The ether functions very much like an ester however, increasing the fat solubility of the compound and protecting it from metabolism. While esterified boldenone was designed as an injectable medication, here the similarly structured ether was used as a means to increase the oral bioavailability of the hormone. The design of this steroid is likewise very similar to the testosterone product Andriol® (testosterone undecanoate), which is also an encapsulated, oil dissolved steroid intended for oral administration. Our experiences with Andriol® remind us that this type of steroid delivery is not very efficient however; but with frequent dosing a steady blood hormone level could be achieved with both of these compounds nonetheless.

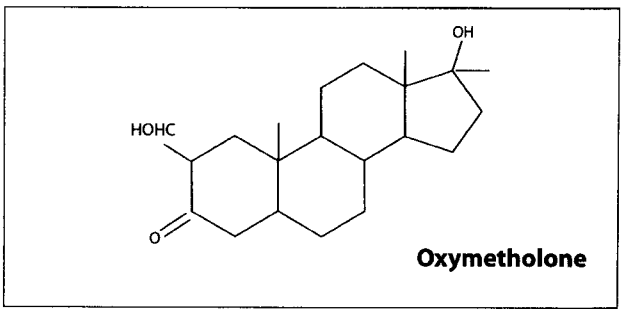
The effects of this drug would likewise be characteristic of that reported with Equipoise®. Androgenic side effects are not very prominent when boldenone is taken in moderate doses, except among sensitive individuals. Anabolicum Vister would therefore not cause many problems in terms of estrogenic side effects, and gynecomastia would not be a big concern for the user. The hormone boldenone is able to convert to estradiol in the body, however it seems to do so with a relatively low affinity (about half that of testosterone). So while mild water retention is sometimes documented with this steroid it will usually be related to a more ambitious dosing pattern. Additionally Anabolicum Vister was one of only a few commercially available oral compounds that were not c17 alpha alkylated. Likewise this steroid is not liver toxic, even when used at higher doses for extended intervals. Overall it was one of the safest, most well tolerated oral steroids in production. It was said that in Italian medicine it was prescribed to elderly patients to enhance general health and well being, particularly after weakened from illness, and was even prescribed to postmenopausal Women who were feeling the effects of age. It is unfortunate that with the atmosphere surrounding anabolics in the U.S. such avenues are not more readily explored. One would think that in many instances a mild anabolic could be used to great benefit for an elderly patient. It is further unfortunate that in Italy it seems this unique oral form of boldenone has been discontinued in spite of its favorable design and clinical safety record. Since this was the only country making this steroid it can now be considered extinct.

The disappearance of this product from the black market seemed to go surprisingly unnoticed, probably because athletes usually considered this steroid too mild to warrant consideration. Even when taken in high doses, muscle mass gains would typically be very slight. Clearly this was not simply an alternative to injecting Equipoise®, no doubt due to the low bioavailability of this compound. Used in combination with other steroids it might have proven to have solid benefit as an anabolic, but the money would still have been better spent on a number of more cost-effective items. Men who have experimented with this compound generally found a dosage of 80-120mg (8-12 capsules) per day necessary for any noticeable results. It would obviously not have much use in a bulking cycle, but perhaps the added weak effect might have been welcome during cutting cycles. Women who were curious about steroid use might have found this steroid ideal to experiment with though, perhaps finding notable muscle growth and low side effects on 30-40mg (3-4 capsules) daily. Of course with its stop in production Women are still left with the orals oxandrolone, Primobolan or Winstrol® to fiddle with.

Anadrol®- 50 (oxymetholone)

Androgenic	45
Anabolic	320
Standard	methyltestosterone (oral)

Chemical Names	2-hydroxymethylene-17a-methyl- dihydrotestosterone 4,5-dihydro-2-hydroxymethylene-17-alpha-methyltestosterone 17alpha-methyl-2-hydroxymethylene-17-hydroxy-5alpha-androstan-3-one
Estrogenic Activity	high
Progestational Activity	not significant



Oxymetholone

Anadrol 50® is the U.S. brand name for oxymetholone, a very potent oral androgen. This compound was first made available in 1960, by the international drug firm Syntex. Since oxymetholone is quite reliable in its ability to increase red blood cell production (and effect admittedly characteristic of nearly all anabolic/androgenic steroids), it showed particular promise in treating cases of severe anemia. For this purpose it turned out to be well suited, and was popular for quite some time. But recent years have brought fourth a number of new treatments, most notably the non-steroidal hormone Epogen (erythropoietin). This item is shown to have a much more direct effect on the red blood cell count, without the side effects of a strong androgen. Financial disinterest finally prompted Syntex to halt production of the U.S. Anadrol 50® in 1993, which was around the same time they decided to drop this item in a number of foreign countries. Plenastril from Switzerland and Austria was dropped; following soon was Oxitosona from Spain. Many Athletes feared Anadrol might be on the way out for good. But new HIV/AIDS studies have shown a new light on oxymetholone. These studies are finding (big surprise) exceptional anti-wasting properties to the compound and believe it can be used safely in many such cases. Interest has been peaked, and as of 1998 Anadrol is again being sold in the United States. This time we see the same Anadrol brand name, but the manufacturer is the drug firm Unimed. Syntex continues to market & license this drug in a number of countries, however (under a few different brand names).

Anadrol is considered by many to be the most powerful steroid commercially available, with results of this compound being extremely dramatic. A steroid novice experimenting with oxymetholone is likely to gain 20 to 30 pounds of massive bulk, and it can often be accomplished in less than 6 weeks, with only one or two tablets per day. This steroid produces a lot of trouble with water retention, so let there be little doubt that much of this gain is simply bloat. But for the user this is often little consequence, feeling bigger and stronger on Anadrol than any steroid they are likely to cross. Although the smooth look that results from water retention is often not attractive, it can aid quite a bit to the level of size and strength gained. The muscle is fuller, will contract better and is provided a level of protection in the form of "lubrication" to the joints as some of this extra water is held into and around connective tissues. This will allow for more elasticity, and will hopefully decrease the chance for injury when lifting heavy. It should be noted however, that on the other hand the very rapid gain in mass might place too much stress on your connective tissues for this to compensate. The tearing of pectoral and biceps tissue is commonly associated with heavy lifting while massing up on steroids. There can be such a thing as gaining too fast. Pronounced estrogen trouble also puts the user at risk for developing gynecomastia. Individuals sensitive to the effects of estrogen, or looking to retain a more quality look, will therefore often add Nolvadex® to each cycle.

It is important to note, however, that this drug does not directly convert to estrogen in the body. Oxymetholone is a derivative of dihydrotestosterone, which gives it a structure that cannot be aromatized. As such, many have speculated as to what makes this hormone so troublesome in terms of estrogenic side effects. Some have suggested that it has progestational activity, similar to nandrolone, and is not actually estrogenic at all. Since the obvious side effects of both estrogens and progestins are very similar, this explanation might be a plausible one. However we do find medical studies looking at this possibility. One such tested the progestational activity of various steroids including, nandrolone, norethandrolone, methandrostenolone, testosterone and oxymetholone[84]. It reported no significant progestational effect inherent in oxymetholone or methandrostenolone, slight activity with testosterone and strong progestational effect inherent in nandrolone and norethandrolone. With such findings it starts to seem much more likely that oxymetholone can

intrinsically activate the estrogen receptor itself, similar to but more profoundly than the estrogenic androgen methandriol. This means that we can only combat the estrogenic side effects of oxymetholone with estrogen receptor antagonists such as Nolvadex® or Clomid®, and not with an aromatase inhibitor. The strong anti-aromatase compounds such as Cytadren and Arimidex® would similarly prove to be totally useless with this steroid, as aromatase is not involved.

Anadrol is also a very potent androgen, and tends to produce many pronounced, unwanted androgenic side effects. Oily skin, acne, and body/facial hair growth can be seen very quickly with this drug. Many individuals respond with severe acne, often requiring medication to keep it under control. Some of these individuals find that Accutane works well, which is a strong prescription drug that acts on the sebaceous glands to reduce the release of oils. Those with a predisposition for male pattern baldness may want to stay away from Anadrol completely, as this is certainly a possible side effect during therapy. And while some very adventurous female athletes do experiment with this compound, it is much too androgenic to recommend. Irreversible virilization symptoms may be the result and occur very quickly, possibly before you have a chance to take action.

It is interesting to note that Anadrol does exhibit some tendency to convert to dihydrotestosterone, although this does not occur via the 5-alpha reductase enzyme (responsible for altering testosterone to form DHT) as it is already a dihydrotestosterone based steroid. Aside from the added c-17 alpha alkylation (discussed below), oxymetholone differs from DHT only by the addition of a 2-hydroxymethylene group. However, this grouping cclearly supports this notionan be removed metabolically, reducing oxymetholone to the potent androgen 17alpha-methyl dihydrotestosterone (mestanolone; methyldihydrotestosterone)[85]. There is little doubt that this biotransformation contributes at least on some level to the androgenic nature of this steroid, especially when we note that in its initial state Anadrol has a notably low binding affinity for the androgen receptor. So although we have the option of using the reductase inhibitor finasteride (*see: Proscar®*) to reduce the androgenic nature of testosterone, it offers us no benefit with Anadrol as this enzyme is not involved.

The principle drawback to Anadrol is that it is a 17alpha alkylated compound. Although this design gives it the ability to withstand oral administration, it can be very stressful to the liver. Anadrol is sometimes suspected of being particularly dubious because it requires such a high milligram amount per dosage. The difference is great when comparing it to other oral steroids like Dianabol or Winstrol®, which have the same c-17alpha alkylation. They have a slightly higher affinity for the androgen receptor, and are effective in much smaller doses (seen in the 5mg and 2mg tablet strengths). Anadrol has a lower affinity, which helps explain why we have a 50mg tablet dosage. When looking at the medical requirements, the recommended dosage is very high, landing between 1mg and 5mg per kilogram of body weight. This would give a 220lb person a dosage as high as 10 Anadrol tablets (500mg) per day. There should be little wonder why when liver cancer has been linked to steroid use, Anadrol is generally the culprit, and high medical doses generally the setting. Athletes actually never need such a high dosage, and will generally take in the range of 1-3 tablets per day. Many happily find that one tablet is all they need for exceptional results, and avoid higher amounts. Cautious users will also limit the intake of this compound to no longer than 4-6 weeks, and have their liver enzymes checked regularly with a doctor. Kidney functions may also need to be looked after during longer use, as water retention/high blood pressure can take a toll on the body. Before starting a cycle, one should know to give Anadrol the respect it is due. It is a very powerful drug, and not always a friendly one.

When discontinuing Anadrol, the crash can be as equally powerful as the on-cycle results. To begin with, the level of water retention will quickly diminish, dropping the user's body weight dramatically. This should be expected, and not of much concern. What is of great concern is restoring endogenous testosterone production. Anadrol will quickly and effectively lower natural levels during a cycle, so HCG and/or Clomid®/Nolvadex® are a must when discontinuing a cycle. The common practice of slowly tapering off your pill dosage is wholly ineffective at raising testosterone levels. Without ancillary drugs, hormonal imbalance will likely strip a good amount of the muscle that was gained during the cycle. If HCG and/or Clomid®/Nolvadex® are used properly, the person should be able to maintain much more of it. Before going off, some alternately choose to first switch over to a milder injectable like Deca-Durabolin®. This is in an effort to harden up the new mass, and can prove to be an effective practice. Although a drop of weight is likely when making the switch, the end result should be the retention of more (quality) muscle mass with a less pronounced crash (in a sort of stepping down, first off the water bloat, and next off the hormones). Remember ancillaries though, as testosterone production will not be rebounding during Deca therapy.

Oxymetholone remains widely available on the black market. Although there are many counterfeits in circulation, there are also enough legitimate companies making the drug to make some good suggestions when shopping.

British Dragon makes **Oxydrol** 50mg tablets. This is a square green pill, which is scored in the middle. It reads "BD" on one side and "50" on the other. The product is sold in foil lined white paper packets containing 100 tablets each. The back of the pouch now carries the BD logo, and inside can be found a logo printed silica gel packet as well (added to preserve product freshness). To deter counterfeiting, the company further uses a hologram sticker with the company's dragon logo printed on the outer surface with blue ink, which should be affixed to all oral products.

Animal Power is selling oxymetholone in Mexico under the **Metalon Tabs** brand name. It comes in a strength of 75mg per tablet, with 100 tablets packaged to each glass vial. Animal Power uses several security features to deter counterfeiting, including a distinct cardboard box, custom printed vials and bottles, and an Animal Power security hologram sticker (on both box and bottle) that carries the company logo imbedded in the holographic image.

Oximetalon 75mg tablets from Denkall (Mexico) are still common on the black market. The higher than normal dosage makes each 100-count bottle of Oximetalon equivalent to a bottle and a half of any standard oxymetholone product. The bottle itself is white, and comes with a child-resistant top. Be sure to look for the Denkall security hologram sticker. Be sure it is a real hologram, and not just a close-looking substitute made from a standard silver sticker, or a counterfeit of lesser quality (*see: Security Stickers for more information*).

Quality Vet sells a similar oxymetholone product in Mexico, called **Oxivet QV**. It is also made in the form of a 75mg tablet, with 100 packaged to a bottle. Each bottle is also boxed, and the standard QV security hologram sticker protects both from counterfeiting. Be sure to look for this when shopping. QV is a very reputable company, and Oxivet a recommended product.

Ttokkyo's **Oxymetolona** product has been out of circulation for some time now. If you find it on the black market at this point, it is most likely going to be a counterfeit. Avoid.

Androlic continues to be readily sold in Thailand, manufactured by the drug firm British Dispensary. It comes in a dark plastic bottle with a silver cap and bright green label. No versions of this brand are still circulating in pouches, as all such preparations have been discontinued years ago. The tablets themselves should be green, with a hexagon shape and company snake emblem stamped in its surface.

Kanestron is a veterinary version of oxymetholone made in Mexico by the veterinary firm Loeffler. This product is legit, although I have not seen lab test results on it yet. The line, in general, has been hit or miss in the past as far as dosing goes, so I wouldn't count on getting the full 50mg every time. Note that Loeffler has recently started using a security sticker to deter counterfeiting.

Anadrol 50® (U.S.): Unimed Anadrol 50® is rarely found on the black market. It is also going to be extremely expensive when it does, running nearly $15 per 50mg tablet at most pharmacies. With its high cost and tight controls, never purchase this product on the black market unless you can personally trace it to someone receiving it from a doctor.

Brovel's new oxymetholone product, called **Anabrol**, has been scarce on the black market in recent months, although I believe it is still in production. Unfortunately, I was unable to order some for lab testing. The product itself comes in the form of a 50mg tablet, with 100 being packaged in each white plastic container. A cardboard box further encloses the bottle (do not purchase this product without its accompanying box). Be sure to look for the Brovel security hologram as well, which will help assure legitimacy.

Iran has become an active source country for steroids as of late, and their generic oxymetholone product from **Alhavi** is no doubt one of their most popular exports. This product carries one hundred 50mg tablets in a dark amber glass bottle. The bottle itself is sealed with a strip of holographic tape, which carries an embedded image of the company name.

Oxymetholone is still available in Turkey under the **Anapolon** brand name. These are packaged in a foil & plastic push through strip of 20 tablets, 1 strip per box. The back reads Anapolon Tablet, Oksimetolon 50mg in black ink. There are a good number of counterfeits of this brand, so shop carefully. Note that the real tablets are a sort of off white to yellowish color. A very good looking fake is currently circulating that uses pure white tablets. They are easy to spot once you know to look for this. Avoid. Also, some counterfeiters have been making mistakes on the company logo. Be sure the letters AI touch in your logo, to form one graphic. Often the fakers just use two separate letters to form a logo, which make a close, but not perfect, match.

Oxybolone from Greece is no longer in circulation. You might be able to find old stock on the black market, in which case it should carry a pharmacy sticker that will show a hidden image under black light (*see: Security Stickers for more information*).

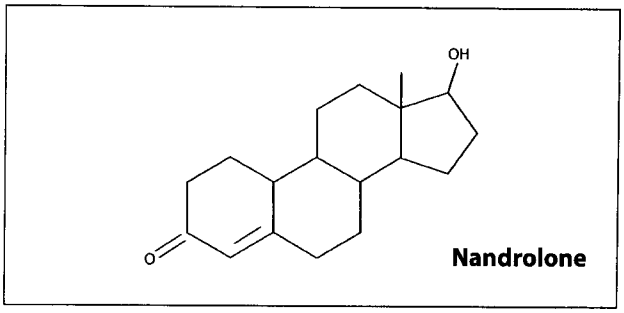
Brazilian **Hemogenin** is still being sold under the Aventis label. Counterfeits of this brand have not been as prominent as they were when Syntex/Sarsa was selling this drug. Exportation of the legitimate product to foreign markets, however, has not been as strong as it was in the past either (cheaper forms of Anadrol from Turkey and Mexico seem to dominate these days). Should you find it properly packaged, your odds are good of making a safe purchase.

Han Seo, Han Bul, Korea United, and Dongindang produce Oxymetholone in Korea. The product from Han Seo is most popular. There are numerous fakes of "Korean Anadrol", making them all risky purchases.

Anapolon from the UK and **Oxitosona** from Spain are both long out of commerce now. Occasionally, counterfeiters still duplicate the packaging on these old time items. Don't be fooled. These products were discontinued so long ago that any product that one could theoretically find on the black market (if, for example, someone were to have stockpiled large amounts) would have long been expired already.

Anadur® (nandrolone hexyloxyphenylpropionate)

Androgenic	37
Anabolic	125
Standard	testosterone
Chemical Names	19-nortestosterone hexyloxyphenylpropionate 17beta-Hydroxyestra-4-en-3-one hexyloxyphenylpropionate
Estrogenic Activity	low
Progestational Activity	moderate



Nandrolone

Anadur was a popular trade name for the injectable steroid nandrolone hexyloxyphenylpropionate. This is one of the longer acting nandrolones, similar in effect to the veterinary steroid Laurabolin. One injection would remain active in the body for approximately four weeks, again similar to that seen with nandrolone laurate. Although active for such a long time, athletes usually inject this steroid on a weekly basis due to its low dosage. Produced at a maximum strength of 50 mg/mL, one would most commonly inject 100-150mg (2-3 mL) two or three times weekly. This dosage is sufficient for the slow, even buildup of quality muscle mass associated with nandrolone esters. Since this drug has such a slow release, it may take a considerable amount of time for blood levels to reach a peak. Gains from Anadur are therefore likely to become pronounced only after three or four weeks have past. This characteristic makes it suited for longer cycles, often lasting more than 10 or 12 weeks.

The side effects of Anadur will be those associated with all nandrolones. Estrogen buildup is slight at best, so water retention and gynecomastia should only be a problem among sensitive individuals. The need to use an anti-estrogen like Nolvadex® is likewise not common with this drug. Additionally, this compound does undergo a change via the 5a-reductase enzyme, which is responsible for changing testosterone into DHT. But here the product is dihydronandrolone, a metabolite less androgenic than the parent nandrolone. Likewise androgenic side effects are much less pronounced with this drug. Women are particularly attracted to nandrolone preparations, as they encounter virilization symptoms very infrequently with these drugs if taken in low doses. Since androgenic activity can still become evident with use, even with nandrolone, a shorter acting version like Durabolin® would technically be the better choice for female athletes (allowing the user greater control over blood hormone levels). Those women who do use this product find a dosage of 50 to 100mg every 10 days sufficient.

Anadur is a good base steroid, and combines well with a variety of different compounds. For a mass cycle, the addition of a powerful oral such as Dianabol or Anadrol 50® should prove very effective. This should elicit exceptional muscle growth, while at the same time allowing the user to keep the oral dosage within limits. Three or four Dianabol tablets (15-20mg) or one to two Anadrol 50s (50-100mg) in combination with 200mg weekly Anadur is a very nice range to work in. Hopefully the result will be a more solid, quality muscle gain than when using these potent steroids alone. The low estrogen conversion rate of nandrolone also makes Anadur somewhat attractive for cutting purposes. Combining Anadur with Winstrol®, Primobolan® or Oxandrolone should result in a highly defined, quality look to the muscles without excess water. This combination should noticeably preserve the muscle density during times of calorie restriction, otherwise a destructive period of time to the muscles.

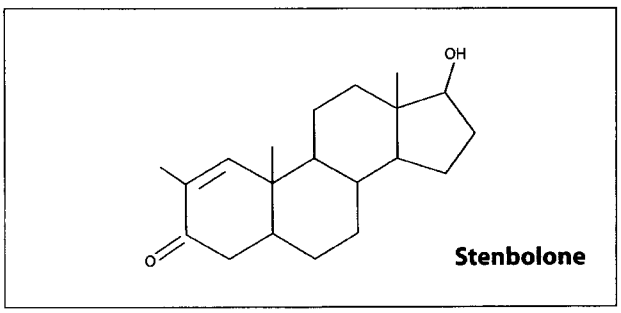
Anadur is not being produced at this time. Avoid all products bearing this trade name.

Anatrofin (stenbolone acetate)

Androgenic	107-144
Anabolic	267-332
Standard	testosterone

Chemical Names	2-methyl-5a-androst-1-en-17b-ol-3-one

Estrogenic Activity	none
Progestational Activity	no data available



Stenbolone

Stenbolone acetate is an injectable anabolic steroid that was introduced by Syntex in 1963. Syntex had sold this agent for a brief period of time in the United Kingdom and Mexico, under the brand name Anatrofin. It was also sold through license in Spain under the basic (generic) name Stenbolone. Stenbolone acetate has long since been discontinued, with the last commercial preparation reportedly withdrawn from market (voluntarily) in the early 1980's. This steroid was reported to have been developed by Syntex in an effort to find a less toxic alternative to Anadrol. Anatrofin was, likewise, looked at as a non-methylated injectable alternative to this powerful oral steroid, used in similar areas of clinical research and medicine (mainly in the treatment of Anemia). Its demise was likely financially driven, as Anatrofin disappeared at a time when many manufacturers were dropping their lesser-used steroids.

Structurally stenbolone is a 2-methylated derivative of 1-testosterone (dihydroboldenone). In this case, the resulting steroid remains very similar to its non-methylated parent, with only modest differences in anabolic and androgenic potency. On the tissue building side, stenbolone is probably a little weaker on a milligram for milligram basis than 1-testosterone. It is a little difficult to make direct comparisons, however, as the studies on these two steroids used different drugs as standards of comparison. As an androgen, stenbolone is also probably slightly weaker than 1-testosterone, when you are talking milligram for milligram dose. The anabolic/androgenic ratio, which is really the most relevant measure, remains roughly equal between the two steroids. Users will adjust the dosage of any steroid up or down to meet a desired level of growth, making these two steroids easily interchangeable. When compared to testosterone, stenbolone has roughly three times greater anabolic effect, and somewhere between 7% and 44% more androgenic activity.

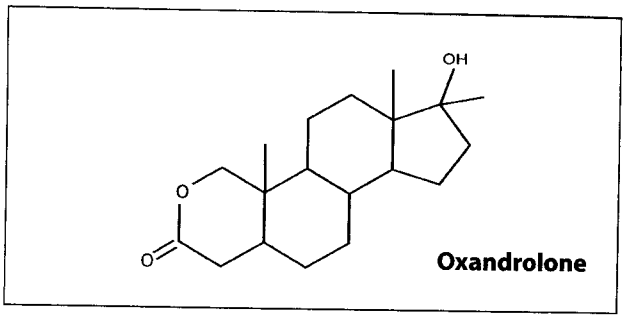
As a 1-testosterone derivative, stenbolone also cannot aromatize into estrogen. This makes water retention and fat gain relatively a non-issue. There is always a chance that as a 1-testosterone derivative we will see some progestational activity (and therefore a possible intensification of the estrogenic side effects of other steroids); however, there seems little in the known history of this drug to support that. In fact, stenbolone always had a reputation for being an ideal cutting drug, helping athletes shed significant water and fat mass when stacked with a variety of other steroids. Common effective doses ranged from 100-250mg per week for men and 25mg per week for women. Being that Anatrofin uses stenbolone with the fast acting acetate ester, one would subdivide the total weekly dosage into two or three applications if wishing to keep blood levels steady. Stenbolone is not the least androgenic steroid, however, it does have a favorable enough anabolic/androgenic ratio to make it of interest to female athletes. They may be well served, however, to extend beyond the normal bi or tri-weekly injections. This will minimize androgenic buildup, and allow for a little time each week for steroid levels to settle down. Provided dosage is kept reasonable, this drug does seem to work well with female bodybuilders.

When Anatrofin was available, it was packaged in individual 1mL glass ampules. These came in three different strengths, containing 25, 50 or 100mg of steroid per mL. As with most injectables, oil was used as a solvent. European bodybuilders were disappointed when Anatrofin was removed from the market global market a couple of decades ago. Its loss was a hard felt one, very much like the old Primobolan acetate injectables. Old timers often claimed that the likes of this steroid were never replaced with the other popular non-aromatizable anabolics. Whether or not this is based on realistic experience or simple nostalgia remains to be seen. It is

difficult today to say how different this agent ultimately is from 1-testosterone, a close chemical and pharmacological relative which we have much more modern experience with. Perhaps in the future we will get the opportunity to find out. Until then, stenbolone will remain nothing more than an elusive mystery drug, and an interesting chapter in the history of anabolic steroids.

Anavar (oxandrolone)

Androgenic	24
Anabolic	322-630
Standard	Methyltestosterone (oral)
Chemical Names	17b-hydroxy-17a-methyl-2-oxa-5a-androstane-3-one
Estrogenic Activity	none
Progestational Activity	no data available



Oxandrolone

Anavar was the old U.S. brand name for the oral steroid oxandrolone, first produced in 1964 by the drug manufacturer Searle. It was designed as an extremely mild anabolic, one that could even be safely used as a growth stimulant in children. One immediately thinks of the standard worry, "steroids will stunt growth". But it is actually the excess estrogen produced by most steroids that is the culprit, just as it is the reason why women stop growing sooner and have a shorter average stature than men. Oxandrolone will not aromatize, and therefore the anabolic effect of the compound can actually promote linear growth. Women usually tolerate this drug well at low doses, and at one time it was prescribed for the treatment of osteoporosis. But the atmosphere surrounding steroids began to change rapidly in the 1980's, and prescriptions for oxandrolone began to drop. Lagging sales probably led Searle to discontinue manufacture in 1989, and it had vanished from U.S. pharmacies until recently. Oxandrolone tablets are again available inside the U.S. by BTG, bearing the new brand name Oxandrin. BTG purchased rights to the drug from Searle and it is now manufactured for the new purpose of treating HIV/AIDS related wasting syndrome. Many welcomed this announcement, as Anavar had gained a very favorable reputation among athletes over the years.

Anavar is a mild anabolic with low androgenic activity. Its reduced androgenic activity has much to due with the fact that it is a derivative of dihydrotestosterone. Although you might think at first glance this would make it a more androgenic steroid, it in fact creates a steroid that is less androgenic because it is already "5-alpha reduced". In other words, it lacks the capacity to interact with the 5-alpha reductase enzyme and convert to a more potent "di-hydro" form. It is a simply matter of where a steroid is capable of being potentiated in the body, and with oxandrolone we do not have the same potential as testosterone, which is several times more active in androgen responsive tissues compared to muscle tissue due to its conversion to DHT. It essence oxandrolone has a balanced level of potency in both muscle and androgenic target tissues such as the scalp, skin and prostate. This is a similar situation as is noted with Primobolan and Winstrol, which are also derived from dihydrotestosterone yet not known to be very androgenic substances.

This steroid is known as a good agent for the promotion of strength and quality muscle mass gains, although the mild nature of this compound makes it less than ideal for bulking purposes. Among bodybuilders it is most commonly used during cutting phases of training when water retention is a concern. The standard dosage for men is in the range of 15-25mg (6-10 tablets) per day, a level that should produce noticeable results. It can be further combined with anabolics like Primobolan® and Winstrol® to elicit a harder, more defined look without added water retention. Such combinations are very popular and can dramatically enhance the show physique. One can also add strong non-aromatizing androgens like Halotestin®, Proviron® or trenbolone. In this case the androgen really helps to harden up the muscles, while at the same time making conditions more favorable for fat reduction. Some athletes do choose to incorporate oxandrolone into bulking stacks, but usually with standard bulking drugs like testosterone or Dianabol. The usual goal in this instance is an additional gain of strength, as well as more quality look to the androgen bulk. Women who fear the masculinizing effects of many steroids would be quite comfortable using this drug, as this is very rarely seen with low doses. Here a daily dosage of 5mg should illicit considerable growth without the noticeable androgenic side effects of other drugs. Eager females may wish to addition mild anabolics like Winstrol®, Primobolan® or Durabolin®. When combined with such anabolics, the user should notice faster, more pronounced muscle-building effects, but may also increase the likelihood of androgenic buildup.

Studies using low dosages of this compound note minimal interferences with natural testosterone production. Likewise when it is used alone in small amounts there is typically no need for ancillary drugs like Clomid®/Nolvadex® or HCG. This has a lot to do with the fact that it does not convert to estrogen, which we know has an extremely profound effect on endogenous hormone production. Without estrogen to trigger negative feedback, we seem to note a higher threshold before inhibition is noted. But at higher dosages of course, a suppression of natural testosterone levels will still occur with this drug as with any anabolic/androgenic steroid. This makes clear that while estrogen is important in this regard, androgen action triggers feedback inhibition as well. In the context of the average bodybuilder using this steroid at a level to promote growth, we would probably expect that maintaining a normal level of endogenous testosterone release would likewise be very difficult.

Anavar is also a 17alpha alkylated oral steroid, carrying an alteration that is noted for putting stress on the liver. It is important to point out, however, that despite this alteration oxandrolone is generally very well tolerated. While liver enzyme tests will occasionally show elevated values, actual damage due to this steroid is not a statistical problem. Bio-Technology General states that oxandrolone is not as extensively metabolized by the liver as other 17aa orals are; evidenced by the fact that nearly a third of the compound is still intact when excreted in the urine. This may have to do with the understood milder nature of this agent (compared to other 17aa orals) in terms of hepatotoxicity. One study comparing the effects of oxandrolone to other agents including methyltestosterone, norethandrolone, fluoxymesterone, and methandriol clearly supports this notion[86]. Here it was demonstrated that oxandrolone causes the lowest sulfobromophthalein (BSP; a marker of liver stress) retention among all the alkylated orals tested. 20mg of oxandrolone, in fact, produced 72% less BSP retention than an equal dosage of fluoxymesterone, which is a considerable difference being that they possess the same liver-toxic alteration. With such findings, combined with the fact that athletes rarely report trouble with this drug, most feel comfortable believing it to be much safer to use during longer cycles than most other orals with this distinction. Although this may very well be true, the chance of liver damage still cannot be excluded.

Like virtually all oral anabolic/androgenic steroids, oxandrolone does not have an extremely long half-life in the body. Although we do not have exact calculations on this, we can point to a study published in the Journal of Clinical Endocrinology and Metabolism investigating (among other things) blood levels of oxandrolone in response to oral dosing of the drug[87]. Researchers noted that measurements taken 10 hours after administration do show a steady elevation of drug in the bloodstream. Between the 10 and 18-hour mark, however, drug concentrations fell 73%. Such a drop in an 8-hour window indicates a pretty rapid metabolism of oxandrolone, and suggests that at least two oral doses would be needed per day if one wished to keep relatively steady blood concentrations over an entire 24-hour period.

At one time oxandrolone was looked at as a possible drug for those suffering from disorders of high cholesterol or triglycerides. Early studies showed it to be capable of lowering total cholesterol and triglyceride values in certain types of hyperlipidemic patients, which was thought to signify potential for this drug as a hypo-lipid (lipid lowering) agent[88]. With further investigation we find, however, that while use of this drug can be linked to a lowering of total cholesterol values, it is such that a redistribution in the ratio of good (HDL) to bad (LDL) cholesterol occurs, usually moving values in an unfavorable direction[89 90]. This would, of course, negate any positive effect this drug might have on triglycerides or total cholesterol, and in fact make it a danger in terms of cardiac risk when taken for prolonged periods of time. Today we understand that as a group, anabolic/androgenic steroids tend to produce unfavorable changes in lipid profiles, and are really not useful in disorders of lipid metabolism. As an oral c17 alpha alkylated steroid, oxandrolone is probably even more risky to use than an esterified injectable such as a testosterone or nandrolone in this regard.

Oxandrolone has always been a hot item on the black market. The past several years has brought forth many new oxandrolone containing products. This was right after a period of time when many drug manufacturers were dropping oxandrolone from their lines, due to low financial interest. Luckily, things have changed. Now there are numerous companies selling this steroid. Below, I will run down some of the more popular items on the black market.

Animal Power sells an oxandrolone product in Mexico called **Oxandro Tabs**. It comes in 5mg tablets, with 100 packaged to each glass bottle. The bottle itself rests inside a cardboard box, and both carry the company's holographic security sticker. The bottle is further imprinted with the company logo, which rests mostly under the label. So far we have a lot of confidence in AP, given the good feedback on their line and the obvious attention to security.

Quality Vet, another popular Mexican company, produces an Anavar product called **Oxavet QV**. It comes in the form of 5mg tablets, with 100 packaged to each bottle. QV also uses a holographic security sticker to deter counterfeiting. Provided it is present on both the box and bottle, you should have a safe purchase. QV products are always in very high demand, due to their excellent reputation. This is definitely a recommended product if you are faced with a large selection.

Nutri-Vet also sells an oxandrolone product in Mexico, called **Ultra Var**. It carries 5mg of steroid per tablet, and comes in bottles holding 100 tablets each. Nutri-Vet is a newly registered company in Mexico, and thus far seems to have a good reputation among buyers.

Ttokkyo is no longer in business, and their 5mg **Oxandrolone** should be out of circulation at this point. Avoid anything you come across with this company name on it, as it will most certainly be a counterfeit.

Oxandrovet by Denkall is another Mexican oxandrolone product circulating the black market in steady volume. It contains 5mg per tablet, and is found in bottles of 100 tablets each. The presence of a hologram security sticker should help assure a legitimate purchase. Note that fakes of the Denkall line with counterfeit holograms are in circulation, however, so this is not a perfect guarantee (*see: Security Stickers for more information*).

Bonavar from Body Research is no longer in manufacture, following a raid on their facilities in Thailand last year. When sold, it came in the form of 2.5mg tablets, with 10 tablets being packed in a foil and plastic strip. Since the raid, there have been many knockoff products purportedly from Body Research, but are actually originating from a known counterfeit operation in Russia. The quality of these fakes has been highly questionable. There is rumor that Body Research (the real company) may start producing again this year.

Loeffler sells an oxandrolone product in Mexico, called **Oxafort**. These are 5mg tablets, and come packaged in bottles of 100 tablets each. Loeffler recently began using hologram stickers on some of their boxes to deter counterfeiting. Lab analysis on two separate lots of this product confirmed that it contained the correct amount of oxandrolone. Keep in mind, however, that Loeffler has underdosed some of its products in the past, and may be of varying quality lot to lot.

Oxanabol from British Dragon is currently a very popular version of Anavar on the global steroid market. Formerly in a 5mg tablet dose, the manufacturer has since doubled the dose to 10mg. The product comes packed in sealed pouches holding 100 tablets each. The tablets themselves are orange, and square in shape. A score mark divides it in halves. Furthermore, "BD" should be imprinted in one side and "10" in the other. This should be a reliable purchase provided the tablets are correctly shaped, and the product bears the proper BD hologram sticker and custom printed pouch and silica gel pack.

Hubei Labs in China makes an underground version of **Anavar** (this is not a legit company). These are 2.5mg blue tablets, sold in strips of 30 tablets each. Feedback has been good on this product, so it may contain an acceptable dosage.

A generic oxandrolone is produced by **Planet Pharmacy** in Belize. This is a country with a very meager steroid market, which is otherwise fed by only a couple of Mexican products like Sustanon and Deca-Durabolin. Don't expect to find these products in Belizean pharmacies if you travel, as Planet Pharmacy seems to manufacture its products for export only.

Oxandrolone is manufactured in the U.S. by BTG Pharmaceuticals under the **Oxandrin** brand name. It comes in both 2.5mg and 10mg tablet strengths. High price at the pharmacy precludes any reasonable entry into the black market. This would be a high risk item regardless, as real U.S. steroids rarely circulate the black market.

SPA Oxandrolone from Italy is still may still be available for export, however it has been suspiciously scarce on the black market as of late. Domestic versions of this drug were already discontinued years ago, so don't expect to find them. There has been a great deal of anti-steroid sentiment and government action in Italy as of late, making this a harder and harder country to source drugs from.

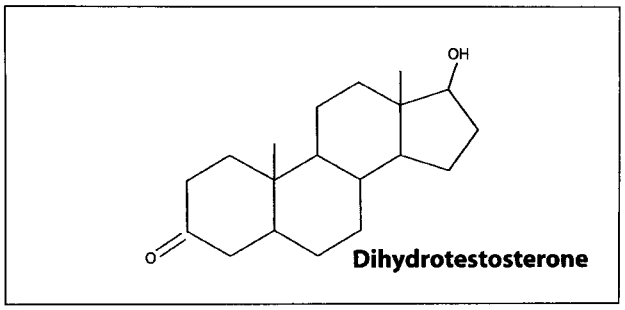
Oxandrolone from **LA Pharma** (Italy) is a new counterfeit item circulating the Thai pharmacies in high volume. From there it is entering the global steroid market. This is not a real product, and Italian company these counterfeiters were originally copying (Laboratore Alchemica) has made very clear they are not responsible for these products. The quality (or consistency) of this item is currently unknown.

Xenion Pharma Co. in Myanmar produces an oxandrolone product called **Oxanol**. It carries 5mg of steroid per tablet, and comes 60 tabs to a box. The pills themselves are white in color, and are imprinted with the characters "OXA 5.0" on one side and the company logo on the reverse. Twenty tablets are sealed in each foil and plastic strip.

Andractim® (dihydrotestosterone)

Androgenic	30-260
Anabolic	60-220
Standard	testosterone, t. propionate

Chemical Names	5-alpha-androstan-3-one-17beta-ol 5-alpha-androstanolone
Estrogenic Activity	none
Progestational Activity	no data available



Dihydrotestosterone

Andractim is a steroid preparation that contains the potent androgenic steroid dihydrotestosterone. This product comes in the form of a transdermal gel, typically containing 2.5% dihydrotestosterone by weight in an 80 gram tube. As with Androgel, we can expect roughly 10% of the active steroid to make it into circulation with each application. This would equate to 80 doses of 25mg (each dose delivering approximately 2.5mg of steroid to the body). Dihydrotestosterone itself is the most active androgen in the human body, displaying an ability to bind and activate the androgen receptor at least three of four times greater than that of its parent steroid testosterone. It is a potently androgenic steroid, however this trait is not accompanied by equally powerful anabolic tendencies (as we often note with other highly androgenic steroids). In the case of Andractim, we have a steroid that is essentially a pure androgen.

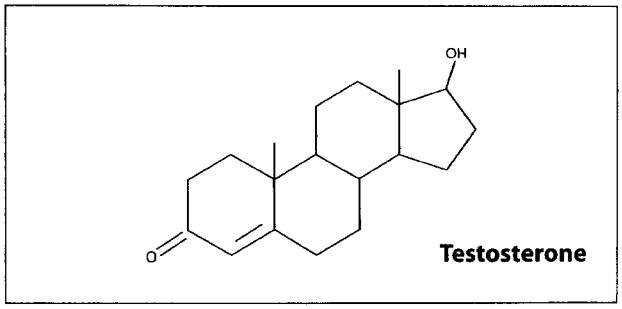
Due to its non-aromatizing and anti-estrogenic nature, percutaneous dihydrotestosterone may be an effective option for the treatment of gynecomastia. Studies have reported a good level of success when treating certain forms of this disorder with Andractim, the drug affecting the ratio of androgenic to estrogenic action in the breast area enough that notable regression of mammary tissue has been achieved in many cases[91 92]. It has also been used successfully to treat gynecomastia triggered by HAART (Highly Active Antiretroviral Therapy) in HIV positive patients, a somewhat common problem wd to treat this disease. Unimed, current maker of Anadrol-50 and Androgel in the United States, has also been conducting clinical trails on Andractim, suggesting that it plans to release this drug on the U.S. drug market before long. Instead of using it to treat gynecomastia, however, they seem to be looking into this product to replace androgen levels due to Andropause. They are likely looking at the non-estrogenic nature of DHT to provide a safer alternative to testosterone-replacement therapy for those at risk for prostate hypertrophy (estrogen is involved in the pathology of this condition), and idea well supported by other medical research studies[93 94].

Dihydrotestosterone is a poor choice when it comes to building muscle. This is due to the fact that this steroid is extremely open to alteration by the 3-alpha-hydroxysteroid-dehydrogenase enzyme, which is responsible for breaking down active steroids like DHT into their inactive or less active metabolites. 3a-HSD is present in high quantities in muscle tissue, running interference between the outer cell membrane and the androgen receptors that all steroid hormones are trying to reach. In humans, little DHT ends up actually making its way to this receptor. Testosterone is very resistant to this enzyme however, which allows it to be a much more effective muscle-building agent. 3a-HSD steroid deactivation in muscle tissue causes the same problem with Proviron (1-methyl-dihydrotestosterone). Although Proviron is a very potent steroid due to its resemblance to dihydrotestosterone, binding to the androgen receptor with high affinity, it is a very poor muscle-building agent for the same reason. DHT and Proviron both have very effective uses in areas such as fat loss, hardening, increasing CNS activity and pure strength gain, but they do not hold up well as anabolic agents at all.

Andractim is not widely available, and is rarely seen on the black market. It is sold in several countries, but steroid dealers and consumers just do not pay enough attention to it for it to circulate here in any volume. Its effectiveness in treating conditions of gynecomastia and Andropause is rarely discussed, and to be honest most consumers really do not even know this product even exists. This is unfortunate, because all of the medical data on dihydrotestosterone seems to show it to be both safe and effective treatment option in many instances. Hopefully with the new attention Unimed is giving this drug, things will change. We can keep our fingers crossed that it will be FDA approved for the treatment of gynecomastia. However, I expect it will more than likely be prescribed for the limited use of replacing androgen levels in cases of Andropause.

Andriol® (testosterone undecanoate)

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Andriol is a unique oral testosterone product, developed by the international drug firm Organon. One of the more recently developed anabolic steroids, Andriol first became available in the early 1980's. This compound contains 40 mg of testosterone undecanoate, based in oil (oleic acid) and sealed inside a capsule. Subtracting the ester weight, this equates to a dosage of approximately 25mg of raw testosterone per cap. The design of this steroid is quite different from that of most oral steroids. Drugs administered orally generally enter the blood stream through the liver. When a steroid compound is given this way without some form of structural protection, it will be quickly broken down during the "first pass". This process leaves very little steroid intact, basically deactivating the drug. Adding a methyl group (c-17 AA) to the structure is one way to protect it from this process, however stress is also placed on the liver as a result. In some instances this stress can lead to actual damage to liver tissues, so the designers of this steroid sought another way to protect the testosterone molecule. With Andriol, this was accomplished by making a form of testosterone that would be absorbed through the lymphatic system. This is due to its high fat solubility brought about by the ester, and its suspension in oil. Having the compound absorbed this way was thought to be very advantageous, as it allows the steroid to bypass the destructive first-pass through liver. This should permit the compound to enter the blood stream intact, without the need for a harsh chemical alteration. The ester breaks off once it is in circulation of course, yielding free active testosterone. In design this steroid appears to be that of a completely liver safe and orally active form of testosterone.

On paper this drug seems like an ideal oral testosterone product. Clean, safe and worlds apart from other oral testosterone derivatives like the crude methyltestosterone. But as we always hear in life, if it looks to good to be true, it probably is. And there are definitely some issues with Andriol®. The first problem is that bioavailability, although clearly worlds apart from trying to take straight testosterone orally, is probably not significant next to c17-alpha alkylated orals. Athletes typically find that in doses of less than 240mg per day (6 capsules) effects are generally not seen at all. 240mg of testosterone ester daily, the primary male androgen, and only a meager effect. When doses go higher, maybe 8-10 capsules (320-400mg), new muscle growth is slight to moderate at best, but no incredible bulky gains are ever reported. Logic leads one to think that only a little testosterone is making its way into circulation. Testosterone is a powerful hormone no matter what the ester or form of administration. If it were active in the blood stream, the results would have to be pronounced. When one injects an oil based testosterone ester like cypionate, a dosage of 400mg per week is more than sufficient. 400mg Andriol per day should be packing on an incredible amount of mass. Where does it all go?

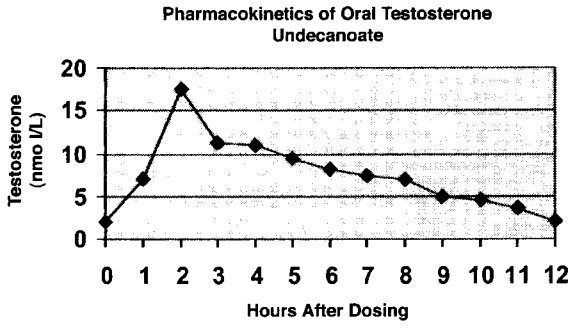
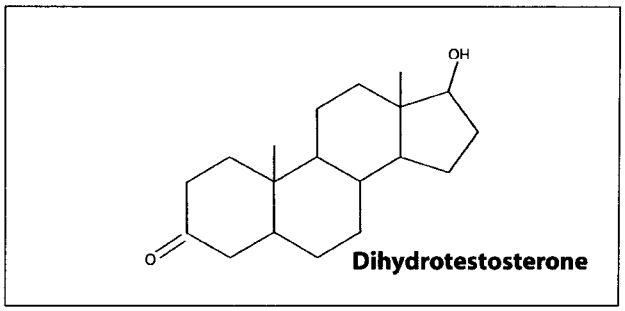


Figure 1. The graph to the right depicts the median response pharmacokinetics after oral administration of 40mg of testosterone undecanoate. As you can see, the testosterone peak is reached very quickly (approximately 2 hours). Levels subsequently decline, reaching baseline by 12 hours. Source: Which Androgen Replacement Therapy for Women? Buckler, Robertson and Wu. J Clin Endocrinol and Metab. 83 (1998) 3920-24

Andractim® (dihydrotestosterone)

Androgenic	30-260
Anabolic	60-220
Standard	testosterone, t. propionate

Chemical Names	5-alpha-androstan-3-one-17beta-ol 5-alpha-androstanolone
Estrogenic Activity	none
Progestational Activity	no data available



Dihydrotestosterone

Andractim is a steroid preparation that contains the potent androgenic steroid dihydrotestosterone. This product comes in the form of a transdermal gel, typically containing 2.5% dihydrotestosterone by weight in an 80 gram tube. As with Androgel, we can expect roughly 10% of the active steroid to make it into circulation with each application. This would equate to 80 doses of 25mg (each dose delivering approximately 2.5mg of steroid to the body). Dihydrotestosterone itself is the most active androgen in the human body, displaying an ability to bind and activate the androgen receptor at least three of four times greater than that of its parent steroid testosterone. It is a potently androgenic steroid, however this trait is not accompanied by equally powerful anabolic tendencies (as we often note with other highly androgenic steroids). In the case of Andractim, we have a steroid that is essentially a pure androgen.

Due to its non-aromatizing and anti-estrogenic nature, percutaneous dihydrotestosterone may be an effective option for the treatment of gynecomastia. Studies have reported a good level of success when treating certain forms of this disorder with Andractim, the drug affecting the ratio of androgenic to estrogenic action in the breast area enough that notable regression of mammary tissue has been achieved in many cases[91 92]. It has also been used successfully to treat gynecomastia triggered by HAART (Highly Active Antiretroviral Therapy) in HIV positive patients, a somewhat common problem wd to treat this disease. Unimed, current maker of Anadrol-50 and Androgel in the United States, has also been conducting clinical trails on Andractim, suggesting that it plans to release this drug on the U.S. drug market before long. Instead of using it to treat gynecomastia, however, they seem to be looking into this product to replace androgen levels due to Andropause. They are likely looking at the non-estrogenic nature of DHT to provide a safer alternative to testosterone-replacement therapy for those at risk for prostate hypertrophy (estrogen is involved in the pathology of this condition), and idea well supported by other medical research studies[93 94].

Dihydrotestosterone is a poor choice when it comes to building muscle. This is due to the fact that this steroid is extremely open to alteration by the 3-alpha-hydroxysteroid-dehydrogenase enzyme, which is responsible for breaking down active steroids like DHT into their inactive or less active metabolites. 3a-HSD is present in high quantities in muscle tissue, running interference between the outer cell membrane and the androgen receptors that all steroid hormones are trying to reach. In humans, little DHT ends up actually making its way to this receptor. Testosterone is very resistant to this enzyme however, which allows it to be a much more effective muscle-building agent. 3a-HSD steroid deactivation in muscle tissue causes the same problem with Proviron (1-methyl-dihydrotestosterone). Although Proviron is a very potent steroid due to its resemblance to dihydrotestosterone, binding to the androgen receptor with high affinity, it is a very poor muscle-building agent for the same reason. DHT and Proviron both have very effective uses in areas such as fat loss, hardening, increasing CNS activity and pure strength gain, but they do not hold up well as anabolic agents at all.

Andractim is not widely available, and is rarely seen on the black market. It is sold in several countries, but steroid dealers and consumers just do not pay enough attention to it for it to circulate here in any volume. Its effectiveness in treating conditions of gynecomastia and Andropause is rarely discussed, and to be honest most consumers really do not even know this product even exists. This is unfortunate, because all of the medical data on dihydrotestosterone seems to show it to be both safe and effective treatment option in many instances. Hopefully with the new attention Unimed is giving this drug, things will change. We can keep our fingers crossed that it will be FDA approved for the treatment of gynecomastia. However, I expect it will more than likely be prescribed for the limited use of replacing androgen levels in cases of Andropause.

Individual problems with absorption may play into things here. The graph above shows the median response noted when this drug was given to a group of women. It does not however depict the striking differences in individual metabolism that were noted in this experiment. If we look at results from each of the four subjects, the differences are dramatic to say the least. While one is off the scale with testosterone levels, another barely budges at all. What is even more confusing is that results were so inconsistent, that at times higher levels were achieved with a lower 20mg dose compared to the 40mg when given to the same subject. Clearly there is little to be said except that this drug is unpredictable in its ability to be absorbed and utilized by the body. While one day you might be getting great absorption, perhaps the next day you are getting very little. Studies with men were no better than with women, where again this drug was shown to be unpredictably absorbed and utilized with blood levels ranging from 11.5 to 60.1 nmol/L with 80mg twice daily[95].

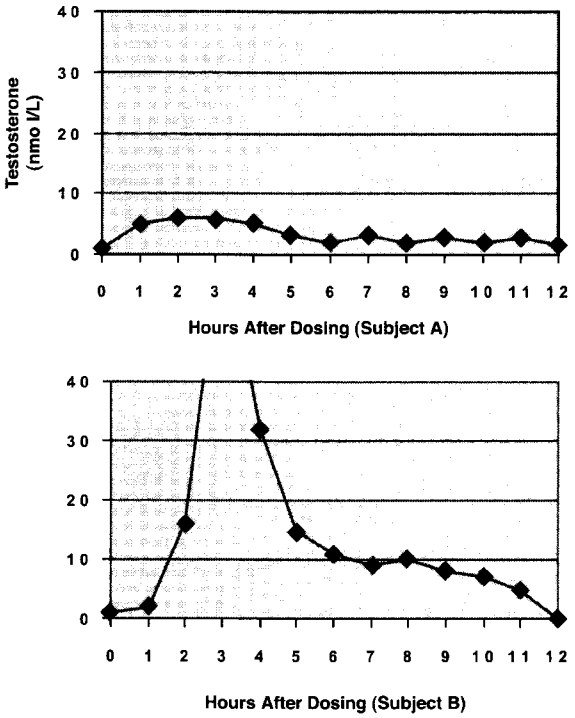


Figure 2. The graphs above illustrate the high and low responding subjects from the testosterone undecanoate dosing study discussed and referenced in Figure 1. As you see, the graph on the top shows a subject who received a very poor response in terms of testosterone increase, while the graph on the bottom shows another subject who went off the chart, peaking at 65 nmol/L of testosterone.

One might also pay interest to the "mildness" of this compound as described by other bodybuilding materials. Andriol® is often spoken about as some type of magic product, which despite being a form of regular testosterone somehow allows for only minimal estrogen conversion. You should know that the way a drug is administered includes a number of factors that can slightly alter its effect, the most predominant being the speed of release. This effects the time it takes for a peak blood level to be reached, and likely the length it takes to see results. The primary reason testosterone suspension seems more powerful than enanthate is because more drug is active on day one. At the same time, estrogen builds up faster and side effects become pronounced very quickly. The ester is also part of the total weight, and 100mg testosterone contains a much larger quantity of testosterone molecules that testosterone plus ester, another reason for varying effect. But these changes do not amount to all that much. The structure of testosterone is what allows it to break down into estrogen. The only way we can really prevent an androgen from converting to estrogen is to change the base molecule, not the ester. Once free in the blood stream we cannot prevent testosterone from being aromatized without interfering with the aromatase enzyme itself. The lack of results and side effects often reported with Andriol® must be going hand in hand with poor absorption.

Most athletes today consider Andriol a very poor buy. I know other references do find use for this drug, which is defendable because some amount of steroid clearly does enter the blood stream intact. Technically it is still an oral testosterone, and definitely does not carry the same liver-toxicity risks associated with most steroids designed for this type of administration, so all is not lost. Those specifically looking for a mild oral at times do purchase this product, and are occasionally even satisfied with their results. But for most its high price and required high daily dosages usually causes them to avoid it when coming across it on the black market. Besides, if we want a mild steroid the last thing we really should shop for is a testosterone.

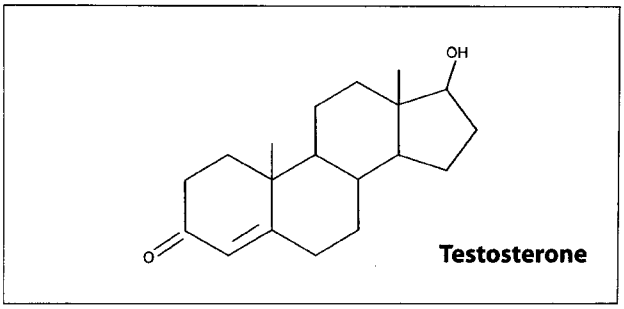
It is of note that Organon has started reformulating Andriol in some markets, replacing the old Andriol® brand with the new Andriol® Testocaps®. The new Testocaps® contain the same dose of testosterone undecanoate, however, it is dissolved in a different carrier base. Instead of oleic acid, a blend of caster oil and propylene glycol laurate is used. I am actually unclear in the purpose for the change. An investigation published in the Journal of Pharmacology and Experimental Therapeutics in 2003 looked at the relative lymphatic absorption and systemic distribution of testosterone, testosterone undecanoate, and DHT undecanoate after oral administration of both

formulations, and found no significant differences between the two[96]. They close their paper in reporting, *"The results from the current study demonstrate conclusively that the therapeutic advantage associated with oral TU [testosterone undecanoate] administration is a consequence of lymphatic transport of TU to the systemic circulation. Furthermore, the study demonstrated conclusively that there is no difference in the systemic exposure of T, or TU, resulting from the oral administration of Andriol or Andriol Testocaps."* Regardless of the reason, at this point in time we can look at new Andriol® Testocaps® as completely interchangeable with the old product athletes are long familiar with.

Andriol® and Andriol® Testocaps® are both very difficult items to duplicate, so your odds are good when purchasing them. Available in a number of countries, they can be found packaged in both bottles (30 and 60 capsules) and foil strips of 10 (all foil, no plastic). With legit Andriol® we are looking for a brown/red colored capsule that contains oil inside. It is completely sealed and does not pull apart. DV3 and ORG are printed on the surface of the capsule. The Testocaps® are also soft oval glossy capsules, but these are made out of a transparent orange gelatin mixture. Inside there is a yellow oily liquid. Both versions would obviously be very difficult to copy, which is probably why I have only seen one fake (of the original Andriol® version) thus far. Easy to identify, it was a generic strip that contains 10 unmarked red pull-apart capsules. Inside the capsule one will find a very strong smelling powder, not oil. It is unknown what the powder actually is but it is definitely not a legitimate preparation of testosterone undecanoate, so avoid. Since all of the legitimate capsules are sold under a brand name (**Andriol®**, **Andriol® Testocaps®**, **Androxon**, **Panteston**, **Restandol**, **Undestor** or **Virigen**), any item bearing only the generic name testosterone undecanoate should be immediately considered a fake.

Androderm® (testosterone)

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol
Estrogenic Activity	moderate
Progestational Activity	low



Androderm® is a recently developed testosterone product, which delivers the hormone transdermally. This product is quite different from previous testosterone patches, which were designed for application on the shaved scrotal area (obviously not a comfortable practice). The new Androderm® patches are designed to give the patient much more freedom. They can be applied almost anywhere, but are generally placed on the abdomen, back, thigh or upper arm. The area must be free of excess hair, but this is clearly a much easier place to work. This product is being used primarily by older men who have reached an age in which there body no longer produces sufficient amounts of testosterone ("Andropause"). When testosterone levels start to diminish, one can notice a severe lack of motivation, sex drive and an overall lost sense of well-being. Restoring an acceptable androgen level is often critical to reviving the person's previous quality of life.

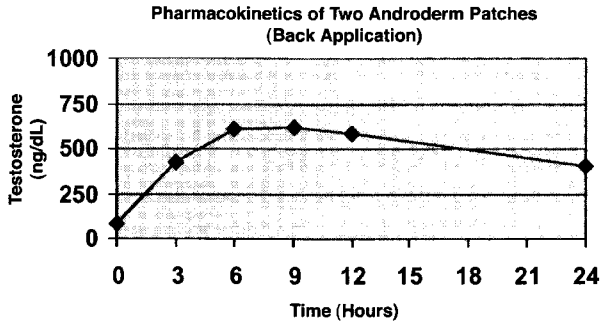


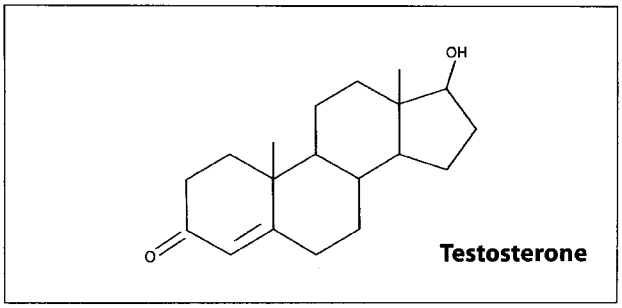
Figure 1. Mean serum testosterone concentrations (ng/dL) measured during single-dose applications of two Androderm 2.5 mg systems applied at night to the back. The figures reflect the greatest response in a study comparing four different sites of application (abdomen, back, thigh and upper arm) in 34 hypogonadal men. Source: Androderm® prescribing information. Watson Pharma, Inc.

These patches are designed to release testosterone in a varying level, over a 24 hour period. This is to mimic the natural (uneven) pattern of a health young man, with peaks and lows throughout the duration. Each patch contains 12.2mg of testosterone, but according to the paperwork only about 2.5mg is dispersed during each 24-hour application. Since the average healthy male will produce between 2.5 and 11 milligrams of testosterone per day, two patches are generally used daily for an approximate dose of 5mg. Athletes would no doubt find the dosage of this product much too low, as quite a number of patches would have to be used simultaneously to elicit the strong anabolic effect sought after by this group. It would be much easier, and cheaper, to use an injectable testosterone. Those who may consider using this drug (perhaps due to unexpected availability) would be better served adding another steroid with it than loading their body up with patches.

Androgel® (testosterone)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Androgel is the newest steroids to make its way to the drug market in the United States. This product is being made by Unimed Pharmaceuticals (a division of Solvay Pharmaceuticals), and was approved by the FDA for sale by prescription in February of 2000. As its name suggests, Androgel comes in the form of a transdermal gel that contains a 1% concentration of testosterone. It is being prescribed by doctors to restore normal androgen levels in men who are noticing a decline due to age, a job that it accomplishes both comfortably (no injections) and effectively (the product boasts a clinical success rate of 87%). It is quite ironic that this new testosterone-containing drug is being heralded by the media as a great achievement in the field of medicine and endocrinology, yet it contains one of the same steroids that has been vilified over and over again as a great danger to the public.

As mentioned, Androgel contains 1% testosterone by weight. It is packaged in both 2.5 gram and 5-gram packages, equating to a total per-application dose of 25mg or 50mg. The data available on Androgel suggests a transdermal bioavailability of approximately 10%. This means that each dose delivers 2.5mg or 5mg systemically (respectively). Although you might think a transdermal to be pretty slow acting, studies do show that testosterone levels begin to elevate 30 minutes after applying the gel to the body. Within 4 hours, most have dramatic elevations in serum androgen levels. Newly elevated levels of testosterone do tend to remain elevated for a full 24-hour period, which means that the drug only need be applied once per day. As you will see in the included graph, regular dosing will provide a relatively steady hormone balance over each 24-hour period.

In terms of bodybuilding, Androgel is not going to offer a whole lot. The highest dosed packet delivers only 5mg of testosterone to the body per day, which is not really that much when you are trying to pack on serious muscle mass. Were a person planning on getting a supraphysiological dose of testosterone with this drug, even say 25mg daily, it would require the regular daily use of 5 packets of the 5gram product. Try to use Androgel as a replacement for say testosterone cypionate or enanthate, as the sole drug in a cycle, and you would probably need even more. Combine this with the fact that injectable testosterone is just so much easier and cheaper to use, and we can see why Androgel doesn't circulate on the black market very often. At best you tend to find it being used by males who has been prescribed the drug by a doctor for Andropause treatment, stacked with other drugs that their doctors don't know they are using. Being a strong androgen, it is of course difficult to recommend Androgel to women. At best, a very low dose (maybe 1/4 to 1/2 of a 2.5gram packet) would be attempted, which would be taken for a very brief period (a few weeks).

Androgel® has also recently released a pump version of the product, called simply Androgel® Pump. It comes white plastic pump containers that are very reminiscent of soap dispensers. Androgel Pump is currently available in one formulation only. Each box will dispense 30 days worth of medication (at the starting 5g daily dosage). The box actually provides two pumps, each which provide 60 pumps of 1.25grams each. 4 squirts per day will give the 5 gram dose. Over the past several years we have also seen many new testosterone gels have come to market, owing to the tremendous popularity of Androgel in the U.S. market. All of these products are of the same basic design as U.S. Androgel. Testim is a particularly popular brand in Europe, which is formulated as a comparable 1% gel of testosterone. It comes in single application foil packets of 2.5g and 5g of gel each, the same as Androgel®. Given the current lack of interest counterfeiters seem to be paying to these drugs, which are rarely used outside of legitimate channels due to their low delivered dose, all can probably be considered real should they be located on the black market.

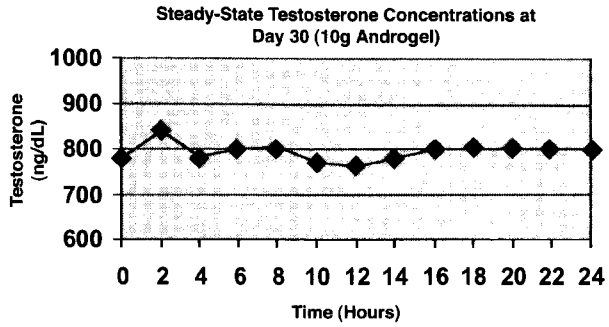


Figure 1. Steady-State Testosterone concentrations in blood, measured 30 days after beginning therapy with Androgel (10g application). Drug was applied to the body once daily.

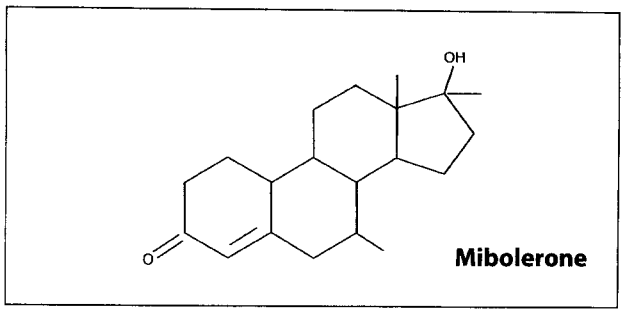
Boldabol is probably going to find most favor among athletes who prefer oral medications instead of injections, and those who are searching for safer alternatives to hepatotoxic oral steroids like Winstrol, Dianabol, and Anadrol. Otherwise, cost will probably push most potential users back to injectable Equipoise, which will give much more bang for the buck. For those who do spend the money, this steroid will probably resemble oral Primobolan acetate very closely. With boldenone there is a small amount of estrogen conversion (not present in Primobolan), but it is probably not prominent enough for the average user to notice it. Therefore, I see both steroids behaving very similarly, with neither being a particularly strong androgen nor producing estrogenic side effects. As a poorly aromatizing steroid, Boldabol also should have decent versatility, fitting comfortable in bulking cycles, lean-mass-building cycles, and sometimes even cutting cycles as well (for some the small amount of estrogen may be a bit too much). Women whom have been afraid to experiment with Equipoise for fear of its slow rate of metabolic clearance may also find this steroid of interest, allowing experimentation with something that was previously off limits. In such cases, an oral daily dose of 25-50mg would perhaps be a good place to start.

Currently, oral boldenone acetate is only being produced by one manufacturer, British Dragon. It comes in the form of a square dark blue tablet, which bears the letters BD on one side and the number 50 (referring to the 50mg dosage) on the other. The tablets are scored, so as to be broken into 25mg halves fairly easily. One hundred tablets come packaged in a small white foil-lined pouch. Furthermore, each pouch carries a hologram sticker, which is included to deter counterfeiting. This sticker is not the only security check you should look for on this product, however. BD also recently started printing their logo on the back of each pouch, and has additionally been including a small silica gel pack inside of each pouch to preserve potency (also imprinted with the British Dragon logo). When shopping for this item on the black market, be sure to look for logos on both pouches as well as the hologram security sticker. At the time being, BD is the only company selling oral boldenone acetate. That may not remain the case for very long, however, especially if there is any success to be found in the marketplace with this interesting new drug. Time will tell how well it is received.

Cheque Drops® (mibolerone)

Androgenic	1,800
Anabolic	4,100
Standard	Methyltestosterone (oral)

Chemical Names	7,17-dimethyl-19-norandrost-4-en-3-one-17b-ol 17beta-Hydroxy-7alpha,17-dimethylestr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	high



Mibolerone

Cheque Drops is a powerful anabolic steroid that is used in veterinary medicine to prevent female dogs from going into heat. This product was originally manufactured in the United States by Pharmacia & Upjohn, however it has since been discontinued. It remains an approved veterinary drug in the United States, and can still be found in the form of a privately compounded medicine. Cheque Drops contain the synthetic nandrolone derivative mibolerone. This is an extremely strong steroid, so much so that it is effective in microgram, not milligram, amounts. Upjohn's product contained an oral solution with only 100mcg of steroid per milliliter, packaged in a 55mL vial. This means that each bottle contained only, yes you are reading this correctly, 5.5 milligrams of active steroid! Yet despite this low steroid concentration, Cheque Drops gained a reputation amongst many bodybuilders as being one of the strongest steroids ever made.

Mibolerone is specifically a 7,17-dimethylated derivative of nandrolone. This means that they took the base steroid nandrolone, and added a methyl group at both the 7 and 17 positions. The addition of C-17 alpha alkylation serves an obvious purpose; it makes the steroid orally active. The addition of a methyl group at C-7, however, does something very different; it prevents 5-alpha reduction of the steroid[98]. This means that although mibolerone is based on nandrolone in structure, it will not convert to a weaker (dihydro) metabolite in androgen responsive target tissues like nandrolone does. It is more androgenic in nature, a trait most bodybuilders who have used the product will attest to. The combined efforts of C-7 and C-17 do something else though, they allow the steroid to exist in an almost entirely free state in the blood. Mibolerone simply does not like to bind to proteins like SHBG and albumin. This, combined with a slow rate of metabolic clearance and high relative affinity for the androgenic receptor, and we can understand why they would make a bottle of steroid that only contained 5.5mg of steroid.

Don't get the idea that it is all roses with mibolerone. This can be one nasty steroid. For one, neither the C-7 nor C-17alpha methyl groups prevent estrogen conversion. And since this steroid is a synthetic dimethylated androgen with high biological potency, it likely converts to an extremely active estrogen. One thing is for sure; estrogenic side effects can be intense when taking this drug. But then the progestational activity of mibolerone is documented to be extreme as well, so it is a little difficult to know how much to attribute to what. Just know that it is an extremely problematic steroid when it comes to gynecomastia, water retention (often to the point of heavy bloating) and increased fat buildup. Being such a potent, C-17 alpha alkylated compound, it will also present some level of toxicity to the liver. For this reason cycles need to be kept to a minimum length, preferably no longer than 4-6 weeks in length. Otherwise, you are just playing with fire.

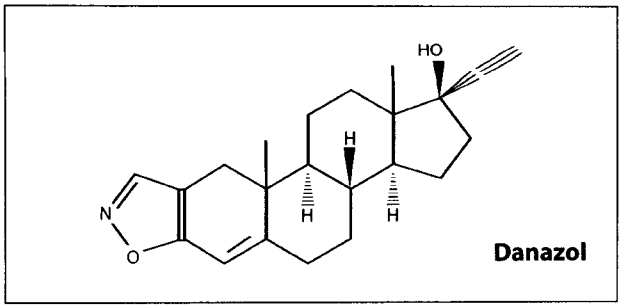
Athletes usually take Cheque Drops by placing the solution under the tongue, in the hopes that it will be absorbed sublingually. This is not really necessary, however, owing to the fact that the compound is already highly resistant to hepatic breakdown because of the synthetic alterations it carries. The typical daily dose was 500mcg (5mL) or less. Some profess to have taken 1mg per day or more, however at that level side effects are expected to be extremely problematic for most. It effects tend to be more androgenic than anabolic, offering more by way of strength gain and aggression than actually body mass increases; definitely too strong to recommend safely to women. Since mibolerone is effective in such low doses, it does have the added benefit of being difficult to detect in a drug screen. One could stop much closer to the urinalysis date with this drug than with most others, perhaps only a few days, feeling confident that the extremely small doses of total steroid needed to see an effect would be at an undetectable level by the time the sample were given.

As mentioned above, Pharmacia & Upjohn no longer makes this product. It is still being sold as a compounded veterinary medicine by at least one pharmacy, but obtaining it is easier said than done given that mibolerone is a controlled substance. You would need nothing less than a licensed veterinarian, able to prescribe controlled substances, to send a prescription directly to the compounding pharmacy. While this means that real "Cheque Drops" are all but gone, mibolerone has seen a small rebirth on the underground drug market. **Hardcore Labs** (HCL) and **Supra Labs**, both known underground operations in Europe, currently make their own forms of the drug. The products come as oral solutions, which are contained in small vials. Eyedroppers are provided to measure each dose. Interesting to note is that on the label of the HCL product is a skull and crossbones, warning consumers of the highly potent and toxic steroid contained inside. Nice touch guys. There is no doubt that other underground companies will follow Supra and HCL, making mibolerone even more available on the black market. Until some legitimate drug company finds an interest in this agent again, however, such illicit and unregulated preparations are going to be your only options for using this drug.

Danocrine® (danazol)

Androgenic	37
Anabolic	125
Standard	Testosterone

Chemical Names	17alpha-Pregna-2,4-dien-20-yno[2,3-d]isoxazol-17-ol
Estrogenic Activity	
Progestational Activity	



Danazol

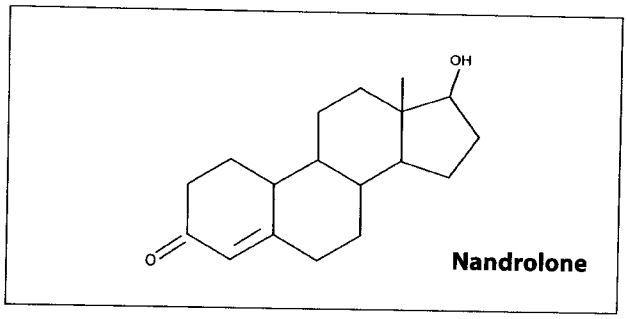
Although steroidal in structure, danazol is technically an anti-gonadotropin agent. This means that its main function is to suppress the body's release of sex hormones like testosterone and estrogen, not to build muscle. In a medical setting it is used to treat a number of disorders where sex steroids are involved in the pathology, such as endometriosis and fibrocystic breast disease. Danazol appears to have little if any anabolic effect, and at best slight androgenic activity. Due to that fact that its main activity is that of an anti-gonadotropic agent, and not as an anabolic steroid, it was deemed there would be little chance for abuse with this drug. It was likewise never registered as a controlled substance in the United States.

Danazol is structurally a c-17-alpha-alkylated compound, which means that it will display some level of toxicity on the liver. This usually becomes problematic in doses of 400mg per day or above, or when used for very long periods of time. Its toxicity is not to be endured for much reward, however. In a bodybuilding setting there is simply little need to even think about using this compound. I guess a case can be made that if you are suppressing your testosterone output with other steroids, there would be no concern over the anti-gonadotropic effects of danazol. In such case its weak anabolic/androgenic effect would be welcome; at whatever intensity it is present. But even in doses of 600mg or above, the effect will be meager, and the expense great. This makes one question if there is ever a circumstance that would warrant buying this odd steroidal compound. Clearly any price is difficult to justify when there are so many other (better) anabolic/androgenic agents readily available to use.

Danocrine, and generic copies of this steroid, typically come in capsules of 50mg, 100mg, and 200mg strength. The 200mg brand name capsules from Sanofi usually sell in the U.S. for about $4.50 per capsule, and the generic equivalent for about $3.00. This drug can be obtained for a slightly lower cost from some overseas sources, and at this time is legal to import under the current "personal-use" loophole for international drug purchasing. And since bodybuilders have little interest in this steroid, counterfeiters do not either. You are unlikely to come across Danocrine on the black market, but if you do, you can bet it will be real. This is one of those products that you probably will never see a fake box of. But then again, even if it is real, do you really want it?

Deca-Durabolin® (nandrolone decanoate)

Androgenic	37
Anabolic	125
Standard	testosterone
Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Deca-Durabolin® is the Organon brand name for the injectable steroid nandrolone decanoate. This compound came around early in the wave of commercial steroid development, first being made available as a prescription medication in 1962. This steroid is an extremely long acting compound, with the decanoate ester said to provide this drug a slow release time of up to three or four weeks. While perhaps true in a technical sense, what we find with further investigation is that the release parameters after a single injection are such that a strong release of nandrolone is really only maintained for one to two weeks. This figure admittedly fails to take into account drug buildup that may occur after multiple injections, which may allow a longer duration of good effect to be seen. Figure 1 is provided to illustrate the release dynamics of a single 200mg injection. As you will see, by the end of the second week levels are already approaching baseline.

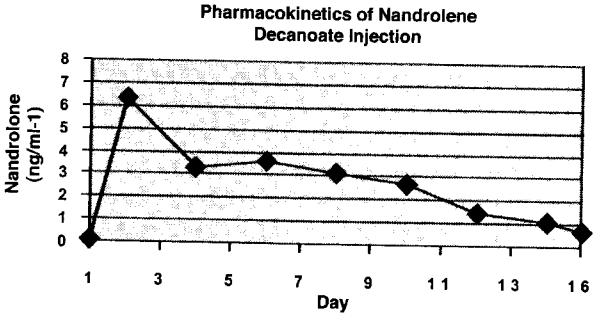


Figure 1. Pharmacokinetics of 200mg Nandrolone Decanoate injection. Source: Pharmacokinetic parameters of nandrolone (19-nortestosterone) after intramuscular administration of nandrolone decanoate (Deca-Durabolin®) to healthy volunteers. Wijnand H, Bosch A, Donker C. Acta Endocrinol 1 985 supp 271 19-30.

World Wide "Deca" is one of the most widely used anabolic steroids. Its popularity is due to the simple fact that it exhibits many very favorable properties. Structurally nandrolone is very similar to testosterone, although it lacks a carbon atom at the 19th position (hence its other name 19-nortestosterone). The resulting structure is a steroid that exhibits much weaker androgenic properties than testosterone. Of primary interest is the fact that nandrolone will not break down to a more potent metabolite in androgen target tissues[99]. You may remember this is a significant problem with testosterone. Although nandrolone does undergo reduction via the same (5-alpha reductase) enzyme that produces DHT from testosterone, the result in this case is dihydronandrolone. This metabolite is weaker than the parent nandrolone, and is far less likely to cause unwanted androgenic side effects. Strong occurrences of oily skin, acne, body/facial hair growth and hair loss occur very rarely. It is however possible for androgenic activity to become apparent with this as any steroid, but with nandrolone[100] higher than normal doses are usually responsible.

Nandrolone also show an extremely lower tendency for estrogen conversion. For comparison, the rate has been estimated to be only about 20% of that seen with testosterone[101]. This is because while the liver can convert nandrolone to estradiol, in other more active sites of steroid aromatization such as adipose tissue nandrolone is far less open to this process[102]. Consequently estrogen related side effects are a much lower concern with this drug. An anti-estrogen is likewise rarely needed with Deca, gynecomastia only a worry among sensitive individuals. At the same time water retention is not a usual concern. This effect can occur however, but is most often related to higher dosages. The addition of Proviron® and/or Nolvadex® should prove sufficient enough to significantly reduce any occurrence. Clearly Deca is a very safe choice among steroids. Actually, many consider it to be the best overall steroid for a man to use when weighing the side

effects and results. It should also be noted that in HIV studies, Deca has been shown not only to be effective at safely bringing up the lean body weight of patient, but also to be beneficial to the immune system.

It is of note however that nandrolone is believed to have some activity as a progestin in the body[103]. Although progesterone is a c-19 steroid, removal of this group as in 19-norprogesterone creates a hormone with greater binding affinity for its corresponding receptor. Sharing this trait, many 19-nor anabolic steroids are shown to have some affinity for the progesterone receptor as well[104]. This can lead to some progestin-like activity in the body, and may intensify related side effects. The side effects associated with progesterone are actually quite similar to those of estrogen, including negative feedback inhibition of testosterone production, enhanced rate of fat storage and possibly gynecomastia. Many believe the progestin activity of Deca notably contributes to suppression of testosterone synthesis, which can be marked despite a low tendency for estrogen conversion[105].

Deca is not known as a very "fast" builder. The muscle building effect of this drug is quite noticeable, but not dramatic. The slow onset and mild properties of this steroid therefore make it more suited for cycles with a longer duration. In general one can expect to gain muscle weight at about half the rate of that with an equal amount of testosterone. A cycle lasting eight to twelve weeks seems to make the most sense, expecting to elicit a slow, even gain of quality mass. Although active in the body for much longer, Deca is usually injected once per week. The dosage for men is usually in the range of 200-600mg. If looking to be specific, it is believed that Deca will exhibit its optimal effect (best gain/side effect ratio) at around 2mg per pound of bodyweight/weekly. Deca is also a popular steroid among female bodybuilders. They take a much lower dosage on average than men of course, usually around 50mg weekly. Although only slightly androgenic, women are occasionally confronted with virilization symptoms when taking this compound. Should this become a concern, the shorter acting nandrolone Durabolin® would be a safer option. This drug stays active for only a few days, greatly reducing the impact of androgenic buildup if withdrawal were indicated.

As mentioned earlier, endogenous testosterone levels can be a concern with Deca-Durabolin®, especially after long cycles. It is therefore a good idea to incorporate ancillary drugs at the conclusion of therapy. An estrogen antagonist such as Clomid® or Nolvadex® is therefore commonly used for a few weeks. These both provide a good level of testosterone stimulation, although they may take a couple of weeks to show the best effect. HCG injections could be added for extra reassurance, acting to rapidly restore the normal ability of the testes to respond to the resumed release of gonadotropins. For this purpose one could administer three injections of 2,500-5,000IU, spaced five days apart. After which point the anti-estrogen is continued alone for a few more weeks in an effort to stabilize the production of testosterone. Remember to begin the ancillaries after Deca has been withdrawn for a few weeks, not the first week after the last shot. Deca stays active for quite some time so the ancillary drugs will not be able to exhibit their optimal effect when the steroid is still being released into the bloodstream.

The major drawback for competitive purposes is that in many cases nandrolone metabolites will be detectable in a drug screen for up to a year (or more) after use. This is clearly due to the form of administration. As discussed earlier in this book, esterified compounds have a high affinity to stay stored in fatty tissues. While we can accurately estimate the time frame it will take for a given dose to enter circulation from an injection site, we cannot know for sure that 100% of the steroid will have been metabolized at any given point. Small amounts may indeed be stubborn in leaving fatty tissue, particularly after heavy, longer-term use. Some quantity of nandrolone decanoate may therefore be left to sporadically enter into the blood stream many months after use. This process may be further aggravated when dieting for a show, a time when body fat sores are being actively depleted (possibly freeing more steroid). This has no doubt been the cause for many unexpected positives on a drug screen. The fact that nandrolone has been isolated as the "hands-off" injectable for the drug tested athlete is most likely due to its popularity (and therefore common appearance on drug screens). The same risk would of course hold true for other long chain esterified injectables such as Equipoise®, Parabolan and Primobolan®.

On the other hand, the use of oral nandrolone precursors norandrostenedione and norandrostenediol (now considered controlled substances in the U.S.) can allow the drug-tested athlete the benefit of an injectable nandrolone, without the same risk for a positive result. A recently published French study demonstrates this. During this investigation, it was shown that trace levels of the nandrolone metabolites norandrosterone and noretiocholanolone could be found in human urine up to eight months after a single 50mg injection of nandrolone undecanoate[106]. This time frame shrank to only 8 days with norandrostenediol (50mg) and norandrostenedione (100mg). I have also had the opportunity to speak with an amateur bodybuilder recently, who was unexpectedly subject to a drug screen and now strongly supports the use of oral precursor hormones. He was using up to 3 grams norandrostenedione daily not very far from the date of the show, and to his amazement did not test

positive for steroid use. Although not currently available, the possibility does exist that an Andriol®-type drug could be developed with a nandrolone base, which would allow for much closer use to tested events.

Those not subject to a drug screen are likely to find the low water retention and good effect of this drug favorable for use in pre-contest cutting stacks. A combination of Deca and Winstrol® during the weeks/months leading up to a show for example, is noted to greatly enhance the look of muscularity and definition. A strong non-aromatizing androgen like Halotestin® or trenbolone could be further added, providing an enhanced level of hardness and density to the muscles. Being an acceptable anabolic, Deca can also be incorporated into bulk cycles with good results. The classic Deca and Dianabol cycle has been a basic for decades, and always seems to provide excellent muscle growth. A stronger androgen such as Anadrol 50® or testosterone could also be substituted, producing greater results. When mixed with Deca, the androgen dosage can be kept lower than if used alone, hopefully making the cycle more comfortable. Additionally one may choose to continue Deca for a number of few weeks after the androgen has been stopped. This will hopefully harden up some of the bloat produced by the androgen, giving a more quality appearance. Remember that endogenous testosterone production will not resume during Deca therapy, and ancillaries are likewise still needed.

Deca-Durabolin is one of the most widely duplicated steroids in the world, with fakes taking on many different forms. Since this drug is marketed in so many countries throughout the world, it will no doubt always be a tricky buy. In an effort to help you pick out some of the best products, I will start by running down some of the more popular items currently found on the U.S. black market.

Animal Power makes a nandrolone decanoate product in Mexico, called **Deca 300**. This is a high dosed formulation containing 300mg/mL of steroid, and is in high demand among athletes as such. Animal Power uses security hologram stickers on all products, which display the company logo as an integral part of the holographic image. Make sure you look for these when shopping, and you should have yourself a safe buy.

Pet's Pharma is another company in the Mexican steroid market. They produce a nandrolone decanoate called **Decandrol 300**. It comes in a 10mL vial, with a concentration of 300 mg/mL of steroid. This firm uses a security sticker to deter counterfeiting, however it is not holographic. It is a circle that is half red and half blue, and both inks are a very shiny metallic color (*see: Security Stickers*). Fakes at this time do not appear to be a big problem.

Nutri-Vet makes a 300mg/mL Deca in Mexico called **Ultra Deca 300**. Nutri-vet was formerly an underground company, making products specifically for black market sale. They have since garnered registration as a legitimate Mexican veterinary drug manufacturer, however, and are now on my "official" radar. Feedback has been good on this line thus far, although I have not yet lab tested this product.

Quality Vet produces both a 200mg/mL and 300mg/mL nandrolone decanoate product. They are called **Deca QV200** and **Deca QV300**, respectively. The 200mg product comes in both 10mL and 50mL vials, while the 300mg version is currently sold in a 10mL vial only. QV uses a hologram sticker to deter counterfeiting, and has recently started using logo imprinted tops on their injectable vials. This is usually regarded as a quality product from a quality company. Just be careful for cheap looking knockoffs.

Denkall makes a 200mg/mL Deca product in Mexico called **Decanandrolen**. It comes packaged in 10ml vials, each affixed with a holographic sticker to deter counterfeiting. This product has always had a good reputation on the black market, and represents a good buy provided a real hologram is affixed to the bottle. Note that fakes of the Denkall line with counterfeit holograms are in circulation (*see: Security Stickers for more information*).

Brovel makes a brand of Deca in Mexico called **Norandren**, which comes in 50mg/mL and 200mg/mL dosage strengths. This company has been around for decades now, and is well regarded by athletes for the value of their products (they tend to be more affordable than many other producers). Note that Brovel recently updated its packaging to reflect a newer and more detailed look. They have also started using a custom printed blue cap bearing the company's logo. In the past Brovel has been a little inconsistent with implementing new features, so you may not be able to rely on these new traits 100%. Do be sure, however, that any Brovel product carries the proper security sticker.

Tornel makes a generic in Mexico as well, **Decanoato de Nandrolona** to be specific. This product is a safe buy, although you may expect the steroid dosage to be 20% or so under the label claim of 200mg/mL.

Ttokkyo is no longer in business, and any **Nandrolona 300 L.A.** in circulation at this time is likely to be fake, not "old stock". Avoid.

British Dragon makes another highly regarded nandrolone decanoate in Thailand, called **Decabol**. It carries 250mg/mL of steroid in a clear 10mL vial. Current product should not carry a hologram sticker, but will have a bright shiny area on the label that is inlayed metallic foil (red or blue). Also, make sure your product has a custom-formed cap that bears the product name on top. This cap will also cover a rubber stopper that has the company logo imprinted in its surface.

Copies of the Greek **Extraboline** may still be circulating, and can be identified by an overlapping label placed on the vial, and a box that is devoid of the proper Greek Drug ID sticker. As with all Greek drugs, only buy this when properly boxed so you can place the peel-off pharmacy sticker under UV lighting to look for the hidden watermark.

Norma Hellas Deca (100 mg/mL nandrolone decanoate in 2mL vials) from Greece is a good product, but also widely counterfeited. The most reliable way to spot the real thing is to only purchase this steroid when packaged in a box with paperwork. This way you can put the Greek drug ID sticker under UV light. It should reveal a hidden mark (*see: Security Stickers*). If your box does not have this sticker, it is not real. The vial itself should also have a tightly printed label. By that I mean it will have the blue box in the center going all the way to the edge; no margin. Many of the fakes in circulation have distinct white borders above and below the text. Take note also that the real vial lists the lot number first, above the expiration date. If your vial lists them in reverse, it is a fake. Norma also started printing their name directly on the glass, underneath the label. Peel it off, and you should see either NORMA or NORMA HELLAS, in blue or red, underneath. This company is run by a bunch of indecisive people when it comes to their packaging, as it seems to change in small ways every other month. Therefore, the Greek drug ID sticker will be the most reliable counterfeit detection method.

Greek **Deca-Durabolin** from Organon is another widely counterfeited product. It is one of only a handful of European nandrolone injectables to be found in multi-dosed vials, making it an easy target for counterfeiters that lack the capacity to produce glass ampules. Again, knowing what to look for is key to avoiding rip-offs. To begin with, make sure you purchase this product only when it comes in a box with the proper Greek drug ID sticker. As with all Greek drugs, the sticker should show a hidden mark under UV light. This is currently the most reliable method of detection, with all Greek drugs. The box itself will carry five vials. If you are looking at the vials themselves, note that the labels on the real product do not have rounded corners. Half of the fakes in circulation carry rounded labels, which is an immediate standout trait. Also check that the lot number and expiration date are printed with black ink, not blue or purple. Lastly, make sure the ink is not too deep of a black. The real thing sort of looks grayish in color, not really a deep crisp black. Photo comparisons are included in the picture section.

BM Pharmaceuticals is a quasi-legit company in India that makes (among other steroids) **Deca-Dubol 100**, a 100mg/mL nandrolone decanoate injectable. It is packaged in 2mL multi-dose vials, similar in its format to the 200mg Deca vials from Greece. Feedback on the BM line has been good so far, although their products do not seem to make their way into the U.S. in very high volume.

Organon sells brand name **Deca-Durabolin** in the United States. This item is such a rare find on the black market, however, that I wound not trust it if located. Fakes must outnumber the real by at least 20 to 1. Should you want to risk it, make sure first that your product is in a maximum dose of 200mg/mL in a 1mL vial. Fakes are often made as 2mL vials, due to the higher selling price for 400mg. Also, make sure the label does not peel easily off the vial. Real U.S. drugs are made with strong glues so this does not happen. Lastly, look for legitimate date/lot stamping on the box and vial. These should be visibly computer printed (box) and stamped (vial label). Still, there may be many sophisticated fakes that will pass on all counts. Be careful.

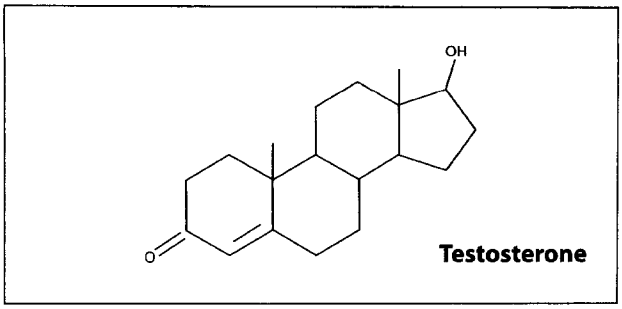
Both **Watson** and **Schein** Pharmaceuticals have generic nandrolone decanoate products in the U.S. The most commonly dispensed versions for both companies are the 1mL dark glass vials containing 200mg of steroid. Watson is also known to make a 100mg/mL product as well. Both of these items are also sold in pharmacy packs of 25 vials, if you are lucky enough to locate one. As with Organon Deca, these items are extremely rare finds on the black market. When located, the odds are greatly in favor of them being fakes. As this product is subject to the strict requirements of the U.S. FDA, you should investigate for similar labeling and lot/date stamping traits to Organon Deca-Durabolin. This means the later application of dates on the box and label, and strong glue to avoid product mislabeling.

PB Labs in India is still producing **Deca-Pronabol 200**. This comes in the form of a 1mL ampule containing 200mg of steroid. This item is scare on the black market these days, probably because India is not a very hot source country, and other cheaper forms of Deca are more easily found.

Deposterona® (testosterone blend)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Deposterona is an injectable veterinary steroid from Mexico, which contains a blend of various esters of testosterone. This product has been around for many years, first sold under the Syntex label and more recently Fort Dodge, who acquired the Syntex Animal Health Company in the mid-1990's. Each milliliter of Deposterona specifically contains 12mg of testosterone acetate, 12mg of testosterone valerate, and 36 milligrams of testosterone undecanoate, for a total steroid concentration of 60 mg/mL. Each multi-dose vial contains 10ml of steroid, and 12 vials are packed together in a master box. This is the first compound I have seen to ever contain testosterone valerate. If you are unfamiliar, this is a medium to long acting ester, with a whole body half-life measured to be approximately double that of testosterone propionate in animal models[107].

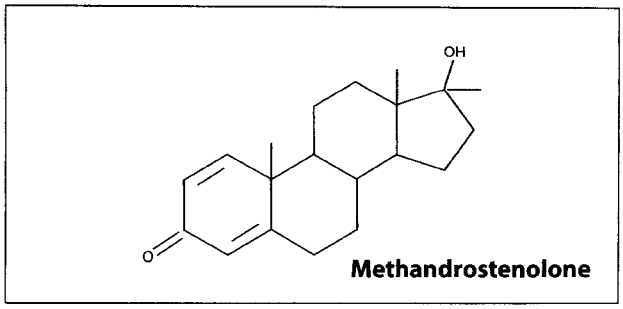
With its blend of slow and fast acting esters, Deposterona is sort of a low-dosed alternative to Sustanon. Mind you its shortest ester (acetate) is a little faster acting than the propionate in Sustanon, and its longest ester (undecanoate) a tiny bit slower acting than Sustanon's decanoate. But it is a pretty close comparison nonetheless. As such, it will be an excellent mass and strength builder (for a more complete discussion, please *see: Sustanon*). The main disadvantage to Deposterona is its low steroid concentration. If you were planning on using a "standard" dose of testosterone (400-600mg per week), be prepared to do a lot of injecting. In such instances it would require injecting 8-10ml, up to a full bottle of steroid, each week. Since it is usually not too pricey of a product a cycle like this shouldn't break you. But the oil volume would most certainly be uncomfortable, unless of course you have a sick fondness for injecting yourself. For this reason it is most often used as an adjunct steroid to other compounds (maybe to add an extra hundred milligrams or two of testosterone), and not as the main focus of a steroid cycle.

Because it contains such a low concentration of steroid, Deposterona is in pretty low demand among athletes. There are plenty of more useful testosterone products to be found in Mexico. As such, this product is not readily smuggled into the U.S. After all, a 12 vial box takes up quite a lot of valuable space, and doesn't net a whole lot of money. This space could be filled with much more profitable items such as ampules or high-concentration veterinary steroids. This does, however, also make Deposterona low on the radar when it comes to counterfeiting, which is a good thing. I wouldn't be too worried about fakes if you have just purchased some. There are many other products to duplicate in Mexico, almost all of which would make a counterfeit manufacturer a lot more money on a per unit basis.

Dianabol® (methandrostenolone, methandienone)

Androgenic	40-60
Anabolic	90-210
Standard	Methyltestosterone (oral)

Chemical Names	17a-methyl-17b-hydroxy-1,4-androstadien-3-one 1-Dehydro- 17a-methyltestosterone
Estrogenic Activity	moderate
Progestational Activity	not significant



Methandrostenolone

Dianabol is the old Ciba brand name for the oral steroid methandrostenolone. It is a derivative of testosterone, exhibiting strong anabolic and moderate androgenic properties. This compound was first made available in 1960, and it quickly became the most favored and widely used anabolic steroid in all forms of athletics. This is likely due to the fact that it is both easy to use and extremely effective. In the U.S. Dianabol production had meteoric history, exploding for quite some time, then quickly dropping out of sight. Many were nervous in the late 80's when the last of the U.S. generics were removed from pharmacy shelves, the medical community finding no legitimate use for the drug anymore. But the fact that Dianabol has been off the U.S. market for over 10 years now has not cut its popularity. It remains the most commonly used black market oral steroid in the U.S. As long as there are countries manufacturing this steroid, it will probably remain so.

Similar to testosterone and Anadrol 50®, Dianabol is a potent steroid, but also one which brings about noticeable side effects. For starters methandrostenolone is quite estrogenic. Gynecomastia is likewise often a concern during treatment, and may present itself quite early into a cycle (particularly when higher doses are used). At the same time water retention can become a pronounced problem, causing a notable loss of muscle definition as both subcutaneous water and fat build. Sensitive individuals may therefore want to keep the estrogen under control with the addition of an anti-estrogen such as Nolvadex® and/or Proviron®. The stronger drug Arimidex® (anti-aromatase) would be a better choice, but can also be quite expensive in comparison to standard estrogen maintenance therapies.

In addition, androgenic side effects are common with this substance, and may include bouts of oily skin, acne and body/facial hair growth. Aggression may also be increased with a potent steroid such as this, so it would be wise not to let your disposition change for the worse during a cycle. With Dianabol there is also the possibility of aggravating a male pattern baldness condition. Sensitive individuals may therefore wish to avoid this drug and opt for a milder anabolic such as Deca-Durabolin®. While Dianabol does convert to a more potent steroid via interaction with the 5-alpha reductase enzyme (the same enzyme responsible for converting testosterone to dihydrotestosterone), it has extremely little affinity to do so in the human body[108]. The androgenic metabolite 5-alpha dihydromethandrostenolone is therefore produced only in trace amounts at best. The benefit received from Proscar®/Propecia® would therefore be insignificant, the drug serving no real purpose.

Being moderately androgenic, Dianabol is really only a popular steroid with men. When used by women, strong virilization symptoms are of course a possible result. Some do however experiment with it, and find low doses (5mg) of this steroid extremely powerful for new muscle growth. Whenever administered, Dianabol will produce exceptional mass and strength gains. In effectiveness it is often compared to other strong steroids like testosterone and Anadrol 50®, and it is likewise a popular choice for bulking purposes. A daily dosage of 4-5 tablets (20-25mg) is enough to give almost anybody dramatic results. Some do venture much higher in dosage, but this practice usually leads to a more profound incidence of side effects. It additionally adds well with a number of other steroids. It is noted to mix particularly well with the mild anabolic Deca-Durabolin®. Together one can expect an exceptional muscle and strength gains, with side effects not much worse than one would expect from Dianabol alone. For all out mass, a long acting testosterone ester like enanthate can be used. With the similarly high estrogenic/androgenic properties of this androgen, side effects may be extreme with such a combination however. Gains would be great as well, which usually makes such an endeavor worthwhile to the user. As discussed earlier, ancillary drugs can be added to reduce the side effects associated with this kind of cycle.

In order to withstand oral administration, this compound is

c17 alpha alkylated. We know that this alteration protects the drug from being deactivation by the liver (allowing nearly all of the drug entry into the bloodstream), however it can also be toxic to this organ. Prolonged exposure to c17 alpha alkylated substances can result in actual damage, possibly even the development of certain kinds of cancer. To be safe one might want to visit the doctor a couple of times during each cycle to keep an eye on their liver enzyme values. Cycles should also be kept short, usually less than 8 weeks long to avoid doing any noticeable damage. Jaundice (bile duct obstruction) is usually the first visible sign of liver trouble, and should be looked out for. This condition produces an unusual yellowing of the skin, as the body has trouble processing bilirubin. In addition to the skin, the whites of the eyes may also yellow, a clear indicator of trouble. Should this occur the drug should be discontinued immediately and a doctor visited. This is usually a point where further, permanent damage can be avoided.

It is also interesting to note that methandrostenolone is structurally identical to boldenone, except that it contains the added c17 alpha alkyl group discussed above. This fact makes clear the impact of altering a steroid in such a way, as these two compounds appear to act very differently in the body. The main dissimilarity seems to lie in the tendency for estrogenic side effects, which seems to be much more pronounced with Dianabol. Equipoise® is known to be quite mild in this regard, therefore, users commonly take this drug without the need to add an anti-estrogen. Dianabol is much more estrogenic not because it is more easily aromatized, as in fact the 17 alpha methyl group and c1-2 double bond both slow the process of aromatization. The problem is that methandrostenolone converts to 17alpha methylestradiol, a more biologically active form of estrogen than regular estradiol[109]. But Dianabol also appears to be much more potent in terms of muscle mass compared to boldenone, supporting the notion that estrogen does play an important role in anabolism. In fact boldenone and methandrostenolone differ so much in their potencies as anabolics that the two are rarely thought of as related. As a result, the use of Dianabol is typically restricted to bulking phases of training while Equipoise® is considered an excellent cutting or lean-mass building steroid.

The half-life of Dianabol is only about 3 to 5 hours, a relatively short time. This means that a single daily dosage schedule will produce a varying blood level, with ups and downs throughout the day. The user, likewise, has a choice, to either split up the tablets during the day or to take them all at one time. The usual recommendation has been to divide them and try to regulate the concentration in your blood. This however, will produce a lower peak blood level than if the tablets were taken all at once, so there may be a trade off with this option. The steroid researcher Bill Roberts also points out that a single-episode dosing schedule should have a less dramatic impact on the hypothalamic-pituitary-testicular axis, as there is a sufficient period each day where steroid hormone levels are not extremely exaggerated. I tend to doubt hormonal stability can be maintained during such a cycle however, but do notice that anecdotal evidence often still supports single daily doses to be better for overall results. If this is the better option, I am more inclined to think it has to do with higher peak dosages vs. lower more even blood concentrations. Since we know the blood concentration will peak about 1.5 to 3 hours after administration, we may further wonder the best time to take our tablets. It seems logical that taking the pills earlier in the day, preferably some time before training, would be optimal. This would allow a considerable number of daytime hours for an androgen rich metabolism to heighten the uptake of nutrients, especially the critical hours following training.

Athletes are also often asking how to go about cycling 100 tablets (5mg) when that is the only amount available to use. Although most strongly prefer to cycle at least 200 tablets, half this amount can be used successfully for a small "mini" cycle. The goal should be to intake an effective amount, but also to stretch it for as long as possible. We can do this by taking four tablets daily during the week (Monday to Friday) and abstaining on the weekend. This gives us a weekly total of 20 tablets, 100 tabs lasting the user five weeks. This should be a long enough time to receive noticeable gains from the drug, particularly if you have not used steroid extensively before. Although unconventional, it is not necessary to vary the pill dosage throughout a cycle. This method should provide a much more consistent gain than attempting an intricate pyramid schedule, which can eat up most of your pills during dosage adjustments. As discussed earlier in this book, tapering the dosage toward the end would offer us no real benefit.

Dianabol is one of the most popular steroids in the world, and consequently one can find a variety of such preparations on the black market. You must be warned though. This drug is also amongst the most widely counterfeited. You need to do some educated shopping to avoid getting ripped off. One of the first things you need to remember is that most of the Western world has completely done away with this steroid. In medical circles here it is thought to hold no real value anymore. Its potential existence is viewed as supporting doping/performance-enhancement only. Therefore, you are not going to come across legitimate Dbol from the U.S., Canada, or Western Europe. This drug is made exclusively in areas such as Asia, South America (limited), Mexico, and Eastern Europe. Ignore anything labeled as

Italian or Spanish, etc. They will not be legitimate. In regards to some of the most popular legitimate brands on the black market, here is what to look for.

Nutri-Vet recently launched its "official" steroid line in Mexico. This includes a methandrostenolone product called **Ultra D-Boll.** This particular product joins the ranks of but a few very high dosed version of Dianabol in circulation, containing 50mg of steroid per tablet instead of the standard 5mg. One hundred tablets are contained in each white plastic container, providing the same total steroid content as is found in a full 1,000 tablet jar of Thai Anabol. The price point on this product is also very favorable given how much drug it provides.

Animal Power sells **Methan Tabs** to Mexico. This is a 10mg methandrostenolone tablet product, which comes packaged 100 tablets per glass bottle. Animal Power uses several security features to deter counterfeiting, including placing hologram stickers on all of their boxes, bottles, and vials, and etching their company logo directly into the glass of vials and bottles. Do not buy the product if either feature is missing. Feedback has been excellent on the AP line thus far, making them easy to recommend.

Pet's Pharma sells two versions of methandrostenolone on the Mexican market. One an injectable called **Metandiol 60**, which carries 60mg/mL of steroid in a 10mL vial. The other is an oral called **Metandiol 25**, which comes as a 25mg tablet in bottles of 100. Both products will carry the Pet's Pharma security sticker (*see: Security Stickers*). At the present time counterfeits of this line are not a big issue.

The brand **D-Bol** is manufactured by **Denkall**, also in Mexico. Their D-Bol comes in three distinct forms: 10mg tablets, 10mg capsules, and a 25mg/mL injectable. The injectable uses oil to dissolve the steroid instead of propylene glycol, making it much more comfortable to inject compared to Reforvit, if that is your intention. All versions are to be considered top quality. Note that fakes of the Denkall line with counterfeit holograms are in circulation, so be careful when shopping (*see: Security Stickers for more information*).

Reforvit is a Mexican veterinary methandrostenolone product from Loeffler. It is prepared in both oral and injectable forms. The injectable contains 25mg/mL of steroid, with each 50mL bottle containing the equivalent of 250 tablets. A 10mL vial is also produced, but not commonly seen in the U.S. due to general disinterest (it contains only 50 tablets worth of drug). Note that the product uses propylene glycol instead of oil as a solvent, which makes for very painful injections. Most users opt the take it orally for this reason. It tastes like ass though (big time!), so you may want to buy some '00' size empty gel caps at the health food store and fill them with your dose. You can inject the assembled caps by piercing the tip. The now more popular oral Reforvit tablets (called **Reforvit Simple**) carry 25mg of steroid each, and are sold in bottles of 100 and 1,000 tablets in total. Loeffler uses a hologram sticker to deter counterfeiting, so be sure to look for it when shopping.

Salud in Mexico is still selling methandrostenolone under the **Dianabol** brand name. Like Denkall and Pet's Pharma, they produce it in both oral and injectable forms. The injectable comes in a 10mL, 50mL, or 100mL multi-dose vial, and carries 25mg/mL of steroid. It uses an oil carrier instead of propylene glycol, which makes injections much more tolerable than Reforvit. Their Dianabol tablets contain 10mg of drug each, and are packaged in very small plastic bottles of 100 tablets each. This product has passed lab testing before, and represents a very cost effective buy on the Mexican market right now.

Norvet in Mexico makes oral and injectable forms of this steroid. The injectable is sold as **Anabol-Jet**, and it contains 25mg/mL of methandrostenolone in 10mL, 30mL, 100mL, and 250mL sizes. They also make a variant called Anabol-Jet ADE. This has 30mg/mL of steroid with some added vitamins, and comes in 100mL and 250mL sizes. Their oral is sold as **Anabol Pet's**, and comes in 10mg and 25mg dosage strengths. Two hundred tablets are included per bottle.

Ttokkyo is no longer in business, so do not expect to find this generic Dianabol in Mexico (or on the black market) anymore. Old stock is long since gone, leaving only counterfeiters hoping to profit off of the still widely known Ttokkyo name.

British Dispensary **Anabol** tablets from Thailand are still very popular. Due to rampant counterfeiting, the manufacturer has instituted three security guards. One is a hologram sticker, which is affixed to each 1,000 count tub of tablets. Second, the tablets themselves are imprinted with the company's snake emblem. Lastly, the 1,000 count tub bears the company logo formed into the plastic top. Are these three features effective at blocking fakes? In the case of Anabol, the answer is "not really". While many fakes are poor in quality and lack all of these, Anabol is in such high demand that some advanced counterfeiters have been duplicating British Dispensary's holograms, custom tablet dyes, and logo-impressed plastic bottles. They look good, but all fakes thus far have minor deviations from the original. Be sure to compare your product's features to the real Anabol photos very closely. BD is aware of the current most accurate fake, and has made the following observations. 1) The hologram on the real item is more yellow and crisp than the fake. 2) The fake tablet has white specs in it, showing that their

blending was not complete. 3) The lot number and expiration date are too clean on the fake. These numbers are stamped on the real item, and are never that neat. Also note that BD has recently introduced a 10mg version of Anabol called (what else?) **Anabol 10**. This product sports the same security features as the regular Anabol product, but in a smaller yellow and white package. The tablets themselves are identical in shape to the 5mg version, and also carry the company logo stamped into them. The only difference is their color, which is yellow instead of pink.

The Thai company British Dragon is also selling its own brand of methandrostenolone. It is called **Methanabol**, and comes prepared in both 10mg and 50mg tablets. The 10mg version comes 500 to a pouch, while the 50mg dosed tablets are sold in lots of 100. The tablets are square and are marked "BD" on one side and the dosage on the other. All oral products from BD will carry a security hologram sticker to deter counterfeiting, however, this has been duplicated before. Be sure to also look for the BD logo on the back of the pouch, and on the included silica gel pack (placed inside to reduce moisture). British Dragon also recently introduced an injectable methandrostenolone called **Averbol 25**. It contains 25mg/mL of steroid in a 20mL vial. This product never carried a hologram sticker, but does have a bright shiny area on the label that is inlayed red metallic foil. Also, make sure your product has a cap that displays the product name (formed into the plastic). When removed it should reveal the company's dragon logo, which is formed directly into the rubber stopper.

Generic "Russian D-Bol" (**METAHAPOCTEHOROH**) is still being produced in Russia by **Akrikhin** (the name looks like **Akpnxnh** in Cyrillic). The current box is purple in color, and carries 10 strips of 10 tablets each. This has always been a highly regarded form of Dbol. As such, it has also been a regularly counterfeited one. Most of the fakes have been poor copies of the original, often coming as bottles of loose tablets instead of proper foil and plastic push-through strips. That is not to say locating the current production version in tablet strips assures a safe purchase, however, so take care to compare your product to the original photos closely. Note that the manufacturer has started making a version of this product for the Ukrainian market. This product can be identified by the company name, which appears as **Akpixih** on the packaging. Some have mistakenly identified these as fakes, believing this to be a typographical error.

Another generic popular in Europe is the Russia **Bioreaktor** (**Peaktop**) brand. The packing of this drug has recently changed, and now reflects a more modern looking white/black/green design. Some of the older boxes may still be in circulation at this time. There have been a handful of very adept fakes of this product in the past (of the previous design), which means the new item is likely to be targeted as well. Note also that in 2000, in a court battle with Akrikhin, Peaktop lost the right to use the trade name **METAHAPOCTEHOROH**. They have since changed it to (roughly) **METAHANEHOH**. This involved a change in the barcode as well. Prior to 2000, the strips would each carry a barcode number that ended in 000359. After 2000, they end in 000700. Several counterfeits have been seen that still carry the old barcode number so beware.

Naposim from Rumania changed the look of its packaging about a year ago. The newer box is white instead of yellow, and has a more modern look to its layout. Otherwise, most features remain very much the same, containing 10 triangle stamped pills to each foil and plastic strip. Note that the foil strip on real Naposim has date and lot number stampings on both ends. Some fakes in the past have overlooked this, placing them only on one end. Additionally, there is a little nipple in the center of each pill bubble on the real Naposim strip. Fakes of this product have been located in the past with smooth pill bubbles. Also, be sure the triangle on your tablets is sharp and even. One recent fake has been seen with stampings that look more like Star Trek emblems than triangles. Also, note that some strips are found with the generic name metandienona instead of metandienonum. This is simply how the company labels the product for export.

Danabol DS is no longer in production. The manufacturer of this product, Body Research/March Pharmaceutical Company in Thailand, was raided by Thai authorities last year. Their anabolic steroid products were confiscated, and their license to sell such medicines was suspended. There is talk of a possible return to market, but nothing has been made certain as of yet. Note that a popular Russia counterfeit ring has stared using the Body Research name, and is doing so to market a number of questionable fakes.

Methandon and **Melic** from Thailand are both legit items, and come packed in containers of 1,000 tablets each. Both of these products are relatively rare on the black market these days, although it is believed that both are still in production. Their lack of abundance may simply be due to the far greater popularity and recognition of Anabol, which continued to dominate the Thai Dianabol market in spite of growing competition. Both products have pink 5-sided tablets like Anabol, and are very similar in appearance without the bottles. The Methandon product (which used to use plain white tablets) is the most distinct, as it carries the letters "ES" etched into them.

Dronabol from Plaza Dispensary, **Methan Tabs** from Remy Pharm, the generic from **LA Labs**, and **Metabolin** are all fake products on the Thai market. It may be good advice to stick with the known brands like BD and Acdhon, instead of risking these.

Bionabol from Bulgaria is no longer in production, although old stock may very well still be in circulation. In mid-2005, the Bulgarian Ministry of Health refused to renew Balkanpharma's license to sell this drug. Drug companies are normally required to renew their drug permits every 5 years in Bulgaria, and it is speculated that in anticipation of entry into the European Union in 2007, the government is discontinuing certain "controversial" medicines like Dianabol. The last batch should expire in early 2009 (02 2009 is the last date of manufacture I have seen).

Anabolex 3mg tabs from the Dominican Republic are still a safe buy. Note that each pill contains an added 1.5mg of Periactin, used as an appetite stimulant. It's an antihistamine and may cause drowsiness. Make sure your product is packaged in the modern style blue pouches, not the older plain white ones. These are long off the market at this point.

Metanabol from Poland is another legit brand, but be sure to purchase these only in strips of 20 tabs, as shown in the picture library.

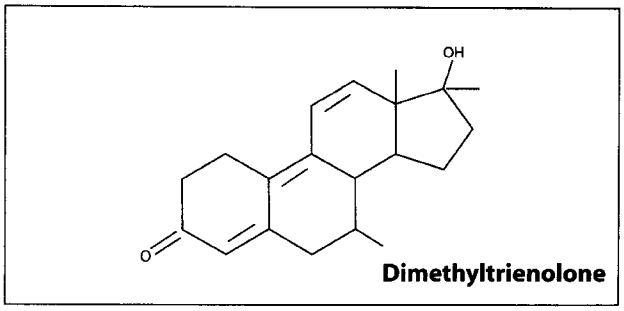
Nerobol from Hungary is no longer being manufactured. Avoid all products bearing this brand name.

Pronabol 5 is still being made by PBL in India. This product was once very popular on the black market, however, it has been a scarce find for many years now. Perhaps this is because India is no longer a hot source country for steroids, or simply due to the fact that cheaper Dbol can be found in many other places.

Dimethyltrienolone

Androgenic	>10,000
Anabolic	>10,000
Standard	methyltest (oral)

Chemical Names	17beta-Hydroxy-7,17-dimethylestra-4,9,11-trien-3-one
Estrogenic Activity	none
Progestational Activity	high



Dimethyltrienolone

Dimethyltrienolone is one of a great many potent anabolic steroids that has never been introduced into a commercial drug market. As such, it is a research compound only, and there is no human data on it to report. There are, of course, a great many compounds that fit this description that I never report on. What makes this particular steroid stand out from the others is its sheer potency. More to the point, dimethyltrienolone is perhaps the nastiest and most potent anabolic steroid that has ever been developed and assayed for effect. This agent is a close cousin of Metribolone (methyltrienolone), which is an anabolic abomination in its own right. You may recall that Metribolone was determined to be the most hepatotoxic steroid ever developed at the time of its testing. That steroid is certainly no joke, and neither is dimethyltrienolone. In fact, we can probably consider dimethyltrienolone to be methyltrienolone's older, violent, and recently paroled brother.

In structure, dimethyltrienolone differs from methyltrienolone only by the addition of a 7-methyl group. This is a modification that only appears a couple of times in commercial steroid medicine, but when it does it seems to have a powerful effect. Its main function is to reduce binding to serum proteins like SHGB (Sex Hormone Binding Globulin), increasing the percentage of free (active) steroid in the blood. The first time we see it is with bolasterone, a powerful derivative of methyltestosterone that displays nearly six times greater anabolic potency. This drug was sold in a select few nations many years ago, before it was withdrawn from market (never to return). Methylation of C-7 also appears on Cheque Drops (mibolerone), which is 7,17-dimethylated nandrolone. Mibolerone has about 41 times the oral anabolic potency of methyltestosterone, which comes out to almost 7 times greater anabolic potency than methylnandrolone (this shows how much of a difference 7-methylation can make). Furthermore, whenever this modification appears on other research steroids it usually has similar effects on anabolic/androgenic potency. By this logic, if methyltrienolone is bad, dimethyltrienolone should be a major bad ass.

When this steroid was assayed in 1967 for anabolic and androgenic effect, the results were indeterminate[110]. It is not that the scientists were unable to get an idea of its ability to act as an anabolic and androgenic steroid. Quite to the contrary, the results turned out to be clear and startling. They were indeterminate because the values were so high they could not be accurately calculated given the parameters of the study. The study itself was very typical. As would be expected of an oral steroid, methyltestosterone was used as the standard of comparison. The animals (rats) were dosed and later sacrificed. Ventral prostate and seminal vesicles were weighed to measure androgenic effect, and levator ani was used for anabolic potency (the same three values that were the standard of analysis for steroids in the 1960's and 70's). In regards to all three measures, dimethyltrienolone was shown to be more than 100 times greater in effect than methyltestosterone. The numbers, when reported in percentages, simply read "> 10,000" (greater than 10,000%) on all 3 tests. I was unable to find further oral assays on this steroid, making the exact potency (by these experiments or others) unknown.

The same warnings that have been given about methyltrienolone hold true for dimethyltrienolone as well. This is an extremely, no exceedingly, potent and toxic compound. Although I admit all things are relative, and it probably can be used under relative safety given the right circumstances, I feel it is a steroid that just doesn't need to be messed with. The ability for the body to break down this steroid is severely limited by not one but a serious of chemical alterations, all of which are responsible for increasing not just its resistance to liver metabolism but also its potency and toxicity as well. There are many other steroids that can be used with similar general effect, which do not present the same relative toxicity to their user. Should you come across dimethyltrienolone, you should probably run, not walk, in the other direction. I don't have

the studies showing it, but feel confident that this is indeed one of the most liver toxic steroids ever created, probably much more so than even methyltrienolone.

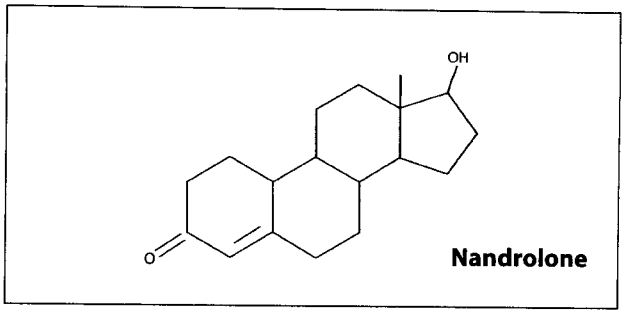
For the handful of people reading this that possibly could have access to this compound and are concerned with its other properties, a few things can be determined looking at its structure. For one, we know that aromatization is not possible, so estrogenic side effects should not be an issue. Given the resistance we know trenbolone (the non-methylated tri-ene base of dimethyltrienolone) has to 5-alpha reduction, we can similarly expect that dimethyltrienolone will have a relatively balanced anabolic and androgenic effect. Androgenic side effects can (and likely will) occur, of course, but they should not be disproportionate to the relative anabolic potency of the steroid. In most cases balanced usually means "mild". But in this case the shear potency would make measuring, dosing, and controlling the steroid difficult. A proper dose would be measured in quantities less than 1mg per day (probably far less), which is simply too small for the naked eye to measure. Still, in theory, given the ability to measure and determine the right (tiny) dose for you, it could be relatively comfortable to use when it comes to side effects, at least those concerning androgenic and estrogenic action.

Although the chance of coming across dimethyltrienolone on the black market right now are close to zero, the possibility that you might have access to this steroid one day cannot be excluded. Given the amazing expansion of the global steroid market over the past 10 years, and the emergence of many new and old compounds that has come with it, we know that anything can happen these days. There is no saying that some enterprising underground lab or foreign "veterinary" or "research chemical" producer will not put together a dimethyltrienolone product in the future, simply because they can do it and know that selling the "most potent steroid ever" will be a good marketing idea. Should such a product come into existence, it needs to be emphasized again that there are many other steroids out there worth using before this one that are not going to be as dangerous. No compound, no matter how potent, is magic, and dimethyltrienolone is one of those steroids that should probably just be left alone.

Dinandrol (nandrolone blend)

Androgenic	37
Anabolic	125
Standard	testosterone

Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Nandrolone

Dinandrol is to nandrolone what Sustanon is to testosterone, well sort of. This product is an injectable anabolic steroid from the Philippines that contains a blend of one short and one long acting ester of nandrolone. The intent, as with Sustanon, is to provide the user more of a sustained-release effect compared to that obtained with single-ester injectables. Each mL of Dinandrol contains 60mg of nandrolone decanoate and 40mg of nandrolone phenylpropionate, for a total steroid concentration of 100mg per mL (200mg per 2mL vial). Although this product lacks the propionate and isocaproate esters that would make it a true nandrolone equivalent of Sustanon, I suspect it still provides a release profile very similar to this drug. After all, the difference in steroid release time between propionate and phenylpropionate esters are not that great, and with a good dose of decanoate it is difficult to think the isocaproate will be tremendously missed. It is about as close as we can get to a real "Sustanon", and with a product like this there would seem little added benefit in actually developing one.

As with all nandrolone products, Dinandrol offers a moderate anabolic effect with only mild androgenic or estrogenic side effects (*see: Drug Profiles - Deca-Durabolin for a more comprehensive discussion*). Although designed as a long and steady acting product, bodybuilders are not looking for a nandrolone replacement drug that is injected once a month. With this in mind Dinandrol is most often injected on a weekly basis. The dose, as with regular Deca-Durabolin, would be in the range of 200-600mg per application. If anything, one would only be noticing a difference between Dinandrol and Deca when first starting a cycle (due to the faster onset of action), and only if they tended to notice the benefits of steroid therapy very quickly. Otherwise the drug will build to pretty significant and "steady-state" levels within a few injections, making it impossible to distinguish from regular Deca-Durabolin. For the bodybuilder it is, therefore, not any type of "must have" steroid to go run out and start searching for, but most certainly is an acceptable option if found at a fair price.

Dinandrol is one of those odd steroid products that are rarely found in an actual pharmacy. This is because it is not registered as a prescription drug in the country in which it is made (so don't expect to take any home if you visit). Instead, it is an export only item, sold to importers in other countries who likely are quick to divert it to the black market. Although you may not have the benefit of obtaining it through legitimate channels, it is not that difficult to recognize real Dinandrol when one crosses this item on the black market. Its packaging is unique, and would seemingly be difficult and costly to duplicate. Well, maybe the multi-dose vials are not that unique, three of which are packaged in a blue shaded box that is also pretty easy to copy. But you do open the box to find the vials sitting nicely in a clear-plastic tray that bears the firm's name (Xelox). It is not printed on the tray but molded directly into the plastic, which would obviously be some task for an underground manufacturer to duplicate. Being that this item is rarely even heard of at this time, I do not expect fakes to be a problem very soon.

Drive® (boldenone/methylandrostenediol blend)

Androgenic

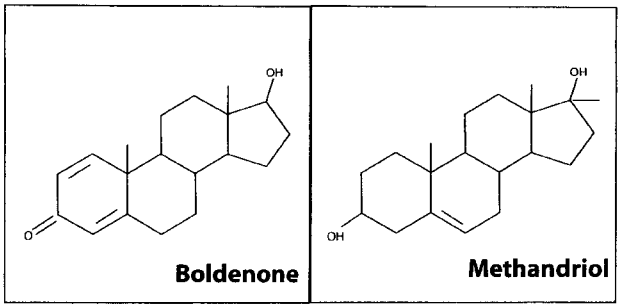
Anabolic

Standard

Chemical Names

Estrogenic Activity

Progestational Activity



Drive is an extremely unique veterinary steroid, available only in Australia. This is actually a very interesting place for steroids, possessing a number of unusual compounds. Strange methandriol mixes, unusual esters (such as nandrolone cypionate, *see: Dynabol*) and probably the only place in the world that produces 500mL bladders of testosterone. It would be quite the place to visit were the country more open. Laws regarding steroids have become stricter in recent years, so travelers should not expect to be able to run into a veterinary shop to load up. There is, of course, an active black market in Australia catering to bodybuilders, but like its American counterpart is rife with counterfeit product.

This particular item is an oil based injectable, containing 25mg boldenone undecylenate and 30mg methandriol (methylandrostenediol dipropionate) per mL. Boldenone is familiar to us as the preparation Equipoise®, but methandriol is very rarely seen on the U.S. black market. It is a strong anabolic with a notable androgenic component. Methandriol can come in one of two forms actually, there is a 17-methylated compound designed for oral administration, or the methylated & esterified (dipropionate) version commonly seen as an injectable in Australian vet compounds. Methandriol produces notable muscle mass and strength gains, usually without accompanying water retention. In this mix it works nicely when mixed with the anabolic boldenone. Together the two compounds produce exceptional gains in strength and muscle mass.

As with almost every effective steroid, Drive can produce a noticeable set of side effects. While the boldenone is only mildly androgenic, methandriol shows slightly more pronounced activity. Androgenic side effects like oily skin, acne and increased aggression are all possible with this product. Women may want to stay away from Drive, fearing the androgen content will produce virilization symptoms. Estrogen can sometimes become troublesome with this drug, presumably from the aromatization of boldenone which is slight. Methylandrostenediol itself cannot directly aromatize, however it has been shown to display some low affinity for the estrogen receptor (possibly enhancing estrogenic activity as well). Sensitive individuals may therefore opt for the addition of an anti-estrogen such as Nolvadex® and/or Proviron®, in an effort to avoid any chance of developing gynecomastia and to minimize any slight smoothness due to subcutaneous water retention. In comparison to stronger stacks however, water bloat is usually not a major problem with Drive. This combination is in fact often noted for producing a very hard, quality physique.

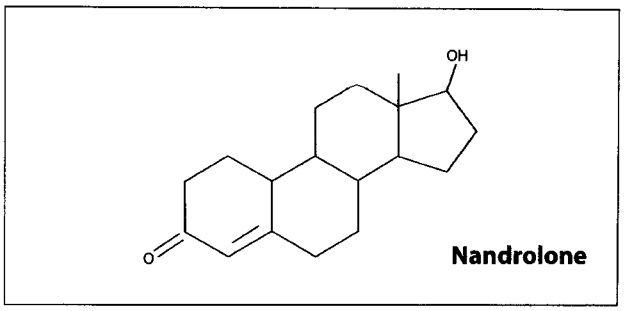
Since methandriol is a c17 alpha alkylated compound, liver toxicity can be a concern. The injectable dipropionate does offer us less toxicity however, as your liver will not have to process the entire dosage at once during the first pass. It is therefore the preferred form of administration among bodybuilders, on those rare instances that both might be available. Of course the possibility of liver damage cannot be excluded with the injectable though. It is also interesting to note that once the esters have been removed, we see that structurally methandriol is just a methylated form of 5-androstenediol. This is clear when we look at the chemical name (methyl-androstenediol) or a methylated form of this hormone (which is of course a popular pro-hormone supplement).

Drive is rarely smuggled into the U.S. in noticeable quantity, but can be found on occasion. The packaging of many Australian vet compounds, Drive included, is quite simple and easy to duplicate, so beware should an abundance of any particular substance begin to circulate.

Durabolin® (nandrolone phenylpropionate)

Androgenic	37
Anabolic	125
Standard	testosterone

Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Durabolin® is the Organon brand name for the injectable steroid nandrolone phenylpropionate. As one could guess, the properties of this drug are very similar to that of Deca-Durabolin®. Both contain the anabolic hormone nandrolone and are produced by the same drug firm (Organon). The primary difference between these two preparations is the speed in which the drug is released. While Deca provides the extremely slow release duration of up three or four weeks, Durabolin® is active for only a few days. In clinical situations Deca can thus be injected once every two or three weeks, while Durabolin® is usually administered every few days.

As with Deca, estrogen buildup is not a typical worry when using this drug. Some feel the fast action of Durabolin® is associated with slightly less water retention than Deca-Durabolin®, but this observation is probably just due to a lower blood concentrations during typical use. There is no difference between the nandrolone which is released into the body by each drug, so we cannot assign Durabolin® any unique set of properties. Nandrolone is generally not noted to cause estrogen trouble in any event, so the chance of developing gynecomastia and water bloat is slight, even among sensitive individuals. Likewise an anti-estrogen is usually not necessary when using this steroid. Durabolin® is also the preferred nandrolone product during dieting and contest preparation phases of training when estrogen and water retention are a major concern. This is just due to the fact that blood hormone levels are easier to control with a faster acting substance.

We also know that nandrolone is not an extremely potent androgen. This is because it will reduce to a less active metabolite (dihydronandrolone) in many androgen target tissues, due to interaction with the 5-alpha reductase enzyme. This is of course the same enzyme that potentates the action of testosterone by transforming it to a more active form (dihydrotestosterone). Related side effects such as oily skin, acne, body/facial hair growth and aggravated male pattern hair loss likewise occur much less frequently with these drugs compared to testosterone and many other anabolic/androgenic steroids, making Durabolin a very favorable steroid for those concerned.

While the level of such side effects is low with this anabolic, so may be the gain of strength and muscle mass. This is to be expected, as nandrolones are noted as being slow but quality builders instead of mass drugs. They are however noted to allow for the retention of a higher percentage of new body weight gain after a cycle is over, the user not having to endure a dramatic loss of stored water due to estrogen buildup. Although the buildup of estradiol is not marked, this drug can still notably affect endogenous testosterone levels. One may therefore still need to use an ancillary drug like HCG and/or Clomid® when coming off a cycle. This should ensure the lowest chance for suffering a hormonal crash when the steroid has been removed.

Due to its rapid rate of release from the injection site, Durabolin® is usually administered every two or three days. The dosage of each given shot is usually in the range of 50-100mg, equating to 1mL or 2mL when using the 50mg version. To keep injection volume to a comfortable level men will typically use a slightly lower weekly dosage than with Deca, generally 200-300mg (2 or 3 injections of 100mg). As discussed earlier, the buildup of muscle tissue resulting from Durabolin® is slow and even. This combined with a low incidence of side effects makes it an ideal steroid to use for longer periods of time, so that gains are given time to accumulate. It is likewise not unusual to see someone utilizing a nandrolone such as this in cycles greater than three months in length.

The short action of this drug is highly attractive to female athletes. Although usually more expensive, Durabolin® should be the preference if both it and Deca are available. While all nandrolone are generally well tolerated, blood hormone levels are more difficult to control with a long acting ester such as decanoate. Should virilization symptoms become evident, the rapid metabolism of

Durabolin® would be a very welcome trait. Here it would only take a matter of days for most of the active hormone to leave the body. The chance for more serious side effects would of course be heightened with Deca, the female athlete left with a highly elevated hormone level for weeks after ceasing use. The preferred administration schedule for women would also be a single injection weekly, at a dosage no more than 50 to 75 mg. This level is sufficient for a quality gain, yet low enough to feel safe from most side effects.

In general, Durabolin® will produce the same side effects seen with Deca, but they may be slightly less pronounced if the dosage used is lower (and/or more controlled, with less peaks) in comparison. Nandrolone preparations are among the most well tolerated steroids in manufacture, causing a very low incidence of unwanted side effects.

The only real problems with this drug are availability and price. Although produced in a fair number of countries, **Durabolin®** in particular is not commonly found in the U.S. This may be due to the high selling price and low strength of the Organon preparations. A single 50mg ampule could cost as much as $15 when sold on the black market, which is a high price for such a low dosage of steroid. Quite often the only strength available is the 25mg version, which can be even less cost effective. At the same time the injections may be too frequent or too large a volume for most to tolerate. These factors make Organon's Deca-Durabolin® much more abundant on the black market.

This steroid does occasionally find its way here in volume from India, where you can find the quasi-legit product **Dubol** by **BM Pharmaceuticals**. Dubol is made in both 50mg/mL and 100mg/mL dosage strengths (Dubol-50 and Dubol-100 respectively), and is considerably more cost effective than its Organon-manufactured counterpart. For a while, Dubol was being sold as a generic from the former company name **Haryian Biologicals**, however enough time has passed now that you should expect to see mostly the BM product on the black market.

Organon Durabolin may still be produced in India as well, though it has never been a common item on the black market due to high cost and low dosage.

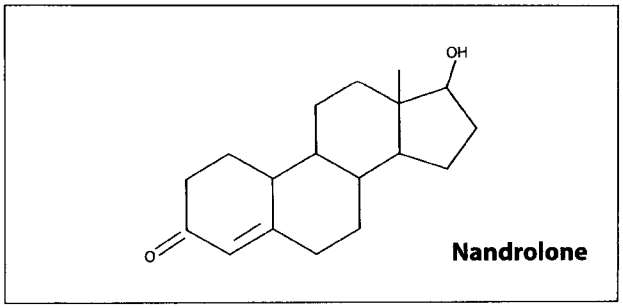
British Dragon in Thailand also makes **Durabol**, which comes in the form of a 100mg/mL 10mL vial. BD is a reputable lab, and the product should be accurately dosed. New vials have labels with a section of inlayed foil, which bears the letters "BD" and the company's Dragon logo. The foil is red for western products, and blue for those bound for sales in Eastern Europe. Also, make sure the top on your vial carries the Durabol name formed into the plastic, and a rubber stopper with an ingrained dragon logo.

Superanabolon from Spofa in the Czech Republic is also still in manufacture. It contains only 25mg of steroid per 1mL ampule, which makes it in relatively low demand among athletes. Still, it is a reputable product, with no major problems of fakes. Recently Spofa updated their packaging, presenting a new more modern look.

Dynabol® (nandrolone cypionate)

Androgenic	37
Anabolic	125
Standard	testosterone

Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Nandrolone

Dynabol is a brand name for the injectable anabolic steroid nandrolone cypionate. This drug was originally manufactured by Jurox Australia, although they have since discontinued it, along with many of the other anabolic steroid products. The active compond itself is still found despite the absense of Dynabol, most notably by the international drug firm SYD Group. This company also has roots in Australia, however their brand of Dynabol (called Anabolic DN) is a product of their Mexican subsidiary only. At this time, the SYD Group item remains one of the only products in the world to use this nandrolone ester. Nandrolone cypionate itself is very similar in effect to Deca-Durabolin® (nandrolone decanoate), allowing a slow release of the mild steroid nandrolone. The primary difference here is that cypionate will only sustain a marked release of hormone for about two weeks. Deca, on the other hand, can be active in the body for three or four. The shorter duration, however, should really not be looked to as an unfavorable characteristic. In this case, it produces an extremely interesting steroid. Blood levels peak much faster with Dynabol, and gains will probably accumulate in a slightly shorter time frame. This is supported by the fact that many bodybuilders in Australia swear this is one of the most favorable nandrolone preparations, often saying that it provides a stronger "kick" than Deca-Durabolin®.

Much of what can be said for Deca holds true for Dynabol. It is a strong anabolic, with a mild androgenic component. As with all nandrolones, this steroid has a relatively low affinity for estrogen conversion (estimated to be about 20% of the rate of testosterone). Dynabol is sometimes noted as producing a bit more water retention than nandrolone decanoate, but this observation is really only a product of faster action in the body. It builds a substantial blood hormone concentration within several days of injection, much more rapidly than the slower acting decanoate ester. Estrogen levels will also build quickly, more hormone being free to convert in the starting weeks. With Deca taking three of four weeks of repeated dosing before relative peak levels are reached, it may take a little bit longer to notice any estrogenic or progestational activity. But aside from timing, there is no real difference between the two compounds, as they present the same base steroid to the user. Individuals very sensitive to gynecomastia with Deca may, likewise, need to addition an anti-estrogen like Clomid® or Nolvadex® when using this product. Otherwise, ancillary drugs are usually not as necessary for estrogen maintenance as they are with testosterone-based drugs.

Endogenous testosterone levels are likely to be effected by this drug however, especially after longer cycles. A testosterone stimulating program using common PCT (Post Cycle Therapy) agents such as (again) Clomid®/Nolvadex® and HCG may, therefore, be needed to avoid a post-cycle "crash", resulting in excessive muscle loss. HCG is typically used for only a week or two to help kick-start the testes, enabling them to respond normally to the resumed release of endogenous gonadotropins (this capacity may be diminished after a period of long inactivity). After this point, Clomid® or Nolvadex® are continued alone for two to three more weeks, in an effort to normalize testosterone production in the body, and to minimize any estrogenic side effects until endogenous hormone levels are stabilized. For a more detailed discussion of post-cycle therapy, *see: PCT - Post Cycle Therapy*.

Although these steroids are very mild, female athletes can sometime have problems with nandrolones. Conversion to DHT, in this case dihydronandrolone (milder then its parent nandrolone), makes androgenic buildup a much lower concern than with most other steroids. The activity of nandrolone is actually reduced somewhat in androgen target tissues, which gives this steroid a much more favorable ratio of anabolic to androgenic effect than most steroids. While virilization symptoms are not usually a pronounced problem with responsible use of a nandrolone, women may still wish to use a faster acting

ester such as Durabolin®. This gives the user a greater level of control over blood hormone levels, and reduces the risk for inadvertent androgenic buildup.

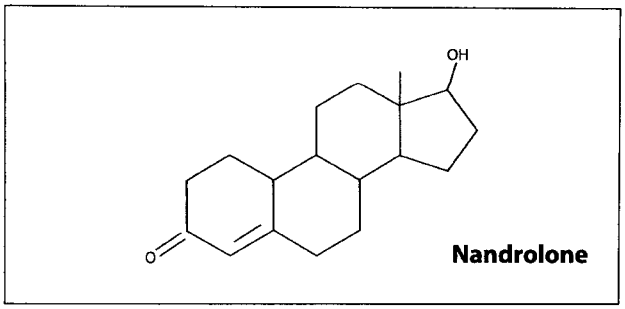
Dynabol should be about as versatile as Deca-Durabolin®, the compound usually being well suited for both cutting and bulking cycles. Some bodybuilders, however, feel that the more rapid effect, and potential for slightly faster onset of estrogenic side effects, means that means that this steroid fits more appropriately into mass building phase of training. Although I don't necessarily agree with this, it is a sort of lore that has developed about Dynabol decades ago, and seems to persist today. Regardless of the particular application, a weekly dosage of 200-600mg is most commonly used with this steroid. In this range Dynabol should provide a very noticeable amount of quality muscle mass, without the heavy water bloat of an equal dose of testosterone. Although higher doses may bring out a stronger anabolic effect, injections could become uncomfortable with the volume of oil required each week, particularly with the original 50mg version. Dynabol will further mix well with almost any other steroid, including popular mass drugs such as testosterone, Dianabol or Anadrol 50®.

Although in Australia this steroid would have been found in a maximum strength of 50mg/mL (Jurox's **Dynabol 50**), SYD Group makes its **Anabolic DN** product in a whopping strength of 300mg/mL. This is likely done to cater to the high-dose-focused American bodybuilding market, which is largely fed through Mexico. The Mexican SYD Group products are generally easy to spot when shopping, as they stand out quite notably on pharmacy/vet shelves. They have a bright new colorful look (replacing the old drab grey labels), and a jacked-up Kangaroo mascot they call "Jim Anabolic", funny but effective marketing I would imagine. SYD is a reputable company, and their products are becoming extremely popular with bodybuilders in the U.S. Note that this company apparently takes security more seriously than marketing, protecting all of its products from counterfeiting with a hologram sticker bearing the SYD logo. This should help assure a safe purchase, although recent events show us that even detailed holograms can be counterfeited with the right incentive.

Dynabolon® (nandrolone undecanoate)

Androgenic	37
Anabolic	125
Standard	testosterone

Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Nandrolone

Dynabolon is a very unique nandrolone ester, produced only in Italy (the French version was recently discontinued). This particular compound is nandrolone undecanoate, the same ester that Organon uses for their testosterone preparation Andriol. Here, the compound is obviously not intended for oral administration, and is instead design as a long acting oil based injectable. The undecanoate provides an active duration of approximately three to four weeks, very similar than what is expected with Deca-Durabolin®. The undecanoate ester is actually one carbon atom longer, making Dynabolon slightly slower to release than Deca. Athletes however, usually inject both in weekly intervals.

This steroid is obviously quite similar in appearance to Deca. It is noted for being an effective anabolic, while not giving the user an excessive level of side effects. Estrogen conversion is slight with nandrolone; so related side effects should be minimal. While water retention is sometimes reported when taking this drug, an actual smoothness and bloating to the muscles would be very uncommon, just as we expect with Deca-Durabolin®. Gynecomastia is also a rare concern, but can be a problem with individuals very sensitive to the effects of estrogen. In order to minimize such side effects, an ancillary drug like Nolvadex® and/or Proviron® could be added if absolutely necessary.

It is also of interest that nandrolone undergoes the same conversion process that changes testosterone into dihydrotestosterone, a more potent androgenic metabolite. But the result with nandrolone is dihydronandrolone, a much milder hormone. DHN is in fact milder than its parent nandrolone, which means that the activity of the steroid will actually be reduced in tissues with a high concentration of 5-alpha reductase. Androgenic side effects will therefore be much less pronounced than if we were using a stronger compound such as testosterone enanthate. Oily skin, acne, body/facial hair growth and hair loss are all uncommon with nandrolone esters, making them very well tolerated. These preparations are also considered safe for women (at low doses), as virilization symptoms are not a common occurrence. It is important to note however, that there is always the possibility of developing virilization symptoms with this steroid (as with all anabolic/androgenic steroids). To be safest, the faster acting Durabolin® would make a better choice. This faster acting preparation allows the athlete much greater control over blood hormone levels, and is much easier to withdrawal from if problems become evident.

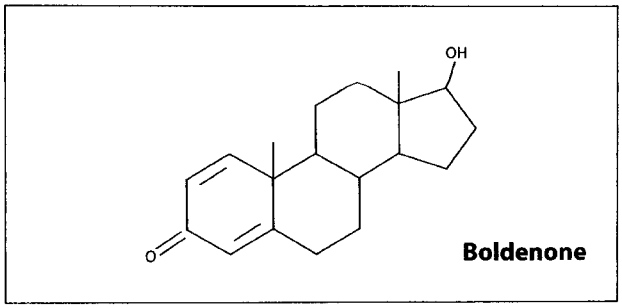
As an anabolic, Dynabolon would be quite similar in effect to Deca-Durabolin®. Again, this drug may display a slightly slower rate of release, with a peak blood concentration being reached slightly later. This may technically equate to a more delayed effect, however this should not be discernible to the user. The most common dosage is 3-4 ampules (241.5 to 322mg) per week, a level that should elicit a very acceptable gain of new muscle mass. Since 4mL is a large injection to administer at one time, this can be further divided into two bi-weekly injections to avoid discomfort. A higher dosage could be used to elicit a more pronounced anabolic response, however injection volume and frequency will likely become uncomfortably above 6-8 mL weekly.

Nandrolone injectables such as Dynabolon are most commonly incorporated into bulking cycles, although many find that they fit very comfortably in cutting stacks as well. Of course drug testing will limit its use in many such cases however, leaving only the oral nandrolone precursors norandrostenedione and norandrostenediol open to use. Dynabolon can be used alone for a quality mass gain, or in combination with a number of stronger androgens for a heavier gain. Together with testosterone or Anadrol 50®, the growth achieved can be quite formidable. This drug could obviously replace Deca-Durabolin® in the classic Deca/Dbol stack so loved by many. Going back to cutting, we find combining Dynabol with non-aromatizing compounds such as Winstrol® or Anavar helps to dramatically increase the look of hardness and definition. A stronger non-aromatizing androgen such as Halotestin®, Proviron® or trenbolone would provide even more dramatic effect, however related side effects may also become much more pronounced.

Equilon 100 (boldenone blend)

Androgenic	50
Anabolic	100
Standard	testosterone

Chemical Names	1,4-androstadiene-3-one,17beta-ol 1-dehydrotestosterone
Estrogenic Activity	low
Progestational Activity	no data available (low)



Boldenone

Equilon is an extremely interesting new steroid to hit the black market in recent years. This product is manufactured by WDV Pharma, a veterinary steroid manufacturer based in Myanmar. This is the same company that makes the very unique seven-ester blend of testosterone called Equitest. Equilon could be considered the Equipoise counterpart to that product, containing a sustained-release blend of four different esters of boldenone. These specifically include boldenone acetate, propionate, cypionate and undecylenate. They add up to a steroid concentration of 100mg/mL, with each multi-dose vial of Equilon containing 6mL of steroid in total. One vial is found in each box.

Each mL of Equilon contains:

Boldenone Acetate	10 mg
Boldenone Propionate	30 mg
Boldenone Undecylenate	40 mg
Boldenone Cyclopentylpropionate (cypionate)	20 mg

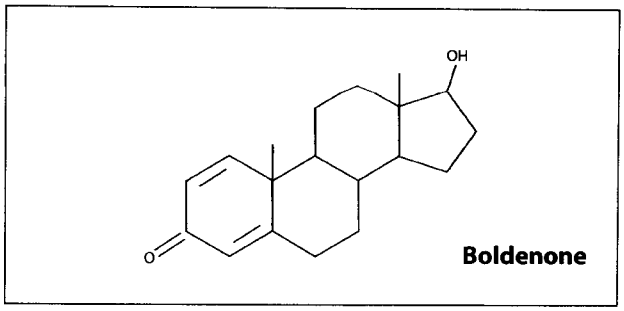
Equilon is the first multi-component boldenone product ever to be developed. In this regard, it is quite an innovative product. On the one side it has the early kick-in power of boldenone acetate and propionate, the two fastest acting esters available. This is definitely going to sit well with bodybuilders who love Equipoise, yet prefer to kick off their cycles with faster acting injectable esters like testosterone propionate or nandrolone phenylpropionate. On the other side it has the long-lasting effectiveness of cypionate and undecylenate, which allows a once-per-week injection schedule to be more than sufficient for maintaining steady hormone concentrations. Although ultimately slow and fast acting forms of the same drug release the same drug, we can still see some clear value in a blended product like this.

Equilon is a boldenone product, providing a strong anabolic effect with only moderate androgenic/estrogenic activity (for a more comprehensive discussion, please refer to the Equipoise profile). Equipoise has always been a drug of relatively high demand because of its favorable properties, and I expect this new blended product to be no exception. If anything, it sits in relative obscurity at this time, as WDV is not a major manufacturer and they operate in an area of the world fairly isolated from the international underground steroid market. Once bodybuilders begin to learn of this products existence, however, I expect demand for it to skyrocket. It is a decently dosed, very innovated new blend of a hormone long-favored by bodybuilders. Provided it can be consistently obtained for a reasonable price, what else could we possibly expect?

Equipoise® (boldenone undecylenate)

Androgenic	50
Anabolic	100
Standard	testosterone

Chemical Names	1,4-androstadiene-3-one,17beta-ol 1-dehydrotestosterone
Estrogenic Activity	low
Progestational Activity	no data available (low)



Boldenone

Equipoise® is the popularly referenced brand name for the veterinary injectable steroid boldenone undecylenate. Specifically it is a derivative of testosterone, which exhibits strong anabolic and moderately androgenic properties. The undecylenate ester greatly extends the activity of the drug (the undecylenate ester is only one carbon atom longer than decanoate), so that clinically injections would need to be repeated every three or four weeks. In veterinary medicine Equipoise® is most commonly used on horses, exhibiting a pronounced effect on lean bodyweight, appetite and general disposition of the animal. This compound is also said to shows a marked ability for increasing red blood cell production, although there should be no confusion that this is an effect characteristic of nearly all anabolic/androgenic steroids. The favorable properties of this drug are greatly appreciated by athletes, Equipoise® being a very popular injectable in recent years. It is considered by many to be a stronger, slightly more androgenic Deca-Durabolin®. It is generally cheaper, and could replace Deca in most cycles without greatly changing the end result.

The side effects associated with Equipoise® are generally mild. The structure of boldenone does allow it to convert into estrogen, but it does not have an extremely high affinity to do so. To try and quantify this we can look toward aromatization studies, which suggest that its rate of estrogen conversion should be roughly half that of testosterone[111]. The tendency to develop a noticeable amount of water retention with this drug would therefore be slightly higher than that with Deca-Durabolin® (with an estimated 20% conversion), but much less than what would be expected with a stronger agent such as Testosterone. While one does still have a chance of encountering an estrogen related side effect as such when using this substance, it is not a common problem when taken at a moderate dosage level. Gynecomastia might theoretically become a concern, but is usually only heard of with very sensitive individuals or (again) those venturing high in dosage. Should estrogenic effects become troublesome, the addition of Nolvadex® and/or Proviron® should of course make the cycle more tolerable. An anti-aromatase such as Cytadren® or Arimidex® would be stronger options, however probably not indicated with a mild drug as such.

Equipoise® can also produce distinct androgenic side effects. Incidences of oily skin, acne, increased aggression and hair loss are likewise all possible with this compound, although will typically be related to the use of higher doses. Women in fact find this drug quite comfortable, virilization symptoms usually unseen when taken at low doses. Boldenone does reduce to a more potent androgen (dihydroboldenone) via the 5alpha reductase enzyme (which produces DHT from testosterone), however its affinity for this interaction in the human body is low to nonexistent[112]. We therefore cannot consider the reductase inhibitor Proscar® to be of much use with Equipoise®, as it would be blocking what is at best an insignificant path of metabolism for the steroid. And although this drug is relatively mild, it may still have a depressive effect on endogenous testosterone levels. A combination of HCG and Clomid®/Nolvadex® may likewise be needed at the conclusion of each cycle to avoid a "crash", particularly when running long in duration.

Although it stays active for a much longer time, Equipoise® is injected at least once per week by athletes. It is most commonly used at a dosage of 200-400mg (4-8 mL, 50mg version) per week for men, 50-75 mg per week for women. Should a 25mg version be the only product available, the injection volume can become quite uncomfortable. The dosage schedule can be further divided, perhaps injections given every other day to reduce discomfort. One should also take caution to rotate injection sites regularly, so as to avoid irritation or infection. Should too large an oil volume be injected into one site, an abscess may form that requires surgical draining. To avoid such a problem, athletes will usually limit each injection to 3mL and reuse each site no

Ultragan 50 and **Ultragan 100** from Denkall are very reputable Mexican products. These come in 10 and 50mL vials, and provide a nice increase from the old 50mg products the market used to be stuck with. They have yet to upgrade to a higher dose, however, although the product remains popular. Be sure to look for the Denkall security hologram sticker on each box and vial. Note that fake QV clones have been found using counterfeit hologram stickers (See: Security Stickers for more detail).

Quality Vet's **Bold QV 200** is still very popular in Mexico. This is a 200mg/mL version, and comes packaged in a 10mL vial. Like the previous companies, QV products carry security hologram stickers to deter counterfeiting. Provided you locate this when shopping, you should be making a safe purchase.

Denkall purchased the rights to the Mexican brand name product **Maxigan** from Inpel recently. This item was made in the low dose of 50mg/mL, and came in 10mL and 50mL vials. However, Denkall has since discontinued the product. It makes you wonder if they lucked onto a bankruptcy sale and got the remaining lot for a steal, or perhaps just wanted to buy and dump the brand to take over its market share. For whatever reason, this low dose Equipoise clone is gone, and will probably not be sorely missed. Since the release of 100mg/mL and 200mg/mL versions, companies with 50mg/mL products are finding that they move very slowly.

Equi-gan from Tornel (10mL and 50mL vials) is still found on the black market, although not commonly. This probably has to do with the dose, which remains at the low concentration of 50mg/mL. The 100mg/mL and 200mg/mL far outsell the 50's these days. Tornel has a reputation for slight underdosing, but then again their products are among the cheapest on the shelves in Mexico. All things considered, this product is usually a good buy.

Ttokkyo is no longer in business, and any old stock of **Boldenon 200** should be long gone now. Avoid any product carrying such a label.

The Thai company British Dragon makes a boldenone undecylenate injectable called **Boldabol**. It contains 200mg/mL of steroid in a 10mL vial. This is a reputable brand, with consistently good feedback. Note that the current packaging will not carry a hologram sticker. BD has replaced it with a red metallic foil inlay (blue for Eastern European exports) on the vial label, which reads BD and displays the company logo. Also, make sure your tops carry the Boldabol name formed into the plastic. When removed, it should reveal a custom formed rubber stopper, which has the company's dragon logo in the center.

Ganabol, produced in a number of South American countries, is still a popular brand found in the States as well though. Seen in two strengths (25mg/mL and 50mg/mL) and in five sizes (10, 50, 100, 250 and 500mL). The manufacturer recently gave the product a cosmetic overhaul. The new Ganabol is a lot more modern looking. Too bad the company was not able to modernize the dosage. There have been numerous fakes of this product in the past, so be careful when shopping.

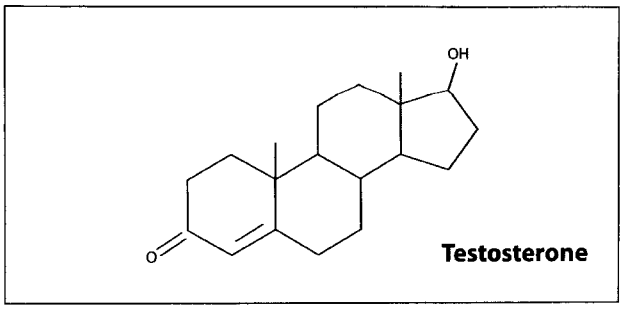
The **Legacy** brand name product from Tecnoquimicas in Argentina seems to be reaching to the U.S. as of late, at least in small volume. This product carries 50mg/mL of steroid in a 50mL vial. At this time the Legacy product is very low on the radar, and probably can be trusted when located.

The brand name **Boldenona 50** from Gen-Far is also popular in South America, and occasionally smuggled into the United States. This is another low dose (50mg/mL) preparation. Like Ganabol, it comes in a variety of vial sizes. Counterfeits of this brand do not appear to be a big issue at this time, making this product a fairly trustworthy item when located on the black market.

Equitest 200 (Testosterone blend)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

When it comes to blended steroid products (ones that contain more than just a single steroid), Sustanon is usually thought of as king. After all, it has a whopping four different esters of testosterone. Well, it is time for Sustanon to move over. Equitest just took the prize for the highest number of different steroid ingredients in a single product. This multi-ester injectable testosterone leaves the four-ester-blend of Sustanon in the dust, containing no less than seven different esters of testosterone. Specifically these are testosterone acetate, propionate, phenylpropionate, caproate, enanthate, cypionate and decanoate. The concentration of steroid is 200mg/mL (hence the name Equitest 200), with each vial containing 6mL of steroid in total.

Equitest is a product of WDV Pharma, a veterinary drug manufacturer out of Myanmar. This obscure company has been operating for a decade now, and offers a full line of veterinary drug products (only three are anabolic steroids). The size (small) and remoteness of this company would normally have allowed it to stay low on the "steroid radar", however the few products they do make are unusual enough to catch one's eye. Well, maybe not the 50mg/mL trenbolone acetate product. But Equitest certainly is, as well as their 4-component boldenone injectable called Equilon 100. I believe the sheer uniqueness of these products has earned WDV some attention in the bodybuilding world. Their products may not be abundant on the black market, but at one time or another you may very well come across them.

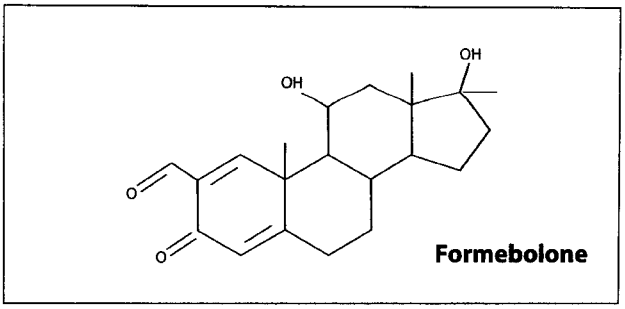
Each mL of Equitest 200 contains:

Testosterone Acetate	10 mg
Testosterone Propionate	30 mg
Testosterone Phenylpropionate	20 mg
Testosterone Caproate	20 mg
Testosterone Heptanoate (enanthate)	40 mg
Testosterone Cyclopentylpropionate (cypionate)	20 mg
Testosterone Decanoate	60 mg

So does all this make Equitest an unbeatable testosterone? Probably not. This seven-ester blend really offers no advantages over the 4-component blend in Sustanon, or any testosterone for that matter once it is used in the context of bodybuilding (repeated frequent dosing negates any real need to use a sustained-release formulation). Even if you were specifically looking for a "sustained-release testosterone" that you didn't have to inject often, it would have no greater appeal than Sustanon. The two products are essentially the same, with the same ultimate release duration of 3-4 weeks (max). The seven esters are good for marketing though, as many buyers will simply look at it like seven different steroids in one. Regardless, Equitest is still just as powerful a testosterone product as Sustanon for our purposes, and does come packaged in a nice big 6ml bottle. Provided it is located for a good price, it may most certainly blow Sustanon away – in terms of getting the most for your money, anyway. For a more comprehensive discussion of Equitest 200's potential benefits, side effects and common dosing, please refer to the Sustanon profile).

Esiclene® (formebolone, formyldienolone)

Androgenic	no data available
Anabolic	no data available
Standard	
Chemical Names	11alpha,17beta-Dihydroxy-17-methyl-3--oxoandrosta-1,4-dien-2-carboxaldehyde
Estrogenic Activity	none
Progestational Activity	no data available (low)



Formebolone

Esiclene is the brand name for the steroid formebolone, a compound that was (when available) almost exclusively utilized (non-legitimate use) in the world of professional bodybuilding. It was produced both in oral and injectable form, the injectable solution containing only 2mg per milliliter of steroid. The compound itself shows little anabolic or androgenic activity, and is not highly useful for building muscle. It is however effective in one very novel way. When given by injection, the drug formebolone irritates the muscle tissue at the site of administration. The body will respond to this with a localized inflammation, the muscle tissues storing fluid in reaction. This will cause an increase in the overall diameter of the affected muscle, obviously a desired result for bodybuilders. This irritation can be uncomfortable however, so each ampule contains 20mg of added lidocaine (a local painkiller) to make the injection less painful. While this does compensate somewhat, Esiclene is still relatively uncomfortable to use. The procedure is of course endured for the results, which can be dramatic in a very short period of time.

The swelling produced by this drug is only temporary. It will usually take only five days after the last injection was given for the swelling to subside, the muscle returning to its usual dimensions. For this reason injectable Esiclene is really only used during the last week or two before a competition, offering us little off-season benefit. When used for contest purposes, it is usually to be injected daily into each muscle site. Those trying to stretch out the dosage schedule may opt to inject every other day, but no longer an interval. When stretched too many days apart, the accumulated swelling will likely not reach a desirable point. In order to keep this procedure more comfortable, the full dosage is not to be given from the onset of the regimen. Instead, the user will begin with half of an ampule, or 1mL (2mg) per muscle. After a number of days the dosage is increased to 2mL, or a full ampule for each individual injection site. After continuing at this dosage for a week or two, one can possibly see an increase of 1 or 1.5 inches in their arm and calf measurements. This is clearly a tremendous improvement for only two weeks use. In addition, those who have used this steroid often report the drug produces an increase in overall muscle hardness. This is an added benefit when preparing for a contest as a large, hard and defined muscle is the obvious goal. Over the years a large number of male and female competitors have relied heavily on this drug for their exceptional show physiques. Esiclene has no doubt been the difference between winning and losing for many competitors.

Esiclene does not work this way for every muscle though. Bodybuilders experimenting with this compound have found that it is most effective with the smaller muscle groups such as the biceps, deltoid and calf. The resultant swelling will equate to a very favorable size increase in these small muscles, looking much larger and fuller. But when we try to inject Esiclene into larger muscles like the chest, back and legs we run into trouble. The result in this case can be a very uneven look, producing lumps in the muscle body and not an overall size increase. For this reason the large muscle groups are usually off limits.

Although an extremely mild steroid, the oral form (delivering a much higher dose of steroid) may offer some benefit to athletes. It seems to exhibit some level of anti-catabolic activity, shown in studies to interfere with the protein degenerative effects of synthetic corticosteroids. It also does not seem to aromatize, at least in it's initial state, so estrogenic side effects are not a major concern with use. If not a strong base steroid for muscle growth, it certainly has potential as a secondary steroid used in cycles for added effect. The compound however is c-17 alpha alkylated, and carries with it the same risk for liver toxicity we see with similar oral steroids. This risk of course is not isolated to the oral use of this drug, however the relatively low dose used with the injectable makes serious liver strain very unlikely.

In all forms of Esiclene have been discontinued, and are no longer available on the black market.

Estandron (testosterone/estrogen blend)

Androgenic

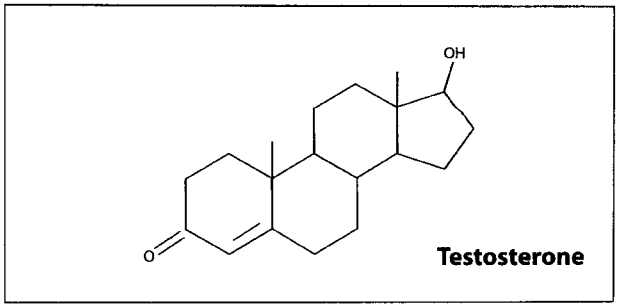
Anabolic

Standard

Chemical Names

Estrogenic Activity

Progestational Activity



Testosterone

Estandron is a combination testosterone and estrogen product, manufactured by drug giant Organon in several regions of the world. At first glance the testosterone blend in this product looks very familiar to Sustanon 250. It begins with a small dose of testosterone propionate (20mg), followed by equal amounts of testosterone phenylpropionate and testosterone isocaproate (40mg of each). The result is a 100mg/mL mix of testosterone that is missing only the longest acting (decanoate) ester of Sustanon 250 (though the doses of the other esters are not equivalent). This product is actually ester for ester and milligram for milligram equivalent to a lower dosed and rarely seen version of Sustanon, however, which is called Sustanon 100. The only difference is the addition of 1mg estradiol benzoate and 4mg estradiol phenylpropionate.

Given its formulation, we can consider Estandron to be essentially Sustanon 100 with estrogen. The estrogen is added to offset some of the masculinizing effects of testosterone, which makes immediately clear the intended audience of this product; women. Combination testosterone and estrogen products are often used with women in clinical medicine when the anabolic effects of testosterone are desired without the associated androgenicity. This includes the treatment of osteoporosis, certain climacteric disorders (conditions associated with menopause), and the suppression of lactation. Such therapies are not as popular today as they were in the past, however, given the advent of many other medications that better treat the various conditions formerly associated with Estandron use. The one key exception is the recent reemergence of low doses of testosterone with estrogen replacement therapy, which is proving to have numerous benefits with women when it comes to the support of lean tissue mass, bone density, and sexual vigor. The formulation present in Estandron, however, contains far too much testosterone to be entertained for this use.

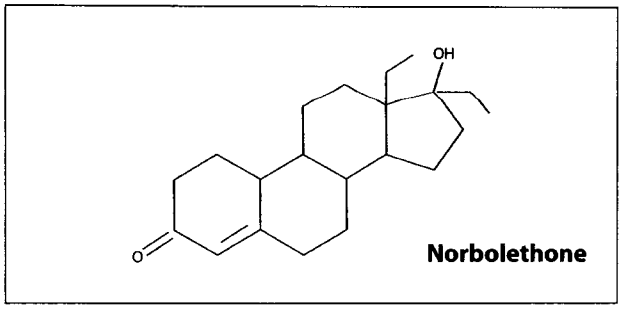
Outside of clinical medicine, Estandron is not widely used or even known. Some female athletes who are interested in testosterone have and continue to experiment with this drug, and often find it extremely effective for promoting muscle growth. The sheer dosage of testosterone in this product often scares most potential female users off, however, whether this may be a justified response or not. Those who do have the courage to experiment with it usually find 1mL of Estandron every week or two to be a more than sufficient dosage. Men, on the other hand, often complain about the estrogen conversion that comes with plain Sustanon. Few are going to pay any sort of attention at all to Estandron. After all, testosterone is cheap and widely available. There is really going to be no need to settle for a product that it going to make estrogenic side effects even more troublesome than they are normally. Those who do, for some reason (perhaps sheer necessity), decide to use it will probably find that 2mL to 4mL per week are required for any notable anabolic effect. Again, this will be accompanied by significant estrogenic activity, so side effects (bloating, gynecomastia, fat gain) are highly likely without concurrent use of a good anti-estrogen.

Given the extremely poor demand for mixed testosterone and estrogen preparations in general on the black market, Estandron is scarcely seen in circulation. It does occasionally appear, and when it does is usually being pawned off to someone young guy new to steroid use and as of yet unfamiliar with the drug instead of an eager female user. Given the low demand for Estandron, there is one positive thing to say about it; it is highly unlikely it will ever be counterfeited. When it comes right down to it, there is zero financial motive to do so (and in all probability it would be a losing investment for anyone that tried). If you do come across one of the various Organon preparations, and have a need for it, you can therefore make your purchase with assurance you are getting what you paid for. Hopefully it will just not turn out to be more than you bargained for.

Genabol (norbolethone)

Androgenic	17
Anabolic	350
Standard	testosterone propionate

Chemical Names	13-ethyl-17-hydroxy-18, 19-dinor-17a-pregn-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Norbolethone

Norbolethone is an obscure anabolic steroid that was developed by the drug manufacturer Wyeth in the mid 1960's. It is an orally active derivative of nandrolone, displaying a high ratio of anabolic to androgenic effect. This drug was reviewed favorably during early investigations with children, however it was never released as a commercial prescription agent. It remained lost in steroid journal obscurity until just very recently, when it was revealed that athletes were using it during drug-tested competitions. Because norbolethone was never sold as a commercial steroid, the athletic bodies were not looking for it during their tests. A private chemist realized this, and manufactured it for the specific purpose of beating the drug screen. The norbolethone doping scandal was the first modern reappearance of the ages old "designer steroid" phenomenon. These are non-commercial steroids that do not show up on a drug screen by virtue of their anonymity. For as long as they remain anonymous, drugs like norbolethone are highly valued commodities among competitive athletes.

As a primarily anabolic agent, norbolethone fits in well among the nandrolone family. Although we have no study examining this, it is reasonable to think that this agent does aromatize to some degree, similar to its parent nandrolone. Estradiol (or in this case 17alpha-ethyl estradiol) levels should be increased somewhat at higher levels, but estrogenic side effects should not be as measurable as a testosterone based compound of similar structure would produce. Norbolethone should also display some moderate progestational activity, making it less than ideal for quality lean mass gains. It is likely to produce some measurable water retention in its user, which may also be accompanied by fat gain. However, it should not be excessive in either regard. Clinical tests have shown norbolethone to be effective as an anabolic in doses of approximately 7.5mg daily[113], which suggests that on the outside, maybe 10-15mgs per day would be recommended as a starting point for a male bodybuilder. Women would want to start off with much less, maybe 2.5-5mg, for fear of virilizing side effects. Even though this is more of an anabolic than an androgenic agent on paper, women should still be careful with its use. All steroids can be virilizing at the right dose, and often the dosage threshold is a lot lower than you originally think.

The commonplace side effects associated with norbolethone as likely to be similar to most anabolic/androgenic steroids. Oily skin and acne should occur to some degree, but depending on the dose should be much less pronounced than with a more androgenic steroid like Dianabol. Although the 20 to 1 anabolic to androgenic ratio cited in the studies is probably an overly optimistic paper analysis (it will undoubtedly not hold true to real-world human use), we can still expect a pretty favorable balance of effect based on its nandrolone-type structure. Its anabolic to androgenic propensities are probably going to be on par with milder anabolic agents such as oxandrolone, Winstrol or Primobolan, much more favorable than something like (again) Dbol. It is also probably easier on the hairline than even these others anabolics, falling closer to injectable Deca in this regard. As a C17-alpha alkylated oral, however, it is still going to present some level of liver toxicity. This will probably be similar mg for mg to most common commercial alkylated oral steroids. It is therefore worthy of keeping an eye on liver functioning, with regular blood tests during each cycle.

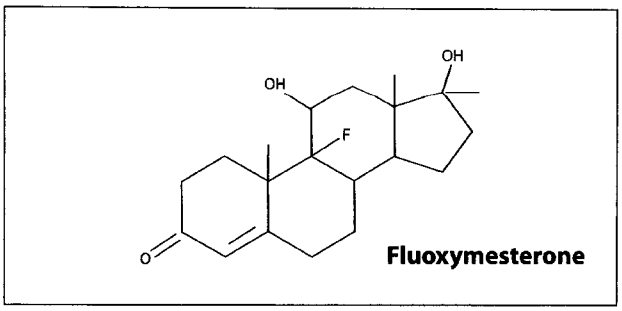
As suggested in the opening of this profile, norbolethone no longer holds any value as an undetectable designer steroid. It has been "discovered" so to speak, and is now being actively screened for during standard steroid urinalysis tests. There is little doubt that most of the athletes that were using this compound have long since abandoned it. The scandal surrounding the use of this compound broke in the media in mid 2002, when it was announced that Dr. Don Catlin of the UCLA Analytical Laboratories had discovered that athletes were using this

drug to beat the drug screens being conducted at his facility. Catlin promptly devised and released a method for the detection of norbolethone metabolites in the urine. Several world-class athletes were ultimately suspended for using this drug during competition, including U.S. Olympic Cyclist Tammy Thomas. Although there is still no commercial source for this agent, I suspect it will be available again sooner or later in the ever-expanding global steroid market.

Halotestin® (fluoxymesterone)

Androgenic	850
Anabolic	1,900
Standard	methyltestosterone (oral)

Chemical Names	9a-fluoro-11b,17b-dihydroxy-17a-methyl-4-androsten-3-one 9a-fluoro-11b-hydroxy-17a-methyltestosterone
Estrogenic Activity	none
Progestational Activity	no data available (low)



Fluoxymesterone

Halotestin® is the Pharmacia & Upjohn brand name for the steroid fluoxymesterone. Structurally fluoxymesterone is a derivative of testosterone, differing from our base androgen by three structural alterations (specifically 17alpha-methyl, 11beta-hydroxy and 9-fluoro group additions). The result is a potent orally active steroid that exhibits extremely strong androgenic properties. This has a lot to due with the fact that it is derived from testosterone, and as such shares important similarities to this hormone. Most importantly, like testosterone Halotestin® appears to be a good substrate for the 5-alpha reductase enzyme. This is evidenced by the fact that a large number of its metabolites are found to be 5-alpha reduced androgens[114], which coupled with its outward androgenic nature, suggests it is converting to a much more active steroid in androgen responsive target tissues such as the skin, scalp and prostate.

The 11beta-hydroxyl group also inhibits aromatization, making estrogen production impossible with this steroid. Estrogenic side effects such as water retention, fat fain and gynecomastia are similarly not a concern when taking this substance. Strong androgenic side effects are to be expected though, and in many cases are unavoidable. Oily skin and acne a very common for instance, at times requiring sensitive individuals to seek some form of topical or even prescription drug treatment to keep it under control. Hair loss is an additional worry, making Halotestin® a poor choice for those with an existing condition. Aggression may also become very pronounced with this drug. This effect is often desired by users looking to "harness" this in order to increase the intensity of workouts or a competition. Clearly Halotestin® is a strong androgen, and definitely one female athletes should stay away from. Masculinizing side effects can be intense, and may occur very rapidly with this substance. Even women daring enough to take Dianabol should think twice about this compound, as virilization symptoms are most often permanent.

Although Halotestin® appears to be more androgenic than testosterone, the anabolic effect of it is not very strong. This makes it a great strength drug, but not the best for gaining serious muscle mass. The predominant effect seen when taking Halotestin® is a harder, more dense look to the muscles without a notable size increase. It is therefore very useful for athletes in weight-restricted sports like wrestling, powerlifting and boxing. The strength gained from each cycle will not be accompanied by a great weight increase, allowing most competitors to stay within a specified weight range. Halotestin® also makes an excellent drug for bodybuilding contest preparation. When the competitor has an acceptably low body fat percentage, the strong androgen level (in absence of excess estrogen) can elicit an extremely hard and defined ("ripped") look to the muscles. The shift in androgen/estrogen ratio additionally seems to bring about a state in which the body may be more inclined to burn off excess fat and prevent new fat storage. The "hardening" effect of Halotestin® would therefore be somewhat similar to that seen with trenbolone, although it will be without the same level of mass gain. Clearly non-aromatizing androgens such as Halotestin® and trenbolone can play an important role during contest preparations.

The main concern with this steroid is that it can be a very toxic drug. This is due to the fact that fluoxymesterone is a 17 alpha alkylated compound, its structure altered to survive oral administration. As we discuss throughout this book, 17alpha alkylation can be very harsh to the liver. The possibility of damage is therefore a legitimate concern with Halotestin®, especially when used at higher doses or for prolonged periods of time. The total daily dosage is likewise best kept in the range of 20-40mg, used for no longer than 8 weeks. After which an equally long break (at a minimum) should be taken from all c17-AA orals. One should also resist the temptation to stack this drug with other alkylated orals if possible, and instead opt for orals without this alteration or esterified injectable compounds (which will not add to the strain on the liver).

In cutting phases a mild anabolic such as Deca-Durabolin® or Equipoise® might be a good addition, as both provide good anabolic effect without excessive estrogen buildup. Here Halotestin® will provide a well needed androgenic component, helping to promote a more solid and defined gain in muscle mass than obtained with an anabolic alone. Perhaps Primobolan® Depot would even be a better choice, as with such a combination there is no buildup of estrogen (and likewise even less worry of water and fat retention). For mass we could alternately use an injectable testosterone. A mix of 400-800mg testosterone enanthate and 20-30mg Halotestin® for example, should prove to be an exceptional stack for strength and muscle gain. This however would be accompanied by a more significant level of side effects, both compounds exhibiting strong androgenic activity in the body.

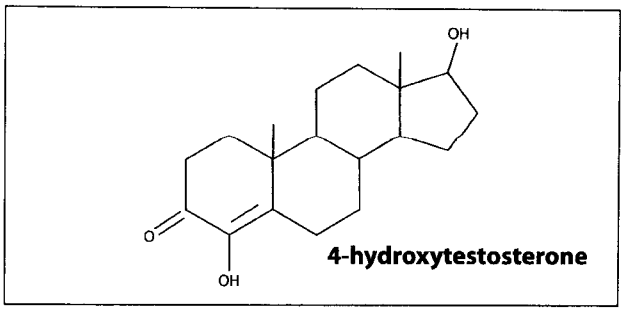
Fluoxymesterone also seem to depress endogenous testosterone levels rather quickly with use, despite its complete lack of estrogen conversion. One therefore should consider ancillary drug use at the conclusion of each cycle in order to help restore the normal release of androgens in the body. Using a combination of HCG and Clomid®/Nolvadex® is of course the best option, the two drugs working well together to restore normal hormonal functioning. Although estrogen is not a problem with Halotestin®, the use of an anti-estrogen such as Nolvadex® or Clomid® is still indicated when discontinuing a cycle. Since HCG stimulates aromatase activity in the Leydig's cells, here Nolvadex®/Clomid® help by blocking the activity of any excess estrogen that may be produced. Afterward they will also block the inhibitory effect of endogenous estrogens on the hypothalamus, stimulating the enhanced release of gonadotropins and supporting the normal biosynthesis of testosterone.

Since Halotestin® is only used for a few specific purposes, it is not in high demand among athletes. Likewise it is not a very popular item on the black market. Investing in the manufacture of a counterfeit version would probably not pay off well, no doubt the reason we haven't seen much yet. Most forms of Halotestin® found in circulation will, therefore, be legitimate, though the occasional fake does rear its ugly head. Currently the most popular item found on the black market is the **Stenox** brand from Mexico, which is sold in boxes of 20 tablets. Although the dosage of these tablets is only 2.5mg, the low price usually asked for this preparation more than compensates. Overall, Halotestin® is an effective steroid for a narrow range of uses, and is probably not the most ideal product for the recreational user.

Hydroxytestosterone (4-hydroxytestosterone)

Androgenic	25
Anabolic	65
Standard	testosterone

Chemical Names	4-hydroxy-androsten-3-one-17beta-ol 4,17-dihydroxyandrost-4-en-3-one
Estrogenic Activity	none
Progestational Activity	no data available (low)



4-hydroxytestosterone

Hydroxytestosterone is an anabolic steroid that is, as its name would indicate, a close structural relative of the primary androgen testosterone. Specifically, it is testosterone with an added 4-hydroxl group, an alteration that makes this an extremely interesting steroid. In action it is only moderately anabolic and androgenic, ultimately bearing little resemblance to the androgen (testosterone) that it is so closely related to on a molecular level. Hydroxytestosterone was originally developed by the pharmaceutical manufacturing giant Searle back in the 1950's, however, it never did make it to the shelf as a commercial prescription steroid product. Despite having several unique and favorable characteristics, it lay lost in the research books for decades, the manufacturer and patent holder probably finding little financial incentive to market it next to the many other anabolic agents available. This steroid was sold legally as a sports supplement in the U.S. until January 2005, when it became a Schedule III controlled substance.

In regards to structure, the first thing we can point out about hydroxytestosterone is that the 4-hydroxyl group prevents aromatization. As such, this steroid is totally incapable of converting to estrogen. Not only that, this alteration also gives hydroxytestosterone strong aromatase inhibiting activities. You see, hydroxytestosterone differs from the suicide aromatase inhibitor formestane (4-hydroxyandrostenedione) only in that it is the active form of the steroid (17-beta hydroxysteroid) instead of the inactive dione (17-ketosteroid). Both types of steroid hormone will interact with the aromatase enzyme. In a clinical setting, formestane would be the obvious choice, as you would usually want to lower estrogen without presenting the often-female patients with unwanted androgenic side effects. So I can understand why hydroxytestosterone was never explored for this use. But this active steroid is still very much a potent aromatase inhibitor. This all means that with hydroxytestosterone, there is not only no need to worry about estrogenic side effects such as gynecomastia, water retention, or fat buildup, but that the agent can even be used to counter such side effects caused by the aromatization of other steroid compounds. It is therefore a dual-purpose anabolic/aromatase-inhibiting agent.

As with all naturally occurring (non-methylated) steroid hormones, hydroxytestosterone is not intrinsically very orally active. This has been the problem with the "legal steroid/prohormone" market from the beginning. These natural steroidal hormones work, some of them extremely well, if you can get them into your body first. As you may know, I found and publicized the research showing the natural occurrence of 4-hydroxysteroids like hydroxytestosterone, and eventually sold it through my supplement company (Molecular Nutrition) as an oil-solubilized softgel (as hydroxytestosterone hexyldecanoate). This is about the only type of oral product I would have recommended. Otherwise, it could have been used in a transdermal formula, or homebrewed injection. The latter would be the preferred in terms of bioavailability, not really for safety. In any event, the product is now illegal to sell in the U.S., so any version produced now would have to be of black market or international pharmaceutical origin.

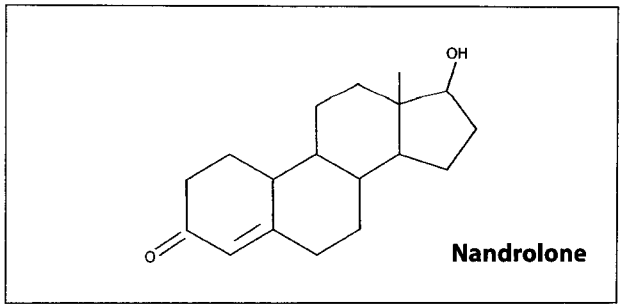
Effective daily doses for most male bodybuilders would be in that range of 200-400mg per week by injection, or 100-300mg if taking an oil-solubilized oral product. Maximum aromatase inhibition is reached by 250mg per week when given by injection, or 100-200mg per day when taking oral softgels. One could obviously keep the doses limited to this range if estrogen minimization is the main focus of use. Hydroxytestosterone and formestane may not be quite as potent as the selective third generation non-steroidal aromatase inhibitors Arimidex or Femara in terms of estrogen minimization, but they do seem to do a much better job here than the "standard issue" estrogen receptor antagonists Nolvadex and Clomid (especially when it comes to shedding water and producing the tight "high

androgen" look). As with all effective aromatase inhibitors, its estrogen lowering action is likely to be accompanied by a negative lowering of HDL (good) cholesterol levels. For this reason hydroxytestosterone should never be used for long periods of time, and regular doctor's checkups are recommended during use.

Laurabolin® (nandrolone laurate)

Androgenic	37
Anabolic	125
Standard	testosterone

Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Nandrolone

Laurabolin is a popular trade name for the oil based injectable steroid nandrolone laurate. This steroid is a pronounced anabolic, with only moderately androgenic properties. As this is a nandrolone product, the effect is comparable to that of Deca-Durabolin® (nandrolone decanoate). Aside from releasing the same steroid hormone, the two products also stay active in the body for a very similar period of time. Both compounds are extremely long acting, the decanoate ester sustaining a notable release of nandrolone for about three to four weeks while Laurabolin should remain active the full four (the laurate ester is only two carbon atoms longer). The main difference between these two compounds is really the field in which they are applied. Deca-Durabolin® is generally a human use item while Laurabolin is exclusively used in veterinary medicine. This of course is of little concern to athletes, finding Laurabolin a welcome, and often reasonably priced substitute for Deca. Since veterinary items are usually held in a slightly lower regard however, Deca is usually the preference if both steroids are available.

Nandrolone is similar in structure to testosterone, although it lacks a carbon atom at the 19th position (which explains its other given name 19-nortestosterone). This feature causes it to exhibit much weaker androgenic properties than testosterone. This is primarily due to the fact that unlike testosterone, nandrolone does not break down into the harsh metabolite dihydrotestosterone. Although it is altered by the same enzyme (5a-reductase), the product here is a much milder hormone, dihydronandrolone (less active than the parent nandrolone). Side effects like oily skin, acne, body/facial hair growth and hair loss therefore occur much less frequently than if using an androgen such an injectable testosterone. Androgenic effects can still become apparent with nandrolone (as with all anabolic/androgenic steroids) however, but usually only when high dosages are used. Laurabolin (and Deca) is also not the ideal steroid for female athletes. The much faster acting Durabolin® (nandrolone phenylpropionate) should be preferred, as with it blood hormone levels are easier for the user to control (you don't have to wait 3 or 4 weeks to get it out of your system if there is a problem).

Laurabolin also display a relatively low tendency for estrogen conversion. The rate in which nandrolone converts has been estimated to be roughly 20% of that seen with testosterone, quite a considerable difference. This is because in many active sites of aromatase activity such as adipose tissue, nandrolone interacts poorly with this enzyme. The liver remains as the primary site of aromatization for nandrolone, as tissues here are shown to aromatize both it and testosterone with similar efficacy. Consequently estrogen related side effects are generally not a major concern with this steroid. The possibility for gynecomastia cannot be excluded however, but is usually only seen among very sensitive individuals or those taking very large doses. Water retention may appear with this steroid to some extent, but again, is usually only a mild occurrence when the drug is taken at normal therapeutic levels. In the unlikely event that estrogen related side effects become too pronounced during a cycle, the addition of Proviron® and/or Nolvadex® should prove to be more than a sufficient remedy.

In general, all of the side effects associated with androgen use will be greatly reduced with a nandrolone. Likewise Laurabolin, and other nandrolones, are extremely well tolerated by their users. This clearly makes these compounds an exceptional choice for the athlete who wants to gain muscle mass, yet is conscious about possible health effects. Although new muscle growth is likely going to be less pronounced than what is seen with an equal dose of testosterone, it will no doubt be of a higher quality (greater definition). One can also expect to retain a larger percentage of gained weight after the cycle is concluded, not having the same water loss of a testosterone to deal with. Nandrolone injectables can still interfere with endogenous testosterone production however, despite the fact that estrogen conversion is not pronounced. The use of

a testosterone stimulating compound like Clomid®/ Nolvadex® and/or HCG may therefore still be necessary when discontinuing a cycle however, especially after taking the drug for longer periods.

Although active for much longer, most users opt to inject this drug at least weekly. For men, the ordinary dosage each week is in the range of 200-400mg. Although the anabolic effect would likely be amplified at a slightly higher dose, it is difficult to inject this much if you are using a product in the strength of 50mg/mL. Some do find it possible to inject 500-600mg with the Intervet product, but I cannot imagine this practice being very comfortable. Women who do choose this compound will generally keep to the dosage range of 50 to 100mg per week. To further reduce the chance for virilization symptoms, the interval between injections can be expanded to prevent high peaks in blood hormone level.

Just as with Deca, Laurabolin is quite versatile. Although it is a strong enough anabolic to use alone, it is most often combined with other steroids. For bulking, it fits comfortably with androgens like Dianabol, testosterone, or Anadrol 50®. In this case it can allow the user exceptional mass gains, while at the same time keeping the androgen dosage to an effective but comfortable level. For cutting we can add an oral anabolic like Winstrol® or Primobolan®. Here we are looking to minimize the water and fat retention usually associated with excess estrogen. We can further add a non-aromatizing androgen like Halotestin®, Proviron® or trenbolone. This should further enhance the level of hardening and fat loss attained during the cycle, making for a harder and more defined physique.

U.S. bodybuilders were recently taken aback with the release of a 250mg version of nandrolone laurate (**Laurdrol 250**) from the Mexican veterinary drug firm Loeffler. This is five times the strength of all preceding products, and similarly is the only nandrolone laurate product athletes are really looking for right now. I have not run lab tests to confirm Loeffler is accurately dosing the product; however, this has been an issue in the past with this company. Still, even if underdosed you should still be assured to get a much higher concentration of steroid than Intervet will ever provide you. Loeffler has released several products lately in this high strength in fact, which is clearly representative of the new trend in this country to produce newer and ever more potent anabolic compounds.

The Intervet brand name **Laurabolin** product from Mexico is still circulating, and can usually be trusted. Note that Intervet has shipped vials of Laurabolin to Mexico that come without sealed caps (the rubber stopper is exposed). This presents a problem to the buyer, as you may not be able to tell if someone had adulterated the contents of the vial before it reached your hands. It would be quite easy to use a high gauge needle to remove some or all of the contents, leaving a mark in the rubber that is so small it will be difficult to spot with the naked eye. Therefore, it may be best to purchase Laurabolin only from a vet pharmacy in Mexico directly, and not on the open black market.

In the past, **Fortabol** was found on very rare occasion in the U.S. This product includes 20mg nandrolone laurate with an added amount of Vitamin A. Since the dosage is so low, this brand is really only beneficial to women. This brand has been very quiet as of late, and may have discontinued the product.

Although even less common than other brands, Intervet sells Laurabolin in a couple of European countries. These are, of course, of similar reliability to Mexican Laurabolin.

Libriol (nandrolone/methandriol blend)

Androgenic

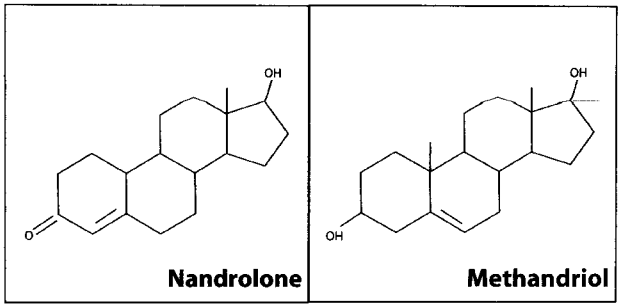
Anabolic

Standard

Chemical Names

Estrogenic Activity

Progestational Activity



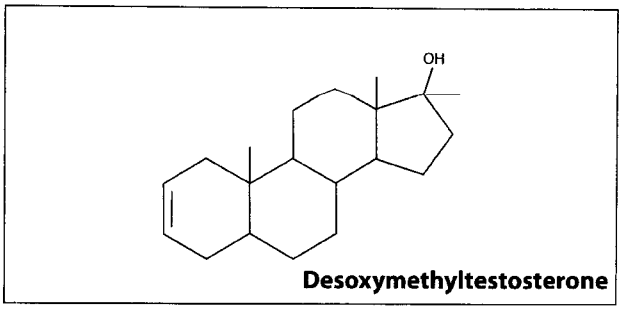
Libriol is a blended injectable veterinary steroid preparation that is made by RWR (formerly a subsidiary of Nature Vet) in Australia. This is primarily an anabolic agent, containing a mixture nandrolone phenylpropionate and methandriol dipropionate. These two steroids are present in a concentration of 30mg/mL and 45mg/mL respectively, equating to a total steroid concentration of 75mg/mL. Both agents in this product are considered pretty mild in terms of side effects and overall effectiveness, and are looked at more so for their abilities to promote lean tissue gain than bulk mass (for a more comprehensive discussion on the individual components, please refer to their respective drug profiles). This makes Libriol a great lean tissue builder, but far removed from drugs like testosterone, Dianabol, or Anadrol in its ability to pack on sheer weight, size, and strength.

Since both of the steroids present in Libriol are modified with fast acting esters, blood hormone concentrations will not stay steady for very long after each injection. It would therefore be most effective to inject this drug at least twice per week, three times if you want to be meticulous about dosing. The total concentration of steroid is not remarkably high in this product either, so you better get used to quite a bit of injecting if you plan on using this as the sole drug in your next cycle. A weekly total dose of 6cc would probably be most appropriate (adding up to 450mg), perhaps even 8cc (600mg). This would mean two to three injections would be given each and every week, with a full 3cc's of oil volume needed almost each time (not too comfortable). For this reason most use a bottle or two of Libriol to add some potency to an already existing stack, rather than relying on this drug alone.

In 2005, RWR officially replaced Libriol with RWR 4 Fillies. This is simply a new trade name for the same original formulation. RWR 4 Fillies is currently sold only in 10mL multi-dose vials, which means that you are getting only 750mg of steroid in total in each. This is not a lot of steroid, and likely the vial will not be dirt-cheap to purchase either. As a result, it is probably not one of the most cost effective steroids available. Plus, its packaging is pretty simple, and well suited for counterfeiting (fakes have been identified, so be warned). This means that any abundance, especially in the U.S. where Aussie steroids do not circulate very often, should be looked at with extreme suspicion. Aside from the above concerns, there is little else to criticize about this product. It is a very simple blend of two effective and mild anabolic agents, which do exactly what you would expect them to do (provide fair gains with minimal side effects). If you have a real bottle, and you paid a fair price for it, I suspect you will find it is a very good addition to your next cycle.

Madol (desoxymethyltestosterone)

Androgenic	187
Anabolic	1,200
Standard	methyltest (oral)
Chemical Names	17a-methyl-17b-hydroxy-5a-androst-2-ene
Estrogenic Activity	none
Progestational Activity	no data available



Desoxymethyltestosterone

Madol (desoxymethyltestosterone; also known as DMT) is a potent synthetic oral anabolic steroid, first patented in 1961 by Max Huffman of the Lasdon Foundation[115]. This agent was never made available as a commercial prescription drug product, and saw only limited investigation in the mid-1960's before disappearing into research obscurity. Madol remained hidden in the library bookshelves for decades, until remerging in 2005 as a new "designer steroid" of interest to international sports doping officials. This was due to the confiscation of a sample of DMT at the Canadian border in December of 2003, where it was found in the possession of Canadian sprinter Derek Dueck during a routine vehicle inspection. The DMT sample remained nameless in a Customs warehouse for over a year, until officials from the World Anti-Doping Agency (WADA) finally became involved and had it tested and identified. Madol is only the third never commercially marketed anabolic steroid found to be in use by athletes, following norbolethone and THG.

Structurally, desoxymethyltestosterone is a very unique compound. Its name might imply it is a derivate of methyltestosterone, and perhaps in a way it is. The association between the two steroids, however, is very loose, for certain. The very different thing about DMT is that it is structurally a 2-ene compound, lacking the 3-keto group present on nearly all commercial anabolic steroids. This lack of a 3-keto group, however, does not mean Madol is a weak compound. Quite the contrary, Madol is an exceedingly potent oral steroid. According to the standard rat assays, Madol exceeds methyltestosterone in oral potency by a factor of 12[116]. At the same time, its androgenicity is recorded to be only 87% higher than methyltestosterone, giving Madol an extremely favorable anabolic to androgenic ratio (measured to be nearly 6.5:1). The resulting steroid is considerably different than methyltestosterone, a drug which is both significantly weaker mg for mg than Madol, and possesses a much more formidable androgenic component.

Unlike its distant cousin methyltestosterone, Madol is unable to convert to estrogen. This means that its use should not impart the normal estrogenic side effects such as increased water retention, fat buildup, or gynecomastia. This makes it an excellent agent to use during lean tissue building cycles, having an effect somewhat along the lines of Winstrol or trenbolone. It can also be used in bulking cycles. It is neither estrogenic nor significantly androgenic, however, and therefore not going to provide the same sheer-mass-building benefits that an injectable testosterone would. In general, we can say that Madol is functionally far removed from its cousin methyltestosterone, which is known for being a problematic side-effect-producing mass builder and a terrible agent to use during cutting cycles. The one principle side effect it does share with methyltestosterone, however, its hepatotoxicity. One should respect this agent in this regard, and be conservative with its dosage and duration of use as one would any other c-17 alpha alkylated oral.

Although Madol was never sold as a commercial prescription anabolic steroid, it did appear on the sports nutrition market in 2005 under the brand name ErgoMax LMG (Lean Mass Generator). The compound has subsequently appeared under other brand names, as its popularity and true identity spread among consumers (and other companies decided to cash in on them). This drug is sort of in a grey area legally. It is not yet listed on any State or Federal law as an anabolic steroid, and therefore is not subject to criminal possession laws (you can't get busted for owning or using DMT). But at the same time, it is clearly synthetic in nature, and therefore not quite legal to sell as a dietary supplement. At the time of writing this, the FDA has acknowledged the presence of DMT in the supplement market, and is in the process of evaluating and removing such products from commerce.

Manufacture of this unique steroid is not extremely easy. The first hints of this came from the World Anti-Doping Agency, who reported that the confiscated sample of DMT was shown to be very impure upon analysis. It was principally comprised of four different steroidal components, DMT, its unmethylated analog, and isomers of these two steroids bearing a 3-ene structure instead of 2-ene. DMT is likely the only effective anabolic steroid in the group, making it obvious the blend is an issue of manufacturing contamination and not functionality. The same issue appeared again when Don Catlin and his staff at the UCLA Olympic Analytical Laboratory began working on methods for detecting DMT in urine. The procedure required they obtained samples of DMT to work with, which was accomplished by chemically modifying the available starting material 5-alpha-androst-2-ene-17-one. Even the laboratory material they had to work with was shown to be a mixture of both 2-ene and 3-ene isomers (in approximately a 4:1 ratio) upon analysis, and unexpected but now obviously consistent result. It is unknown if any pure DMT product has been produced to date, so the same purity issues are likely to appear in other (perhaps all) DMT-containing products.

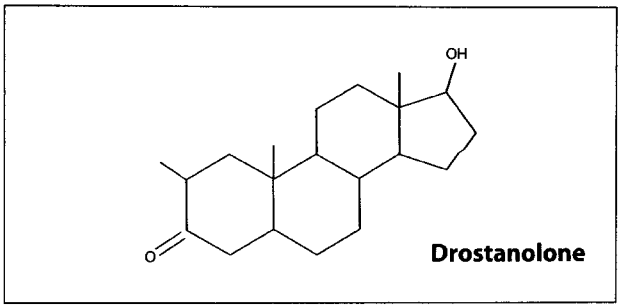
An effective oral daily dosage for Madol would fall in the range of 5-15mg (males). Given that purity of this material seems to remain an issue, this could relate to as much as 10-30mg per day (or more) of any product containing DMT. Some may be tempted to go higher than this in dosage, but should keep in mind the liver toxicity of the agent (and at the very least plan for regular blood tests). This steroid is also very versatile one, and will stack well with a variety of other compounds for either cutting or bulking purposes. Health conscious individuals will want to stick with non-alkylated injectable compounds, so that overall hepatotoxicity is minimized. For mass, this could mean stacking 10mg daily with 200-600mg weekly of an injectable testosterone. Deca-Durabolin or Equipoise can alternately be used for more muscle definition. Here, a six week run combining 400mg per week of nandrolone or boldenone ester with 10mg daily of DMT should impart significant tissue gains without excessive androgenic or estrogenic side effects. It is of note that this steroid is mild enough to be used by women, although the dosage should be much smaller (only 1-2mg per day). Still, it is a potent steroid, and as such there is no guarantee virilizing side effects will not occur.

Although at one point this could have been considered an effective and excellent "invisible" designer steroid for use while competing in drug-tested sports, this is no longer the case. The UCLA Olympic Laboratory was successful in its quest to detect Madol in urine, and these methods have been made available to all Olympic drug testing labs. Any sport that has its athletes' urine samples analyzed at an accredited laboratory will undoubtedly be checking for DMT at this point. Still, it is an oral steroid, and likely most metabolites are cleared from the body within a few weeks of stopping its use (not unlike most oral steroids). I'm sure it is still around in some competitive circles, taunting testing officials with its relatively rapid rate of clearance. The exact future of DMT-containing supplements seems certain at this point in time – there will not be much of one. The drug is too potent, too synthetic, too controversial, too much an obvious anabolic steroid for the FDA to drop the ball. If you want this steroid and can still find it, you better stock up quick!

Masteron® (drostanolone propionate)

Androgenic	25-40
Anabolic	62-130
Standard	testosterone

Chemical Names	2alpha-methyl-androstan-3-one-17beta-ol 2alpha-methyl-dihydrotestosterone
Estrogenic Activity	none
Progestational Activity	no data available (low)



Drostanolone

Masteron is an injectable preparation containing the steroid drostanolone propionate. Drostanolone is a derivative of dihydrotestosterone, most specifically 2alpha-methyldihydrotestosterone. As a result, the structure of this steroid is that of a moderate anabolic/potent androgen which does not aromatize to estrogen. Water retention and gynecomastia are therefore not a concern with this compound; as of course here estrogen is usually the culprit. Masteron may in fact exhibit anti-estrogenic activity in the body, competing with other substrates for binding to aromatase. This would reduce the conversion rate of other steroids, Masteron acting in the same manner as the oral steroid Proviron®.

Bodybuilders have a strong appreciation for non-aromatizing androgens, and find Masteron very useful as a cutting agent. It is likewise generally used a number of weeks prior to a competition, in an effort to bring out an improved look of density and hardness to the muscles. For this purpose Masteron should work exceptionally well so long as the body fat percentage is low enough. Provided everything fits as if should, the user can achieve that "ripped" look so popular to professional bodybuilding. The androgenic effect can also be crucial during this period, a time when caloric intake is drastically lowered. The user is provided added "kick" or "drive" to push through the grueling training sessions leading up to the show. Drostanolone was once also popular with athletes subject to drug testing, as for a period of time this compound was not screened for during competition. The urinary metabolites of drostanolone were recognized by the early '90s however, and this drug now adjoins a long list of anabolic/androgenic steroids identifiable during urinalysis testing. Although some bodybuilders claim they can safely use Masteron if discontinued three to four weeks before a test, there are always uncertainties with the use of esterified injectable steroids. This perhaps makes the oral DHT Proviron® (1-methyldihydrotestosterone) a slightly better choice, as orals offer much better control.

Recreational users might also be interested in Masteron. Although dihydrotestosterone is not highly active in muscle tissue, the 2 alkylation present on drostanolone considerably intensifies its anabolic effect. It can therefore be used somewhat effectively as bulking agent, providing a consistent gain of high quality muscle mass. It can also be successfully combined with other steroids for an enhanced effect. Mixing drostanolone with an injectable anabolic such as Deca-Durabolin® (nandrolone decanoate) or Equipoise® (boldenone undecylenate) can prove quite useful for example, the two providing notably enhanced muscle gain without excessive water retention. For greater mass gains, one can alternately addition a stronger androgen such as Dianabol or an injectable testosterone. The result here can be an extreme muscle gain, with a lower level of water retention & other estrogenic side effects than if these steroids were used alone (usually in higher doses). Masteron could of course be used during cutting phases of training as well. A cycle of this drug combined with Winstrol®, Primobolan® or Oxandrolone should provide great muscle retention and fat loss, during a period which can be very catabolic without steroids. It is an added benefit that none of these steroids aromatize, and therefore there is no additional worry of unwanted water/fat retention.

The propionate ester used with this compound will extend its activity for only a few days. With such a short duration of effect, injections need to be repeated at least every 3 or 4 days in order to maintain a consistent level of hormone in the blood. Factoring this in with its low strength (50mg/mL), men will generally inject a full 2mL ampule of Masteron (100 mg) every two or three days. The weekly dosage therefore lands in the range of 200-350mg, a level more than sufficient to receive good results. We also should mention that while some women do profess to using this item before a show, it is much too androgenic in nature to recommend. Virilization symptoms can result quickly with its use, making Masteron a very risky item to experiment

with. If attempted, the dosage should be limited to no more than 25 to 50mg each week. The female athlete would be further served by increasing the number of days between injections to prevent buildup of steroid in the body. In this case, Masteron can perhaps be administered once every 7 days.

Since estrogen offers us no trouble, side effects are generally mild with this steroid. As discussed earlier, gynecomastia and water retention go unseen. So are problems controlling blood pressure, again usually associated with estrogen. Masteron is also not liver toxic, so there is little concern stress will be placed on this organ, even during longer cycles. The only prominent side effects stem from the basic androgenic properties of dihydrotestosterone. This includes oily skin, acne, body/facial hair growth, aggression, and accelerated hair loss. Since this compound is already a synthetic DHT, Proscar® would have no impact on the level of androgenic effects. Men with a receding hairline (or those with a known familial predisposition for baldness) may therefore wish to stay away from Masteron completely, as the potent androgenic effect of this steroid can easily exacerbate such a condition.

The original Syntex Masteron is now unavailable on the black market. It was discontinued in Europe several years ago. No old lots should still be circulating, meaning that there is no legitimate source for brand name product "Masteron" anywhere. Those consumers who highly regarded the former European product will be happy to learn that there are other versions to be found.

British Dragon has introduced **Mastabol** over a year ago. This Masteron close first came in a 50mg/mL dosage, but this was later replaced by a stronger 100mg/mL concentration. When shopping, make sure your product has a vial top that bears the product name directly in the plastic. Underneath, you will find a dragon formed directly into the rubber stopper. Also, the label on the vial will have a red or blue metallic foil inlay. Fakes will often copy the color of this inlay with ink instead of actual foil, though some more sophisticated knockoffs do exist.

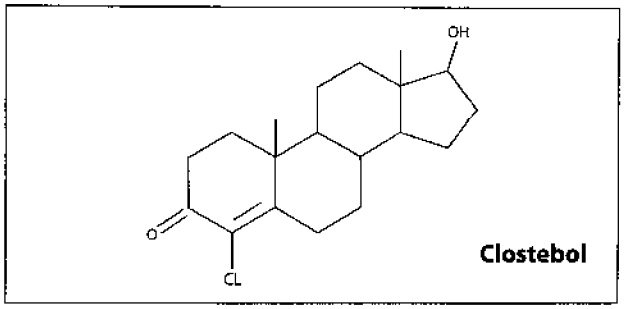
Also found on the black market currently is a version of drostanolone sold in Myanmar by the Xelox Company called **Dromostan**. It contains base drostanolone only, not drostanolone propionate. Although unconfirmed by lab testing, this is a legit company, hopefully making a legit product. If so, it would be only the second real drostanolone currently sold worldwide. Due to the lack of an ester, injections would best be given every two days with this product, just short of the 3-4 typically used with Masteron.

In addition to the above, there are numerous underground labs producing drostanolone propionate at this time. If you want to risk use of such an item, this is probably not going to be a hard steroid for you to find. Again, make sure you understand the inherent risks of buying underground products before making such a purchase. These risks can involve more than just the loss of money, as underground products are not often produced in a proper sterile (pharmaceutical level) environment.

Megagrisevit-Mono® (clostebol acetate)

Androgenic	25
Anabolic	46
Standard	testosterone

Chemical Names	4-chloro-testosterone 4-chloro-androsten-3-one-17beta-ol
Estrogenic Activity	none
Progestational Activity	no data available (low)



Clostebol

Megagrisevit-Mono is the old German trade name for the steroid clostebol acetate, a derivative of testosterone (most specifically 4 chloro-testosterone acetate). Clostebol is a low strength anabolic compound, which exhibits minimal androgenic potency. While side effects are possible with any anabolic/androgenic steroid, this compound overall is extremely mild. Due to 4-chloro substitution in the A ring this form of testosterone additionally does not aromatize, so there is little worry of developing noticeable water retention or gynecomastia during use. The substance is also not c-17 alpha alkylated, so those experimenting with the oral need not fear liver toxicity. The hydrogen substitution at the 4 position does not greatly enhance the oral efficacy of this drug however, and therefore the injectable is much more potent on a milligram for milligram basis.

As mentioned, the androgenic activity of this steroid is also very low. Related side effects such as oily skin, acne, body/facial hair growth and male pattern hair loss are therefore not commonly associated with use unless higher doses than normal of the drug are taken. Likewise Women have little risk of developing virilization symptoms provided they remain reasonable with the dosage. The fact when it was being made Megagrisevit-Mono was commonly used with geriatric patients makes clear the real mildness of this anabolic. The side effects of anabolic/androgenic steroid use seem to become much more pronounced in patients as they age, so typically very weak androgens are shown to be the most tolerable in such cases. Although a derivative of the potent androgen testosterone, clostebol is certainly far removed from its parent steroid in action.

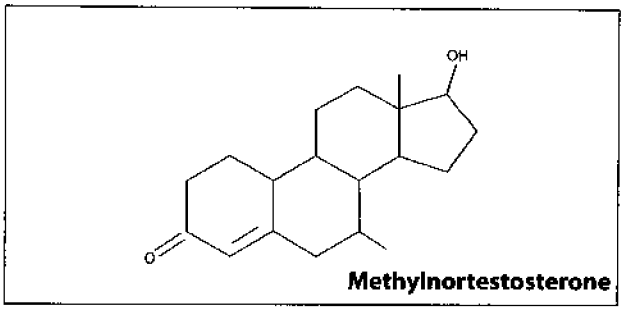
The anabolic effect of this drug is also very weak, so clostebol is really only utilized in combination with other steroids. The general application is to use it for contest preparations with other non-aromatizing anabolics such as Winstrol® or oxandrolone. Here a daily dose of 20mg (2 vials) of the old Megagrisevit-Mono would be added in with an average dose (20-30mg) of the oral anabolic, which together should provide the user a nice muscle building effect without any water retention. Here the effect of clostebol would be somewhat similar to that seen with the old Primobolan® acetate ampules, although Megagrisevit-Mono is admittedly weaker in effect (injectable Primobolan® acetate being a sorely missed product). We could also use this compound in addition with strong non-aromatizing androgens such as trenbolone, Halotestin® or Proviron®. Here the result can be an even more pronounced effect of muscle definition, although this will be accompanied by a much stronger set of side effects. As discussed women will also find this drug favorable, of course here a lower dosage would apply. This would perhaps mean using no more than one 10mg per day (1.5mL of the old German remedy), perhaps even every other day to help avoid any buildup of steroid in the blood.

Overall we can say that while this compound can provide benefit to many cycles, it's effect is clearly too weak to warrant using it alone. This is really a moot point though, as Megagrisevit-Mono, the last remaining injectable to contain clostebol acetate, is no longer available. The only products left anywhere containing clostebol appear to be a couple of topical products still left on the Italian market, namely Alfa-Trofodermin and Trofodermin. Transdermal delivery is less than efficient with steroids, making this already weak drug even harder to get into the body. We can understand why these products don't seem to circulate on the black market.

MENT (methylnortestosterone acetate)

Androgenic	650
Anabolic	2,300
Standard	testosterone propionate

Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Methylnortestosterone

MENT, short for methylnortestosterone, is a synthetic anabolic steroid closely related to nandrolone in structure. It was first researched back in the early 1960's, the heyday of anabolic steroid development. Back then, there were new compounds being introduced into the journals literally every week. Like a great many of the effective steroids studied during this era, however, MENT didn't make it's way to becoming a commercial drug product. For about four decades it sat gathering dust on the bookshelves, next to many other effective but anonymous compounds. Historically, lack of early financial support has been a death sentence for anabolic steroids. If a company isn't there in the beginning to spend the millions necessary to develop it into an actual prescription product, it isn't going to go anywhere later on. The money simply wasn't there for MENT in the 1960's, and it died. For a long time this agent remained a "nothing" in the world of steroids.

But things changed for MENT around the turn of the century, in a very dramatic fashion. On October 30th in 2000, international drug giant Schering AG made a public announcement that it had entered into a partnership to research, develop, and market methylnortestosterone acetate for both male contraceptive and hormone replacement use. This followed several years of sporadic but positive studies on this agent. The ball was set in motion, and this old steroid, which scientists had ignored for over thirty years, was suddenly amidst a hotbed of new research and speculation, the likes of which it had never seen before. In their press release, Schering AG makes promise of a new androgen that offers the anabolic and endocrine benefits of an injectable testosterone, but with less prostate growth, and more patient comfort. In other words, Schering is saying that MENT looks to be an easier to administer and equally useful steroid as testosterone, yet without the same issues concerning androgenicity.

To understand exactly why it is that Schering would be paying such interest in this steroid, we need to examine its structure and effect. While descriptive, the generic name methylnortestosterone (methylnandrolone is also appropriate) does not quite tell us enough. It turns out that the term "methyl", which is most commonly associated with C-17 alpha alkylated androgens like methyltestosterone, methandrostenolone, or oxymetholone, is being used differently here. In this case, it refers to a modification at C-7, which gives this steroid a considerably different appearance than one might think at first. Of most obvious significance is its method of use. Although perhaps possessing a moderate level of oral bioavailability, this nandrolone derivative was really not designed for oral administration. It is much more effective when administered to the body directly, as by injection or implant. Therefore, the immediate assumption that this is the "Methyltest" of Deca is not quite accurate (that title actually belongs to Orgasteron, also profiled in this book).

One well understood function of 7-methylation is that is blocks steroid 5-alpha reduction (something that c-17 methylation does not accomplish). As such, this derivative of nandrolone cannot be converted to a "dihydro" metabolite[117]. With nandrolone and most of its analogs, this reduction means a less androgenic steroid. Dihydronandrolone is weaker than nandrolone, so relative binding is reduced in target tissues with high reductase concentrations. Not being able to convert to a weaker steroid here, MENT is going to display more relative androgenicity than nandrolone. However, this may not necessarily be a bad thing. Nandrolone is commonly too weak of an androgen, causing impotence issues in good percentage of men that try taking this steroid alone. When we are speaking of hormone replacement and contraceptive use, we can't suppress natural testosterone and replace it with a weak androgen. In this regard MENT definitely seems to have one up on Deca-Durabolin.

.8mg, or 1.6mg of steroid. The release rate is slowly reduced as the implant loses surface area, however, reaching approximately 200mcg per day by the one-year mark.

The results of the clinical trial were very promising. Four MENT implants (1.6mg/day) suppressed spermatogenesis with similar effectiveness as testosterone implants, testosterone enanthate injections, and testosterone undecanoate injections (all of which have been investigated successfully as contraceptives). MENT was able to produce azoospermia in 82% of treated subjects, a figure that was actually higher than reported with 200mg of testosterone enanthate per week (which produced azoospermia in 65-66% of normal male subjects by 6 months). As far as negative side effects, they were few. Two subjects noted increases in blood pressure that went outside the normal range, and one was forced to discontinue the study because of it (though no ill effect was noted). Otherwise, there was generally just a very small rise in systolic pressure (+4.8), and no significant changes in lipids (including cholesterol and triglycerides) or PSA values. Furthermore, prostate volume was slightly reduced (not increased) in all groups. Liver enzymes were increased slightly, but stayed within the normal range in all subjects. The mean time to the recovery of normal sperm production after discontinuance was 3 months, similar to that reported in a 1990 World Heath Organization study with 200mg weekly of testosterone enanthate. Overall, MENT performed admirably, with a very notable (acceptable) level of effect, and minimal side effects. And what is more, the drug may be effective when being implanted an infrequently as once per year.

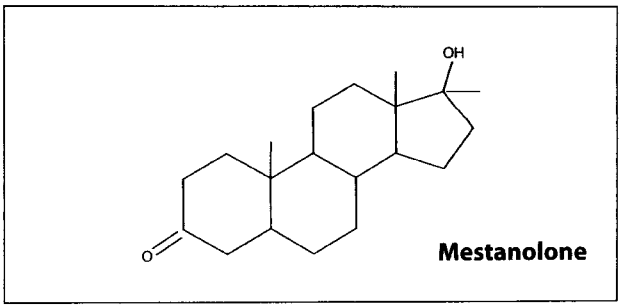
Another study of interest examined the ability of MENT implants to restore sexual behavior and function in hypogonadal (having low testosterone) men[128]. This, of course, is one of the principle objectives of androgen replacement therapy. This investigation took place in two clinics, one based in Ireland and the other Hong Kong. Twenty men participated in total, 10 at each location. The study was a double crossover investigation comparing the effects of testosterone enanthate (200mg every 3 weeks) to that of two MENT implants (delivering .8mg of drug per day). This means that each of the twenty men had an opportunity to try both drugs, which were taken on two separate occasions between washout periods. Only minor differences in response were noted between MENT and conventional androgen replacement therapy, and both drugs were effective in restoring sexual behavior and erection frequency. MENT, at a dosage of 2 implants delivering approximately .8mg of drug per day, proved to be an effective option for androgen replacement therapy.

If Schering markets this drug as an implant, it will be impractical to use for bodybuilding purposes. At best it will need to be broken down and made into an injectable somehow. The clinical study discussed above used implants containing about 140mg of steroid each. Given the same in a production drug, more than one implant will be needed for a workable cycle. There is some investigation into its use as an oral[129], which does seem feasible (although not ideal from a cost effectiveness standpoint). The key to this steroid's success with bodybuilders will really be the development of a commercial injectable. This will undoubtedly follow the release of Schering's product, perhaps even precede it. The raw powder is already available from suppliers overseas, so it should not take long for some veterinary or underground manufacturer to perceive value in this new agent. Hopefully an acetate version will even be closely followed by a slower acting MENT ester, perhaps even something basic like MENT cypionate or MENT enanthate.

As for its use, MENT is a relatively potent steroid, so an effective dose for bodybuilders is going to be small. As a drug 10 times more anabolic than testosterone by some studies, and 20 times more effective at suppressing spermatogenesis than testosterone enanthate in others, we should commonly see daily doses of maybe 3-6mg. If prepared as an oil-based injectable (with acetate ester), this would mean shots of roughly 10-20mg every two to three days. Compare this to trenbolone, which is usually given in doses of 75-100mg per shot under the same schedule (and this is a particularly potent steroid). Some might find good effect at 10mg daily, however I suspect the number of people needing to go here will be few, and fewer still will probably venture higher. As a poorly aromatized anabolic (19-nor compounds tend to aromatize much more slowly than c-19 steroids), MENT should stack well with a variety of different steroids, possibly for both cutting and bulking phases of training. For simplicity, this would mean using it with drugs like testosterone cypionate/enanthate (200-400mg/week), Dianabol (20-35mg/day), or Anadrol (50-100mg/day) when looking for sheer size, milder anabolics like nandrolone decanoate or boldenone undecylenate (200-400mg/week) for lean mass, or non-aromatizable drugs like Primobolan (200-300mg/week), Winstrol (20-35mg/day), or Anavar (15-20mg/day) while cutting. Women may find value in MENT as well, but given its relative potency will probably be taking injections measured in single milligrams. Other than possible dosing accuracy issues, it is a relatively balanced anabolic steroid; no doubt mild enough to consider using.

Mestanolone

Androgenic	78-254
Anabolic	107
Standard	testosterone
Chemical Names	17a-methyl-4,5a-dihydrotestosterone
Estrogenic Activity	none
Progestational Activity	no data available



Long since removed from the commercial drug market, mestanolone is a synthetic oral derivative of dihydrotestosterone. This steroid is a 17-alpha methylated form of this potent endogenous androgen, being essentially (in structure) to DHT what methyltestosterone is to testosterone. Overall this new oral androgen has an activity profile not very dissimilar to the natural steroid used to make it. For starters, since no further structural modification was added to protect the 3-ketone group, this steroid will be rapidly broken down in skeletal muscle tissue by the 3-alpha hydroxysteroid dehydrogenase enzyme. This means that just like DHT, mestanolone will offer minimal direct anabolic activity. Its effect is almost purely androgenic instead. Both DHT and mestanolone are also devoid of estrogenic activity, which eliminates the chance for estrogenic side effects like water retention, fat deposition and gynecomastia. In fact, both should be measurably anti-estrogenic in effect, inhibiting the aromatase enzyme in a competitive and dose-dependant manner.

Mestanolone is one of the oldest secret drugs of the East German doping machine, the infamous State sponsored doping program of the 1960's and 1970's that developed advanced systematic techniques designed to assist drug-tested athletes avoid detection. This program allowed East German athletes to evade countless urine tests and become a dominant force in Olympic sports throughout much of the Cold War era. Mestanolone, itself, was valued not for its potency as a muscle builder, but for its ability as a pure and powerful androgen. Its effect was thought to be largely focused on the central nervous system and neuromuscular interaction. Athletes would routinely comment that while the drug would not make you huge, it was very capable of improving speed, strength, aggression, endurance, and resistance to stress. Drug tested or not, mestanolone remains intrinsically valuable today as a fast acting oral capable of providing tangible benefits unique from other anabolic agents. While it might not make an ideal agent to base an entire steroid cycle on, it seems that it would make an exceptional compound to stack with other anabolics.

An effective oral daily dosage for most males would be in the range of 10-15mg. At this level mestanolone should impart considerable strength gains, and may also aid in the speed performance of competitive athletes. Provided diet is adequate, this androgen should also promote fat loss, and will increase muscular definition by reducing the level of water retention. This steroid is, likewise, a very effective option for pre-contest use. In such a role, it would make a good, albeit not perfect, substitute for Masteron. Being such a potent androgen, mestanolone should never be recommended to women. The chance for virilizing side effects is too great to risk using it, even in low dosages. General side effects for males would be in line with what you would expect from injectable dihydrotestosterone, including oily skin, acne, potential hair loss, and increased aggression. Since mestanolone is a methylated steroid, it may impart some level of liver toxicity. This would be amplified if combined with other oral steroids, or if unnecessarily high doses or drug duration were used. As with all liver-toxic orals, it is best to limit intake to no longer than 6-8 weeks, after which point an equally long break at a minimum should be taken.

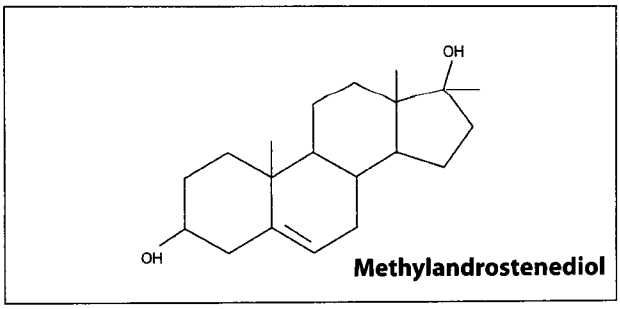
Being that mestanolone is no longer in commercial production, finding a trustworthy human prescription version of this drug is not going to be a possibility. Five years ago that would have meant that you were likely to never see this steroid again; however, that does not appear to be the case today. The thriving steroid business this past decade has given a lot of financial incentive for the overseas bulk materials manufacturers to start producing old steroids that were popular thirty years ago. In what has become a very competitive market, a variety of underground and legitimate manufacturers (in less regulated markets) are buying these obscure compounds

up, so they can release "new" (previously unavailable) steroids, gaining market share and attention in the process. Several underground laboratories have already released Mestanolone, and it should not take long for some of the popular veterinary manufacturers to follow suit. So far as this agent is able to regain its cult status it had in the 1960's and 1970's, it may very well become a pre-contest androgen of interest in the months and years to come. Shortly before the expanded 2005 steroid ban, a good number of bottles of mestanolone were actually leaked into the sports supplement market under the guide of being "prohormones". Perhaps a revival of this product on the black market is not far off.

Methandriol (methylandrostenediol)

Androgenic	30-60
Anabolic	20-60
Standard	testosterone propionate

Chemical Names	17a-Methyl-5-androstene-3,17b-diol 17a-Methylandrost-5-ene-3,17b-diol
Estrogenic Activity	low to moderate
Progestational Activity	N/A (low)



Methylandrostenediol

The steroid Methandriol is manufactured in two very distinct forms. Unesterified (straight) methylandrostenediol is most commonly used when making an oral medication with this steroid (although an injectable once existed in the U.S.), and esterified methylandrostenediol dipropionate is usually prepared as an injectable. The added propionate esters in the injectable form extend the activity of the drug for several days. Basically, methandriol drugs are altered forms of the "pro-hormone" 5-androstenediol. This is clear when we look at the chemical structures, as they simply have a methyl group or methyl plus two propionate esters added to the compound (hence the name methyl-androstenediol). Yes, the injectable methandriol does carry both 17alpha methylation and two propionate esters (one at carbon 17, the other at carbon 3). Methandriol was first produced in the United States during the early 1980s. Powerlifting and bodybuilding circles caught on to it quickly, and Methandriol enjoyed a period of great popularity. This did not last very long, however, and Methandriol preparations have been unavailable in the states for many years now. Today this steroid is not common on the black market, and is almost exclusively used in Australian veterinary preparations.

Methandriol is thought of as a strong anabolic with notable androgenic properties. It does sometimes display a level of estrogenic activity, so related side effects such as water and fat retention may be of concern (but this is usually dose related). Most of this is due to the fact that 5-androstenediol displays a low affinity to bind and activate the estrogen receptor. There is actually no direct estrogen conversion with this steroid, although since one of its known active metabolites is methyltestosterone we must assume that some aromatization does take place. The properties of this drug are therefore most appropriately suited for the buildup of strength and muscle mass, where any slight estrogenic effect will be less of a concern. For this purpose a typical dosage would be in the range of 25-50mg daily for the oral form, and 200-400mg per week with the injectable. In order to keep blood levels more even with the injectable, it is best administered at least every three to four days.

This compound is clearly strong enough to be used alone for muscle building purposes, although methandriol is most often combined with other anabolics for a stronger effect. A cycle of methandriol and Deca-Durabolin® or Equipoise® (anabolic) for example can produce an exceptional gain of hard, muscle mass, without an extreme level of water retention. This is the general composition of most Australian vet blends that include methandriol. Since the aforementioned drugs do aromatize to some degree however, sensitive individuals may wish to add an anti-estrogen such as Nolvadex® and/or Proviron® to keep related side effects to a minimum. When looking for a more pronounced gain in mass, a stronger androgen such as Dianabol, Anadrol 50® or testosterone could of course be added. The resulting growth can be quite exceptional, but the user will also have to deal with a much stronger set of estrogenic side effects. Likewise the new muscle mass will be accompanied by considerable smoothness due to water retention. Again, the already mentioned anti-estrogens could prove very useful. The strong anti-aromatase Arimidex® may be more applicable in this circumstance, effectively halting estrogen production. This compound is quite expensive however (*see: Arimidex®*).

For contest preparations this steroid can sometimes prove quite useful. With a sufficiently low body fat percentage, the androgenic nature of methandriol can help bring out a look of hardness and density to the muscles. It also combines well with other non-aromatizing anabolics such as Winstrol®, Primobolan® and oxandrolone. The result here should be an even more pronounced effect on muscle hardness, while at the same time subcutaneous water is kept to a minimum. One may further addition a strong non-aromatizing androgen like Halotestin® or trenbolone, but then increases the risk for notable androgenic side effects.

up, so they can release "new" (previously unavailable) steroids, gaining market share and attention in the process. Several underground laboratories have already released Mestanolone, and it should not take long for some of the popular veterinary manufacturers to follow suit. So far as this agent is able to regain its cult status it had in the 1960's and 1970's, it may very well become a pre-contest androgen of interest in the months and years to come. Shortly before the expanded 2005 steroid ban, a good number of bottles of mestanolone were actually leaked into the sports supplement market under the guide of being "prohormones". Perhaps a revival of this product on the black market is not far off.

Side effects associated with Methandriol use are generally considered mild. Although estrogenic side effects are sometimes reported with this drug, they do not seem to be a very common problem. One, therefore, will probably not be faced with heavy water bloat, gynecomastia, increased blood pressure or body fat gain during a cycle unless a very high dosage is used. The most common trouble is likely to come in the form of general androgenic side effects. Oily skin, Acne, body/facial hair growth and hair loss are likewise all possible with methandriol. Since such effects are probably not stemming from the conversion of 5-androstenediol to methyltestosterone and ultimately methyl-DHT (it appears to have a low tendency for this) Proscar® would offer us no benefit. Men with a predisposition for male pattern baldness may likewise want to be very cautious when administering this compound. Women should also probably avoid this steroid, as virilization symptoms can occur quickly with the more strongly androgenic drugs.

Since methandriol is a 17-alpha alkylated compound, we do have some additional worries in regard to liver stress. As with all such steroids, in order to reduce the damaging effect of this substance cycles are best kept to a minimum. It may also be a good idea to monitor liver values during treatment as well, particularly if other oral steroids are being used at the same time. Liver stress is present with the injectable form as well as the oral, of course, however the body does not have to process the 17-methylation all at once with injection. While this certainly does not exclude the possibility of liver damage, it does make the injectable the preferred form of administration if both were available (and safety a key concern).

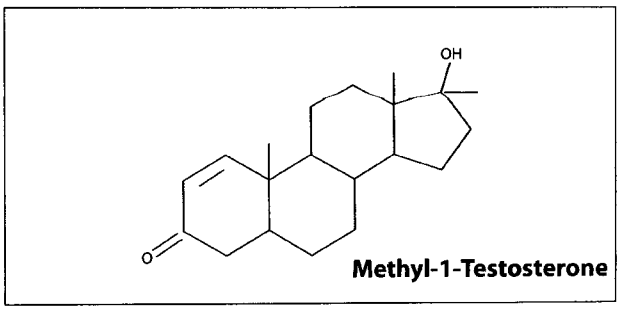
As discussed earlier, this steroid is not a common inside the U.S. The only place it can be found in abundance is unfortunately Australia. There, a number of veterinary preparations still include methandriol in their blends. These occasionally do reach the U.S., often selling for a high price. The Mexican firm Denkall does sell **Denkadiol** in Mexico, which is one of the few forms you are likely to see on the black market. The firm was originally importing this product (under its own label) into Mexico from Australia, where they originally purchased it in Bulk from Ilium. Ilium and Jurox cut off all direct exports to Mexico several years ago. Denkall has since located other sources for its Denkadiol, enabling this product to return to market. Remember to look for the Denkall security hologram, which should help assure you are getting the real thing (although I have never heard, nor would expect, to see much interest in a fake Methandriol).

British Dragon also introduced a methandriol dipropionate product recently, called simply by the generic name of the drug. The product contains 75mg/mL of steroid, and comes in a 10mL multi-dose vial. This makes it an exact copy of the Denkall product. Be sure your product has a plastic flip-off top that carries the product name formed directly into the plastic. It should also peel off to reveal a dragon in the center of the rubber stopper, another expensive security feature recently initiated by British Dragon to deter counterfeiting.

Methyl-1-testosterone

Androgenic	100-220
Anabolic	910-1,600
Standard	methyltestosterone (oral)

Chemical Names	17alpha methyl-17beta-hydroxy-androst-1-ene-3-one
Estrogenic Activity	none
Progestational Activity	moderate



Methyl-1-Testosterone

Methyl-1-testosterone (or 17alpha-methyldihydroboldenone) is an orally active derivative of the potent anabolic/androgenic steroid 1-testosterone. M1T for short, this compound was first investigated back in the 1950's, during they most active days of steroid research. However, it was not developed as a commercial steroid product and lay dormant on the books for decades until only very recently. This agent can be looked at some kind of bastard amalgamation of Primobolan, Winstrol, and trenbolone. It has the basic 1-ene structure of Primobolan, the bioavailability of a methylated oral steroid like Winstrol, and the high potency of a strong receptor binding of an agent like trenbolone. Truth be told, the potency of methyl-1-testosterone exceeds that of every prescription anabolic steroid currently sold.

As a Primobolan derivative, methyl-1-testosterone does not aromatize. It lacks the 4-ene group necessary for aromatization. Normally this would suggest a very lean tissue building anabolic, with no significant water retention. However, that does not appear to be the case with M1T. A good number of users report noticeable water retention when taking this steroid, even in moderate doses. This would suggest a moderate progestational activity inherent in this steroid, and activity that can sometimes mimic the effects of estrogen. Progestational steroids can actually intensify the biological actions of estrogen, so care should be taken when stacking this agent with other aromatizable steroids. Side effects like bloating and gynecomastia might easily result. Even when used alone, many will opt to stack an anti-estrogen like Nolvadex with this steroid, just to make it a little cleaner of an anabolic.

Other things to expect include the typical androgenic side effects like oily skin, acne, and aggravated hair loss. M1T does not appear to be particularly androgenic in the grand scheme of things, however these side effects are all possible with every anabolic steroid. Since this compound lacks a 4-ene group, there is no chance it will metabolize into a stronger "dihydro" derivative in androgen responsive tissues. Therefore, it is a balanced steroid, and more of an "anabolic" than an "androgen". As a c-17 alpha alkylated (methylated) oral, liver toxicity should be taken seriously with this steroid too. Being so potent, this is going to be more intense than most of the other commercially available orals. It would probably not be wise to assume that 20mg of M1T would offer the same stress to your liver as 20mg of Dianabol. It may very well be significantly more at the same dose. Bodybuilders will usually find it advisable to monitor their liver enzymes during each cycle, and limit drug duration to 6-8 weeks.

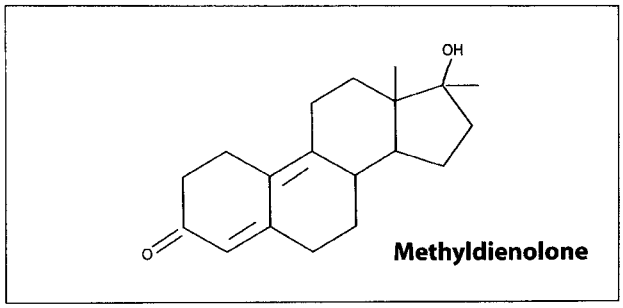
A typical effective oral dose for men will be in the range of 5-10mg per day, with 20mg really being on the extreme end for the recreational bodybuilder. He would probably be better served with a 10mg daily dose, and stacking it with an injectable like testosterone cypionate. This would minimize the chance for liver toxicity, and would also provide a more balanced cycle in terms of anabolic vs. androgenic effect. A common complaint when M1T is taken alone is lethargy, which may be due, in part, to its low androgenic component. Stacking it with an androgen like testosterone will usually alleviate this problem quickly, making for a very good compliment to methyl-1-testosterone. A combination of 400mg of cypionate, and 10mg daily of methyl-1-test, would be quite an effecting mass building stack. Of course, these are what fall in the realm of "recreational doses". I do not have to tell you that many exceed such recommendations, and take as much as 40mg per day of this steroid. While probably far in excess of what you need, some seem to really swear by high-dose cycles of this steroid. One thing is for certain, even 20mg per day is a very serious dose, and is not to be taken lightly, either for its effectiveness or toxicity. Like Anadrol, M1T is not necessarily a friendly steroid, but it is definitely an effective one.

Although this agent was once sold legally as a nutritional supplement (due to the fact that it was unknown when the 1991 law was written, and therefore not included), methyl-1-testosterone is controlled as an illegal anabolic steroid in the United States as of January 20, 2005. Therefore, it carries the same penalties for possession and distribution as all anabolic steroids. Due the once abundant and legal supply of this steroid in the U.S., many leftover bottles of product from supplement stores are likely to find their way to the black market in the months and years to come, where they will likely sell for a premium. Given the high potency of this steroid, we might also expect some of the underground or veterinary drug manufacturers to add it to their lines before long. This would be great to see, as it would ensure that this very powerful and formerly unknown anabolic steroid does not disappear into research oblivion once again.

Methyldienolone

Androgenic	200-300
Anabolic	1,000
Standard	methyltestosterone (oral)

Chemical Names	17a-methyl-17beta-hydroxyestra-4,9(10)dien-3-one
Estrogenic Activity	none
Progestational Activity	moderate



Methyldienolone (MD) is a synthetic oral anabolic steroid that was researched in the 1960's but never sold as a prescription drug. It is fundamentally a nandrolone-based compound, modified from this base hormone in two ways. First, it has been c-17alpha-alkylated (methylated) to protect against hepatic breakdown. This alteration, in of itself, turns the mild-mannered nandrolone into the formidable oral agent methylnandrolone. Next, it has been given a second double-bond at the 9 position, which considerably increases its anabolic and androgenic potency. Methyldienolone actually differs from methyltrienolone, the most potent steroid profiled in this book, only by the lack of a third double-bond (hence the "di" part). Although not actually #2 in the book, methyldienolone is 5 times more potent than Dianabol, 10 times more potent than methyltestosterone, and 13 times more potent than Primobolan®.

Other characteristics of note include an inability to be converted into estrogen, which limits this steroid's potential for related side effects like fat gain, water retention, and gynecomastia. This trait makes it a drug more ideally suited for cutting cycles than bulking ones. However, as a nandrolone based compound, it may have some progestational activity, which can work to intensify the effects of estrogen. Therefore, it may not be the ideal steroid to use with other aromatizable (estrogen producing) compounds, if fat loss and muscle definition are key concerns. Methyldienolone is also only moderately androgenic, with just a modest propensity to trigger oily skin and acne when used in reasonable dosages. Overall, this agent is classified as an "anabolic", and should fall somewhere between the milder nandrolone derivatives and more androgenic orals like Dianabol and Anadrol.

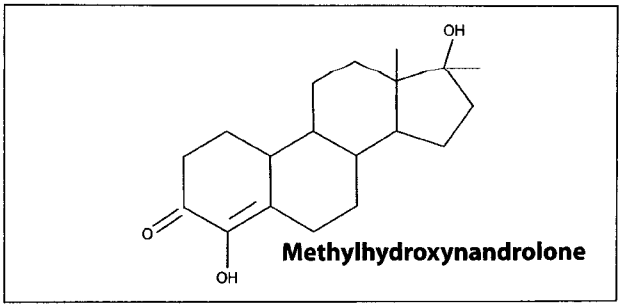
Effective oral daily doses are going to fall in the range of 2-10mg per day for men, and under 1mg daily for women. At this level, one should expect measurable strength and lean tissue gains, which should be accompanied by decent fat loss and minimal side effects. When determining dosage one also needs to respect the fact that methyldienolone is a c-17alpha-alkylated compound, and presents some liver toxicity to its user. For optimal safety it is usually recommended to limit drug duration to no longer than 8 weeks, after which a break is taken from all methylated or ethylated steroids. One might also want to avoid stacking this drug with other liver toxic orals, and instead opt to use an injectable base instead. 5mg per day of methyldienolone combined with 400mg weekly of testosterone cypionate/enanthate or Equipoise® would make an excellent lean-mass stack, while trenbolone (225mg) or Primobolan® (300-400mg) could be used instead for cutting.

Availability of methyldienolone is going to be limited over the next couple of years, due to the recent scheduling of this agent as a class III controlled substance. This agent was manufactured as a nutritional supplement for a brief period of time before the 2004 amendment to the anabolic steroid act was passed, which means there should be a fair amount of leftover supplement available as people take advantage of its increasing value and sell off their pre-ban "stockpiles". The long-term future of this agent remains uncertain, however, as no legitimate drug company has yet to take an interest in it. It is unfortunate to think that this drug may no longer be available in a couple of years. This is a very powerful agent though, and may very well peak the interest of some of the companies looking for a "different" oral to sell. That is, of course, if the consumer market can get over the fact that this drug was once "legal". Although sold openly for a while, MD is indeed still one very powerful, and one very real, steroid.

It is important to note that there may be an issue with methyldienolone "counterfeits". I was made aware that the compound 3,17-dimethyldiendiol (a 3-methylated diol analog of MD) was being manufactured and sold as methyldienolone to various U.S. supplement companies. This was apparently done because of manufacturing troubles, and with the knowledge of some of the buyers, who felt it was "essentially the same thing". Other companies may have been selling this material as MD unwittingly, given the rarity of true "quality control" in the supplement industry (few independently lab test their products). Therefore, those who have noticed poor results from this steroid may not have been using the real thing. I do believe that early manufacturing issues were resolved, and raw methyldienolone has made its way to the market before the passing of the law. Provided you are buying legitimate methyldienolone, you can feel good knowing you have a very rare, structurally unique, and extremely powerful steroid, which few in history were given an opportunity to use.

Methylhydroxynandrolone

Androgenic	281
Anabolic	1304
Standard	methyltestosterone (oral)
Chemical Names	4-Hydroxy-17alpha-methyl-hydroxyestra-4-ene-3-one
Estrogenic Activity	none
Progestational Activity	moderate



Methylhydroxynandrolone

Methylhydroxynandrolone, or MHN for short, is a potent derivative of the anabolic steroid nandrolone. It differs from this base steroid structurally in two ways. First, it has been c-17alpha alkylated (methylated), a modification that allows this steroid to be orally active. Next, an additional hydroxyl group has been added at its 4 position, similar to hydroxytestosterone. Together these two alterations have created a potent orally active and non-aromatizable anabolic steroid, with a profile somewhat similar to that of Winstrol or Anavar – a primarily anabolic agent with no discernable estrogenic activity. This anabolic was investigated back in the 1960's, and despite its effective nature was never released as a prescription drug. Its properties make it of obvious interest as a designer steroid, and I would not be surprised if numerous athletes have used it for this purpose over the years. However, since we have not seen a MHN scandal in the media, this remains a matter for speculation.

Although this steroid is a nandrolone derivative, it acts quite differently from its chemical parent. For starters, while nandrolone is a relatively mild steroid, MHN is an exceedingly potent synthetic agent. According to assay results published in Hormonal Steroids (Academic Press, 1964), methylhydroxynandrolone is 13 times more potent than methyltestosterone. This is clearly something of interest for this makes MHN stronger than any prescription steroid known currently. MHN is also quite potent as an androgen, behaving more like trenbolone than nandrolone in this regard. The relative androgenicity of this steroid is likely intensified by its 4-hydroxyl group, a modification that prevents its 5-alpha reduction to weaker "dihydro" metabolites in the skin, scalp and prostate. MHN cannot interact with the reductase enzyme, therefore, it retains its original level of potency in these same tissues. This steroid is still technically more of an "anabolic" than an "androgen", but it is definitely not the nandrolone you are familiar with.

Due to its displaying a relatively high level of milligram for milligram potency, the typical effective daily dosage for men is going to be comparatively much lower than one would expect with other agents. For example, while Dianabol might warrant using 25-35mg daily to notice a pronounced benefit, methylhydroxynandrolone users will likely be working in the range of only 5-10mg per day, maybe less. At this level MHN should provide very solid gains in lean muscle mass and strength, with no water retention or increased fat deposition. If anything the user is likely to lose body fat at the same time, one of the reasons why athletes will often spend the extra money on an anabolic like Winstrol instead of simply taking cheap testosterone or Dbol. This drug is also versatile for stacking, and mixes well with most other anabolics (for cutting) or androgenic (for bulking phases). Women should probably stay away from this steroid altogether, and instead opt for an agent known to be less androgenic (and friendlier to women). Something like Primobolan, Winstrol or Anavar would be a much better choice than MHN, with less chance for permanent masculine side effects. This is not a bulking drug itself by any stretch, but remains an effective and versatile agent nonetheless.

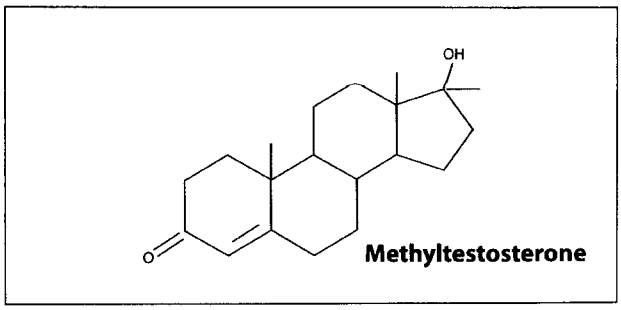
Methylhydroxynandrolone is not available as a prescription agent at this time, in any part of the world. This agent was merely investigated as a drug, and never sold as one. It has appeared on the U.S. supplement market very recently, sold legally and openly as a nutritional product. This was due primarily to the fact that it was never regulated as a drug in this country, and, barring a direct listing on the 1992 steroid law, could not be covered by it. MHN has since been included in the most recent expansion of our nation's steroid laws, and is formally a controlled anabolic steroid in the U.S. as of January 20, 2005. Possession of this agent after this date carries all the same legal risks and consequences as other popular and

illegal steroids. Due to the fact that it is not a prescription drug, we also run the risk of watching it become extinct in the very near future. At best we can hope one of the enterprising veterinary drug makers in Mexico will take an interest in it. Otherwise, MHN may very well disappear back to the library shelves where it sat for decades originally.

Methyltestosterone

Androgenic	94-130
Anabolic	115-150
Standard	testosterone

Chemical Names	17b-hydroxy-17a-methyl-4-androsten-3-one 17alpha-methylandrost-4-en-3-one-17b-ol
Estrogenic Activity	high
Progestational Activity	not significant



Methyltestosterone is an orally available form of the primary male androgen testosterone. Looking at the structure of this steroid, we see it is basically just testosterone with an added methyl group at the c-17 alpha position (a c-17 alpha alkylated substance). Alkylation such as this is necessary when administering testosterone (and other steroids) orally, as without it the liver will destroy most of the steroid during the "first pass". The resultant compound "methylated-testosterone" was among the first functional oral steroids to be produced. This field of research has consequently improved greatly over the years, and today methyltestosterone is quite crude in comparison to many of the other orals that were subsequently developed.

The action of this steroid is somewhat androgenic, with a moderate anabolic effect. As is typically seen with 17 alpha methylation, the resulting steroid has lower anabolic activity than its parent testosterone. Additionally it is extremely estrogenic, another property that seems to be enhanced when this alteration is present (when the steroid is receptive to the aromatase enzyme). The problem seems to be its conversion to the more biologically active estrogen 17-alpha methylestradiol. 17-alpha methylation in fact slows aromatization, however the potent nature of 17-methylestradiol more than compensates for this. Additionally it has a very short half-life in the body, so the drug needs to be administered several times daily if a consistent blood level is to be obtained. All of this heightens the ratio of side effects to muscle growth enough to make methyltestosterone a very inefficient muscle-building drug. In order to administer an effective amount of hormone, the user simply must deal with too many estrogenic side effects, including water retention and gynecomastia, which can be very troublesome with this steroid. One may choose to addition an anti-estrogen such as Nolvadex® and/or Proviron® to combat related side effects, which should effectively minimize their intensity enough to make a cycle tolerable. The powerful anti-aromatase Arimidex® is a notably more effective option when dealing with aromatizable steroids, as it shows great ability to stop the conversion of androgens to estrogens. Using this drug with Methyltest would be somewhat ironic however, spending up to $10 per day for an ancillary drug and at most a couple of dollars for the actual steroid.

Just as we see with its parent testosterone, methyltestosterone has a high rate of conversion to DHT (in this case 17alpha-methyldihydrotestosterone). This metabolite is of course more active than methyltestosterone, and likewise responsible for many of the unwanted androgenic side effects encountered with use. Oily skin, acne, body/facial hair growth and hair loss are likewise all common with this steroid, and may present themselves very early into a cycle. Also seen with use of this compound is an increased level of aggression, an effect commonly associated with testosterone and other strong androgens. The addition of Proscar® could quite prove useful with this steroid, inhibiting the conversion of methyltestosterone into methyl-DHT in many target tissues and lowering the impact of related side effects. Avodart®, a newer and more effective reductase inhibitor, would be even better. But again, these ancillary drugs are considerably more expensive than the steroid they would be used to treat.

A strong androgen such as Methyltest obviously has little to offer female athletes except virilization symptoms. In this arena, methyltestosterone should be strictly avoided. The only time females should really be taking this potent steroid is when indicated for a specific medical application. While not a new concept, using an androgen to treat the symptoms of menopause has been catching on in recent years nonetheless. An example is the product Estratest, which contains esterified estrogens and a small amount of added methyltestosterone. This proves beneficial not only to the energy, sex drive and overall wellness of the patient, but can effectively combat osteoporosis. While estrogen replacement can only halt calcium loss in the bones,

testosterone can actually rebuild stores. This effect can restore much of the lost strength in the bones, something estrogen alone just cannot accomplish.

Being a c-17 alpha alkylated compound, methyltestosterone also places notable stress on the liver. This is further amplified when looking at the amount of drug necessary to see an anabolic effect. Those willing to use this drug for actual muscle growth ordinarily find that a daily dosage of 40-50mg is necessary (at a minimum) for acceptable results. This is quite a lot of c-17aa steroid for the liver to process, especially when comparing it to the effect seen with a much smaller amount of Dianabol or Winstrol®. One should therefore limit a cycle of this drug to no more than 6 or 8 weeks, after which a longer break should be taken from all "toxic" oral steroids. One should also be prepared for a substantial loss of mass and bodyweight at the conclusion of each cycle with Methyltest. This is due to a combination retained water being excreted, and the suppression of endogenous testosterone production during intake. A testosterone stimulating drug such as Clomid®/Nolvadex® and/or HCG is therefore used to restore hormonal balance.

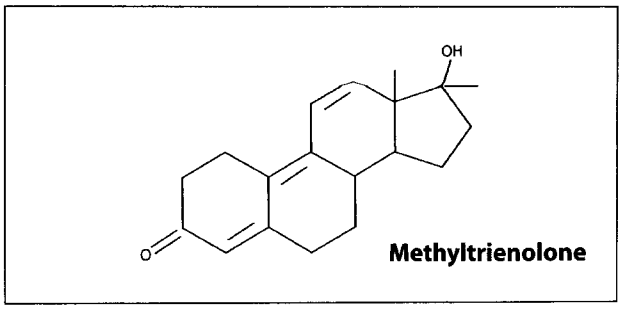
Clearly methyltestosterone is not a very advanced compound. While it is close derivative of testosterone, with potential as such, it offers us little benefit in practice. The short activity and high rate of estrogenic activity generally make this product too troublesome to use for performance enhancement. The only commonly accepted application for methyltestosterone is to stimulate aggression in the user. Powerlifters, bodybuilders and competitive athletes often attempt to "harness" this aggression, looking for extra intensity in a training session or competition. Additionally, many Methyltest tabs are designed for sublingual administration, or to be placed under the tongue and left to dissolve. These tabs can generally be identified by a pleasant tasting citrus flavor, which is most often included. Sublingual intake is an added benefit for aggression stimulating purposes, providing fast (albeit incomplete) absorption of the drug. A couple of tablets placed under the tongue before a visit to the gym can make for an intense, and possibly more productive, workout session. Aside from this, Methyltest offers little except side effects. It is quite toxic, elevating liver enzymes and causing acne, gynecomastia, aggression and water retention quite easily. Were one to tolerate these side effects, Methyltest will offer little more than poor quality (but bulky) gains. One looking for quality muscle building steroid should likewise look elsewhere.

Methyltestosterone is produced by a good number of pharmaceutical manufacturers. It is, likewise, found in a variety of countries, usually selling for an extremely low price (especially in bulk). Methyltestosterone is, therefore, a popular ingredient in many counterfeit (oral) preparations. An inexperienced buyer can easily mistake the effect of this drug for whatever is written on the label, unaware of the cheap, crude steroid actually being administered. As crude as it may be, methyltestosterone is still a controlled substance in the United States. The practice of substituting methyltestosterone is therefore much more common now outside of the U.S., where bulk purchases of raw steroid are still possible.

Although there are a number of legit preparations that might be found on the black, the only common forms of methyltestosterone these days are Teston tablets from Greece, and perhaps the newer Brovel product from Mexico. You are likely to come across this steroid only on rare occasion, and when you do will likely find these or some other legitimate product. Fakes should be even rarer, as there is little incentive to invest money in knocking off a cheap and hard to move methyltestosterone product.

Metribolone (methyltrienolone)

Androgenic	6,000-7,000
Anabolic	12,000-30,000
Standard	methyltestosterone
Chemical Names	17alpha-methyl-17beta-hydroxyestra-4,9,11-triene-3-one 17alpha-methyl-trenbolone
Estrogenic Activity	none
Progestational Activity	no data available



Methyltrienolone

Methyltrienolone is an extremely powerful anabolic steroid, perhaps one of the strongest ever produced in a laboratory. But it is also one that remains in the laboratory, far outside of commercial circles. This is therefore not a "clinical-use" steroid, but an obscure research material rarely discussed outside of the science journals. Methyltrienolone is specifically a derivative of the anabolic steroid trenbolone (trienolone), methylated to allow for oral administration. Like trenbolone, it will not aromatize, and does not have "estrogenic" properties to speak of. But this is really where the similarities between these two compounds end. Methyltrienolone may chemically differ from trenbolone only by the addition of one methyl group at C-17, as we have discussed before, this alteration changes the activity of a steroid considerably. It would be a big mistake to simply consider it "oral trenbolone".

Fundamentally, methyltrienolone is a significantly stronger and more toxic steroid than its non-methylated cousin. Its potency has been measured in animal assays to be anywhere from 120-300 times greater than that of methyltestosterone, with greater dissociation between anabolic and androgenic effects[130 131] (both traits are very pronounced). If we were to look at trenbolone as the high school bully amongst steroids, methyltrienolone would be its badass older brother that just got released from a long prison stretch. Basically, it is one tuff steroid that you really don't want to fuck with. To begin with, this steroid was built to be exceedingly resistant to breakdown by the liver. This trait does admittedly leaves methyltrienolone with a level of anabolic potency that is hard to match in a synthetic anabolic. Mg for Mg it exceeds every steroid on the market, by far, in its effectiveness, requiring doses as little as 1 milligram per day to notice a strong effect. But such high resistance to hepatic metabolism also makes this steroid terribly liver toxic. Studies published from the University of Bonn Germany back in 1966 make this very clear[132]. In fact, at this time researchers had deemed this the most liver toxic steroid to ever be studied in humans, summing up their findings well when stating:

> "Methyltrienolone... which is orally active as an anabolic agent in a dose less than 1.0 mg per day in normal adults, has been tested with regard to its influence on liver function. As measured by multiple parameters (BSP retention; total bilirubin; activities of transaminases, alkaline phosphates and cholinesterase in serum; activity of proaccelerin in plasma) methyltrienolone turned out to be very active as to causing biochemical symptoms of intrahepatic cholestasis. ...thus methyltrienolone at present being the most "hepatotoxic" steroid."

High hepatotoxicity (liver toxicity) precludes methyltrienolone from being sold as a prescription agent at this time, in any part of the world. At least amongst legitimate channels, it is used solely as a research chemical. For this purpose the agent is very well suited. Its sheer potency makes it an excellent in-vitro receptor-biding standard to compare other agents to, and being so resistant to metabolism, active methyltrienolone metabolites are not going to greatly interfere with the results of most experiments. This is somewhat of a logical problem when you think about it. Body tissues can metabolize most steroids fairly easily, which means that even incubation studies can be complicated with the question of what is causing a particular effect, the steroid or one of its unidentified metabolites. This is much less of an issue with methyltrienolone. But outside of the laboratory, it is not an agent anyone would want to recommend for human use. Being so liver toxic, it is actually one of the last steroids you'd want to take. There are many more drugs worthwhile to look at, so the risks of something like this are probably not going to be warranted.

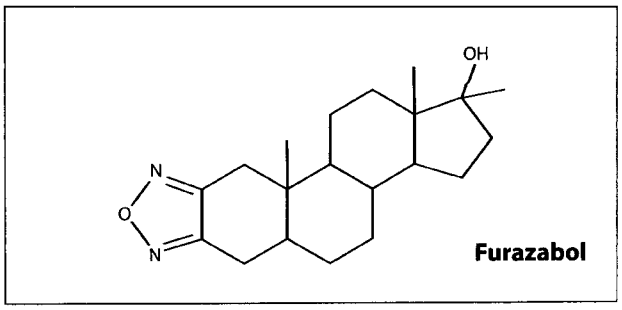
Initially I was going to include this profile only as a matter of curiosity. It is an odd but interesting steroid, and worthwhile of some academic discussion at least. However, the rapid expansion of underground steroid manufacturers over the past few years, and the potential release of this agent already as a black market designer compound, make this profile more practical than I had initially anticipated. Those

considering the use of an underground form of methyltrienolone should keep a few things in mind. For starters, it is being released for human use in such channels without any government approval or even common sense contemplation. The liver toxicity of this agent needs to be taken very seriously, and at the very least, routine blood tests should be conducted to ensure the agent is not imparting damage. Drug duration should likewise be very limited in scope, maybe no longer than 4-6 weeks at a time. After this point all methylated steroids should be avoided for a while. Its potency is also not a joke, and the agent will legitimately work in doses of as little as 1-2 milligrams per day. Dianabol-type doses of 20-30mg daily are completely unthinkable, and should never be attempted. If absolutely respected, this agent can be used to one's benefit. But again, this is one hardcore steroid, and all good advice would say to pass on it instead. Any one of the many commercially available steroids would be much safer choices.

Miotolan® (furazabol)

Androgenic	73-94
Anabolic	270-330
Standard	methyltestosterone

Chemical Names	17-Methyl-5alpha-androstano [2,3-c]furazan-17beta-ol
Estrogenic Activity	none
Progestational Activity	no data available (low)



Furazabol

Miotolan is the trade name for the steroid furazabol, which was at one time produced in Japan. Furazabol is a derivative of dihydrotestosterone, but only moderately androgenic in nature. Being DHT based this compound will also not aromatize, so estrogen related side effects such as water retention and gynecomastia are of no concern with use. It also seems to be potent as an anabolic, much more so than dihydrotestosterone. This is no doubt due to alterations in the A ring, which presumably allows the steroid structure to remain stable and bind receptors in muscle tissues long enough to provide an anabolic benefit. The gain received is reportedly not extreme however, and would more closely resemble the hard/quality growth of a non-aromatizing androgen like Masteron.

Furazabol is also shown to have little effect on endogenous testosterone levels when taken in low therapeutic doses. This is likely due to a lack of estrogen conversion; a hormone that we know produces more dramatic inhibition of testosterone production. Of course, all anabolic/androgenic steroids can interfere with normal androgen production given the right dosage, so it is doubtful this tendency will hold true at a performance-enhancing amount. There will probably still be a need for ancillary drugs such as HCG and/or Clomid®/Nolvadex® at the conclusion of a heavy cycle, used to help reestablish a balance of endogenous hormone levels.

The only prominent side effects with furazabol are those associated with its androgenic characteristics. Oily skin, acne, body/facial hair growth, aggression, and hair loss are therefore all possible. Those with a familial predisposition for male pattern baldness should probably look toward nandrolone or Primobolan before this one. Although Proscar® is used effectively to prevent the conversion of testosterone to DHT, it will offer us no benefit with this steroid. Miotolan is already derived from DHT, so its androgenic activity is not intensified by interaction with the 5alpha-reductase enzyme. We should additionally mention that furazabol is a c-17 alpha alkylated compound, and may therefore place unwanted stress on the liver. For this reason it is only to be used for limited periods, typically no longer than 6 or 8 weeks in length.

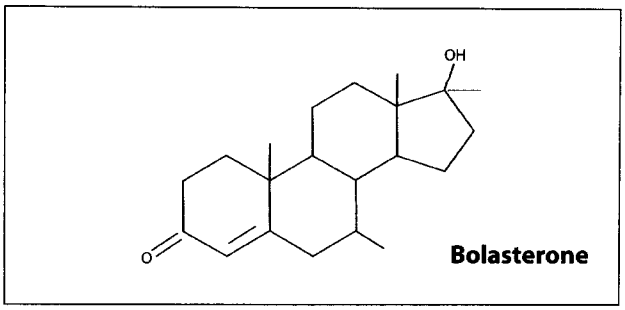
The main application for this drug is to use it when cutting or preparing for a bodybuilding competition. Here the high androgen content can help bring out an enhanced look of hardness and density to the muscle, especially in the absence of excess estrogen/body fat. Its muscle building activity could be further enhanced by the addition of a mild anabolic such as Deca-Durabolin® or Equipoise®. In this case, the combined androgen/anabolic stack should provide a noteworthy gain of solid, quality muscle mass without a loss of definition due to water bloat. We could alternately use the more potent androgen trenbolone, although here androgenic side effect will be greatly intensified. An acceptable dosage for men, regardless of application, would be in the range of 10-20mg daily (equating to 10-20 tablets). Women might tolerate Miotolan, however, its somewhat prominent androgenic side might make nandrolone a safer option in comparison.

Miotolan has not been manufactured in Japan for years, so there is little chance you will find even residual stock on the black market. With that being said, there is at least one underground manufacturer who claims to be selling legitimate generic furazabol at this time. It is, therefore, very possible this agent is on the black market again. If so, it also means the drug is being made in a legitimate manufacturing facility somewhere. This is good news to Miotolan fans, because it opens the door for other legitimate drug companies to start selling it. This is especially of interest in the West, where we have had minimal, if any, access to the former Japanese product. Until this happens, however, furazabol will remain at best an underground product, and at worst a memory. Therefore, this profile is written more out of interest than practical application.

Myagen (bolasterone)

Androgenic	300
Anabolic	575
Standard	methyltestosterone (oral)

Chemical Names	17beta-Hydroxy-7alpha,17-dimethylandrost-4-en-3-one 7,17-dimethyltestosterone
Estrogenic Activity	no data available (present)
Progestational Activity	no data available



Bolasterone

Bolasterone is a close structural relative to methyltestosterone, differing only by the addition of another methyl group at C-7. This would, of course, account for its chemical name, dimethyltestosterone. This added C-7 methyl group, however, makes the activity of this steroid so far removed from that of methyltestosterone that a comparison in any form is difficult to justify. For starters, the dual methyl groups give the steroid the ability to avoid SHBG to a tremendous extent – in the blood it exists largely in an unbound (active) state. You may remember that this is one of the same reasons mibolerone (Cheque Drops) is so potent, and effective in microgram (not milligram) doses. The C-7 methyl group also interferes with the ability of the steroid to interact with 5-alpha reductase, so despite being a testosterone derivative, bolasterone should not convert to its "dihydro" derivative in the body. This means that the steroid is technically much more anabolic than androgenic in nature. The only real similarity between the two is like methyltestosterone, bolasterone probably converts to estrogen in the body. This is evidenced by studies with 7-methyl-nandrolone, which have demonstrated that, at least in this case, the addition of C-7 methylation did not interfere with aromatization[133].

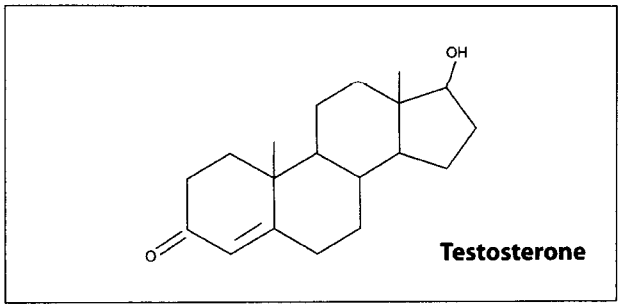
I cannot give you much information about finding the most appropriate dose to use, as I don't know anybody that has actually used this drug. With the potency of the anabolic/androgenic index data though, I suspect you would not need all that much to see a good effect. If I had to guess I would think that a dose in the range of 10-30 mg daily would probably outperform most oral steroids on the market. In terms of safety, it is difficult to think that this steroid will present any unique hazard to the user. Early clinical studies seemed to report very favorably on this compound, with no mention of specific dangers or toxicity [134] It is a C-17 alpha alkylated (methylated) oral anabolic steroid though, and as such needs to be respected for the stressful nature that all such compounds display toward the liver.

Bolasterone was discontinued worldwide long before I knew what anabolic steroids even were, and not too many people speaking about the subject today are going to be able to give you firsthand information about the drug. The few people who think they have used it are likely confusing it with a counterfeit steroid called Bolasterone (purportedly made in East Germany but actually made in a U.S. underground lab) that was circulating in the 1980's. This product was labeled to contain the real thing, but in fact turned out to be little more than an overpriced mixture of readily available and cheap injectable steroids. I do expect, however, that this ages old steroid will emerge again. The supply list from at least one Chinese steroid manufacturing company has started to include bolasterone as a bulk chemical. With the ever-growing underground steroid manufacturing business, fueled by the manufactures in China, it is only a matter of time before some enterprising individual sees the value in producing a bolasterone tablet for the black market. Perhaps it has even been done already, at least on a smaller scale. The United States Anti-Doping Agency has added bolasterone to its list of prohibited anabolic steroids, along with norbolethone, just this year (2003). This may suggest that the USADA believes bolasterone has already been used as an undetectable designer steroid.

Nebido (testosterone undecanoate)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Nebido is a new injectable testosterone preparation, first introduced to parts of the European drug market in late 2004. This steroid utilizes the very slow acting undecanoate ester, which is supplied in a concentration of 250mg/mL. You may recognize undecanoate as the same ester used in the creation of Andriol. In that case, however, we have a drug designed for oral administration, not injectable use as we have here. Nebido is a product of Schering AG, which is marketing it as a replacement for faster acting esters (such an enanthate and cypionate) in androgen replacement therapy. They are hoping that its less frequent injection schedule will make for greater patient comfort (and interest) compared to the injectable testosterones already in widespread use. This would make Nebido a drug developed under a similar focus as testosterone buciclate, which is another recently developed and very slow acting injectable ester of testosterone. Given the more widespread acceptance of androgen replacement therapy as of late, Nebido may very well become a dominant testosterone product in the years to come, especially with the support of a pharmaceutical giant like Schering.

The protocols for using Nebido (in a medical setting) differ from faster-acting injectable testosterone considerably. First, a brief "sub-loading" phase is initiated, which requires the injection of 1,000mg (4 mL) every six to eight weeks. This usually takes place for only two or three injections, after which point physiological testosterone levels can usually be maintained with one 4mL injection every 12 weeks. This would make for only four injections per year for normal androgen maintenance. This is a drastic departure from enanthate or cypionate, which usually require 22 injections per year on average. In studies using these protocols, physiological testosterone levels were well maintained, with less peaks and troughs than observed with testosterone enanthate. The only drawback is the high injection volume. However, researchers reported no adverse reactions or patient complaints regarding this during clinical trials. Considering the trade off is 18 or so fewer injections per year, I don't expect this will be much of an issue for most patients.

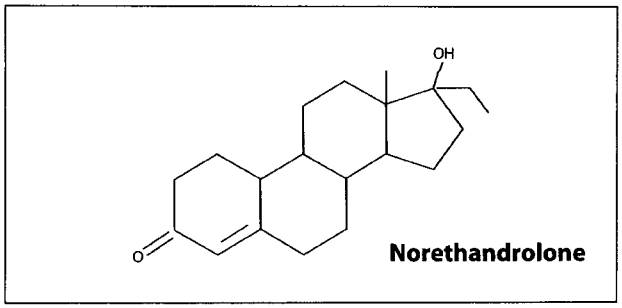
For bodybuilding purposes, the benefits of a very slow acting testosterone like this become a little difficult to see. For starters, supraphysiological (rather than physiological) hormone levels are the usual goal of use. This would require injecting the drug on a more regular basis, lowering the "comfort" factor. The most logical protocol would be to administer a 4mL injection of Nebido every 2-4 weeks, for an approximate average weekly dosage of 250-500mg of testosterone ester. At this level one could expect results (and side effects) very much in line with what would be found with all common testosterone esters, albeit with (still) a little less frequent schedule. The only real difference in effect might be its onset of action, which may be slower with Nebido. It, therefore, may be a good idea to start off any cycle with a faster acting ester, such as enanthate, cypionate, or propionate. This would allow testosterone levels to reach into supraphysiological ranges sooner, and the cycle to "kick in" a bit faster. It is also important to note that while testosterone can sometimes be tolerated by females in low doses, the extremely slow acting nature of this drug (and protracted withdrawal period) makes it an obvious poor choice.

The availability of Nebido is currently low at this time, but this is expected change as the countries approving this androgen for use increase. This drug only started rolling out in a small number of European countries in late 2004, and is expected to see much more widespread adoption in the European Union in the months and years ahead. Schering has even set its sights on the American market, recently announcing a partnership with U.S. pharmaceutical firm Indevus. Indevus has announced plans to apply for FDA approval on Nebido sometime in 2006. If all goes well, Nebido will be approved for use within a few years, which may make it the first new anabolic steroid brought to market in the United States in decades. It is a good sign to see Schering and others investing in anabolic steroids like this, as it shows their confidence in the continued expansion of the global male hormone replacement market.

Nilevar® (norethandrolone)

Androgenic	22-55
Anabolic	100-200
Standard	methyltestosterone (oral)

Chemical Names	17alpha-Ethyl-17beta-hydroxyestr-4-en-3-one 17a-ethyl-19-nortestosterone
Estrogenic Activity	low
Progestational Activity	high



Norethandrolone

Nilevar is a trade name for the oral steroid norethandrolone, developed by the pharmaceutical firm Searle in the mid-1950's. Norethandrolone is a derivative of nortestosterone (nandrolone), containing an added c17 alpha ethyl group so the molecule can withstand oral administration. The activity of this steroid is that of a mild to moderate anabolic, which is accompanied by an equally distinguishable androgenic and estrogenic component. This item was the predecessor to Anavar (oxandrolone), which was introduced to the U.S. drug market about a decade later. When comparing the quality and overall effect of the two substances, oxandrolone is considered to be notably superior to the more androgenic and estrogenic norethandrolone. This is probably why we do not see this steroid much anymore. It has been off U.S. shelves for many years now, and is currently marketed only in Australia, France and Switzerland.

Although structurally nandrolone and norethandrolone are very similar, they seem to behave quite differently in the body. For starters, androgenic side effects such as oily skin, acne and body/facial hair growth seem to be slightly more pronounced with this drug. In this regard Nilevar is usually thought to more closely resemble a steroid such as Dianabol than a mild anabolic like Deca. And since the 5-alpha reduced metabolite of norethandrolone is weaker than its parent (just as we see with nandrolone), Proscar® would offer us no benefit in reducing such symptoms (this drug is really only applicable with testosterone compounds). One might even run the risk of developing (or aggravating) a male pattern hair loss condition with Nilevar, although this steroid is admittedly still much less potent here than many stronger androgens including testosterone and Anadrol 50®. Those with a familial predisposition for baldness would still be much better served with an injectable nandrolone preparation such as Deca-Durabolin®, which is in all respects a better steroid.

And while we see a very low tendency for estrogen conversion with nandrolone, unfortunately again norethandrolone seems to have a reputation as a much more estrogenic steroid. This is likely due to the fact that it converts to a more biologically active form of estradiol, 17alpha-ethyl-estradiol, instead of regular estrogen. A similar problem is noted with Dianabol, which is much more troublesome than its non-alkylated cousin boldenone. Excessive water retention is the usual result with norethandrolone, producing an unsightly smoothness and loss of definition to the physique. In addition, the extra estrogen can also lead to the development of gynecomastia very quickly. It may therefore be advisable to include an anti-estrogen such as Nolvadex® and/or Proviron® from the start of a cycle, in order to keep these side effects to a minimum. We also have the option of using the antiaromatase Arimidex®, which is a much more effective remedy. It will efficiently stop the compound from converting to estrogen, essentially halting related side effects. The high selling price for this product makes it quite costly to use however, especially when we are taking it to treat the effects of what is considered to be a cheap and crude oral steroid.

Norethandrolone will also suppress endogenous testosterone production quite readily with use. This may be a result of not only its androgenic and estrogenic activity, but its action as a progestin as well. As mentioned when discussing Deca-Durabolin®, 19-norandrogens are often shown to exhibit some affinity for the progesterone receptor. This tendency seems to be notably heightened in Nilevar, and contributes not only to its ability to suppress testosterone production, but also its propensity to induce fat storage and gynecomastia (side effects normally associated with estrogen). In order to help restore hormonal balance after each cycle a combination of HCG and Clomid®/Nolvadex® may prove very useful. While HCG

is not always indicated with many of the milder anabolics, the strong suppressive nature of norethandrolone makes having this drug on-hand almost a necessity (especially for those inclined to notice testicular atrophy during steroid intake).

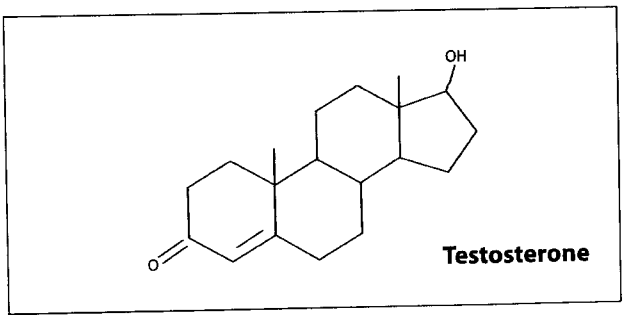
Clearly Nilevar cannot be looked at as an oral alternative to Deca-Durabolin®, as this compound is much more troublesome. The increased tendency for estrogen conversion (when possible) and lowered anabolic effectiveness that results when a steroid is 17-alpha alkylated make norethandrolone very inefficient for building muscle. In administering an effective amount of steroid in terms of muscle growth, the user has to deal with much more in terms of side effects compared to nandrolone. The accumulation with norethandrolone is also going to be bloated mass, and not the quality muscularity we associate with Deca. A notably more pronounced strength increase may result with this substance, not doubt partly due to the extra fluid retention. The androgenic component also makes this steroid a less than ideal choice for women, who would be better served by an injectable nandrolone such as Durabolin® (nandrolone phenylpropionate).

Those who find an interest to take Nilevar most commonly find a daily dosage of 30-40mg (3-4 tablets) is needed to receive an anabolic effect. In order to keep blood levels more constant, the tablets are also taken in divided doses (spread evenly throughout the day). As mentioned, norethandrolone is a c-17 alpha alkylated steroid in order to make oral dosing possible. Although a methyl group is typically used for this purpose with anabolic/androgenic steroids, in this case the steroid carries an ethyl substitution (just as we see with Orabolin). This is just as stressful to the liver of course, so the length of each cycle best kept to a minimum to avoid any serious damage. A logical duration would probably be no longer than 6 to 8 weeks, after which a longer break (from all related oral compounds) should be taken.

Although this steroid is sometimes circulated in Europe, it is not commonly found in the U.S. The demand for it is quite low, so large volume steroid dealers are not very interested in importing it. The only exception as of late seems to be the Jurox item **Anaplex** from Australia. This has been readily exported from Australia to Mexico, and thereafter has been reaching the States. As a result many athletes have been experimenting with this steroid recently, but admittedly it still does remain relatively unpopular on the black market. Although Anaplex is quite inexpensive compared to the older French Nilevar, one should not be tempted to use excessive dosages for a stronger anabolic effect. The level of estrogenic side effects and strain placed on the liver are certainly to be compounded as the dosages go up, making such a practice less than worthwhile in terms of gain vs. side effects. Dianabol is clearly a better alternative as far as orals go, and as already mentioned Deca-Durabolin® is a much more tolerable option in terms of a nandrolone.

Omnadren® (testosterone blend)

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Contains:

30mg testosterone propionate
60mg testosterone phenylpropionate
60mg testosterone isocaproate
100mg testosterone caproate

Omnadren 250 is an oil-based injectable containing a blend of four different testosterone esters: testosterone propionate, phenylpropionate, isocaproate and caproate. Being a four-component testosterone, Omnadren is most commonly compared to Sustanon. While it does contain testosterone propionate, testosterone phenylpropionate and isocaproate in the same strength as Sustanon, the last ester is different. Please note however, that the older versions of Omnadren list isohexanoate and hexanoate as the final two ingredients. Hexanoate is simply another work for caproate, so the last ester (decanoate) is the only Sustanon constituent missing from Omnadren.

One of the only noticeable differences between Sustanon and Omnadren seems to be the speed in which estrogen buildup occurs. In comparison, the process appears to be slightly more pronounced with Omnadren. This is of course just a matter of timing, as the slowest releasing ester in Omnadren (caproate) is a little faster acting than enanthate. Blood testosterone levels will therefore peak much faster with this compound, not having the same gradual release time imposed by testosterone decanoate. Users likewise report water retention much earlier into a cycle. While water retention may lead to a more rapid buildup of size and strength, it can become pronounced enough to cause a very smooth and watery look to develop (hiding muscle definition). In addition, the excess estrogen is likely to cause the development of gynecomastia. This effect is especially pronounced with Omnadren, usually presenting itself quickly after a cycle has been started. Estrogen can also be responsible for increases in body fat storage during treatment, resulting in a further loss of definition. Individuals who are sensitive to the effects of estrogen, yet still seek the power of a testosterone, would therefore need to addition an anti-estrogen such as Nolvadex® and/or Proviron®. Arimidex®, a powerful anti-aromatase, is another option available to us. Although very costly, this drug works much more efficiently than any other anti-estrogen in use by athletes. It would have great use with such a strong item as Omnadren, as the standard remedies would not be quite as effective.

Being a testosterone, one can also expect the typical set of androgenic side effects. Oily skin, acne, body/facial hair growth and increase aggression are all very common with this product. It can also bring out or aggravate a condition of male pattern baldness. Men with a familial predisposition for hair loss should probably avoid this item. We do however, have the option to addition Proscar® (finasteride). This is a drug that can effectively prevent testosterone from converting into DHT (dihydrotestosterone) in certain androgen target tissues. Since DHT is the primary culprit with testosterone's androgenic side effects, adding Proscar® to the cycle should allow it to be much more comfortable. Omnadren is also likely to suppress endogenous testosterone production rather quickly. It is therefore almost a necessity to add a testosterone stimulating drug like HCG and/or Clomid®/Nolvadex® when concluding therapy. This way we can prevent a retracted period of unbalanced hormone levels, hopefully avoiding a "crash" after the steroids have been removed.

Being a powerful, long acting testosterone blend, the effect of Omnadren is of course quite comparable to that of Sustanon (except that its release time is closer to cypionate or enanthate). It is similarly a powerful androgen, capable of providing great gains in mass and strength. Due of the high level of water retention associated with testosterone, Omnadren is really only applicable for bulking purposes. While it is very effective alone, it is also combined often with a number of other steroids depending on the desired result. Many athletes prefer to combine Omnadren with a strong anabolic like Deca-Durabolin® or Equipoise® for example, in

an attempt to lower the overall testosterone dosage and run a more quality mass building cycle. On the other hand, power-lifters and those looking for dramatic gains in mass and strength (regardless of quality) may stack Omnadren with heavy orals such as Anadrol 50® or Dianabol. Here of course the strength and weight gain should be even more extreme, although androgenic/estrogenic side effects are expected to be as well.

Although Omnadren stays active in the body for about two weeks, it is generally injected on a weekly basis. A dosage of 250-750mg (1-3 ampules) per week is more than sufficient to achieve great results. Some take advantage of the very low price of Omnadren (Europe) and take excessively large amounts. Beyond 750mg or 1,000mg weekly added side effects will no doubt be greatly outweighing growth, so there is usually little need for such excess. With this drug we really don't want to mistake water bloat for muscle growth. And while a number of adventurous women do experiment with testosterone products, Omnadren is probably not a good choice. The long action of this compound, mixed with the highly androgenic nature of testosterone, makes a poor combination. Virilization symptoms can develop quite easily with a strong androgen, making a long acting product like Omnadren notably dangerous should problems become evident. Testosterone propionate is a much better choice should an androgen like this be absolutely necessary, as it will give the user much greater control over her blood testosterone level.

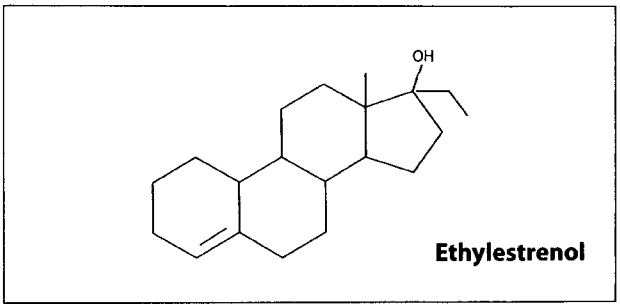
Due to the extremely low price for this drug in Poland, Omnadren is made readily available on the black market. Among bodybuilders, Omnadren is generally considered to be inferior to Sustanon however. Price may have something to do with this belief, as this drug is generally much cheaper than Sustanon on the black market. It is likewise usually pushed when availability of (or money for) Sustanon is short. Realistically the two are interchangeable, and I would suggest going for whatever one is providing the most testosterone per dollar. In most cases this will turn out to be testosterone enanthate, and not a blended product. Still, Omnadren remains a good product, and is usually found for a good price. At this point counterfeits are not a major concern, but they are definitely out there. Best advice would be to purchase this product only when it is properly packaged in its box. This will weed out a good majority of the fake loose ampules in circulation.

Take note to look for the newer style packaging, which has a pink box that opens up in the front to reveal a row of ampules neatly sitting inside. Be careful though, as there are already fakes of the newer style box in circulation, and some of these fakes are extremely difficult to spot. All basic details are the same on these counterfeits, barring only a couple of slight inconsistencies. You will need to examine your product carefully. For starters, the real box has a barcode that ends in the numbers 9312. One popular fake has a barcode that incorrectly ends in 931P; avoid. Also, take out a ruler and measure one of your ampules. Real Omnadren uses an ampule that measures 5 centimeters in height. We've seen some very nice fakes (currently circulating in high volume) that measure about 4.5cm. Their short stature is a dead giveaway. If you did not know the correct measurement, however, you'd probably think they were legit.

Orabolin® (ethylestrenol)

Androgenic	20-400
Anabolic	200-400
Standard	methyltestosterone (oral)

Chemical Names	19-Nor-17alpha-pregn-4-en-17b-ol 17alpha-ethly-estr-4-en-17b-ol
Estrogenic Activity	low
Progestational Activity	low to moderate



Ethylestrenol

Orabolin® is a trade name for the oral anabolic steroid ethylestrenol. This compound is manufactured by the international drug firm Organon, and was once available in the United States under the name Maxibolin. This drug was phased out many years ago however, in a wave of growing disinterest toward anabolic steroids. Today this steroid is a rare find, as it is only manufactured a few countries. The compound ethylestrenol is structurally similar to the anabolic steroid nandrolone (19-nortestosterone), although here the design is that of an oral steroid. This is the reasoning behind its given trade name of Orabolin, as this is the compressed appearance of "Durabolin®-Oral". It was first marketed (obviously) as an oral alternative to the injectable compound Deca-Durabolin®.

Similar to Deca, Orabolin is classified as an anabolic with mild androgenic properties. It aromatizes only slightly, so estrogen related side effects are rarely a concern. Water retention and gynecomastia are likewise not common occurrences, even when sensitive individuals take this drug. Androgenic side effects are also extremely slight with Orabolin, so one should not be concerned with hair loss and acne (etc.) unless unusually high doses are taken. This compound is actually well tolerated by women, who were actually a main focus of its design. Virilization symptoms are therefore highly unlikely, again barring the use a high daily dosage. Also of note is that ethylestrenol is a c17 alpha alkylated compound, containing the same ethyl substitution we see with the oral steroid Nilevar. Administration may therefore place some level of strain on the liver, particularly when it is taken for longer periods of time. Those who take this compound would be best served by remaining conservative with the daily dosage, and limiting intake to no more than 6 to 8 weeks.

The comparison of Orabolin to Deca-Durabolin® is really not a fair one in a practical sense. While clinically the relationship is clear, athletes find the action of Orabolin to be worlds apart from Deca. The fundamental difference is that the activity of ethylestrenol is tremendously weaker in comparison. When we look at Deca, we see a drug with a distinct anabolic and (lesser) androgenic tendency. It is likewise an efficient compound for muscle buildup. But the extreme mildness of Orabolin makes its anabolic activity very slight. This is clearly not due to poor bioavailability, as c17 alpha alkylation will efficiently protect the structure from first-pass metabolism. Ethylestrenol simply has a low tendency to bind with the androgen receptor, and therefore requires higher amounts to receive any type of notable anabolic response. In fact structurally ethylestrenol much more closely resembles Nilevar (norethandrolone) than nandrolone. The two differ only by the absence of an oxygen atom at the c3 position of ethylestrenol, and in the body Orabolin actually has some affinity to convert to Nilevar[135]. This path of metabolism may be responsible for some of the androgenic activity, and estrogenic buildup, we see with this compound.

Overall the level of muscle growth obtained with ethylestrenol should be much less noticeable than that expected with either Nilevar or Deca-Durabolin®. It is even weaker than both Winstrol® and oxandrolone on a milligram for milligram basis, this drug likewise gathering little attention with athletes. The only group that usually finds an appreciation for Orabolin is female athletes, who find the mild nature of this drug quite favorable when wishing to avoid the virilizing side effects of steroid use. Here it may actually be a better option than an injectable nandrolone preparation, as blood hormone levels are obviously much easier to control with an oral steroid. While Nilevar may be too androgenic to recommend for this purpose, Orabolin seems to fit the build quite nicely.

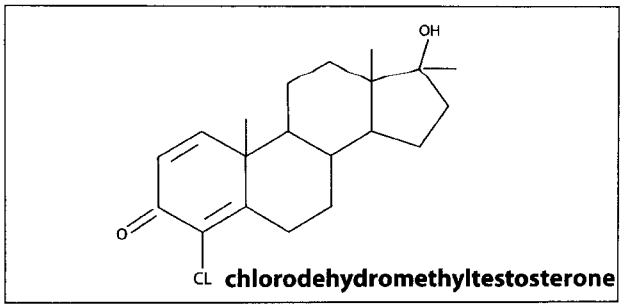
Experienced steroid users (especially men) will again most likely be disappointed with the effect of Orabolin. Those who have experimented with this compound have generally found that a considerable amount of tablets are needed for a noticeable benefit. The recommended dosage for an athlete is therefore in the range of 20-40mg (10-20 tablets) per day for men and 12-16mg (6-8 tablets)

for women. Men can up this dosage a bit more (supply provided) for added effect, but it will be accompanied by an increased intensity of estrogenic side effects (and of course level of strain placed on the liver). As with most of the "mild" steroids, it is usually much easier to just addition a second steroid to enhance the effect of therapy with this drug than it is to keep raising the dosage. For men, the effect of Orabolin is really two week for it to be used alone effectively, so stacking is probably a very good recommendation. Women can use it alone to good benefit, but should begin to worry about androgenic activity if the dosage goes above 8 tablets.

Since the demand for Orabolin is so low, it does not make its way to the black market very often. When found it is usually not the Organon brand name, which may even be nonexistent at this point, but one of a couple Australian veterinary preparations. The only solid tablet from this country is in fact the .5mg **Nandoral**, made by Intervet. When found this can probably be considered a safe buy, but then again its pitiful dose would make it a very poor choice next to just about any other available steroid. The cost just to use en effective amount would have to be absurd. The oral paste, **Nitrotain** by Nature-Vet, would be a much better choice (if you don't mind eating a mouthful of paste every day). It should also be noted that in Mexico, the drug preparation Maxibol is sometimes confused with the old American preparation Maxibolin. This is purchased in the belief that it is a steroid, a notion commonly enforced by unscrupulous pharmacy workers. Mexican Maxibol is in fact a vitamin supplement, containing only a coenzyme of vitamin B-12.

Oral Turinabol (4-chlorodehydromethyltestosterone)

Androgenic	n/a
Anabolic	>100
Standard	methyltestosterone (oral)
Chemical Names	4-chloro-17a-methyl-17b-hydroxyandrosta-1,4-dien-3-one
Estrogenic Activity	none
Progestational Activity	no data available (low)



chlorodehydromethyltestosterone

Oral Turinabol is an anabolic steroid developed and made famous by scientists in East Germany years ago. Actually, this is more a steroid of infamy actually, as it was one of the closely held secrets inside the "East German Doping Machine". I am referring to a state sponsored doping program, called "State Plan 14.25", that operated in East Germany for a period of time between the 1960's and 80's. It was an aggressive anabolic steroid administration program, designed with one goal in mind: cheating the Olympic drug test. In many cases, the Olympic athletes, both male and female, were unwitting participants, simply told by their trainers and coaches that they were being given "vitamins". Many of these blue vitamins turned out to be Oral Turinabol, a potent and undetectable (at the time) anabolic steroid. As many as 10,000 unsuspecting athletes were given anabolic steroids during the time the program was active. For a more in-depth look at this dramatic historic event, including the trials of several former East German officials for their participation, I recommend you look at the book "Faust's Gold: Inside the East German Doping Machine" by Steven Ungerleider.

OT, as it is called, is a potent derivative of Dianabol. It is structurally a cross between methandrostenolone and clostebol (4-chlorotestosterone), having the same base structure as Dianabol with the added 4-chloro alteration of clostebol. This makes OT a "kinder, gentler Dianabol", the new steroid displaying a much lower level of androgenic activity in comparison to its more famous counterpart. Its anabolic activity of chlorodehydromethyltestosterone is somewhat lower than that of Dianabol as well, but it does maintain a much more favorable balance of anabolic to androgenic effect overall. This means that at any given level of muscle-building activity, OT will be much less likely to produce the classic androgenic side effects such as oily skin, acne, aggression, and male-pattern hair loss (if genetically prone) than would Dianabol.

The 4-chloro attachment used with this steroid also inhibits its ability to be aromatized. Therefore, OT is not going to present its user with unwanted estrogenic side effects like water retention, increased fat deposition, or gynecomastia. While Dianabol tends to produce puffiness and a little fat retention in its users, which hides muscle definition, the exact opposite effect usually happens with OT. OT tends to promote gain in lean tissue mass, accompanied by an increased look of density, hardness, and definition due to the intensified androgen to estrogen ratio. For bodybuilding purposes, this makes OT a great pre-contest or cutting steroid, not really a bulking agent of choice. Athletes in sports where speed tends to be a primary focus would also find favor in OT, obtaining a strong anabolic benefit without having to carry around any extra water or fat weight.

When this drug was available in Western Europe, the typical daily dosages used by men were in the rage of 20mg to 40mg. Women would get by on less, usually a single 5mg tablet. That is, unless you were an East German female Olympic swimmer, in which case you could have been swallowing as many as 30 tablets per day (we can understand why long-term virilizing side effects were reported over and over again in the "doping trails"). When used in the recommended dosing levels, OT definitely proves itself as a potent lean tissue builder. Again, it will provide less overall muscle bulk than Dianabol, but with its lack of estrogen conversion, the gains obtained with OT, even if smaller in total, are visibly of better quality. Although there is a clear relationship between OT and Dianabol when it comes to molecular structure, ultimately it would be much more appropriate to be comparing the activities of this steroid to those of other mild, non-aromatizing anabolics like stanozolol, oxandrolone or methenolone.

For a long time the only known preparation of OT to ever circulate on the black market were the 5mg tabs from Jenapharm in Germany. It was one of the fringe benefits of the post-Berlin Wall reunification. This product was sold in foil and plastic strips of 10 small blue oval shaped tablets each. Twenty tablets (2 strips) came packed in each box. The **Jenepharm** product lasted a little longer than the public doping scandal over its use in the former East Germany, and for more than a decade chlorodehydromethyltestosterone was officially extinct.

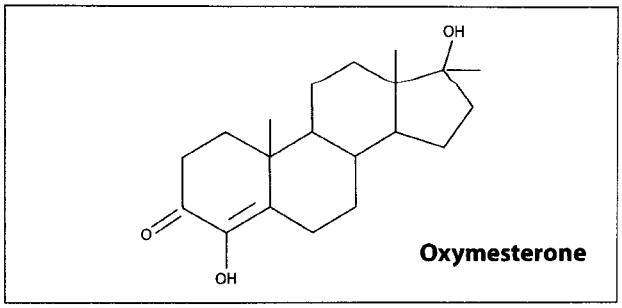
British Dragon in Thailand produces this steroid under the brand name of **Turanabol**. The product comes in the form of 10mg small pink square tablets, with "BD" stamped into one side and "10" in the other. The tablets are scored, so as to be broken easily. The product is sold in pouches of 500 tablets each. The pouches themselves should carry a BD security hologram sticker (*see: Security Stickers*), and will have the company logo printed on the back side. The pouch will also open to reveal a silica gel packet (to preserve tablet freshness), which is also printed with the company logo.

In addition to British Dragon, there are several underground manufacturers selling this steroid as well. A current popular item is produced by **Generic Supplements** in Western Europe. Here, 100 tablets are packed in a small white plastic bottle. I have seen lab tests on this line before, and feel comfortable that the product will be accurately dosed.

Oranabol (oxymesterone)

Androgenic	50
Anabolic	330
Standard	methyltestosterone (oral)

Chemical Names	4-hydroxy-17a-methyltestosterone 4,17-dihydroxyandrost-4-en-3-one
Estrogenic Activity	none
Progestational Activity	none



Oxymesterone

Oranabol (oxymesterone) is a potent synthetic derivative of the anabolic steroid 4-hydroxytestosterone. The then well-known Italian drug manufacturer Societa Farmaceutici Italia first investigated it back in the late 1950's. They filed patent for this compound around the same time, in at least three countries including the United Kingdom, the United States, and Italy[136]. This drug saw limited clinical use as a prescription agent under the Oranabol brand name in Spain and Italy, and under the names Anamidol, Balnimax, and Theranabol in other countries including Japan, the UK, and the Netherlands. Oxymesterone has been unavailable as a prescription drug worldwide for more than three decades now, and was never released in the United States. At very best I would guess that only a small handful of U.S. athletes have been lucky enough to experiment with this obscure anabolic steroid over the years, and certainly very few in recent times.

By the 1990's, oxymesterone had already become a forgotten relic of early steroid development. If you asked around, nobody would probably have been able to remember what this drug was, let alone how well it worked with bodybuilders and athletes. In all this time there was only one isolated mention of its use in the medical literature. The drug showed up in a report released in 1993 by the department of Clinical Pharmacology and Toxicology at St. Vincent's Hospital in New South Wales, concerning two young football players who died of cardiac events in 1988 and 1990. The two men, whom had unobstructed arteries and were only 18 and 24 years of age [137] died during routine training sessions. Despite never being offered for sale in Australia, and having been removed from the global market long before 1988, oxymesterone had been detected in the men during autopsy. No conclusive link between the drug and their deaths was established. There is nothing else in the medical literature to suggest that this steroid is of any particular danger, and little that we can infer from this paper except that oxymesterone was likely being used widely as a designer steroid in the Australian Football league. Although steroid abuse may have been a contributing factor in the deaths of these men, it seems illogical to conclude that Oranabol was the cause.

In regards to its structure, oxymesterone differs from 4-hydroxytestosterone only by the addition of a c-17 alpha methyl group. This essentially makes Oranabol the "Methyltest of hydroxytestosterone". This analogy may not be 100% fair, however. The word methyltestosterone conjures up some fairly negative impressions. It is looked upon as sort of the rotten stepchild of testosterone, with behavior that is quite offensive compared to its non-methylated parent. It is always causing trouble with water bloat, gynecomastia, and a poor overall ratio of results to side effects. For many it is nothing more than a failed attempt to make an oral testosterone. Oxymesterone, fortunately, does not share in methyltestosterone's failures. Just like its non-methylated analog hydroxytestosterone, oxymesterone remains an effective lean-tissue-building steroid with only a minimal to moderate androgenic component. It has no estrogenic or progestational activity, and no ability to cause side effects related to these female hormones. Overall, Oranabol is a "clean" drug amongst oral steroids: potent, non-aromatizable, and primarily anabolic in nature.

As mentioned already, oxymesterone does not convert to estrogen. The 4-hydroxyl group present on this steroid inhibits the process of aromatization. In fact, when applied to testosterone (as in hydroxytestosterone) a suicide aromatase inhibitor is created, capable of significantly suppressing serum estrogen levels. It is unknown if this property exists in Oranabol, as this potential aspect of its behavior has never been investigated. Its non-estrogenic and non-progestational profile would support, at the very least, this being a steroid for increasing muscle density and visibility, regardless of a related aromatase inhibiting effect. This steroid's 4-hydroxylation also prevents 5-alpha reduction, an activity that otherwise would allow this

steroid to be considerably androgenic. Oxymesterone is a lot milder than its monstrosity of a chemical name (4-hydroxy-17-alpha-methyltestosterone) might at first suggest. Again, this is ultimately a cutting anabolic much more than it is a bulking androgen like testosterone, Dianabol, or Anadrol, ideal for precontest use or incorporation into lean-mass building stacks. Of course as a potentially active aromatase inhibitor, this agent may stack well with other aromatizable "bulking" steroids as well.

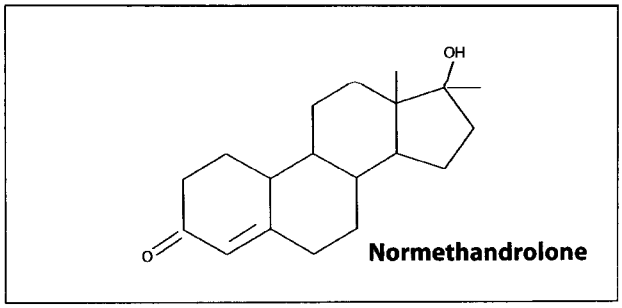
When it comes to other safety issues, we need to remember that oxymesterone is going to behave in many regards like a typical methylated oral anabolic steroid. It carries some risk of liver toxicity due to the c-17 alpha alkylation, and should be respected as such. Drug duration of alkylated orals is usually kept under eight weeks or so, in an effort to minimize the chance that a significant level of liver toxicity will be reached. This steroid also has the same potential to cause androgenic side effects found in all steroids, and as such is not immune from causing oily skin, acne, or aggravated hair loss (if you are genetically prone). It may be milder than many other steroids, but it is not completely benign in this regard. No agent is. As a steroid that potentially has an intrinsic aromatase-inhibiting effect, women should also take extreme caution with its use. If this trait holds true, oxymesterone might act as more than just a mild anabolic. It may indeed precipitate the uncomfortable menopausal-type side effects that can befall women when they suppress their estrogen levels.

According to the standard laboratory assays, methyl-hydroxytest is over three times more anabolic than methyltestosterone on a milligram for milligram basis. This is a considerable difference, but not quite the extreme potency we see with some of the other recent methylated steroids we've seen released like methyl-1-testosterone, methyldienolone, and methylhydroxynandrolone. Therefore, we would see more "normal" doses used by male bodybuilders with this drug, who would typically find 10-20mg per day to provide a very measurable benefit. At this level one should be seeing formidable strength gains, increased fat loss, increased muscle definition, and an overall increase in lean tissue mass. This drug would further stack well with a variety of other steroids, especially a 400-600mg per week dose of an injectable base like testosterone or Equipoise® during bulking phases of training, or a milder anabolic like Deca-Durabolin® or Primobolan® for cutting and defining. All of these stack combinations should work extremely well, and would not add to the moderate liver toxicity already present in oxymesterone.

Despite being an effective steroid, oxymesterone has just never been a widely available one. This agent has not been available as a prescription drug in over 30 years, so there is little chance you are going to run into one of the old European products. It is possible that one of the international steroid manufacturing companies might decide to add it to their lines one day, given the recent trend of searching out novel old compounds for re-release. Personally, I think this would be very interesting to see, given how extremely rare this drug is, and how decent it looks on paper. Perhaps over the next few years we will see a number of old steroids make a comeback on the international steroid market. If so, there are not a large number of drugs that I would place in front of this one as compounds of great interest. However, short of this happening, oxymesterone will remain a drug of myth and conjecture for today's steroid user.

Orgasteron (normethandrolone)

Androgenic	325-580
Anabolic	110-125
Standard	methyltestosterone (oral)
Chemical Names	
Estrogenic Activity	moderate
Progestational Activity	high



Normethandrolone

Normethandrolone is a potent oral derivative of nandrolone, which was sold by the international drug firm Organon decades ago. Organon had marketed it under the Orgasterone brand name in Belgium and Switzerland, and as Orga-steron in the Netherlands. This steroid had also been sold by other manufacturers in various parts of Europe as Methalutin, Lutenin, and Matdonal. Normethandrolone first appeared in the medical journals during the 1950's, where it was being researched for a variety of uses including the treatment of painful menstruation in women. Despite having many potential clinical uses (though perhaps uses that are not unique to this steroid), this agent did not last long on the global drug market. Organon and other manufacturers began discontinuing its sale not very long after market introduction, and today this steroid is all but a vague memory amongst bodybuilders.

This steroid is relatively simple in a structural sense, which is probably no surprise given how early it was created in the history of steroids. Normethandrolone, which may also be called methylnandrolone or methylnortestosterone, can crudely be looked at as the "methyltestosterone of Deca". It differs from its parent hormone nandrolone only by the addition of c-17 alpha alkylation, the same alteration that separates methyltestosterone from testosterone. This, of course, was added to make oral dosing viable, a job which it does very efficiently. Studies looking at the oral potency of this steroid rate it to be roughly 3-6 times more anabolic than methyltestosterone, while possessing only roughly 10-25% more androgenicity[138] [139]. The overall anabolic-androgenic ratio of this steroid falls somewhere between 3:1 and 5.5:1, which is a considerable separation. In this case, methylation seems to have accomplished exactly what it was expected to. The relative character of the steroid (in an anabolic/androgenic sense) is loosely retained, and the agent may be effectively administered as an oral where it could not before.

Although it is effective orally, normethandrolone is not the most idea steroid for bodybuilders, at least where lean mass is concerned (something Deca is highly favored for). Like methyltestosterone, this drug is a good example of an early steroid that looks relatively crude next to later advancement in the field. One reason is the effect 17-alpha methylation has on the progestational nature of nandrolone. Nandrolone already has progestational activity, a side of this steroid that can sometimes make it problematic (progestins can exacerbate, sometimes mimic, the side effects of estrogens). When we add a c-17 methyl group to nandrolone, progesterone receptor binding is significantly enhanced[140]. In fact, it was assayed to be more active of a progestin than progesterone[141]. Some early studies even refer to this agent as a progestogenic (progestational) compound with anabolic action, not directly as an anabolic/androgenic steroid. In effect, we are beginning to see the same thing we do when we methylate testosterone; potency and side effect potential both seem to be enhanced.

To make things a little bit worse, nandrolone also aromatizes. This occurs at a much slower rate than we see with testosterone, so this tendency of Deca's usually isn't much of a problem for the average user. However, it is still there. Once we methylate nandrolone, this characteristic starts to come out with more ferocity. The rate of aromatization is actually reduced with c-17 alpha alkylated steroids[142], but the more potent estrogen 17a- methylestradiol is produced. Methylestradiol is more active than regular estradiol because it resists metabolism and exists in a more free state (less binding to serum proteins). So even though we have less estrogen, we get far more estrogenicity. It took me a good deal of time to research and explain this tendency among methylated steroids. I knew the same type of situation occurred with boldenone, and it bugged me for years. Just for reference, boldenone (which doesn't produce much estrogen either) becomes the notably estrogenic steroid Dianabol when methylated. Dianabol is tolerable, but

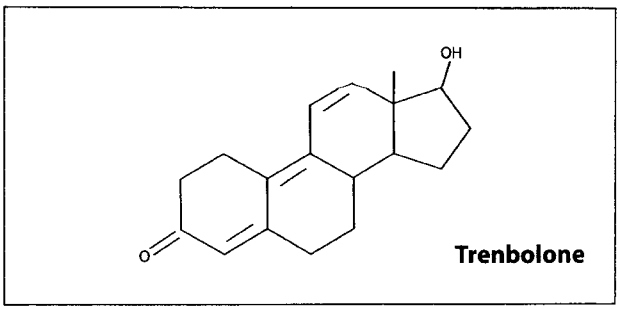
still nothing like boldenone. Combine the strong progestational nature of normethandrolone with aromatization to methylestradiol, and we have a decently estrogenic agent (perhaps one that you would not find tolerable). At the very least, expect the use of this agent will be accompanied by water and fat retention, and even gynecomastia if you are sensitive to it.

Being a fairly potent compound, normethandrolone should be effective in comparatively small doses. This would land somewhere between 5mg and 20mg per day (men), depending on the use of other compounds and/or desired results. Women can get by on much less, of course, perhaps beginning with only 1-2mg daily. This compound should probably be used exclusively for bulking phases or training, as its progestational and estrogenic nature will undoubtedly work against fat loss and muscle definition when trying to cut. Used alone, one can expect to see decent gains, something perhaps in line with a Dianabol cycle (but with a seemingly more noteworthy estrogenic side to it). Again, related side effects such as increased fat gain and bloating are likely, and can be reduced with concurrent use of an anti-estrogen such as Nolvadex or Clomid. Hepatotoxicity should always be a concern with use, and for this reason cycles should be kept limited in length (perhaps 6-8 weeks). Jaundice (bile duct obstruction) was reported as early as 1958 with this steroid[143] be safe, it would be good advice to get your liver enzymes done at least once or twice while using.

Much of the information presented here is going to be of little practical value to the average reader, as Orgasteron is long gone now and no commercial preparations containing normethandrolone are known to exist. Still, we are in the age of the global steroid community, designer steroids, and obscure research chemicals. I know normethandrolone is being synthesized overseas, and undoubtedly is circulating in the U.S. in small amounts. Perhaps in the future we will even see underground or veterinary versions of the drug. Should you find access in any form, make sure you treat this steroid with the same legal care that you would other illegal steroid products. Despite never being commercially sold in the U.S., normethandrolone was added to the controlled substances laws in 2004 as a Schedule III anabolic steroid. As such, possession, even for "research purposes", is now illegal without a DEA license. It is not available by prescription either, so possession will be very difficult to defend. Given that this is still a relatively "crude" steroid with virtually no demand for it, I don't expect we will see a big future for it on the black market. But anything is possible.

Parabolan® (trenbolone hexahydrobenzylcarbonate)

Androgenic	500
Anabolic	500
Standard	nandrolone acetate
Chemical Names	17beta-Hydroxyestra-4,9,11-trien-3-one
Estrogenic Activity	none
Progestational Activity	low to moderate



Trenbolone

Parabolan® is the former French brand name for trenbolone hexahydrobenzylcarbonate, a rarely seen injectable ester of the anabolic steroid trenbolone. Negma in France produced Parabolan until its voluntary discontinuance in 1997. For some time after, there was no real Parabolan preparation to be found on the black market (although to this day you can still find counterfeits of the former French product). That, however, is no longer the case, and this steroid is indeed being sold again through other manufacturers. You may associate the base steroid in this product, trenbolone, with the long deceased Finajet. Finaject was a veterinary steroid that was popular in the United States during the 1980's, which contained trenbolone acetate. This is a much faster acting form of trenbolone than we have present in Parabolan, but otherwise they are the same (*see: trenbolone acetate*). Parabolan contains the long acting ester hexahydrobenzylcarbonate instead, which extends the activity of the drug for more than two weeks. This form has always been thought of as more suitable design for human use, due to the need for less frequent injections. Original French Parabolan was packaged only in ampules of 1.5mL, one ampule per a box. Each ampule contained 76mg of trenbolone hexahydrobenzylcarbonate, which is equivalent to 50mg of trenbolone base (French drugs commonly make this calculation). Since it is no longer available, however, it is pointed out for reasons of interest only.

Trenbolone is a very potent androgen with strong anabolic activity. It is well suited for the rapid buildup of strength and muscle mass, usually providing the user exceptional results in a relatively short time period. The anabolic effect of this drug is often compared to popular bulking agents such as testosterone or Dianabol, with one very important difference. Trenbolone does not convert to estrogen. This is indeed a very unique compound since mass drugs, almost as a rule, will aromatize (or cause other estrogen related troubles) heavily. When we think of taking milder (regarding estrogen) steroids we usually expect much weaker muscle growth, but not so with Parabolan. Here we do not have to worry about estrogen related side effects, yet still have an extremely potent mass/strength drug. There is no noticeable water retention, so the mass gained during a cycle of Parabolan will be very hard and defined (providing fat levels are low enough). Gynecomastia is also not much of a concern, so there shouldn't be any need to addition an anti-estrogen if trenbolone is the only steroid administered.

The high androgen level resulting from this steroid, in the absence is excess estrogen, can also accelerate the burning of body fat. The result should be a much tighter physique, hopefully without the need for extreme dieting. Parabolan can therefore help bring about an incredibly hard, ripped physique and is an ideal product for competitive bodybuilders. This is of course no secret, and when available on the market, Parabolan was the most sought after contest preparation drug. Now this it is no longer produced, acceptable substitutes for this purpose include of course veterinary trenbolone acetate preparations, as well as Halotestin®, Proviron® and Masteron.

Trenbolone is notably more potent than testosterone, and has an effect that is as much as three times as strong on a milligram for milligram basis. Likewise we can expect to see some level of androgenic side effects with use of this compound. Oily skin, aggressive behavior, acne and hair loss are therefore not uncommon during a cycle with this steroid. The androgenic nature of this drug of course makes it a very risky item for women to use, the chance for virilization symptoms extremely high with such a potent androgen. And since the hexahydrobenzylcarbonate ester will extend the activity of this drug for weeks, blood levels can be very difficult to control. Since many of the masculinizing side effects associated with steroid use can be permanent, women considering the use of this compound should take extreme caution. It can be weeks before blood levels decline should a problem become evident.

Trenbolone is also much more potent than testosterone at suppressing endogenous androgen production. This makes clear the fact that estrogen is not the only culprit with negative feedback inhibition, as here there is no buildup of this hormone to report here. There is, however, some activity as a progestin inherent in this compound, as trenbolone is a 19-nortestosterone (nandrolone) derivative (a trait characteristic of these compounds). However, it seems likely that much of its suppressive nature still stems from its powerful androgen action. With the strong impact trenbolone has on endogenous testosterone, of course the use of a stimulating drug such as HCG and/or Clomid®/Nolvadex® is recommended when concluding steroid therapy (a combination is preferred). Without their use it may take a prolonged period of time for the hormonal balance to resume, as the testes may at first not be able to normally respond to the resumed output of endogenous gonadotropins due to an atrophied state.

Those who have used Parabolan regularly would often claim it to be indispensable. A weekly dosage of 3 ampules (228mg) was the most popular range when running a cycle, however, many did find it highly effective in lesser amounts. Although a weekly administration schedule would prove sufficient, athletes usually injected a single ampule per application, the total amount spread evenly throughout the week. While Parabolan is quite potent when used alone, it was generally combined with other steroids for an even greater effect. Leading up to a show one could successfully add a non-aromatizing anabolic such as Winstrol® or Primobolan®. Such combinations will elicit a greater level density and hardness to the build, often proving dramatic for a stage appearance. We could also look for bulk with this drug, and addition stronger compounds like Dianabol or Testosterone. While the mass gain would be quite formidable with such a stack, some level of water retention would probably also accompany it. Moderately effective anabolics such Deca-Durabolin® or Equipoise® would be somewhat of a halfway point, providing extra strength and mass but without the same level of water bloat we see with more readily aromatized steroids.

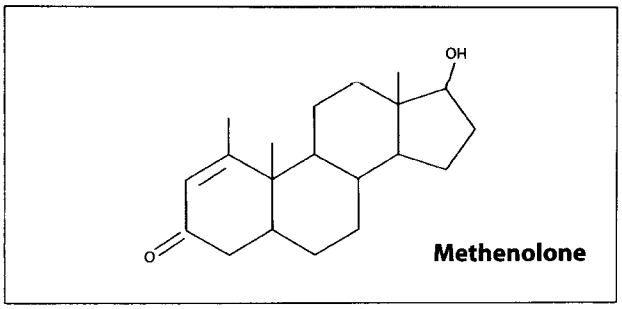
The main problem with Parabolan historically was that it had always been extremely difficult to obtain, even when the original brand was still being manufactured in France years ago. The demand for this drug was always much greater than the supply, leading to many counterfeits over the years. Some fakes of the old French drug were of such superb accuracy that the untrained eye would miss the details every time. However, too many years have past to hope you will ever see even a single old ampule of this brand on the black market. Some of those good-looking counterfeits are still being made today. Don't be fooled. Although real French Parabolan is long gone now, the steroid itself is not.

Body Research in Thailand has started selling trenbolone hexahydrobenzylcarbonate under the name **Danabolan**. This product is an exact copy of the original Parabolan formulation, even down to the 1.5mL ampule. The firm was raided by Thai authorities a year ago, however, closing them down and seizing their stock of anabolic steroids. It is unknown if Body Research will be back in operation. For now, the only new BR products being introduced to market are coming from counterfeiters looking to profit on their popularity.

The Thai firm British Dragon sells a 100mg/mL clone called **Trenabol Depot**. This is also the first Parabolan clone to come in a large multi-dose vial, in this case 10mL in total. This is a rare product, and will likely be a high profile target for counterfeiters within a short period of time. Be sure your vial 1) does not carry a hologram sticker (BD now uses these on tablet products only) 2) The label has a shiny metallic red or blue foil strip, not just red or blue ink and 3) your top reads "Trenabol". Removing the top should reveal a dragon formed into the rubber stopper. Not cheap features, which is probably the point. To date they have done a good job of deterring new counterfeits (or at least accurate ones).

Primobolan® (methenolone acetate)

Androgenic	44-57
Anabolic	88
Standard	testosterone
Chemical Names	17beta-Hydroxy-1-methyl-5alpha-androst-1-en-3-one 1-methyl-1(5-alpha)-androsten-3-one-17b-ol 1-methyl-1-testosterone (informal)
Estrogenic Activity	none
Progestational Activity	no data available (low)



Methenolone

This section refers to the oral Primobolan® preparation, which contains the drug methenolone acetate. It is very similar in action to the injectable Primobolan® Depot (methenolone enanthate), but obviously here the drug is designed for oral administration. At one time Schering was in fact also manufacturing an injectable methenolone acetate (Primobolan® acetate, out of manufacture since 1993), which proved to be very useful for pre-contest cutting purposes. This steroid is now gravely missed, as it was once a favorite among European competitors. Although we still have the acetate in oral form, it is a close, but not equal substitute (injection is a much more efficient form of delivery for this steroid).

Methenolone regardless of the ester is a very mild anabolic steroid. The androgenic activity of this compound is considerably low, as are its anabolic properties. One should not expect to achieve great gains in muscle mass with this drug. Instead, Primobolan® is utilized when the athlete has a specific need for a mild anabolic agent, most notably in cutting phases of training. It is also a drug of choice when side effects are a concern. A welcome factor is that Primobolan® is not c17 alpha alkylated as most oral steroids are. Due to the absence of such an alteration, this compound is one of the few commercially produced oral steroids that are not notably stressful to the liver. While liver enzymes values have been affected by this drug in some rare instances, actual damage due to use of this substance is not a documented problem. Unfortunately the 1 alkylation and 17-beta esterification of Primobolan® do not protect the compound very well during first pass however, so much of your initial dose will not make circulation. This is obviously why we need such high daily dose with the oral version of Primobolan®.

Primobolan® will also not aromatize, so estrogen related side effects are of no concern. This is very useful when leading up to a bodybuilding contest, as subcutaneous water retention (due to estrogen) can seriously lessen the look of hardness and definition to the muscles. Non-aromatizing steroids are therefore indispensable to the competitor, helping to bring about a tight, solid build the weeks leading up to a show. And of course without excess estrogen there is little chance of the athlete developing gynecomastia. Likewise there should never be a need for anti-estrogen use with this steroid. Primobolan® is also said to have a low impact on endogenous testosterone production. Although this may well be true in small clinical doses, it will not hold true for the bodybuilder. For example, in one study more than half of the patients receiving only 30-45 mg noted a suppression of gonadotropin levels of 15% to 65%[144]. This is a dose far less than most bodybuilders would use, and no doubt increasing it would only lead to worse suppression. One would therefore still need a testosterone stimulating drug like HCG or Clomid®/Nolvadex® when concluding a low-dose Primobolan® cycle, unless a deliberately small dose were being used.

It is also important to note that although the androgenic component of Primobolan® is low, side effects are still possible. One may therefore notice oily skin, acne and facial/body hair growth during treatment. Men with a predisposition for hair loss may also find it exacerbates this condition, and wish to avoid this item (nandrolone injectables are a much better choice). While always possible, side effects rarely reach a point where they interfere with the progress of cycle. Primobolan® is clearly one of the milder and safer oral steroids in production. Female athletes, older or more sensitive individuals and steroid beginners will no doubt find this a comfortable steroid to experiment with.

The dosage for men is somewhere in the range of 75-150mg daily. A mild anabolic such as Primobolan® is often used in conjunction with other steroids for optimal effect, so some users find a slightly lower dose effective when stacking. During a dieting or cutting phase, thought to be its primary application, a non-aromatizing androgen like Halotestin® or trenbolone can be added for example. Such combinations

would enhance the physique without water retention, and help bring out a harder and more defined look of muscularity. Non-aromatizing androgen/anabolic stacks like this are in fact very popular among competing bodybuilders, as they prove to be quite reliable for rapidly improving the contest form. This compound is also occasionally used with more potent androgens during bulking phases of training. The addition of testosterone, Dianabol or Anadrol 50® would prove effective for instance, although the gains are likely to be accompanied by some level of smoothness due to the added estrogenic component.

Among women, Primobolan® is one of the most popular steroids in use. At a dosage of 50-75mg daily, virilization symptoms are extremely uncommon. One would of course not expect a tremendous amount of muscle mass with this drug, and instead should expect a slow and steady (quality) increase. Some women choose to further add-in other anabolics such as Winstrol® or oxandrolone, in an effort to increase the muscle building effectiveness of a cycle. While both of these compounds are quite tolerable, one must be sure not to use too high an accumulated dosage. Troublesome androgenic side effects are always a possibility with steroid use, even with very mild substances. Taken at too high a dosage, these weak anabolics can become a formidable danger to femininity. It would, therefore, be the best advice not to use the normal dosage range of both, but instead start with a much lower dosage of each steroid to compensate for the other.

Over the past several years, oral Primobolan tablets have become increasingly more difficult to find on the black market. It seems that Schering, the first and almost only company to ever manufacture this drug, has been aggressively discontinuing production in most of the markets around the world. About a decade ago we could find Primobolan orals in nearly two-dozen different countries, and in three different dosage strengths (5mg, 25mg, and 50mg). Now, only two of Schering's oral Primobolan preparations remain, sold only in Japan (5mg) and South Africa (25mg). It seems likely that Schering is no longer finding the drug very profitable, or perhaps is finding few legitimate (medical) reasons to continue selling it. With the medical community largely steering away from anabolic steroids these days, it would seem likely that bodybuilders have been the main block of consumers of Primobolan for some time now. Perhaps the company simply doesn't feel the minimal profits are worth the potential long-term PR disaster if they continue to support this market of customers.

Thankfully there are a few other legitimate firms to come out with this steroid in recent years, making the loss of the Schering product not a fatal one. The most recent is the British Dragon product **Primobol**, which carries a whopping 50mg per tablet dose. It is sold in foil-lined paper pouches of 30 tablets. Since the demise of the old French 50mg product more than 10 years ago, we had not seen such a high dose of this steroid for a long time. The Primobol product is, therefore, likely to catch the attention of counterfeiters very quickly (BD has had numerous issues with counterfeiters already), so make sure you inspect the product closely when shopping. First, the tablets are square and are imprinted with "BD" on one side and "50" on the other. Also, be sure you see the BD security hologram sticker on the pouch (*see: Security Stickers*), and also open it to find a printed silica gel packet.

Quality Vet manufactures **Metenol QV** in Mexico, which is another high dosed (50mg) tablet of methenolone acetate. The product comes in bottles of 50 tablets, each of which is packaged in its own box. Both the box and bottle will carry the company's security hologram sticker. Be sure to look for this when shopping.

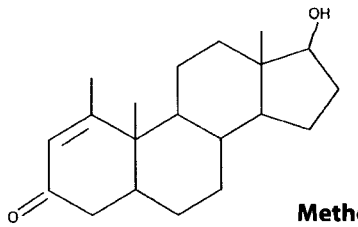
The Mexican veterinary drug firm Ttokkyo Laboratories introduced an oral version of Primobolan at one time, named **Primo-Plus**. This product, as with the full Ttokkyo line, is no longer in production. Old stock will be long gone at this point, so avoid.

Overall, oral Primobolan is an extremely scarce item today. Since we do not find many steroids on the black market that originate from Japan or South Africa (likely due to tighter controls on these drugs), you can probably expect not to find the name brand Primobolan product ever again. At best, you can rely on the British Dragon and Quality Vet products for now, and hope that the next couple of years bring about new manufacturers willing to invest in this very expensive pharmaceutical. There is still a clear demand for it out there, as one of the few effective low-toxic orals to ever be produced commercially.

Primobolan® Depot (methenolone enanthate)

Androgenic	44-57
Anabolic	88
Standard	testosterone

Chemical Names	17beta-Hydroxy-1-methyl-5alpha-androst-1-en-3-one 1-methyl-1(5-alpha)-androsten-3-one-17b-ol 1-methyl-1-testosterone (informal)
Estrogenic Activity	none
Progestational Activity	no data available (low)



Methenolone

Primobolan® Depot is the injectable version of the steroid methenolone. This of course is the same constituent in Primobolan® Orals (methenolone acetate), both produced by the firm Schering. In this preparation, an enanthate ester is added to the steroid, which causes a slow and gradual release from the site of injection. Its duration of activity would thus be quite similar to testosterone enanthate, with blood levels remaining markedly elevated for approximately two weeks. Methenolone itself is a long acting anabolic, with extremely low androgenic properties. On the same note the anabolic effect is also quite mild, its potency considered to be slightly less than Deca-Durabolin® (nandrolone decanoate) on a milligram for milligram basis. For this reason, Primobolan® is most commonly used during cutting cycles when a mass increase is not the main objective. Some athletes do prefer to combine a mild anabolic like "Primo" with bulking drugs such as Dianabol, Anadrol 50® or testosterone however, presumably to lower the overall androgen dosage and minimize uncomfortable side effects. When choosing between Primobolan® preparations, the injectable is preferred over the oral for all applications, as it is much more cost effective.

Primobolan® displays many favorable characteristics, most which stem from the fact that methenolone does not convert to estrogen. Estrogen linked side effects should therefore not be seen at all when administering this steroid. Sensitive individuals need not worry about developing gynecomastia, nor should they be noticing any water retention with this drug. The increase seen with Primobolan® will be only quality muscle mass, and not the smooth bloat which accompanies most steroids open to aromatization. During a cycle the user should additionally not have much trouble with blood pressure values, as this effect is also related (generally) to estrogen and water retention. At a moderate dosage of 100-200mg weekly, Primobolan® should also not interfere with endogenous testosterone levels as much as when taking an injectable nandrolone or testosterone. This is very welcome, as the athlete should not have to be as concerned with ancillary drugs when the steroid is discontinued (a less extreme hormonal crash). At higher doses strong testosterone suppression may be noticed however, as all steroids can act to suppress testosterone production at a given dosage. Here of course an ancillary drug regimen may be indicated.

Side effects in general are usually not much of a problem with Primobolan® Depot. There is a chance to notice a few residual androgenic effects such as oily skin, acne, increased facial/body hair growth or an aggravation of male pattern baldness condition. This steroid is still very mild however, and such problems are typically dose related. Women will in fact find this preparation mild enough to use in most cases, observing it to be a very comfortable and effective anabolic. If both the oral and injectable were available for purchase, the faster acting oral should probably be given preference however. This is simply due to the fact that blood hormone levels are more difficult to control with a slow acting injectable, the user also having to wait many days for steroid levels to diminish if side effects become noticeable.

Overall, Primobolan® Depot is actually considered to be one of the safest anabolic steroids available. Steroid novices, older athletes or those sensitive to side effects would undoubtedly find it a very favorable drug to use. The typical "safe" dosage for men is 100-200mg per week, a level that should produce at least some noticeable muscle growth. In European medicine it is not uncommon for Primobolan® to be used safely at such a dosage for extended periods of time. Among athletes, men may respond to weekly doses of 200mg but regular users will often inject much higher doses looking for a stronger anabolic effect. It is not uncommon for a bodybuilder to take as much as 600 or 800mg per week (6 to 8 100mg ampules), a range which appears to be actually quite productive. Of course androgenic side effects may become more pronounced with such an amount, but in most instances it should still be quite tolerable.

In addition, it is most popular for male bodybuilders to stack Primobolan® with other (generally stronger) steroids in order to obtain a faster and more enhanced effect. During a dieting or cutting phase, a non-aromatizing androgen like Halotestin® or trenbolone can be added. The strong androgenic component should help to bring about an added density and hardness to the muscles. On the other hand (or in addition), we could add Winstrol®, another mild anabolic steroid. The result of this combination should again be a notable increase in muscle mass and hardness, but in this case the gain should not be accompanied by greatly increased side effects. As mentioned earlier, Primobolan® Depot is also used effectively during bulking phases of training. The addition of testosterone, Dianabol, or Anadrol 50® would prove quite effective for adding new muscle mass. We would, of course, have to deal with estrogenic side effects, but in such cases Primobolan® should allow the user to take a much lower dosage of the more "toxic" drug and still receive acceptable results.

Women respond well to a dosage of 50-100mg per week, although (as stated above) the oral should usually be given preference. Additionally, some choose to include Winstrol® Depot (50 mg per week) or Oxandrolone (7.5-10mg daily) and receive a greatly enhanced anabolic effect. Remember though, androgenic activity can be a concern and should be watched, particularly when more than one anabolic is used at a time. If stacking, it would be best to use a much lower starting dosage for each drug than if they were to be used alone. This is especially good advice if you are unfamiliar with the effect such a combination may have on you. A popular recommendation would also be to first experiment by stacking with oral Primobolan®, and later venture into the injectable if this is still necessary.

All forms of Schering Primobolan® Depot will be packaged in 1mL glass ampules. They will contain 100mg of the drug in Europe, and 50mg in Mexico. A single 100mg ampule will generally sell for around $15 to $20 in the United States. The 50mg ampule was usually a bit cheaper, perhaps $10 on average. However, as of late, we have not seen this steroid in Mexican pharmacies. It is possible that Schering has dropped Primobolan® from production in this country too. This was not a very cost effective product anyway, as it would usually sell for at or near the price of the 100mg version.

The situation with injectable **Primobolan® Depot** is similar to that of the oral Primobolan® tablets. The drug is available, but not as abundantly as it was a few years ago. Schering has been actively discontinuing this drug in most of the markets around the world, and only a few countries still carry it at this time. Most notably, Greek Primobolan ampules have been discontinued, as have German, French, and Italian versions of the drug. The only major source countries for genuine Schering Primobolan Depot right now are Spain and Turkey. The way things are going, it will only be a matter of time before the drug is discontinued in these areas of the world as well. There are many counterfeits of both items, so be cautious to purchase these products only after careful examination.

To help differentiate real **Turkish Primobolan® Depot** from the many counterfeits, here are a couple of things to look at. First, open the bottom flap of the box. It should be cut at an unusual angle, and will not be even left to right like a normal box flap. Many of the more popular fakes missed this, probably for lack of a proper cutting dye. However, at least one counterfeiter has correctly copied this. Another good point of detail to look at is the Schering logo, which is found on the box and product insert. The counterfeiters tend to show the ribbon in the center of the Schering logo as one filled block < symbol. The correct logo has this ribbon with a small cut where the top and bottom lines intersect, as if to show that the top ribbon is resting on the bottom. This small detail is probably lost when the original box and insert were scanned into a computer by the illicit operation. Looking towards the ampule, first take notice of the lot number and manufacture date (not the expiration date). The first number in the lot always corresponds with the year the drug was made. Many of the fakes thus far have missed this trait, and these digits do not match.

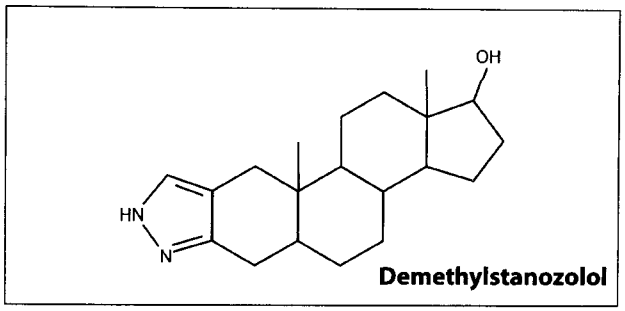
In regards to **Spanish Primobolan® Depot**, this item is also a high profile item for counterfeiters. There have been many fakes of circulating the past several years, often in large numbers. We've tested a couple of the more popular fakes of recent, and both came back with no steroid ingredients. Spanish Primo is, likewise, a high-risk item. Also, note that Schering is now operating under the name **Scherimed** in Spain. Many sophisticated copies of the old Schering item are likely to circulate for a while, until counterfeiters update their items. Make sure any new product you purchase reflects the new packaging change.

The Thai company British Dragon makes a Primobolan injectable called **Primobol**. It comes in a 10mL vial, and provides 100mg/mL of steroid. This is a good product, and highly recommended if you are in the market for an affordable and safer alternative to Schering/Scherimed Primobolan. Note that BD does not place a hologram on its injectable vials anymore, but instead uses a red metallic foil inlay (blue for Eastern European exports) on the label (*see: Security Stickers*). Also, the top of a real BD vial should bear the product name formed into the plastic, and be removed to reveal a custom rubber stopper carrying a dragon logo in the center.

Prostanozol (demethylstanozolol tetrahydropyranyl)

Androgenic	n/a
Anabolic	n/a
Standard	n/a

Chemical Names	17beta-Hydroxy-5alpha-androstano [3,2-c]pyrazole
Estrogenic Activity	none
Progestational Activity	no data available



Demethylstanozolol

As is implied by the given trade name, Prostanozol (demethylstanozolol THP) is an oral anabolic steroid closely related to the highly popular drug Winstrol (stanozolol) in structure. It was introduced to the U.S. sports nutrition market in 2005 as a "post-ban" hormone, distributed openly as a supplement product instead of being regulated as a prescription drug. This is stemming from the fact that it was unknown to lawmakers at the time the 1991 and 2004 anabolic steroid laws were enacted, and as such simply could not be included in them. Although its legal status as a nutritional supplement may be in some question (this is considered a grey-area product), there are no criminal laws against its possession or use (yet). Prostanozol is one of several new legitimate synthetic anabolic/androgenic steroid products to hit the market in 2005, so don't let its quasi-legal status fool you.

Structurally, Prostanozol differs from Winstrol by the removal of the c-17 alpha alkyl group. This modification is responsible for allowing Winstrol to survive first pass metabolism through the liver, so its removal undoubtedly hurts the oral bioavailability of this steroid. In an attempt to compensate for this, an ether group has been added. The ether functions very similarly to an ester when used orally, increasing oil solubility and the likelihood of lymphatic delivery with dietary fats (which bypass the first pass through the liver). This is the same principle that Anabolicum Vister (quinbolone) was developed on. In the case of Prostanozol, however, there is no oil carrier. Without a proper oily carrier, the chance for lymphatic delivery is significantly lowered. This will necessitate a much higher oral dosage than would be needed otherwise, in a process that sort of shotguns the liver with so much steroid that small amounts are bound to slip by. Indeed they do, and despite no carrier and low oral bioavailability, Prostanozol does seem to be working.

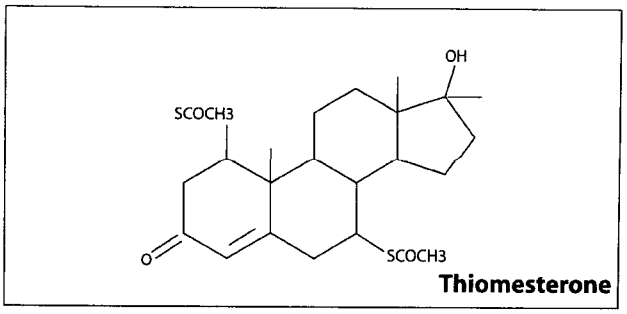
Demethylstanozolol (a generic name I simply made up this substance) appears to be a new chemical entity. If a non-methylated stanozolol ever were synthesized and assayed before, I couldn't find any mention of it in the steroid research books. At this time there is little specific information that could be said about its various chemical properties, as there are no assays or studies to make note of. What can be said are some basic things that we can figure out based on its structure. For one, it is unable to convert to estrogen, and as such should not produce related side effects (water retention, gyno, fat buildup). It should be much more of a lean-gainer or cutting drug instead. We also know that no "dihydro" metabolites could be formed from Prostanozol, since this is already a 4,5-dihydro steroid. Its anabolic to androgenic ratio should, therefore, be somewhat balanced, without the strong androgenic aspect of testosterone. Although androgenic side effects are always possible with a steroid, they should require fairly high does. Do keep an eye on fatigue if you plan on taking this drug alone. This side effect is linked to low estrogen levels, as this hormone is responsible for up-regulating brain serotonin.

The main drawback to this steroid is going to be its poor oral bioavailability. Unless an oil-solubilized soft gelatin capsule or injectable solution is formulated, the user is going to be forced to take a considerable dose. For men, this would fall in the range of 100mg-150mg per day just to see a decent effect on lean tissue gain. Higher doses will be needed for a very strong anabolic effect. Feedback on use by females is extremely sparse, but I would expect a single 25mg capsule per day would be a good place to start, upping this slowly by a capsule or two (max) if the desired effect is not reached. When it comes to the oral bioavailability of an unprotected steroid like this, there are going to be strong differences between individuals. One person may need far more or less drug than the next. Therefore, individual dosing pattern will need to be determined as the user becomes accustomed to therapy.

At the time of writing this, Prostanozol is still being sold as a nutritional product in the U.S. Its time on the market, however, is likely to be very short. The FDA and others in the government have already angrily acknowledged that there are new "designer steroids" on the supplement market, and have made clear their intentions on investigating and even prosecuting those misbranding steroid products (drugs) as supplements. The original manufacturer (ALRI) has already discontinued its sale, anticipating FDA action. Other versions (such as Orastane-E by Gaspari Nutrition) are still available, but the future of these products does not look good at all. If you can still find it, one would be advised to purchase it quickly if they had any specific plans on using. It is very likely that this steroid will already be gone from the marketplace by the time you read this.

Protabol (thiomesterone)

Androgenic	61
Anabolic	456
Standard	methyltestosterone (oral)
Chemical Names	1,7-bis(acetylthio)-17b-hydroxy-17-methylandrost-4-en-3-one
Estrogenic Activity	none
Progestational Activity	no data available



Thiomesterone

Protabol (thiomesterone) is an oral anabolic steroid that is derived from methyltestosterone. This drug was sold back in the 1960's by AB Drago in Sweden, and under the Emdabolin brand name by Chugai Labs in Tokyo Japan. It saw an extremely limited period of use in Europe, and has gone practically unseen in the United States. Thirty years ago American athletes were treated to rumors of thiomesterone, and how this rare and highly coveted steroid was the holy grail of anabolics. The problem is, nobody could obtain a cycle to verify its effect. Little was even known about the compound itself. To date I have never even seen its chemical structure disclosed in any of the bodybuilder's steroid reference books. Dan Duchaine made the single note of this steroid I could find, and wrote of it in his Underground Steroid Handbook II only, "This is the elusive thiomesterone, always written up in the research as the most promising, most potent anabolic with no androgenic side effects. Let me know if you ever find any."

Although there is no real-world feedback on this steroid to make reference of, it was possible to locate its chemical structure and some basic research into its pharmacological properties. We have enough to look at now to say that thiomesterone is certainly no magic steroid, however it does indeed appear to display very favorable properties. Despite being a derivative of the potent oral methyltestosterone, thiomesterone is far more anabolic than it is androgenic. In fact, standard laboratory assays show that its anabolic potency exceeds its androgenic by a factor 7.5. Milligram for milligram it is also about 4.5 times more anabolic than methyltestosterone, while having only about 60% of its androgenic component. Perhaps not quite the "pure" anabolic that it was rumored to be thirty years ago, in regards to potency and anabolic/androgenic separation, thiomesterone is still very much in the same class as the popular anabolics stanozolol and oxandrolone.

As mentioned, thiomesterone is a derivative of methyltestosterone. It differs from this base steroid by the addition of two acetylthio groups, one at carbon 1 and the other at carbon 7. This creates a hormone with significantly different behavior than methyltestosterone. For one, occupation of a bond at C-1 by the first acetylthio group prevents aromatization. This eliminates any tendency for estrogen-linked side effects like water retention, increased fat deposition and gynecomastia. The second acetylthio modification at C7, furthermore, inhibits 5-alpha reduction. As this is a testosterone analog, one would expect its 5-alpha reduced "dihydro" metabolite to be significantly stronger. This accounts for the stronger androgenic activity of testosterone-based drugs in general. No such increase in potency is possible with thiomesterone, however. The C7 acetylthio group contributes, at a very significant level, to the high anabolic to androgenic ratio of this agent.

Since thiomesterone has a similar level of anabolic potency to stanozolol and oxandrolone, we would expect that oral effective daily dosages for men would fall in the range of 15-25mg. Here we should see effective lean tissue gains, modest strength gains, increased muscle definition and heightened vascularity. The fact that estrogen levels will be kept low definitely helps this agent when it comes to tightening up or contest preparations. Thiomesterone is a very versatile steroid in general, and should stack well with other mild injectable anabolics like Primobolan or Deca-Durabolin for cutting cycles, or stronger androgens/aromatizable steroids like testosterone or boldenone for bulking phases. Being that this steroid is a c-17 alpha alkylated (methylated) compound, it will present some level of liver toxicity. It would therefore be best not to stack it with other c-17aa orals, so that this toxicity is kept to a minimum.

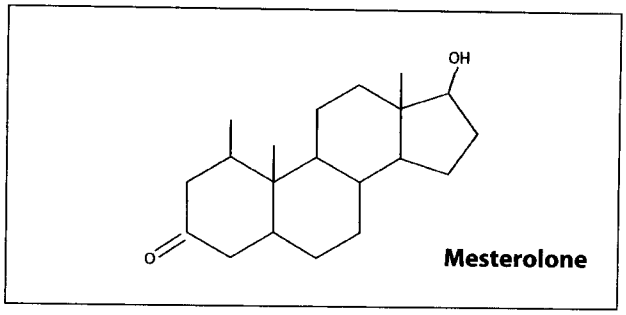
Thiomesterone is a steroid of low androgenic side effects. Sensitive individuals would probably notice some oily skin or acne, but should not be responding with heightened aggression and mood elevations the same way they would with something stronger like testosterone or Dianabol. It might also be one of the few orals that those worried about hair loss might experiment with in low doses. Its low androgenic and estrogenic component may put many of this drug's more sensitive users at risk for incurring a loss of libido and even lethargic side effects, however. This would be readily corrected by the addition of some other aromatizable or more androgenic compound (testosterone would be the preferred remedy). One might want to be prepared by having some on hand. As a highly anabolic agent, thiomesterone would also be a preferred agent among women, and would be used in a versatile manner very similar to Primobolan or Anavar. Doses would be kept low, of course, and would probably not exceed 5mg per day.

It is unfortunate that thiomesterone is not a steroid we have available on the global steroid market today. With its exceptional profile and high level of potency, it certainly would be a popular product if it were. Things have been changing rapidly in the steroid business though, and if current trends continue we may very well see this steroid again. Many companies are searching out old steroids in an effort to provide their customers something new. For now, at the very least, we can say it is no longer an agent of myth and legend. We have pulled back the curtain, and seen thiomesterone for the steroid that it is. It is nothing magic, but an excellent steroid nonetheless. Even if it is not possible to put this information to practical use right now, I suspect many readers will still find this profile of interest as rare look into a very poorly known and understood drug. Perhaps it may even spark an interest in the right person, who will be responsible for resurrecting thiomesterone one day. We can hope, anyway.

Proviron® (mesterolone)

Androgenic	30-40
Anabolic	100-150
Standard	testosterone propionate

Chemical Names	17beta-hydroxy-1alpha-methyl-5alpha-androstan-3-one 1-methyl-5alpha-dihydrotestosterone
Estrogenic Activity	none
Progestational Activity	not significant



Mesterolone

Proviron® is the Schering brand name for the oral androgen mesterolone (1methyl-dihydrotestosterone). Just as with DHT, the activity of this steroid is that of a strong androgen which does not aromatize into estrogen. In clinical situations Proviron® is generally used to treat various types of sexual dysfunction, which often result from a low endogenous testosterone level. It can usually reverse problems of sexual disinterest and impotency, and is sometimes used to increase the sperm count. The drug does not stimulate the body to produce testosterone, but is simply an oral androgen substitute that is used to compensate for a lack of the natural male androgen.

Although this steroid is strongly androgenic, the anabolic effect of it is considered too weak for muscle building purposes. This is due to the fact that Proviron® is rapidly reduced to inactive metabolites in muscle tissue, a trait also characteristic of dihydrotestosterone, The belief that the weak anabolic nature of this compound indicated a tendency to block the androgen receptor in muscle tissue, thereby reducing the gains of other more potent muscle building steroids, should likewise not be taken seriously. In fact due to its extremely high affinity for plasma binding proteins such as SHBG, Proviron® may actually work to potentate the activity of other steroids by displacing a higher percentage into a free, unbound state.

Among athletes Proviron® is primarily used as an anti-estrogen. It is believed to act as an anti-aromatase in the body, preventing or slowing the conversion of steroids into estrogen. The result is somewhat comparable to Arimidex® (though less profound), the drug acting to prevent the buildup of estrogen in the body. This is in contrast to Nolvadex®, which only blocks the ability of estrogen to bind and activate receptors in certain tissues. The anti-aromatization effect is preferred, as it is a more direct and efficient means of dealing with the problem of estrogenic side effects. A related disadvantage to Nolvadex® is that if discontinued too early, a rebound effect may occur as high serum estrogen levels are again free to take action. This of course could mean a rapid onset of side effects such as gynecomastia and water retention. Most athletes actually prefer to use both Proviron® and Nolvadex®, especially during strongly estrogenic cycles. With each item attacking estrogen at a different angle, side effects are often greatly minimized.

The anti-estrogenic properties of Proviron® are not unique to this compound. A number of steroids have in fact demonstrated similar activity. Dihydrotestosterone and Masteron (2methyl-dihydrotestosterone) for example have been successfully used as therapies for gynecomastia and breast cancer due to their strong anti-estrogenic effect. It has been suggested that nandrolone may even lower aromatase activity in peripheral tissues where it is more resistant to estrogen conversion (the most active site of nandrolone aromatization seems to be the liver). The anti-estrogenic effect of all of these compounds is presumably caused by their ability to compete with other substrates for binding to the aromatase enzyme. With the aromatase enzyme bound to the steroid, yet being unable to alter it, and inhibiting effect is achieved as it is temporarily blocked from interacting with other hormones.

Many bodybuilders also favor this drug during contest preparation, when a lower estrogen/high androgen level is particularly sought after. This is especially beneficial when anabolics like Winstrol®, oxandrolone and Primobolan® are being used alone, as the androgenic content of these drugs is relatively low. Here Proviron® can supplement a well-needed androgen, and bring about an increase in the hardness and density of the muscles. Many experienced bodybuilders are now swearing by it in fact, incorporating it effectively in most any cycles that require upward adjustments to the androgen/estrogen ratio. Many women even find a single 25mg tablet to efficiently shift the hormone balance in the body, greatly impacting the look of definition to one's physique. Since this is such a strong androgen however, extreme caution should be taken with administration. Higher dosages clearly have the potential

to cause virilization symptoms quite readily. For this reason, females will rarely take more than one tablet per day, and limit the length of intake to no longer than four or five weeks. One tablet used in conjunction with 10 or 20mg of Nolvadex® can be even more efficient for muscle hardening, creating an environment where the body is much more inclined to burn off extra body fat (especially in female trouble areas like the hips and thighs). Again, extreme caution should be taken.

The typical dosage for men is one to four 25 mg per tablets per day. This is a sufficient amount to prevent gynecomastia, the drug often used throughout the duration of a strong cycle. As mentioned earlier, it is often combined with Nolvadex® (tamoxifen citrate) or Clomid® (clomiphene citrate) when heavily estrogenic steroids are being taken (Dianabol, testosterone etc.). Administering 50mg of Proviron® and 20mg Nolvadex® daily has proven extremely effective in such instances, and it is quite uncommon for higher dosages to be required. And just as we discussed for women, the androgenic nature of this compound is greatly welcome during contest preparation. Here again Proviron® should noticeably benefit the hardness and density of the muscle, while at the same time increasing the tendency to burn off a greater amount of body fat.

Proviron® is usually well tolerated and side effects (men) are rare with dosages under 100 mg per day. Above this, one may develop an excessively high androgen level and encounter some problems. Typical androgenic side effects include oily skin, acne, body/facial hair growth and exacerbation of a male pattern baldness condition, and may occur even with the use of a moderate dosage. With the strong effect DHT has on the reproductive system, androgenic actions may also include an extreme heightening of male libido. And as discussed earlier, Women should be careful around Proviron®. It is an androgen, and as such has the potential to produce virilization symptoms quite readily. This includes, of course, a deepening of the voice, menstrual irregularities, changes in skin texture and clitoral enlargement.

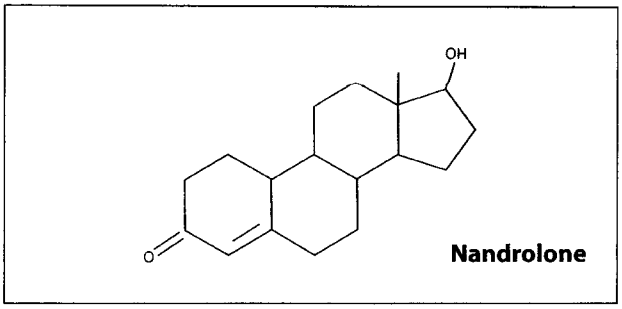
Proviron® is also not a c17 alpha alkylated compound, an alteration commonly used with oral anabolic/androgenic steroids. Not using this structure in the case of Proviron® removes the notable risk of liver toxicity we normally associate with oral dosing. We therefore consider this a "safe" oral, the user having no need to worry about serious complications with use. This steroid in fact utilizes the same 1-methylation we see present on Primobolan® (methenolone), another well tolerated orally active compound. Alkylation at the one position also slows metabolism of the steroid during the first pass, although much less profoundly than 17 alpha alkylation. Likewise Proviron® and Primobolan® are resistant enough to breakdown to allow therapeutically beneficial blood levels to be achieved, although the overall bioavailability of these compounds is still much lower than methylated oral steroids.

All versions of the drug are manufactured or licensed by Schering at this time, and should cost about $1-$2 per 25 mg tab (a 50mg version is produced in Italy). In many instances this item is obtained via mail order, and here can sell for less than .50 per tab. This drug is packaged in both push-through strips and small glass vials, so do not let this alarm you. There is currently no need to worry about authenticity, as no counterfeits are known to exist. If money and availability does not prevent it, Arimidex® is actually a much better choice than Proviron® though, at least as far as aromatase inhibitors go (Arimidex offers no androgenic action). But due to much lower costs, drugs like Nolvadex® and Proviron® remain the "standard" anti-estrogen treatments among athletes, even if they are not quite the most effective agents.

Sanabolicum (nandrolone cyclohexylpropionate)

Androgenic	37
Anabolic	125
Standard	testosterone

Chemical Names	19-norandrost-4-en-3-one-17beta-ol 17beta-hydroxy-estr-4-en-3-one
Estrogenic Activity	low
Progestational Activity	moderate



Nandrolone

Sanabolicum is a brand name for an injectable nandrolone compound, specifically the long-acting ester nandrolone cyclohexylpropionate. The cyclohexylpropionate ester used here, called CHP for short, is the same one once used with testosterone to make the French product Testosterone CHP Theramex. Cyclohexylpropionate is very similar in structure to cypionate (cyclopentylpropionate), different only in that it contains a cyclohexane ring (6 carbon atoms) instead of cyclopentane ring (5 carbon atoms). Although exact details on its metabolic clearance were unavailable, it could be estimated that this is a slightly longer acting product than a cypionate would be. Although nandrolone CHP is long enough acting that products using it could be injected on a less frequent basis in medical settings, in the context of bodybuilding the standard once weekly schedule is usually adhered to (making it very similar to Deca-Durabolin in use and effect). Testosterone CHP, the testosterone equivalent of Sanabolicum, is long off the market now, as are most of the original formulations using nandrolone cyclohexylpropionate. Some of the more recent products known to still use this steroid are Sanabolicum by the Nile Company in Egypt, Sanabolicum-Vet by Werfft-Chemie in Austria, and Genadrag by Drag Pharma in Chile. Other products existed that used this steroid at one time as well, however, to my knowledge they have been off the market for a very long time now.

In all recently known product, the maximum steroid concentration used has been 50 mg/mL. We also need to take into account that the cyclohexylpropionate ester is large, accounting for nearly a third of the total steroid weight. As such, each 50mg dose delivers less than 34 milligrams of actual nandrolone. To say this steroid was not a powerhouse would be an understatement. In the dosages provided, these products are probably too weak to consider ever using alone. Well, unless you were a masochist, and went out of your way to find low dosed steroids that need to be injecting in large volumes each week. If so, this steroid may be for you (you might want to look for the Egyptian 25mg ampules though). Otherwise, it would be most common to find this steroid used at 100-200mg per week, stacked with other anabolics depending on the goals of its user. Women would find the 50mg/mL dosage strength fine, although it might be advisable to opt for a faster acting ester such as nandrolone phenylpropionate, which would allow for a better level of control over blood levels.

The Sanabolicum compounds seem to rarely ever circulate, even years ago when their production was somewhat broader. It is just a steroid of little interest and advantage, especially at the doses provided. Were a company to start making this steroid in a 200mg/mL or 300mg/mL dose (easily possible), it would be much more popular for certain. Until then, there are at most a few low dose products in manufacture worldwide to choose from, low on the radar for importers, dealers, and buyers alike. The one good thing is that counterfeiters probably have just as little interest in this steroid as consumers. Should you find one of the available products, the odds it will be fake are probably much lower than with most steroids products. At this time you probably have the best chance of finding the **Genadrag** brand, which is produced by Drag Pharma in Santiago Chile. Genadrag comes packaged in a bright orange and white box, and bears a relatively simple looking orange and white sticker on a dark amber 10ml vial. Aside from the relatively crisp printing and sharp colors of the box, there is little about this product that would make duplication difficult for the average counterfeiter. Until such time as fakes are actually in production, however, it is probably fine to consider this steroid a safe purchase.

Spectriol (testosterone/nandrolone/methandriol blend)

Androgenic

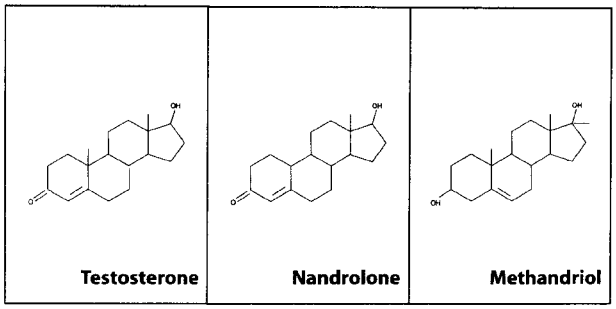
Anabolic

Standard

Chemical Names

Estrogenic Activity

Progestational Activity



Spectriol is an injectable veterinary steroid preparation from Australia, which contains a blend of several different steroid ingredients. More specifically, it contains five components: three testosterone esters (propionate, cypionate, hexahydrobenzoate), nandrolone phenylpropionate and methandriol dipropionate. Despite having so many different steroids in the same vial, we are only looking at a total steroid concentration of 65 mg/mL. Spectriol is not the powerhouse steroid by any means, but can still most certainly be a value item to include in your next steroid cycle. This is actually quite an unusual steroid product, but then again this is Australia, and the company that makes it (RWR) makes several oddball steroids like this (many of which are blends that include methandriol dipropionate).

Each mL of Spectriol contains:

Methandriol Dipropionatye	20 mg
Nandrolone Phenylpropionate	15 mg
Testosterone Propionate	10 mg
Testosterone Cypionate	10 mg
Testosterone Hexahydrobenzoate	10 mg

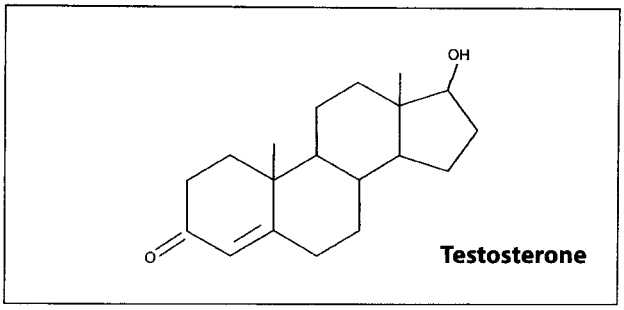
This product seems to be designed so that it will provide a fairly good balance of anabolic and androgenic effect for its user. Of the 65mg present in each milliliter of solution, about 30mg are esters of the strong androgen testosterone. The remaining 35mg is a combination of methandriol and nandrolone, two steroids which are much more anabolic in nature. The two sides complement each other very well, allowing for greater muscle growth, and less androgenic and estrogenic side effects, than if taking an injectable testosterone exclusively (for a more comprehensive discussion of these individual steroids, please refer to their respective drug profiles). The only main issue with this steroid is its relatively low dosage strength, which makes it difficult to run a full cycle on Spectriol alone. Were one to attempt this, the weekly dosage would probably have to be in the range of 260-520mg, which equates to a total oil volume of 4-8mL. This is quite a bit of oil to inject each week, especially when many other steroid products are available that come in a strength of 200mg/mL or more.

Spectriol is found only in 10mL multi-dose vials, and is made only by RWR (formerly a subsidiary of Nature Vet Pty, but now an independent company) in Australia. This item does not circulate on the international black market in much volume, as Australia is no longer considered a major source country for steroids. Australian prescription drugs are definitely not as easy to divert to the black market in high volumes as they are in some other countries, and the steroid market especially has been scrutinized in recent years. Add this to the fact that the packaging on most Australian veterinary products, Spectriol included, is pretty easy to duplicate, and I would not consider this to be an item I'd immediately trust when coming across it. Be especially suspicious of anyone that suddenly has a whole lot of it. But provided you can verify the source, and are obtaining it at a good price, it most certainly can be a good steroid to have in your toolbox. Unfortunately, not many people find themselves in such a situation, and should be rightly suspicious of this and all Australian veterinary products with unverifiable authenticity.

Sten (testosterone cypionate & propionate)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Sten is a two-component testosterone blend that is made only in Mexico. It is manufactured by the firm Atlantis, and Sten is one of Mexico's more inexpensive human-use testosterone products. The two active steroids in this product are testosterone propionate (25mg), testosterone cypionate (75mg). Each ampule also contains an added 20mg of DHEA (dehydroepiandrosterone). Some references incorrectly list it to contain 20mg DHT or dihydrotestosterone (another androgen). This is just a confusion of the Spanish word for DHEA (dehidroisoandrosterona), which at a quick glance looks similar to DHT. Holding the DHEA irrelevant at the moment, this steroid basically contains 50mg of testosterone per mL.

Many compare this item to Sustanon, but consider it to be a low budget alternative. While it does contain two testosterone esters with a "sustained release" effect, Sten is active for a much shorter duration. The testosterone propionate does provide a fast effect, as with Sustanon, but the blood levels from the testosterone cypionate will drop about two weeks after each injection. This far short of the duration seen with Sustanon, so clearly there is a noticeable difference between the two compounds. Of course they are both strong testosterone products, and the end result difference would not be very great between the two.

If we used these two testosterone esters separately, a cumulative dosage of 200-400mg per week would be the most common. Therefore, 2 to 4 ampules of Sten are usually injected each week. To reduce the volume of each injection, this amount is usually broken up into two to four separate shots, each consisting of 2mL or one full ampule. Even with this separation we are taking 4 to 8 mL per week, which is quite a bit when compared to other products like Sustanon. It makes it additionally difficult to add in another injectable steroid, as the volume would no doubt be quite uncomfortable. For this reason Sten is not in high demand, and generally used only when other testosterone preparations are unavailable.

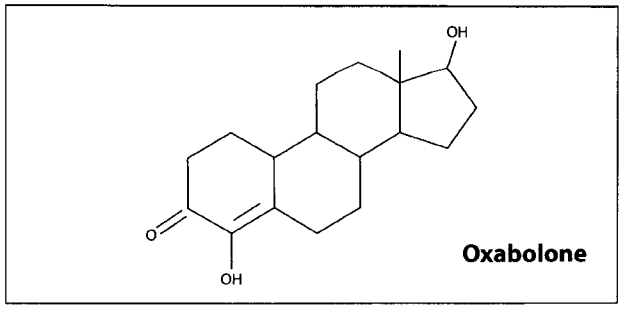
The effect of this steroid would be comparable to that seen with all injectable testosterone products. It is well suited for a quick mass and strength gain, accompanied by a number of androgenic and estrogenic side effects. Water retention of course is common, as is the development of gynecomastia. Sensitive individuals may find an anti-estrogen necessary when taking this drug, as is common with virtually all testosterones. Androgenic side effects like oily skin, acne, facial/body hair growth and premature hair loss are also likely. The addition of Proscar/Propecia® may prove useful to minimize such effects, especially for those noticing the onset male pattern baldness. And although some female bodybuilders do occasionally utilize testosterone propionate, the cypionate present in this substance (being much longer acting) makes for poor company. An unlucky female athlete would have to wait a couple of weeks for testosterone levels to significantly drop, which is obviously much too long when virilization symptoms are developing.

In Mexico, 2 ampules are packaged in a box and sells for about $5. Here on the U.S. black market, a single loose ampule of Sten can sell for as much as $10. There are currently no fakes.

Steranabol Ritardo (oxabolone cypionate)

Androgenic	20-60
Anabolic	50-90
Standard	testosterone

Chemical Names	19-norandrost-4-en-4,17b-ol-3-one 4,17beta-dihydroxyestr-4-en-3-one
Estrogenic Activity	none
Progestational Activity	no data available (low)



Oxabolone

Steranabol Ritardo is an injectable steroid product that was being produced by Pharmacia & Upjohn in Italy until fairly recently (it has been discontinued for several years now). This product specifically contains the obscure anabolic steroid oxabolone cypionate. Oxabolone is a close structural derivative of 19-nortestosterone (nandrolone). It differs from this mild anabolic agent only by the addition of a 4-hydroxyl group, the same alteration that is used to make hydroxytestosterone (oxabolone is 4-hydroxynandrolone) from testosterone. This compound is present in Steranabol Ritardo in a dosage concentration of 12.5 mg per mL, with each 2mL ampule carrying only 25mg of steroid in total. This low dosage was always an unfortunate trait of this product, as hydroxynandrolone is otherwise a fairly effective steroid.

As a nandrolone based compound, oxabolone is more anabolic than androgenic in nature. It does seem however, to have some unique traits that make it stand out next to nandrolone, such as an inability to convert to estrogen (blocked by the addition of 4-hydroxylation). Hydroxynandrolone even seems to exhibit strong anti-aromatase activities, at least the best I can tell anecdotally without a formal study. This probably makes sense, given that it is the 4-hydroxyl group that makes formestane (hydroxyandrostenedione) and hydroxytestosterone both potent suicide substrates for the aromatase enzyme. This means not only that estrogenic side effects are not likely with the use of this drug, but also that it may even be useful in countering side effects caused by the conversion of other steroid hormones to estrogen.

Studies with hydroxyandrostenedione show that (in this case) the 4-hydroxy group seems to interfere with 5-alpha reduction, at least to some extent. This may explain another trait of oxabolone, namely that it seems to not have the same dramatic dissociation between anabolic and androgenic affects that we see with nandrolone. This steroid, although more anabolic than androgenic, is a little more balanced in this regard. It may therefore be, at least slightly, less likely to interfere with libido in the same way that Deca-Durabolin tends to (at least in terms of a direct head-to-head comparison, oxabolone is still primarily anabolic in nature, and such libido interfering traits tend to be present in many of the "anabolic" compounds for certain users).

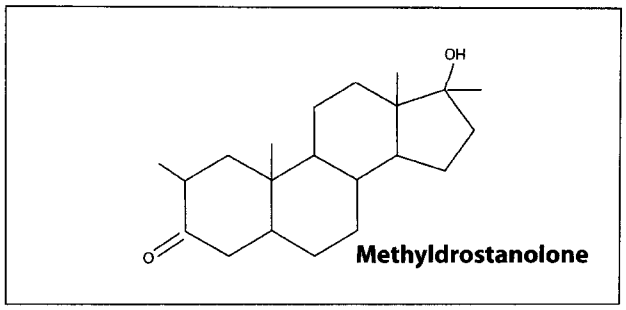
It terms of muscle-building potency, it would be a mistake to simply equate oxabolone with nandrolone. Oxabolone is actually a moderately weaker steroid, at least according to the standard assays that we use to evaluate steroid compounds. However, that does not mean it is a useless agent, as indeed this is an interesting steroid to say the least. In my experience it seems to help you produce a much harder, tighter look than nandrolone, probably owing to the fact that it probably delivers an anti-estrogenic effect instead of a slight estrogenic one. For those who find nandrolone to be a failure during cutting/hardening cycles, this nandrolone derivative may be worth looking at.

Being that it came in such a low concentration (12.5mg/mL), Steranabol Ritardo was a little difficult to use as an anabolic. If you are a male bodybuilder, had this item, and wanted to use it alone for your next cycle, all I could say is: good luck. It is less potent than nandrolone, which means you are probably going to need at least 200-300mg weekly. At 25mg per 2mL ampule, reaching this dose would be a painful and arduous task. Just do the math. 300mg per week, with a dose of 25mg per ampule, would equate to 12 ampules. With each ampule containing 2mL of solution, that is a full 24cc of oil to inject each week (8 full 3cc needles full). You certainly would not catch me trying it. Instead, I would look at this steroid as more of an adjunct to an already running stack. 3-4 ampules per week, or 75-100mg in total, should be sufficient to notice some level of hardening and fat loss. Provided it did not get lost in a plethora of other drugs, you should be able to notice it working at this dose. All this is really academic anyway, as Steranabol Ritardo is no longer available. The base steroid hydroxynandrolone was sold in the U.S. as a supplement for a short time, however officially became a controlled substance in 2005.

Superdrol (methyldrostanolone)

Androgenic	400
Anabolic	20
Standard	methyltestosterone (o)

Chemical Names	2a,17a-dimethyl-5a-androstane-17b-ol-3-one
Estrogenic Activity	none
Progestational Activity	no data available



Methyldrostanolone

Superdrol is a trade name for the anabolic steroid methyldrostanolone. Also called methasteron, this steroid is a potent oral anabolic agent that was never produced as a commercial prescription steroid product. Instead, its early history resembles that of a great many effective but never commercialized steroids; it was developed, assayed, determined to have favorable characteristics, and ultimately ignored for some reason or another (probably lack of financial viability). The drug was first mentioned in the medical books in 1960, and its last mention seems to appear in 1965. Aside from this very short lifespan in research circles, methyldrostanolone sat as an obscurity in the library stacks for decades. It only recently reemerged (2005) as an over the counter "grey market" anabolic steroid in the United States, sold openly without restriction in many supplement stores.

In structure, Superdrol is a close derivative of Masteron (drostanolone). The only difference in this case is the addition of a c-17 alpha methyl group, a modification that gives this steroid high oral bioavailability. We can, therefore, loosely consider it an oral version of this highly sought after injectable steroid. Although in many cases c-17-alpha alkylation changes the overall character of a steroid considerably (such as is the case with boldenone and methandrostenolone or testosterone and methyltestosterone), that really doesn't appear to be the case with Superdrol. Both it and its parent drostanolone are non-aromatizable, so there is no difference in the estrogenicity of these two steroids. Neither should produce estrogenic side effects. Furthermore, both steroids retain very favorable anabolic to androgenic ratios. Lab assays do put Superdrol ahead here, however, showing it to possess 4 times the anabolic potency of oral methyltestosterone while displaying only 20% of the androgenicity (a 20:1 ratio). Masteron assays out to be about as potent an anabolic agent as testosterone (give or take 30% or so), but with only 25-40% of the androgenicity. This is still a favorably anabolic steroid, but admittedly with a ratio of about 3:1, not 20:1.

An effective dosage of Superdrol seems to begin in the range of 10-20mg daily for men. At this level it seems to impart a measurable muscle building effect, which is usually accompanied by fat loss and increased definition. Don't expect to gain 30 pounds on this agent (its name which is short for "Super Anadrol" is more marketing than reality), but many can and do walk away with 12-15lbs of solid muscle gain when using this agent alone. In determining an optimal daily dosage, some do find the drug to be measurably more effective when venturing up to the 30mg range. Potential hepatotoxicity should definitely be taken into account with this agent, however, before one simply attempts upping the dosage. In many cases it might be a better option to stack 20mg daily of Superdrol with a non-toxic injectable steroid, such as testosterone for mass building phases of training, or nandrolone or boldenone for more lean tissue gain and definition. It further seems to work well in cutting cycles, where its lack of estrogenicity is highly favored. One should probably consider using it with an injectable like Primobolan or trenbolone for such cycles, however, instead of adding in more c-17alpka alkylated anabolics. The potential for notable strain to be placed on the liver obviously increases as the number of liver toxic drugs does.

Being that this steroid displays such a high ratio of anabolic to androgenic effect, one would think it would be an anabolic of great interest to female bodybuilders. In fact, at least on paper, Superdrol is less androgenic than Winstrol or Primobolan, both very popular among the female crowd. In fact, only Anavar lands in the same ballpark as Superdrol when it comes to androgenicity (Anavar actually exceeds it with an almost 30:1 ratio by some calculations). Still, this is a steroid of obvious and logical interest, even if the animal assays don't bear 100% relevance to the experiences of human users. The main point of contention with females is probably going to be the dosage, which is far too high at 10mg per cap (the common capsule strength) to use. Women would probably be experimenting with 1-2mg per

day, give or take, which would require breaking open each capsule and splitting the powdered contents up into 5-10 separate doses. Admittedly not a convenient practice, but it will be effective nonetheless. As with all steroids, virilization is still a possibility to be concerned with.

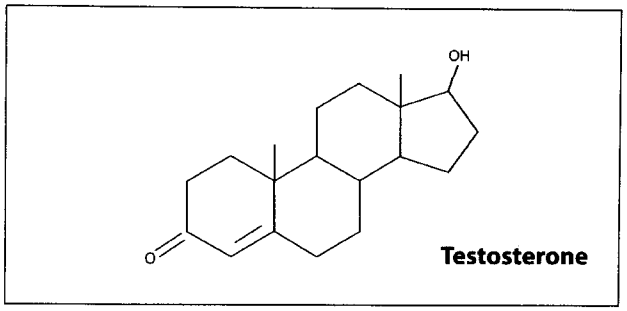
Being a c-17 alpha alkylated oral, cycles of Superdrol are usually kept brief to minimize the risk of liver injury. Cycles that are 4-6 weeks in length seem to be most common, with few bodybuilders risking its use for more than 8 continuous weeks. There is some belief among consumers that Superdrol is a "milder" steroid, and that it does not impart the same risk of liver toxicity as other oral steroids like Anadrol, Dianabol, and Winstrol. I can tell you with some certainty that that is not the case. Methyldrostanolone is indeed a powerful oral anabolic steroid, and one that is structurally very resistant to hepatic breakdown. As such, it can place measurable strain on the liver during the first digestive pass, like virtually all c-17 alpha alkylated orals. There is nothing in the medical literature, or even in anecdotal reports, that suggests any different. One should, therefore, treat this steroid with a lot of respect. It is an effective drug with a very favorable ratio of anabolic to androgenic effect, but also one of significant potency and potential for toxicity if misused.

The legal status of Superdrol is currently in question. No State or Federal steroid law identifies this drug officially as an anabolic steroid, which should remove the legalities associated with being a Class III controlled substance like most other steroids. This is, however, not because Superdrol is generally any different than say Dianabol. Superdrol is not yet classified as a controlled substance simply because it didn't exist (in commerce) at the time such laws were written. If the lawmakers didn't know about it, they couldn't make it illegal, and that remains the case today. The FDA and others in the U.S. government have already angrily acknowledged the new "designer steroids" on the supplement market (including Superdrol), and have made clear their intentions on investigating and perhaps even prosecuting those responsible. The original manufacturer (Designer Supplements) has already discontinued its sale, anticipating FDA action. Other versions of the same steroid may still be available, but the future of these products does not look good at all. If you can still find it, one would be advised to purchase this steroid quickly if they wanted to use it. By the time this book is published, it is very likely that all Superdrol products will already have been removed from market.

Sustanon® 100 (testosterone blend)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Sustanon 100 is a lower dosed and rarely seen version of Organon's famous injectable testosterone medication Sustanon 250. Like Sustanon 250, Sustanon 100 makes use of multiple esters of testosterone to produce a desired slow-acting effect. In this case, three esters are utilized in the formulation instead of four. The main point of this is that different esters have different levels of oil solubility and rates of release from the site of injection. By combining fast and medium acting esters in the same formulation, the pharmacokinetic properties of this drug are such that the rapid distribution of testosterone (caused by the testosterone propionate) is followed by a slower and steadier release of hormone into the bloodstream. Lacking the slowest acting ester in the Sustanon 250 formula, namely testosterone decanoate, Sustanon 100 will not be as long acting overall. While Sustanon 250 is given every 3-4 weeks in clinical settings, Sustanon 100 would be most appropriate on a weekly or biweekly basis (still slow acting, with more even hormone release than testosterone cypionate or enanthate).

Sustanon '100'

20mg testosterone propionate
40mg testosterone phenylpropionate
40mg testosterone isocaproate

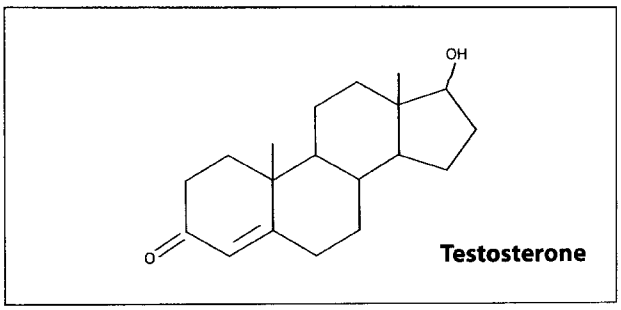
Bodybuilders usually inject Sustanon 250 once per week, despite the potential for longer durations in a clinical setting. A similar once per week pattern would seem most logical with this agent as well, and should provide a fairly "steady state" of hormone elevation within a few applications. It is likely that one would have a hard time distinguishing between these two drugs, in fact, given equal levels of supplied hormone. Given such a frequent pattern of use, however, one begins to question the need for a fancy multi-ester drug like Sustanon 100 (or 250 for that matter) in the first place. In a clinical setting, these agents are highly desirable, as the patient need not be subjected to as many injections. It is much more comfortable, and patient compliance goes up as a result. But once you eliminate the benefit of less frequent injections, such drugs start looking only like more expensive (and unnecessary) alternatives to single ester products like testosterone enanthate or cypionate. Ultimately they all supply testosterone; the appeal of one over the other has always been just a matter of injection frequency.

Anything that can be said for Sustanon 250, testosterone cypionate, or testosterone enanthate can be said of Sustanon 100 as well. All such drugs provide testosterone, which is a potent anabolic and androgenic steroid. Sustanon 100, therefore, should be equally capable of imparting rapid gains in size and strength. Typical doses for men would fall in the range of 200-600mg per week, or 2-6 1mL ampules of the drug. This can equate to less than comfortable injection volumes (especially at the 400-600mg per week and above range), making Sustanon 250 (or any 250mg/mL testosterone product) much more desirable by most. Also of obvious note is the fact that testosterone aromatizes to estrogen quite readily. All testosterones, including propionate, cypionate, Sustanon, etc., have an equal ability to produce estrogenic side effects. The rate of aromatization should not vary between esters, so do not let this be a selling point for you. There is not much else to say about this drug that hasn't been said about others of the same family. Sustanon 100 is a 100mg/mL injectable testosterone product, and will behave like a 100mg/mL injectable testosterone product.

Sustanon® 250 (testosterone blend)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Sustanon 250® is an oil-based injectable testosterone blend, developed by the international drug firm Organon. It typically contains four different testosterone esters: testosterone propionate (30 mg); testosterone phenylpropionate (60 mg); testosterone isocaproate (60mg); and testosterone decanoate (100 mg). An intelligently "engineered" testosterone, Sustanon is designed to provide a fast yet extended release of testosterone. The propionate and phenylpropionate esters in this product are quickly utilized, releasing into circulation within the first four days. The remaining esters are much slower to release, staying active in the body for about two and three weeks (respectively). This is a big improvement from standard testosterones such as cypionate or enanthate, which provide a much shorter duration of activity, and a more variable blood level. A slightly shorter acting Sustanon 100, which uses only three esters, is also made by Organon in certain areas (*see: Sustanon 100*).

Sustanon '250'

30mg testosterone propionate
60mg testosterone phenylpropionate
60mg testosterone isocaproate
100mg testosterone decanoate

As with all testosterone products, Sustanon is a strong anabolic with pronounced androgenic activity. It is most commonly used as a bulking drug, providing exceptional gains in strength and muscle mass. Although it does convert to estrogen, as is the nature of testosterone, this injectable is noted as being slightly more tolerable than cypionate or enanthate. As stated throughout this book, such observations are only issues of timing however. With Sustanon, blood levels of testosterone are building more slowly, so side effects do not set in as fast. For equal blood hormone levels however, testosterone will break down equally without regard to ester. Many individuals may likewise find it necessary to use an anti-estrogen, in which case a low dosage of Nolvadex®(tamoxifen citrate) or Proviron®(mesterolone) would be appropriate. Also correlating with estrogen, water retention should be noticeable with Sustanon. This is not desirable when the athlete is looking to maintain a quality look to the physique, so this is certainly not an idea drug for contest preparation.

Being a strong androgen, we can expect the typical side effects. This includes oily skin, acne body/facial hair growth and premature balding. The addition of Proscar®/Propecia® should be able to minimize such side effects, as it will limit the testosterone to DHT (dihydrotestosterone) conversion process. Sustanon will also suppress natural testosterone production rather quickly. The use of HCG (human chorionic gonadotropin) and/or Clomid® (clomiphene citrate)/Nolvadex® (tamoxifen citrate) may be necessary at the conclusion of a cycle in order to avoid a hormonal crash. Remember though, Sustanon will remain active in the body for up to a month after your last injection was given. Beginning you ancillary drug therapy immediately after the steroid has been discontinued will not be very effective. Instead, HCG or Clomid®/Nolvadex® should be delayed two or three weeks, until you are near the point where blood androgen levels are dropping significantly.

Although Sustanon remains active in the body for approximately three weeks, injections are taken at least every 10 days. An effective dosage ranges from 250mg (one ampule) every 10 days, to 1000mg (four ampules) weekly. Some athletes do use more extreme dosages of this steroid, but this is really not a recommended practice. When the dosage rises above 750-1000mg per week, increased side effects will no doubt be outweighing additional benefits. Basically you will receive a poor return on your investment, which with Sustanon can be substantial. Instead of taking unnecessarily large amounts, athletes interested in rapid size and strength will usually opt to addition another compound. For this purpose we find that Sustanon stacks extremely well with the potent orals Anadrol 50® (oxymetholone) and Dianabol

(methandrostenolone). On the other hand, Sustanon may work better with trenbolone or Winstrol® (stanozolol) if the athlete were seeking to maintain a harder, more defined look to his physique.

Sustanon 250 is probably the most sought after injectable testosterone. I must, however, emphasize that this is not due to an unusual potency of this testosterone combination (remember esters only effect the release of testosterone), but simply because a "stack" of four different esters is a very good selling point. To the naïve customer it "must" be better; after all, there are four different steroids in there, not just one! But the reality is that in most instances you will get a whole lot more for your money with testosterone enanthate or cypionate. The advantages to be found in Sustanon are for the medical user only. If you tied to your doctor for regular injections, than Sustanon would allow you to visit the doctor on maybe a monthly basis, whereas you would need to fork up the cash and time for an office visit every two weeks with one of the other esters. This equates to a clear and dramatic improvement in patient comfort. But if you are a bodybuilder injecting the drug every week anyway, there is simply no advantage to be found in Sustanon at all. Blood levels will build to the same extremes either way. Don't let the fancy stack fool you - Sustanon is just overpriced testosterone.

Despite being much more costly than other esters, Sustanon remains very abundant on the U.S. black market. In fact, the high demand for this steroid has stirred new interest in its manufacture, particularly by veterinary companies in Mexico. As a result, we now have a lot more than the Organon brand name to choose from.

Quality Vet introduced a Sustanon clone to the Mexican market last year, called **4 Test**. It contains 250mg/mL of steroid like the original Organon product, and the correct ratio (30:60:60:100) of esters. It comes in a 5ml multi-dose vial. Be sure to look for the Quality Vet security hologram when shopping.

Ttokkyo is no longer in business, and old lots of its **Testonon 250** should be long gone now. Avoid any product with a Ttokkyo label, as it will most certainly be a fake.

Pet's Pharma recently introduced a Sustanon 250 clone to Mexico as well. The product is called **Test 250**, and carries the normal Sustanon 250 formula in a 10mL multi-dose vial. This item should be a very cost effective alternative to Mexican pre-loads, albeit in the package of a veterinary product (for some the greater scrutiny placed on human medicines in Mexico makes the Organon product worth spending the extra money on).

Loeffler's **Testosterona IV L/A** is still around, which contains the same steroid blend in a 10mL vial. Lab tests on Loeffler's Reforvit-B and testosterone propionate did not fair well during the publication of Anabolics 2004, so I can't make any guarantee about the quality of this product. Be sure to look for their hologram security sticker when shopping.

Tornel makes a version of this steroid called **Supertest-250**. This Mexican vet firm has a long-standing reputation as a fair quality company. It always seems to deliver a good dose of steroid, but by most accounts it is typically a little less than what is listed on the label. Tornel is usually a cheaper product than most competitive brands, so it may still be a better deal even with modest underdosing.

Norvet makes **Testo-Jet LA** in Mexico, which is another 10mL veterinary product. This is a new lab on the steroid scene, although they have a long history of making other vet drugs. Currently the line is not very popular, but will likely catch on if their quality is good.

Intervet, makers of Laurabolin, manufactures a 5mL vial in Australia called **Durateston**. Don't expect it to circulate the black market very much though, as these drugs are tightly controlled in Australia these days.

BM Pharmaceuticals is a quasi-legit company in India producing **Sustaretard 250**. This product comes in the form of 1mL ampules, each containing (obviously) the 250mg blend of esters. This product is very reminiscent of Russian Sustanon by Infar (*see below*) in its packaging (*see: Picture Library for photo*)

Russian Sustanon, manufactured under license by **Infar in India** (for export to former Soviet countries), may still be in circulation. This product comes packaged in plastic strips that hold five ampules, sealed on the face with white paper label. Each ampule is enclosed in a separate compartment, and the packaging is scored so as to break off individual ampule sections. One standout characteristic is that the ampule labels and packaging bear a big green "250" imprint under the lettering.

Organon Sustanon is marketed directly in Russia now. The product looks very much like European forms of Sustanon, with clear glass ampules, colored bands, and paper labels. Note that the product name is written in Cyrillic as "СУСТАНОН".

Sostenon 250 redi-jects manufactured by Organon in Mexico are also still found, although much less commonly in recent years in light of the less expensive products now coming out of this country. The price for a Sostenon redi-ject is about $7-8 in Mexico, $10 in some more expensive tourist areas. In the United States they can sell for as high as $25 each. Note that even though Organon never had

any problems with counterfeit redi-jects, they still decided to update their packaging recently with a new security feature. Specifically, they have embedded watermarks of the Organon logo all around the surface of the box. This is a difficult trait to copy without spending quite a bit of money, although probably unnecessary given that the syringes and foil sealed trays are already too costly for underground labs to consider duplicating. If you want a guaranteed safe buy, the Mexican "Pre-load" has always been one.

Less common, but still seen on the US black market, are the **European** versions of **Sustanon** from countries like Italy, Portugal, Belgium, and England. All of these products use ampules that are scored, carry colored (yellow and red) rings on the tip, and have white paper labels.

Durateston, the brand name Organon uses to market this multi-component testosterone blend in Brazil, is also seen in the U.S. on occasion. Be sure your product has the accompanying box and paperwork, which will weed out some of the cheaper counterfeits.

Two versions of this steroid have been made in Egypt by the Nile Co in recent years. The first is called **Testonon**, and the second **Sustanon**. The fact that two different versions exist may have to do with licensing issues with Organon, as only the latter product is seen to bear the Organon logo. Fakes are known to exist, so be careful when shopping. In particular, make sure the Nile logo is genuine on the box (both products), which will help you identify one of the most common fakes in circulation at this time (*see: Picture Library for comparison photographs*). Also, the Nile Sustanon is highly counterfeited, but there are a couple of things you can look for to weed out most of them. For one, make sure the "/" in "250mg / mL" touches or almost touches the Organon logo. Many of the fakes have a larger than normal space here. Also, look at the letter "X" in "Exp." closely. The real product doesn't really have a normal "Western" letter X. The two halves of the letter do not intersect perfectly in the middle, and the letter actually looks more like a K or N upon close examination. Fakes are normally printed with the help of Western computer equipment with more familiar typestyles. If your X looks like a perfect X, the product you have is fake.

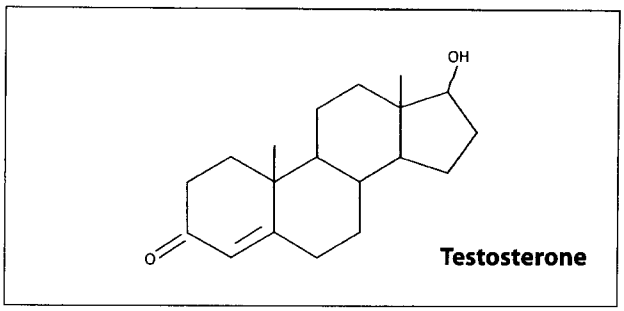
Sustanon 250 from **Karachi** Pakistan is also popular as of late. These ampules are clear glass with yellow silk-screen printing. This is one of the few versions of this steroid product sold by Organon globally that does not carry a paper label. Fakes are circulating in high volume at this time, so be careful. Note that the current real product has its lot numbers printed on with electronic equipment, and are not silk-screened on the glass at the same time as the rest of the lettering.

Organon also sells Sustanon in **Indonesia** without a paper label. The product comes in a clear class ampule, carrying simple dark brown silkscreen printing directly on the surface of the glass.

Synovex® (testosterone propionate & estradiol)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Synovex is a steroid implant preparation, which is available only as a veterinary item for use in cattle (livestock). The implant comes in the form of small pellets, which are pushed into the ear of an animal with a large implant gun. Here they slowly dissolve and provide an extended release of steroid, lasting for many weeks. The hormone content of Synovex is mixed, with each pellet containing 25mg testosterone propionate and 2.5mg Estradiol Benzoate. The number of pellets in each cartridge will also vary depending on the intended target. Implants denoted "H" for heifer carry the most; in the case of U.S. Synovex-H it is 80 pellets (10 doses consisting each of 8 pellets). We will see a slightly lower pellet count in the "S" implants (steer) and "C" (calf) cartridges.

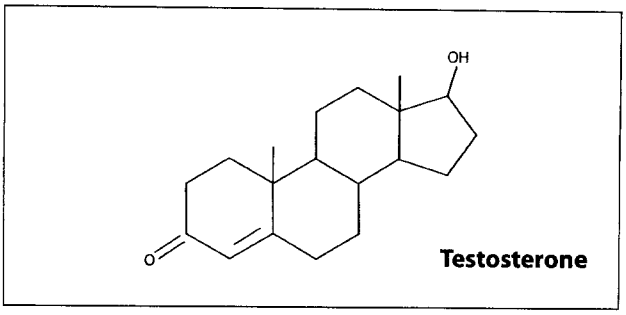
The combination of estrogen with testosterone (in a 10:1 ratio) has proven to provide an added anabolic/weight gaining effect in feed animals. Athletes have long been aware that strong androgens like testosterone, which aromatize into estrogen quite readily, are the strongest anabolics. It is also observed that anti-estrogen drugs like Nolvadex® can decrease the muscle and strength gains received from androgen therapy. It has been therefore theorized that the added estrogen level is in some way responsible for increasing the anabolic effect of androgens. Perhaps this is accomplished by somehow increasing the number of available receptor sites or receptor sensitivity.

With this understanding one might think the estrogen combination in Synovex would prove to be a powerful mix for athletes. But those who have experimented with it have been generally disappointed with the results, as the estrogen in this product is very likely to produce many unwanted side effects. This includes severe gynecomastia, noticeable body fat accumulation and water retention. In many cases the water retained will lead to an unsightly bloated look (extreme loss of definition). Synovex is clearly a good cattle item, but not the ideal steroid for humans. I really think athletes have only become attracted to this product out of sheer desperation for legitimate anabolics. Here in the United States, cattle implants like this are not controlled substances despite their steroid content. Synovex is often easy to purchase directly from Agricultural or Veterinary supply stores, as no paperwork is required.

An athlete will typically grind up these pellets, and either rub them on the skin mixed with DMSO and water for transdermal delivery, or mix up his own injection. One should remember that the practice of preparing this for injection would obviously not be very sterile and could be potentially dangerous. Others feel that simply snorting the Synovex powdered is a sufficient delivery method. Some have additionally worked out methods of removing the estrogen from the pellets, to make the drug much more comfortable to use. While this is possible, I think such procedures are generally much more trouble than they are worth. They involve the use of highly flammable materials, and take a number of different steps to complete. All of the estrogen will likely not be removed after all is done, and I cannot see the end product as being the most sanitary thing to administer. In addition to the U.S. version made by Syntex, Synovex is also available in other countries but is never imported due to lack of demand. No counterfeits currently exist, nor are they likely to show up in the future.

Testolent (testosterone phenylpropionate)

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Testolent is testosterone's answer to Durabolin (nandrolone phenylpropionate). This product contains testosterone phenylpropionate, the same rapidly deploying ester that makes Durabolin such a fast acting nandrolone injectable. Although testosterone phenylpropionate is one of the constituents in the widely distributed and favored steroid Sustanon, this is the only time it has been made available as a stand-alone product. When it comes to nandrolone, Deca-Durabolin and Durabolin are the standards. One is fast acting; the other quite slow. The need for a fast acting version like nandrolone phenylpropionate (if nandrolone decanoate was the only ester available) is quite clear, as there are indeed times when you need a drug that will get into the system fast. But when it comes to testosterone, we already have testosterone propionate. Is there really any need for a testosterone phenylpropionate?

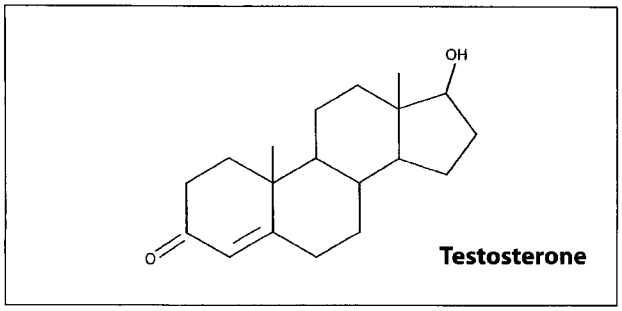
For the average person, the activity of Testolent will be very difficult, if not totally impossible, to discern from testosterone propionate. For starters, the release duration with phenylpropionate will only be slightly longer than propionate, causing testosterone levels to build in the blood almost as quickly. By the time the second shot is due, blood levels of testosterone should be pretty comparable with both products. Being so fast acting, this drug must obviously be administered on a regular basis if maintaining steady blood levels is desired. Although we would be best served to inject propionate every third day, phenylpropionate can likely be stretched out to an injection every fourth day. While not a major difference, over the course of a full cycle it does save the discomfort of an extra couple of injections.

As an injectable testosterone, Testolent will be an effective strength and mass builder (for a more comprehensive discussion of results and side effects, *see: testosterone propionate*). But aside from requiring fewer shots, and perhaps the chance that some users will notice injection pain with propionate and not phenylpropionate (propionate is notoriously painful at the site of injection), there is really no great advantage to using it. Ultimately testosterone is testosterone regardless of the ester that aids its release into the body, so it is usually difficult to say any one is really superior to another in terms of building muscle. Over the course of a normal cycle one should usually just go with what provides the most amount of base steroid for the least amount of money. If you specifically feel you need a fast acting drug for some reason, either testosterone propionate or phenylpropionate will do the trick. In the end there is no reason to specifically seek out Testolent. However, if it is available for a good price next to propionate, it most certainly will be an acceptable substitute.

Testolent was manufactured until very recently by the Rumanian drug firm Sicomed. It was packaged in 1ml ampules, with each containing 100mg of steroid. However, this product is now discontinued, so only residual stock will be left in circulation at this time. This is expected to dry up rather quickly of course, so do not plan on finding Testolent circulating the black market for very long. This product is not all that unique though, so its loss will not be a hard felt one. Testosterone propionate will likewise work as an effective, almost indistinguishable, substitute for this steroid for all applications.

Test® 400 (testosterone propionate/cypionate/enanthate)

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Denkall's Test 400 wins the prize for the absolute highest concentration for any steroid in one milliliter of oil. Measuring in at an unheard of 400 milligrams, this product is nothing short of a shocking new addition to the high-dosed veterinary steroid market in Mexico. Test 400 is a blended product, with each milliliter containing 25 milligrams of testosterone propionate, 187 milligrams of testosterone cypionate and 188 milligrams of testosterone enanthate. In order to achieve such a high concentration of steroid it appears that the amount of alcohol used in the solution has been markedly increased. Without increasing the alcohol level 400 milligrams of steroid would simply be too much for the solution to dissolve. The steroid hormone is more soluble in an oily solution with heightened amounts of alcohol, which allows us to achieve a dosage otherwise not possible. The drawback however is that the alcohol makes for an irritating, almost caustic solution to inject. Users commonly report strong irritation and pain at the site of injection, in many instances requiring the user to dilute the steroid with lower dosed oil based products if Test 400 is to be continued. But for those solely interested in maximum dosage, or those willing to later dilute a steroid in order to purchase the most steroid in single vial possible, Test 400 looks like an instant winner.

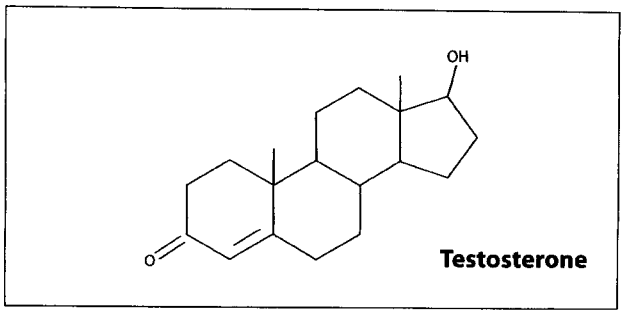
The design of this steroid most closely resembles that of Testoviron, containing a mix of rapid and medium/slow acting esters. In fact the only difference between the enanthate/propionate blend Testoviron and Test 400 are the dosages of the esters, and the addition of testosterone cypionate. I see no real advantage in stacking testosterone cypionate with enanthate though, as the pharmacokinetics of these two esters are literally identical. Testosterone levels peak and drop in parallel with these two agents, with no visible distinction. Upon closer investigation we see that the only advantage to adding cypionate appears to be a marketing one, as we have a product with three steroids instead of two. At least with Sustanon the release parameters are different with each ester, such that an attempt is made to integrate the four and support the balanced release of testosterone. But with test 400, having propionate and all cypionate would be totally indistinct from having propionate and all enanthate.

The effects of Test 400 would be similar to that of all testosterones. Testosterone is one of the best mass-building agents, so users can expect substantial gains with this product. Testosterone is also strongly estrogenic and androgenic however, so one should expect these gains to be accompanied by equally strong side effects. This includes water retention, possible fat increases and even gynecomastia is estrogenic levels get too high, and acne, oily skin and possible hair loss from the androgenic component of this steroid. As you will see throughout this book and our discussions with testosterone, side effects can be minimized with ancillary drugs such as anti-estrogens like Nolvadex®, Clomid® or Arimidex®, and/or the 5-alpha reductase inhibitor Proscar®. However, most refrain from these drugs, enduring minor side effects unless they become a problem so as to maximize potential tissue gains (both anti-estrogens and Proscar are believed to lower the anabolic potency of a cycle based on testosterone).

Be sure to look for the Denkall security hologram sticker when shopping. This is placed on the packaging to deter duplication, and provides a helpful check that you should be getting a legitimate product. Be very careful when you examine the stickers though. Fakes of the Denkall line with counterfeit holograms are in circulation, and they look very good to the untrained eye (*see: Security Stickers for more information*)

Testosterone buciclate

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Buciclate is one of the newest esters of testosterone to catch the attention of the medical world, entering clinical trials in the early 1990's. This is quite late in the world of steroids. Nearly all of the drugs we have available to us today were identified and studied back in mid-20th century. This drug was created by a group of scientists focused on finding a form of injectable testosterone that would be longer acting and steadier in its day-to-day release than the esters normally in use. The compound they developed utilizes the extremely long, highly oil soluble, and slow acting buciclate ester, which is 20 carbon atoms in length. Being that ester chain length usually correlates well to the duration of release, we can see how different buciclate is next to the other testosterone drugs. This ester is about seven times longer than propionate and three times longer than enanthate. In fact, it is even double the size of testosterone decanoate, the longest acting testosterone ester used as an injectable prescription medication prior. Although testosterone buciclate has seen extensive study at this point, it has yet to be adopted as a prescription drug for widespread use.

To examine the pharmacokinetics of this drug, we can take a look at a study published in the journal of Clinical Endocrinology and Metabolism in November 1992. Here, a group of male patients suffering from primary hypogonadism (low endogenous testosterone output) were given single injections of 200 or 600 milligrams. Various markers of health were examined on a regular basis for several months after the shot was given. The 600mg dose was able to restore normal androgen levels rapidly in the treated men, and maintain a therapeutically effective level for an amazing 12 weeks. 200mg was not a sufficient enough dose to return androgen levels back to their normal range, which could have been expected given the level of hormone we know is normally produced by the body. No significant peaks were noted in testosterone levels in either group, which are normally observed with esters like enanthate and cypionate. There were also no significant elevations in estrogen levels, or any side effects of merit. DHT levels did exceed normal in the 600mg group, however there were no unfavorable changes in urine flow, PSA (prostate specific antigen) values, or prostate volume. This investigation seems to suggest that testosterone buciclate holds great promise as a slow acting injectable androgen, with potential to replace other esters for use in areas of androgen replacement and male contraception.

In the context of bodybuilding, testosterone buciclate will be an effective drug, but it is probably not going to win any awards. For one, a cycle based on this compound would be very slow to start. It will take time and numerous injections for peak blood levels of testosterone to be reached. For the same reason it is going to be a drug for long cycles (greater than 4 months in length) only. The slow acting nature of this testosterone ester might cause it to impart its most prominent effects after your other drugs are finished otherwise. There would clearly be no sense in using it during a 6-week cycle of testosterone and Dbol, for example. Testosterone buciclate will end up offering its greatest value in cycles lasting more than 6 months, where its slow acting nature may be a benefit by allowing for less frequent injections and greater user comfort. In short cycles this same trait will just be a hindrance, preventing the rapid achievement of optimal blood hormone levels and delay the anabolic effect. In all applications we must also remember that this is a testosterone product, and ultimately offers the same hormone, anabolic benefit and side effects as all other injectable testosterone esters. Aside from its release duration, there is nothing magic about testosterone buciclate.

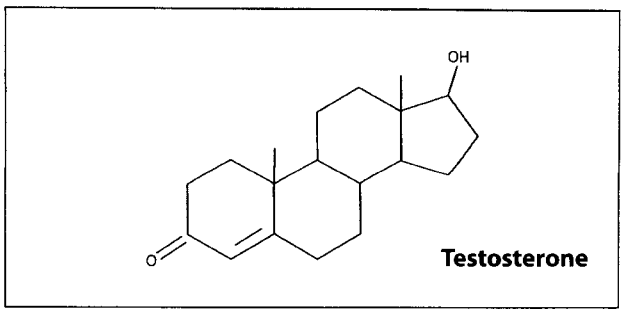
Most effective use of this compound in a bodybuilding sense is difficult to estimate, but would probably entail the injection of several full doses of 600mg (men) in the first two weeks of a cycle. After this point another full dose can be given every 5 to 15 days, depending on the desired potency or other steroids used. The drug could be discontinued 6-9 weeks before the cycle is going to be

concluded, and may even cause androgen levels to remain elevated for as long as 12 weeks after the last dose is given. Post-cycle therapy should be planned accordingly. Women should never attempt using this agent, even those adventurous enough to meddle with injectable testosterones. This ester is simply too long acting to take the risk. Should you find yourself encountering virilizing side effects, you'd be stuck in a bad cycle for months waiting for the last shots to wear off. It is much safer (if you must take testosterone) to use a fast acting drug, where you have more control over blood levels in the short term. As testosterone buciclate is still really a research drug in Europe, it is not readily available to athletes at this time. It will not be seen on the black market until it is adopted for prescription use in a steroid source country, or the various underground labs decide to take an interest in it. Until then, it remains a drug of academic interest only.

Testosterone butyrate

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

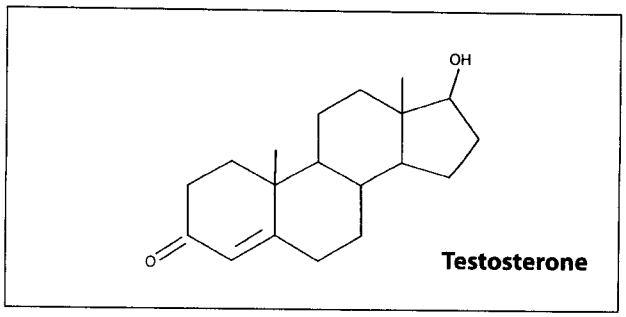
Testosterone butyrate is a rare ester of testosterone that you are not likely to see in a prescription drug product. It is one of the many steroid esters that had seen a period of investigative interest back in the heyday of steroid research, but ultimately never made its way to commercial production. This is not surprising, as the number of investigated steroids that were never marketed probably exceeds those that were by a factor of 50. There just isn't room for hundreds of different steroid products on pharmacy shelves, which means that many effective compounds are going to be left to sit in research obscurity. Testosterone butyrate is definitely one of them, although it is difficult to call this drug anything special. Its structure is extremely similar to testosterone propionate, with the butyrate ester being only one carbon atom longer. The level of oil solubility and release patterns for these two steroids are, therefore, going to be very close to each other, with the drugs maintaining strong testosterone elevations for only a few days.

Due to the short acting nature of testosterone propionate, it is typically injected every 2nd or 3rd day in order to maintain consistent blood testosterone levels. Since butyrate is ever so slightly longer acting, you could maybe stretch it to every 4th day. We must keep in mind, however, that in the context of taking higher than normal doses for bodybuilding purposes, the different properties of the various agents become immediately blurred. It all comes down to how much hormone you are getting per day, with the esters serving only to prolong the time it takes for each injection to dissipate. Milligram-for-milligram of hormone, they are all the same thing. Therefore, I cannot say much about testosterone butyrate that you haven't heard before. As a testosterone it will be prone to producing both considerable mass gains and normal androgenic/estrogenic side effects of a testosterone product. Should you come across this drug, for all intents and purposes, it can be included in all of your normal cycles in place of testosterone propionate.

Since this drug is not a "commercial" steroid, you cannot buy a legitimate prescription version at this time. It does appear, however, that some of the underground steroid manufacturers are selling this compound, perhaps in an effort to offer their customers something new and different. In reality, there is nothing you can say about this drug that you really couldn't say for propionate. It is a fast acting testosterone product, which provides a relatively low dose of steroid per mg compared to the more oil soluble drugs like testosterone enanthate or cypionate. You can admittedly exceed the 100mg/mL mark pretty easily by adding a lot of alcohol to the product, but that really doesn't make for comfortable injections. The shorter acting butyrate ester itself may also be irritating to many, just as testosterone propionate is. With all this in mind, I see little incentive to risk using an underground product just to experiment with testosterone butyrate. There are just too many other legitimately manufactured esters of testosterone available to choose from, which will work equally well.

Testosterone cyclohexylpropionate

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Testosterone cyclohexylpropionate, or CHP for short, is a long acting testosterone ester formerly manufactured in France by Theramex. The cyclohexylpropionate ester is very similar in structure to the cypionate (cyclopentylpropionate) ester, different only by the inclusion of a cyclohexane ring (6 carbon atoms) instead of cyclopentane ring (5 carbon atoms). Given the close similarity of these two compounds, one would expect the release duration of testosterone CHP to be very similar to that of testosterone cypionate, perhaps only slightly longer in effect. When it was being manufactured, testosterone CHP Theramex contained a steroid concentration of 296, 148, and 37 mg/mL, which equates to 200, 100, and 25 mg of active testosterone, respectively. Each dosage-strength of Testosterone CHP was manufactured in 1 mL glass ampules, with two ampules being packaged per box. This steroid lasted for about 17 years on the French drug market, first appearing back in 1974, and discontinued by the manufacturer in 1991. Today, no residual stock of Testosterone CHP is left anywhere, and to the best of my knowledge other versions of this steroid were removed from market long before the Theramex product.

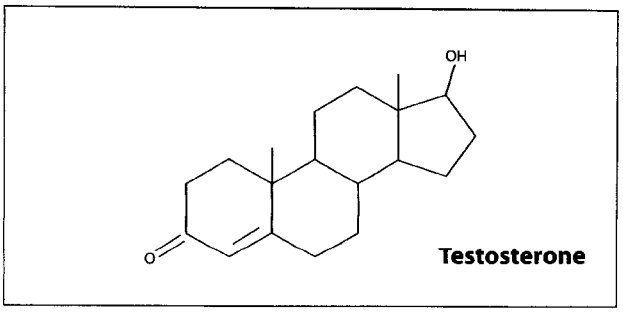
When this steroid was available, the 296 mg/mL version would be the most popular one located on the black market, for obvious reasons. Although one could get by administering the steroid on a less frequent basis, it was most common to inject 2-3 ampules (equating to 400 to 600mg of free testosterone) once each week. At this dose, Testosterone CHP was about as effective as any other ester of testosterone (we certainly cannot attribute any unique properties to this drug). Now that it is gone, any long acting ester of testosterone will serve as a replacement. For example, its former manufacturer, Theramex, continues to produce Testosterone Heptylate Theramex (testosterone enanthate), a steroid that would be indistinguishable from Testosterone CHP for the average user.

Although no longer available, this steroid is really not sorely missed. I say that not because Testosterone CHP was a bad compound, but simply because there are many other esters of testosterone available that work just as well. Cypionate is so close to this compound, in fact, that one would expect no real discernable difference to be present at all. For all intents and purposes, testosterone CHP was "just another testosterone". Should this steroid resurface one day under another manufacturer, it would most definitely be an acceptable testosterone compound to use. It just would not be anything special, and definitely not worth spending more money on than other esters like cypionate, enanthate, or decanoate.

Testosterone cypionate

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

American athletes have a long a fond relationship with Testosterone cypionate. While testosterone enanthate is manufactured widely throughout the world, cypionate seems to be almost exclusively an American item. It is therefore not surprising that American athletes particularly favor this testosterone ester. But many claim this is not just a matter of simple pride, often swearing cypionate to be a superior product, providing a bit more of a "kick" than enanthate. At the same time it is said to produce a slightly higher level of water retention, but not enough for it to be easily discerned. Of course when we look at the situation objectively, we see these two steroids are really interchangeable, and cypionate is not at all superior. Both are long acting oil-based injectables, which will keep testosterone levels sufficiently elevated for approximately two weeks. Enanthate may be slightly better in terms of testosterone release, as this ester is one carbon atom lighter than cypionate (remember the ester is calculated in the steroids total milligram weight). The difference is so insignificant however that no one can rightly claim it to be noticeable (we are maybe talking a few milligrams per shot). Regardless, cypionate came to be the most popular testosterone ester on the U.S. black market for a very long time.

As with all testosterone injectables, one can expect a considerable gain in muscle mass and strength during a cycle. Since testosterone has a notably high affinity for estrogen conversion, the mass gained from this drug is likely to be accompanied by a discernible level of water retention. The resulting loss of definition of course makes cypionate a very poor choice for dieting or cutting phases. The excess level of estrogen brought about by this drug can also cause one to develop gynecomastia rather quickly. Should the user notice an uncomfortable soreness, swelling or lump under the nipple, an ancillary drug like Proviron® and/or Nolvadex® should probably be added. This will minimize the effect of estrogen greatly, making the steroid much more tolerable to use. The powerful anti-aromatase Arimidex® is yet a better choice, but the high price tag prevents it from being more popularly used. Those who have a known sensitivity to estrogen may find it more beneficial to use ancillary drugs like Nolvadex® and Proviron® from the onset of the cycle, in order to prevent estrogen related side effects before they become apparent.

Since testosterone is the primary male androgen, we should also expect to see pronounced androgenic side effects with this drug. Much intensity is related to the rate in which the body converts testosterone into dihydrotestosterone (DHT). This, as you know, is the devious metabolite responsible for the high prominence of androgenic side effects associated with testosterone use. This includes the development of oily skin, acne, body/facial hair growth and male pattern balding. Those worried that they may have a genetic predisposition toward male pattern baldness may wish to

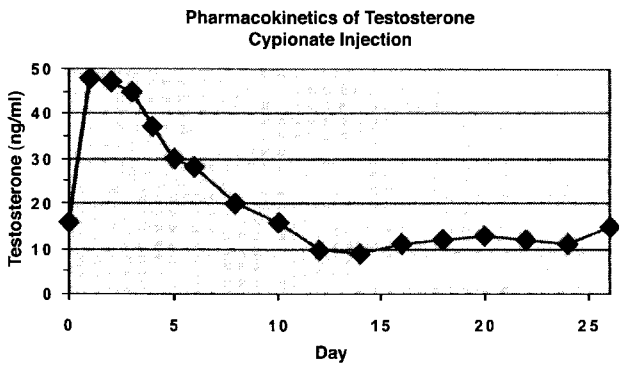


Figure 1. Pharmacokinetics of 200mg testosterone cypionate injection. Source: Comparison of testosterone, dihydrotestosterone, luteinizing hormone, and follicle-stimulating hormone in serum after injection of testosterone enanthate or testosterone cypionate. Schulte-Beerbuhl M, Nieschlag E. Fertility and Sterility 33 (1980) 201-3.

avoid testosterone altogether. Others opt to add the ancillary drug Propecia®, which is a relatively new compound that prevents the conversion of testosterone to dihydrotestosterone (*see: Proscar®*). This can greatly reduce the chance for running into a hair loss problem, and will probably lower the intensity of other androgenic side effects.

Although active in the body for a much longer time, cypionate is injected on a weekly basis. This should keep blood levels relatively constant, although picky individuals may even prefer to inject this drug twice weekly. At a dosage of 200mg to 800mg per week we should certainly see dramatic results. It is interesting to note that while a large number of other steroidal compounds have been made available since testosterone injectables, they are still considered to be the dominant bulking agents among bodybuilders. There is little argument that these are among the most powerful mass drugs. While large doses are generally unnecessary, some bodybuilders have professed to using excessively high dosages of this drug. This was much more common before the 1990's, when cypionate vials were usually very cheap and easy to find in the states. A "more is better" attitude is easy to justify when paying only $20 for a 10cc vial (today the typical price for a single injection). When taking dosages above 800-1000mg per week there is little doubt that water retention will come to be the primary gain, far outweighing the new mass accumulation. Therefore, the practice of "megadosing" is inefficient, especially when we take into account the typical high cost of steroids today.

It is also important to remember that the use of an injectable testosterone will quickly suppress endogenous testosterone production. Therefore, it may be good advice to use a testosterone stimulating drug like HCG and/or Clomid®/Nolvadex® at the conclusion of a cycle. This should help the user avoid a strong "crash" due to hormonal imbalance, which can strip away much of the new muscle mass and strength. This is no doubt the reason why many athletes claim to be very disappointed with the final result of steroid use, as there is often only a slight permanent gain if anabolics are discontinued incorrectly. Of course we cannot expect to retain every pound of new bodyweight after a cycle. This is especially true whenever we are withdrawing a strong (aromatizing) androgen like testosterone, as a considerable drop in weight (and strength) is to be expected as retained water is excreted. This should not be of much concern; instead the user should focus on ancillary drug therapy so to preserve the solid mass underneath. Another way athletes have found to lessen the "crash", is to first replace the testosterone with a milder anabolic like Deca-Durabolin®. This steroid is administered alone, at a typical dosage of 200-400mg per week, for the following month or two. In this "stepping down" procedure the user is attempting to turn the watery bulk of a strong testosterone into the more solid muscularity we see with nandrolone preparations. In many instances, this practice proves to be very effective. We must still remember to administer ancillary drugs at the conclusion, as endogenous testosterone production will not be rebounding during the Deca therapy.

Cypionate can still be found on the black market in good volume. In fact, its availability is actually much better right now than it was just a few years ago. In going over the list of common products, you should be aware of the following:

Animal Power makes a testosterone cypionate product in Mexico, called **Cypiotest 250**. It carries 250mg/mL of steroid in a 10mL multi-dose vial. AP uses a number of security checks on this product to deter illicit duplication, the least effective of which is not the holographic sticker the company affixes to all boxes and vials (*see: Security Stickers*). Also make sure the top on your vial has a paw print in it, which is part of the corporate logo.

The veterinary drug maker Quality Vet has one of the more popular cypionates on the Mexican drug market. It is called **Teston QV 200**, and it carries 200mg/mL of steroid in a 10mL vial. QV uses a security hologram sticker to deter counterfeiting, so be sure to look for this when shopping.

Denkall makes a similar product in Mexico, called **CypioTest 250**. This item also comes in a 10mL multi-dose vial. Denkall is a top-notch company; just be sure your vials are protected with the appropriate security hologram stickers. Note that fakes of the Denkall line with counterfeit holograms are in circulation (*see: Security Stickers for more information*).

Nutri-Vet started producing a new cypionate product in Mexico last year. The product is called **Ultra Cyp 300**, and contains 300mg/mL of steroid in a 10mL multi-dose vial. Note that at one time the product did carry a hologram sticker to deter counterfeiting, but the company has since discontinued its use.

Ttokkyo used to make a cypionate in Mexico as well, called **Testosterone Cypionate L.A.** It came in both 100mg/mL and 200mg/mL strengths. Both forms were packaged in 10mL multi-dose vials. Ttokkyo is long out of business, however, and any old stock would be long gone now. Avoid.

Loeffler sells **Cypiotest L/A** in Mexico, which should not be confused with Denkall's Cypiotest. This product also comes in a dosage of 250 mg/mL, and is packaged in a similar 10 mL multi-dose vial. Dosing on Loeffler's testosterone propionate and Reforvit products tested off in the past, so you may not want to plan on 100% potency.

Xelox Pharmaceuticals, an export-only company operating in the Philippines, sells a testosterone cypionate product called **Vironate**. Xelox also uses a security sticker to deter counterfeiting, although it is not a holographic one. Make sure you look for this when shopping. When removed from the box, the letters VOID appear in the sticker and on the box.

The Thai firm British Dragon sells a cypionate product called **Testabol Depot**. It carries 200mg/mL of steroid, and comes prepared in a 10mL multi-dose vial. BD discontinued using hologram stickers on their injectable products recently, and instead has started using a red or blue metallic foil inlay on all of its vial labels. Be sure to also look for the product name formed into the plastic on the custom tops, and for the tops to reveal a dragon formed into the rubber upon removal.

Body Research in Thailand used to make a good cypionate product called **Cypionax**. The firm had a run-in with the Thai authorities about a year ago, however, and had large quantities of its steroid inventory seized. The company has been out of production ever since, although there is some speculation of a possible comeback. Currently, the Body Research name is being used by counterfeiters in Eastern Europe to produce a number of questionable fakes. Be careful.

Depo-Testosterone from Pharmacia (formerly Upjohn) is the most popular brand of cypionate in the U.S. This is a high profile target of counterfeiters, whose products will outnumber the real thing on the black market by as much as 10 to 1. Be careful to examine the packaging closely, and to compare it to the photos in the picture library. One trait to look at in particular is the opening flap on the box. As you will notice in the real vs. comparison shot of the older Upjohn product (in the photo section), the flap on the legitimate item comes to a blunt point at the tip. The fake is perfectly curved at the tip. To date, I have not seen a counterfeit that had correctly copied this trait.

Watson now makes a generic testosterone cypionate in the U.S. It comes in a 200mg/mL dosage, packaged in a 10mL multiple-dose vial. This drug is actually manufactured for Watson by Steris Laboratories, a company with a long and turbulent history in the U.S. steroid business. Back in the 80's and early 90's, Steris products were extremely popular, and very abundant on the black market. In the mid-90's they were sanctioned by the FDA (the details were never very clear), and forced to close their steroid manufacturing line for some time. Apparently they are back, at least manufacturing for other firms again. Perhaps this is a sign that we will see more generics on the U.S. market. As with all U.S. drugs, you should never buy this product blindly off the black market. U.S. drugs are rarely diverted for black market sale, and most found there are fakes. Look at this drug only if you can track it back to a pharmacy or legitimate prescription.

There are a few pharmacies "**custom compounding**" drugs for doctors that specialize in androgen replacement therapy, but these products rarely circulate on the black market. Some photos were included in the picture library for your reference.

The Aussie company Jurox has scaled back its steroid manufacturing business considerably, and many of their former products have been discontinued. **Testo LA** is one of them. It used to be exported to Mexico in some frequency. Note that there have been a lot of fake Jurox products on the market lately. One counterfeiter is producing an entire line of very good-looking fakes, all complete with boxes and intricate Jurox security hologram stickers. The Jurox logo is imbedded in the holographic image, making for a sticker that looks absolutely top notch. Problem is, Jurox never used a hologram, and isn't making this product anymore!

SYD Group (their branch in Mexico) has been selling a copy of the old Jurox product, called **Anabolic TL**. It comes in two strengths, 100mg/mL and 200mg/mL. Both are supplied in 10mL multi-dose vials. SYD Group is a very reputable company, and their product is considered trustworthy on the market. Just be sure your product carries the SYD Group circular hologram sticker.

Spanish **Testex** from Spain can still be located on the black market. This product is made by Altana Pharma (formerly Byk Leo), and is packaged in 2mL dark glass ampules with yellow silkscreen lettering. It comes in two doses, containing a total of 100mg or 250mg of steroid. Testex has always been a high-risk item on the black market, so be careful when shopping. Note that the first letter in the lot number (such as T-001) should rest below, to the left of the company name (Altana). Fakes often misplace these digits. If the T (for example) were to rest directly below the A in Altana, or to the right of the A, you definitely have a fake.

Deposteron is also still made by Novaquimica in Brazil, and makes its way to the U.S. from time to time. Note that they are now using dark amber glass for the ampules instead of clear. Due to the fact that plain ampules are very easy to duplicate, it would be best to trust this product only when it is packaged in the appropriate box.

Found in Chile is a high-dose cypionate product called **ciclo-6**. The product is manufactured by the firm Drag Pharma, and contains 300mg/mL of steroid in a 2mL ampule (600mg of cypionate in total). This is quite a bit of steroid for a South American product, which are generally notorious for low steroid dosages. As a result, it seems to be getting the attention of some international dealers.

Miro Depo from Korea is still found in the U.S. from time to time, but not abundantly. Note that this product uses multi-dose vials, which sit in a foil topped plastic tray. Obtaining this item with the full packaging is the best way to guarantee authenticity, although fakes of this item have not been a problem so far. The box has been updated recently, to reflect a more modern design.

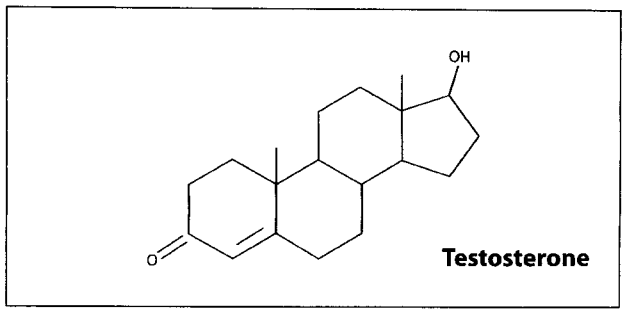
Testosterona Ultra from Uruguay has been scarce as of late, perhaps because it is much easier to find and bring in testosterone cypionate from Mexico now. I cannot confirm this drug is still in manufacture.

The quasi-legit company BM Pharmaceuticals from India also sells a testosterone cypionate product, called **Testacyp**. It contains 100mg/mL of steroid in a 2mL vial (the standard 200mg dosage in total). It comes in boxes of 3 and 10 vials.

Testosterone enanthate

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone enanthate is an oil based injectable steroid, designed to release testosterone slowly from the injection site (depot). Once administered, serum concentrations of this hormone will rise for several days, and remain markedly elevated for approximately two weeks. It may actually take three weeks for the action of this drug to fully diminish. For medical purposes this is the most widely prescribed testosterone, used regularly to treat cases of hypogonadism and other disorders related to androgen deficiency. Since patients generally do not self-administer such injections, a long acting steroid like this is a very welcome item. Therapy is clearly more comfortable in comparison to an ester like propionate, which requires a much more frequent dosage schedule. This product has also been researched as a possible male birth control option[145]. Regular injections will efficiently lower sperm production, a state that will be reversible when the drug is removed. With the current stigma surrounding steroids however, it is unlikely that such an idea would actually become an adopted practice.

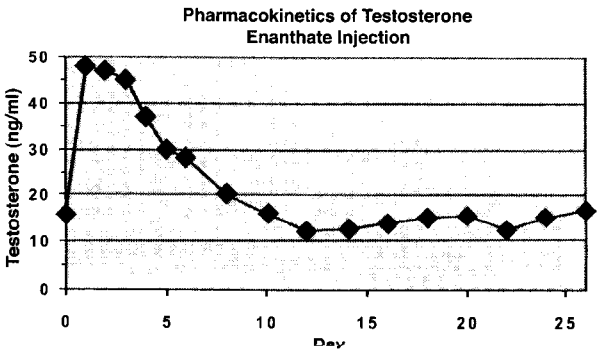


Figure 1. Pharmacokinetics of 194mg testosterone enanthate injection. Source: Comparison of testosterone, dihydrotestosterone, luteinizing hormone, and follicle-stimulating hormone in serum after injection of testosterone enanthate or testosterone cypionate. Schulte-Beerbuhl M, Nieschlag E. Fertility and Sterility 33 (1980) 201-3.

Testosterone is a powerful hormone with notably prominent side effects. Much of which stem from the fact that testosterone exhibits a high tendency to convert into estrogen. Related side effects may therefore become a problem during a cycle. For starters, water retention can become quite noticeable. This can produce a clear loss of muscle definition, as subcutaneous fluids begin to build. The storage of excess body fat may further reduce the visibility of muscle features, another common problem with aromatizing steroids. The excess estrogen level during/after your cycle also has the potential to lead up to gynecomastia. Adding an ancillary drug like Nolvadex® and/or Proviron® is therefore advisable to those with a known sensitivity to this side effect. As discussed throughout this book, the anti-aromatase Arimidex® is a much better choice. The expense of this drug unfortunately stops its use from becoming a widespread practice however. It is believed that the use of an anti-estrogen can slightly lower the anabolic effect of most androgen cycles (estrogen and water weight are often thought to facilitate strength and muscle gain), so one might want to see if such drugs are actually necessary before committing to use. A little puffiness under the nipple is a sign that gynecomastia is developing. If this is left to further develop into pronounced swelling, soreness and the growth of small lumps under the nipples, some form of action should be taken immediately to treat it (obviously quitting the drug or adding ancillaries).

Being a testosterone product, all the standard androgenic side effects are also to be expected. Oily skin, acne, aggressiveness, facial/body hair growth and male pattern baldness are all possible. Older or more sensitive individuals might therefore choose to avoid testosterone products, and look toward milder anabolics like Deca-Durabolin® or Equipoise® which produce fewer side effects. Others may opt to add the drug Proscar®/Propecia®, which will minimize the conversion of testosterone into DHT (dihydrotestosterone). With blood

levels of this metabolite notably reduced, the impact of related side effects should also be reduced. However, with strong bulking drugs, the user will generally expect to incur strong side effects and will often just tolerate them. Most athletes really do not find the testosterones all that uncomfortable (especially in the face of the end result), as can be seen with the great popularity of such compounds.

Although this particular ester is active for a much longer duration, most athletes prefer to inject it on a weekly basis in order to keep blood levels more uniform. The usual dosage would be in the range of 250mg-750mg (200mg-800mg U.S. strength). This level is quite sufficient, and should provide the user a rapid gain of strength and body weight. Above this level, estrogenic side effects will no doubt become much more pronounced, outweighing any new muscle that is possibly gained. Those looking for greater bulk would be better served by adding an oral like Anadrol 50® or Dianabol, combinations which prove to be nothing less than dramatic. If the athlete wishes to use a testosterone yet retain a level of quality and definition to the physique, an injectable anabolic like Deca-Durabolin® or Equipoise® may prove to be a better choice. Here we can use a lower dosage of enanthate, so as to gain an acceptable amount of muscle but keep the buildup of estrogen to a minimum. Of course, the excess estrogen that is associated with testosterone makes it a bulking only drug, producing too much water (and fat) retention for use near contest time.

It is also important to remember that endogenous testosterone production is likely to be suppressed after a cycle of this drug. When this occurs, one runs the risk of losing muscle mass once the steroid is discontinued. HCG and/or Clomid® are in most cases considered to be a necessity, used effectively to restore natural testosterone production and avoid a post-cycle "crash". The user should always expect to see some loss of body weight when the steroid is discontinued, as retained water (accounting for considerable weight) will be excreted once hormone levels regulate. This weight loss is to be ignored, and the athlete should be concerned only with preserving the quality muscle that lies underneath. With the proper administration of ancillary drugs, much of the new muscle mass can be retained for a long time after the steroid cycle has been stopped. Those who rely solely on a fancy tapering-off schedule to accomplish this are likely to be disappointed. Although a common practice, this is really not an effective way to restore the hormonal balance.

Worldwide, enanthate is the most abundantly produced ester of testosterone, and consequently is also the one most commonly found on the black market. It would be impossible to describe every product that you may come across when shopping in detail here, but I can give you some advice concerning products most popular right now.

Delatestryl by BTG is the most well known brand of enanthate in the U.S. at this time. It comes in both 1ml pre-loaded syringes and 5mL multi-dose vials, the latter being the only form really found on the black market (and rarely at that, due to strict controls). Note that the vials are short, and carry a label with metallic backing you can see through the glass. Looking for this will help assure you are getting the real thing, if somehow you luck out and come across a vial. **Savient** markets the Delatestryl brand in Canada, which is made to similar specifications (*see: Picture Library*).

Watson now makes a generic Enanthate in the U.S. as well. It comes as a 200mg/mL solution, and is packaged in 10mL multiple-dose vials. This is one of the best finds as far as Enanthates go, provided you can get the real thing that is. Be leery of any Watson product you are offered from a steroid dealer, given the very low tendency for U.S. drugs to be diverted to the black market at this time. Most U.S. steroids found here are counterfeit, so be careful.

Animal Power makes a testosterone enanthate product in Mexico, called **Enantest 250**. It contains 250mg/mL of steroid in a 10mL multi-dose vial. So far feedback on this line has been very favorable, suggesting that this is another good company in the Mexico market. Fakes are not yet known to be a problem on the black market. Be sure your product carries the company's holographic sticker (*see: Security Stickers*), and you should be assured of a safe buy.

Pet's Pharma is another Mexican drug manufacturer to sell an enanthate product. Theirs is called **Enantato 350**, and it is supposed to carry a whopping 350mg/mL dose. This would exceed the normal limit of comfortable dosing in oil, suggesting that if they do indeed have this much steroid, higher than normal levels of alcohol accompany it. The high concentration and alcohol content may make for more painful injections. Enantato 350 comes prepared in 10 mL multi-dose vials, each of which will carry a security sticker to deter counterfeiting. The sticker is not holographic, however, although it does use uncommon metallic red and blue inks. Be sure to locate this sticker when shopping. Right now fakes are not reported to be a problem.

Quality Vet is still producing **Enantat QV 250**, which is amongst the more trusted testosterone enanthate preparations in Mexico right now. It comes in both 10ml and 50mL vials, and provides a nice 250mg/mL steroid concentration. The whole QV line is protected with hologram stickers to deter counterfeiting. Be sure to look for these when shopping.

Testofort Inj from Albert Davis Pakistan is one of the newer products to be seen on the black market in volume as of late. It contains 250mg/mL of steroid in 1ml ampules. Three ampules come packaged to each cardboard box.

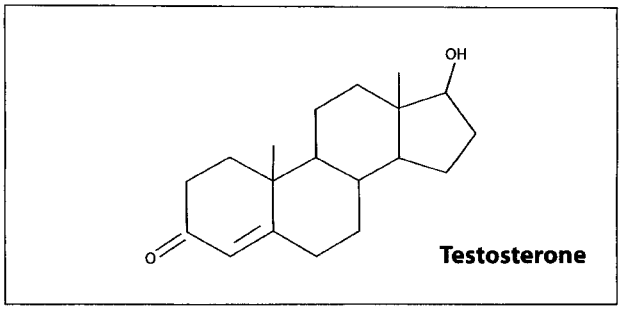
Also coming from Pakistan lately is a generic enanthate product from **Geofman Pharmaceuticals**. The product itself is very similar in its formulation to Testofort (and most enanthate products), containing 250mg of steroid in each 1mL ampule. Like Testofort, three ampules are contained in each box.

Aburaihan makes a generic enanthate in Iran, which is becoming increasingly popular on the black market. Note that many fakes are already circulating of this product as well. The current popular fakes have a noticeable mistake on the placement of the company logo (*see: Picture Library*). Provided you have the legit thing, this should be a very good buy as far as testosterones go.

Testosterone propionate

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone propionate is a commonly manufactured, oil-based injectable testosterone compound. The added propionate ester will slow the rate in which the steroid is released from the injection site, but only for a few days. Testosterone propionate is therefore comparatively much faster acting than other testosterone esters such as cypionate or enanthate, and requires a much more frequent dosing schedule. While cypionate and enanthate are injected on a weekly basis, propionate is generally administered (at least) every third day. Figure one illustrates a typical release pattern after injection. As you can see, levels peak and begin declining quickly with this ester of testosterone. To make this drug even more uncomfortable to use, the propionate ester can be very irritating to the site of injection. In fact, many sensitive individuals choose to stay away from this steroid completely, their body reacting with a pronounced soreness and low-grade fever that may last for a few days. Even the mild soreness that is experienced by most users can be quite uncomfortable, especially when taking multiple injections each week. The "standard" esters like enanthate and cypionate, which are clearly easier to use, are therefore much more popular among athletes.

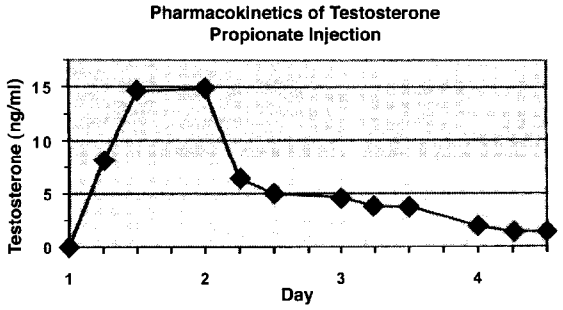


Figure 1. Pharmacokinetics of 25mg labeled testosterone propionate injection. Source: Pharmacokinetic properties of testosterone propionate in normal men. Fujioka M, Shinohara Y, Baba S. et. Al. J Clin Endocrinol Metab 63 (1986) 1361-4.

Those who are not bothered by frequent injections will find that propionate is quite an effective steroid. As an injectable testosterone it is, of course, a powerful mass drug, capable of producing rapid gains in both much size and strength. At the same time the buildup of estrogen and DHT (dihydrotestosterone) will be pronounced, so typical testosterone-related side effects are to be expected. Bodybuilders generally consider propionate to be the mildest testosterone ester, and the preferred form of this hormone for dieting/cutting phases of training. Some will go so far as to say that propionate will harden the physique, while giving the user less water and fat retention than one typically expects to see with a testosterone like enanthate, cypionate or Sustanon. Realistically however, this is nonsense. The ester is removed before testosterone is active in the body, and likewise the ester cannot alter the activity of the parent steroid in any way, only slow its release. It all boils down to how much testosterone you are getting into your blood with each particular compound – otherwise there is no difference between them.

During a typical cycle one will see action that is consistent with other forms of testosterone. Users sensitive to gynecomastia may therefore need to addition an anti-estrogen. Those particularly troubled may find that a combination of Nolvadex® and Proviron® works especially well at preventing/halting this occurrence (Arimidex or Femara are even more effective options, but are also more costly). Also unavoidable with a testosterone are androgenic side effects like oily skin, acne, increased aggression and body/facial hair growth. Those who may have a predisposition for male pattern baldness may also find that propionate will aggravate this condition. To help combat this we also have the option of adding Propecia®/Proscar® or Avodart®, which will reduce the buildup of DHT in many androgen target tissues. This will help minimize related side effects (particularly hair loss), although it offers us no guarantees. And as with all testosterone products, propionate will suppress endogenous

testosterone production soon into the cycle. The use of a testosterone stimulating regimen of HCG and Nolvadex/Clomid® is, therefore, almost a requirement at the end of the cycle, in order to avoid enduring the dreaded hormonal crash.

The most common dosage schedule for this compound (men) is to inject 50 to 100mg, every 2nd or 3rd day. As with the more popular esters, the total weekly dosage would be in the range of 200-400mg. As with all testosterone compounds, this drug is most appropriately suited for bulking phases of training. Here it is most often combined with other strong agents such as Dianabol, Anadrol 50®, or Deca-Durabolin®, combinations that prove to be quite formidable. However, Propionate is sometimes also used with non-aromatizing anabolics/androgens during cutting or dieting phases of training, a time when its fast action and androgenic nature are also appreciated. Popular stacks include a moderate dosage of propionate with an oral anabolic like Winstrol® (15-35mg daily), Primobolan® (50-150mg daily), or oxandrolone (15-30mg daily). Provided the body fat percentage is sufficiently low, the look of dense muscularity can be notably improved (barring any excess estrogen buildup from the testosterone). We can further add a non-aromatizing androgen like trenbolone or Halotestin®, which should have an even more extreme effect on subcutaneous body fat and muscle hardness. With the added androgen content any related side effects will become much more pronounced.

Women who absolutely must use an injectable testosterone should only use this preparation. This is simply because blood levels are easier to control with it compared to other long-acting esters. Should virilization symptoms develop, one would not wish to wait the weeks needed for testosterone concentrations to fall after a shot of enanthate. The dosage schedule should also be more spread out, with injections coming every 5 to 7 days at most. Obviously, the dosage would be lower as well, generally in the range of 25mg per injection. Androgenic activity should be less pronounced with this schedule, giving blood levels time to sufficiently decrease before the drug is administered again. In order to further reduce any risks, the duration of this cycle should not exceed 8 weeks. Should a stronger anabolic effect be needed, a small amount of Durabolin® (Deca-Durabolin® if unavailable), Oxandrolone, or Winstrol® could be added. Of course, the risk of noticing virilizing effects from these drugs may increase, even with the addition of a mild anabolic. Since many of the masculinizing side effects of steroid use can be irreversible, it is very important for the female athlete to monitor the dosage, duration and incidence of side effects very closely.

Testosterone propionate is very abundant on the black market right now, perhaps more so than it was a couple of years ago. This probably has a lot to do with the fact that it is a very cheap steroid to manufacture next to some of the longer acting esters. In going over some of the more popular items circulating the black market at this time, I can offer the following observations.

Animal Power has a propionate product in Mexico called **Propiotest 100**. This is a 100mg/mL steroid, which comes in a 10mL multi-dose vial. The company uses several security checks on its injectable products, including a security holographic sticker with the company logo embedded in the image (*see: Security Stickers*). Be sure to look for these when shopping.

Quality Vet is making **Propionat QV 100** in Mexico, which is another 100mg/mL preparation in a 10mL multi-dose vial. Just be sure to look for their holographic security sticker when shopping, which should assure a safe purchase.

Testosterona from Brovel in Mexico is still abundant. Brovel has been around for a long time, and has always delivered a quality product for an excellent price. Remember to look for the Brovel Hologram sticker to be sure you are getting the real thing, as there are a lot of fakes of this line floating around (not this product in particular though).

Ttokkyo has ceased operations in Mexico. This firm used to make an excellent propionate product, but even old stock will be off the black market at this point. Avoid.

Testopro L/A from Loeffler in Mexico contains a whopping 250mg/mL, at least according to the label on this 10mL multi-dose vial. Loeffler products seem to have been hit or miss in quality lately though, and a previous test of this item in particular showed it to have a bit over 133mg of testosterone propionate in each mL. This is a little better than half of the label claim, which leaves us wondering if Loeffler has ever produced a true 250mg/mL testosterone propionate. Hopefully, I will have the opportunity to test some lots in the future to find out.

Testolic from Body Research is no longer being made, following a raid on their facilities last year. Currently the Body Research name is being used by counterfeiters in Eastern Europe, mostly to make products with questionable contents.

British Dragon also makes **Testabol Propionate** in Thailand, another export only item (you will not find it is pharmacies when shopping on vacation). The BD line is very hot right now, with a very good reputation. Note that the have stopped using hologram stickers on their injectable products. Instead, they are using a red or blue metallic foil inlay on their labels. Be sure the product name is also formed directly into the plastic on the flip off top, and once removed reveals a dragon logo directly in the rubber stopper.

BM Pharmaceuticals is a quasi-legit company in India that makes a brand of testosterone propionate called **Testopin-100**. As the name indicates, it contains 100mg/mL of steroid. It is packaged in both 1mL glass ampules and 2mL multi-dose vials. Currently, fakes of this line are not much of a problem.

Jelfa makes **Testosteronum Propionicum** in Poland, which makes its way most often to the European black market (rarely to the U.S.). However, it only contains 25mg of steroid in each 1mL ampule, so it doesn't stack up much to the more popular 100mg/mL products here in the States.

Virormone is still manufactured in the U.K., most recently by the firm Nordic. These 2mL 100mg ampules are not extremely popular in the U.S., but do circulate here from time to time. The UK has been taking steroid distribution more seriously as of late, limiting greatly the supply of domestic drugs making it to the international black market.

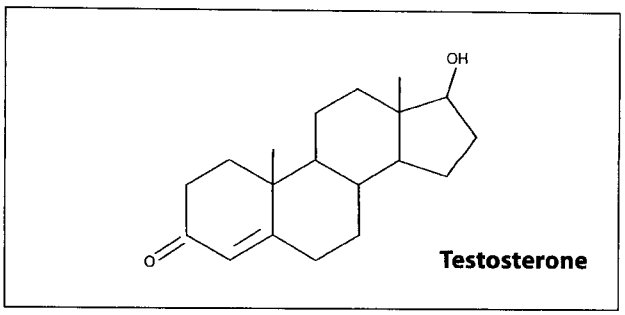
No testosterone propionate products are being manufactured in the **U.S.** at this time, so avoid all such products on the black market.

Vetoquinol sells a propionate in Canada, called **Anatest**. This steroid used to be sold under the Sterivet label, which is not another company but the parent company of Vetoquinol. Anatest contains 100mg/mL of testosterone propionate in a 10ml vial, giving it a dosage and volume comparable to many of the higher dosed veterinary items on the black market. Combine this with the rigid standards of Canadian drug manufacturing (if you find a legitimate product), and Anatest starts looking like an excellent product if you come across it. Unfortunately, the firm doesn't use any hologram or sophisticated security measures. Shop carefully.

Testosterone Suspension

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Testosterone suspension is an injectable preparation containing testosterone (no ester) in a water base. Since testosterone is not highly water soluble, the steroid will noticeably separate from the solution when the vial is left to sit. A quick shake will temporarily place the drug back into suspension, so that the withdrawn dosage should always be consistent. Many reference materials have not given this steroid the proper credit, stating it to be a very crude and ineffective product. Although it may contain testosterone without the benefit of an ester, the micro-crystal design of this injectable will in fact sustain an elevated testosterone release for 2-3 days. The suspension we see today is clearly not the basic water plus testosterone design used in the 1940's. And since the drug will not leave circulation in a matter of hours, it is obviously useful. This is not news to the many Americans bodybuilders who have had a chance to experiment with this item, and regard it very highly.

Among bodybuilders, "suspension" is known to be an extremely potent mass agent. Most often it is ranked as the most powerful injectable steroid available, producing an incredibly rapid gain of muscle mass and strength. This is largely due to the very fast action of this drug, as the water-based steroid will begin to enter the blood stream almost immediately after an injection is given. When using a slow acting oil based steroid like Sustanon, it can take weeks before a peak testosterone level is reached. With suspension it is just a matter of days. This will usually result in the athlete noticing a size and strength gain by the end of the first week. By the time the athlete is 30 days into a cycle of suspension, the length it will usually take for a Sustanon cycle to really begin to work consistently, the mass gains are already (generally) very extreme. Clearly the anabolic effect of this testosterone will be realized much more quickly than we would expect with an oil based (esterified) preparation.

It is also important to remember that 100mg of a testosterone ester is not equivalent to 100mg testosterone of pure testosterone (as in suspension). When an ester is present, its weight is obviously included in the preparation's milligram total. Looking at testosterone enanthate, 100mg of this compound equates to only 72mg of raw testosterone. So the bodybuilder who uses 400mg of enanthate weekly is really getting about 288mg of testosterone into his body each week. This is clearly a great increase over the endogenous testosterone level of the average male, which is in the range of 2.5 to 11mg per day. But the general point is that during a cycle of testosterone suspension we will often see a much more dramatic intake of testosterone on average than is typically utilized with oils. Following common advice, the athlete will commonly inject a full 100mg of testosterone daily, a total of 700 milligrams per week. This is up to 40 times the amount produced by a normal male. Those who have attempted such a cycle are rarely disappointed with the results, as such heavy doses of this hormone will produce nothing less than a dramatic weight gain.

The most popular practice with testosterone suspension is to inject the drug at least every two or three days. The dosage will vary greatly depending on the needs of the individual, but is most often in the range of 50mg to 300mg per shot. Athletes looking to achieve an extremely rapid bulk gain will inject the already mentioned dose of 100mg daily. In most cases this cycle can be amazing, the user seeming to just "inflate" with bloated muscle mass in a short period of time. Back when they were being manufactured, the U.S. 30mL vials (100mg/mL) were always the most sought after for this procedure, as each would run the cycle for about a month. Although this drug does require a frequent injection schedule, it will pass through a needle as fine as 27 gauge (insulin). This allows the user more available injection sites, hitting the smaller muscle groups such as the deltoid, triceps and calves. Although some users do complain about discomfort when

injecting water-based steroids, it has been my experience that suspension is generally well tolerated. In fact, many bodybuilders find the speed of drawing and administering a water based solution to be quite a welcome change from oils, which as you know can be a lengthy procedure.

As would be expected with a strong androgen, suspension can produce a number of unwelcome side effects. For starters, with a testosterone product, we will expect to see a high rate of estrogen conversion. Estrogen levels, in fact, build very quickly with testosterone suspension, which is actually reputed to be the worst testosterone to use when wishing to avoid water bloat. Gynecomastia can also develop very rapidly during a cycle, and in many cases, this drug will be intolerable without additionally taking an anti-estrogen. A combination of Nolvadex® and Proviron® is an effective way to avoid experiencing such side effects, and is often taken from the onset of a cycle in order to prevent such occurrences before they become a problem. Sensitive individuals may find an investment in the anti-aromatase Arimidex® to be wiser. While this drug is very costly, it is also much more effective at controlling estrogen than the other agents which are currently being used by athletes. If there were ever a time to justify this expense, it would certainly be with a drug like suspension. It is also important that the athlete monitor blood pressure and kidney functions closely during a heavy cycle, a trouble area as water retention becomes more pronounced. Although testosterone puts very little strain on the liver, this drug can be harsh to the kidneys as the dosage increases. Of course, if the athlete is encountering noticeably high blood pressure or trouble urinating (pain or darkening of the urine), the cycle should probably be discontinued and the doctor paid a visit.

Conversion to DHT (dihydrotestosterone) will, of course, potentiate the action of testosterone in certain tissues, making this steroid quite androgenic. Therefore, one can expect to endure oily skin, acne, increased aggression, and body/facial hair growth during a typical cycle. Propecia®/Proscar® or Avodart® may be a requirement for those with a familial predisposition for male pattern hair loss, as suspension is known to aggravate this condition quite easily. Men with an existing hair loss problem may actually prefer to stay far away from this steroid altogether, finding it to be just too strong an item to take risks with. The slower acting oil based injectables like Propionate and Sustanon would be a much better place to start experimenting if the individual still desires the power of an injectable testosterone.

Also, endogenous testosterone production will be quickly and efficiently reduced when using suspension. This can often reach the point of severe testicular shrinkage (atrophy). Some athletes will periodically take HCG while on a cycle, in an effort to try and keep endogenous testosterone suppression and testicular atrophy to a minimum. However, this practice isn't always extremely effective, and if overused can even be counterproductive. Even if nothing is used during the cycle, a combination of HCG and Clomid®/Nolvadex® should always be used as the cycle is discontinued to minimize the post-cycle hypoandrogenic (low androgen) window. When used correctly, these drugs can be very effective at stimulating natural production, hopefully allowing the athlete to avoid an otherwise strong post-cycle crash. It is important to mention that in addition to stimulating the release of testosterone, HCG also acts to enhance the rate of aromatization in the testes. The risk for enhanced estrogen buildup makes concurrent anti-estrogen use very important, especially when the athlete had been taking large doses of testosterone.

Overall, testosterone suspension is an extremely powerful drug, but also one that is prone to causing many uncomfortable side effects. Those looking for only a potent mass agent need not look for a better substitute; this product will certainly do the trick. But those athletes who want not just quantity but quality are likely to be disappointed with suspension, as the muscle mass gain is not going to be a hard, dense one. In fact, the user must constantly fight fat and water bloat when building his new physique, and will often seek the benefit of cutting agents soon afterwards. The only exception to this would be cases where the drug is used for very short periods of time (pre-contest), to rapidly raise the androgen level and harden up the body. When estrogen is not given time to wreak havoc on the physique, the rapid androgen increase can certainly be beneficial. Of course, it will only take a few days for the newly elevated levels of estrogen to start having an unfavorable effect on the physique.

Testosterone suspension is not abundant on the black market at this time. The few available versions of this steroid left to purchase include the following.

Denkall in Mexico sells **Aquatest**, a 100mg/mL testosterone suspension. Denkall is highly regarded for the quality of its products, with buyers rarely questioning the accuracy of their dosing. This is a very nice suspension, passing smoothly through a 25-gauge vitamin needle. It is definitely a recommended product, and, in fact, probably the highest quality suspension being sold anywhere in the world at this time. Be sure to look for the Denkall

hologram sticker, and examine it closely to be sure it is the real thing and not a fake itself (*see: Security Stickers for more information*).

Nutri-Vet recently started making a testosterone suspension as well, called **Ultra Suspension**. This one uses oil as a carrier instead of water, and contains 50mg of testosterone per mL in a 20mL vial. Nutri-Vet advertises this as very thin oil, capable of passing through a fine insulin need. Without having a micronized water-based product, this may indeed be a comfortable option.

Anabolic-TS is another popular testosterone suspension in Mexico, sold by the international veterinary drug company SYD Group. SYD purchased Grupo Comercial Tarasco recently, which used to sell Anabolic-TS under its own label. This is a great quality product in terms of dosing, but the particle size of the steroid inside is a little large for the comfort of most (you will need a 21 gauge to inject it).

Univet **Uni-test** suspension from Canada is also found on the black market at times, and is reportedly even worse than the SYD product in terms of particle size. There are also numerous fakes of this product in circulation. The current popular knock-off uses a gold cap, and has an error that sticks out on the ingredients list. The legitimate item lists Benzyl Alcohol in the amount of 0.01g (10mg, or about 1% - a standard amount), while the fake incorrectly puts 0.01mg in the same location; far too little benzyl to offer any value.

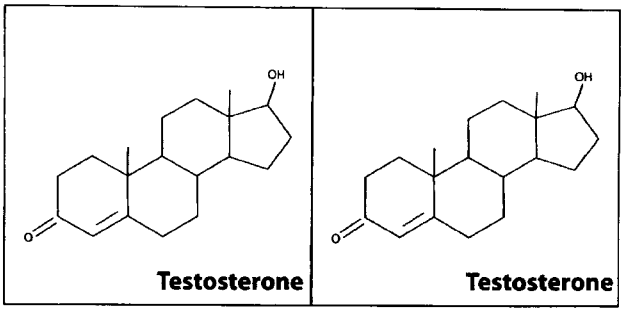
Only products made via private pharmacy compounding are available in the U.S. There has been no commercial testosterone suspension preparation sold here since the Steris product was withdrawn from market years ago.

Aquaviron from Nicholas in India is still being sold, and occasionally makes its way to the U.S. and European black markets (although not widely). This product comes in the form of 25mg ampules, with each dose mixed in 1mL of solution. 12 ampules are packed in each box, all side-by-side in a flat cardboard tray. Fakes are not a problem at this time.

Czech **Agovirin** is still being manufactured. To be correct, this is not actually "testosterone suspension", but a testosterone isobutyrate suspension. Still, this is a very rapid acting water-based injectable testosterone, so it seems most appropriate to discuss in this section (the casual user will not be able to distinguish between the two). Agovirin is a trusted item when located; however, it does not appear on the black market in the United States very often. It does appear to be the dominant form of testosterone suspension on the European black market, though.

Testoviron® (testosterone propionate/enanthate blend)

Androgenic	100
Anabolic	100
Standard	standard
Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testoviron® is a mixed testosterone injectable (propionate/enanthate), produced by the firm Schering in a few different parts of the world. Since Schering also uses the Testoviron® brand name to market pure testosterone enanthate, one should not confuse all such items with this mixed preparation. In fact, most preparations found circulating with this brand name are actually the pure enanthates, which are vastly more popular among athletes. When locating the Testoviron® blends, we notice they are prepared in a number of different strengths. All will contain a base of testosterone enanthate, with a lesser amount of testosterone propionate added in. Being much faster acting, the propionate gives us a quick effect while the enanthate is slowly reaching circulation. The result is an injectable that will increase the testosterone level very quickly; yet sustain an elevation for approximately two to three weeks. The design of this steroid is therefore similar to that of the testosterone blend Sustanon, although Testoviron® will remain active in the body for a noticeably shorter duration.

This steroid is clearly not an unusual compound, as it would obviously have an effect similar to other blended testosterone products such as Sten and Sustanon. One can expect to see a rapid buildup of strength and muscle mass during a cycle of this drug, as is to be expected with all injectable testosterones. This will likely go hand in hand with a noticeable level of water retention, as testosterone converts into estrogen quite readily. A loss of muscle definition is likely to result, as subcutaneous water and fat stores reduce the visibility of muscle features. For this reason Testoviron® is not the ideal item for cutting phases of training. The added estrogen level may also cause the development of gynecomastia. In order to reduce this possibility, sensitive individuals may need to add an anti-estrogen like Nolvadex® and/or Proviron® during each cycle. Testosterone preparations will also suppress endogenous androgen levels, so a stimulating drug like HCG and/or Clomid®/Nolvadex® may be needed to avoid a post-cycle crash. Since this effect is particularly pronounced with testosterone, a combination of both drugs may prove to be the most useful in many cases

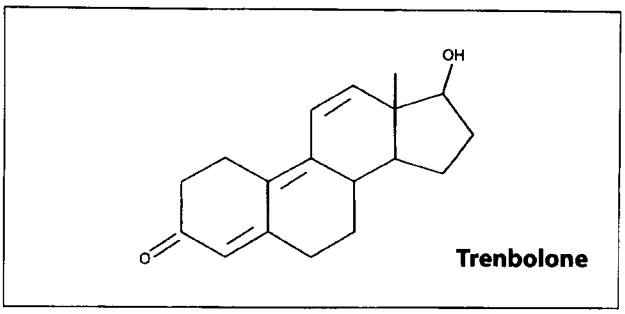
Testosterone also converts to the more potent steroid DHT (dihydrotestosterone) in many areas of the body, a process that is responsible for the strong androgenic activity of this hormone. Testoviron® is therefore likely to produce a number of unwanted androgenic side effects, including oily skin, acne, body/facial hair growth and male pattern hair loss. Those who have an existing male-pattern hair loss condition, or believe they may be prone to this problem, may wish to stay away from testosterone products for this reason. Strong androgens can easily aggravate cases of hair loss, a side effect of steroid use that is pretty much irreversible once noted. Others may simply opt to include a daily dosage of Proscar®/Propecia®, which will greatly reduce the buildup of DHT and lighten the androgenic nature of testosterone. We must remember however, that while Proscar® offers us help, it is no assurance this side effect will not develop during a cycle all androgenic effects are mediated by the same receptor as anabolic. Deca-Durabolin® would still be a much safer choice in this regard however.

Testoviron® is clearly an acceptable alternative to standard testosterone preparations. These ampules are not commonly found on the black market however, but are certainly a good choice if located.

Here in the U.S., **Testoprim-D** ampules are the most likely to show up. This is not a counterfeit item as other steroid references may list, but is in fact a legitimately manufactured Mexican pharmaceutical. Counterfeits of this item have never been located, so Testoprim will probably remain to be a safe buy for some time. When looking for this item in Mexico, we see a single light resistant ampule that is packaged in a red box bearing white print. With the ampule, we also note that the writing is printed directly on the glass surface. The ink used is a white/grayish color that does not smear with a good

Trenbolone acetate

Androgenic	500
Anabolic	500
Standard	nandrolone acetate
Chemical Names	17beta-Hydroxyestra-4,9,11-trien-3-one
Estrogenic Activity	none
Progestational Activity	low to moderate



Trenbolone

Trenbolone is a strong androgen that is devoid of estrogenic activity. The first preparation containing this steroid to catch the attention of the American bodybuilding community was Finajet, a veterinary preparation introduced in the 1980's in U.S. and Europe (as Finaject) by the drug firms Hoechst and Roussel. This product contained 30mg/mL of this fast acting acetate ester of trenbolone, and came packaged in a whopping 50mL vial. Finajet made a strong showing for a short period in the 80's, where this androgen became a sought after cutting steroid. The strong androgenic and non-estrogenic properties of this steroid made it ideal for increasing muscle hardness, definition and strength without water retention, and consequently Finajet became popular with competitive bodybuilders. Hoechst removed the product from the market by 1988, however, the European version soon followed, and the U.S. source for trenbolone quickly dried up. It had disappeared from the market for quite some time, earning cult status as some type of unobtainable super-steroid. After some time however trenbolone acetate had reemerged in the U.S., first in the form of Finaplix® cattle implant pellets and more recently as the injectable Trenbol 75 introduced in and imported from Mexico. Its old reputation stuck, and these products are now in very high demand on the U.S. market.

Structurally trenbolone is a 19-nor steroid, being derived from the anabolic nandrolone. Its additional two alterations however (c9 and c11 double bonds) make trenbolone very different in appearance than its parent nandrolone. First, as mentioned estrogenic activity has been eliminated. This is a result of the c 9-10 double bond, which occupies a bond that would be necessary for aromatization of the A ring to be possible. This bond does not appear to be removed metabolically, which is the only way estrogen conversion would be possible with this compound. Although nandrolone is rarely thought of as an estrogenic steroid, conversion to estradiol is still possible to a low extent. The fact that trenbolone does not convert to estradiol therefore remains to be a significant difference between the two steroids.

Its lack of estrogenic activity has made trenbolone very appealing for competitive athletes looking to shed fat, while at the same time trying to avoid water retention. Likewise "tren" can give us the high androgen content needed in order to elicit a very hard, defined physique. While it is a noteworthy hardening agent, this is certainly not the only benefit to this steroid however, it also a noteworthy anabolic. The muscle building properties of this steroid are often compared to strong drugs such as testosterone and Dianabol, said to be very similar just without the same level of water retention. This may be a little generous of a description however. Its lack of estrogenic activity does seem to hurt this agent in its abilities to promote muscle mass gains. For many, it is similarly still relegated to cutting cycles. Of interest is the fact that while trenbolone is often recommended as a great addition to a good mass cycle, it is rarely reported to be such a powerful agent when used alone. When taken without another estrogenic steroid, results are most often reported as good lean tissue growth accompanied by exceptional hardening and fat loss. Although perhaps it is not quite as potent as the more estrogenic bulking agents if sheer mass is the goal, I think we can still safely say that trenbolone is a better builder milligram for milligram than nandrolone, and likely the most anabolic of all the non-estrogenic steroids.

The androgenic activity of this drug is also much stronger than that of its parent nandrolone. This is due to two interesting traits. First, trenbolone does not appear to undergo 5-alpha reduction in humans[149]. As such, it does not display the strong anabolic/androgenic dissociation noted with nandrolone. It retains the same level of potency when entering cells of various androgen target tissues as it does when entering muscle tissues, and does not get weaker. This in of itself makes trenbolone far more androgenic in appearance. Furthermore the induction of

double bonds at c9 and c11 seems to increase androgen receptor binding[150]. This represents a second way that the potency of trenbolone is increased. Side effects like acne, body/facial hair growth and hair loss are therefore all possible during use of this steroid. Despite the base structural similarities of the two steroids, we should clearly not confuse trenbolone in any way with nandrolone in regards to its ability to induce such side effects. Tren is simply much more androgenic.

Trenbolone will also suppress natural testosterone production very quickly, making clear that estrogen is not the only culprit in this regard. This would necessitate the use of a testosterone stimulating drug like Clomid®/Nolvadex® and/or HCG in order to avoid a pronounced "crash" as the drug is discontinued. This may have something to do with its progestational activity. Although listed as non-progestational in other steroid literature, studies clearly show trenbolone to bind with this receptor [151] [152]. Since we know that all sex steroids promote negative feedback inhibition of testosterone production, including progestins, this mechanism cannot be excluded. We also know that the effects of estrogen seem to be augmented by heightened progestin levels[153], with this hormone capable of inducing side effects that might not otherwise be apparent with a given level of estrogen in the body. However, while we do notice that estrogenic side effects do not seem to be reported with trenbolone, it may still be reasonable to conclude that some caution should be taken with this compound (particularly when using this steroid with other estrogenic steroids). Logic leads one to think that without heightened estrogen levels, the slight progestational nature of trenbolone may fail to induce side effects, while it would have the potential of lowering ones threshold to side effects when other estrogenic steroids are used concurrently by enhancing the actions of this hormone. This theory cannot be proven at this time.

Trenbolone is a very versatile steroid, working exceptionally well for both bulking and cutting purposes. It seems to mix well with just about any type of steroid. For a lean, hard build, one can add a mild anabolic like Winstrol® or Primobolan®. Without extra water beneath your skin, the androgen/anabolic mix will elicit a very solid, well-defined build. For a good mass gain, still without excessive bloat, Deca-Durabolin® or Equipoise® are popular additions. Here again, the trenbolone will greatly enhance and solidify the new muscle growth. When looking purely for mass, trenbolone pairs well with testosterone, Anadrol 50® or Dianabol. The result will no doubt be an incredible gain of (somewhat solid) muscle mass. In some rural areas where anabolics are hard to obtain, Finaplix® (discussed below) is commonly used in conjunction with Synovex pellets (testosterone propionate/estradiol benzoate). Although the slight estrogen content of Synovex does give us some unwanted bloat, the testosterone propionate adds in very well. A very cheap, easy to obtain combination which is still technically legal since cattle implants are excluded from U.S. controlled substance laws.

Finaplix® is a veterinary cattle implant that contains trenbolone acetate. It was the first commercial product to contain trenbolone acetate after its long hiatus following the withdrawal of Finajet and Finaject in the late '80s. Its release has garnered a lot of attention with athletes, despite being in the form of an implant pellet. What is so unusual about all of these products is the fact that, remarkably, they are all exempt from U.S. controlled substance laws. They are totally and perfectly legal to buy with no license or prescription, albeit for the use of implanting cattle and not self-consumption. I assume this is to make it easy for livestock owners to have access to growth promoting agents. If a veterinarian were needed every time these products were to be used, they might be too troublesome or cost prohibitive to consider. Admittedly, since these products come in the form of pellets they are not in a form suitable for human consumption either, making their exemption seem a little more reasonable than at first glance.

Currently, the most popular product is still the original Finaplix® brand name, although it is currently being marketed by Intervet instead of the Hoechst-Roussel Agri-vet Company. This product comes in two forms, Finaplix-H and Finaplix-S, which denotes if the product was intended for a Heifer or a Steer respectively. The total dosages of both products are different, with the "H" version containing 100 20mg TA pellets (2,000 mg) and the "S" version only 70 (1,400 mg). Ivy Animal Health has introduced two competing products of equivalent makeup, sold as Component-TH and Component-TS. There are also the Revalor and Synovex+ brands that contain trenbolone acetate with an added dose of estrogen. However, these are much too troublesome for the athlete to consider using and should never be purchased.

Since the drug comes in the form of a cattle implant, administration is a bit difficult. Most commonly one or two implant pellets are ground up and mixed with a 50/50 water/DMSO mix and applied to the skin daily. This home-brew transdermal mix is effective, but the user is forced to walk around bearing the ripe scent of garlic (an effect of the DMSO). Others simply grind up one or two pellets with the back of a spoon and inhale (snort) them. Here the drug enters the blood stream through the mucous membrane, a poor, but still effective means of delivery for steroid hormones. Those who have tried this often claim it is not as irritating as they had imagined it would be. One, however, does always run the risk of wearing away at the

lining of your nose after time, so it would be best not to make this a regular habit. More adventurous individuals make a practice of mixing their own injections. The pellets are ground into a fine powder (usually anywhere from 2 to 6 pellets), and then they are added to sterile water, propylene glycol, or an oil-based injectable steroid (or veterinary vitamin). This is usually repeated twice weekly, although some do manage to undergo this practice more frequently. Since this is not being done in a controlled sterile environment, one is obviously taking a risk. I do not doubt that infection is a common result. Some have actually started selling kits that contain all the necessary ingredients to separate the binders from the active steroid and brew a pure sterile injectable right in your kitchen. Most of the kits sold at this time are very thorough in their designs, and feedback on them has typically been excellent. I prefer not to mention actual product names, as it would probably not be a good idea to draw attention to the companies selling them. But they are not that hard to find right now. It is also of note that trenbolone acetate implant pellets are the active ingredients in a number of black market preparations, including the once popular Finabolan. Make no mistake; this is an underground product, despite the fact that it now carries a very official looking hologram sticker.

Finaplix® and competing trenbolone acetate pellets are available through many veterinary suppliers. This is the least expensive way to locate this steroid, as an agricultural store will typically sell a single Finaplix-H cartridge (2,000mg) for approximately $35. On the black market this same amount can easily sell for as much as $75 or $100. Since many vet/agricultural suppliers have become aware that athletes are ordering these products, you should know that many are reluctant to sell. It is also rumored that the FDA gets a report of the sales of this product, however, this has not been confirmed. There is also talk of athletes being visited by the DEA and postal inspectors after ordering the pellets through the mail. At this time, Finaplix is still fully legal to possess, however, the DEA may be paying an unwelcome interest in companies that market or support its sale to bodybuilders. One would be best advised to be careful.

Moving on from Finaplix pellets, legitimate pharmaceutical preparations using trenbolone are not as scarce today as they were 5 years ago. In reviewing the popular, legitimate products to be found on the black market, here is what you should expect.

Animal Power is selling a 75mg/mL trenbolone acetate injectable in Mexico called **Trenbo 75**. AP products are probably going to be amongst the most difficult for counterfeiters to duplicate accurately, as this manufacturer has a very strong focus on security measures. Most notable is the Animal Power holographic sticker, which is affixed to all product packaging (*see: Security Stickers*).

Nutri-Vet sells a 100mg/mL trenbolone acetate in Mexico, under the brand name **Ultra Tren**. This is a high dosage for a poorly soluble ester like acetate, suggesting that this product may contain a little more alcohol than comparable 75mg/mL products.

Pet's Pharma is another new drug company in the Mexican steroid scene. They produce a trenbolone acetate injectable called **Trenbolon 75**. This product comes packed in both 10mL and 20mL multi-dose vials, and carries the company's (non-holographic) security sticker to deter counterfeiting. Pet's Pharma has not been a big target of counterfeit manufacturers, as of yet, making them a fairly safe company to shop.

Quality Vet's **Trembolona QV 75** is still one of the most popular in Mexico. It also contains a 75mg/mL dose of trenbolone acetate, packaged in a 10mL multi-dose vial. QV is an extremely reputable company, and to deter counterfeiting the line is protected by hologram stickers.

Ttokkyo's **Trenbol 75** is off the market now, and the company is closed. Avoid all product bearing the Ttokkyo name at this time, as even old stock should be long gone from the black market.

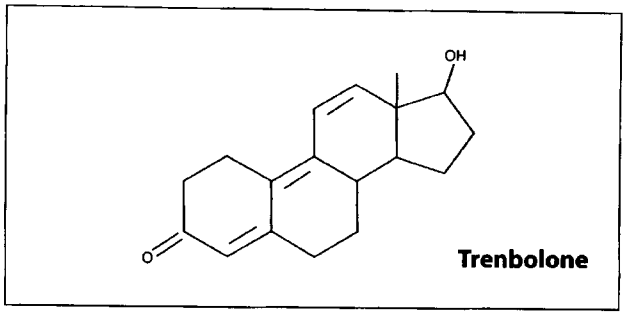
Loeffler makes an oral trenbolone acetate product in Mexico called **Acetenbo 50**. This may not be as crazy as you think, as the synthetic and hard-to-metabolize nature gives this steroid a fair level of oral bioavailability. The product, however, is extremely expensive for what it provides, so it is not extremely popular right now. Note that Loeffler has recently started using hologram stickers. Be sure to look for them when shopping.

British Dragon makes **Trenabol** in Thailand, containing 75 mg/mL of steroid in a 10mL vial. BD is a reputable company, and feedback on this product has always been excellent. Note that they are no longer using holographic stickers on their injectable products. Instead, they use a red or blue metallic foil inlay as part of all vial labels. Also, make sure the vial top carries the Trenabol name directly in the plastic. Once removed, you should be looking at a rubber stopper with a dragon logo formed in the center. At one time BD was also licensing an oral 25mg tablet called **Parabolan Tablets** to an Eastern European exporter; however, this relationship has since been discontinued (along with the product).

Trenol 50 is manufactured in Myanmar by WDV Pharmaceuticals. This 50mg/mL 6mL multi-dose vial provides a decent amount of steroid, although it does not make its way to the U.S. very often. WDV products seem most popular in areas of Eastern Europe, and to a lesser extent Western Europe.

Trenbolone enanthate

Androgenic	500
Anabolic	500
Standard	nandrolone acetate
Chemical Names	17beta-Hydroxyestra-4,9,11-trien-3-one
Estrogenic Activity	none
Progestational Activity	low to moderate



Trenbolone

Trenbolone enanthate is the most recent form of trenbolone to be developed, appearing on the market in mid-2004. This agent is essentially a new form of Parabolan, which uses the ubiquitous enanthate ester instead of the hexahydrobenzylcarbonate of the "old" product. Trenbolone enanthate is both unique and incredibly obvious at the same time. On the one hand, attaching an enanthate ester to trenbolone seems like a simple idea at best. After all, we are all familiar with testosterone and methenolone enanthate. But on the other hand, trenbolone enanthate had not been made commercially until now. With the loss of Parabolan, and only recent reemergence of a legitimate clone, the market was left with trenbolone acetate as its only readily available form of "tren". This ester of trenbolone is effective, but also very fast acting. Trenbolone enanthate is a much slower releasing drug, and offers a great alternative to the frequent injections of trenbolone acetate.

The pharmacokinetics of trenbolone enanthate should mirror those of testosterone enanthate, with peak hormone levels maintaining itself for approximately two weeks after each injection. Its action would be difficult to differentiate from Parabolan, as both of these agents use medium to long acting injectable steroid esters capable of releasing trenbolone from the site of injection for periods well in excess of the weekly intervals in which they are normally administered. The differences between the various esters of a particular steroid are going to be most noticeable in clinical medicine, where the relative speed of release controls the injection schedule of the patient. However, with athletic use high doses and regular injection schedules blur the different release patterns. Therefore, we really cannot attribute any special characteristics to this steroid, aside from saying that it is an excellent and well-conceived replacement for Parabolan.

The base steroid trenbolone is well understood at this point, and holds no real surprises. As a non-aromatizable compound, estrogenic side effects are not expected to be a problem. This drug, however, is a nandrolone derivative, so it may exhibit some weak progestational activity. This means that while trenbolone alone should not cause side effects like water retention or gynecomastia, it may intensify the estrogenic traits of other steroids. Anti-estrogens are usually kept close at hand when trenbolone is taken with other aromatizable compounds. In regards to its androgenicity, trenbolone does not seem to fit well in with the nandrolone family of compounds. This steroid isn't metabolized into a weaker compound by 5-alpha reductase like most nandrolones are, which makes it quite androgenic. It is, therefore, very likely to produce such side effects as oily skin, acne, and aggravated hair loss (for those genetically prone).

We can expect to see new doors open with trenbolone enanthate, mainly those surrounding drug dosage. The poor oil solubility of trenbolone acetate limits the amount of steroid you can comfortably dissolve into solution around 75-100 milligrams per milliliter. And while the ester in Parabolan is much more oil soluble, most clones mimic the 50mg/mL dosage of the original French preparation. Therefore, we have yet to see high-dose forms of trenbolone on the drug market. Trenbolone enanthate will change this. We will likely see a number of trenbolone enanthate preparations released on the Mexican veterinary market over the next couple of years, formulated in a dosage range of 150-200mg/mL. Not only will such concentrations allow the adventurous athlete to experiment with high doses more easily, they will also give the average recreational user, who consumes only 2 or 3 different products during the average cycle, much more trenbolone per bottle/cycle.

The results from a cycle of trenbolone enanthate should include considerable increases in mass and strength, with great emphasis on muscle quality. This is often combined with notable fat loss, the desirable lean-gain and cut combination that has made Parabolan so talked about for all these years. Despite the potential for high doses with

the new trenbolone enanthate compound, it may not actually be necessary. This is a steroid that is understood to work well on comparatively low doses. The average male bodybuilder will find that 150-250mg per week will provide a very strong effect, such that higher doses are probably not necessary in the average stack. This means that a 10mL vial with 200mg/mL of steroid could last for a full 10 weeks or longer. It should be no surprise to most readers to see such a low recommended dosage range. You will remember that Parabolan garnered a worldwide cult following while providing only 76mg/mL of steroid per 1.5mL ampule (50mg/mL). Women should not be advised to experiment with the series of trenbolones. These agents are significantly androgenic, and present too great a risk for permanent virilizing side effects.

The first legit trenbolone enanthate preparation we know of is from British Dragon. The product is called **Trenabol 200**, and it contains (of course) 200mg/mL of steroid. The vial itself holds 10mL of drug, making this product remarkable for both its high steroid concentration and total content (most 10mL vials of trenbolone acetate hold only 750mg of steroid). Note that legitimate vials should carry a label with a foil inlay, which should be red or blue in color. Furthermore, BD protects their line of injectables with custom tops bearing the product name directly in the foil, and with custom rubber stoppers that have a small dragon in the center.

All other forms of pure trenbolone enanthate currently available on the black market are made by underground manufacturers. They are unverifiable for quality, as is the nature of "underground medicine" (although feedback on at least one product has been consistently very positive thus far). More legit companies are sure to follow the lead of British Dragon, once word of this new product gets out. Once the popular companies all start adding this steroid to their lines en masse, availability will be great, as will the chance for this compound dominating the trenbolone market in the very near future.

Tribolin (nandrolone/methandriol blend)

Androgenic

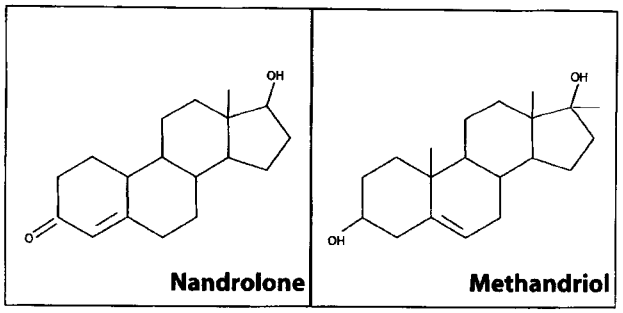
Anabolic

Standard

Chemical Names

Estrogenic Activity

Progestational Activity



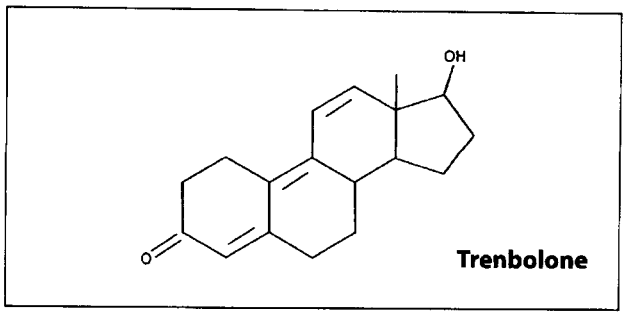
Tribolin is a blended veterinary steroid product, produced by the Ranvet Company in Australia. Not quite doing its name justice, Tribolin contains two different steroid compounds instead of three (it really should have been called something like Dibolin if you ask me). This product specifically contains a blend of methandriol dipropionate and nandrolone decanoate, in a dose of 40mg/mL and 35mg/mL respectively. This adds up to a total steroid concentration of 75mg/mL. Tribolin is certainly not a high-dosed steroid, but is not a 25mg/mL steroid either. Incidentally, Ranvet makes a second product called Filybol, which is exactly the same as Tribolin except the nandrolone decanoate dose is 5mg/mL lower. I am not sure why they would make two seemingly identical products, but they are available nonetheless.

With its blend of methandriol and nandrolone, Tribolin is clearly an anabolic steroid in nature. Androgenic effects of this steroid would, likewise, only be slight for the average user. Its estrogenic effect should also be minimal, barring the methandriol content, which is intrinsically a bit estrogenic. Still, this product will not elevate estrogen levels itself very much, and unless the user is very sensitive to nandrolone, he should not be noticing gyno during a cycle. In many regards this product is like the Aussie vet steroid Drive, which contains a similar blend, but with boldenone instead of nandrolone. Typical dosing schedule for the male athlete would be in the range of 225mg (3cc's) to 450mg (6cc's) per week, a rage which should provide quality lean mass gain without bloat or much body fat retention (for a more comprehensive discussion of the individual steroids, please refer to their respective profiles).

Both Tribolin and Filybol come packaged in 10 and 20mL multi-dosed vials. Unfortunately, due to tight controls on drug products in Australia, these steroids do not make it to the U.S. very often. To make things worse, the packaging is pretty plain on both items. They obviously do not require a whole lot of ingenuity to duplicate. For these reasons I would be suspicious of any glut of Tribolin or Filybol (or any Australian vet steroids for that matter) that is found in the United States. It is just highly uncommon for volume sales of this product to be made. Unless you can personally trace these back to a legitimate supplier in Australia, I would consider them of unverified authenticity, and probably avoid.

Trinabol 150 (trenbolone blend)

Androgenic	500
Anabolic	500
Standard	nandrolone acetate
Chemical Names	17beta-Hydroxyestra-4,9,11-trien-3-one
Estrogenic Activity	none
Progestational Activity	low to moderate



Trenbolone

Each 1 mL contains:

Trenbolone acetate	50 mg
Trenbolone hexahydrobenzylcarbonate	50 mg
Trenbolone enanthate	50 mg

Trinabol is an injectable blend of three different trenbolone esters: trenbolone acetate, trenbolone hexahydrobenzylcarbonate, and trenbolone enanthate. These compounds are provided in equal parts, 50mg each. The total steroid concentration is 150mg/mL, and this product comes prepared in a 10mL vial. The formulation is intended to provide more of a sustained release effect than what is achieved with single ester products, and as such represents the first product of its type on the market. With a mix of both fast and slow acting components, it is essentially the trenbolone equivalent of Sustanon. This product is made by British Dragon, a Thai company with roots to British Dispensary in the same country (makers of Anabol and Androlic). British Dragon was formed by one of the principles of British Dispensary, with the intent to branch off and sell a wider variety of products, which they have successfully done. British Dragon now carries a full line of over a dozen items, and is one of the most talked about new companies on the international steroid market.

As a trenbolone injectable, Trinabol 150 is a potent lean mass building and cutting agent. Trenbolone itself has always been a favorite pre-contest drug, regardless of the ester used in its delivery. It is favorable here because it is strongly anabolic and androgenic, and at the same time structurally incapable of converting to estrogen. The gains produced by this drug tend to be of very high quality, often accompanied by fat loss instead of gain. Typical dosages for men are going to be in the range of 1-2mL per week, or 150-300mg of trenbolone ester. Being that trenbolone is significantly more potent than testosterone on a milligram for milligram basis, the 2cc weekly injection will provide a very substantial benefit. At this dosage one might even be able to make significant progress without the addition of other drugs. In most cases, however, trenbolone is combined with another base steroid. You will commonly see stacks with testosterone or boldenone during bulking phases of training, or Winstrol, Primobolan, or Anavar during cutting cycles. In such situations, a single 150mg dose per week will usually be enough on the trenbolone side. Women should probably avoid this drug altogether, due to both its strong androgenicity and long duration of action.

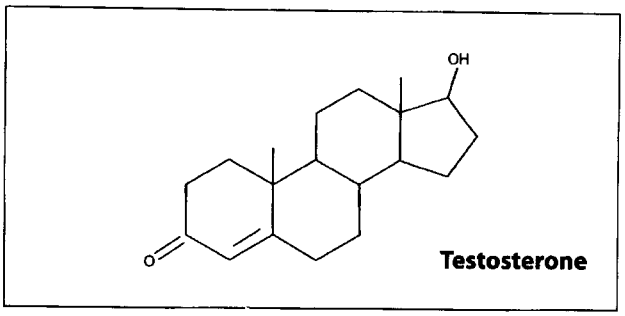
As a mixed ester product with mostly long-acting compounds, Trinabol provides a total duration of effect very similar to what we would see with Parabolan. The short-acting acetate ester, however, allows blood levels to peak much more quickly. In crude terms it is a form of Parabolan that kicks in faster than normal. In regards to bodybuilding, for all intents and purposes, this product is interchangeable with regular Parabolan, as weekly injections will blur any sustained-release properties the mixed esters might provide. However, this formulation is a big improvement over trenbolone acetate injectables, as the 2-3 times per week injection schedule needed for these products can be very uncomfortable. Trinabol also carries 150mg/mL of steroid, double the concentration of what most standard acetate-based products are going to provide.

Trinabol 150 is currently the only blended trenbolone injectable being produced by a commercial steroid manufacturer. BD is using specific security checks to deter counterfeiting, so be sure to pay attention to these when shopping. For starters, BD stopped using hologram stickers on its injectables some time ago. They now use them only on orals, and Trinabol came out after this switch (no old lots with stickers can be found). A current popular Russian counterfeiter is using duplicate labels, so be careful. Next, they have added a shiny red metallic foil inlay in their labels (blue for sales in Eastern countries). Lastly, be sure your vial cap has the product name formed directly in the plastic. Once removed, you should also see a rubber dragon, embedded directly into the stopper. Provided your vial matches on these points, you should be assured of a legitimate purchase.

Triolandren (testosterone blend)

Androgenic	100
Anabolic	100
Standard	standard

Chemical Names	4-androsten-3-one-17beta-ol 17beta-hydroxy-androst-4-en-3-one
Estrogenic Activity	moderate
Progestational Activity	low



Testosterone

Triolandren is an injectable testosterone blend, produced by Novartis. More specifically, this product contains a mixture of testosterone propionate, n-valerianate, and undecylenate, for a total steroid concentration of 250mg/mL. With its mix of fast and long acting esters, Triolandren is very much like Sustanon in design. The intention in both cases was clearly to create a product that will deliver testosterone, slowly, evenly and comfortably, to a patient over a period of three to four weeks. In this case, the slowest releasing ester used was undecylenate, whereas Sustanon uses decanoate. This would make Triolandren ever so slightly the longer acting agent between the two.

Each 1 mL ampule of Triolandren contains:

Testosterone Propionate	20 mg
Testosterone-n-valerianate	80 mg
Testosterone Undecylenate	150 mg

As a testosterone injectable, Triolandren is a powerful strength and size builder. Really effective mass-building cycles almost always include some form of testosterone for this reason. That is not to say you must use testosterone. But it is cheap, and works better than just about anything else available for this purpose. The positive anabolic properties of this hormone, of course, are accompanied by equally strong androgenic and estrogenic properties. Side effects, at some level, are almost unavoidable as a result. If you are particularly sensitive to the effects of estrogen, you may want to have some form of anti-estrogen or aromatase inhibitor on-hand should side effects become problematic (for a more comprehensive discussion about the benefits and potential drawbacks to using a sustained-release testosterone product like this, please refer to the Sustanon profile).

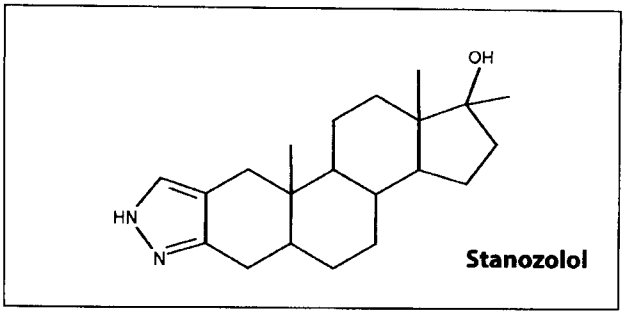
Although much longer acting, in the context of using them for bodybuilding purposes, drugs like Triolandren and Sustanon are usually injected on a weekly basis. Such a schedule eliminates any real advantage in using a sustained-release blend of testosterone. After all, the main reason these drugs were designed is so that you don't have to inject them every week. If you are going to do this anyway, you are probably much better off purchasing a cheaper product that contains testosterone enanthate or cypionate. You'll get a lot more testosterone for your money, and a cycle that is utterly indistinguishable from one using Triolandren.

Triolandren is a rare find on the black market. To the best of my knowledge it is only manufactured in two countries currently, Egypt and Taiwan. Novartis is the manufacturer in both cases. Since these two countries are really not major source countries for steroids, you probably should not expect to see Triolandren very often. If you do find it, can verify its legitimacy, and are offered it for a fair price, it should most certainly be as acceptable for use as any other slow acting testosterone injectable. Unless you like giving money away, I'd base the decision on a simple calculation of how much testosterone are you getting for your money: cheapest product wins.

Winstrol® (stanozolol)

Androgenic	30
Anabolic	320
Standard	methyltestosterone (oral)

Chemical Names	17beta-Hydroxy-17-methyl-5alpha-androstano[3,2-c]pyrazole
Estrogenic Activity	none
Progestational Activity	not significant



Stanozolol

Winstrol® is a popular brand name for the synthetic anabolic steroid stanozolol, first patented in the United States by Sterling back in 1962 (U.S. Patent #3,030,358). The compound itself is a derivative of dihydrotestosterone, although its activity is much milder than this androgen in nature. It is technically classified as an anabolic steroid, shown to exhibit a slightly greater tendency for muscle growth than androgenic activity in early studies. While dihydrotestosterone really only provides androgenic side effects when administered, stanozolol instead provides quality muscle growth. Admittedly the anabolic properties of this substance are still mild in comparison to many stronger compounds, but it is still a reliable builder. Its efficacy as an anabolic could even be comparable to Dianabol, however Winstrol® does not carry with it the same tendency for water retention. Stanozolol also contains the same c17 methylation we see with Dianabol, an alteration used so that oral administration is possible. Despite this design however, there are many injectable versions of this steroid produced.

Structurally stanozolol is not capable of converting into estrogen. Likewise an anti-estrogen is not necessary when using this steroid, gynecomastia not being a concern even among sensitive individuals. Since estrogen is also the culprit with water retention, instead of bulk Winstrol® produces a lean, quality look to the physique with no fear of excess subcutaneous fluid retention. This makes it a favorable steroid to use during cutting cycles, when water and fat retention are a major concern. It is also very popular among athletes in combination strength/speed sports such as Track and Field. In such disciplines one usually does not want to carry around excess water weight, and may therefore find the raw muscle-growth brought about by Winstrol® quite favorable over the lower quality mass gains of more estrogenic agents.

As mentioned Winstrol® is prepared in two distinct forms, as an oral tablet and an injectable solution. Although they are chemically identical, the injectable usually allows the user to take much higher dose of the steroid. This is of course because the injectables are much more cost effective, and therefore usually the preferred form of administration. You may find big differences in the appearance of one injectable product to another however. In particular there are big discrepancies in the size of the steroid particles used to manufacture the various stanozolol suspensions. For example, the European human use product Zambon uses a fine powder, capable of being comfortably injected through a 25-27 gauge needle. The Mexican veterinary product Stanazolic is even better, so refined that it can pass easily through an ultra-fine 29 gauge insulin needle. Many other veterinary products on the other hand use steroid in a much larger particle size, such as Winstrol®-V in the U.S., and Anabolic-ST from Australia and Mexico. In many instances jams and difficulty injecting have been noticed when trying to administer these products, even when using a large 22-gauge needle. But there are both advantages and disadvantages to each type of product. On the one hand the large particle size would form a longer acting deposit (depot) while the steroid dissolves, giving us the option of fewer injections. A larger shot every three to four days would likely be sufficient to keep blood levels within limits, which is a favorable schedule for a water-based product. On the other hand we are forced to use a standard size oil needle (21 gauge) for the injection, uncomfortable for regular administration. Products made with a finer substance do not allow for as slow acting a depot, and therefore are usually injected every other day to keep blood levels steady. But shots can be given with a much more comfortable sized needle, opening up many new injection sites. Although you can jam a big "oil pipe" into your shoulder, that is really not the place for it.

For men, the usual dosage of Winstrol® is 15-25mg per day for the tablets and 25-50mg per day with the injectable (differences based solely on price and quantity). It is often combined with other steroids depending on the desired

result. For bulking purposes, a stronger androgen like testosterone, Dianabol or Anadrol 50® is usually added. Here, Winstrol® will balance out the cycle a bit, giving us good anabolic effect with lower overall estrogenic activity than if taking such steroids alone. The result should be a considerable gain in new muscle mass, with a more comfortable level of water and fat retention. For contest and dieting phases, we could alternately combine Winstrol® with a non-aromatizing androgen such as trenbolone or Halotestin®. Such combinations should help bring about the strongly defined, hard look of muscularity so sought after by bodybuilders. Older, more sensitive individuals can otherwise add compounds like Primobolan®, Deca-Durabolin®, or Equipoise® when wishing to stack this steroid. Here we should see good results and fewer side effects than is to be expected with standard androgen therapies.

Women will take somewhere in the range of 5-10mg daily, or two and a half to five 2mg tablets. Although female athletes usually find stanozolol very tolerable, the injectable is usually off limits. They risk androgenic buildup, as a regular 50mg injection will provide much too high a dosage. Here, the tablets are the general preference. It is obviously much easier to divide up pills than it is to break up a 1cc ampule into multiple injections. Those who absolutely must experiment with the injectable would be most comfortable dividing each 50mg ampule into at least two separate injections. At this point the dosage will adjusted by the number of days separating each shot. 25mg every third or fourth day should be a comfortable amount for most. More ambitious (and risk taking) females would take 25mg every second day, although this is not recommended. Although this compound is only moderately androgenic, the risk of virilization symptoms should remain a definite concern.

With the structural (c17-AA) alteration, the tablets will also place a higher level of stress on the liver than the injectable (which avoids the "first pass"). During longer or higher dosed cycles, liver values should, therefore, be watched closely through regular blood work. Although less common, the possibility of liver damage cannot be excluded with this injectable however. While it does not enter the body through the liver, it is still broken down by it, providing a lower (but more continuous) level of stress. Such stress would, of course, be amplified when adding other c17-AA oral compounds to a cycle of Winstrol®. When using such combinations, cautious users would make every effort to limit the length of the cycle (preferably 6 to 8 weeks). It is also of note that both versions of Winstrol® have been linked to strong adverse changes in HDL/LDL cholesterol levels. This side effect is common with anabolic steroid therapy, and can become a health concern as the dose/duration of intake increase above normal. The oral version should have a greater impact on cholesterol values than the injectable due to the method of administration, and may, therefore, be the worse choice of the two for those concerned and this side effect.

As discussed in the opening section of this book, the oral use of stanozolol can also have a profound impact on levels of SHBG (sex hormone-binding globulin). Admittedly, this is characteristic of all anabolic/androgenic steroids, however, its potency and form of administration make Winstrol® particularly noteworthy in this regard. Since plasma binding proteins such as SHBG act to temporarily constrain steroid hormones from exerting activity, this effect would provide a greater percentage of free (unbound) steroid hormone in the body. This may amount to an effective mechanism in which stanozolol could increase the potency of a concurrently used steroid. To further this purpose we could also add Proviron® (1methyl-dihydrotestosterone), which has an extremely high affinity for SHBG. This affinity may cause Proviron® to displace other weaker substrates for SHBG (such as testosterone), another mechanism in which the free hormone level may be increased. Adding Winstrol® and Proviron® to your next testosterone cycle may, therefore, prove very useful, markedly enhancing the free state of this potent muscle building androgen.

Winstrol is an extremely popular steroid, and the fact that it is found in abundance on the black market reflects this. It is also a popular target for counterfeit steroid manufacturers, so you need to be careful when shopping. If you know what to look for, you should be able to keep yourself safe. In going over the popular brands circulating right now, I can offer the following observations and advice.

Animal Power makes a pair of stanozolol products in Mexico, one oral and one injectable. The oral product is called **Stan Tabs**, and carries 10mg of steroid in a 100-count bottle. The injectable is called **Stan 50**, and contains 50mg/mL of steroid in a 10mL multi-dose vial. Both products are packaged for sale in individual boxes, and all components (boxes, vials, and bottles) will carry the company's security hologram sticker. Although counterfeits of this line have not yet been a problem, be sure to still look for this hologram when shopping, as it should assure a safe purchase (*see: Security Stickers*).

Denkall's **Stanazolic** is an excellent product, and highly recommended. It is found is four distinct forms, a number greater than any competing brand. You can find it as a 50mg/mL injectable, a 100mg/mL injectable, a 10mg tablet, and a 6mg capsule. All forms are to be considered of excellent quality, and are photographed in this book. As mentioned above, they have one of the most refined injectables on the market. Just be sure to look for the Denkall hologram sticker on each bottle/vial, which

should help assure you are purchasing the real thing. Note that fakes of the Denkall line with counterfeit holograms are in circulation (*see: Security Stickers for more information*).

Quality Vet produces a 50mg/mL and a 100mg/mL injectable called **Stan QV**. These products, and company, are also highly regarded. Again, look for the hologram sticker and you should be fine. This is definitely a recommended buy.

Nutri-Vet is now selling two Winstrol products in Mexico as well, both called **Ultra Winny**. The first is an oral product, which contain an incredible 50mg (not 5mg) tablet dose. Each bottle contains 100 tablets, which gives 5,000 mg of steroid in total, or the equivalent of 2,500 tablets of Spanish Zambon product! The injectable is an "oil-based suspension" containing 50mg/mL of steroid is a 20ml vial. This solution is reportedly thin enough to be used for local spot injections, very much as a water-based suspension might.

Anabolic-ST from SYD Group is also popular in Mexico. With this one, however, you need to use a large 21-gauge needle, as the particle size is not as refined as the European Zambon or Denkall Stanazolic products. Again, look for the hologram sticker to help assure legitimacy.

Stanol-V by Ttokkyo is no longer being made in Mexico, as the company is out of business. Any old product should be off the market now, so avoid anything with the Ttokkyo label.

Norvet's **Estano-Pet's** is another new stanozolol product in Mexico, delivering either 10mg or 25mg of steroid per tablet. Both forms come in 100 tablet bottles. I have not had a chance to see lab test results, but if they indeed are making a 25mg tablet, it will go over very well on the black market.

British Dispensary in Thailand just recently expanded its steroid line to include a stanozolol product. Their trade name for the drug is **Azolol**, and it contains 5mg of steroid in a 400 tablet bottle. The bottle itself looks very similar to that of Androlic, with dark plastic and a shiny chrome top. Be sure to look for the company's holographic sticker when shopping.

The Thai export firm British Dragon has reworked its stanozolol offerings recently. They are now selling their **Stanabol** brand in two tablet strengths, 10mg and 50mg. Both versions are sold in foil-lined paper pouches of 100 tablets each. The tabs themselves are no longer pentagonal shaped, and are square with the letters "BD" formed into one side and the dosage ("10" or "50") in the other. Note that BD oral products will carry a security hologram sticker to deter counterfeiting. This sticker has been copied before, however, so pay closer attention to the shape of the tablets and you should be fine. Be sure the pouches are also printed with the company logo on the back, and also open to include a small silica gel packet with the company logo on it.

The **Stanol** brand name was found in Thailand until recently. It was owned by the firm Body Research, who used it to market 5mg stanozolol tablets and a 50mg/mL injectable. The tablets were packed in bottles of 200 tablets each, and the injectable in the form of 1mL glass ampules. Both products were highly regarded on the black market, until the Thai authorities raided their facilities a year ago, closing them down. Old stock may be left, but not for long.

Acdhon in Thailand makes **Stanozodon**, a relatively low dose today with the industry-old standard of only 2mg of steroid per tablet. The fact that it is packaged in bottles of 1,000 does make up for this, at least a little bit. This product is safe, but not extremely popular on the black market.

Xelox, an export company from the Philippines, sells a brand of stanozolol called **Anazol**. It comes in both an oral and injectable form. The injectable, **Anazol Depot**, carries 50mg/mL of steroid in a 5mL multi-dose vial. The formulation includes 5mg/mL of added lidocaine, to reduce injection discomfort. The oral comes as a 2mg tablet, with 100 coming per plastic bottle. Both forms of the drug will carry the Xelox security sticker to deter counterfeiting.

Winstrol®-V, the multi-dose injectable produced in America and Canada, is the stanozolol product duplicated most by counterfeiters. With tight controls you will likely not see the real thing anymore, so avoid all such products on the black market. If you want to risk it, at least make sure the steroid crystals separate deeply when the bottle is at rest. The particles in real Winstrol®-V are also too large to be drawn into the finer gauge needles (25-27 gauge should jam quickly).

Zambon Winstrol® tablets and injectable ampules are still produced in large quantities in Spain as well. In fact, this remains the most popular stanozolol injectable in Europe. Note that the packaging on this product has changed again, now coming in the form of reddish colored boxes (*see: Picture Library*). All boxes are also now protected with a holographic sticker, which carries the company logo embedded into the image. Thus far counterfeiters have not yet duplicated these stickers, although it is probably a matter of time before one or two take a crack at it. Also note that the Italian Zambon products are no longer being made. Avoid all such items on the black market.

The Greek generic by **Genepharm** is also circulating, but not abundantly in the U.S. It does not appear to be a big target for counterfeiters as of yet, and can usually be trusted. Remember to look for a Greek drug ID sticker on the box to assure legitimacy. This will show a hidden mark under UV light, and provides a very reliable detection method.

Chinfield makes a 50mg/mL injectable stanozolol in Argentina called **Nabolic Strong.** This is the same firm that makes regular Nabolic, a very low dosed (2mg/mL) version of the same drug. This new product is now much more popular on the black market than the first, due to the more useable dosage. Note that Chinfield prints their logo on the inside of the vial carton, which offers somewhat of a simple security check (obviously one very easy to duplicate). Your box is definitely counterfeit if it is blank on the inside.

ANABOLIC AGENTS (NON-STEROID) Drug Profiles

Arachidonic Acid (eicosa-5,8,11,14-enoic acid)

Arachidonic acid is the body's core "anabolic fat". More specifically, it is an omega-6 fatty acid that serves as the principle building block for the synthesis of dienolic prostaglandins (such as PGE2 and PGF2-). These prostaglandins are integral to protein turnover and muscle accumulation, and have such important activities as increasing blood flow to the muscles (pumps), increasing local testosterone, IGF-1, and insulin sensitivity (corresponding receptor levels), supporting satellite cell activation, proliferation, and differentiation, and increasing the overall rate of protein synthesis and muscle growth. Arachidonic acid release serves as the main thermostat for prostaglandin turnover in skeletal muscle tissue, and as such is responsible for initiating many of the immediate biochemical changes during resistance exercise that will ultimately produce muscle hypertrophy. Among the large variety of nutrients we take into our bodies each day, arachidonic acid is among the most integral to muscle growth, as it sits at the very center of the anabolic response. It is, likewise, one of the most important to pay attention to when it comes to diet and supplementation.

Arachidonic acid begins to display its anabolic activity early during exercise. This nutrient is released from your muscle fibers as they are damaged during intense training, triggering a localized inflammatory and anabolic response. This is part of the same biological process that causes you to be sore a day or two following a good workout, and reminds us that the old adage "no pain, no gain" is a fundamentally true one. Arachidonic acid liberation from damaged muscle fibers is, similarly, the very first anabolic trigger, in a long cascade that will control the rebuilding and strengthening of muscle tissue after exercise[154 155 156]. Among other things, by increasing local androgen[157], IGF-1, and insulin receptor density, arachidonic acid allows testosterone, IGF-1, and insulin to increase protein synthesis rates and repair the damaged tissue. In this way, arachidonic acid supports the anabolic actions of these hormones not by increasing their levels, but by providing more local receptor sites to attach to (making the process both faster and more intense). As a crude explanation, arachidonic acid directs the body to where it needs muscle tissue repair, and opens the door for the anabolic hormones to do their job.

The availability of arachidonic acid, and our ability to liberate it during exercise, is vital to the anabolic productivity of our workouts. We also need to be aware of the fact that regular exercise significantly lowers the content of arachidonic acid in skeletal muscle tissue [158 159 160]. Since dienolic prostaglandin synthesis is inextricably tied to the amount of available arachidonic acid, lower levels result in less arachidonic acid being release with the stretching and damage of exercise. This means a less dramatic increase in androgen/IGF-1/insulin receptor density, and a lower rate of muscle protein synthesis. The depletion of arachidonic acid in skeletal muscle tissue is one of the key reasons we find it harder and harder to get sore the more regularly we exercise. With lower levels of arachidonic acid, you need to work more vigorously to receive the same level of release and anabolic stimulation. On the same note, when you change up your routine and hit your muscles from new angles, arachidonic acid is the reason you'll find yourself more sore than usual. You have called upon new muscle fibers, which have higher (untapped) stores of this vital nutrient to work with. Dan Duchaine once said, "the best exercise is the one you are not doing", and I believe this is exactly what he was talking about, even if he may not have understood the underlying mechanism at the time.

To support the anabolic actions of prostaglandins (with a focus on short term growth), arachidonic acid can be supplemented in high levels. Typically, one would take 750-1,000mg daily, which is administered for a period of 7-8 weeks (it is cycled on and off in the same way as anabolic steroids). Short-term diets very rich in arachidonic acid like this are well documented to cause a high retention of arachidonic acid in body tissues[161 162 163 164], and also to significantly increase the output of prostaglandin metabolites. This will mean easier arachidonic acid liberation during exercise, greater prostaglandin output, higher tissue androgen, IGF-1, and insulin sensitivity, and elevated protein synthesis rates. Such use has very consistently produced gains of 1-2 lbs of lean muscle per week. This is with nothing more that heavy training and a high protein/calorie diet to support its anabolic activities. When you load arachidonic acid like this, early on (before actual tissue gains accrue) you should be seeing an increase in pumps during your workouts, and an amplification of post-workout (Delayed Onset) muscle soreness. I often hear comments like, "I haven't been this sore in years" or "I feel like I did when I first started training". By the third or fourth week this should all start equating to very measurable and welcome increases in size and strength. These gains also tend to be associated with modest losses in body fat, making arachidonic acid a versatile "lean mass" building agent.

Arachidonic acid may also be an important nutrient to consider in regular supplemental doses, particularly if you do not consume animal products (red meat, organ meat,

eggs) on a daily basis. Studies have shown that given somewhat comparable amounts of protein, those who consume animal products will make more progress with resistance exercise than those that do not (vegetarians)[165]. I have long proposed that arachidonic acid was the missing component in such diets, too integral to the anabolic response for lower dietary levels not to be noticed. Even the earliest experiments with arachidonic acid supplementation seemed to confirm this for me. I have also seen a good deal of empirical evidence suggesting that an arachidonic acid deficiency exists in many experienced bodybuilders. On a number of cases, tissue tests for the content of phospholipids have revealed unusually low levels of arachidonic acid in highly trained athletes. The old time bodybuilders understood the need for red meat in the diet, and often looked at this food with a sort of anabolic reverence. Even if they did not understand things like arachidonic acid content and the role of this nutrient in the core anabolic response, they understood it was necessary for optimal growth. Those who find their intake of animal product inadequate, a single capsule of 250mg daily should provide a sufficient supply of this essential omega-6 fatty acid.

Arachidonic acid is a supplement that may be of interest to both steroid and non-steroid using athletes alike. Some people find it harder to get their muscles really sore when taking a lot of steroids, for example, and what comes doesn't last as long as it did when off-cycle. The body just seems to recover so quickly when taking hormonal anabolics, sometimes too quickly to feel like you are stimulating your muscles enough during training. The greater intake of arachidonic acid during a steroid cycle (even if you eat animal products) will allow for greater day-to-day stimulus from your training. Your body will be able to respond to the lifting as if you were putting in much more physical effort, or have not been training as long (haven't depleted your arachidonic acid stores). Here, even a "supplemental" dose of only 1 capsule per day can make a big difference. For the non-steroid user, arachidonic acid can be a very effective anabolic agent in its own right. Taking (again) 750-1,000mg per day in short cycles has consistently produced gains of 1-2 lbs of lean muscle per week, with nothing more that heavy training and a high protein/calorie diet to support its anabolic activities. In a recent public trial of the supplement with 15 active non-steroid-taking bodybuilders, the average gain was 8.25lbs over the course of 50 days. These are very significant numbers, making arachidonic acid by far most effective natural supplement for building muscle I've yet had the ability to work with, and of definite use as a standalone agent.

Although arachidonic acid can produce a very weak androgenic effect by allowing testosterone to be more active in the body, this should not be significant enough to concern females about virilizing side-effects. At best, this effect usually causes mild oily skin in a small number of users. For most, it is entirely unnoticeable. There is also no hormonal disruption with arachidonic acid supplementation, which means no "post cycle" crash. The retention of gains after the product is discontinued, likewise, seems to be extremely high. While gains stop somewhat abruptly when arachidonic acid loading is discontinued, they do not tend to dramatically reverse. In clinical studies involving the supplementation of 1,500-1,700mg of arachidonic acid per day, general markers of health were also unaffected with 50 days of continuous use. This includes no notable change in HDL, LDL, or total cholesterol values, immune system response functioning, or platelet aggregation values[166] [167] [168]. Provided that the individual cycling/loading arachidonic acid is in good health, the greater "inflammation" should present no more risk than a temporary Atkins-type diet high in animal products. This supplement can be used with high safety, a fact supported by the medical literature (not just empirical evidence).

That is not to say there are no risks with the high-dose loading and cycling of arachidonic acid. This is a "pro-inflammatory" supplement, and needs to be respected as such. To begin with, if you suffer from injury or inflammatory disease, the higher levels of arachidonic acid may exacerbate related symptoms. An individual with arthritis, for example, may notice more join pain while loading this supplement. It is not damaging the joints, but simply amplifying the pain signals induced by prostaglandins. Patients with arthritis are commonly advised to limit the intake of red meat for this very reason. There are other health conditions where the intake of omega 6 fatty acids should be limited as well, such as cardiovascular disease and/or high blood pressure. In the latter stages of such illnesses, inflammation and increased platelet aggregation can be important triggers/contributing factors to an adverse health event. Also, as a potent growth-promoting agent, arachidonic acid joins androgens, growth hormone, IGF-1, estrogens, and many other growth factors as potentially supporting the growth rate of certain cancer cells. Cancer cells are tissue cells after all, and are often responsive to growth promoting hormones just like normal cells. Dietary arachidonic acid intake has been generally eliminated as a causative factor in cancer[169] [170], just as testosterone level has been eliminated as predictive of prostate cancer risk. If you have prostate cancer, however, the last thing you want to start taking is a growth promoter like testosterone. The same goes for arachidonic acid. The bottom line is that if you are in poor health, you should probably not be running out to take this supplement. If you are, you can probably use it with great safety.

In case you were unaware, I am the pioneer of the arachidonic acid loading concept. I want to make this clear, so nobody thinks I am trying to promote my own products in ANABOLICS as a "disinterested third party". I include it in my book only because I feel it belongs here. I have been very excited about this discovery, and the progress made while working with this nutrient over the past several years. I feel a lot of important new ground is being broken with it, not just in supplementation, but also in the general understanding of muscle hypertrophy. During my work I filed, and was ultimately granted, patent on the concept. I am now selling a supplement form of arachidonic acid called **X-Factor**™ (sold through my company, Molecular Nutrition). Each capsule provides 250mg of arachidonic acid, roughly what you'd get after a full day of eating the normal red-meat-rich Western diet[171]. At this point I can honestly say that arachidonic acid holds remarkable power as a legal and non-hormonal muscle-building agent, and I expect it will become a staple anabolic nutrient in the months and years to come. I would feel the same way had I not been the person to discover its usefulness here. But since I was, I do want the credit for it. So be sure to remember where you heard about it first!

Kynoselen®

Kynoselen is an injectable veterinary drug from France, produced by the firm Vetoquinol. It contains a mixture of Heptaminol, AMP (adenosine monophosphate), Vitamin B-12, Sodium Selenite, Magnesium Aspartate & Potassium Aspartate. This blend makes for a restorative "tonic" type drug, administered to protect an animal's muscle mass and overall wellness after illness, injury, or trauma. For example, it may be used as an anti-catabolic after a strenuous race, or to help get an animal on its feet after a debilitating infection. At other times it is simply used to support the vitality of an animal that is otherwise healthy, but at the moment less than vigorous in its daily activities. In some cases it is even used for the very basic purpose of remedying a deficiency in vitamin B-12 or selenium intake.

Bodybuilders are attracted to Kynoselen for its mild anabolic and lipolytic properties. The principle active ingredient in the product is heptaminol, an inotropic compound that increases contractile strength, and minimizes fatigue, of the muscles[172]. It has also demonstrated a specific ability to increase the differentiation of satellite muscle cells[173], a process that helps generate new muscle tissue (skeletal muscle growth). This same ingredient is also known to affect the release and uptake of norepinephrine (noradrenalin), increasing levels of this hormone/neurotransmitter in the blood[174]. Since noradrenalin is an important regulator of lipolysis in humans, this allows heptaminol to impart a fat-loss effect. Admittedly, however, both its anabolic and lipolytic properties are not dramatic. But being that this drug is totally legal, it remains an attractive alternative to anabolic steroids for many. Even when used alone it can impart measurable increases in strength, muscle mass, fat loss and vascularity, which no doubt explains why Kynoselen is relatively popular drug these days.

The usual recommended dosage is around 1mL weekly for every 25 pounds of bodyweight. This would mean that a 200lbs. bodybuilder would use around 8mL per week, not a small injection volume by any means. For this reason, some opt to take a lower dosage, injecting at the very least a 2mL three times per week. At this dose, a single 100mL vial would last about 16 weeks. At 8-10mL per week the bottle would still last for ten to twelve weeks. It is best to use up the entire bottle once it has been opened, even if you didn't need that much drug for your cycle. As with all injectable drugs packaged in multi-dosed vials, contaminants will be introduced into the solution immediately once the seal is broken for the first injection. Being that it is water-based medication, it is not expected to keep very well. You most certainly do not want to leave a half used bottle of Kynoselen on the closet shelf for later use.

Because it tends to increase noradrenalin levels, Kynoselen is a mild stimulant. It is likely for this specific reason that its use has been banned by certain horseracing organizations. This means that one can expect certain stimulant-related side effects, especially when taking this drug in higher dosages. This includes rapid heartbeat, sweating, jitters, restlessness, increased blood pressure or insomnia. A good rule of thumb used by bodybuilders to try and keep such side effects from becoming a problem is never to inject more than 2ml per day. They may also want to start with an amount lower than the recommended dosage (determined by body weight), perhaps even half of this. The dose is then slowly increased, so that the peak level is reached only after three to four weeks of slow incremental increases.

Kynoselen will usually run you about $75 to $100 per bottle. It is not a controlled substance, and is likewise pretty easy to obtain locally or via mail order. Currently no fakes are known to exist. Given its abundance and low cost, I do not think we should expect counterfeits anytime soon. It is also important to note that legitimate Kynoselen is a veterinary drug only, and has never been manufactured for human use.

Lutalyse® (diniprost)

Lutalyse is a synthetic form of prostaglandin PGF2alpha. Prostaglandins are a series of natural oxygenated unsaturated cyclic fatty acids, which have a variety of hormone like actions in the body. Among other things, prostaglandins are involved with pain, inflammation and the development of fever. They affect ovulation and the female reproductive system, alter gastric motility and fluid absorption in the gastrointestinal tract, and effect the respiratory system by constricting or dilating blood vessels in the lungs and smooth muscles lining the bronchial tubes. In the circulatory system they constrict and dilate blood vessels as well, often as a way of effecting blood pressure, and in the kidneys they affect the excretion of water and electrolytes. Of note is that prostaglandins also affect the buildup of fat and muscle protein synthesis.

Lutalyse is used in veterinary medicine for the purposes of controlling breeding. When used correctly with a series of other hormones, it can successfully stimulate ovulation and allow for a successful, timed impregnation. Athletes of course use it for a very different purpose, namely the strong thermogenic and anabolic potency of the compound. We see this combination a lot, but this prostaglandin may indeed live up to this goal. For starters, PGF2a has been shown in studies to stimulate protein synthesis[175]. Reports from athletes who have experimented with it often support this compound being an excellent site growth agent, and they occur with enough frequency to be believable. And it is supposed to be a very fast acting drug, with many claiming it has caused incredible pumps and noticeable increases in actual muscle tissue size after being injected in the site for only a couple of weeks. Data also supports it being a possible fat-loss drug, with PGF2a shown in studies clearly to inhibit the stimulation of lipogenesis in fat cells[176]. Again we have a lot of anecdotal support for this use as well, with many claiming they notice a slight temperature elevation and marked fat loss with use of this agent.

The main problems with diniprost are its side effects, which can be extremely severe. This includes pronounced soreness at the site of injection; often beginning with a dull burning pain almost immediately after the shot is given. Chills and flu-like feelings are also commonly reported during cycles, as occasionally are bouts of shortness of breath. Those with asthma should definitely not be taking this drug for fear it may induce a full-blown attack. Injections are also followed in many cases by uncontrollable urges to urinate and defecate, including strong spasmodic contractions of the muscles involved in the control of these functions. Nausea and vomiting have also been reported. For many, the cramping, diarrhea and general feelings of upset stomach, malaise and discomfort make PGF2a a drug they experiment with only shortly. Others however endure the intense side effects, and often do report that they become somewhat more tolerable as their use of the drug continues. For this group favorable results are consistently reported, with many claiming incredible site growth and marked fat loss.

Use of this drug typically involves starting with a low dosage, perhaps .5 milligram per injection site. Common target sites are the shoulders, biceps, triceps, calves, even chest, back and legs. The user will typically do only one site in a day to begin with as well, but may increase the number of shots given as they become more accustomed to the drug. If the first shot was event free, the next injection will be one milligram. This is slowly increased each time, with a typical target being 1 milliliter or 5mg. Injection sites are also rotated, so that several days separate injections in the same muscle group. It is also up to individual sensitivity how you schedule injections with your training routine. For some, the pain is too much to allow for training of the injected muscle for at least a few days post administration. In such a case you would want to work out a schedule of injecting in the right window of time during your post-training recovery and before your next workout targeting that muscle group.

NSAIDs (Non-Steroidal Anti-Inflammatory Drugs)

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are a group of medications that exert analgesic (pain-relieving) actions in the body by inhibiting the release of inflammatory prostaglandins. They do a job very similar to that of cortisol, which also exerts its anti-inflammatory actions by blocking prostaglandin biosynthesis. A comparison to cortisol is even made in the term "non-steroidal anti-inflammatory", as cortisol is, of course, a steroidal hormone while these drugs are not. As a group NSAIDs are amongst the most widely used pain medicines in the world, and can be found in a variety of prescription and over-the-counter forms. The most popular OTC NSAIDs in the United States are Advil/Motrin (ibuprofen) and Aleve (naproxen sodium), while Celebrex (celecoxib), Indocin (indomethacin), Vioxx (rofecoxib) and Mobic (meloxicam) are all available by prescription. Although aspirin and Tylenol (acetaminophen) are technically not classified as non-steroidal anti-inflammatory drugs, they inhibit prostaglandin biosynthesis as well, and are therefore equally relevant to our discussion.

Although NSAIDs are effective analgesic medications, they are NOT good bodybuilding drugs. They should not be used to help you "work through the pain", and they will not enhance your rate of recovery. In fact, they can be very detrimental to muscle growth. This is because the inflammatory response that is mediated by prostaglandins is absolutely vital to protein synthesis. In March 2002 a study was published that made this fact very clear[177]. It involved a group of 24 recreationally active young male subjects, who were given maximum OTC doses of ibuprofen (1,200mg/day) or acetaminophen (4,000mg/day) and subjected to resistance training. Amino acid turnover was measured for 24 hours following the bout of exercise, which allowed the investigators to determine what effect, if any, these drugs would have on protein breakdown and synthesis. It turned out that both ibuprofen and acetaminophen effectively blunted the normal post-exercise rise in protein synthesis, which was increased 76% above baseline in the group taking only the placebo. A follow up investigation demonstrated that both drugs were specifically blocking the normal post-exercise rise in PGF2α[178]. These studies show us just how strongly prostaglandins actually support the basic process of muscle growth; they are the last things in the world we would want to inhibit when trying to build muscle.

This is not an outright crucifixion of anti-inflammatory drugs. Certainly if you have pain, these drugs are amongst your safest options for dealing with it. I am also not trying to suggest that if you take these drugs regularly you will be totally unable to grow. I'm sure many guys out there would disagree with this notion. I myself have taken these drugs regularly during my training at times, and have been able to make progress while doing so. But I can definitely feel the difference when they are not in my body; growth is much less restrained in comparison. The bottom line is that you should take these drugs if you need to take them. If pain is stopping you from being able to function, you need to treat this first and foremost. But if you don't need to take these drugs, definitely stay the hell away from them. NSAIDs are most certainly not going to offer you any muscle-building benefit!

Nubain® (nalbuphine hydrochloride)

Nubain is a trade name for the painkiller nalbuphine HCL. Specifically, it is an injectable opiate-based analgesic (narcotic) with mixed agonist/antagonist properties. The analgesic action is roughly the equivalent of morphine on a milligram for milligram basis, although the overall action of the two drugs is quite different. The main distinction stems from the opiate antagonist activity of Nubain. There are three classes of opioid receptors in the human body, labeled mu, delta and kappa. Nubain blocks activation of mu receptors, the primary target of morphine and other related opiates. It is the mu receptor that produces the strong euphoria, analgesia and respiratory depression we see with these drugs. Instead, Nubain induces analgesia through interaction with Kappa receptors.

The mixed properties of this drug give it a number of unique qualities. For starters, Nubain has a much lower abuse potential than we see with pure opiates. In fact, individuals dependent on an opiate drug like heroin will generally experience withdrawal symptoms when administering Nubain. This mixed action also makes overdosing on this drug more difficult. While an average dose (10-30mg) will have a depressive effect on the respiratory system, depression is not appreciably increased with higher doses. The possibility of overdose and dependency cannot be excluded with Nubain however, but does require a considerable level of use. In the United States Nubain is not considered a drug with much abuse potential, as can be seen by its classification as a standard prescription drug (not a controlled substance).

Clinically, Nubain is used (generally) for the treatment of moderately severe pain, as a component of surgical anesthesia, and as an analgesic during labor. It has the welcome characteristic of causing only a minimal decrease in the level of oxygen consumption (a problem associated with most pure opiates). It is particularly effective at lowering the cardiac workload, and is commonly used during treatment of myocardial infarction cases. The dosage given is adjusted according to severity of pain and physical status of the patient, but is generally in the range of 10 - 20 mg for 70 kg of bodyweight. This substance can be administered as an intravenous, subcutaneous or intramuscular injection, depending on the speed of release desired. The action of Nubain is evident within 2 to 3 minutes IV administration, and less than 15 minutes following a "SubQ" or I.M. injection. The half-life of nalbuphine is measured to be approximately 2-3 hours, and it is usually administered to the patient every four to six hours.

Athletes will most often utilize this drug for the treatment of exercise induced pain and soreness, after or during a workout. And since opiate drugs have been shown in some instances to lower cortisol levels and raise the output of growth hormone, the idea of Nubain being used as an anabolic/anti-catabolic is often thrown in as well. For this purpose Nubain is not only useless however, it may also turn out to be counterproductive. This is because suppressed cortisol levels and enhanced output of GH are effects mediated by mu receptors. You will remember Nubain is a mu antagonist, and as such may actually work to increase serum cortisol and lower growth hormone secretion.

Those who do take this compound will most commonly inject 1 or 1 1/2 mL (equivalent to 10-15mg) after a workout, in order to relax and unwind (recreational use). Or possibly 1/2 mL (5mg) before a workout, the analgesic effect sought after to lessen muscle soreness while lifting. The theory is that Nubain will allow you to push through extra sets, or workout at an intense schedule that would otherwise be too uncomfortable. Although a case can be made for the therapeutic use of Nubain, realistically it is just a recreational drug. When administered by an opiate naive individual, it will certainly produce a narcotic high. Its peculiar availability as a black market item is only a result of easy availability in Mexico (and lack of US controls). The volume steroid suppliers simply found another item that may be of interest in the States. Nubain is of course not new, and has been available as a prescription item in the US for quite a long time.

Opiate Analgesics

Opiates are amongst the world's oldest and most effective painkilling drugs. This class of medications originates with the opium poppy, a plant that produces morphine. Morphine is a potent natural analgesic, which has received its name from the Greek god of dreams, Morpheus, due to its ability to produce warm euphoric "dreamy" feelings of comfort. Morphine is considered the standard opiate analgesic by which all other opiate derivative drugs are measured. In the United States pure opiate drugs are highly controlled, due to their high potential for abuse. Opiates are narcotic drugs (heroin is an opiate), and undoubtedly a problem for many law enforcement agencies that deal with crime problems associated with opiate addiction on a daily basis.

Pharmaceutical manufacturers in the United States produce a number of opiate drugs, including morphine, hydromorphone, fentanyl, oxycodone, hydrocodone, dihydrocodone and codeine. Most pure opiate drugs are placed under the controlled substances lists as schedule II medications, believed to have a very high potential for abuse. Oxycodone is an example of a schedule II drug, and also of a medication with an extremely high problem with abuse (Oxycontin is the new oxycodone brand of choice, as it contains high doses of pure oxycodone in a tiny tablet, and is easy to crush and administer in a rapid-acting oral, intranasal, or even injectable form). It is very difficult to get most doctors to prescribe Schedule II medications. You may get a small script if you are ever in serious intractable pain from injury, or are recovering from surgery, but do not expect them to just be handing out Oxycontin tablets for no reason.

Many mixed analgesics, such as hydrocodone formulations with APAP (acetaminophen) or Ibuprofen, are listed as Schedule III controlled substances. You may recognize such popular brand names as Vicodin, Vicoprofen, Norco or Lortab. Hydrocodone is a potent opiate analgesic, not far behind oxycodone. The fact that it is a mixed product somewhat interferes with abuse potential, because an addict needing high doses of the drug to get "high" is likely to run into trouble with the acetaminophen or ibuprofen content before overdosing on the actual narcotic drug itself. Vicodin addiction, for example, usually entails the user running into liver trouble from taking toxic doses of acetaminophen (the daily short term limit is 4,000mg, or 8 tablets) on a continual basis. The mixture also allows for a lower total dose of opiate drug, as some analgesia will be produced by the adjunct medication. As it is a schedule III medication, Vicodin is usually easier to get than schedule II medications like oxycodone. Doctors are placed under less scrutiny, and the requirements for documentation and federal review are less strict. Mixed formulations are also available with oxycodone (Percodan, Percocet), however they remain on the list of Schedule II products due to the more potent and longer-acting nature of this drug.

In addition to the chance for addiction, opiate drugs have a number of other potential side effects including constipation, drowsiness, mental confusion, lethargy, impaired motor reflexes, anxiety, itching, rash or mood changes. There also seems to be odd occurrences of hearing loss in some patients abusing high doses of hydrocodone/APAP, specifically. Physical dependency occurs very quickly with opiates (please note that physical dependency and addiction are two separate things), producing abstinence syndrome when the drug is no longer given. This is often characterized by restlessness, sweating, nervousness, aches, nausea, flu-like symptoms, headaches, diarrhea or insomnia. Doctors are typically advised to slowly lower a patents daily dosage when discontinuing opiate therapy after any prolonged duration, so as to minimize discomfort. An accidental overdose of these drugs may also be life threatening, as opiates suppress the rate of respiration.

As you may have noticed by reading the profile for non-steroidal anti-inflammatory drugs, by blocking prostaglandin production acetaminophen and ibuprofen can notably interfere with protein-synthesis. This is somewhat of a problem for bodybuilders looking to use an opiate pain-medication, as they are likely to have the easier access to mixed Schedule III formulations. These should not be taken for long periods of time if avoidable. On top of the potential for physical dependency, which occurs quickly with all opiates, the anti-inflammatory properties of acetaminophen and ibuprofen will work against muscle growth. You will often hear people claim that Vicodin is a great bodybuilding tool, enabling them to workout harder and deal with the intense soreness that strenuous lifting brings. This is just bad thinking. You may be lifting harder, but as far as your muscle are concerned, you are doing less, not more. Pure opiates drugs might alternately be available to you, such as morphine, oxycodone (Oxycontin, Roxicodone), fentanyl or hydromorphone (Dilaudid), which are free of anti-inflammatory compounds. This might be looked at as a benefit, but at the same time you need to understand that these are amongst the most serious narcotic medications available. Tolerance, physical dependence, and the chance for developing an addiction are things that need to be taken very seriously.

There is no doubt that pain management with opiates can be a life-altering benefit for those suffering with chronic pain. For this reason I am a strong supporter of allowing doctors to prescribe them with as little government intervention as is necessary. I feel that too many doctors probably hold back on opiate therapy these days, for fear their patients may become addicts or that they might one day find themselves in a lawsuit, or even under arrest, for over-prescribing. But that aside, there is no place for narcotics outside of a medical setting. I would disagree wholeheartedly with any notion that these drugs have any purpose in the bodybuilding arena. Too many people have lost money, health, even their lives to addictions to narcotics, which many times began with seemingly innocent intentions of just using the drug for a temporary "edge". Even playing around with these drugs is definitely not recommended.

ANTI-ACNE Drug Profiles

Accutane (isotretinoin)

Accutane is the brand name Roche uses to market the drug isotretinoin, a potent oral acne medication. Isotretinoin is chemically related to retinoic acid and retinol (Vitamin A), but don't let this association confuse you. This is a strong synthetic drug, far removed from the relatively benign vitamin it is related to in base structure. Although its exact mode of action is unknown, isotretinoin works by inhibiting sebaceous gland functioning, which diminishes oil production in the skin and hinders acne development. Accutane is sold in many countries throughout the world, and is largely regarded as one of the most effective medications ever developed for treating severe acne. Bodybuilders are attracted to this agent for this same use, namely treating the ever so common side effect of anabolic/androgenic steroid use: acne.

Accutane is indeed a very effective medication for its intended use, displaying an excellent success rate with even some of the strongest cases of clinical acne (acne vulgaris). For example, a study was published just this year that involved the treatment of 160 patients in Kuwait[179]. There are many studies that could be referenced showing its high success rate, so this study is not intended to represent the "best" one (simply one of many). The study consisted of a 2-28 week treatment period, followed by regular checkup visits during the year after. Of the patents that finished the study (133), 127 of them noticed partial or complete clearance of acne during treatment. This was a success rate of over 95%, formidable for any drug. Nearly 60% of these patients were free of relapse a full year after Accutane therapy had been discontinued. This excellent long-term success rate exemplifies why this drug is so highly regarded, at least when it comes to effectiveness.

It isn't all good for this drug, however. Accutane is extremely powerful, with many potential side effects. In fact, it can be such a serious drug that some might go so far as to call it controversial. Just ask one of the many Accutane action or victim groups. This drug has made front-page papers on many occasions, linked to birth defects, depression, and a string of patient suicides (among other things). The warnings on this product are numerous and very strong. Especially important is for any women that potentially might become pregnant not use the drug. Even small exposure has been linked to very serious complications with fetal development. It also displays some hepatotoxicity, and can lead to inflammatory bowel disease, pancreatitis, suppressed HDL cholesterol, elevated triglyceride values, and hearing impairment. It may also be linked to a number of other peculiar side effects including psychosis[180], heart palpitations[181], hoarseness[182], intracranial hypertension[183], and even nasal tip deformities when taken following cosmetic surgery[184]. This is, indeed, one weird drug.

Although some researchers have contested the link to depression and suicide, the FDA approved literature on Accutane has warned of these risks for many years now. There seems to be reason, beyond the incidents and statistics alone, to take this very seriously. It appears that Accutane does definitely affect brain function to some degree. This was demonstrated in a study published in early 2005[185]. Here, scientists began with the premise that in order for Accutane to effect depression and thoughts of suicide, it must affect the brain in some way. They set out to examine what changes, if any, the drug would have on the various regions of the brain. Twenty-eight people participated in total, approximately half being treated with isotretinoin and the other half a topical antibiotic. Examinations were conducted before the drug was initiated, and after it had been used for 4 weeks. Using positron emission tomography, they were able to demonstrate a 21% reduction in brain metabolism in the orbitofrontal cortex with Accutane use (there was a 2% increase with the antibiotic). This is a brain area known to mediate symptoms of depression, which suddenly gives this claim a lot more validity and understanding. More work will need to be done in this area before we know anything conclusive, of course.

The typical method of using Accutane involves taking a dosage of .5 to 1mg/kg of bodyweight per day. This would equate to a maximum dosage of 100mg daily for a 220lb person. Very severe adult cases (with scarring perhaps) may require upwards adjustments in dosage later on, reaching as high as 2mg/kg/day. The daily dose itself is divided into two equal doses, which are to be given at two separate times of the day. Roche is very clear about this, stating that the safety of once daily dosing has not been established and, therefore, is not recommended. Accutane also should be taken with meals, not on an empty stomach, as food significantly aids in the absorption of this drug (high fat meals have the strongest benefit on bioavailability). One course of therapy is usually sufficient to clear up or at least control a patient's condition. If necessary, however, a second course may be initiated by the doctor. This must follow a break from the first course of therapy of at least 2 months.

Accutane is not a controlled substance, but is regulated by the FDA very tightly. In fact, a new national patient database (dubbed iPLEDGE) was announced in September of 2005, which the FDA says is designed to guard against

potential birth defects and other side effects. In the words of the FDA, "This is as strong as we can get". And they mean it. The red tape that one needs to go through to receive and fill a prescription for Accutane today is amazingly intrusive, especially if you are a female. It involves not only an extensive education into its potential side effects and a contract to this effect, but also agreements to maintain the use of birth control, and at least two negative pregnancy test results. All this must be done prior to a prescription being written. On top of that, special yellow stickers need to be taken to the pharmacy so they can be assured the patient has a valid script for current use, and is educated about the side effect potential. Each script also must be filled in a very limited time frame or it is voided, which is done to avoid use at a later date.

The above restrictions, of course, apply to the acquirement of Accutane through legitimate medical channels in the U.S. Bodybuilders have historically been a very resourceful group of people, and usually find ways to access the compounds they need without the concern of such restrictions. That often means obtaining this drug on the black market, a task that is not all that difficult to do right now. The average dealer doesn't usually carry Accutane, but some do, and most others can find it if they look hard enough. There also is the option of mail-ordering the drug from another country that has fewer restrictions on prescription medicines, which many people are exploiting today (especially for non-scheduled ancillary drugs). Before doing this, of course, it is important to become intimately familiar with this agent, and not dive into its use blindly. Vitamin A it is not. Accutane is some serious stuff, and needs to be taken seriously.

ANTI-ESTROGENS Drug Profiles

Arimidex® (anastrozole)

Arimidex® (generic name is anastrozole) is a very new drug developed for the treatment of advanced breast cancer in women. It is manufactured by Zeneca Pharmaceuticals and was approved for use in the United States at the end of December 1995. Specifically, Arimidex® is the first in a new class of third-generation selective oral aromatase inhibitors[186]. It acts by blocking the enzyme aromatase, subsequently blocking the production of estrogen. Since many forms of breast cancer cells are stimulated by estrogen, it is hoped that by reducing amounts of estrogen in the body the progression of such a disease can be halted. This is the basic premise behind Nolvadex®, except this drug blocks the action and not production of estrogen. The effects of Arimidex® can be quite dramatic to say the least. A daily dose of one tablet (1 mg) can produce estrogen suppression greater than 80 % in treated patients. With the powerful effect this drug has on hormone levels, it is only to be used (clinically) by post-menopausal women whose disease has progressed following treatment with Nolvadex® (tamoxifen citrate). Side effects like hot flushes and hair thinning can be present, and would no doubt be much more severe in pre-menopausal patients.

For the steroid using male athlete, Arimidex® shows great potential. Up to this point, drugs like Nolvadex® and Proviron® have been our weapons against excess estrogen. These drugs, especially in combination, do prove quite effective. But Arimidex® appears able to do the job much more efficiently, and with less hassle. Its use is only now catching on, but early reports have been excellent. A single tablet daily, the same dose use clinically, seems to be all one needs for an exceptional effect (some even report excellent results with only 1/2 tablet daily). When used with strong, readily aromatizing androgens such as Dianabol or testosterone, gynecomastia and water retention can be effectively blocked. In combination with Propecia® (finasteride, *see: Proscar®*), we have a great advance. With the one drug halting estrogen conversion and the other blocking 5-alpha reduction (testosterone, methyltestosterone and Halotestin® only), related side effects can be effectively minimized. Here the strong androgen testosterone could theoretically provide incredible muscular growth, while at the same time being as tolerable as nandrolone. Additionally the quality of the muscle should be greater, the athlete appearing harder and much more defined without holding excess water.

There are some concerns with using an aromatase inhibitor such as this during prolonged steroid treatment however. While it will effectively reduce estrogenic side effects, it will also block the beneficial properties of estrogen from becoming apparent (namely its effect on cholesterol values). Studies have clearly shown that when an aromatase inhibitor is used in conjunction with a steroid such as testosterone, suppression of HDL (good) cholesterol becomes much more pronounced. Apparently estrogen plays a role in minimizing the negative impact of steroid use. Since the estrogen receptor antagonist Nolvadex® is shown not to display an anti-estrogenic effect on cholesterol values, it is certainly the preferred from of estrogen maintenance for those concerned with cardiovascular health.

Arimidex® has another principle drawback, namely the great price of this drug. Tablets can easily sell for $7-$10 each, becoming quite costly with regular use. I am currently looking at the product list of a reliable European anabolics dealer, who sells Arimidex® in packages of 28 tablets for $250. In a U.S. pharmacy 30 tablets will currently run you about $190. Clearly the price of an ancillary drug can be much greater than the steroids themselves, a situation destined not to be popular with recreational bodybuilders. Competitors on the other hand are likely to welcome this item. It can ward off the side effects of strong androgen therapy much better than Nolvadex® and/or Proviron®, making heavy cycles much more comfortable. As the number of countries manufacturing this drug increases, we may be able to look forward to a reduction in price. On a list from a Greek supplier (a country where drugs are government subsidized) for example, the price was nearly $100 better per box. Privately compounded versions of "liquid Arimidex" have also been formulated "for research purposes" and are currently circulating the black market. They contain a high concentration of anastrozole (1mg to 4mg/mL) in a liquid solution, which can be used orally, and represent very cost-effective alternatives for buying the brand name drug (typically selling for $5 per milligram or less).

Aromasin® (exemestane)

Aromasin is a steroidal suicide aromatase inhibitor, extremely similar in structure and action to formestane. The agents, of course, work to lower estrogen production in the body by blocking the enzyme responsible for synthesizing these hormones. Aromasin is approved by the FDA for the treatment of breast cancer, specifically in post-menopausal women whose cancer has progressed following therapy with a first line agent such as tamoxifen. Aromasin is being advertised as the only "aromatase inactivator" available. That, of course, excludes the fact that we are able to sell formestane as an over-the-counter nutritional supplement in the U.S. (formestane is not approved as a drug here), at least for the time being. Although both of these agents essentially do the same thing in the body, Aromasin definitely seems to do the job much more efficiently. At this time it is the anti-estrogen of choice amongst bodybuilders.

Aromasin may perhaps be the most effective aromatase inhibitor available to date. While Femara and Arimidex boast of estrogen suppression around the 78-80% in their packaging inserts, Aromasin reports it can lower estrogen as much as 85% on average[187]. Feedback from bodybuilders tends to support the preference for Aromasin over other anti-estrogens, so this may very well be the case. Regardless of which one is the true "king" aromatase inhibitor, all of the newer pharmaceutical agents, Arimidex, Femara, and Aromasin, should be looked at as extremely effective for reducing estrogen synthesis in the body. A possible 10% difference in inhibition between the weakest and the strongest of the three is really not going to amount to all that much during your next cycle. If you are looking at one of these agents to prevent gynecomastia and help you lose fat and water on your next cycle, they are all going to do a good job for you. If you absolutely need the best agent, my money would be on this one.

It is important to point out that there are some disadvantages to using an aromatase inhibitor over mixed estrogen agonist/antagonists (anti-estrogen) like Nolvadex and Clomid, the most notable being unwanted (negative) alterations in serum cholesterol values. This is because estrogen is tied to HDL (good) cholesterol synthesis and LDL (bad) cholesterol metabolism, and aromatase inhibitors block total estrogenic action. Clomid and Nolvadex, on the other hand, tend to exert a positive influence on cholesterol values, as they are both active estrogens in the liver. If you are just trying to prevent estrogenic side effects like gynecomastia, bloating and excess water retention in general, these agents are probably better choices (they do the same job and are safer on your cholesterol levels).

At the pharmacy, 30 tablets of Aromasin will run you about $200. This makes it about at expensive as Arimidex or Femara on a per tablet basis, not cheap by any means. The good thing is that like Arimidex and Femara, Aromasin is potent enough to be used at lower doses than the recommended 25mg daily. In fact, studies have shown maximum estrogen suppression in some patients with as little as 2.5mg[188] per day. That is not a recommendation to smash each tablet into 10 little pieces, but it does make the current armchair advice of taking 1/2 a tablet every day or two seem well justified. This brings the cost of Aromasin down to about $50-100 per month, a much more reasonable figure for most. Then again, if maximum suppression is important to you, and you want to be sure you are getting the strongest effect you can, you may want to spring for the full 1 tablet per day dosage. One thing is for certain; you will not walk away feeling the money was wasted if you do.

ATD (androstatrienedione)

ATD (1,4,6-androstatriene-3,17-dione) is an aromatase inhibitor that is similar in structure and effect to the prescription drugs formestane and exemestane. Like these two drug, ATD belongs to a class of agents known as steroidal aromatase inhibitors. ATD is believed to be another suicide inhibitor[189], which means that it may work by permanently binding (or a reactive intermediary permanently binds) to the aromatize enzyme, thereby preventing it from offering any biological activity towards other aromatizable steroids. The inactive enzyme will simply float around the body until it is excreted. The body will replace these deactivated enzymes, a process that actually takes place on a constant basis. Therefore, the words suicide and permanent are a lot less menacing than they might seem at first glance. It really only takes the body a matter of days to substantially restore its estrogen producing potential once such a drug is discontinued.

As an aromatase inhibitor, ATD may offer a few benefits to the bodybuilder. To begin with, these drugs tend to be very effective options for mitigating the estrogen-related side effects of aromatizable steroids. Water retention, increased fat gain, and gynecomastia can all be effectively controlled with the proper use of aromatase inhibiting drugs (just be sure an aromatizable steroid is the cause, and not something inherently estrogenic like Anadrol). Adding ATD to a strong cycle of Dianabol or injectable testosterone, for example, might be just the trick to make the run more comfortable and side effect free. Not all that much is needed, as substantial inhibition seems to be reached with a dosage as little as 50mg to 75mg per day. Sometimes aromatase inhibitors are used not for dealing with side effects, but for helping increase fat loss and definition. Estrogens and androgens play opposing roles here. During a cutting cycle, the suppression of aromatase with ATD can further shift the balance of these hormones in favor of fat loss.

Some bodybuilders also use aromatase inhibitors for increasing testosterone levels at the end of a steroid cycle. Often referred to as Posy Cycle Therapy (PCT), the proper use of testosterone stimulating and anti-estrogenic drugs can definitely aid in the more rapid recovery of normal testosterone production. Minimizing post-cycle hormonal imbalance can also preserve muscle tissue, as low androgen levels will begin to hurt the newly acquired mass. Some also use these drugs alone, for the sake of raising testosterone levels and providing an anabolic effect. Speaking of aromatase inhibitors in general, this practice tends to be less than ideally productive for most bodybuilders with normal levels of testosterone. The increases just do not reach a level that dramatic gains are being seen. Individuals with low levels of testosterone may see a more dramatic effect, as often restoring normal or high physiological levels (from a state of hypogonadism or borderline hypogonadism) can have a notable effect on body composition.

There are usually few side effects with aromatase inhibiting drugs. ATD should not offer any real liver toxicity, so this is not going to be much of a concern despite being "oral" and "steroidal" in nature (it is only a steroid in general structure, not an anabolic or androgenic steroid). Lipid values may be a concern with use, however, and should be watched. This has not been documented with ATD specifically, but estrogen is known to support HDL (good) cholesterol synthesis. Estrogen suppression in males with aromatase inhibitors is well documented to negatively alter HDL/LDL values, and ATD is known to be a potent inhibitor[190]. Such an effect is just to be expected. For this reason, I personally find anti-estrogens like Nolvadex and Clomid to be better options during steroid cycles, as they offer estrogenic value in the liver, raising HDL cholesterol instead of suppressing it. They tend to treat instead of exacerbate the situation. In cases where the stronger effect of an aromatase inhibitor is warranted (and there are some), one should be cautious to limit its duration of use. Aromatase inhibitors should not be used long term.

If I had to guess at ATD's relative potency next to other agents, I would probably put somewhere between formestane (less potent) and the more powerful 3rd generation prescription inhibitors like Aromasin and Anastrozole. It is certainly not a weak agent. Plus, with ATD you have the benefit of easy availability. It is currently being sold without regulation or restriction in the U.S. as a nutritional supplement. Likewise, you do not have the same hassles associated with buying a prescription drug like Lentaron (formestane) or Aromasin (exemestane). No overseas pharmacies or black market dealers are needed here. This particular compound has not seen a great deal of clinical research at this point, however, which we do have with both Lentaron and Aromasin. This may be important to you, as much of what is being said of ATD is simply general knowledge about aromatase inhibitors, not specific. The principle manufacturer of this agent, Gaspari Nutrition (who sells it under the Novadex XT brand name), has reportedly funded a large independent clinical trial on ATD, so substantive numbers may be pending publication soon. In the meantime, feedback on this agent continues to be very positive, so the lack of a long clinical history probably will not dissuade many from using it. We know what it does and we know it works. That is usually enough, isn't it?

Clomid® (clomiphene citrate)

Clomid® is the commonly referenced brand name for the drug clomiphene citrate. It is not an anabolic steroid, but a prescription drug generally prescribed to women as a fertility aid. This is due to the fact that clomiphene citrate shows a pronounced ability to stimulate ovulation. This is accomplished by blocking/minimizing the effects of estrogen in the body. To be more specific Clomid® is chemically a synthetic estrogen with both agonist/antagonist properties, and is very similar in structure and action to Nolvadex®. In certain target tissues it can block the ability of estrogen to bind with its corresponding receptor. Its clinical use is therefore to oppose the negative feedback of estrogens on the hypothalamic-pituitary-ovarian axis, which enhances the release of LH and FSH. This of course can help to induce ovulation.

For athletic purposes, Clomid® does not offer a tremendous benefit to women. In men however, the elevation in both follicle stimulating hormone and (primarily) luteinizing hormone will cause natural testosterone production to increase. This effect is especially beneficial to the athlete at the conclusion of a steroid cycle when endogenous testosterone levels are depressed. If endogenous testosterone levels are not brought back to normal, a dramatic loss in size and strength is likely to occur once the anabolics have been removed. This is due to the fact that without testosterone (or other androgens), the catabolic hormone cortisol becomes the dominant force affecting muscle protein synthesis (quickly bringing about a catabolic metabolism). Often referred to as the post-steroid crash, it can quickly eat up much of your newly acquired muscle. Clomid® can play a crucial role in preventing this crash in athletic performance. As for women, the only real use for Clomid® is the possible management of endogenous estrogen levels near contest time. This can increase fat loss and muscularity, particularly in female trouble areas such as this hips and thighs. Clomid® however often produces troubling side effects in women (discussed below), and is likewise not in very high demand among this group of athletes.

Male users generally find that a daily intake of 50-100 mg (1-2 tablets) over a four to six week period will bring testosterone production back to an acceptable level. This raise in testosterone should occur slowly but evenly throughout the period of intake. Since an immediate boost in testosterone is often desirable, many prefer to combine Clomid® with HCG (human chorionic gonadotropin) for the first week or two after the steroids have been removed. The kick-start from HCG also helps to restore the normal ability for the testes to respond to endogenous LH, which may be hindered for some time after the cycle is ended due to a prolonged state of inactivity. Once the HCG is stopped, the user continues treatment with Clomid® alone. HCG should not be used for longer than two or three weeks though, as the resulting increased testosterone and estrogen levels may again initiate negative feedback inhibition at the hypothalamus. When planning your ancillary drug program, it is also important to remember that injectable steroids can stay active for a long duration. Using ancillary drugs the first week after a long acting injectable like Sustanon has been stopped may prove to be wholly ineffective. Instead, the athlete should wait for two to three weeks, to a point where androgen levels will be diminishing. Here the body will be primed and ready to restore testosterone production.

Clomid® and HCG are also occasionally used periodically during a steroid cycle, in an effort to prevent natural testosterone levels from diminishing. In many instances this practice can prove difficult however, especially when using strong androgens for longer periods of time. There is also no exact method for using the two drugs in this manner. Some have experimented by periodically administering small doses of HCG along with one or two tablets of Clomid®, perhaps for a few days at a stretch followed by a longer break. An on/off schedule would be implemented; for fear that this combination may lose some effectiveness if used continuously for this purpose. This method of intake may prove to be effective, although it is really much more feasible to stimulate testosterone production after the cycle than to try and maintain it for the long duration during.

In addition to helping with the post-cycle testosterone crash, this drug can also help with elevated estrogen levels during a steroid cycle. A high estrogen level puts an athlete in serious risk of developing gynecomastia, which is an obvious unwanted side effect. With the intake of Clomid®, the athlete can hopefully reduce his risk for developing gynecomastia. The estrogen "blocking" properties of Clomid® appear to be slightly weaker than Nolvadex® in comparison however, which is why it is not usually thought of as an equal substitute for estrogen maintenance. Of course both drugs have similar actions in the body, and are relatively interchangeable for this purpose. Clomid® can likewise also be used as a maintenance anti-estrogen throughout the duration of steroid intake with good confidence, just as is done with Nolvadex®. In most instances this will prove equally sufficient, the drug effectively minimizing the activity of estrogen in the body and warding off gyno and excess water/fat retention.

Unfortunately just as with Nolvadex® this is not always the case however, and many find it necessary to addition another anti-estrogenic drug. The most common adjunct is Proviron®, an oral DHT used to competitively lower aromatase activity and raise the androgen to estrogen ratio. The Clomid/Nolvadex and Proviron® combination is extremely effective, although we could alternately replace them both with a more specific aromatase inhibitor such as Arimidex® or Cytadren®. While stronger at combating estrogen in most cases, these drugs are also typically much more costly.

As for toxicity and side effects, Clomid® is considered a very safe drug. Bodybuilders seldom report any problems, but listed possible side effects do include hot flashes, nausea, dizziness, headaches and temporarily blurred vision. Such side effects usually only appear in females however, as they feel the effects of estrogen manipulation much more readily than men. While female athletes can clearly gain some benefit from this substance, estrogen manipulation is probably not the most comfortable way to go about cutting up. Should it still be used for such purposed and side effects do become pronounced, the drug of course is to be discontinued and (at least) a break taken from it.

Clomiphene citrate is widely available on the black market in a variety of brand names. This substance can be expensive, often as high as $2-$4 per 50 mg tab. Generics such as Clomiphene citrate by Anfarm in Greece are frequently seen on the black market, and can sell for a considerably lower price. In the U.S., Omifin from Mexico appears to be most popular. Since there are no counterfeits known to exist, Clomid® is considered a safe buy on the black market. Many athletes prefer to purchase this item only from foreign mail-order sources, always shopping for the lowest available tablet price.

Cyclofenil

Cyclofenil is a non-steroidal ancillary drug used by athletes, very similar in action to Clomid® and Nolvadex®. All three act strongly as estrogen receptor antagonists, which gives them the ability to stimulate ovulation in Women and increase testosterone production in men. For athletic purposes this drug is of most benefit to males, typically used for the purpose of increasing endogenous testosterone levels at the conclusion of a steroid cycle. This is in an attempt to avoid a strong hormonal "crash" while waiting for testosterone levels to be restored. HCG is also commonly used for this purpose, but this drug works by mimicking the action of luteinizing hormone, a much different approach. The effect of HCG is very quick, leading it most often to be the first ancillary drug used after steroids are removed. But drugs like cyclofenil, Clomid® and Nolvadex® are better suited for the following weeks, usually continued for some time after HCG has been withdrawn. Women do occasionally find a use for anti-estrogens, most often around contest time when the management of endogenous estrogens can help increase fat loss and definition. The side effects that can be brought about by a lowering of estrogen activity in the female body, however, make this approach less than ideal.

Cyclofenil (like Clomid® and Nolvadex®) is technically that of an estrogen agonist/antagonist. In the body it displays anti-estrogenic properties, affecting the binding efficacy of estrogen receptors in certain target tissues. This is in fact how cyclofenil stimulates the release of testosterone. The hypothalamus is one target site, and here it acts to block the negative feedback inhibition brought fourth by estrogen. The enhanced release of gonadotropin releasing hormone (GnRH) results, which in turn stimulates the pituitary to heighten the release of luteinizing hormone. LH is the primary signal for the testes to increase the production of testosterone, so its increased release leads to an elevation in the androgen level. The anti-estrogenic effect of this drug in breast tissue has also led to it during a steroid cycle to prevent gynecomastia, similar to how Nolvadex® might be used. Cyclofenil however, is reported to be somewhat weaker than Nolvadex® in comparison, and therefore is not usually the preferred estrogen maintenance drug if both were available.

When used after steroids to increase natural testosterone production it can be effective. A dosage of 400-600mg per day is the most common, generally used for the 4 to 5 weeks following a steroid cycle. It can take a few weeks before cyclofenil exhibits a noticeable effect, and therefore HCG is usually combined with it for the first week or two. HCG also helps to rapidly restore the ability of the testes to respond to endogenous gonadotropins, which may be notably diminished due to a period of long inactivity. Cyclofenil is continued alone afterwards, with the total duration of ancillary drug use lasting about five or six weeks. It should also be noted that some athletes have experimented with using cyclofenil not as a post-cycle ancillary drug, but alone as an anabolic. They are hoping that testosterone levels could be raised significantly enough for it to provide some extra muscle mass. Some have reported this approach does work, but results are not extremely significant. Anyone familiar with anabolics would likely be disappointed when using cyclofenil for this purpose, which is clearly not an equal to injecting testosterone.

Side effects associated with this drug are usually very minimal, and most often are felt my female recipients. The main side effect seen by females tends to be hot flashes due to hormonal changes. In males, the testosterone boosting properties can result in some androgenic effects like oily skin, acne, increased aggression and libido. These are not usually dramatic, as androgen levels will not reach the level seen with most steroids. With cyclofenil these effects are more welcome than anything, showing the user the drug is having some effect. Here in the U.S., cyclofenil is not an overly popular item. It is carried on occasion by dealers, but is much less common here than Clomid® or Nolvadex®. When located in the U.S. it is usually in the form of Fertodur, made by Schering in Europe and (formerly) Mexico.

can however still consider it to be an extremely effective remedy for estrogenic side effects should it be available on the black market, at least as much so as Nolvadex. As for the daily dosage when taking Cytadren® to minimize estrogenic side effects, most experiment with anywhere from 1/2 a tablet to 2 tablets per day, with one tablet of 250mg probably being the most common dosage selected.

Although many believe they have used this drug as such, few ever reach the discussed necessary four tablets per day to notice true cortisol suppression. This drug is very rarely used as an anti-catabolic in a correct manner, and those who do venture this high commonly report fatigue and discomfort, stating that the drug is intolerable for any type of prolonged use. Sadly, we are starting to realize that its original proposed use of Cytadren® as a non-steroidal muscle-building agent does not seem a plausible one. The only instances I really have heard of this drug ever being used at such doses with any type of positive response were competitive bodybuilders partaking in high-dosed Cytadren shortly before a show. They claimed the short-term rise in androgen to corticosteroid ratio greatly aided in their abilities to bring out a show-ready hard and dense physique, and credit the drug as genuinely being a very effective pre-contest agent. In speaking with the late Paul Borresen he summed up the pre-contest use of Cytadren nicely:

"I have had considerable experience with the high dose use. It makes athletes sleepy and weak. It seems to help the last ten days before a show, and this is tried and tested."

Cytadren® is not without its side effects and warnings which are numerous. To be very succinct, these include, but are not limited to, the already mentioned possibility of fatigue, as well as dizziness, sleep disorder, apathy, depression, nausea/vomiting, stomach upset, thyroid dysfunction and liver disease. The few athletes to take it at a dosage high enough to promote cortisol suppression additionally note that reduced levels of this hormone will bring about more aches and pains in your joints when trying to lift heavy. It seems logical that this could even lead to a greatly increased susceptibility to injury, so one should be careful not to overexert during the short periods in which this drug is used in high doses. Most of the listed side effects listed here are in fact related only to high dosed regimens that inhibit the adrenal production of cortisol, and are rarely ever reported with athletes taking one or two tablets per day in an effort to use the drug as an anti-estrogen.

Cytadren® is an expensive pharmaceutical, selling for approximately $2 per tablet on the black market. This is probably the reason its use has not become more widespread. This price is however still considerably less than what would be spent on the more recently developed anti-aromatase Arimidex®, which sells for as much as $10 per tablet. Since Cytadren® is not currently being counterfeited, all preparations seen on the black market could be considered a safe buy. Although manufactured in the United States, the black market will generally carry the Orimeten brand name from Europe.

Evista (raloxifene)

Evista (raloxifene) is a second-generation Selective Estrogen Receptor Modulator (SERM) of the benzothiophene family. This anti-estrogenic drug is similar in effect to tamoxifen, exhibiting estrogen receptor antagonist (blocking) properties in some tissues while acting as an estrogen receptor agonist (activator) in others. The main point of variation between these two agents is their tissue selectivity. While raloxifene is a strong anti-estrogen in breast and uterine tissues, it appears to be estrogenic in bone. This allows it to protect bone density, mimicking the beneficial effects of endogenous estradiol. This is quite different from tamoxifen, which is anti-estrogenic in both breast and bone. In a role that is completely novel for an anti-estrogen, raloxifene is approved by the FDA for the prevention and treatment of osteoporosis in post-menopausal women. It is also being investigated for several other potential uses, including the treatment and prevention of cardiovascular disease, breast cancer, gynecomastia, prostate cancer, acromegaly, and uterine cancer.

As an anti-estrogen, bodybuilders will be attracted to this compound for eliminating the side effects caused by aromatizable steroids. The principle among these is gynecomastia, a purpose for which raloxifene seems better suited than tamoxifen. We saw this in a July 2004 study in the Journal of Pediatrics, which looked at how these two agents compared in treating persistent pubertal gynecomastia[194]. The investigation involved a group of 38 patients, averaging 15 years of age and suffering from gynecomastia for a little over 2 years. Treatment for 3 to 9 months with either agent had a high success rate for seeing "some improvement" (91% for raloxifene and 86% for Nolvadex). However, a significant reduction of gynecomastia was seen in more than twice as many patients with raloxifene (86% compared to 41%). Raloxifene seems to have a much stronger effect in breast tissue, giving it a remarkable ability to treat even long-standing cases of hard-tissue gynecomastia. This drug may offer an effective and long overdue alternative to invasive mammary gland removal surgery, long thought of as the only reliable treatment option by most bodybuilders.

Typical of an anti-estrogen, raloxifene should also offer some benefit as a testosterone-stimulating compound. We see this effect demonstrated in studies on a group of older men (aged 60-70 years), where daily doses of 120mg were able to increase serum and bioavailable (unbound) testosterone by 20%[195]. Though these figures are not startling, they do clearly demonstrate an anti-estrogenic effect instead of an estrogenic (negative) one when it comes to testosterone production. This drug may, therefore, be of some value when utilized as an adjunct to HCG injections during a post-cycle testosterone recovery program. This same study above also showed raloxifene to have at least a partial estrogenic effect on serum lipids, exhibiting a trend toward decreases in all cholesterol values (total, LDL and HDL). It is difficult to discern if there are any real benefits to male bodybuilders when it comes to using raloxifene to counteract the negative cardiovascular side effects of steroid use. You will note when we discuss Nolvadex that this is a particularly welcome benefit to this first-generation agent.

There are some negatives to inhibiting the actions of estrogen that we need to talk about. For one, estrogen is a beneficial hormone when it comes to IGF-1 levels. In studies with acromegaly patients that suffer from GH hypersecretion, 60mg of raloxifene twice daily was able to reliably suppress IGF-1 levels by an average of 16%[196]. This is in line with what we expect with virtually all anti-estrogenic drugs. Estrogen is also understood to exert positive anabolic effects in regards to increasing androgen receptor concentrations, and enhancing enzyme levels involved in the utilization of glucose for tissue growth and repair. This is further support for the belief that anti-estrogens should not be used unless there is a clear defined reason for doing so. When used for simple side-effect prevention (without visible side effects occurring), the drug may inadvertently be hindering the total anabolic potency of a cycle. It is, therefore, good advice to include raloxifene during your next cycle only if there is a specific need to do so.

Price may also be of concern with this drug, as raloxifene is a bit more expensive than many of the anti-estrogens bodybuilders are accustomed to. A look at a recent mail-order pharmacy price list, 4-weeks worth of drug (28 tables) at 60mg daily will run about $60. That is a little more than $2 per dose/day. 100 tablets of generic tamoxifen (20mg) at the same pharmacy, is only around $54. This is about 50 cents per dose, or 1/4th the price of raloxifene. It can be found for even less if you shop around. This means that despite many of the newer, more desirable drugs to hit the market in recent years, raloxifene will be used less frequently than the older anti-estrogens until the price drops. It may just be too expensive for a "simple anti-estrogen" in the eyes of consumers. For those not discouraged by its price, 60mg daily of raloxifene may offer a much stronger alternative in the prevention and treatment of gyno than first generation drugs like Nolvadex or Clomid, and also present less danger in terms of negative cardiovascular side effects than potent aromatase inhibitors. If gyno is a serious concern of yours, it should be money well spent.

Fareston® (toremifene citrate)

Fareston is an estrogen receptor antagonist with mixed agonist/antagonist properties (specifically it is classified as a SERM: Selective Estrogen-Receptor Modulator). It is a non-steroidal triphenylethylene derivative, similar in structure and action to both Nolvadex (tamoxifen citrate) and Clomid (clomiphene citrate). Fareston is used for the treatment of breast cancer in postmenopausal women with estrogen-receptor positive or estrogen-receptor unknown (unsure if the cancer is estrogen responsive) tumors. It works by attaching to the estrogen receptor in various tissues, blocking endogenous estrogen from exerting biological activity. This agent in the newest mixed estrogen receptor agonist/antagonist to get our attention in the bodybuilding world, and was approved by the FDA in 1997.

Anti-estrogenic drugs like Fareston are popular with bodybuilders because they help us deal with many of the "negative" aspects of high estrogen levels. Estrogen can work to hide muscle definition by increasing water retention and fat buildup for example, and can also promote gynecomastia (the development of female breast tissue) if levels get too high. Since androgens and estrogens play opposing roles on the disposition of body fat and the growth of mammary tissues, maximizing the ratio between these two hormones is also often an important objective, particularly at times when dieting and cutting are key goals or gynecomastia is a worry because strongly aromatized hormones such as testosterone are being supplemented. A drug like Fareston can be a key asset here.

But there are also some "positive" attributes to estrogen that need to be taken into account as well. This includes the support of "good" high-density cholesterol synthesis, increased muscle glucose utilization for tissue growth and repair, and even increased androgen receptor concentrations in various tissues. It is now understood that estrogen serves many useful purposes in men, particularly if we are looking for rapid muscle mass gain. If bulk is the goal, it is, therefore, usually advisable to hold off on estrogen maintenance compounds until there is a clear need for them.

All of the triphenylethylene compounds (Fareston, Nolvadex and Clomid) do have an added benefit of being somewhat intrinsically estrogenic in the liver. This means that while they can block estrogenic activity in areas where we do not want it, like the breast, they replace estrogenic action in this key area of the body where we do. Estrogenic action in the liver is, of course, important in the regulation of serum cholesterol (it tends to support HDL synthesis and LDL reductions). Since steroid-using bodybuilders are already dealing with the negative cardiovascular effects of these drugs, compounding the issue with aromatase inhibitors is not always the best option. Using a drug that blocks estrogen, while at the same time supporting cholesterol values, seems much more ideal. In terms of which agent is best in this regard, evidence does suggest that the positive lipid altering benefits of toremifene are stronger than those of tamoxifen[197]. If this is important to you, than Fareston may very well be your anti-estrogenic agent of choice.

At the pharmacy, thirty 60mg tablets of Fareston sell for about $100. The typical daily dose used is one tablet per day. Unfortunately, due to its rapid metabolism and less than maximum potency, it is not a good idea to split the dose into an every other day schedule. At 60mg per day you should notice estrogenic minimization at least on par with 20mg of tamoxifen, combined with a stronger positive effect on ones cardiovascular risk profile.

Faslodex® (fulvestrant)

Faslodex is one of the newest weapons in the war on estrogen, approved by the FDA in 2002 for the treatment of estrogen receptor positive breast cancer. This product is not another highly selective aromatase inhibitor however, which has, of course, been an extremely popular area of medical exploration lately. It is, instead, a highly selective estrogen receptor antagonist (also classified as an estrogen receptor downregulator). This means that it does not target the production of estrogen, but prevents it from exerting activity in the body by blocking available estrogen receptors. It mode of action is very much along the same lines as Nolvadex (tamoxifen citrate) and Clomid (clomiphene citrate), not Arimidex or Femara. This agent also stands out as the first injectable anti-estrogen to catch our attention in the bodybuilding world, Nolvadex and Clomid of course being oral medications.

Unlike Nolvadex, Faslodex does not have mixed agonist/antagonist properties; it is a pure estrogen receptor antagonist. This makes it quite different from Nolvadex or Clomid, drugs that actually offer estrogenic activity in certain tissues. But the mixed action of Nolvadex and Clomid can be a benefit to bodybuilders, by supporting good (HDL) cholesterol biosynthesis in particular (due to their inherent estrogenic agonistic activities in the liver). Although I have been unable to find studies looking at cholesterol levels in response to Faslodex, knowing how closely tied estrogen is to the synthesis of HDL cholesterol, I can only assume it will have a strong negative influence here. This is an added concern for bodybuilders, who in most cases already have to deal with negative cholesterol alterations due to steroid administration. In this regard Faslodex may not be the "next best thing" when it comes to estrogen control, sharing the same negative cholesterol altering effects that are noted with strong aromatase inhibitors.

The product comes in a preloaded syringe of 5mL, with each mL containing 50mg of the anti-estrogen. There is also a version with 2.5mL, but two syringes are packed in the same box for the same total 5mL dose. This is an extremely potent and long acting anti-estrogen, requiring only one 5mL preloaded syringe (250mg) to be injected each month. At this dose it seems well equipped to compete with even some of the newer aromatase inhibitors. One study, for example, shows Faslodex to be as effective in Arimidex in treating breast cancer patients who have already failed with first line endocrine treatments[198]. Another shows the drug to prevent tumor cell turnover and growth significantly more effectively than tamoxifen citrate[199]. Studies investigating the physiological response to Faslodex made note that its strong actions allow it to downregulate estrogen receptor concentrations, and progesterone receptor concentrations as well[200]. Clearly when it comes to anti-estrogens, Faslodex is far more advanced than the "standard-issue" agents we have been using in the bodybuilding world for years.

Faslodex is not a cheap drug by any stretch of the imagination. In fact, it is one of the most expensive drugs I have ever seen. It almost makes growth hormone look like it is free in comparison. According to a current U.S. pharmacy price list that I am looking at right now, a single 5mL injection of Faslodex runs $936.70. Yes, you read that correctly. A single shot costs nearly one thousand dollars. I guess when you make a medicine that people are only going to need once per month, you aren't going to make millions on it if you sell it for $50. Mind you I have no knowledge of how costly this drug is to manufacture, but if I had to guess I would think the price has much more to do with how much the company thinks they should get from a patient on a monthly basis than how troublesome it is to produce. Being so expensive, of course, there is little chance this drug will catch on with the bodybuilding public.

Femara® (letrozole)

Letrozole is a non-steroidal selective third generation aromatase inhibitor, which is being sold under the brand name Femara by the international drug-manufacturing firm Novartis. It is used to treat postmenopausal women with estrogen receptor-positive or estrogen receptor-unknown (unsure if the cancer is responsive to estrogen) breast cancer. The structure and activity of this compound are very similar to that of Arimidex (anastrozole), which is approved in the United States for the same purpose. Femara is typically used as a second line of treatment, after an estrogen-receptor antagonist like tamoxifen has failed to elicit a desirable response (although at times it is used as a first line option as well).

Femara and Arimidex represent the newest achievements in a long line of drugs targeting aromatase inhibition. These are amongst the most potent estrogen-lowering drugs made to date, working far more effectively than the non-selective first generation aromatase inhibitors, like Teslac and Cytadren, to come before them. The dosage of each tablet of Femara is 2.5 milligrams, which according to the product insert was sufficient to lower estrogen levels by 78% during clinical trails. The drug, however, appears to still be extremely effective in much lower doses. The package insert for the product itself comments that during clinical studies doses of .1 and .5 milligram produced 75% and 78% estrogen inhibition, respectively. When it comes to a product like this, typically the recommended dose reflects what seems to work for almost everyone who takes it. A large number of people may respond extremely well to lower doses, however, to make sure each patient is receiving the proper benefit of the drug a standard effective dosage unit is ascertained and used.

It is important to point out that there are some disadvantages to using an aromatase inhibitor over mixed estrogen agonist/antagonists (anti-estrogen) like Nolvadex and Clomid, the most notable being unwanted (negative) alterations in cholesterol values (strong HDL suppression in particular). This is because estrogen is tied to HDL cholesterol synthesis and LDL metabolism, and aromatase inhibitors block total estrogenic action. Clomid and Nolvadex, on the other hand, tend to produce an estrogenic increase in good cholesterol values, as they are active estrogens in the liver. If I you are just trying to prevent estrogenic side effects like gynecomastia, bloating and excess water retention in general, these agents are probably better choices (they do the same job and are safer on your cholesterol levels). But if you want that really tight, dry, defined look that is often so sought after when you are cutting, Nolvadex or Clomid are not quite going to cut it (excuse the unintentional pun). In such cases, I think you will find Femara to serve you well.

At the pharmacy, 30 tablets will cost you a little under $200. This comes out to about $6.50 each tablet, roughly the same price you are going to pay for Arimidex. Like Arimidex, each tablet can be broken up if you desire to stretch out the value of the drug. In fact, with studies showing maximum inhibition in some patients with doses as low as 1/2 milligram, each 2.5 milligram tablet can be broken up in to as many as 5 separate doses (perhaps even more). But the typical use amongst bodybuilders is to cut the tabs in half, and take one every other day (unless needed daily). In terms of overall power, Femara seems to be a little bit more potent the Arimidex, at least by most peoples' estimations. If both agents were available for the same price, Femara would probably be the one I would go for.

Lentaron® (formestane)

Formestane is a potent steroidal suicide aromatase inhibitor, sold by Novartis under the brand name Lentaron Depot. This agent is structurally a derivative of androstenedione, differing from this well known prohormone only by the addition of a 4-hydroxyl group. This group, however, is responsible for causing an irreversible attachment between formestane and aromatase when the two come into contact with each other. This means that formestane will bond with the enzyme, and never let it go, totally deactivating it as a result. The enzyme will actually need to be replaced, through normal attrition, before the body will recover its lost estrogen synthesizing capacity. This is how we get the classification of a suicide inhibitor, as formestane essentially sacrifices itself in the process of blocking estrogen conversion.

Because of its potent estrogen-suppressing action, 4-hydroxyandrostenedione has been successfully used on breast cancer patients in a number of countries including England, Germany, Switzerland, Spain, Australia, New Zealand, Italy and Malaysia[201 202 203 204 205 206 207 208]. It has been shown to be an effective option as a second line of defense after tamoxifen, an estrogen receptor antagonist, has failed to elicit a positive response with patients, and to produce an overall response statistically similar to tamoxifen when administered as the first-line therapy[209]. Lentaron Depot, which is an injectable version of formestane, is typically given in a dosage of 250-500mg every two weeks (this produces a maximum level of effect in most patients and bodybuilders alike). Studies have demonstrated that a similar level of estrogen suppression can also be achieved with oral use of this drug, but due to poor bioavailability the dose needed is around 250mg per day[210]. Formestane is not actually sold as a drug in the U.S. It is legally considered an over-the-counter nutritional supplement, due to the fact that it is a naturally occurring compound. In early 2003, I uncovered an old German study demonstrating this fact, and with the information my company (Molecular Nutrition) started selling formestane in the United States under the brand name Formastat.

In terms of overall potency, formestane is not quite on the level of the new selective third generation inhibitors like Arimidex (anastrozole) or Femara (letrozole). One study, for example, notes a 79% level of suppression of estrogen levels with 4 weeks of Arimidex 1mg daily (on par with levels noted with Femara use), but only a 58% level of suppression with intramuscular formestane injections (250mg every two weeks)[211]. But next to estrogen receptor antagonists like Clomid (clomiphene citrate) and Nolvadex (tamoxifen citrate), formestane definitely proves itself the best agent. Mind you there are almost always some disadvantages to using an aromatase inhibitor over drugs like Nolvadex or Clomid, the most notable being an unwanted (negative) alterations in serum cholesterol values (both Clomid and Nolvadex tend to increase HDL and lower LDL). But if you want that really tight, dry, defined look so sought after when you are cutting, Nolvadex is not quite going to do the same job. I personally love to use formestane, but only at times when developing such tight definition is a concern of mine. If I were just trying to prevent estrogenic side effects like gynecomastia, bloating and excess water retention in general, I would go with Nolvadex. It works, and is probably going to be safer on your cholesterol levels in comparison.

Teslac® (testolactone)

Teslac is a first generation non-selective steroidal aromatase inhibitor, used clinically to treat estrogen-dependent breast cancers. This agent has been around for over 30 years now, and was first approved as a prescription drug by the FDA back in 1970. Its exact mode of action is unknown, but it is believed to inhibit the aromatase enzyme in a noncompetitive and irreversible manner, somewhat similar to formestane. This would explain why cessation of the drug does not provide an immediate restoration of normal estrogen production. Like formestane, it takes several days after ceasing use for the body to recover its normal estrogen synthesizing capacity.

Although testolactone is technically steroidal in structure, it offers no anabolic effect to its user. This is because it does not posses the traits necessary to bind and activate the androgen receptor, namely an active 17-beta-hydroxyl group. In fact, its D ring is an unusual 6 membered lactone ring, and not the normal 5 membered carboxylic ring that testosterone and its derivatives normally possess. This is, of course, where testolactone got its name (testo-lactone). Studies actually suggest this drug even has some level of anti-androgenic action, with an ability to interact with the androgen receptor enough to block testosterone and other steroids from attaching to it[214]. Regardless of this, testolactone has still been included in the U.S. controlled substance laws as an anabolic steroid.

The recommended dosage for maximum estrogen suppression is 250mg (five tablets) per day. Those bodybuilders experimenting with it usually report that an effective range is reached between 3 and 5 tablets daily, which is a level that is usually sufficient to prevent gynecomastia and keep off the extra water weight. The level of inhibition you will receive from this drug is not that dramatic however, at least compared to what the newer selective third generation inhibitors are able to accomplish. For example, one study conducted back in 1985 showed that 1,000mg per day given to nine normal men for a period of ten days suppressed serum estradiol levels by only 25%[215]. Another using the same 1,000 mg dose noted a 50% reduction after 6 days of use[216]. Clearly this falls short of the 80%+ levels of inhibition noted with the third generation agents of today.

In 1999, the FDA officially added "malaise" to the list of possible side effects from this drug, reflecting something we have been noticing as bodybuilders for some time: low estrogen levels can lead to lethargy, as this sex hormone plays an important role in the functioning of the central nervous system. This, of course, joins a list of other potential drawbacks to the suppression of estrogen production in men, including unfavorable alterations in serum cholesterol (strong HDL (good) cholesterol suppression in particular), interference with libido, and a slight dampening of the anabolic potency of a steroid cycle. But then again, if you want that really hard, ripped, dense look, aromatase inhibitors can be key in helping you achieve your goals here. Teslac is not the most effective option available to you however, and today is almost always brushed aside for one of the more potent, and less troublesome, agents like Aromasin, Femara or Arimidex.

ANTI-PROLACTIN Drug Profiles

Dostinex (cabergoline)

Dostinex is the Pharmacia trade name for the drug cabergoline, a selective dopamine receptor agonist. This agent is highly specific in its actions, with a strong affinity for the dopamine D2 receptor, and a low affinity for dopamine D1, A1-adrenergic, A2-adrenergic, 5-HT1-serotonin, and 5-HT2-serotonin receptors. Its main clinical use is for the treatment of hyperprolactinemia, or the hypersecretion of prolactin from lactotropes in the anterior pituitary (pituitary tumor is a common cause of this disorder). Cabergoline effectively inhibits prolactin secretion, which it does by mimicking the actions of dopamine on the D2 receptor (dopamine normally serves as negative feedback for prolactin release). As a targeted agonist of the dopamine D2 receptor, cabergoline should not affect other pituitary hormones like growth hormone (GH), luteinizing hormone (LH), corticotrophin (ACTH), or thyroid stimulating hormone (TSH).

Prolactin is a somatotropic hormone, in the same family as human growth hormone (somatropin). It is a single peptide hormone, containing a chain of 199 amino acids. This makes it similar to (though slightly larger than) growth hormone, which is made of 192 amino acids. Any similarity between these two hormones, however, ends at structure. Prolactin is not an anabolic agent (at least not to skeletal muscle) but a lactation hormone. Most of its physiological value is in women, and becomes apparent during pregnancy when it aids in milk production. In men, prolactin has no known therapeutic value, and high levels are associated with impotence, infertility, and sometimes even gynecomastia (whether or not it has a causative role here remains the subject of much debate).

Although this is almost never associated with males, high levels of prolactin have actually been related to lactating gynecomastia in a very small percentage of steroid-using athletes. This disorder is often characterized by small fluid discharge that becomes noticed with the squeezing of one's gynecomastic nipple. Although the situation can become worse, the first sign of this is often enough to scare the individual away from their current regimen of steroids. Gynecomastia is not automatically (or even normally) associated with lactation, so this is a somewhat rare phenomenon. It is probably caused by an unusual imbalance of hormones (androgens, estrogens, progestins can all be involved, and play varying roles), and/or a particular personal sensitivity to the disorder. When it does occur, however, cabergoline has offered a very effective remedy for the sometimes embarrassing situation.

High prolactin levels (as would be associated with the need for Dostinex) are commonly not documented in steroid-using athletes, further underscoring the relative uncommon nature of this disorder. We do know that estrogen plays a stimulatory role here, and likely is the key to increasing prolactin secretion in males[217 218 219]. Other studies, however, show suppressive actions toward prolactin from other hormones including androgens[220]. This is perhaps why an actual hormonal imbalance, and not necessarily high estrogen, would be the cause of lactating gynecomastia. Scanning the medical books, we find few studies even looking at prolactin levels and steroid use, and those few are relatively inconclusive. One looking at the effects of testosterone enanthate and propionate in men noted a significant prolactin increase 4 days after injection[221]. Yet another noted a 7-fold increase in estrogen (to values typical for women) in 5 power athletes self-administering testosterone and other steroids, yet no consistent effect on prolactin secretion[222]. A third self-administration study with athletes[223], and a fourth clinical with nandrolone[224], failed to show an increase in prolactin levels.

Although foreseeing the need for an anti-prolactin is difficult, the use of Dostinex itself it relatively simple should one become apparent. The typical protocol involves not taking the drug daily, but administering it only twice per week. The user starts with a dosage of .25mg per application, or a 1/2 tablet. This is used for four weeks, at which point the dosage might be adjusted upwards to a full tablet if needed. In clinical medicine this dosage may be further increased to 1mg (2 tablets) in some cases, however the high cost of the drug (and relative low levels of prolactin compared to those produced with some tumor disorders) usually precludes such use in bodybuilders. The drug itself is usually taken for 6 months or longer in a medical setting, although athletes usually find a 4-6 week course of therapy (combined with an intelligent rearrangement of the offending drugs) most appropriate.

Side effects are relatively infrequent with Dostinex use, and most reported events are mild or moderate in nature. The most common complaints were headache, nausea, and vomiting, which occurred in 26%, 27%, and 2% of patients (respectively) receiving the medication during one clinical trial[225]. Other potential side effects include (but are not limited to) constipation, dry mouth, abdominal pain, diarrhea, dizziness, vertigo, fatigue, anxiety, anorexia, malaise, depression, insomnia, hot flashes, heart palpitations, hypotension, breast pain, and acne, however their prominences tended to be much lower than those of

nausea and headache. Many are dose related, further reason for starting off with the lowest possible therapeutic dose and working up. The prescribing information does not mention death as a clear consequence of an overdose, but it does list hallucinations, low blood pressure, and nasal congestion. It is also noted that overdose patients may need supportive measures to raise blood pressure.

Overall, Dostinex can be considered a relatively safe drug, with a side effect profile that is not much different than many drugs on the market. There are some risks with its use, but these do not appear to be very high, and in most cases are far outweighed by the potential benefits to the patient. Dostinex is a drug with limited use in bodybuilding, but a need does present itself from time to time. Note that this is a drug that should be employed to treat lactating gynecomastia, specifically the aspect of lactation. This expensive drug should not be employed as a general remedy for gynecomastia. It is certainly no replacement for Nolvadex, Clomid, or any one of the many aromatase inhibitors currently being sold on the black market. Dostinex should logically be used only subsequent to a blood test reporting high levels of prolactin, or an obvious episode of lactation. Otherwise, your cash would be better invested elsewhere.

Parlodel® (bromocriptine mesylate)

Bromocriptine is a dopaminomimetic ergot derivative with D2 dopamine receptor agonist and D1 dopamine receptor antagonist activities. It is used most commonly as a prolactin inhibitor in cases of hyperprolactinemia, a growth hormone suppressant in acromegaly (high doses are required), and as an adjunctive medication to levodopa in the management of Parkinson's disease.

The most vocal proponent of bromocriptine use for fat loss is probably Lyle McDonald, author of the online e-Book "Bromocriptine: An Old Drug With New Uses". In this McDonald describes how the drug can be used to normalize the metabolism, such that some of the normal physiological responses to dieting (which begin to slow the loss of body fat as the duration of dieting increases) are hindered. A lot of this focuses on leptin, a hormone looked at as sort of a fat thermostat, telling your brain how much adipose tissue you have on your body and how many calories you are regularly consuming (an "anti-starvation" hormone). Dieting tends to lower leptin levels significantly, which causes your body to respond in an appropriate way for survival (it tries to hold on to its nutrient stores as much as possible). Maintaining normal leptin stimulation could be key to keeping any diet productive, and bromocriptine may indeed allow us to do that.

The human medical data on this drug is very encouraging. In cases where it was given while dieting, bromocriptine was capable of increasing total fat loss by a measurable degree, and seemed to extend the duration in which the diet was most effective. In one case, both placebo and treatment groups were noticing a good level of fat loss during the first 6 weeks of calorie restriction, however only the bromocriptine group continued to lose noticeable amounts of weight for the remaining 12 weeks of intervention. Looking over the dosing regimens of several human studies like this, McDonald is recommending that dieting bodybuilders take between 2.5 and 5mg per day. This is given in a single morning dose, due to the relatively long half-life of the drug.

Bromocriptine can produce a number of unwanted side effects, the most notable being low blood pressure, dizziness, confusion and nausea. These side effects do tend to be dose related, with the low recommended doses used in bodybuilding probably not likely to be much trouble for many. Further, initial nausea sometimes goes away after a couple of applications, once the user becomes accustomed to the drug. Obviously the strong incidence of any unwelcome side effects should warrant discontinuing therapy, especially if your blood pressure is becoming negatively affected (too low a drop). Less common adverse reactions include anxiety, dry mouth, edema, seizures, fatigue, headache, lethargy, nasal congestion, rash or changes in urinary frequency.

Bromocriptine is produced in a number of countries, including the United States where it is sold under the Parlodel brand name. This product comes in the form of both 2.5mg tablets and 5mg capsules, with 100 doses of either strength being packaged per bottle. At the pharmacy, 100 5mg capsules will run close to $400, so this drug is not really that cheap. But then again, that would be 100 days worth of drug, so you are really only talking about four dollars per day. If purchasing this drug from on overseas pharmacy, the cost can be considerably reduced as well, to as little as .50 to $2 per daily dose.

Periactin (cyproheptadine hydrochloride)

Periactin® (cyproheptadine hydrochloride) is a first-generation prescription histamine and serotonin antagonist. It is also sold under such brand names as Ciplactin, Peritol, and Practin. This drug is most often given in the U.S. for the treatment of allergy-related symptoms, including hay fever, runny nose, irritated eyes, hives, and swelling. It is also FDA approved for the treatment of anaphylactic reactions caused by allergens, often as an adjunct to injectable epinephrine (adrenalin). The serotonin inhibiting effect of this drug also gives it a unique ability to increase appetite. This has led to a considerable amount of "off-label" use as a weight-gain medication, particularly with patients who are suffering from a lean tissue wasting associated with AIDS infection, cancer, or other debilitating diseases. Periactin is also used on occasion as an adjunct to growth hormone therapy in children, to foster greater nutrient uptake and increases in linear growth beyond what is normally achieved with rHGH alone[226].

References to the appetite stimulating properties of Periactin are easy to find in the medical literature. One of the more detailed papers compares the appetite increasing effects of Periactin to megestrol acetate[227] in a group of 14 men with weight loss associated with HIV infection. The other agent, megestrol, is a progestin that was approved by the FDA in 1993 for the treatment of anorexia, cachexia, or weight loss in patients with AIDS. In this investigation, Periactin was shown to have a similar level of benefit to FDA approved agent megestrol, with patients consuming about 500 extra calories per day, and gaining a moderate amount of weight with either medications. While the benefits were similar, the side effects were not. The investigators reported that more than 50% of the patients taking megestrol suffered impotence during the investigation, while the cyproheptadine HCL group had no such side effects. Periactin may offer an effective alternative to megestrol therapy for many patients, especially those prone to negative side effects associated with this type of hormone manipulation.

That is not to suggest Periactin is free of concerns. As a first-generation anti-histamine, it may be prone to producing a number of side effects in its users. The most common of which is sedation, as this drug produces the classic "anti-histamine lethargy" we have come to expect from this class of drugs. For some users, the tiredness that the drug will produce will outweigh any potential as a weight-gaining/performance-enhancing agent. For most, this side effect of Periactin is not very noticeable, and perhaps a nuisance (not strong enough to necessitate discontinuation) at best. Other less common side effects of concern include, but are not limited to, dizziness, disturbed coordination, muscular weakness, nausea, vomiting, diarrhea, constipation, dryness of the mouth, difficulty urinating, vertigo, blurred vision, tightness of the chest, wheezing, stuffed nose, sweating, early period, headaches, and faintness. Obviously, any strong incidence of unwelcome side effects would immediately warrant discontinuing the drug, or even seeking immediate medical attention if severe.

The typical recommended dose for Periactin as an appetite stimulation is 4mg, which is taken 3 times per day. Above this level, side effects may start to become problematic (most notably sleepiness), interfering with the benefit of the drug. For those who tolerate this anti-histamine's side effects (mainly tiredness), Periactin is often highly valued as an appetite stimulant during weight gaining cycles. Considering the value of a high calorie, high protein diet for building muscle, as well as the difficulty many people have with eating enough to gain optimal weight, it is very understandable why. In fact, I am quite surprised that this drug is not more popular, given the rarity of effective appetite stimulants. It is interesting to note also that the Dominican steroid product, Anabolex, actually includes 1.5mg of cyproheptadine HCL in each 3mg methandrostenolone tablet, which was clearly added by its developers to facilitate increased caloric intake and weight gain during anabolic therapy. The 2:1 ratio provided is optimal for a daily dose of 24mg Dianabol (a very common amount), as it would provide 12mg of Periactin (the recommended daily dose). To my knowledge this is the only anabolic steroid product that includes cyproheptadine HCL as an ingredient.

DIURETICS Drug Profiles

Aldactazide® (spironolactone/hydrochlorthiazide)

Aldactazide® is a trade name (Searle) for an oral, combination diuretic. Specifically it contains a mixture of spironolactone (Aldactone) and hydrochlorthiazide (Hydrodiuril). Aldactone® is a milder, potassium sparing diuretic while Hydrodiuril is a more potent compound from the thiazide family. The combination produces a diuretic with potency comparable to that seen with a doubling in thiazide dosage (when used alone), but without the same level of calcium and potassium excretion. While a potassium supplement is often required with thiazide treatment, the balance of the two drugs in Aldactazide® virtually eliminates this need. Medically this drug is used to treat cases of hypertension (high blood pressure) and edemas (swelling due to excessive water retention). When administered, diuresis (water excretion) becomes pronounced within a couple of hours. It may actually take three to four hours for the peak effect to be noticed, and the drug will remain active in the body for a total duration of approximately twelve hours.

Athletes use diuretics in order to shed extra water retained in the body. This practice is popular in competitive bodybuilding situations, as a drop in subcutaneous water storage can result in an increase in the level of definition to the physique. Competitors in weight class sports like boxing and wrestling also make use of diuretics, administering them to manipulate their body weight for category adjustments. Since the "weigh-in" procedure is generally done a day or days before a competition, the athlete has a clear window of opportunity to drop body weight and lower his/her weight class assignment. The hours or days after the weigh-in gives the competitor more than ample time to rehydrate, and compete at a weight well above that which is dictated by their category. This could certainly be considered an (extremely) unfair advantage, if it were not balanced out by the fact that "dropping weight" (either pharmaceutically or otherwise) is an almost universal practice within such disciplines.

The dosage of the two constituents does vary somewhat among the different preparations, so one should be cautious to notice the actual dosage of both drugs before administering Aldactazide®. The user, depending on individual needs, will need to judge the timing of his diuretic use in relation to the weigh-in or show. The whole intake/preparation schedule should also not run longer than a few days, so as to minimize potential health risks. It is also much more effective when the athlete is familiar with the process well before actually needing to do so. This way frantic last minute diuretic use can be avoided, as the user should be fully prepared. When administered haphazardly, it is very easy to achieve too great a diuretic effect. The result in this case might not be a defined look, but a flat, deflated appearance brought about by severe dehydration.

The most common practice among athletes is to administer a single 50mg/50mg tablet in the morning (with a meal), and to wait and judge the diuretic effect. After a number of hours, this is repeated if a stronger effect is needed. Usually 2-3 tablets will be taken by the days end. Remember that this compound, hydrochlorthiazide in particular, can remain active for many hours. Overlapping dosages will certainly amplify any diuretic effect. Without a large enough gap between tablets, the active dosage/effect may be difficult to judge. The accumulated effect, of course, has the potential to reach a dangerous point.

This diuretic (as all) can present a number of unwanted side effects to the user. This includes, but is not limited to, dehydration, cramping, diarrhea, dizziness, headache, anxiety, unrest, weakness, numbing of extremities and cardiac irregularities. One also risks severe dehydration, with potential to result in coma or death. Unfortunately athletes will too often push their diuretic use to the limits of personal health. The line between a desired effect and serious complications is, in many instances, very fine. While serious side effects appear less frequently with this class of diuretic (than say Lasix [furosemide]), it should still remain a constant concern. Additionally, spironolactone can lower serum androgen levels due to its interference with the biosynthesis of testosterone. This combined with a weak ability to inhibit androgen receptor binding give this drug notable anti-androgenic properties. Since athletes use this compound for only short periods of time, this effect should not be much of a worry.

Aldactone® (spironolactone)

Aldactone® (spironolactone) is a mild diuretic, manufactured widely throughout the world. Medically this class of drug is used to treat high blood pressure, efficiently lowering the retention of water and salt. Aldactone® acts by reducing the amount of aldosterone secreted by the adrenal gland, which is the hormone primarily responsible for water regulation in the body. This effect is beneficial to competitive bodybuilders, who need to shed subcutaneous water before a showing. Specifically this compound is a potassium-sparing diuretic, much weaker in effect than both Dyazide and Lasix. As can be surmised, potassium levels are not greatly reduced with Aldactone®. This is much unlike many stronger diuretics that can increase the rate of potassium excretion considerably. It is therefore very important that the user does not take any additional potassium supplement while using this compound. Too high an increase in potassium levels can prove to be life-threatening.

Using diuretics can present a number of unwanted side effects to the user. This includes, but is not limited to, dehydration, cramping, diarrhea, dizziness, headache, anxiety, unrest, weakness, numbing of extremities and cardiac irregularities. Such side effects seem much less common with this class of diuretic, but should still be of concern. Additionally, this compound exhibits notable anti-androgenic properties. This is because spironolactone is both a weak inhibitor of androgen/receptor binding, and a strong inhibitor of testosterone biosynthesis. Since athletes generally use Aldactone® for a very short period of time, interference with androgen levels should not be much concern however.

Male competitors generally find a dosage of 100mg per day, in a single Morning application, effective for subcutaneous water excretion. This is continued for 3 to 5 days prior to a showing and should result in a harder, more defined appearance to the muscles. Overuse of diuretics can result in notable dehydration, producing the unwanted look of "flattened" muscles. This is not a common occurrence with potassium-sparing diuretics, but is still possible. Many competitors in fact find Aldactone® too mild, and require stronger drugs like Lasix and Hydrodiuril, also with increased risks. Women are occasionally attracted to this product for its effect as an anti-androgen. It can be used at a point when androgen levels have become problematic during a cycle, hopefully reducing the risk of virilization symptoms. A dosage of 25-75mg daily for 1 to 2 weeks may be enough to ward off side effects while androgen levels decline (the steroid regimen terminated). Since spironolactone is more effective at lowering endogenous androgen levels than inhibiting androgen action, it is certainly not to be considered a cure-all remedy for the adventurous steroid-using female.

Since this compound is one of our safest (prescription) options, it is an obvious starting point for a beginning competitor. Once familiar with Aldactone® and wishing for a stronger effect, the addition of a thiazide or furosemide (Lasix) can prove successful. Here the overall dosage is to be reduced than if using either substance alone, and should provide strong water excretion with less calcium/potassium loss. If mixing with hydrochlorthiazide, we can cut the Aldactone® dosage in half (from 100mg) and add an equal mg amount of the thiazide. The 50mg/50mg combination should noticeably increase water excretion without dramatic side effects. The potassium re-absorption seen with Aldactone® should be balanced out with the thiazide, so potassium levels should not be greatly affected. On the other hand, Lasix (furosemide) makes a much stronger addition to Aldactone®. In this case, dropping the Aldactone® dosage to 50mg and adding 20mg oral Lasix is a popular place to start, hopefully providing the water-shedding effect of a 40mg Lasix tablet. Again, the potassium depleting effect of Lasix will likely be balanced out by the Aldactone®, so no additional supplement should be needed. In Europe many such combination diuretics are available and appear to be well liked among competitors.

Dyazide® (triamterene and hydrochlorothiazide)

Dyazide® is an oral diuretic/antihypertensive drug, It containing a mix of the two commonly prescribed agents hydrochlorthiazide and triamterene. The hydrochlorothiazide component is a strong thiazide diuretic, noticeably increasing the rate of sodium excretion. The triamterene is a potassium sparing diuretic, increasing the rate water & sodium are excreted but interfering with the loss of potassium. This combination results in a pronounced diuretic effect without the calcium and potassium loss seen with thiazides alone. The need for potassium supplements is therefore (generally) eliminated with the use this preparation.

Clinically, these drugs are most commonly used to treat cases of edema and high blood pressure (hypertension). Athletes however, use them to shed subcutaneous water during bodybuilding competitions and for weight class adjustments in certain competitive sports. Bodybuilders in particular rely heavily on the definition that results when excess water is reduced. The highly defined, super hard and shredded look so common today is nearly impossible to achieve without diuretics. At the same time diuretics are the reason weight class competitors like wrestlers often appear much heavier during a meet than they do at the weigh-in. A considerable amount of bodyweight (in the form of water) can be removed with diuretic use, often resulting in a drop of one or more weight categories. The user of course will rehydrate after the weigh-in, and will be much heavier that his/her weight class dictates during competition. When everyone is expecting to be matched against someone considerably heavier than his or her class weight dictates, this method of cheating becomes almost mandatory for a "fair" competition.

Among athletes, Dyazide is considered a moderately effective diuretic for such purposes. The water loss is stronger than that of a potassium-sparing agent like Aldactone®, but much weaker than that seen with a loop diuretic like Lasix. It could be most closely compared to the effect seen when a thiazide like Hydrodiuril (hydrochlorthiazide) is used alone, but again without the same level of calcium and potassium loss. Dyazide is therefore used when one wants to receive a good diuretic effect without needing to worry much about potassium supplementation. The diuretic activity following a single dose is usually evident within one hour. It will reach peak effect at approximately 2 to 3 hours and taper off during the next 7 to 9 hours. The athlete will generally use this drug for only the four days prior to a competition, adjusting the dosage to elicit the best level of effect. Since it has a long lasting effect, it is generally administered only once per day. One tablet is usually taken the first thing in the morning with a meal, and the effect judged. The dosage is increased one tablet per day (for perhaps 2 or 3 days at most) until the user is noticing the proper water loss. It is generally thought much more advantageous to prepare the few days before a show instead of loading up on diuretics that morning. The difference between a highly defined physique and a flat smooth dehydrated look is most often just a slight adjustment in dosage.

There is little doubt that diuretic use poses the greatest risk to an athlete. The dangers of this practice are much more pronounced than that of steroids, and are usually the cause when an ambitious professional is sacrificed to drug use. These compounds are very powerful, and should be respected as such. One should be well aware of the many potential side effects associated with diuretics like Dyazide. Muscle cramps, weakness, dizziness, headache, dry mouth, rash, diarrhea, constipation and severe dehydration are all common occurrences. Symptoms of nausea and vomiting can be seen as well, often indicative of an electrolyte imbalance. Administering the drug only after meals can usually prevent nausea. In severe instances, dehydration has resulted in coma or death. Athletes often walk a fine line between obtaining an optimal show physique and severely dehydrating themselves. This is clearly a risky practice, one should be very cautious.

Hydrodiuril® (hydrochlorthiazide)

Hydrodiuril® is a trade name for the drug hydrochlorthiazide. This is a diuretic from the thiazide family, used medically for the treatment of edemas and hypertension. This drug acts by reducing the reabsorption of electrolytes, thereby increasing the excretion of sodium, potassium, chloride, and consequently water. In comparison to other diuretics, Hydrodiuril is stronger than the potassium sparing agent Aldactone® (spironolactone), but weaker then the loop agent Lasix (furosemide). While potassium excretion is much less pronounced than that seen with Lasix, the use of a potassium supplement (or a potassium rich diet) may still be necessary with this product. The necessity for this is usually dependent on the dose and duration in which the drug is administered. Calcium excretion may also be pronounced with thiazides, but again, are weaker in this regard than Lasix.

The use of diuretics has been increasingly popular in a number of athletic disciplines. For starters, these drugs are very popular among bodybuilders who use them to shed subcutaneous water before a competition. The ability to have a winning physique often relies heavily on the definition that can result from diuretic use. The highly defined, super hard and shredded look so common today is nearly impossible to achieve without the use of these drugs. Diuretics are also utilized by athletes who compete in weight categories, using them to drop water weight and make category adjustments. They can allow competitors such as wrestlers and boxers to compete at a much heavier weight during an event than dictated by the "weigh-in" measurement. This is due to the fact that the weight-in is usually done the day before a competition. This allows the athlete to come in light due to diuretics, yet gives enough time to restore fluids and bodyweight before the meet. The result is often a drop of one or more weight categories, a formidable advantage in these types sports. And professional athletes are not the only offenders, as this practice is common in collage sports (sometimes even high schools!). Until the weight-in procedure is placed immediately before the competition, some form of "dropping weight" will always be entertained by such competitors.

The main concern with diuretic use is that it can be a very risky practice. There should be little doubt that diuretics involve a much greater risk to the athlete than that associated with steroid use. Using these drugs incorrectly can produce a dangerous level of dehydration, sometimes to a life threatening point. And unfortunately the line between a shredded physique (or the proper weight class adjustment) and dangerous dehydration is often fine. Sadly, a number of athletes are lost each year when self-administering these drugs, for nothing more than a competitive edge. One should be very careful when using diuretics, hopefully taking time to objectively evaluate the practice. Even when seemingly used correctly, Hydrodiuril can present a number of unwanted side effects to the user. These include, but are not limited to, dehydration, cramping, diarrhea, dizziness, headache, anxiety, unrest, weakness, numbing of extremities and cardiac irregularities. These side effects are generally less pronounced with this class of diuretic (in comparison to loop agents), but should still be a concern. One should take caution by discontinuing this drug should side effects become uncomfortable.

Athletes generally use Hydrodiuril for a short period of time, obviously only needing it for brief water level adjustments. The usual practice is to administer this drug once per day, after the morning meal. The athlete will monitor the level of water lost throughout the day, and adjust the dosage for the following day accordingly. The usual starting dosage is one or two 50mg tablets. The user will adjust the effect by adding a 25 or 50mg tablet each subsequent day, with the total dosage not exceeding 200mg (four 50mg tablets). This practice is only followed for three or four days, as the user calculates an optimal dosage. If the application of Hydrodiuril is not producing the desired effect, one may choose to addition another diuretic (mild) before moving to the stronger loop agents. A combination of a potassium sparing diuretic like Aldactone® (spironolactone) and Hydrodiuril would prove extremely useful, balancing out the calcium and potassium loss of the thiazide. The dosage of each agent would be reduced considerably, perhaps starting with a 50mg/50mg application and working upwards. Be careful not to overuse these drugs, as too much water loss will produce a flat, "deflated" looking muscle. More diuretic certainly does not always equate to more definition. It is the best advice to become familiar with this practice well before competition time. Otherwise the user may be left to make frantic dosage adjustments at the last minute, which can be a dangerous practice.

Lasix® (furosemide)

Lasix is a brand name for the drug furosemide, a very potent diuretic. Technically it belongs to a class of drugs known as loop diuretics, which will cause the body to excrete water as well as potassium, sodium and chloride. Loop diuretics are among the strongest such drugs available, having an extremely dramatic effect on fluid levels in the body. Potassium levels need to be particularly watched, Lasix greatly increasing the amount excreted. The use of a prescription potassium supplement therefore is often required to keep levels in balance, otherwise a serious heart complications might develop. Mistakes in potassium dosage have equally serious consequences, so Lasix is clearly a risky item to use. But when an athlete needs to shed water, it is very difficult to find something that works better.

Athletes use diuretics for a couple of specific purposes. Competitive athletes use these drugs to drop water weight, in an effort to make adjustments in their weight class standings. Since the weigh-in is most often a day or days before a competition/match, one can drop their bodyweight considerably and be back to normal within hours after rehydration. This logically seems to provide an unfair advantage, the athlete competing at a much heavier weight than believed. This advantage is only offset by the now near universal nature of this practice. Bodybuilders also rely heavily on diuretics when preparing for a contest. It can efficiently lower subcutaneous water concentrations, helping to produce that super-ripped look so common on stage today. Make no mistake; a winning look is extremely difficult to obtain without some form of diuretic.

This drug is prepared as both an oral tablet (usually 20-40mg per tablet) or IM/IV injection solution, the injection being much more rapid in effect. The dosage and method of administration is tailored to the individual, dependent on the desired goals and condition of the athlete. Tablets are the most common form of administration. Each oral Lasix tablet becomes effective about 1 hour after ingesting and will remain active for an additional 3 or 4 hours. The athlete will usually start with a mild dose, and add to this amount accordingly later in the day. The initial dosage is usually 20 to 40mg, with the maximum amount usually not to exceed 80mg. The user will attempt to calculate the optimal dosage, and determine the best intake schedule in relation to the show or competition. In order to minimize the side effects associated with this drug, it is generally used for no longer than a few days.

Since Lasix has such a strong effect on electrolyte and potassium levels, it is much safer to addition a potassium sparing agent like Aldactone® (spironolactone) than it is to keep increasing the amount of Lasix used. A combination of 50mg Aldactone® and 20mg Lasix would be a good starting point, having roughly the effect of a 40mg Lasix tablet without the notable potassium loss. This dosage is repeated 2-3 times during the day and the effect judged to determine the optimal dosage. It is important to remember that these drugs can be active for many hours. It can become difficult to control the dehydrating effect with an overlapping schedule, so one should be careful not to administer such diuretics too frequently.

The injectable is a much more powerful version of the drug. It can be administered both intramuscularly and intravenously, depending on the intensity the user is looking for. The IV method is extremely fast, the strong effect of the drug felt in a matter of minutes. Since the injection is much more powerful than the oral, the dosage is to be considerably reduced in comparison. The injected dosage is usually in the range of 10-40mg, rarely going any higher. Drug testing for Lasix at bodybuilding competitions has increased the popularity of last minute IV diuretic use, a very dangerous practice. Instead of slowly shedding water the few days prior, the user is forced to wait until after the "piss-test". Then in a frantic rush to remove subcutaneous water before the show, the drug is administered. The user often has little time to adjust the dosage, resulting in a number of fatal mistakes in recent years. The effect of Lasix is actually easier to control with the injectable under normal conditions. When there is room to experiment, adjustments in dosage are much easier to make (the user not having to wait very long to see an effect). And the optimal dosage is certainly less trouble to calculate for a later time as well, the user having fewer variables to worry about. But again, when used in a rush this drug can be extremely dangerous.

Lasix is no doubt one of the most dangerous drugs a competitor will use. This can be seen on occasion when severe dehydration and electrolyte imbalance takes the life of an ambitious athlete. Warning signs that Lasix may be causing severe dehydration include (not limited to) dizziness, cramping, vomiting, diarrhea, fainting and circulatory disturbances. Potassium depletion can be marked as well, so as discussed users often opt to take a prescription potassium supplement, also with its own set of dangers. One should use extreme caution when considering using Lasix or other diuretics; they are certainly not needed for recreational users.

This product is widely available. It is manufactured and sold under many different brand names, in many countries. No version of Lasix (or any other diuretic) is currently being counterfeited. When found on the black market it can therefore be trusted. Although it is doubtful these will circulate, make sure never to purchase the 500mg tablets. These are used only in severe medical conditions, and contain a dosage that could prove fatal to a healthy person.

Lasilactone® (spironolactone/furosemide)

Lasilactone is the Hoechst trade name for an oral, combination diuretic. Specifically, it contains a mixture of spironolactone (Aldactone®) and furosemide (Lasix). Aldactone® is a much milder, potassium sparing diuretic while Lasix is a notably potent compound from the family of loop agents. The combination of these two diuretics creates a drug with potency comparable to that seen with a much higher Lasix dosage (approximately double if used alone), but without the extreme level of calcium and potassium excretion. While a potassium supplement is often required with Lasix treatment, the balance of the two drugs in this compound will usually make this unnecessary. Medically, Lasilactone is used to treat cases of high blood pressure and edemas (swelling). When administered, diuresis (water excretion) becomes pronounced within an hour, and will remain notable for approximately four hours.

Like many patients, Athletes are attracted to diuretics because of their ability to remove stored water from the body. This effect is highly sought after by competitive bodybuilders, as a drop in subcutaneous water storage can increase the visibility of muscle features (increased definition). In sports where the competitor is restricted to a weight class (such as boxing and wrestling), diuretics are also extremely popular. They can be used to manipulate the bodyweight, in order for the athlete to make weight category adjustments. Since the "weigh-in" procedure is completed (generally) a day or days before the competition, the user has a clear window of opportunity to drop their bodyweight with a diuretic before hitting the scale. The long stretch of time after the weight in gives the user ample time to rehydrate, and as a result compete in a lower weight class than his/her bodyweight would dictate.

When administering this drug, the user will need to adjust the dosage in order to fit his or her individual needs. The most common practice is to administer a single 50mg/20mg tablet in the morning (with a meal), and to wait and judge the level of water loss. After a number of hours, this is repeated if a stronger diuretic effect is required. Usually no more than 2 or 3 tablets will be taken by the end of the day. This is perhaps repeated for a couple of more days, as the athlete looks to obtain the optimal result. So as to minimize any potential health risks, it is good advice to limit the use of such compounds to no more than a few days. It is also much more effective when the athlete is familiar with the whole process before using such drugs for a show/competition. Frantic, last minute diuretic use (due to poor planning) can easy lead to a troubling level of dehydration. The difference between a flat, deflated appearance and the all-important defined (ripped) look is in many cases only a small dosage adjustment.

This diuretic (as all) can present a number of unwanted side effects to the user. This includes, but is not limited to, dehydration, cramping, diarrhea, dizziness, headache, anxiety, unrest, weakness, numbing of extremities and cardiac irregularities. One also risks severe dehydration, which has the potential to result in coma or death. Unfortunately athletes will too often take great risks, pushing their diuretic use to the limits of personal health. The line between a desired effect and serious complications is, in many instances, very fine. While serious side effects appear less frequently with compound diuretics as such, it should still remain a constant concern. Lasix in particular can be a very powerful compound and should be respected as such.

Aranesp® (darbepoetin alfa)

Aranesp is an erythropoiesis-stimulating drug, very similar in structure and action to the body's own endogenous erythropoietin. It is manufactured by Amgen, the world's largest biotechnologies company. In fact, it is also the same company that first brought recombinant erythropoietin (epoetin alfa) to the market in 1984. In structure darbepoetin alfa differs from human erythropoietin only slightly, and has all the same biological activity. Human erythropoietin is normally released by the kidneys in response to hypoxia, or low blood oxygen levels. It in turn triggers bone marrow to increase red blood cell production, and is likewise vital to the regulation of normal red blood cell concentrations. Darbepoetin alfa can likewise be used to augment erythropoiesis when the body is not maintaining adequate red blood cell levels on its own. It is approved by the FDA for the treatment of anemia (low red blood cell count) specifically associated with chronic renal failure or chemotherapy.

Aranesp differs from the recombinant human erythropoietin in Epogen (epoetin alfa) mainly in its duration of activity. This new protein maintains its levels in the blood for approximately three times longer, which is an extremely significant difference. This means that with Aranesp, patients are required to administer the product much less frequently. While Epogen is usually given on a schedule of three times a week, Aranesp requires only one injection each week. This course enhances patient comfort quite a bit, and is especially useful when the patient is visiting the doctor for drug administration. Studies comparing this form of therapy to the use of standard recombinant erythropoietin note that users need approximately the same amount of drug, it is just given in larger doses with more time between applications.

Erythropoiesis stimulating drugs are very popular in endurance sports, such as long distance running and cycling. In these sports maximum oxygen carrying capacity is of paramount importance to the performance of the athlete. We are all too familiar with the decades old practice of manually removing and later reinfusing blood plasma for the sake of increasing red blood cell count and endurance capacity for a sport, commonly referred to as "blood doping". Drugs like Aranesp and Epogen accomplish the same thing as this decades old practice, and are essentially just new forms of "chemical blood doping". In practice they can be just as effective as their antiquated counterpart, even more so. These agents are also used at times in bodybuilding circles, where the erythropoiesis stimulating effect may help bring out a greater look of vascularity when the body fat percentage is sufficiently low. It is likewise more of a "pre-contest" drug.

While Aranesp and Epogen can be just as effective as the practice of blood doping, be warned that these drugs can also be just as dangerous. A number of athlete deaths have been attributed to the use of these agents over the past several years, caused by an over-thickening of the blood due to abnormally high red cell concentrations. One must take extreme caution when using these drugs, making sure to meticulously measure red blood cell counts to be sure that the drug is not having an effect that could turn out to be life threatening. For a more comprehensive discussion on the uses, mechanisms, and dangers of erythropoiesis stimulating drugs, please refer to the Epogen drug profile. Take note also that Aranesp is now detectable during urinalysis, making it unsafe for drug-tested sports.

Aranesp comes in the dosage strengths of 25, 40, 60, 100, 200 and 300 mcg/mL. When shopping, you will quickly learn that this not a cheap drug. At a U.S. pharmacy, a four-vial pack of the 100mcg/mL dose will run you approximately $1,700. Due to the high cost for the new erythropoiesis stimulating agents, they are often the targets of counterfeit drug manufacturing operations. But these operations cater not to the black market like underground steroid makers, but push their drugs through legitimate channels - into the pharmacies where they are sold to unsuspecting consumers, often with diluted dosages. This has been a big issues as of late, suggesting that it may be a good idea to get your scripts filled (if you get them) thorough the larger pharmacy chains, which are unlikely to purchase their drugs through pharmaceutical wholesalers.

Carnosine (beta-alanyl-L-histidine injectable solution)

Carnosine is a histidine-containing dipeptide, comprised of a chemical combination of the amino acids beta-alanine and L-histidine. The exact role of carnosine in the human body is not fully understood, but it is believed to play a role as antioxidant, neurotransmitter, and protective nutrient against cell aging. Carnosine is currently on its way to becoming a popular general health supplement, due to its perceived role in preserving good health and slowing the cellular damage of aging. Dietary supplements containing carnosine, however, are not the subject of this profile. We are discussing injectable carnosine here, or more specifically the practice of using intramuscular injections of carnosine to improve athletic performance. In this regard it is being used to reduce muscle fatigue, increase muscle endurance, and extend the overall capacity for work.

The interest in using carnosine to enhance athletic performance becomes fairly obvious when we look at the role this nutrient plays in human muscle physiology. Carnosine has been shown to contribute to physiochemical buffering in exercised muscles. You may be familiar with the practice of sodium bicarbonate (baking soda) loading, which loosely works on the same principle. Carnosine acts as a buffering agent because of its L-histidine content. As the muscles are taxed during exercise, and lactic acid begins to build, carnosine beings to break down at a high rate. Free amino acids are formed, as the chemical bonds holding them together are broken. The histidine this process yields helps to maintain acid-base (pH) balance in the muscles, allowing them to work at a higher capacity for a longer period of time. Studies have shown that carnosine concentrations correlate closely with the maximum power output capacity of the muscles[228].

The typical practice for using carnosine involves injecting 1-2grams of the nutrient into the bellies of the muscles that are to be trained that day. Small muscle groups such as the deltoids and biceps may take a single injection in each side, while larger muscle groups may require placing smaller injections into more than one area of tissue to better distribute the nutrient. The injections are administered within 30 minutes before training, so that local levels of carnosine are at their highest. The first time I heard of this practice was from renowned strength and conditioning expert Charles Poliquin. Charles has many of his Olympic athletes using this procedure during their weight training sessions, and reports excellent success with it. The results he describes are very much in line with what one might expect from reading the research; the muscles have notably greater endurance. According to Charles, this is providing tangible benefits in terms of actual tissue gain (size and strength). He believes the buffering is allowing for greater total tonnage in the gym, which allows for more stimulation and more growth.

At the present time it is a difficult to give practical advice on using injectable carnosine, as I know of no such pharmaceutical preparation in production. One doesn't want to simply try and home-brew a solution either, as carnosine is not particularly stable in solution[229] (nor would it be very pure). Any such preparation really needs to be prepared professionally, with proper attention to temperature, pH, sterility, and general product stability. Those using injectable carnosine right now are most likely getting a product that originates from a private drug-compounding firm, made at the direction of a physician. This isn't of much use to the average bodybuilder. This is also a very new practice, however, and few people have "caught on" to the use of carnosine injections as of yet. As word spreads of Olympic and professional athletes using a new "designer agent", this will undoubtedly change very quickly. Until then, a visit to a strength couch like Charles Poliquin may be your only tangible option for experimenting with this.

Epogen® (epoetin alfa)

Erythropoietin (EPO) is a primary growth factor involved in regulating red blood cell formation in the human body. Isolation and manufacture of this hormone for medical purposes has proved extremely beneficial. This hormone is used to treat many forms of anemia, effectively stimulating and maintaining erythropoiesis in a large percentage of patients treated. The efficiency of this drug quickly made it a ready replacement for older (less effective) therapies such as Anadrol 50®. The structure of recombinant human erythropoietin (epoetin alfa, r-HuEPO) is a purified single chain polypeptide hormone, 165 amino acids in sequence. The compound is produced from animal cells, into which the gene coding for human erythropoietin has been inserted. The biological activity and structure of r-HuEPO are indistinguishable from that of human erythropoietin.

Endurance athletes are highly attracted to EPO for the effect it has on red blood cell production. It is no secret that the practice of "blood doping" is popular with endurance sports. This procedure involves removing and storing a quantity of blood from your body, to be later replaced. By adding this stored blood before an event (by then the body has restored the lost blood volume), the athlete has a much greater number of red blood cells. The blood can therefore transport oxygen more efficiently, and the athlete is given a noticeable endurance boost. This has no doubt been the difference between winning and losing for many individuals. This procedure however, carries with it a great number of risks. Blood is a difficult thing to store and administer, not to mention the problems that can occur with the extra cell volume. Some of these risks are reduced with EPO, a drug that basically equates to "chemical blood doping". While one does not have to worry about storing and injecting blood, problems with cell volume can still be very dangerous with this drug. Cell concentration can reach a life threatening point if this drug is incorrectly used, resulting in heart attach, stroke, seizure or death.

There are also a number of side effects associated with general use of this substance. Most notable, blood pressure can begin to rise are cell volume changes. This can reach the point of headaches and high blood pressure, obviously an unwanted effect. Additionally, flu-like symptoms, aching bones, chills and injection site irritations are also possible. Since athletes are not using this product for a medical condition, a strong incidence of side effects should be an indicator to discontinue using the drug. Clearly one should not wish to compromise their health for an athletic push.

Erythropoietin is available in an injectable solution, to be given subcutaneously (between the skin and muscle) or intravenously. The two paths of administration have greatly different effects on the blood level of the drug. When given as an IV injection, peak blood levels of the drug are reached very quickly. The half-life is also short, approximately 4 or 5 hours long. When administered "SubQ", the drug will take 12 to 18 hours to reach a peak level. Given an equal dose, this concentration will also be much lower than the intravenous method. The half-life also greatly extended, estimated to now be approximately 24 hours. When used clinically, the starting dosage range is 15-50U/kg of bodyweight, given three times per week. By this guideline a 176lbs. athlete would take a maximum of 4000U per injection, or .4 mL., every two or three days. This would be done in the days/weeks prior to a competition, the peak effect hopefully reached near the day of the event.

The user would be best served by familiarizing him/herself with this drug long before using it competitively. This way a specific intake schedule could be devised, the athlete knowing how best to administer it each time. This will also help to avoid any complications brought about by last minute dosing adjustments due to inexperience with this compound. The discussed dosage range is also adjusted upwards of 100U/kg per application in many clinical cases, however athletes should be very careful when tinkering with this drug. The potential side effects are very serious, and certainly not to be ignored. Remember that it is also very important to monitor blood cell counts during the intake of EPO. Watching that your red blood cell count stays within limits is the surest way to avoid any serious complications.

Due to the intricate manufacturing process, EPO is a very expensive compound. Since it is additionally a drug specific to certain athletic fields, it is not common on the black market. Those looking to purchase EPO will instead generally find it (obviously) within circles of endurance athletes. It is also easy to obtain via a number of foreign mail-order sources. Since this is not a controlled substance, it does not carry the same import restrictions that are placed on anabolic steroids.

Carnosine (beta-alanyl-L-histidine injectable solution)

Carnosine is a histidine-containing dipeptide, comprised of a chemical combination of the amino acids beta-alanine and L-histidine. The exact role of carnosine in the human body is not fully understood, but it is believed to play a role as antioxidant, neurotransmitter, and protective nutrient against cell aging. Carnosine is currently on its way to becoming a popular general health supplement, due to its perceived role in preserving good health and slowing the cellular damage of aging. Dietary supplements containing carnosine, however, are not the subject of this profile. We are discussing injectable carnosine here, or more specifically the practice of using intramuscular injections of carnosine to improve athletic performance. In this regard it is being used to reduce muscle fatigue, increase muscle endurance, and extend the overall capacity for work.

The interest in using carnosine to enhance athletic performance becomes fairly obvious when we look at the role this nutrient plays in human muscle physiology. Carnosine has been shown to contribute to physiochemical buffering in exercised muscles. You may be familiar with the practice of sodium bicarbonate (baking soda) loading, which loosely works on the same principle. Carnosine acts as a buffering agent because of its L-histidine content. As the muscles are taxed during exercise, and lactic acid begins to build, carnosine beings to break down at a high rate. Free amino acids are formed, as the chemical bonds holding them together are broken. The histidine this process yields helps to maintain acid-base (pH) balance in the muscles, allowing them to work at a higher capacity for a longer period of time. Studies have shown that carnosine concentrations correlate closely with the maximum power output capacity of the muscles[228].

The typical practice for using carnosine involves injecting 1-2grams of the nutrient into the bellies of the muscles that are to be trained that day. Small muscle groups such as the deltoids and biceps may take a single injection in each side, while larger muscle groups may require placing smaller injections into more than one area of tissue to better distribute the nutrient. The injections are administered within 30 minutes before training, so that local levels of carnosine are at their highest. The first time I heard of this practice was from renowned strength and conditioning expert Charles Poliquin. Charles has many of his Olympic athletes using this procedure during their weight training sessions, and reports excellent success with it. The results he describes are very much in line with what one might expect from reading the research; the muscles have notably greater endurance. According to Charles, this is providing tangible benefits in terms of actual tissue gain (size and strength). He believes the buffering is allowing for greater total tonnage in the gym, which allows for more stimulation and more growth.

At the present time it is a difficult to give practical advice on using injectable carnosine, as I know of no such pharmaceutical preparation in production. One doesn't want to simply try and home-brew a solution either, as carnosine is not particularly stable in solution[229] (nor would it be very pure). Any such preparation really needs to be prepared professionally, with proper attention to temperature, pH, sterility, and general product stability. Those using injectable carnosine right now are most likely getting a product that originates from a private drug-compounding firm, made at the direction of a physician. This isn't of much use to the average bodybuilder. This is also a very new practice, however, and few people have "caught on" to the use of carnosine injections as of yet. As word spreads of Olympic and professional athletes using a new "designer agent", this will undoubtedly change very quickly. Until then, a visit to a strength couch like Charles Poliquin may be your only tangible option for experimenting with this.

Epogen® (epoetin alfa)

Erythropoietin (EPO) is a primary growth factor involved in regulating red blood cell formation in the human body. Isolation and manufacture of this hormone for medical purposes has proved extremely beneficial. This hormone is used to treat many forms of anemia, effectively stimulating and maintaining erythropoiesis in a large percentage of patients treated. The efficiency of this drug quickly made it a ready replacement for older (less effective) therapies such as Anadrol 50®. The structure of recombinant human erythropoietin (epoetin alfa, r-HuEPO) is a purified single chain polypeptide hormone, 165 amino acids in sequence. The compound is produced from animal cells, into which the gene coding for human erythropoietin has been inserted. The biological activity and structure of r-HuEPO are indistinguishable from that of human erythropoietin.

Endurance athletes are highly attracted to EPO for the effect it has on red blood cell production. It is no secret that the practice of "blood doping" is popular with endurance sports. This procedure involves removing and storing a quantity of blood from your body, to be later replaced. By adding this stored blood before an event (by then the body has restored the lost blood volume), the athlete has a much greater number of red blood cells. The blood can therefore transport oxygen more efficiently, and the athlete is given a noticeable endurance boost. This has no doubt been the difference between winning and losing for many individuals. This procedure however, carries with it a great number of risks. Blood is a difficult thing to store and administer, not to mention the problems that can occur with the extra cell volume. Some of these risks are reduced with EPO, a drug that basically equates to "chemical blood doping". While one does not have to worry about storing and injecting blood, problems with cell volume can still be very dangerous with this drug. Cell concentration can reach a life threatening point if this drug is incorrectly used, resulting in heart attach, stroke, seizure or death.

There are also a number of side effects associated with general use of this substance. Most notable, blood pressure can begin to rise are cell volume changes. This can reach the point of headaches and high blood pressure, obviously an unwanted effect. Additionally, flu-like symptoms, aching bones, chills and injection site irritations are also possible. Since athletes are not using this product for a medical condition, a strong incidence of side effects should be an indicator to discontinue using the drug. Clearly one should not wish to compromise their health for an athletic push.

Erythropoietin is available in an injectable solution, to be given subcutaneously (between the skin and muscle) or intravenously. The two paths of administration have greatly different effects on the blood level of the drug. When given as an IV injection, peak blood levels of the drug are reached very quickly. The half-life is also short, approximately 4 or 5 hours long. When administered "SubQ", the drug will take 12 to 18 hours to reach a peak level. Given an equal dose, this concentration will also be much lower than the intravenous method. The half-life also greatly extended, estimated to now be approximately 24 hours. When used clinically, the starting dosage range is 15-50U/kg of bodyweight, given three times per week. By this guideline a 176lbs. athlete would take a maximum of 4000U per injection, or .4 mL., every two or three days. This would be done in the days/weeks prior to a competition, the peak effect hopefully reached near the day of the event.

The user would be best served by familiarizing him/herself with this drug long before using it competitively. This way a specific intake schedule could be devised, the athlete knowing how best to administer it each time. This will also help to avoid any complications brought about by last minute dosing adjustments due to inexperience with this compound. The discussed dosage range is also adjusted upwards of 100U/kg per application in many clinical cases, however athletes should be very careful when tinkering with this drug. The potential side effects are very serious, and certainly not to be ignored. Remember that it is also very important to monitor blood cell counts during the intake of EPO. Watching that your red blood cell count stays within limits is the surest way to avoid any serious complications.

Due to the intricate manufacturing process, EPO is a very expensive compound. Since it is additionally a drug specific to certain athletic fields, it is not common on the black market. Those looking to purchase EPO will instead generally find it (obviously) within circles of endurance athletes. It is also easy to obtain via a number of foreign mail-order sources. Since this is not a controlled substance, it does not carry the same import restrictions that are placed on anabolic steroids.

Provigil® (Modafinil)

Modafinil, known chemically as benzhydrylsulphinylacetamide, is a relatively new stimulant-type drug developed by Lafon Laboratories in France. It is sold in the U.S. under the brand name Provigil®, and internationally under such names as Modiodal®, Vigil®, Alertec®, and Modasomil®. Modafinil is specifically characterized as a psychostimulant, and is FDA approved for the treatment of narcolepsy (a disorder characterized by sudden and uncontrollable attacks of deep sleep), mental fatigue, or excessive sleepiness. It is being investigated for a number of other uses, including the treatment of Alzheimer's disease, depression, and attention deficit disorder. Modafinil belongs to a class of drugs known as Eugeroics ("good arousal"), designed to promote a mental state of vigilance and alertness. Modafinil is specifically an alpha 1 adrenoceptor agonist, and exerts its mood and energy enhancing effects through the increased release of dopamine in the CNS, as well as alterations in local GABA and glutamate levels.

The use of Modafinil as a stimulant has been shown to be very advantageous over amphetamines. Modafinil is believed to have a much lower potential for abuse (less euphoria), lower peripheral CNS stimulation (less side effects), minimal effects on blood pressure, no interruptions in normal sleeping patterns (no hangover or needing "catch-up sleep), and an overall greater safety record during clinical trials. This drug is of interest even to the U.S. military, which is looking at it as an energy enhancer for pilots and combat soldiers that need to operate for long periods of time without sleep. This is not as unusual as it may seem at first, as military combat pilots and soldiers have used Dexedrine (an amphetamine) extensively in the past when sleep was difficult. This drug does have its drawbacks, including jitters, jumpiness, poor judgment, and "crashes". However, soldiers on Modafinil report they maintain excellent cognitive functioning for a full 40 hours straight without sleep, with none of the side effects of Dexedrine. Modafinil has been tested in combat situations as recently as Afghanistan and Iraq, and seems poised for official acceptance as a battlefield drug.

Recently, modafinil has become a popular drug amongst competitive athletes. They use it not simply to "stay awake", but as a performance enhancing agent with both stimulant and endurance-increasing properties. This type of use probably comes as a surprise to those who developed this drug, as early reports suggested that this was a "mild" alertness drug, without strong stimulant properties that would improve athletic performance. Apparently, that is not the case. A study conducted just recently in Canada shows a very strong athletic benefit inherent in modafinil[230]. During this double-blind investigation, a dose of 4mg per kg of bodyweight (this equates to 200mg for a 220lb man) of modafinil, or placebo, was given to a group of fifteen male volunteers. Three hours after ingestion, aerobic exercise was conducted on a cycle ergometer at 85% V02max (maximum aerobic power), and time until exhaustion. While taking modafinil, the men were able to exercise for significantly longer (~30%), and had greater oxygen intake at exertion. They also reported lower subjective ratings of perceived exertion (RPE), which suggests that the increased performance was in part due to a significantly less pronounced sensation of fatigue during exercise.

The typical effective dose for both men and women is in the range of 100-400mg, which is given 2-3 hours prior to athletic competition. As the dosage increases, side effects may start to become an issue, including headache, nausea, nervousness, and anxiety. It is a good idea to start on the low end of the range, and increase by 50-100mg per application until the optimal level is determined. The arenas in which this drug can be applied are vast, and essentially include any sport focused on aerobic activity or endurance. It may also work well with those who are forced to repeat short bursts of strength or speed many times during competition, such as shot putting, pole vaulting, or long jumping. Here, it could help the athlete continue performing at optimal levels as the day of competition stretches on. Modafinil is not going to be the most popular drug amongst bodybuilders, as it holds little direct value for building muscle or cutting fat. It may, however, be an effective pre-workout stimulant, helping you spend more time in the gym, and allowing you to attack the weights with more ferocity during the time you spend there.

Although modafinil has an excellent safety record and profile, it is still considered a drug of potential abuse in the United States. As such, it has been classified as a schedule IV controlled substance, in the same category as Valium and Xanax. This limits its availability somewhat, and also places considerable legal penalties on its possession and importation. Therefore, it is probably not a good idea to order this drug freely from international pharmacies on the Internet. Instead, it would be advisable to seek a legitimate domestic prescription for this agent. Since Modafinil has been approved by the FDA for some general uses, including the treatment of metal fatigue, this should not be all that difficult. It is quite common for doctors to prescribe this agent to someone who finds him or herself in the middle of a particularly stressful time at work, perhaps

suddenly covering a late shift or putting in longer-than-usual hours. Such "excuses" would probably afford a modest supply of the drug fairly easily.

Modafinil was very popular amongst competitive athletes for a brief period of time before the IOC became aware of its use and banned it. Some readers may incorrectly be operating under the assumption that this drug is still not being tested for. That is, unfortunately, no longer the case. The use of modafinil as a performance-enhancing agent was revealed to the public during the designer steroid (BALCO) doping scandal of 2004. It was disclosed that many of the same athletes who tested positive for THG also used the drug. Since then, the IOC has developed a methodology for detecting this chemical, and has implemented it during all standard urine screens. Most of the other international athletic bodies have followed the IOC's lead. Modafinil has since lost all appeal as an "invisible" performance-enhancing drug. Although no longer of great value on the Olympic playing field, in the months and years to come, Modafinil is likely to become popular with bodybuilders and those athletes not subject to drug testing, who may find it an excellent addition to their regular pre-competition pharmaceutical toolbox.

FAT LOSS AGENTS - SYMPATHOMIMETICS Drug Profiles

Albuterol (albuterol sulfate)

Albuterol is a selective beta-2 adrenergic agonist, very similar in structure and action to clenbuterol. Unlike clenbuterol, albuterol is readily available as a prescription drug in the United States. It is also sold as salbutamol in a number of other countries, which is simply another generic name for the drug. Albuterol is found most commonly in the form of a rescue inhaler, which is designed disperse a measured amount of the drug immediately and directly to the bronchial tubes in times of crisis (asthma attack). This form provides the least amount of systemic drug activity possible, which is great for minimizing unwanted cardiovascular side effects. But for the purpose of fat loss this will not do at all, as we need high levels of the drug to reach adipose tissues. The user is likewise forced to seek out one of the less popular, but still available, albuterol oral tablets, which work relatively well for this purpose when used correctly (For a more comprehensive discussion of the benefits, activities and side effects of beta-2 agonist drugs please refer to the clenbuterol drug profile).

Effective doses of albuterol usually start in the range of one to two 4mg tablets per day (1 tablet X 1-2 applications). This is often increased a little as the user becomes accustomed to the drug, perhaps to 4mg 3-4 times per day. Individuals very sensitive to the stimulant side effects of beta agonists might wish to start with the lower-dose 2mg tablets first, as albuterol is indeed a potent medication. Whatever the starting dosage, the administration intervals are always spread out as evenly as possible, so as to prevent overlap and sustain active concentrations in the blood for as much of the day as possible. We are looking to find a slight elevation in body temperature (a degree, give or take a little) with use of the drug, which is a good indicator that lipolysis (the removal of stored fatty acids in adipose tissue) is being effectively stimulated.

As is noted with all beta agonists, tolerance to the thermogenic benefits of this drug will tend to develop quickly. This is usually noted by a drop in body temperature, returning back to normal pretreated levels. Due to the potential side effects of these drugs, it is not advised to continually increase the dosage taken in order to chase down a diminishing effect. Instead, the user will usually opt to discontinue the drug for some time (4 weeks or so) to let the body restore its normal receptor concentrations. More recently, the antihistamine Zaditen (ketotifen) has become popular, which is a potent upregulator of beta-adrenergic receptors, especially beta-2 receptors. Taking Zaditen alongside albuterol should greatly enhance the thermogenic potency of this beta agonist, preventing receptor downregulation from cutting your cycle short.

As a beta agonist, albuterol possesses strong stimulant properties. This can lead to a number of unwelcome side effects including, but not limited to, restlessness (inner unrest), shaky hands, tremors, sweating, nausea, increased heart rate, heart palpitations and increased blood pressure. To minimize the occurrence of such side effects, the user is typically instructed to start with a very low dose at first, and slowly work up to a more effective range. You are looking to find a range where thermogenesis is effectively stimulated, but side effects are not so uncomfortable as to interfere with your rest and daily activities. Of course the strong incidence of any unwelcome side effects would warrant discontinuing the drug immediately.

Albuterol is not an expensive drug by any means. In the U.S. sixty 4mg tablets will run you only about $11. In Canada, 100 generic 4mg tablets (salbutamol) will run you only about $38. With a price of roughly 20-40 cents per tablet, this drug is definitely much less expensive than clenbuterol on average. But then again, in the real world it doesn't seem to offer quite the same level of potency. Given that clenbuterol is not really that much more costly in most cases (it usually runs $1 per tablet or less), is more abundantly found, and seems to be the most effective thermogenic agent in the beta-agonist class, this would be preferred over albuterol if both were available.

Clenbuterol

Clenbuterol is a widely used bronchodilator in many parts of the world. The drug is most often prepared in 20mcg tablets, but it is also available in syrup and injectable form. Clenbuterol belongs to a broad group of drugs knows as sympathomimetics. These drugs affect that sympathetic nervous system in a wide number of ways, largely mediated by the distribution of adrenoceptors. There are actually nine different types of these receptors in the body, which are classified as either alpha or beta and further subcategorized by type number. Depending on the specific affinities of these agents for the various receptors, they can potentially be used in the treatment of conditions such as asthma, hypertension, cardiovascular shock, arrhythmias, migraine headaches and anaphylactic shock. The text Goodman and Gillman's The Pharmacological Basis of Therapeutics 9th Edition does a good job of describing the diverse nature in which these drugs affect the body:

"Most of the actions of catecholamines and sympathomimetic agents can be classified into seven broad types: (1) peripheral excitatory action on certain types of smooth muscles such as those in blood vessels supplying the skin, kidney, and mucous membranes, and on the gland cells, such as those of the salivary and sweat glands; (2) a peripheral inhibitory action on certain other types of smooth muscle, such as those in the wall of the gut, in the bronchial tree, and in blood vessels supplying skeletal muscle; (3) a cardiac excitatory action, responsible for in increase in heart rate and force of contraction; (4) metabolic actions, such as an increase in the rate of glycogenolysis in liver and muscle and liberation of free fatty acids from adipose tissue; (5) endocrine actions, such as modulation of the secretion of insulin, rennin, and pituitary hormones; (6) CNS actions, such as respiratory stimulation and, with some of the drugs, an increase in wakefulness and psychomotor activity and a reduction in appetite; and (7) presynaptic actions that result in either inhibition or facilitation of the release of the neurotransmitters such as such as norepinephrine and acetylcholine."

The drug clenbuterol is specifically a selective beta-2 sympathomimetic, primarily affecting only one of the three subsets of beta-receptors. Of particular interest is the fact that this drug has little beta-1 stimulating activity. Since beta-1 receptors are closely tied to the cardiac effects of these agents, this allows clenbuterol to reduce reversible airway obstruction (and effect of beta-2 stimulation) with much less cardiovascular side effects compared to non-selective beta agonists. Clinical studies with this drug show it is extremely effective as a bronchodilator, with a low level of user complaints and high patient compliance[231].

Clenbuterol also exhibits an extremely long half-life in the body, which is measured to be approximately 34 hours long[232]. This makes steady blood levels easy to achieve, requiring only a single or twice daily dosing schedule at most[233]. This of course makes it much easier for the patient to use, and may tie in to its high compliance rate. Despite that clenbuterol is available in a wide number of other countries however; this compound has never been approved for use in the United States. The fact that there are a number of similar, effective asthma medications already available in this country may have something to do with this, as a prospective drug firm would likely not find it a profitable enough product to warrant undergoing the expense of the FDA approval process. Regardless, foreign clenbuterol preparations are widely available on the U.S. black market.

In animal studies clenbuterol is shown to exhibit anabolic activity[234] [235] [236], obviously an attractive trait to the athlete. This compound is additionally a known thermogenic[237], with beta-2 agonists like clenbuterol shown to directly stimulate fat cells and accelerate the breakdown of triglycerides to form free fatty acids. Its efficacy in this area makes clenbuterol a very attractive, and today almost mandatory, pre-contest drug. Those interested in this drug are most often hoping it will impart a little of both benefits, promoting the loss of body fat while imparting strength and muscle mass increases. But as was well pointed out by a review published in the August 1995 issue of Medicine and Science in Sports and Exercise, the possible anabolic activities in humans are very questionable, and based only on animal data using much larger doses than would be required for bronchodilation[238]. With such reports there has been a lot of debate lately as to whether or not clenbuterol is really anabolic at all. Some seem to swear by the fact that it builds muscle regardless, firmly sticking by "clen" as a great off-season or adjunct anabolic. To others such reports are confirmation that athletes have wasted valuable time and money on drugs that do not work as they are intended to by the user.

This debate continues today, with many still using clenbuterol as a potential anabolic. With this in mind athletes will tailor their dosage and cycling of this product individually depending on which of the two possible results are more desired, and how much side effects are to be tolerated. The possible side effects of clenbuterol include those of other CNS stimulants, and include such occurrences as shaky hands, insomnia, sweating, increased blood pressure and nausea. These side effects will generally subside after a week or so of use however, once

the user becomes accustomed to the drug. One would typically start a cycle by gradually increasing the dosage each day until a desired range is established. This process will minimize the unwanted side effects seen from the drug; which otherwise might be dramatic if a large dose is administered from the onset. Men generally end up in the range of 2-8 tablets per day, although some people do claim to tolerate even higher dosages. Women get by on less, generally 2-4 tablets daily. Very quickly, the drug will elevate the body temperature. The rise is not usually dramatic, perhaps a half of a degree or so, sometimes a little more. This elevation is due to your body burning excess energy (largely from fat) and is usually not uncomfortable.

Now that it is working, the number of consecutive days clenbuterol can be used is believed to be dependent on the goal of the individual. To be clear, the athletic benefits of this drug will only last for a limited time and then diminish, largely due to beta-receptor downregulation. When using it for fat loss, the primary effect of the drug, it seems to work well for approximately 4-6 weeks. During this period, users will want to constantly monitor their body temperature. We are assured clenbuterol is working by the temperature elevation. Once the temperature drops back to normal, clenbuterol is no longer exhibiting a thermogenic effect. At this point increasing the dosage would not be very effective, and a break for at least a few weeks should be taken before it is used again effectively. If one is looking for strength gains, clenbuterol appears to be effective for a much shorter period of time, around 3-4 weeks. This may be due to an absence of real anabolic effect, with the strength gain seen with clenbuterol possibly due only to the stimulant properties of the drug (similar to the strength boost seen by ephedrine users). Again however, this is still debated.

Many competitors also find the fat burning effect of clenbuterol can be further enhanced by additional substances. When combined with thyroid hormones, specifically the powerful Cytomel®, the thermogenic effect can become extremely dramatic. This can be to a point that the athlete could shred exceptional amounts of extra fat during contest preparations, without a dramatic restriction in calories. Such a mix can be further used during a steroid cycle, eliciting a much harder look from the anabolics. These cutting agents can often greatly inhibit extra fat storage during the cycle, even when using strong aromatizing androgens. A clenbuterol/thyroid mix is also common when using growth hormone, further enhancing the thermogenic and anabolic effect of this therapy. Ketotifen has also been an extremely popular adjunct to clenbuterol therapy as of late, which is an antihistamine that exhibits the peculiar and extremely welcome side effect of upregulating beta-2 receptor density. It seems capable of not only increasing the potency of each dose of clenbuterol, but also preventing the rapid drop in thermogenic effectiveness that is attributed to receptor downregulation (*see: Ketotifen profile for a more comprehensive discussion*).

On the black market real clenbuterol is readily available. A street price for 100 tablets of can run as high as $100-150 however, due to the large demand seen recently. A number of European mail order firms will commonly sell clenbuterol to Americans for approx. $.75 or so per tablet though, which is a much more reasonable figure. Clenbuterol has been counterfeited over the past few years, but not to the same extent that most anabolics have. Legitimate versions of clenbuterol are cheap and supplies abundant so the black market has not really needed to manufacture a large volume of fake product. If you know what not to purchase you will likely be able to protect yourself without much difficulty.

Clenbuterol is not produced in the **United States**, so avoid anything bearing a U.S. company name.

Clenbuterol should only be trusted when found with a proper brand name from a foreign drug maker. **Spiropent**, **Novegam** and **Oxyflux** from Mexico are the most common products here in the U.S., and all are safe buys.

From Europe, one should look for the popular brand names of **Spiropent**, **Broncoterol**, **Clenasma**, **Monores**, **Contraspasmin** and **Ventolase**.

Bulgarian Clenbuterol is also found commonly, but so are fakes. Look to be sure your box does not have too much English writing on it.

Ephedrine (ephedrine hydrochloride)

Ephedrine is a stimulant drug, belonging to a group of medicines known as sympathomimetics. Specifically it is both an alpha and beta adrenergic agonist (you may remember clenbuterol is a selective beta-2 agonist). In addition, ephedrine enhances the release of norepinephrine, a strong endogenous alpha agonist. The action of this compound is notably similar to that of the body's primary adrenergic hormone epinephrine (adrenaline), which also exhibits action toward both alpha and beta receptors. When administered, ephedrine will notably increase the activity of the central nervous system, as well as have a stimulatory effect on other target cells. This will produce a number of effects beneficial to the athlete. For starters, the user's body temperature should rise slightly as more free fatty acids are produced from the breakdown of triglycerides in adipose tissue (stimulating the metabolism). This should help the user shed subcutaneous body fat stores, enhancing the look of definition in the physique. The anabolic effectiveness of steroids may also be increased with this substance (mildly), as the metabolic rate is a measure of fat, protein and carbohydrate conversion by the body. An enhanced metabolic state could clearly hasten the deposit of new muscle mass.

This stimulant effect of this drug will also increase the force of skeletal muscle contractions. For this reason ephedrine is commonly used by powerlifters before a competition, as the resultant (slight) strength and energy increase can clearly improve the weight totals on major lifts. It may also provide a notable mental edge, as the user is more energetic and better able to concentrate on the tasks ahead. Many recreational weight lifters find this effect particularly welcome, and use 25-50mg of this stimulant as a regular adjunct to their training sessions. The user often feels capable of attacking the weights with much more intensity while taking ephedrine, and leaves the gym knowing they will have had a more productive workout. It is important that this compound not be used continuously for this purpose, as its effect will diminish as the body becomes accustomed to the drug. In most instances the user will take the drug only two or three times per week, usually on those days personally "important" (like chest day). The athlete is also wise to take a break (one to two months) from ephedrine treatment after several weeks have past, so as to continue receiving the optimal effect from this drug.

While the strength boosting effect of this drug is noteworthy, the primary application for ephedrine remains to be as a cutting agent. The athlete will generally take this drug a few times daily during dieting phases of training, at a dosage of 25 to 50mg per application. The widely touted stack of ephedrine (25-50mg), caffeine (200mg) and aspirin (300mg) is shown to be extremely potent for fat loss. In this combination, the ephedrine and caffeine both act as notable thermogenic stimulants. The added aspirin also helps to inhibit lipogenesis by blocking the incorporation of acetate into fatty acids. The athlete will be sure this stack is working by noticing an increase in body temperature, usually a degree or so (not an uncomfortable raise). This combination is taken two to three times daily, for a number of consecutive weeks. It is discontinued once the user's body temperature drops back to normal, a clear sign these drugs are no longer working as desired. At this point increasing the dosages would not prove very efficient. Instead a break of several weeks should be taken, so that this stack may once again work at an optimal level.

Ephedrine can produce a number of unwelcome side effects that the user should be aware of. For starters, the stimulant effect can produce shaky hands, tremors, sweating, rapid heartbeat, dizziness and feelings of inner unrest. Often these effects subside as the user becomes more accustomed to the effect of this drug, or perhaps the dosage is lowered. In general, those negatively impacted by caffeine would probably not like the stronger effects of ephedrine. The mental and physical state produced by this drug is also quite similar to that seen with clenbuterol, so those who find little discomfort with this treatment should (presumably) be fine with this item (and vice versa). While taking this drug one may also endure a notable loss of appetite, usually a welcome effect when dieting. Ephedrine is in fact a popular ingredient in combination (prescription) appetite suppressants. The user may further notice headaches and an increase in blood pressure with regular use of ephedrine. Those suffering from thyroid dysfunctions, high blood pressure or cardiac irregularities should also not be taking this drug, as it will certainly not mix well with such conditions.

As of late there is much discussion about the future availability of ephedrine. This is due to that fact that ephedrine tablets are used as the primary base for the manufacture of methamphetamine. This is you know is an illegal drug, made and sold illicitly. The structure of these two compounds is notably similar, as only a few chemicals are needed to change ephedrine into "meth". Since ephedrine is currently an over-the-counter product, underground manufacturers can easily obtain it. A trend involving large volume retail purchases for OTC ephedrine products has been developing, and many states are taking notice of it. With the widespread increase of amphetamine

addiction (and related crime) ephedrine may soon join the list of federally controlled substances. While some states have already taken action to restrict the sale of this stimulant, federal action would probably be required in order have a major impact on availability. Even if a particular state is aggressively preventing the sale of these products, a thriving mail-order market still exists to fill the demand. Thumbing through the back pages of many national magazines should make this clear, as we notice advertisements for companies which ship ephedrine tablets out by the thousand.

HELIOS (clenbuterol/yohimbine hydrochloride blend)

HELIOS is a new drug product that was developed for the spot reduction of stubborn areas of adipose (fat) tissue. The name HELIOS stands for Hyper Thermal Lipolytic System, and there is no question it is made solely for the bodybuilding drug market. It is produced by Generic Supplements, which is a popular underground steroid (and related drug) manufacturing operation located somewhere in Europe. Generic Supplements produces a full line of injectable and oral medications, ranging from standard bodybuilding drugs like testosterone suspension, methandrostenolone, oxymetholone and stanozolol, to clenbuterol, even obscure designer products Helios. Despite the relatively cheap appearance of the packaging, products from Generic Supplements are held in high regard among athletes at this time.

Helios specifically contains a mixture of clenbuterol hydrochloride and yohimbine hydrochloride, a potent beta agonist and alpha antagonist respectively. These two drugs are present in a concentration of 40mcg/mL (clenbuterol) and 5.4mg/mL (yohimbine), a balanced and appropriately dosed mixture for bodybuilding use. Clenbuterol and yohimbine work to promote fat loss through the same system (adrenergic), however they exert their effects through very distinct (but complementary) mechanisms. Clenbuterol, of course, is a potent beta-2 agonist, which directly and strongly stimulates lipolysis very much in the same way ephedrine does (though it is more selective in its actions). Yohimbine HCL is an alpha-2 receptor antagonist, which also promotes fat loss mainly by blocking the activity of other chemicals in the body. For a more comprehensive discussion of the side effects, dosing and actions of both pharmaceuticals, please refer to their respective drug profiles.

Helios spits in the face of anyone who claims that spot reduction is impossible. You see, some theorize that no agent can truly cause a localized reduction in adipose tissue, because all such drugs will ultimately reach circulation instead of remaining concentrated and active in the local region in which it was injection. If you follow this logic, nothing will ever be more than marginally effective at spot reduction until we can keep the drug isolated to one small region of the body. If you have used Helios, however, I doubt you will agree with this line of thinking. Most people are reporting excellent local fat removal with the use of this product; even to the point of swearing that the drug could quickly produce fat loss in areas that were stubborn and exceedingly difficult to get off with the use of conventional (oral) clenbuterol or yohimbine products.

This drug is obviously only found on the black market, so do not expect to find it being sold through the plethora of overseas Internet pharmacies catering to American athletes. You are going to have to find someone that deals strictly to bodybuilders. When located, a single 50ml vial will run you anywhere from $100-200, depending on how far up the chain (or greedy) your particular contact is. Currently fakes of this underground product are not known to exist, so it can be considered a reliable purchase when you do find it. As we have seen time and time again with underground labs that earn a good reputation on the black market (such as International Pharmaceuticals) however, this could quickly change at any time. It is also of note that an earlier version of Helios was being sold not that long ago, which was made as a two-part system (two bottles) that included T3 in addition to the clenbuterol and yohimbine. It was being made by QFS, an underground manufacturer operating out of Canada. Only the European version is being produced at this time. Generic Supplements apparently copied the product from QFS (minus the T3), however the idea of using clen and yohimbine injections for spot reduction ultimately came from Dan Duchaine[239].

Meridia® (sibutramine hydrochloride monohydrate)

Meridia (sibutramine hydrochloride) is a selective serotonin and noradrenalin re-uptake inhibitor, used for the medical management of obesity. This pharmaceutical was developed by Abbott Laboratories, who also sells it in many international markets under the brand name Reductil. Meridia is one of the more recent weight loss medications to reach the commercial drug market in the U.S., receiving Food and Drug Administration approval in 1998. This pharmaceutical is intended to be an adjunct to a reduced calorie diet, which will help increase weight loss compared to that achieved with modifying food intake alone. Meridia is not advertised as a rapid acting drug, but instead one that fosters slow, safe, and steady losses in fat mass, which are maintained long-term.

Sibutramine hydrochloride exerts a weight-loss effect through two distinct mechanisms. On the one side, it has a marked ability to suppress appetite. During some studies, patients would reduce their daily energy intake by as much as 1,300 calories while taking this drug[240]. In addition to its effects on caloric intake, sibutramine also stimulates metabolism and daily caloric expenditure. A single 10mg dose has been demonstrated to increase basal metabolic rate by up to 30%, an effect that is maintained for at least six hours. This thermogenic action is known to occur via the adrenergic system, mainly through the indirect support of beta 3 receptor activation. With the use of this drug, we are specifically seeing a strong increase in brown adipose tissue thermogenesis (BAT), which is accompanied by body temperature increases of .5 – 1 degree Celsius[241]. Elevated body temperature is a good indicator that thermogenesis is being triggered, which you may recall as one of the key things we are looking for when taking clenbuterol.

To get a better idea of exactly how well Meridia works, we can take a look at some of the recent clinical studies on this agent. One such investigation was conducted at the Kansas Foundation for Clinical Pharmacology in 2001. Here, a group of 322 obese patients were given either 20mg of sibutramine or placebo once daily for 24 weeks. By the conclusion of this study, 42% of patients in the sibutramine group lost 5% or more of their initial body weight, while 12% noticed a 10% or greater loss in body weight. Sibutramine was also associated with significant improvements in serum triglyceride and HDL cholesterol levels, which were displaying poor values at the onset of the study. Another detailed report emerged from the Department of Endocrinology for Rui-jin Hospital in China this same year, which involved giving only 10mg per day of sibutramine to a group of 120 men and women[242]. This investigation also faired extremely well, with patients losing an average of 15 pounds by the 24th week of use.

In what seems to be a rule for all prescription weight loss medications, sibutramine is not without its potential side effects. The most common is an increase in blood pressure, a trait that is strong and consistent enough to contraindicate the use of this drug in patents with high blood pressure or other cardiovascular issues. Other common side effects include dry mouth, sleeplessness, irritability, back pain, stomach upset, and constipation, all of which tend to become reduced in magnitude as the user becomes accustomed to the drug. Meridia should be discontinued immediately if any of the more serious side effects or symptoms of toxicity occur, including excitement, restlessness, loss of consciousness, confusion, agitation, weakness, shivering, clumsiness, rapid heartbeat, large pupils, vomiting, difficulty breathing, chest pains, swelling of feet, ankles or legs, fainting, disorientation, depression, high fever, eye pain, tremor, or excessive sweating.

Meridia comes in three strengths, 5, 10 and 15mg per capsule. The recommended starting dosage for most patients is 10mg once daily, which is to be adjusted upwards after 4 weeks if weight loss has not been sufficiently initiated. Once established, we commonly see the effective running dosage fall between 10 and 20mg per day. Meridia is classified as a schedule IV controlled substance in the United States, which imparts some legal consequences for distribution or possession. However, that is not to say the drug is extremely difficult to obtain. Being that obesity is a ubiquitous problem in the United States, the numbers of prescriptions written for this drug every year are quite high. Searching around for a short period of time will probably uncover a number of clinics that specialize in this type of therapy quite easily, some of which will likely dispense the drug through the mail. The drug is not currently extremely popular with athletes, although it does show up in related circles from time to time. Warranted or not, most tend to look at this as more of an appetite suppressant than a serious thermogenic, and will usually opt for any number of more potent drugs first.

Paylean® (ractopamine hydrochloride)

Ractopamine hydrochloride is a beta adrenergic agonist belonging to the phenethanolamine class of drugs. This agent is most commonly associated with the brand name Paylean, which is produced in many areas of the world by Elanco Animal Health. Ractopamine is approved for veterinary (livestock) use in 21 countries, including the United States. It is widely used as a repartitioning agent, intended to increase the yield of lean mass in treated animals, mainly pigs. It has just recently been approved in the U.S. for use in Cattle as well, where it is being sold under the brand name Optiflexx. The drug itself is mixed into the food supply, so that the animals take in measured amounts throughout their daily eating. Adding a beta agonist like this can have a dramatic and worthwhile effect on the yield of sellable tissues. For example, studies with Optiflexx show an additional 14 pounds of carcass weight when the animal is treated with the drug. At a cost of only $7 per head, it is easy to see the profitability of using it.

Ractopamine is an agent exclusively of veterinary medicine, so there is little human data to be found on it. Therefore, we need to look at the animal models in surmising its effects (the correlations are usually very strong, thankfully). Ractopamine has been shown to bind beta-receptor populations in adipose and muscle tissue of pigs with high affinity, with a balanced tissue distribution very similar to clenbuterol (the potency of ractopamine, however, was significantly lower than that of clenbuterol)[243]. Like clenbuterol, no particular affinity for one tissue over the other was noted with this agent. In rat and guinea pig models, the drug has been shown to function as both a beta-2 and beta-1 adrenoceptor agonist[244]. Here, a comparison of this agent to albuterol shows ractopamine to have a 100 fold stronger binding ability in beta-1 tissues, but with only 1/6th to 1/10th the beta-2 binding capacity. Binding capacity is but one view of the picture when it comes to how a drug works, however, and more general studies on the drug's effect in pigs have shown ractopamine to stimulate lipolysis primarily through beta-2 activation, but still with some notable beta-1 activity[245]. We can, therefore, continue to consider this a mixed beta-1/beta-2 agonist, with a stronger preference for the latter.

While the data on the anabolic benefits of beta agonists like ractopamine, clenbuterol, and zilpaterol are well documented in animals, they are not so in humans. Animal studies tend to use doses much higher than humans would use or even tolerate, and to date no human studies have shown the same pronounced effects. It remains a subject of debate if these products really offer any noteworthy muscle building value to bodybuilders or athletes at all. Regardless of this fact, beta agonists are still popular, and do have some undeniable value as fat loss agents and stimulants. Ractopamine, or Rac for short, did see a brief history of use as such before the doping agencies caught on. Those involved in horse racing seem to be especially fond of beta agonists as well, and routinely use these drugs to enhance the performance of animals on the day of an event. Rac undoubtedly helped win some ribbons before the racing organizations started testing for it.

Ractopamine is capable of producing a number of effects and side effects that are in line with beta-agonist-type drugs. This may include an increase in heart rate, sweating, restlessness, increased blood pressure, nausea, heart palpitations and shakiness (among others). For this reason, it is best to start with a low dosage and work upwards once you become accustomed to how the drug works for you. Also, beta-adrenergic receptors are subject to downregulation, so this drug will work optimally only for several weeks at best. At this point a break should be taken for at least several weeks, so that the drug may again work efficiently when resumed. Alternately, some opt to use ketotifen with beta-agonists like this, which works to prevent or reverse receptor downregulation. This can dramatically extend the useful span of these drugs. In general, ractopamine works in a similar manner to most beta agonists, and none of the effects or concerns discussed here are unique to this agent. For a more complete discussion on the effects, side effects, and benefits of beta agonists, please refer to the clenbuterol drug profile.

Today ractopamine is very much like clenbuterol, in that both agents are actively tested for in almost all competitive sports that ban the use of beta agonists and subject their athletes to urinalysis testing. This has really eliminated any interest that way placed on this drug in the first place. As such, ractopamine has disappeared back into relative obscurity, where it remains today. There are no human use preparations in circulation on the black market that anyone associated with this book have ever seen, and the likelihood that you will come across this drug is almost nonexistent. This profile therefore joins several others, which were provided more out of intellectual curiosity than actual real world benefit.

Yohimbine hydrochloride

Yohimbine HCL is a sympatholytic agent, which means that its main function is to oppose stimulation of the sympathetic nervous system. In this case, it is a specific antagonist (blocker) of alpha-2 adrenergic receptors[246]. Yohimbine HCL is a prescription drug in many countries, and is used, among other things, to increase low blood pressure, to dilate the pupil of the eye, treat male impotence and stimulate fat loss. Common brand names include Aphrodyne, Viritab, Yocon and Yohimex. Due to the fact that yohimbine occurs naturally, it is in somewhat of a gray area in the U.S., where it is being tolerated as on OTC supplement ingredient at this time. It is likewise readily available here, and is a very common ingredient in the enormously crowded market for fat loss products.

To understand how yohimbine works, you need to first understand that adrenergic lipolysis (fat loss stimulated by adrenergic or sympathomimetic hormones) in human adipose tissue is regulated in a dual nature by adrenoceptors (the receptors that respond to these hormones). Most notably, activation of the beta-1, beta-2 or beta-3 subtype increases the process of lipolysis; while activation of alpha-2 receptors diminishes it. Fat cells appear to be the only type of cells in the human body that exhibit such dual regulation by adrenoceptors[247]. By antagonizing alpha 2 receptors, yohimbine can shift the balance of sympathetic activity to a place that measurably stimulates lipolysis[248]. This is further enhanced by an intrinsic ability to increase synaptic norepinephrine release[249], one of the body's own natural lipolytic hormones. In effect, it serves both beta stimulating and alpha blocking properties, an ideal combination if we want to stimulate fat loss.

The typical dose used for fat loss is around 15-20mg, which is taken the first thing in the morning on an empty stomach. Some may opt to take a second dose later in the day, but this is an individual decision based on desired effect and tolerance to the drug's effects. Levels do build in the body over time, so it often takes a few weeks before you really notice any effect. When used at the recommended doses yohimbine is usually well tolerated. This is supported by not only anecdotal data but medical studies, which have shown single doses as high as 21.6mg, or daily cumulative doses as high as 43.2 mg, to have no significant impact on blood pressure or heart rate. This is, of course, the exact opposite of what would be expected of a beta-agonist like ephedrine, which is a potent stimulant. Side effects are still always possible with this drug however, and can include increased heart rate, sweating, nervousness, tremor, irritability, headache, dizziness and flushing. But these effects do tend to be very dose-related, so it is important not to overuse this drug in an attempt to produce a more dramatic fat-loss effect. One of the great advantages to yohimbine is that it can be a relatively comfortable compound to use. If taken in too high a dosage, you will see that change very quickly.

Overall I have to say that, at least as an oral product, the effects of yohimbine are not extremely dramatic. Most users notice "something", but rarely rave about a dramatic and rapid shedding of fat. It is of note that yohimbine seems to work most effectively in the fasted state, and its lipolytic action may be blocked if it is taken with a meal[250]. This may account for some of the negative reports at least. Still, you are likely to notice much greater fat loss with clenbuterol or an E/C (ephedrine, caffeine) stack than you will this agent. But then again, you would have to endure the strong stimulant properties of these drugs as well. It is also important to point out that several topical yohimbine HCL products have been introduced to the market recently, and many consumers are reporting greater success with these formulations. Some are claiming a strong "spot loss" effect, even to the point of being successfully used to locally treat lipomastia (fat buildup under the nipple that resembles/precedes hard-tissue gynecomastia). Although this is a controversial idea, and it is premature to make sweeping judgments, I can say for certain that topical yohimbine HCL products like "Yohimburn" are gathering a small cult following of users. This is probably for good reason, as products like this are not being heavily marketed right now.

Zaditen® (ketotifen fumarate)

Ketotifen is an antihistamine, which is, oddly enough, used for the treatment of asthma in addition to allergy symptoms (the main focus of antihistamine use). It is sold in a number of countries around the world, including Canada where it is available in both its brand name and generic forms. The drug is approved for sale in the U.S., but currently only as an ophthalmic anti-allergy solution (Zaditor), and not as an oral allergy/asthma medication. When used for asthma it is not effective in treating an immediate attack (it is not an immediate bronchodilator), but does seem to reduce the frequency and severity of problems overall when taken on a daily basis, as well as increase the efficacy of other asthma medications. This drug seems to have proven itself in the marketplace as a very safe, and effective, treatment option for persistent asthma or allergy symptoms.

Ketotifen works to alleviate allergy symptoms by blocking histamine H1 receptors. But it is through its second, extremely unique, mode of action that this agent helps with asthma: ketotifen is a potent upregulator of beta-adrenergic receptors, especially beta-2 receptors. This also makes it an extremely valuable compound when it comes to fat loss, at least in the bodybuilding world. Perhaps maybe not this drug directly, but when taken with a beta-2 agonist thermogenic like clenbuterol, the benefits are both obvious and dramatic. You see, clenbuterol has a limited scope of usefulness because beta-2-adrenergic receptors downregulate very quickly. Soon after you start using the drug, its benefits begin to diminish. Within several weeks, the drug is usually discontinued because it is no longer working very effectively as a fat loss agent. Zaditen changes all that. A dosage of 2-3mg per day (two to three 1mg tablets) seems more than sufficient to prevent the normal receptor downregulation with clenbuterol, allowing you to run long cycles instead of brief intermittent ones. Some are finding the combination of clen and ketotifen to be effective for 12-week cycles or longer, something nobody would have dreamed possible before Zaditen.

The ability of ketotifen to potentiate the effects of beta-adrenergic agents is not just theory. This fact has been demonstrated in a number of placebo-controlled human medical studies. For example, one study published back in 1990 demonstrated that when ketotifen and clenbuterol were taken together, there was a clear increase in beta-adrenergic receptor density compared to the use of clenbuterol alone[251]. Other studies with salbutamol show that the downregulation that had been caused by long-term use of this beta-adrenergic agent, was rapidly reversed with as little as 2mg of ketotifen per day[252]. All this just solidifies what almost everyone who uses the drug will tell you: it works, and it works well. There is little questioning how much of a breakthrough this agent is in the world of bodybuilding drugs. I suspect before long, you will not be able to mention the word clenbuterol without following up with Zaditen shortly after.

This drug does tend to produce some side effects that you should be aware of. This may include dry mouth, appetite stimulation, weight gain, or the drowsiness often associated with strong antihistamine compounds. But then again, this compound does seem to have a very good record when it comes to patient compliance and comfort, with users rarely reporting much trouble. Provided the drowsiness doesn't get to you (this side effect seems to be most noticeable with higher doses like 6-10mg per day), this drug can make a night and day difference on your next fat loss cycle, at least if you are planning to include a beta-agonist such as clenbuterol or ephedrine.

Zilmax® (zilpaterol hydrochloride)

Zilmax was the brand name given to zilpaterol hydrochloride, a drug first introduced to the veterinary market by the international conglomerate Hoechst Roussel. Its license has since been transferred to Intervet (another very large international veterinary drug company), who continues to sell it under the same Zilmax brand name. Zilpaterol is specifically a beta agonist, belonging to the same family of drugs as clenbuterol, albuterol, and ractopamine (among many others). This agent is currently being marketed in Mexico and South America as a feedlot additive, used for the promotion of lean tissue gain in livestock (cattle). It is typically administered in the food supply, during the final 40 days or so before slaughter.

The studies to be found concerning the use of beta-agonists for livestock growth are voluminous, and the practice is well accepted on a global scale. In accord with many drugs of this class, zilpaterol is also well suited for this purpose. Investigations conducted in Mexico with this agent, specifically, show a 27% improvement in the daily growth rate of cows[253]. Furthermore, the zilpaterol-treated animals consumed the same amount of food in dry weight during this experiment as the non-treated animals. This is of great value to the farmer, as no extra cost needs to be incurred in food. This inconsistency is accounted for by an improvement in metabolic efficiency towards muscle growth and fat deposition. Researchers measured this improvement in tissue gain vs. food consumer to be 28%, which correlates closely (for obvious reason) with the improved rate of gain.

Beta agonists are of interest to athletes for a number of reasons. One is for their documented effects of animal protein synthesis, which (potentially) suggests they can support muscle growth in humans. However, as studies with clenbuterol propose, the dosage used in animals is usually much higher than would ever be tolerated in humans. To date, no data has yet been presented that demonstrates a clear notable anabolic effect in humans with any beta agonist. Despite this ambiguity, some still believe these agents help, at the very least as additions to cycles with anabolic steroids. Also important is their lipolytic (fat metabolizing) properties. Beta agonists, specifically beta-2 agonists, have found favor amongst bodybuilders for cutting use, and are amongst the strongest agents in common use for fat loss. Furthermore, some athletes find favor in the stimulant properties of these drugs, sometimes using them during competition to improve speed and performance. Although possibly effective at some level for all of the named uses, it is important to point out that beta agonists can also have numerous strong effects/potential side effects, including increased heart rate, sweating, nervousness, heart palpitations, nausea, shakiness, and high blood pressure (to name just a few). For a more comprehensive overview of the effects and side effects of beta agonists, please refer to the clenbuterol drug profile in this book.

Zilpaterol was added to the World Anti-Doping Agency's list of prohibited substances in 2005. This makes zilpaterol a very recent addition, suggesting that this obscure little beta agonist may have recently caught their attention. This begs one to wonder if zilpaterol has been a recent "designer stimulant" of use so to speak, perhaps employed to fill the gap left by the previous isolation and testing of clenbuterol. Belonging to the same family of drugs, and displaying a similar preference for beta-2 receptors, it seems logical that zilpaterol would be a similarly effective substitute given the right dosage. Either this, or WADA is starting to become proactive, and has recently searched out certain beta agonists it had missed. Either way, the sports agencies now know about zilpaterol, and any value it may have held as an invisible drug is gone.

Zilmax itself comes in the form of a feedlot additive containing about 5% of the drug by weight. This makes use of this brand by humans impractical, unless one didn't mind strapping on the feedbag. Neither the Zilmax brand, not the drug zilpaterol itself, has gained any acceptance outside of the two limited markets it seems to be sold in either. No human forms of this beta agonist are known to exist. Given all of this, availability of zilpaterol has been virtually nonexistent. Those that have used this agent were likely obtaining the raw drug through a chemist or drug manufacturer dealing with zilpaterol. Given its recent introduction into the WADA list of banned substances, and the vigilance of drug testing in most sports as of late, it is not expected that zilpaterol will have much of a future on the black market.

Zaditen® (ketotifen fumarate)

Ketotifen is an antihistamine, which is, oddly enough, used for the treatment of asthma in addition to allergy symptoms (the main focus of antihistamine use). It is sold in a number of countries around the world, including Canada where it is available in both its brand name and generic forms. The drug is approved for sale in the U.S., but currently only as an ophthalmic anti-allergy solution (Zaditor), and not as an oral allergy/asthma medication. When used for asthma it is not effective in treating an immediate attack (it is not an immediate bronchodilator), but does seem to reduce the frequency and severity of problems overall when taken on a daily basis, as well as increase the efficacy of other asthma medications. This drug seems to have proven itself in the marketplace as a very safe, and effective, treatment option for persistent asthma or allergy symptoms.

Ketotifen works to alleviate allergy symptoms by blocking histamine H1 receptors. But it is through its second, extremely unique, mode of action that this agent helps with asthma: ketotifen is a potent upregulator of beta-adrenergic receptors, especially beta-2 receptors. This also makes it an extremely valuable compound when it comes to fat loss, at least in the bodybuilding world. Perhaps maybe not this drug directly, but when taken with a beta-2 agonist thermogenic like clenbuterol, the benefits are both obvious and dramatic. You see, clenbuterol has a limited scope of usefulness because beta-2-adrenergic receptors downregulate very quickly. Soon after you start using the drug, its benefits begin to diminish. Within several weeks, the drug is usually discontinued because it is no longer working very effectively as a fat loss agent. Zaditen changes all that. A dosage of 2-3mg per day (two to three 1mg tablets) seems more than sufficient to prevent the normal receptor downregulation with clenbuterol, allowing you to run long cycles instead of brief intermittent ones. Some are finding the combination of clen and ketotifen to be effective for 12-week cycles or longer, something nobody would have dreamed possible before Zaditen.

The ability of ketotifen to potentiate the effects of beta-adrenergic agents is not just theory. This fact has been demonstrated in a number of placebo-controlled human medical studies. For example, one study published back in 1990 demonstrated that when ketotifen and clenbuterol were taken together, there was a clear increase in beta-adrenergic receptor density compared to the use of clenbuterol alone[251]. Other studies with salbutamol show that the downregulation that had been caused by long-term use of this beta-adrenergic agent, was rapidly reversed with as little as 2mg of ketotifen per day[252]. All this just solidifies what almost everyone who uses the drug will tell you: it works, and it works well. There is little questioning how much of a breakthrough this agent is in the world of bodybuilding drugs. I suspect before long, you will not be able to mention the word clenbuterol without following up with Zaditen shortly after.

This drug does tend to produce some side effects that you should be aware of. This may include dry mouth, appetite stimulation, weight gain, or the drowsiness often associated with strong antihistamine compounds. But then again, this compound does seem to have a very good record when it comes to patient compliance and comfort, with users rarely reporting much trouble. Provided the drowsiness doesn't get to you (this side effect seems to be most noticeable with higher doses like 6-10mg per day), this drug can make a night and day difference on your next fat loss cycle, at least if you are planning to include a beta-agonist such as clenbuterol or ephedrine.

Zilmax® (zilpaterol hydrochloride)

Zilmax was the brand name given to zilpaterol hydrochloride, a drug first introduced to the veterinary market by the international conglomerate Hoechst Roussel. Its license has since been transferred to Intervet (another very large international veterinary drug company), who continues to sell it under the same Zilmax brand name. Zilpaterol is specifically a beta agonist, belonging to the same family of drugs as clenbuterol, albuterol, and ractopamine (among many others). This agent is currently being marketed in Mexico and South America as a feedlot additive, used for the promotion of lean tissue gain in livestock (cattle). It is typically administered in the food supply, during the final 40 days or so before slaughter.

The studies to be found concerning the use of beta-agonists for livestock growth are voluminous, and the practice is well accepted on a global scale. In accord with many drugs of this class, zilpaterol is also well suited for this purpose. Investigations conducted in Mexico with this agent, specifically, show a 27% improvement in the daily growth rate of cows[253]. Furthermore, the zilpaterol-treated animals consumed the same amount of food in dry weight during this experiment as the non-treated animals. This is of great value to the farmer, as no extra cost needs to be incurred in food. This inconsistency is accounted for by an improvement in metabolic efficiency towards muscle growth and fat deposition. Researchers measured this improvement in tissue gain vs. food consumer to be 28%, which correlates closely (for obvious reason) with the improved rate of gain.

Beta agonists are of interest to athletes for a number of reasons. One is for their documented effects of animal protein synthesis, which (potentially) suggests they can support muscle growth in humans. However, as studies with clenbuterol propose, the dosage used in animals is usually much higher than would ever be tolerated in humans. To date, no data has yet been presented that demonstrates a clear notable anabolic effect in humans with any beta agonist. Despite this ambiguity, some still believe these agents help, at the very least as additions to cycles with anabolic steroids. Also important is their lipolytic (fat metabolizing) properties. Beta agonists, specifically beta-2 agonists, have found favor amongst bodybuilders for cutting use, and are amongst the strongest agents in common use for fat loss. Furthermore, some athletes find favor in the stimulant properties of these drugs, sometimes using them during competition to improve speed and performance. Although possibly effective at some level for all of the named uses, it is important to point out that beta agonists can also have numerous strong effects/potential side effects, including increased heart rate, sweating, nervousness, heart palpitations, nausea, shakiness, and high blood pressure (to name just a few). For a more comprehensive overview of the effects and side effects of beta agonists, please refer to the clenbuterol drug profile in this book.

Zilpaterol was added to the World Anti-Doping Agency's list of prohibited substances in 2005. This makes zilpaterol a very recent addition, suggesting that this obscure little beta agonist may have recently caught their attention. This begs one to wonder if zilpaterol has been a recent "designer stimulant" of use so to speak, perhaps employed to fill the gap left by the previous isolation and testing of clenbuterol. Belonging to the same family of drugs, and displaying a similar preference for beta-2 receptors, it seems logical that zilpaterol would be a similarly effective substitute given the right dosage. Either this, or WADA is starting to become proactive, and has recently searched out certain beta agonists it had missed. Either way, the sports agencies now know about zilpaterol, and any value it may have held as an invisible drug is gone.

Zilmax itself comes in the form of a feedlot additive containing about 5% of the drug by weight. This makes use of this brand by humans impractical, unless one didn't mind strapping on the feedbag. Neither the Zilmax brand, not the drug zilpaterol itself, has gained any acceptance outside of the two limited markets it seems to be sold in either. No human forms of this beta agonist are known to exist. Given all of this, availability of zilpaterol has been virtually nonexistent. Those that have used this agent were likely obtaining the raw drug through a chemist or drug manufacturer dealing with zilpaterol. Given its recent introduction into the WADA list of banned substances, and the vigilance of drug testing in most sports as of late, it is not expected that zilpaterol will have much of a future on the black market.

FAT LOSS AGENTS - THYROID Drug Profiles

Cytomel® (liothyronine sodium)

Cytomel® is the popularly recognized brand name for the drug liothyronine sodium. This is not an anabolic steroid but a thyroid hormone. It is used medically to treat cases of thyroid insufficiency, obesity, certain metabolic disorders and fatigue. Specifically this drug is a pharmaceutical preparation of the natural thyroid hormone triiodothyronine (T-3). When administered, Cytomel® increases the patient's metabolism. The result is an increased rate of cellular activity (noted by a more rapid utilization of carbohydrates, fats and proteins). Bodybuilders are particularly attracted to this drug for its ability to burn off body excess fat. Most often utilized during contest preparation, one can greatly decrease the amount of stored fat without being forced to severely restrict calories. To this end Cytomel® is commonly used in conjunction with clenbuterol and can produce extremely dramatic results. This combination has become very popular in recent years, no doubt responsible for many "ripped" on-stage physiques. It is also noted by many that when thyroid hormones are taken in conjunction with steroids, an increased anabolic effect can be seen (noticeably greater than if the steroids are used alone). This is likely due to faster utilization of proteins by the body, increasing the rate for new muscle accumulation.

One should take caution if considering using this drug. Cytomel® comes with an extensive list of warnings and precautions which are not to be ignored. Side effects include, but are not limited to, heart palpitations, agitation, shortness of breath, irregular heartbeat, sweating, nausea, headaches, and psychic/metabolic disorders. It is a powerful hormone, and one that could potentially alter the normal functioning of the body if misused. When administering Cytomel®, one must remember to increase the dosage slowly. Generally one 25mcg tablet is taken on the first day, and the dosage is thereafter increased by one tablet every three of four days for a maximum dosage of 100mcg. This will help the body adjust to the increased thyroid hormone, hopefully avoiding any sudden "shock" to the system. The daily dose is also to be split evenly throughout the day, in an effort to keep blood levels steadier. Women are more sensitive to the side effects of Cytomel® than men, and usually opt to take no more than 50mcg daily.

It is important to stress that a cycle should last no longer than 6 weeks and it should never be halted abruptly. As slowly as the dosage was built up it should also be lowered, one tablet every 3-4 days. Taking Cytomel® for too long and/or at too high a dosage can result in a permanent thyroid deficiency. After doing such, one might need to be treated with a drug like Cytomel® for life. It is also a good idea to first consult your physician and have your thyroid function tested. An undiagnosed hyperfunction would not mix well with the added hormone. An athlete should also be sure never to purchase an injectable form of the drug. It is generally an emergency room product, much too powerful for athletic use. Since T-3 is the most powerful thyroid hormone athletes are using, this is generally not the starting point for a beginner. Before using such a powerful item, it is a good idea to become familiar with a weaker substance. The highly popular Triacana is very mild, allowing the user much more latitude (from severe side effects) than Cytomel®. An in-between point is Synthroid (synthetic T-4), still weaker in action than Cytomel®. Once the user is ready however, the fat burning effect of this hormone can be extremely dramatic.

On the black market, Cytomel® is readily available. 100 tablets (50 mcg) will sell for approximately $50. This price is considerably reduced when purchasing this drug from a variety of mail-order sources. Even lower in price is the Cynomel brand in Mexico. The pharmacy price for 100 25mcg tablets is only a few U.S. dollars.

Synthroid® (levothyroxine sodium)

Synthroid is a popularly referenced brand name (U.S.) for the drug levothyroxine sodium. Specifically this is a synthetically manufactured thyroid hormone, with the effect of the endogenous hormone thyroxine (T-4). Thyroid hormones are primarily responsible for regulating the body's metabolic rate, and play an important role in determining one's physical disposition. When thyroid preparations are administered, the metabolism is markedly stimulated. This is noted by the faster conversion of carbohydrates, proteins and fats, as the body utilizes more calories throughout the day. These hormones are used medically to treat cases of both thyroid dysfunction and obesity (due to a related deficiency).

The action of this drug is very similar to that of the popular thyroid preparation Cytomel®. Cytomel® is slightly different is structure however, being a synthetic triiodothyronine (T-3) hormone. A healthy individual with actually have sufficient levels of both T-3 and T-4 thyroid hormones present in the body. In comparison, T-3 has an effect roughly four times stronger than that of T-4 on a weight basis (most of T-4's action actually comes from converting to T-3). This is clear when we look at the average tablet strength of both items, Cytomel® produced in much smaller microgram amounts. Likewise the preparation Cytomel® is a much stronger product than Synthroid, and is usually the preference should both items be available. Since Synthroid is much weaker, an athlete will generally expect to take the drug for a longer duration than Cytomel® in order to achieve a similar result.

Thyroid hormones are among the most efficient cutting agents in the athlete's drug arsenal. Administration should noticeably increase the rate in which the body breaks down fat stores, allowing more muscle definition to become visible. And since the body is utilizing more calories during treatment, the need for drastic dieting is greatly reduced. This is an added benefit during contest time, as muscle mass is often sacrificed when nutrients are severely deprived. Thyroid use will generally allow the athlete to burn off body fat while still consuming a comfortable level of calories each day. Anabolic steroids are generally used in conjunction with these hormones, as the metabolism boosting effect may result in faster muscle gains (increased protein utilization). This leads some to use thyroids during off-season bulk cycles, looking to obtain a greater muscle mass gain while accumulating less body fat than typically expected.

The dosage of this drug, as with all thyroid medications, must be built up slowly and evenly. An athlete will generally start with a low dosage of 25-100mcg (1/4-1 100mcg tablet) and slowly increase the amount 25-50mcg each day or two. The final dosage should not exceed 200-400mcg (2-4 100mcg tablets). With thyroid medications you run the risk of permanently altering your metabolic functioning when administering too high a dose or continuing treating for too long a period. Cautious individuals will be sure not to use excessive amounts nor continue treatment for longer than 6 or 8 weeks. On the same note it is important to reduce your Synthroid dosage gradually at the end of your cycle, just as the dosage was built up in the beginning. Dropping the dosage by 25-50mcg every second or third day should be an acceptably gradual withdrawal. This will give your body a chance to become more adjusted to the changing hormone level and avoid the "shock" that is possible when the drug is suddenly discontinued.

There are a number of side effects associated with Synthroid that a potential user should be aware of. These include, but are not limited to, trembling, excessive sweating, diarrhea, insomnia, nausea, elevated heart rate, inner unrest and weight loss. Mild occurrences of such side effects are usually eliminated by temporarily lowering the daily dosage. If the side effects are becoming uncomfortably pronounced, the drug of course should be discontinued. Again, abruptly stopping the drug may produce more unwelcome side effects; so tapering at this point is still recommended if possible. In an effort to avoid any severe problems, many athletes opt to first visit a doctor and have thyroid functions screened before committing to use. A previously unnoticed thyroid hyperfunction can prove very troublesome to someone administering this drug.

Although L-thyroxine is a widely manufactured drug, it is not a regular item on the black market. This is likely due to that fact that the stronger Cytomel® or much weaker Triacana are usually preferred. If this item is found in circulation there should be little doubt about its legitimacy.

Triacana® (tiratricol)

Triacana is a popular trade name for the thyroid preparation tiratricol. Specifically this compound is a naturally occurring metabolite of the endogenous thyroid hormone triiodothyronine (T-3). The thyroid gland in fact produces two primary hormones, identified as T-3 and T-4 (thyroxine, which converts to T-3 in the body). Together these structures are the main regulators of the body's metabolism. Both of these basic hormones are also being synthetically manufactured, and are sold under the brand names (among others) of Cytomel® (T-3) and Synthroid (T-4). Triacana is a rapidly metabolized form of the T-3 hormone, and its action is comparatively much weaker than both of these preparations. When administered, all of these substances should markedly increase the metabolic rate. This is noted by an increase in the conversion rate of carbohydrates, proteins and fats. This basically means that the body will utilize nutrients at a much faster speed, due to increased cellular activity.

The medical use for thyroid preparations is for the treatment of thyroid dysfunction and obesity. In addition, Triacana is particularly effective with cases of hyperthyroidism (a disorder in which the body overproduces thyroid hormones). The intake of tiratricol can markedly reduce the secretion of TSH (thyroid stimulating hormone), thus regulating hormone production in the body. Bodybuilders however, find the metabolic boosting effects of these substances exceptional for burning off excess body fat. Even without extreme dieting, Triacana (and related) can lower subcutaneous fat stores, bringing about a harder, more defined look as muscle features become more visible. Without the use of thyroid hormones, the athlete will no doubt be forced to diet much more extremely. This is often done at the expense of muscle tissue, as it is difficult to retain the mass while the proper nutrients are being restricted. Competitive bodybuilders therefore find these hormones invaluable, used to drastically improve the quality of a show physique.

When looking to a thyroid product, the user obviously will have to decide which hormone to utilize. Triacana is the most popular choice since it is considered much safer than the others. When manipulating thyroid levels, a gamut of side effects should be taken into consideration. These include, but are not limited to, trembling, excessive sweating, diarrhea, insomnia, nausea, elevated heart rate, inner unrest and weight loss. The most unwanted side effect being the possibility of permanent thyroid dysfunction. While the use of Cytomel® must be carefully planned and specifically carried out, Triacana allows the user much more latitude. For starters, it is much less likely that a mistake in dosage or duration will result in severe and/or permanent side effects with this drug. Serious disturbances in thyroid functioning just do not seem to be an issue with this compound. Triacana is also cleared from the body much more rapidly than other thyroid hormones, a very welcome trait should the user begin to notice discomfort during treatment. It is no doubt the thyroid hormone a beginner should select.

The administration of Triacana is similar to that of the other hormones. The maximum dosage should not be taken from the onset; instead it is to be built up slowly. Being such a mild product, the effective dosage is in the range of ten to fourteen .35mg tablets per day. Two tablets is the customary starting point, a dosage that is to be increased by two tablets every day (or two). Tiratricol has a half-life of approximately six hours, so the daily dosage should be divided evenly through the day to keep blood levels more uniform. Also, athletes usually use thyroid hormones in conjunction with steroids, noting an increased anabolic effect due to faster protein conversion. It can also be combined with other cutting agents like clenbuterol, providing an even more dramatic fat burning effect. Athletes will generally limit the duration Triacana is to be taken, fearful of running into health complications. Although this is not a huge risk, using this compound for no longer than three months, with longer break intervals, is a good way to be sure. Remember that the dosage must be lowered in the same manner it was built up; two tablets less each day or two. Sudden discontinuance of thyroid hormones is likely to bring about many unwanted problems.

On the U.S. black market 100 tablets of Triacana usually costs approximately $75-100 when located. The French version is found almost exclusively, produced by the Medgenix Company. This version is packaged in boxes of 100, packed in four strips of 25 tablets each. It is interesting to note that this item was introduced to the. Sports supplement market briefly a few years ago, making tiratricol available to U.S. bodybuilders over-the-counter at a very reasonable cost. Its status as a legitimate supplement, however, quickly came into question by the FDA. Deeming it an unapproved new drug, and not a natural supplement as claimed by the manufacturer, the product was pulled. The FDA went so far as to show up at the warehouses of a few supplement companies to confiscate their inventories. To the best of my knowledge no charges were ever filed, but they did succeed in quickly making the product unavailable. The total life span of tiratricol as a supplement was only about 8 months, after which the black market once again became the only source for this drug.

FAT LOSS AGENTS - OTHER Drug Profiles

Adipex-P® (phentermine hydrochloride)

Phentermine is a very popular prescription weight-loss drug in the United States. You may recognize it as one of the constituents in the controversial and now illegal weight-loss stack Fen-Phen, which stood for fenfluramine and phentermine. Fenfluramine was withdrawn from the market not long ago due to side-effect potential, however phentermine is still being sold. It is specifically a sympathomimetic stimulant of the amphetamine family, and is categorized (as other amphetamine derivatives) as an anorectic agent. This is just a scientific term for describing an appetite suppressant. Phentermine is prescribed for short-term use (usually 3-4 weeks) by obese patients, as an adjunct to support an ongoing exercise and dieting regimen.

The main focus, obviously, is to curb the desire to eat and thereby reduce the total caloric intake. To accomplish this, the typical daily dosage used is a single 37.5mg tablet per day, which is taken in the morning before breakfast (for optimal effectiveness it should not be taken with food). In some cases only a half a tablet per day is required, while in other it is best to take the full 37.5mg dosage each day, but to divide it between two separate applications instead of one. When taken more than once per day, the second dose should never be taken within 4-6 hours of bed. Although the data seems to vary from trial to trial, much of it supports at least a modest additional loss of fat mass with the use of phentermine[254].

As an amphetamine derivative, this medication also has a tendency to be habit forming if overused. For this reason it has been added to the U.S. controlled substances list, specifically as a schedule IV medication. If you are looking at including this in your next diet, make sure to take caution only to use it for a limited duration. There are also a number of potential side effects with a stimulant drug like this, including overstimulation, restlessness, insomnia, dizziness, headache, increased blood pressure, hypertension, heart palpitations, dry mouth, constipation, diarrhea, libido changes and impotence. Obviously the dosage should never be increased for the sake of trying to obtain a euphoric effect from the drug.

Phentermine is commonly sold in strengths of 15mg, 30mg and 37.5mg per tablet/capsule. At a U.S. pharmacy, the higher dosed version will run you about a dollar or so per dose. Name brand Adipex-P will run you another 50 cents or so. If you don't have a regular doctor to prescribe this agent, it would not be advised to try ordering it from overseas. Being a schedule IV controlled substance, having it mailed to you would carry the same legal ramifications as ordering Valium or anabolic steroids. Should you decide you want to take it, your best bet (legally) would be to look for a U.S. doctor that specializes in weight loss medications. I, for one, get about a dozen unsolicited emails each week from clinics offering to prescribe me phentermine, so I don't think it will be too hard for you to find one if you look.

Capoten® (captopril)

Captopril is an angiotensin-converting enzyme (ACE) inhibitor, used medically for the treatment of high blood pressure. Although the exact underlying mechanisms behind the activity of captopril are not fully understood, it appears to lower blood pressure and have beneficial effects on blood circulation in patients with congestive heart failure mainly by suppressing the renin-angiotensin-aldosterone system. It is a particularly effective medication in fact, and considered both as the first course of therapy or after other less powerful agents have failed to produce a desired response. Athletes are usually not using this drug to lower blood pressure however, at least not as the primarily purpose. In this arena captopril is of interest for its potential anabolic, thermogenic and diuretic qualities. Before going any further it is important to state that it is not recommend for anyone to take captopril unless they are already hypertensive from using anabolic steroids, as a potential dangerous drop in blood pressure may result.

Most athletes using this drug are hoping it will help promote fat loss. This use of captopril was first brought to our attention in and article by the writer Dharkham in Dan Duchaine's Dirty Dieting newsletter[255]. The suggested mechanism of action was a reduction of alpha-2 adrenoceptors, receptors that work against lipolysis in fat cells. If captopril were able to effectively lower alpha-2 levels in fat cells, it would certainly have quite a bit of potential in this regard. And indeed many who have used it do attest to the fact that it is a good cutting drug, often claiming they have a higher calorie threshold for fat loss/gain when taking the substance. Others however vehemently disagree with this use for captopril, and say they found it sorely lacking as a fat-loss agent. I did notice one study of great interest, showing that with 2 weeks of chronic administration it caused no significant changes and alpha-2 or beta-2 adrenoceptors[256]. A second however, using the drug for 16 weeks, did note a reduction in alpha-2 receptors[257]. If it simply takes longer to notice strong receptor downregulation, then captopril would work with prolonged use. However this would also make it a definite delayed gratification drug, and no doubt less than popular with bodybuilders. More immediately however, this drug does lower aldosterone levels and water retention. Even if not highly thermogenic, many will still no doubt find a use for the mild diuretic action of this drug.

Another interesing thing about captopril is that it has been shown to increase insulin sensitivity. Despite being integral to the deposition of body fat, we must remember that insulin is also an extremely potent anabolic agent in the human body. It is a nutrient transport hormone, responsible for the uptake and utilization of proteins, carbohydrates and fats, and is even a strong promoter of protein synthesis in muscle tissues. Athletes have found that by manipulating insulin levels, and even insulin sensitivity, in the right window of time after training, they can produce dramatic anabolic effects. To this end studies with captopril look very promising. One for instance looked at the effect of captopril on insulin sensitivity in obese rats, noting it to increase this in both liver and muscle tissues[258]. Perhaps an even better study to look it is one conducted in Japan in 1994, investigating the underlying mechanisms involved in this action of captopril. Here researchers showed that the drug actually increased the expression of glucose transporter 4 (GLUT4) in skeletal muscle[259], a definite positive effect in terms of glucose transport and metabolism in muscles. One would likely take captopril in conjunction with insulin for maximum effects, however should be cautious with the dosage as the effects of insulin may be notably enhanced in the presence of this drug.

The suggested dosage schedule includes starting with only 25 mg, or 1/2 tablet per day. Due to its tendency to cause fatigue, the dosage is usually taken at night before bed so as to not interfere with the quality of ones day or training. This dosage can be increased over time, but no more than 50 or 100 mg is ever suggested per day. And due to the previously mentioned risk of low blood pressure, one should certainly not mistake this as a recommendation to take one or two tabs per day and not worry about it. Due to the already mentioned risk of low blood pressure, one should take extreme caution when fiddling with this drug. Symptoms of this include dizziness and weakness, which may indicate a need for immediate medical intervention, so take extreme caution. It is especially advisable to take care and follow your blood pressure. Aside from the primary worry of low blood pressure, other potential side effects of this drug are numerous and include the mentioned dizziness, headaches, diarrhea, constipation, loss of appetite, nausea, flushes and fatigue.

DNP (2,4-Dinitrophenol)

DNP is one of the most controversial drugs in use by bodybuilders today. This agent is not sold for human use anywhere in the world at this time, but is readily available as an industrial chemical. Among other things, it is used as an intermediary for the production of certain dyes, for photographic development, as a fungicide, in wood pressure-treatment to prevent rotting, and as an insecticide. Although quite incongruous with this list of strong industrial/chemical uses, it was also sold a long time ago as a diet drug for humans. In fact, it was the first synthetic drug that was ever used for weight reduction in this country. Popular brand names included Dinitriso, Nitromet, Dinitrenal and Alpha Dinitrophenol, and at the peak of DNP's popularity could be found in pharmacies all across the country.

As the story goes, the fat-loss properties of DNP were first noticed during World War I, when overweight men working with DNP in munitions plants started losing substantial amounts of weight. It did not take very long for this chemical to be packaged as a drug product, and by 1935 more than 100,000 Americans had used "patent medicine" remedies that included DNP. It was being widely advertised as a new, safe and effective way to get thin. But it didn't take long for reports of side effects to start pouring in. One such incident involved a dozen women in California, who were temporarily blinded by the drug. Numerous reports of DNP linked cataracts were coming in from all over, from countries like the U.S., France and Italy. It was said to be happening with doses as little as 100mg daily when taken for longer periods. With such highly unfavorable safety reports, the drug was soon pulled. By 1938, just three years later, it was off the market for good.

Dinitrophenol induces weight loss by uncoupling oxidative phosphorylation, thereby markedly increasing the metabolic rate and body temperature[260]. While this is an extremely effective way of producing rapid weight loss, there seems to be no ceiling to DNP's temperature increasing effect. Herein lies perhaps its most dangerous trait; it may allow body temperature to rise to level that can be damaging, even fatal. Writer Carl Malmberg made perhaps one of the earliest and most famous quotes about this back in the 1930's, when he reported about a physician who was "literally cooked to death" from using it. This was no isolated case either, and the dose used was probably not frighteningly high. A man recently died on Long Island, for example, after taking DNP for only four days. The dose used was reportedly 600mg per day, just three capsules of the now underground "standard" amount of 200mg. No doubt he thought the dose he was using was going to be safe – it wasn't.

The typical dose used by bodybuilders is reportedly 2mg per kg of bodyweight each day. This would mean a dose of 200mg if you weigh in at about 220 pounds. This seems to be the dose most underground sellers of DNP are putting in their capsules. At this level, admittedly, the fat loss can be scary it is so rapid. Some people are capable of losing 1/2 to one pound of fat weight, each and every day, with its use. This can mean a drop of 15 or 20 pounds in only a few weeks. Not many weight-loss drugs even come close to this. But then there are its many potential side effects, including increased heart rate, breathing rate, nausea, elevated body temperature, insomnia, profuse sweating, rash, decreased white blood cell count and death. The strong incidence of any side effect should immediately indicate a need to stop using the drug, unless of course you are dead, in which case this will work itself out.

I was hesitant to even include a profile on this drug in my book, for fear it might entice someone, who otherwise may not have known about it, to use it. But ultimately I decided it would be better to include it. The true story of DNP is a scary one, and now more than ever needs to be told. Bodybuilders need to understand that the reemergence of underground DNP in the 1990's is not a revolutionary new achievement in fat loss, but a scary reiteration of one of our biggest past mistakes. It is a drug from a time when an unregulated market was allowing dangerous chemicals like this to harm the public. The Food and Drug Administration (FDA) exists today because we need to protect ourselves form things like this. The lessons learned in the 1930's should not be forgotten. DNP is a dangerous drug, and should be avoided. There are much safer ways of losing fat!

Lipostabil N (phosphatidylcholine/sodium deoxycholate)

Lipostabil N is an injectable medication that contains phosphatidylcholine (PPC), a natural phospholipid. Sodium deoxycholate (a bile salt) is also added (among other ingredients) to solubilize PPC in water. Lipostabil is a relatively old medication, first appearing back in the 1950's. It was originally developed as an intravenous solution for the improvement of lipid values, reduction of arterial plaque, improving liver values, and the prevention or treatment of blood vessel blockages by fat particles (fat embolism). It is approved as an intravenous drug in a number of countries, including Germany, where the Lipostabil N brand is produced by Nattermann. Lipostabil has also had a very popular off-label use over the past several years, namely as a localized fat loss agent. Clinics in many areas of the world including Brazil, Europe, and the United States have actually marketed this as a non-surgical alternative to liposuction. In recent years, bodybuilders have been paying some attention to this drug as well, using it as a cutting or finishing agent.

The mechanism behind Lipostabil's lipolytic (fat loss promoting) effect is quite interesting. Upon injection, the solution acts as a detergent, causing nonspecific lysis (breakdown) of cell membranes[261]. The bile salt sodium deoxycholate is actually believed to play an important role here, and is therefore being considered an active constituent of Lipostabil for the context of this profile (it is normally considered an inactive ingredient). During this process the fatty acids stored in the cell membrane are released, which includes arachidonic acid. This will trigger the inflammatory cascade, benefiting lipolysis (the inflammatory system can be a powerful remodeler of body composition) but also causing unwelcome pain and swelling. Phosphatidylcholine itself also triggers the release of lipases used in the removal of fat[262]. All of this works together to dismantle localized fat stores, which are removed via the liver in the form of gall acids.

The typical practice for using this drug involves a series of subcutaneous injections. A total dosage of 1,250-2,500mg is used, which equates to 25-50mL of injectable solution (5-10 5mL ampules). This is not given in one shot, but instead is divided into 20 or more separate smaller injections. These are spaced throughout the problematic area (quite commonly the abdominals or thighs), and are given all during the same office visit (or application period). These injections will end up leading to a significant amount of inflammation in the area, which may take a week or longer to fully subside. When the inflammation does subside, it usually unveils a noticeable amount of fat loss. In a clinical setting, this procedure is often repeated a few times, so as to sculpt the area and achieve the desired fat reduction. The current guidelines set forth by Network Lipolysis (an organization of some 350 doctors worldwide) call for an 8-week break between treatment periods.

Although some doctors think of the off-label use of Lipostabil for cosmetic use as very controversial, it doesn't seem like a particularly scary practice when you look at the available data. Lipostabil itself has been widely used as an intravenous drug for more than 40 years, and has displayed an excellent safety profile. It is difficult to believe injecting the same drug subcutaneously will present any new and serious risk to the patient. Network Lipolysis already reports over 18,000 treatments of subcutaneous Lipostabil injection without one unexpected adverse event, an excellent record by any standard. Dr. Hasengschwandtner, the Medical Director of Austrian clinic Therapy Centre Bad Loefelden, has further reported on bilirubin and gamma glutamyl transferases (markers of liver stress) values after subcutaneous Lipostabil use[263], to see if this new method of fat remodeling is causing liver strain. The results were in line with I.V. use, showing no abnormal change in these values. Although we do not have a great deal of data on this off-label use of Lipostabil, what can be found is generally very positive, and suggests this drug (or natural drug if you will) is quite safe.

Lipostabil is not a controlled drug in the U.S. or Europe, and as such is fairly easy to obtain on the black market or via mail order drug distributors. "Mesotherapy" clinics selling the procedure are easy to find as well, however the price required for undertaking the therapy is quite exorbitant in most cases. This leads many bodybuilders to simply self-administer the drug. It is worth noting that Lipostabil contains a high alcohol content, which may further irritate the injection site. When taken outside of a clinical setting, it may be a good idea to apply your first course at a much lower dosage, just to find your individual sensitivity to the drug. Some find it simply too painful to use, while others seem to tolerate the whole procedure extremely well.

As for the ultimate question of how well it works, it is difficult to give exact numbers, as few clinical studies have been conducted on this use of the drug. The anecdotal feedback, however, is definitely promising. Most people who try it seem to report positive results, particularly for the removal of those last stubborn areas of fat interfering with muscle definition. There do not seem to be any dramatic life altering reports of weight loss, nor does it seem to be the "pharmaceutical liposuction" that some clinics describe it to be, but the reports of visible

improvements in fat loss and muscle definition are too consistent and compelling to dismiss. If you were extremely overweight, I wouldn't expect this product to perform miracles for you. As a finishing touch for the well-put-together bodybuilder, however, it may indeed just do the trick.

Thiomucase® (mucopolysaccharidase)

Thiomucase is a mucopolysaccharidase obtained from the tissues of sheep. A mucopolysaccharidase is an enzyme that breaks down mucopolysaccharide substances such as mucins, which are proteins produced in the mucous membranes. Thiomucase is usually found as a topical formulation, where it is used to facilitate the diffusion of local anesthetics and in the treatment of cellulites (inflammation of subcutaneous or connective tissue). It is also used as a general spreading agent, mixed with other topical drugs to help increase their speed/area of transport. Bodybuilders have additionally found an effective off-label use for Thiomucase, namely as a "spot reduction" agent. It is used in the days leading up to a show to pull water from fat cells and cellulite, and tighten up last minute troubled areas before a stage appearance.

There are some misconceptions surrounding the potential use of this product with injectable steroids. Thiomucase cream is used to aid in the dispersion and transport of topical or subcutaneously administered drug products. It will not have any effect on the release of a steroid deposit sitting deep inside the belly of a muscle. In the world of bodybuilding, this agent is not really used for drug transport. There is, likewise, a lot of science that could be discussed concerning the mechanisms in which Thiomucase works, but it would be of little relevance. In this arena, Thiomucase has only one primary purpose – spot reduction. It is administered in a manner not unlike how some models use preparation-H to remove puffiness from their eyes, or small traces of cellulite on their buttocks, before a photo shoot. To use Thiomucase, one simply rubs it directly into the targeted areas, once or twice daily for a period of 1-2 weeks.

Thiomucase is readily available throughout Europe and South America, where it is typically sold as a non-prescription product. Bodybuilders in the U.S. will routinely order it from international pharmacies, being that there are no legal restrictions on its importation. The going price for a 45g tube is around $10-20, which is probably about as much as shipping is going to cost to get it here. Many American companies have also imported this product over the years, mainly from France, and have sold it on the open market as a cosmetic or "gray area" supplement. However, such sources do not currently seem abundant, leaving international sellers as the primary source for this product in the U.S.

GROWTH HORMONES & RELATED Drug Profiles

Catapres® (clonidine hydrochloride)

Catapres® is a widely used high blood pressure medication containing the drug clonidine hydrochloride. It is available in a number of different preparations worldwide, designed for injectable, oral or ocular administration. Athletes are interested in Clonidine for two reasons. The first being the prescribed purpose for the drug, namely lowering high blood pressure. Athletes often encounter this side effect when using strong androgens (usually with a high rate of estrogen conversion). High blood pressure can be not only uncomfortable, but also dangerous. The risk for serious cardiac (among others) disorders greatly increases as blood pressure rises. This worry is amplified by the fact that the steroids are likely interfering with cholesterol levels at the same time. In an effort to suppress this side effect, some users will addition an anti-hypertensive drug like Catapres instead of quitting the offending anabolics. In many cases the blood pressure can be lowered and the cycle safely continued. In other instances taking a break from steroids and visiting the doctor for a full exam would much better serve the person.

Catapres provides the athlete another interesting benefit. The technical literature regarding this drug shows that it can stimulate endogenous growth hormone secretion. This effect seems to occur soon after administration and lasts for several hours. It can apparently raise levels enough to elicit an anabolic and thermogenic effect. The general regimen among athletes is to take two doses per day, morning and night. A single 150mcg tablet is administered upon rising in an effort to elevate growth hormone levels throughout the day. An additional dose of 300mcg is administered right before sleep, hopefully resulting in a significantly raised GH level overnight. The higher dose, although more effective, is to be given at night and not when rising. This should minimize some of the more undesirable side effects from happening during the day. Such side effects include fatigue, lethargy, dry mouth, dizziness and sexual disturbances. It is also particularly important not to use this product if you already have low blood pressure. It is generally only used when blood pressure is rising, so as to warrant an action by the athlete and not solely as an anabolic. A healthy individual with a slow, athletic heartbeat and low-normal blood pressure runs the risk of severely compromising their health by lowering their blood pressure to an unsafe level. The consequences can be drastic, if not life threatening.

Although somewhat of an interesting compound, Catapres is not in high demand among athletes. The side effects and safety issues associated with it make it unattractive to most potential buyers. Should one come across this on the black market it can be considered a safe buy, as no counterfeit operation is likely to be interested in duplicating this.

Geref® (sermorelin acetate)

Geref contains the active substance sermorelin acetate, which is a synthetically manufactured form of the endogenous growth hormone-releasing peptide (GHRH or GRF). The composition of sermorelin is actually just a portion of this polypeptide hormone, containing 29 of the 44 amino acids that make up its structure. It does, however, display the full activity of the parent, so one should not worry that the lack of entirety will affect the potency of this drug. Geref was approved for sale in the U.S. in 1997 as a diagnostic tool to evaluate a possible pituitary deficiency. It is being further assessed as a possible substitute to injectable growth hormone in patients with an existing deficiency, although one does wonder how far this avenue will be taken given the more recent approval of recombinant human IGF-1. In addition to the U.S. product, Serono has opened markets for Geref in a number of other countries.

GHRH increases the level of growth hormone in the blood by stimulating the pituitary gland to manufacture more of this hormone. This makes Geref a useful diagnostic tool, since a failed response to an injection (no GH elevation) should indicate a problem with the pituitary gland (or related). The standard practice is to sample the blood growth hormone level, then administer a single intravenous injection of Geref (1-2mcg/kg). The blood GH level is then recorded at 15 minutes, 30 minutes, 60 minutes, and 120 minutes (4 samples are taken after the shot), and compared against the first reading to judge the level of response. Many are confident this is just the beginning, and believe GHRH may one day prove to be an efficient GH replacement drug. One can liken such a practice to the way HCG (human chorionic gonadotropin) is used to increase the production of testosterone in the body. Just as is the case with testosterone, the body is capable of producing much more GH than it typically does. It is quite possible that regular use can produce a level of elevation consistent with an HGH replacement regimen.

Athletes would, of course, be attracted to this drug for the same reasons they use HGH. Among other things, an elevated growth hormone level can elicit new muscle growth, increase fat loss, enhance energy levels and strengthen connective tissues. The thermogenic and anabolic properties of growth hormone are readily known among bodybuilders and competitive athletes, many of who rely heavily on this compound. If GHRH is able to sustain a GH elevation great enough for a beneficial effect (it appears to be), then it may enjoy great popularity on the black market in the years to come. As with HGH, one should remember that the full anabolic effect would be achieved only with the addition of other compounds. Most importantly, the body will have a heightened requirement for thyroid hormones, insulin, and androgens. It is typical to add a small dosage of Cytomel® (T-3 thyroid) and a long acting injectable androgen like testosterone enanthate. In addition, many find the daily use of injectable insulin to be particularly beneficial for enhancing new muscle growth potential.

Sermorelin acetate does not remain active in the body for very long, so injections of this drug are to be given daily. The athlete will inject the solution intramuscularly or subcutaneously (never IV), in order to extend its release time. The exact dosage that would be needed is currently unclear, however. Early reports suggest that 1mg of GHRH (subcutaneous injection) would have roughly the equivalent effect of 1mg rHGH (approximately 3 IU's). With such level of efficiency, one would assume that a daily dosage of .5 to 1mg would prove sufficient for performance enhancement. This would equate to 10 ampules of Geref, however, which is quite a bit of drug to take (the powder can be mixed with less diluent so as to reduce volume). GHRH, of course, is so new that a standard injection protocol has not yet been established with athletes. It may come to be that more or less is actually needed in order to receive noteworthy results (hopefully less).

The physical appearance of sermorelin acetate is very similar to Growth Hormone. It comes packaged in two separate ampules, one containing a lyophilized powder (the active constituent) and the other a sterile dilutant. Each ampule pair will provide 50mcg of sermorelin acetate, and will obviously need mixing before use. Just as with HGH, the patient must be very careful not to disturb the contents much during this mixing process. The accompanying paperwork states that if a cloudy or discolored solution is produced, the drug should be discarded. Unlike HGH, however, an unused potion of Geref cannot be refrigerated for later use (it also must be shipped and stored under refrigeration). Given the low dosage of this preparation, storage of an unused portion is likely not going to be a problem. It may, however, turn out to be a problem if higher dosed versions of the drug surface. This would not be very important if Geref were cheap, but it isn't (using Geref for performance enhancement would be far more costly than HGH). Perhaps we will see a reduction in price as the manufacture and use of this compound become more widespread. Until then, Geref is very promising, but also very impractical.

Human Growth Hormone (somatropin)

In the human body growth hormone is produced by the pituitary gland. It exists at especially high levels during adolescence when it promotes the growth of tissues, protein deposition and the breakdown of subcutaneous fat stores. Upon maturation endogenous levels of GH decrease, but remain present in the body at a substantially lower level. In the body the actual structure of growth hormone is a sequence of 191 amino acids. Once scientists isolated this hormone, many became convinced it would exhibit exceptional therapeutic properties. It would be especially effective in cases of pituitary deficient dwarfism, the drug perhaps restoring much linear growth if administered during adolescence.

The 1980's brought about the first prepared drugs containing human growth hormone. The content was taken from a biological origin, the hormone being extracted from the pituitary glands of human corpses then prepared as a medical injection. This production method was short lived, however, since it was linked to the spread of a rare and fatal brain disease. Today virtually all forms of HGH are synthetically manufactured. The recombinant DNA process is very intricate; using transformed e-coli bacterial or mouse cell lines to genetically produce the hormone structure. It is highly unlikely you will cross the old biologically active item on the black market (such as Grorm), as nearly all such products have long since been discontinued.

The use of growth hormone has been increasing in popularity among athletes, due, of course, to the numerous benefits associated with use. To begin with, GH stimulates growth in most body tissues, primarily due to increases in cell number rather than size. This includes skeletal muscle tissue, and with the exception of eyes and brain all other body organs. The transport of amino acids is also increased, as is the rate of protein synthesis. All of these effect are actually mediated by IGF-1 (insulin-like growth factor), a highly anabolic hormone produced in the liver and other tissues in response to growth hormone (peak levels of IGF-1 are noted approximately 20 hours after HGH administration). Growth hormone itself also stimulates triglyceride hydrolysis in adipose tissue, usually producing notable fat loss during treatment. GH also increases glucose output in the liver, and induces insulin resistance by blocking the activity of this hormone in target cells. A shift is seen where fats become a more primary source of fuel, further enhancing body fat loss.

Its growth promoting effect also seems to strengthen connective tissues, cartilage, and tendons. This effect should reduce the susceptibility to injury (due to heavy weight training), and increase overall lifting ability (strength). HGH is also a safe drug for the "piss-test". Although athletic committees ban its use, there is currently no reliable method for detecting the drug during a standard urinalysis. This makes clear its attraction to (among others) professional bodybuilders, strength athletes, and Olympic competitors, who are able to use this drug straight through a tested competition. The only effective test method to date requires blood sampling, which is considered too invasive for widespread implementation (although some limited use of this test at the Olympic level is being carried out). Until a reliable method is developed that makes use of a urine sample, growth hormone will remain a highly sought after drug for the drug-tested competitive athlete.

The degree in which HGH actually works for an athlete has been the topic of a long running debate. Some claim it to be the holy grail of anabolics, capable of amazing things. Able to provide incredible muscle growth and unbelievable fat loss in a very short period of time. Since it is used primarily by serious competitors who can afford such an expensive drug, a great body of myth further surrounds HGH discussion (among those personally unfamiliar). Many will state with the utmost confidence that the incredible mass of the Olympian competitors each year is 100% due to the use of high doses of HGH. Others have crossed bodybuilding materials claiming it to be a complete waste of money, an ineffective anabolic and barely worthwhile for fat loss. With its high price tag, certainly an incredibly poor buy in the face of steroids. So we have a very wide variety of opinions regarding this drug, whom should we believe?

It is first important to understand why there the results obtained from this drug seem to vary so much. A logical factor in this regard would seem to be the price of this drug. Due to the elaborate manufacturing techniques used to produce it, it is not cheap to buy. Even a moderately dosed cycle could cost an athlete as much as $20 per daily dosage. This could be $150 per week, a figure that could go up to $300 for a formidably-anabolic dose. Most are unable or unwilling to spend so much, and instead tinker around with low dosages of the drug. Most who have used this item extensively claim it will only be effective at higher doses. Poor results would then be expected if low amounts were used, or the drug not administered daily. If you cannot commit to the full expense of an HGH cycle, you should really not be trying to use the drug.

The average male athlete will usually need a dosage in the range of 4 to 6 I.U. per day to elicit the best results. On the low end perhaps 1 to 2 I.U. can be used daily, but this is still a considerable expense. Daily dosing is important, as HGH has a very short life span in the body. Peak blood concentrations are noted quickly (2 to 6 hours) after injection, and the hormone is cleared from the body with a half-life of only 20-30 minutes. Clearly it does not stick around very long, making stable blood levels difficult to maintain. The effects of this drug are also most pronounced when it is used for longer periods of time, often many months long. Some do use it for shorter periods, but generally only when looking for fat loss. For this purpose a cycle of at least four weeks would be used. This compound can be administered in both an intramuscular and subcutaneous injection. "Sub-Q" injections are particularly noted for producing a localized loss of fat, requiring the user to change injection points regularly to even out the effect. A general loss of fat seems to be the one characteristic most people agree on. It appears that the fat burning properties of this drug are more quickly apparent, and less dependent on high doses.

Other drugs also need to be used in conjunction with HGH in order to elicit the best results. Your body seems to require an increased amount of thyroid hormones, insulin, and androgens while HGH levels are elevated (HGH therapy in fact is shown to lower thyroid and insulin levels). To begin with, the addition of thyroid hormones will greatly increase the thermogenic effectiveness of a cycle. Taking either Cytomel® or Synthroid® (prescription versions of T-3 and T-4) would seem to make the most sense (the more powerful Cytomel® is usually preferred). Insulin as well is very welcome during a cycle, used most commonly in an anabolic routine as described in this book under the insulin heading. Aside from replacing lowered insulin levels, use of this hormone is important as it can increase receptor sensitivity to IGF-1, and reduce levels of IGF binding protein-1, allowing for more free circulating IGF-1[264] (growth hormone itself also lowers IGF binding protein levels[265]). Steroids as well prove very necessary for the full anabolic effect of GH to become evident. Particularly something with a notable androgenic component such as testosterone or trenbolone (if worried about estrogen) should be used. The added androgen is quite useful, as it promotes anabolism via other mechanisms untapped by GH. Steroid use may also increase free IGF-1 via a lowering of IGF binding proteins[266]. The combination of all of these (HGH, anabolics, insulin, and T-3) proves to be the most synergistic combination, providing clearly amplified results. It is of course important to note that thyroid and insulin are particularly powerful drugs that involve a number of additional risks.

Release and action of GH and IGF-1: GHRH (growth hormone releasing hormone) and SST (somatostatin) are released by the hypothalamus to stimulate or inhibit the output of GH by the pituitary. GH has direct effects on many tissues, as well as indirect effects via the production of IGF-1. IGF-1 also causes negative feedback inhibition at the pituitary and hypothalamus. Heightened release of somatostatin affects not only the release of GH, but insulin and thyroid hormones as well.

HGH itself does carry with it some of its own risks. The most predominantly discussed side effect would be acromegaly, or a noticeable thickening of the bones (notably the feet, forehead, hands, jaw, and elbows). The drug can also enlarge vital organs such as the heart and kidney, and has been linked to hypoglycemia and diabetes (presumably due to its ability to induce insulin resistance). Theoretically, overuse of this hormone can bring about a number of conditions, some life threatening. Such problems, however, are extremely rare. Among the many athletes using growth hormone, we have very few documented cases of a serious problem developing. When used periodically at a moderate dosage, the athlete should have little cause for worry. Of course if there are any noticeable changes in bone structure, skin texture, or normal health and well being during use, HGH therapy should be completely halted.

In summary, the biggest mistake we can make with this drug is to get confused by the price tag. Even a relatively short cycle of this drug (and ancillaries) can cost a thousand dollars or more. We cannot jump to the conclusion that GH is therefore the most unbelievable anabolic. This hormone is simply very complex, and costly to manufacture (though it should be getting cheaper). If you were looking to achieve just a great mass gain the $1,000 would be better spent on steroids. Growth Hormone will not turn you into an overnight "freaky" monster, and it is most certainly not "the answer". Yes, it is a very effective performance enhancement tool. But it is more a tool for the competitive athlete looking for more than steroids alone can provide. There is little doubt that GH contributes considerably to the physiques and performance of many top bodybuilders and athletes. In this arena, the money spent on it is well justified, the drug obviously necessary. But outside of competitive sports, it is usually not.

The high price of human growth hormone has provided a very strong motivation for the creation of counterfeit product so one must be cautious when purchasing it. A large percentage of the GH found on the black market will in actuality be re-labeled HCG, which bears a very close resemblance. Fear not, a trip to the corner drug store provides us with a cheap and effective way to test our

product. A home pregnancy test works by detecting HCG in the urine, which will be present during pregnancy. In this case we want to use it to determine if there is HCG in our growth hormone vials. A few days into your GH cycle, take a full 1mL injection prior to bed. This would ensure a high level of HCG in the urine (if that's what your actually taking). Upon rising, take the pregnancy test. A positive *will let you know that you have been swindled.*

Both HCG and HGH are packaged in 2 separate vials, which are mixed before use (except for the new Nutropin aqueous product). One vial contains a sterile solution, the other a powder. With both the powder will not be loose but in a solid disc (lyophilized). The few fakes which are not re-labeled HCG vials will likely contain some form of loose powder, avoid.

IGF-1 Long R3

Insulin-Like Growth Factor-1, of which IGF-1 Long R3 is derived, is a peptide hormone found naturally in the human body. It belongs to the same family of hormones as insulin. As peptide hormones go, IGF-1 is relatively small, containing only 70 amino acids. That, however, bears no relevance to how important this hormone is biologically. IGF-1 is the mediator of all of the anabolic activity of growth hormone, which, in of itself, is not anabolic at all. It is the ability of growth hormone to stimulate the release of IGF-1 that makes this drug an effective muscle-building agent. The IGF-1 hormone was discovered back in 1957. At first it was believed to exert its main functions of the growth of cartilage. It was not until the late 1970's that the name IGF-1 was finally adopted, and a more detailed understanding of its full properties began to develop. The recent introduction of recombinant human IGF-1 for clinical study (and its potential as an actual therapeutic drug) has opened new doors into the exploration of this powerful anabolic hormone.

IGF-1 stimulates the growth of nearly all tissues. This includes not just skeletal muscle, but almost all organs in the body barring, the brain and eyes. Being that muscle tissue is meant to respond to external stress stimulus with rapid changes in size and strength, it is much more responsive to IGF-1 therapy than other internal organs. Even though IGF-1 exerts a "whole body" anabolic effect, it is not so pronounced that the drug cannot be used safely to support skeletal muscle growth (one must never ignore the possibility of organ enlargement, however). Early drug trials with both animals and humans have been promising thus far, and recombinant human IGF-1 has already been approved in the U.S. for growth deficiency in children (*see: Increlex*). We can be optimistic that the next decade will bring a number of new clinical investigations, perhaps looking at many potential uses of IGF-1 in adults including: a lean mass preservative for patients suffering from HIV and AIDS, an anabolic for patients suffering from cancer or other debilitating conditions, as a general recovery aid for burn victims, and even for replacement of lowering IGF-1 levels with age.

The anabolic effect of IGF-1 toward skeletal muscle tissue is characterized by increases in satellite cell activity, muscle DNA content, and muscle protein content. It is believed to enhance the incorporation of new satellite cells into muscle fibers mainly through a reduction in the output of the growth inhibitor "p27Kip1"[267]. We further understand that both GH and IGF-1 therapy coincide with suppressed levels of myostatin[268] [269], a powerful growth-regulating (limiting) hormone. GH and IGF-1 are both powerful anabolic drugs, which exert their actions on muscle tissue in ways different from classic anabolic steroids. They are looked upon more so as drugs that stimulate hyperplasia, or increases in cell number (although admittedly these drugs trigger both hyperplasia and hypertrophy). There is no question that IGF-1 increases muscle size via a valid growth effect, not the increases in cell volume due to swelling that were suggested in earlier liver studies[270]. The main question now is, how strong is this effect? As this drug leaves the medical books and enters real world application, this question is being answered fairly quickly.

There were initially some issues with potentially using IGF-1 as a therapeutic drug that needed to be overcome. The main problem is its rate of metabolic clearance, which is so rapid that twice-daily injections are needed with rhIGF-1 for effective blood levels to be sustained. It is the same early issue scientists noticed with testosterone, except magnified many times over, as free testosterone actually lasts far longer in the blood than IGF-1. Scientists were forced to search out ways to maximize the half-life of the drug before it could be used therapeutically. By the late 1990's, much progress had been made. Several ways involved synthetically modifying the hormone. One extremely popular variant in the research has been this one, which carries an arginine at residue 3 and an N-terminal extension. It has been named LR3-IGF-I or "IGF-1 Long R3" due to the lengthening at the 3rd residue position. It has a longer half-life than insulin, and is resistant to binding proteins, such that the drug is highly active next to endogenous IGF-1. IGF-1 Long R3 has been shown in studies to be 2.5-3 times more potent than regular IGF-I in restoring growth[271].

IGF-1 Long R3 is currently being manufactured by GroPep in Australia, which hold patent on this unique synthetic form of IGF-1. As a potential therapeutic drug, it is officially in the experimental stages of development. Some bodybuilders have been able to obtain it "for research projects" through international distributors who sell to Universities and biotechnology companies. It usually costs around $175-400 per milligram, for a standard "media" grade form of the drug. This is said to be >85% purity, and has been working fine for bodybuilding purposes. It is also sold as a "receptor grade" material, which exceeds 99% purity. This material is used for the most sensitive studies, and has come to be looked at as the "choice" form of IGF-1 for the discriminating bodybuilder (it is pharmaceutical quality). It can be located at a reasonable price (somewhat close to media grade) when purchased in bulk; otherwise it can be exceedingly expensive (over $700 per milligram).

Both grades of research material usually come as plain lyophilized powder, or suspended in a solvent like benzyl alcohol. If you have the former, it is typically mixed with benzyl alcohol for storage, and diluted with sterile saline or bacteriostatic water for use. When obtained in benzyl alcohol, the user would typically draw a tiny amount (the immediate dosage) into an insulin syringe, and dilute it before injection by drawing in extra bacteriostatic water. All unused portions of the drug should be refrigerated.

IGF-1 Long R3 is also sold under the brand name IGtropin, produced by the Chinese manufacturer GenSci (the makers of JinTropin rHGH). This is supposed to be the same exact compound supplied by GroPep, however, it is uncertain at this time if they obtain the material through any agreements with the company. Feedback on the product has been very good thus far, suggesting that whatever the source, they are indeed supplying real IGF-1 Long R3. The GenSci product is a little bit more expensive than raw research powers, selling for over $500 per 1-milligram kit when purchased directly from an overseas pharmacy. This price will usually increase to nearly $700 when the kit is found on the U.S. black market. The higher price of the GenSci product is balanced by greater convenience and trust, as it is packaged in a similar "ready to use" manner as prescription growth hormone. In each box you will find 10 vials with 100mcg hormone in each, and the necessary 10 ampules of sterile diluent to mix them with. Once reconstituted, any unused portion should be refrigerated to preserve the stability of the protein.

Unlike HGH, which is given subcutaneously, IGF-1 Long R3 is usually given as an intramuscular injection. Although SubQ injections are possible, they tend to involve a little more discomfort than regular IM injections. The bodybuilder will typically inject it into the muscle that they are training that day, in an effort to stimulate spot growth and a greater overall anabolic response. The dose given is usually in the range of 20-80mcg, and given every day. The daily dosage can be further divided into two applications (spaced 10-12 hours apart) to allow for better stability in blood hormone levels. Some bodybuilders do venture above the 100mcg daily mark, and some "top pros" are even rumored to take as much as 200mcg per day during bulking cycles. With the astronomical costs that would be associated with such high-dosage use, it is likely that these amounts are more the product of speculation than real common practice in the professional ranks. 30mcg per day is probably the most commonly used dosage for the recreational bodybuilder, which allows a 1mg vial to last for about a month. At $35 or so per day, this would seem to be a fairly reasonable investment in one's physique by most accounts. $100 per day is a crack habit, and probably not warranted for most users.

Typical results from IGF-1 Long R3 administration include intensified pumps, increased appetite, increases in lean muscle mass & strength, and the stimulation of thermogenesis (fat loss). A 30-day cycle usually imparts at least several pounds of new muscle tissue gain, and by most accounts its local spot-growth effect works very well. Some bodybuilders claim to have gained as much as 12-15 pounds off of a single 4-week cycle of just IGF-1 Long R3. When taken alone, IGF-1 Long R3 is not quite as good as anabolic steroids for most of its users, but it is certainly not shabby for a non-steroidal anabolic either. By all accounts, muscle retention is also very high post-cycle, which usually can't be said for steroids. This is due to a couple factors, including the lack of hormonal crash when the drug is discontinued.

When it comes to cutting, IGF-1 Long R3 is definitely not as potent as classic human growth hormone. This is quite understandable, as we know that this is an activity that is inherent in the human growth hormone molecule itself. Increased lipolysis is, likewise, not dependent on the stimulation of IGF-1 release the same way the anabolic attributes of GH are. That is not to say that IGF-1 is entirely without benefit here. Users do still seem to comment that the drug has some noticeable effect as a fat loss agent. It seems to allow them to keep fat mass at bay, even when they are on a high-calorie (bulking) diet. Often they can even lose fat mass and tighten up their physiques while taking the drug during building phases of training, but individual metabolism seems to play a strong role in how noticeable this effect is. It is likely that a shift in the utilization of nutrients towards muscle growth, and not a direct lipolytic effect, is responsible for this, as IGF-1 is inherently more like insulin (lipogenic) than GH in this regard. We can, therefore, say that IGF-1 is not going to be your number one drug choice for cutting up, but it may still make a good addition to any stack focused on lean muscle mass gains.

There are concerns that natural antibody reactions will start to work against the effectiveness of synthetic IGF-1 analogs like IGF-2 Long R3 as the usage duration becomes prolonged. You will recall that this has been investigated with somatrem, the synthetic 192 amino acid analog of human growth hormone (*see: Drug Profiles - Somatrem*). For this reason, cycle length is usually limited to somewhere between 4 and 12 weeks. After this point a break of at least 4-6 weeks is usually taken, to ensure maximum responsiveness when drug therapy is again initiated. It is uncertain how crucial this is, however, at this time it seems like good advice given how little we currently know about the use of IGF-1 Long R3. But ensuring maximum effectiveness is not the only reason for limiting drug duration and dosage. There are other potentially serious side effects to IGF-1 therapy that need

to be considered. These mimic the risks associated with GH therapy very closely, and include pronounced internal organ growth, thickening of the bones and skin (GH jaw), insulin resistance, hypoglycemia, water retention and edema, and even gynecomastia in very sensitive users. Some people also report carpel tunnel syndrome from the overuse of GH or IGF-1, which may be preceded by numbness or discomfort in the hands and wrists. GH is known to be a strong drug, and IGF-1 is its powerful big brother in almost all regards. This agent should be respected, not abused. I must stress again that this is an unapproved new agent, and as such the full risks in humans have not yet been determined. You are in essence making a guinea pig out of yourself when taking it.

The fact that IGF-1 Long R3 is not yet an approved prescription drug in any country has definitely not stopped athletes from taking advantage of this agent. The potential benefit of this drug was simply too enticing to be ignored. As soon as the word was out about IGF-1 Long R3, the wheels started turning about how to get it onto the black market. Although not in abundant supply, enough channels for this drug have been established to ensure that a steady stream of athletes are able to use it. At least one drug manufacturing company has taken notice, and since started marketing it in a prepared form for human use. Several other companies are likely to follow suit in the next year or two. Many that have used IGF-1 Long R3 are calling it "Super GH", which in many regards is a fair perspective. IGF-1 drugs like this allow us the full anabolic benefit of this hormone, without being forced to rely on our own body's ability to produce it in response to the administration of HGH. The difference can be likened to taking HCG to stimulate increased testosterone levels, or injecting an actual drug form of the hormone like testosterone cypionate. We can see why IGF-1 Long R3 has earned the nickname "I Grow Faster", and become the cult drug of interest the past few years. Its popularity is only sure to grow as more athletes are given the opportunity to use it.

Increlex® (mecasermin)

Increlex is a brand name (U.S.) for injectable IGF-1 (Insulin-like Growth Factor 1), manufactured by Tercica Inc. of Brisbane California. Tercica licenses this technology from Genentech, which was the first company to sell a synthetically manufactured human growth hormone product in the United States (Protropin). Like human growth hormone, IGF-1 is a delicate and complex hormone. It consists of 70 amino acids in a single chain, with three disulfide bridges and a molecular weight of 7649 Daltons. Tercica's rhIGF-1 is produced by recombinant DNA technology, where it is synthesized by E. coli bacteria that have been modified by the addition of the human IGF-1 gene. The resulting product is identical to the endogenous IGF-1 protein, with all 70 amino acids in the proper sequence (unlike early rHGH products like Protropin, which used slight variants of the active hormone).

Mecasermin, which is the given generic name for rhIGF-1, was approved by the U.S. Food and Drug Administration in August 2005 for the treatment of growth deficiency in children. It is specifically indicated for severe primary IGF-1 deficiency (Primary IGFD), which is characterized by a failure to produce normal levels of IGF-1 due to insufficiencies in the growth hormone IGF-1 axis. Such patients typically have normal or even high levels of growth hormone, but their bodies do not respond to it with the normal production of IGF-1. It is also indicated for the treatment of certain patients who have developed antibodies to growth hormone. In either case, the patient is not properly responsive to growth hormone therapy, making IGF-1 a very promising alternative medication. Tercica was granted Orphan Drug status for the use of mecasermin to treat Primary IGFD, which means they have a market protected from competition (generic mecasermin products) for a period of seven years.

Insulin-like Growth Factor-1 is a primary mediator of growth hormone's actions in the human body. GH binds to growth hormone receptors in the liver and peripheral tissues, and stimulates the synthesis and secretion of IGF-1. IGF-1, in turn, is the hormone actually responsible for the positive effects GH therapy has on skeletal muscle mass, whole body cell/organ growth, bone density, and linear (statural) growth. IGF-1 is also responsible for the known effect of growth hormone therapy on carbohydrate metabolism, namely reducing hepatic glucose production and stimulating peripheral glucose utilization. A good deal of research is being given to IGF-1 drugs in the treatment of certain forms of diabetes, and in December 2003 the FDA even granted Insmed Orphan Drug status for the use of mecasermin rinfibate (a similar medication not yet on the market, *see: iPlex*) for the treatment of extreme insulin resistance. Overall, Increlex will offer many of the same therapeutic benefits that are known of growth hormone. For our purposes this, of course, includes the support of muscle growth in adulthood, though this is not yet an approved use of the drug. Perhaps at some point we will see it approved for some newly recognized adult IGF-1 deficiency, like rHGH was for adult GH deficiency. Until then, it will likely remain an expensive drug, marketed exclusively to a small population of patients.

Although IGF-1 is a primary mediator of GH's effects, it is important to point out that it is not the sole mediator of them. GH does have some inherent effects in the body. The most notably of these is an effect of body fat deposition. GH has a strong lipolytic effect, which can be so direct and measurable that patients commonly notice a reduction of fat even around the site of injection. This trait is lacking in IGF-1. In fact, a common documented side effect of Increlex therapy is lipohypertrophy (fat gain) around the site of injection. An IGF-1 drug like this will, therefore, offer muscle growth benefits like (or better than) rHGH, but will not offer the same strong benefits on fat loss and muscle definition. These agents are more appropriately used during bulking phases of training, whereas growth hormone preparations will, likely, remain the preferred drugs of the "Growth Hormone and Related" class for cutting cycles.

Increlex comes as an aqueous solution, with each milliliter containing 10mg of IGF-1 protein. It is intended to be administered subcutaneously, usually under small pinches of skin on the abdominal or thigh areas (like rHGH is usually administered). Due to the very fast metabolism of free IGF-1, the drug has a very short half-life in the body. Tercica's dosing recommendations call for an individual optimal dose to be determined, which is always based on twice daily application. The recommended starting dose is .04 to .08 mg/kg, which is given twice per day. If this is well tolerated for one week, the dose may be increased by .04 mg/kg per injection, to a maximum of .12 mg/kg (twice daily). Doses greater than 0.12 mg/kg twice daily are not recommended clinically, due to potential hypoglycemic effects. For the same reason, an upper ceiling of safety/comfort will be reached with most bodybuilders (this is not a "more = better" type of drug). This will likely be extended over the .12 mg/kg recommendation (despite the recommendations against by the manufacturer) with some adventurous athletes, as they learn to exploit the hypoglycemic effects of IGF-1, taking it with a high level of simple carbohydrates during the post-training window. Despite the temptation, one should never begin using this

drug at a high dosage! If hypoglycemia occurs, despite adequate food intake, it is also important that the dose be reduced, for the sake of safety. Increlex should always be administered shortly before or after (20 minutes) a meal or snack as well, and never when simple carbohydrates are out of reach.

Unlike Increlex, which can be used for extended periods (years) in clinical medicine, bodybuilders would use this drug for shorter durations of 6-16 weeks. This is to minimize the potential for side effects or unwanted organ growth. As for an assessment of its general safety, we can note that medical data seems very favorable when the drug is administered correctly. During clinical studies with 71 subjects with Primary IGFD treated for a mean duration of 3.9 years, Increlex was very well tolerated, and none of the subjects withdrew from clinical study due to side effects or safety concerns. The most common side effect was hypoglycemia, which was reported by 42% of subjects on at least one occasion during therapy. This drug does, indeed, have a strong insulin-like effect, which should be monitored. Most cases of hypoglycemia were mild, although five subjects had severe hypoglycemia requiring medical treatment, four of which experienced hypoglycemic seizures or loss of consciousness on one or more occasion. Symptomatic hypoglycemia was generally avoided when a meal or snack was consumed shortly before or after the administration of the drug. Enlargement of the tonsils occurred in 15% of patients during the first 1 to 2 years of therapy, with lesser growth was noted in later years. Seven subjects required tonsillectomy.

Other minor side effects included intracranial hypertension, which occurred in three subjects. In two subjects the events resolved without ceasing the drug, while in a third a short break and resumption at a lower dose resolved the issue. Mild elevations in the serum AST and LDH were found in a significant number of patients, but they were not significant enough to discontinue therapy. ALT elevations were occasionally noted as well, but again were not serious. Renal hypertrophy was shown to be rapid during the early years of therapy, although renal function remained normal in all patients. Elevations in cholesterol and triglycerides were observed, but remained within the upper limit of normal values. Evidence of heart enlargement was observed in a few individuals without clinical symptoms. The overall relationship between drug use and cardiac changes, however, has not yet been fully assessed. Thickening of facial soft tissues was observed in several patients, and should be monitored during therapy. Overall, the drug seems well tolerated, with a side effect profile that is not that far out of line with what we know of growth hormone drugs.

IGF-1 is known to be a potent stimulator of human muscle growth. We have seen drugs of this class, namely Long-R3 IGF-1, work very well on very many occasions in the past. In some instances, this has been to an extent that might be called remarkable by the user. I wouldn't go so far as to call for an abandonment of steroids, however, as I still believe steroids are far more reliable and effective for the average user. The gains with IGF-1, though, are nothing to sneeze at in most cases. But with Long-R3, we also must remember that we have a synthetic compound with as of yet unverified safety in humans. It is an "experimental drug" used on animals only. We know it works on humans, but we don't have much safety data behind it. Increlex, on the other hand, is an approved drug in the U.S., and has been the subject of a great amount of research before reaching such a state. Though not yet approved for adult use, I can feel fairly comfortable with this drug. IGF-1 is admittedly a powerful "whole body" anabolic agent, and carries potential risks relating to organ growth if abused. These should never be ignored. But for those who are looking for safe and sane experimentation with an IGF-1 class drug, and would prefer an FDA approved medication over experimental compounds, you need look no further (provided you can find a way to purchase it, that is).

iPlex® (mecasermin rinfibate)

iPlex is an injectable IGF-1 medication, developed for market in the U.S. by Insmed Incorporated of Glen Allen Virginia. The technology itself was designed and licensed from the firm Celtrix. iPlex contains a mixture of recombinant human IGF-1 and recombinant human IGFBP-3 (rhIGF-I/rhIGFBP-3). Since IGF-1 easily disassociates from this binding protein, the mixture provides all of the biological effects of Insulin-like Growth Factor 1 on growth and metabolism. Mecasermin rinfibate seeks to remedy a principle deficit of mecasermin, which is a straight recombinant IGF-1 hormone product. This deficit is a rapid rate of metabolic clearance, which gives IGF-1 a very short half-life in the body. As a result, mecasermin needs to be injected twice daily in order for therapeutic blood levels to be maintained. Although exact dosing regimens remain to be elucidated, iPlex should require a notably more favorable schedule, which should be welcome by anyone that doesn't find favor in 2 injections each and every day.

iPlex is likely to be marketed very soon in the United States for the treatment of children with growth failure caused by Severe Primary IGF-1 deficiency (Primary IGFD). This type of growth deficiency is categorized by an inability of the body to properly respond to growth hormone with IGF-1 synthesis. Such patients usually have low IGF-1 levels and high GH levels. The FDA officially approved iPlex for this treatment in September 2005, although Insmed still needs to satisfy a number of documentation requests before the drug can officially be sold to patients. It is expected to hit the U.S. drug market some time in 2006, following the first U.S. mecasermin drug (Increlex) only by a year or so. The FDA had granted Orphan Drug status to Insmed in 2004 for using mecasermin rinfibate to treat extreme insulin resistance as well, however, it has not yet been sold or officially approved for this purpose. It is likely that iPlex will be prescribed for both indications within a short period of time.

There is not a whole lot that can be said about iPlex until it is officially released. We do know from experimenting with Long R3 IGF-1 that IGF-1 can be a very potent growth-promoting drug. Properly used, its results can be quite remarkable in many cases. Knowing this, iPlex is expected to offer similar strong benefits to athletes and bodybuilders in regards to the promotion of lean muscle tissue gain and strength increases. Much of what is said of GH therapy can be said of IGF-1 (though perhaps more intensely), and this also includes IGF-1 having strong effects on general organ growth and blood sugar regulation. This drug should be respected not only as an effective anabolic, but also as a potentially dangerous agent if misused and abused. IGF-1 use, even a U.S. approved IGF-1 drug like iPlex, is not to be taken lightly. In time we will have more specific information to relay on this drug, pertaining to safe dosing schedules, clinical trial results, and hopefully real world gains with (non-medical) consumers. Until then, this remains a drug of great theoretical interest. I anticipate the release of both it and the relating medical information in the coming months.

MK-677 (ibutamoren mesylate)

Ibutamoren mesylate (given the designation MK-677) is an orally active growth hormone secretagogue. It represents a new area of scientific research into compounds that produce a specific and positive serum GH/IGF-1 response with oral administration. Given that GH-releasing drugs are typically delicate peptides, much of the past research in this field has been on injectable medications. Sermorelin acetate, already in commercial circulation, is probably the most well-know example of such a drug. MK-677 is not yet an approved medication, but has advanced quite a bit as an experimental drug. Numerous human clinical studies have already been published on it, including investigations in the U.S. (Merck is sponsoring much of the research). This makes clear that ibutamoren is being looked at as a potential prescription drug here, as human trails cannot be conducted on new drugs unless the FDA approves them (and a great deal of data has already been presented).

Unlike many other past secretagogues, MK-677 is not a peptide hormone but a spiropiperidine compound. It has been shown to be indistinguishable from GHRP-6 (Growth Hormone Releasing Peptide) in both in-vitro and in-vivo studies[272], which is a synthetic hexapeptide known to be a potent stimulator of GH release in humans (currently being researched also). GHRP-6 is given by IV or IM injection, however, whereas MK-677 (as mentioned already) it quite orally active. The most common dosage in clinical studies appears to be around 25mg per day, which has been sufficient to reverse diet-induced catabolism[273], improve long-term sleep quality[274], improve bone turnover and bone mineral density markers in osteoporotic women[275] and elderly males[276], and increase IGF-1 levels in GH deficient children[277] and normal adults[278]. In short, at 25mg it seems capable of providing many of the same benefits of recombinant growth hormone therapy. It is also worth noting that despite the contention that MK-677 might be a milder form of therapy than rHGH (less hormone peaks and adverse events), many of the same side effects seemed to occur during trials, including hypertension, fluid retention, and carbohydrate intolerance.

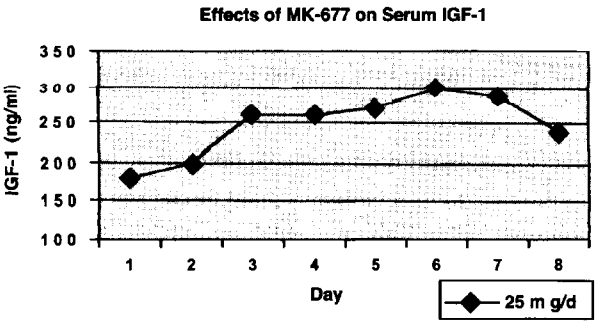


Figure 1. IGF-1 response to 25mg/day of ibutamoren mesylate in 8 healthy volunteers after calorie restriction. Source: Journal of Clinical Endocrinology and Metabolism. 83: 320-325 (1998)

According to Merck, internal data suggests that the drug reaches an effect ceiling at 100mg per day. This means that higher doses will not produce a stronger effect. Still, at such a dose peak GH levels were measured to be approximately 325% higher than with 25mg. This suggests some notable latitude for further exploiting the potential of this drug, beyond the IGF-1 figures noted with the 25mg studies. Being that MK-677 is still an experimental drug, however, there is not a great deal of real world feedback that can be supplied on this agent. In fact, as of yet I know of no athlete that has even used it. Given that no commercial preparations containing ibutamoren are known to exist anywhere in the world, this is not at all surprising. Therefore, whatever can be said of this agent is based on the figures taken from clinical studies; albeit very good figures they are. Upon their review, the potential for using this drug to enhance muscle gain, fat loss, or performance in athletes becomes fairly obvious. Whether or not it will be cost effective and attractive next to injectable recombinant growth hormone will remain to be seen. One thing is for sure, the release of a commercial MK-677 preparation will be awaited anxiously by athletes who hate needles (and therefore have avoided GH use).

Nutropin AQ® (somatropin aqueous suspension)

Nutropin AQ is a new injectable growth hormone preparation from the U.S. biotechnologies firm Genentech. Like their Nutropin Depot product, Nutropin AQ stands out as being extremely unique and innovative in design. In this case, Genentech has been able to develop the world's first liquid-stable GH product. As such, it comes in one vial, which does not require reconstitution (mixing) with a liquid solvent before use. Genentech is, of course, also the same company that manufacturers and sells Protropin (somatrem), which is a GH product that uses a 192 amino acid variant of the endogenous growth hormone molecule instead of the correct 191 amino acid sequence found in somatropin. For this product, however, Genentech has decided to use somatropin instead of somatrem, even though they still manufacture and sell Protropin. Growth hormone itself is a powerful lipolytic (fat loss) and anabolic agent, making it a common appearance on the underground bodybuilding drug market (for a more comprehensive discussion, please refer to the somatropin drug profile).

The advantages to be found in Nutropin AQ are ultimately not great. Essentially this is just a preconstituted form of the drug, saving you only the couple of minutes required to mix the vials in a standard GH product. For this slight timesaving benefit you meet with one main drawback, namely that the product needs to be refrigerated at all times. This makes dealing with it on the black market very difficult, as you never know if your product was correctly handled before it reached you. What if it was shipped across the country in the back of a hot UPS truck without refrigeration, or sat in some guy's dresser drawer for weeks? GH is not a cheap product to purchase to begin with, making inherent risks like this an extremely unwelcome fact. Serostim and Saizen are both also sold in the U.S., but the unused vials do not require refrigeration before they are mixed. This makes them safer to buy in comparison, and probably recommended if you are not buying the drug from a pharmacy.

Unlike Nutropin Depot, which is still being investigated in regards to other therapeutic claims, Nutropin AQ has already been approved by the FDA for the treatment of growth hormone deficiency in adults. This assures that bodybuilders have much greater access to the drug; as such applications are vast, and manufacturing volume need to meet them great, compared to the small number of patients each year given the drug to treat childhood GH-related growth deficiencies. Likewise, I expect it to start becoming a popular item with many of the longevity clinics that operate in the U.S., who cater to men and women (typically over 30) who are looking for the health and vitality restoring benefits of growth hormone replacement therapy.

Nutropin AQ is manufactured in 2mL vials and pre-loaded 2mL injectable "pen-cartridges". Both forms contain 5mg/mL (10mg total), or about 30IU units of human growth hormone each. At the pharmacy, each 2mL box of Nutropin AQ runs about $500. For a daily dose of 1-4 IU, this equates to anywhere from 7 to 30 days worth of the drug ($2,000 a month at the full 4IU dose). Oddly enough, we should probably expect the black market price to be considerably cheaper than if you purchased this drug directly from a pharmacy with a prescription. Serostim, for example, runs about $1,400 in the pharmacy, yet the kits are commonly found on the black market for $500-600, sometimes even $450, each. Hopefully the same thing will happen with Nutropin AQ.

Nutropin Depot® (somatropin)

Nutropin Depot is a brand new long-acting injectable growth hormone product, produced by the U.S. biotechnologies firm Genentech. In this product the growth hormone molecule is encased in biodegradable microspheres, which slowly break down in the body releasing the GH contained inside. Genentech is the same company that manufactures Protropin (somatrem), which is a 192 amino acid variant of the human growth hormone molecule. Although somatrem essentially has all of the physiological activities of the correct 191 amino acid growth hormone molecule (somatropin), Genentech has decided to use somatropin in this and most of its other growth hormone products (they still do manufacture Protropin). Human growth hormone can be a powerful lipolytic and anabolic hormone, making it somewhat of a "standard-issue" drug in the world of bodybuilding (for a more comprehensive discussion, please refer to the somatropin profile).

This product is designed to form a long acting hormone deposit at the site of injection, which takes weeks to be fully absorbed and utilized by the body. As such, the recommended administration schedule of Nutropin Depot is only a single application once or twice per month. This represents a great step forward in the technology of growth hormone medications, finally freeing patients from the uncomfortable repetitive daily injections they have had to endure for decades with preceding medications. But as we learned with injectable steroid hormones, long-acting depot drugs rarely work in an even manner. In this case, levels of growth hormone fluctuate a great deal between applications. In fact, studies show that as much as 50% of the dosage is dispersed in the body, in a strong supraphysiological rush, within the first two days following injection (*see the included graph*). In a second, long acting, phase, the remaining 50% of the microsphere-encased hormone slowly breaks down and enters circulation over a period of 2 to 4 weeks. This variability does also seem to come at a price. Genentech makes note in their packaging insert that in one of their long-term studies, 19% of the patients who switched to Nutropin Depot from daily growth hormone injections experienced decreased growth rates, and discontinued therapy.

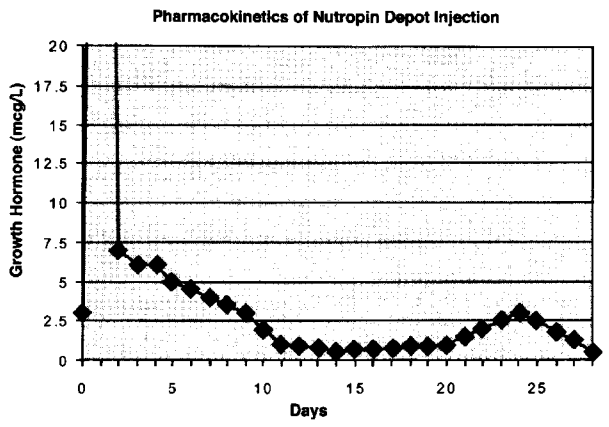


Figure 1. Mean serum GH concentrations (mcg/L) measured after single-dose application of Nutropin Depot. Data shows an extremely strong supraphysiological rush on day 1, peaking around 90 mcg/L. Source: Nutropin Depot® prescribing information. Genentech, Inc.

Nutropin Depot comes in single use vials (you cannot store unused portions for later use), of 13.5, 18 and 22.5mg. Even before reconstitution, the vials of Nutropin Depot must remain refrigerated at all times in order for the drug to keep its full potency. This is a major disadvantage next to products like Saizen and Serostim, which are fully stable at room temperature for a couple of years after the date of manufacture. Dealing with Nutropin Depot on the black market is likewise going to be very difficult. Even if you are able to find it, you are always going to wonder if it your vials were properly handled at all times before they reached your hands. Were they properly refrigerated, or did they sit in the hot trunk of some guy's car for two days? Unless you are getting the product directly from a pharmacy, this will always be a risk you will have to take when purchasing this drug.

Nutropin Depot is approved in the United States at this time for the long-term treatment of growth failure due to a lack of endogenous GH secretion (dwarfism). It has not yet been officially approved for treatment of somatopause (declining GH secretion in adults) or weight gain with HIV+ patients like Humatrope and Serostim (respectively). This greatly limits the access bodybuilders have to this drug, as only a small number of prescriptions are written each year to treat dwarfism; a vastly lower number than are written for HIV+ wasting and somatopause treatment. The illicit market for domestic GH products only seemed to explode once these new uses for Serostim and Humatrope were given the green light by the FDA. We might alternately come to find a good source for the drug in another country, should Genentech decide to aggressively market it internationally. Whatever the case, if anything ultimately opens up supply lines to this drug, there is little question it will quickly become the growth hormone product of choice amongst bodybuilders.

Protropin® (somatrem)

Here in the United States two distinctly structured versions of growth hormone are being manufactured for the pharmaceutical market. Most items, such as Humatrope, Serostim, Saizen and Nutropin have the correct 191 amino acid sequence somatropin molecule. Genentech's Protropin uses somatrem, which is a 192 amino acid variant of the growth hormone molecule. Both products are roughly biologically equivalent, and can be used to treat cases of GH deficient dwarfism in children.

This unnatural structure of somatrem has been documented to increase the chance for developing an antibody reaction to the growth hormone treatment. The antibodies work by binding with the growth hormone molecule, interfering with its ability to exert activity in the body. In one clinical investigation, as much as two thirds of the 54 children treated wound up developed antibodies to growth hormone after one year of use[279]. This is quite a profound figure compared to what was noted in a similarly configured investigation, involving the administration of somatropin to 21 GH deficient children for one year. With the correct 191 amino acid hormone, only one in seven patients produced serum antibodies to GH[280]. It is important to note that in both studies the antibody reactions were not strong, and never diminished the ability of the drugs to be therapeutically effective. Still, there is a difference between the two forms of GH here, and obviously the correct 191 amino acid configuration of somatropin is considered the more reliable drug to use.

Protropin is still considered an effective product and is prescribed regularly in the U.S. Outside of the U.S., the vast majority of HGH in circulation will be the correct 191 amino acid sequence, so this distinction is not as great a concern. The only notable product to hit the market as of late is Fitropin, which is a popular somatrem product from China.

Insulin

Insulin is a powerful hormone in the human body, responsible for regulating glucose levels in the blood. This is a function that your life constantly depends on. Before going any further I must stress that **insulin use by those who do not medically require it can be a very risky endeavor**. It is important not only to research and understand the risks involved, but to really give some thought to just how important a little extra boost is to you. Misusing insulin can have tragic results. Immediate death, coma or the possible development of insulin dependent diabetes in a previously healthy athlete are all possible, be extremely careful.

In the human body insulin is secreted by the pancreas. The release of this hormone is most closely tied to glucose, although a number of other factors including pancreatic & gastrointestinal hormones, amino acids, fatty acids and ketone bodies are also involved. Its role in the body is to control the uptake, utilization and storage of amino acids, carbohydrates and fatty acids by various cells of your body. The activity of insulin is both anabolic and anti-catabolic, the hormone stimulating the use and retention cellular nutrients while inhibiting their breakdown. Skeletal muscle cells are among the many targets of this hormone's action, and the reason pharmaceutical insulin has made its way into the realm of athletics. But this is a little tricky because insulin can also promote nutrient storage in fat cells, obviously an unwanted result. Athletes have found however, that a strict regimen of intense weight training and a diet without excess caloric intake can result in insulin showing a much higher affinity for protein and carbohydrate storage in muscle cells. This could produce rapid and noticeable growth, the muscles beginning to look fuller (and sometimes more defined) almost immediately after starting insulin therapy.

The fact that insulin use cannot be detected by urinalysis has ensured it a place in the drug regimens of many professional bodybuilders. Insulin is often used in combination with other "contest safe" drugs like human growth hormone, thyroid medications and low dose testosterone injections, and together can have a dramatic effect on the users physique without fear of a positive urinalysis result. Those who do not have to worry about drug testing however, find insulin and anabolic/androgenic steroids a very synergistic combination. This is because the two actively support an anabolic state through different mechanisms, insulin enhancing the transport of nutrients into muscle cells and steroids (among other things) increasing the rate of cellular protein synthesis.

The actual medical purpose for insulin is to treat different forms of diabetes. Specifically the human body may not be producing insulin (Type-I diabetes) or may not recognize insulin well at the cell site although some level is present in the blood (Type-II diabetes). Type-I diabetics are therefore required to inject insulin on a regular basis, as they are left without a sufficient level of this hormone. Along with medication, the individual will need to constantly monitor blood glucose levels and regulate their sugar intake. Together with lifestyle modifications such as regular exercise and developing a balanced diet, insulin dependent individuals can live a healthy and full life. Untreated, diabetes can be a fatal disease.

Insulin is available from pharmacies in the United States without a prescription. This is so that an insulin-dependent diabetic will have easy access to medication when traveling about. Arguing over forms or having to call a doctor for verification is all the delay needed to cost someone who needs this medication their life. Pharmaceutical insulin comes from one of two basic origins, animal or synthetic. With Animal source insulin, the hormone is extracted from the pancreas of either pigs or cows (or both) and prepared for medical use. These preparations are further divided into the categories "standard" and "purified", dependent on the level of purity and non-insulin content of the solution. With such products there is always the slight possibility of pancreatic contaminants making their way into the prepared drug. On the other hand there is "synthetic" insulin. Specifically "biosynthetic", it is produced by a recombinant DNA procedure similar to the process used to manufacture human growth hormone. The result is a polypeptide hormone, consisting of one 21-amino acid "A-chain" coupled by two disulfide bonds with one 30-amino acid "B-chain". The biosynthetic process will produce a drug free of the pancreatic protein contaminants possible with animal insulin, and is biologically equivalent in all important ways to human pancreatic insulin. With the innate (remote) risk involved with animal insulin, coupled with the fact that the structure is (very slightly) different from human insulin, most opt for the synthetic product. Biosynthetic human insulin, hereon referred to as Humulin, is the standard insulin among athletes, and the subject of this section.

There are a number of different insulin preparations, separated by variable factors such as speed of onset, peak and the duration of activity. Regular synthetic insulin is generally faster acting that animal source insulin, with a shorter duration of activity in the body. But scientists have

found that by adding substances such as protamine or zinc, they can produce a drug with a much slower release and a prolonged duration of effect. Following we will show you the distinctions between the various forms of Humulin.

Humalog® (Insulin Lispro Inj): Humalog® is a newer, rapid acting form of insulin. It reaches peak effect in less than two hours, and by the four hour mark is almost out of the body completely. It was designed to mimic the body's natural insulin response to meals, and allow a diabetic patient to take their medication before or immediately after eating. Medically this type does not replace other insulin products, but is used in conjunction with them. For athletes the fact that it works in such a short window of time makes it an extremely interesting product. It may in fact be the most ideal type of insulin to use, as it would work almost exclusively in the post-training nutrient uptake window.

Humulin®-R or "regular" insulin: This product has a short duration of effect, approximately 6 to 8 hours. This is the insulin of choice among athletes, as it is fast acting and easier to control than most other forms (except Humalog®). Should one encounter problems with glucose levels in the blood, the shorter the drug will remain active in the body the better. Occasionally athletes do experiment with the longer acting forms described below, but this is generally unadvised. While all other forms of insulin will be cloudy due to their mixture, regular insulin should be a clear solution. One should not use regular insulin if the solution is cloudy or has floating particles.

Humulin®-N, NPH (insulin isophane): Intermediate length insulin, lasts up to 24 hours.

Humulin®-L, Lente (medium zinc suspension): Intermediate length insulin, lasts up to 24 hours.

Humulin®-U, Utalente (prolonged zinc suspension): Long acting insulin. Can remain active for over 24 hours.

Humulin® Mixtures: These are mixtures of regular insulin for fast onset and a longer acting insulin for prolonged effect. These are labeled by the mixture percentage, commonly 10/90, 20/80, 30/70, 40/60 and 50/50.

As we have discussed earlier, regular insulin is the most popular choice and will be the subject of our intake discussion. Before one even considers using insulin, they should become very familiar with using a glucometer. This device gives you a quick number reading of your blood glucose level and can be indispensable in helping you manage your insulin/carbohydrate intake.

Insulin is used in a wide variety of ways. The dosages can vary significantly among athletes, and are often dependent upon factors like insulin sensitivity and the use of other drugs. Most users choose to administer insulin immediately after a workout, which is likely the most "anabolic" time of the day to use this drug. Insulin is always injected subcutaneously, or below the surface of the skin but without entering muscle tissue. This is given by pinching a fold of skin, commonly in the arm or abdominal area. A small "insulin needle" is used, approximately 1/2" long, 27-29 gauge thickness and holding one third to one full cc. These are available over-the-counter in many states. A full cc (or mL) equates to 100 international units (I.U.), a scale that is clearly labeled on an insulin syringe. It is important that the injection site be left alone after insulin has been injected and not rubbed. This is to prevent the drug from releasing into circulation too quickly. It is also a good idea to rotate injection sites regularly; otherwise a localized buildup of subcutaneous fat may develop due to the lipogenic properties of this hormone.

Among bodybuilders, dosages used are usually in the range of 1IU per 15-20 pounds of lean bodyweight. First-time users should at first ignore body weight guidelines however, and instead start at a low dosage with the intention of gradually working up to this point. For example, on the first day of insulin therapy you could begin with a dose as low as only 2 IU. Each consecutive post-workout application this dosage can be increased by 1IU, until the user determines a comfortable range. This is safer and much more tailored to the individual than simply calculating and injecting a dose, as many find they tolerate much more or less insulin than weight guidelines would dictate. Athletes using growth hormone in particular often have higher insulin requirements, as HGH therapy is shown to both lower secretion of, and induce cellular resistance to, this hormone.

One also must remember that it is very important to consume carbohydrates for several hours following insulin use. One will generally follow the rule-of-thumb, of ingesting at least 10 grams of simple carbohydrates per IU of insulin injected (with a minimum immediate intake of 100 grams regardless of dose). This is timed approximately 20 to 30 minutes after the drug has been administered. The use of a carbohydrate replacement drink such as Ultra Fuel® by Twin Labs would probably be a good idea, as this is a fast and reliable carbohydrate source. It is best to always have something like this on-hand should you begin to notice too low a drop in glucose levels. Many athletes will also take creatine monohydrate with their carbohydrate drink, since the insulin may help force the creatine into the muscles. An hour or so after injecting insulin, one will eat a good meal or consume a protein shake. The carbohydrate drink and meal/protein shake are absolutely necessary. Without them, blood sugar levels can drop dangerously low, and the athlete will most likely enter a state of hypoglycemia.

Hypoglycemia is the primary worry of insulin users. This is a dangerous condition that occurs when blood glucose levels fall too low. It is a common and potentially fatal reaction experienced at some time or another by most insulin users. It is therefore critical to understand the warning signs of hypoglycemia. The following is a list of symptoms which may indicate a mild to moderate hypoglycemia: hunger, drowsiness, blurred vision, depressive mood, dizziness, sweating, palpitation, tremor, restlessness, tingling in the hands, feet, lips, or tongue, lightheadedness, inability to concentrate, headache, sleep disturbances, anxiety, slurred speech, irritability, abnormal behavior, unsteady movement and personality changes. If any of these warning signs should occur, one should immediately consume a food or drink containing simple sugars such as a candy bar or carbohydrate drink. This will hopefully raise blood glucose levels sufficiently enough to ward off mild to moderate hypoglycemia. There is always a possibility of severe hypoglycemia, which is very serious and requires immediate emergency medical attention. Symptoms of this include disorientation, seizure, unconsciousness, and death.

Many taking insulin will also notice a tendency to get sleepy some time after injecting the drug. This is an early symptom of hypoglycemia, and a clear sign the user should be consuming more carbohydrates. One should absolutely avoid the temptation to go to sleep at this point, as the insulin may take its peak effect during rest and blood glucose levels could be left to drop significantly. Unaware of this condition during sleep, the athlete may be at a high risk for going into a state of severe hypoglycemia. We have of course already discussed the serious dangers of such a state, and unfortunately here simply consuming more carbohydrates will not be an option. Those experimenting with insulin would therefore be wise to always stay awake for the duration of the drug's effect, and also avoid using insulin in the early evening to ensure the drug will not be inadvertently active when retiring for the night.

Many athletes prefer to bring their insulin with them to the gym, injecting in the locker room (or car) immediately after a workout. Although insulin should be refrigerated, it is fine to keep it in a gym bag or car so long as it is not left out for too long and it is kept away from heat/direct sunlight. Rather than waiting to the end of a workout, some actually prefer to inject their insulin dosage during training, 30 minutes prior to the end of a session. Immediately following the workout the user will consume a carbohydrate drink in this case. Such timing may make the insulin more efficient at bringing glycogen to the muscles, but also increases the danger of hypoglycemia as carbohydrate consumption may be inadvertently delayed. Some will go so far as to inject a few units before lifting to improve their pump. This practice is risky and best left to those very experienced with insulin. Finally, some bodybuilders opt to inject insulin upon waking in the morning. After the injection they will consume a carbohydrate drink. Later, perhaps one hour after the injection, a full breakfast will be consumed. Some athletes find this application of insulin very beneficial for putting on extra mass while others will tend to store excess fat. If using more than one application of insulin per day it would also be a good idea to restrict the total daily intake to no more than 20-40 IU.

In America, regular human insulin is available by the name of Humulin R by Eli Lilly and Company. It costs about $20 for a 10 mL vial with a strength of 100 IU per mL. Remember to be very careful, **one mistake in dosage or diet can be potentially fatal**.

Rezulin® (troglitazone)

Rezulin® is a very interesting new oral antihyperglycemic medication, approved for sale in the United States in 1997. Specifically we are speaking of the active compound troglitazone, which is classified as a thiazolidinedione antidiabetic agent. This drug was designed for use on patients with Type-II (noninsulin-dependent diabetes mellitus (NIDDM) also known as adult-onset diabetes). Rezulin® is useful in this situation because it acts by increasing the body's sensitivity to insulin, therefore requiring some amount of endogenous insulin to be present in order to have an effect (Type-I diabetics produce no appreciable amount of insulin). The action of this drug is quite advanced from the oral agents we are familiar with like Glucophage (metformin HCL). Rezulin® works by increasing the number of active insulin receptor sites, allowing the hormone to have a more pronounced effect. This enables Rezulin® to be a much more potent compound, and therefore more useful than Glucophage (which acts via a less direct mechanism). The one worry is that a state of hypoglycemia (low blood sugar) may be easier to produce with Rezulin®. Since insulin is needed for the drug to work however, this problem is usually only seen when injectable insulin is used at the same time. Glucophage is perhaps less dangerous if the dosage is misjudged, although most feel it is still a much cruder product and less worth consideration at this time.

In the short time this drug has been available, safety concerns have generated it quite a bit of attention as well. This began in late 1997, about the time that Glaxo-Wellcome voluntarily halted production of the Romozin brand (UK) due to the death of five patients receiving treatment. These deaths were due to serious liver complications, brought about by a somewhat toxic nature of this substance. Soon after investigating, Parke-Davis decided not to discontinue their U.S. product, believing the benefits of Rezulin® to greatly outweigh any risks. And the risks were certainly made clear in our country as well. By November of 1997 35 people taking it had developed serious liver complications, resulting in two deaths. Parke-Davis promptly issued a warning to medical professionals, urging them to monitor their patients' liver enzymes during the first year of therapy. Subsequent to the warning, an additional 150 cases of liver difficulty were reported. The manufacturer quickly pointed out that statistically such occurrences we consistent with those found acceptable in clinical trials, noting that only about 2 percent of patients will show elevated liver enzymes and fewer will develop an actual problem.

The use of insulin and insulin enhancing medications for athletic purposes has been increasingly popular in recent years. This is due to the fact that the main action of insulin is to transport carbohydrates (glucose), fatty acids and amino acids into various body cells. This is how blood sugar is lowered, as insulin deposits glucose into the target cells, removing this nutrient from circulation. The negative to this hormone is that fat cells are possible targets for this effect, potentially increasing the athlete's body fat percentage. But insulin will also store carbohydrates and protein into the body's muscle tissue cells. During intense periods of weight training (and a diet without excess fat and calories) it has been shown that insulin can display a much greater tendency for storage in muscle cells than fat cells. The result could be a notable anabolic effect, producing a fuller and harder look to the physique. Since injectable insulin carries with it a number of considerable risks, many athletes first choose to experiment with oral diabetes medications.

But Glucophage has received very mixed reviews. Many athletes claimed to have received little or no benefit when taking this drug. Others have reported an anabolic effect, but usually only when higher dosages or longer cycles were utilized. Since Rezulin® appears to be much more active in the body than Glucophage, it may prove to be a more potent anabolic for athletes. But this drug is not without its own unique risks. For starters, one cannot ignore the risks for liver damage with this drug. This is especially true with athletes, as most of the individuals who would use Rezulin® are probably regular steroid users. Since most would of course be periodically taking c17-alpha alkylated (liver toxic) orals, this risk for liver damage may be amplified with such a combination. The fact that much shorter periods of intake are going to be used by athletes may not provide the most comfort, being that the medical cases in question involved both long and short-term treatment with this compound. Nausea, vomiting, abdominal pain, fatigue, anorexia, jaundice and dark urine are all symptoms that liver trouble may be developing, at which point the drug should be quickly discontinued. Also common with Rezulin® is an increase of total, HDL and LDL cholesterol values. Since these values typically rise evenly, leaving the actual HDL/LDL ratio generally unchanged, trouble with cardiac functioning does not commonly result from this effect.

Since Rezulin® is so new, it will probably take some time before a standard intake regimen becomes popular. It would seem like the best advice to begin taking the drug with a low dosage, perhaps 100-200mg. Being that this drug has a very long half life, it is taken only once per day. Food also increases the absorption of Rezulin®, so it is always taken with a meal so that the optimal blood level is achieved. The athlete will presumably take the dose one to two hours before a training session, as the drug will take two to three hours to achieve its peak blood level. Afterwards (and throughout the day) a carbohydrate replacement drink like Ultra Fuel® may be indispensable when managing the blood sugar level. Creatine monohydrate is also a common adjunct to insulin manipulation therapies, as the hormone will enhance the storing effect of the creatine supplementation by helping to shuttle it into muscle cells. Also, the user will probably have no need to exceed the standard medical dosage of 400mg-600mg. Perhaps he/she may even find it most comfortable to stay below this point, as the healthy athlete will not be suffering the same insulin related dysfunction's as the target patient.

LIVER DETOXIFICATION Drug Profiles

LIV-52®

Liv-52 is an herbal product that has its roots in ayurvedic medicine, an ages old form of Hindu science and medicine that centers on the use of natural remedies. Liv-52 is manufactured by the Himalaya Drug Co. in Bombay, India, and was first introduced to the global market in 1955. This product is not a synthesized drug but an herbal blend, with a number of natural constituents including Capparis spinosa, Terminalia arjuna, Cichorium intybus, Achillea millefolium, Solanum nigrum, Tamarix gallica, Cassia occidentalis, and Mandur bhasma. It is primarily used to aid digestion, improve appetite, increase metabolism and protect and regenerate the liver. As the first three letters of its name would hint at, overall liver health is the primary focus of this product.

Numerous medical studies have been conducted on Liv-52 in recent years, many of which involve its ability to protect the liver from damage by alcohol or other toxins[281] [282] [283] [284]. One investigation in particular looked at how the herbal medication affected the breakdown of alcohol in the body, showing it to notably increase its excretion, even to the point of being able to reduce next day hangover symptoms after binge drinking[285]. Another wanted to investigate what underlying mechanism might be involved in Liv-52's ability to protect the liver against alcohol toxicity. It was able to demonstrate that one avenue involved a specific ability to slow the rate of glutathione depletion[286]. This may be very important to the steroid-using athlete, as glutathione depletion is looked at as a direct marker of liver stress with c-17 alpha alkylated orals.

Many bodybuilders feel it is good to take this product during all steroid cycles that include c-17 alpha alkylated compounds. They will typically take a dosage of 1-2 tablets per application, which is repeated anywhere from once to four times daily. Many swear by it, even claiming they noticed it kept their liver enzymes down during routine visits with the doctor. Others have even insisted that for them, Liv-52 has made the difference between being able to use oral steroids (safely) or not. That might be a little strong, and this is by no means meant to suggest that this is some magic pill that can make otherwise toxic steroids 100% safe. There are always going to be risks when oral steroids are involved, and there is nothing available that can remove them completely. The trick is mitigating them as much as possible, and Liv-52 may indeed by one way to help do that.

Liv-52 is readily available in the United States, where 100 tablets will run you somewhere around $20-40 at your local supplement store. You would be well advised to be sure the Himalaya Drug Company produced your product, as many copycat versions of unknown quality are circulating the health supplement market right now, probably owing to the widespread recognition of the Liv-52 brand name. Thankfully, the real thing is not at all difficult to find. With the large body of evidence surrounding this product and its ability to support liver health, it is good advice that if you are considering oral steroids, you should consider looking into this.

Silymarin (Milk Thistle extract)

Silymarin is an herbal medicine made from the seeds of the Silybummarianum plant (also known as "milk thistle"). It has been used for more than 2,000 years as a folk remedy for liver disorders, and is still used widely today for the same purpose. More specifically, it is most commonly used as a natural treatment for cirrhosis of the liver, hepatitis or liver damage or poisoning with mushrooms, acetaminophen or other toxins. It is also used by many people as a general antioxidant and digestive aid, taken as part of a wellness regimen of natural herbs and vitamins. The active ingredients in milk thistle extract are the flavonoids silybin, silydianin, and silychristin, collectively referred to as Silymarin. Silymarin is widely sold in the United States, where it is considered a natural dietary supplement and not subject to prescription requirements.

Literally hundreds of medical studies have been conducted on Silymarin in recent times, and nearly all of them support strong liver protective and regenerative properties inherent in this natural remedy. Just one paper published in 1980, for example, concerns a double-blind investigation on Silymarin and its effect in treating cirrhosis of the liver. This study made note of a significantly higher survival rate in seriously ill patients when they were treated with this herbal medicine[287]. Another, looking into its underlying hepatoprotective properties, suggests that one if its most important activities may be to increase levels of stored glutathione in the liver[288]. Glutathione is an antioxidant amino acid peptide that is vital to the liver's ability to remove toxins from the body. Depletion of this vital nutrient is also an important marker of liver stress with the use of c-17 alpha alkylated compounds, suggesting that Silymarin may indeed be directly beneficial to the steroid-using athlete.

The typical dosage used is in the range of 300mg to 600mg daily. A standardized milk thistle extract contains about 80% active Silymarin, which would equate to about 240 mg to 480mg of total Silymarin flavonoids. Bodybuilders will typically use this product daily during a cycle with liver toxic steroids, and continue to use it for 4 to 6 weeks after the cycle is discontinued in hopes that it will help normalize liver enzyme values, and repair damage that may have been done during the cycle. Studies do suggest, however, that Silymarin also has notable anti-inflammatory properties (inhibiting prostaglandin biosynthesis)[289], which we know through recent studies is a trait that interferes with the protein synthesis response to resistance exercise (for a more detailed discussion, please refer to the NSAIDs drug profile). This may indicate the need to take somewhat of a "use if necessary" position, at least if absolute maximum muscle growth is the primary focus of your cycle.

Tationil® (reduced glutathione)

Tationil is an injectable medication produced by Roche in Italy. It provides L-Glutathione in a form (called reduced glutathione) that may be given by intravenous infusion. Although this amino acid derivative is also readily obtained as a natural over-the-counter supplement, oral ingestion is an extremely ineffective route of administration. For example, studies have demonstrated that it is not possible to increase circulating glutathione levels with oral doses as high as three grams[290]. Injection, thus far, seems the only truly effective way to increase plasma and tissue concentrations of this important nutrient. Supplements containing L-Glutathione are, likewise, far from equivalents to this prescription medication.

L-Glutathione is an antioxidant that is made up of a tripeptide of three amino acids, L-Cysteine, L-Glutamic Acid and Glycine. Most glutathione in the body resides in the liver, where it is used in the breakdown and biliary excretion of many harmful compounds. It also plays an important role in the functioning of red and white blood cells, lungs, and intestinal tract. Although glutathione is an important antioxidant itself, it also is a vital building block for other antioxidant enzyme systems including glutathione-peroxidase, glutathione-reductase, and glutathione-transferase. Glutamine deficiency may manifest itself as coordination problems, cell damage, mental and nervous system disorders or tremors. Red and white blood cells may begin to stop functioning properly, and nerve tissues may even start to degenerate if ample levels of this antioxidant are not present in the body. Glutathione deficiency has been associated with a variety of health conditions including HIV infection, liver disease and some forms of cancer.

Normal glutathione levels are essential to the proper functioning of the liver, and glutathione depletion is a known marker of hepatic stress. Some studies, in fact, directly measure glutathione depletion as an indicator of how much strain a particular anabolic steroid compound may be placing on the liver. Oral (c-17alpha alkylated) steroid administration, of course, always places some strain on the liver due to the difficult-to-metabolize nature of these drugs. Replacing levels of glutathione that were lost because of them seems like an excellent way to minimize some of this stress. It is difficult to say just how much of a difference Tationil makes without a lot of blood work, but at the very least anecdotal evidence does seem to support that it makes a difference. The medical data certainly supports the hepatoprotective nature of this drug[291]. It is also being looked at as a treatment for Parkinson's disease, with one study reporting a notable improvement in neuromuscular functioning with IV use[292]. If your next cycle is to include a lot of oral steroids, or, perhaps more importantly, if you use them for prolonged durations and/or in regular intervals, Tationil may be something you want to look at.

Tationil comes in vials containing 300mg or 600mg of reduced glutathione. It is packaged in two separate containers, the same way recombinant human growth hormone is made. One vial contains a disc of lyophilized powder, and the other ampule contains a water solution. The two are mixed before use. In a medical setting, the typical recommended dose is 500mg daily, given patients via IV hookup. Bodybuilders are probably not going to use this much drug, and will typically experiment with 2-3 injections per week of either the 300mg or 600mg dose. Although IV is probably a much better way of using this drug, most athletes using this outside of a hospital setting are probably going to opt to use it as an intramuscular injection. We have no data on exactly how much of a difference this makes to the total bioavailability of glutathione. For this reason, proper IV infusion (with fluids), for those who can find a way to do this, would be the preferred method of use.

MASKING AGENTS Drug Profiles

Epitestosterone

Epitestosterone is an epimer of testosterone that is naturally produced in the body parallel with our primary androgen. It is identical to testosterone except for the lack of a 17-beta hydroxyl group, a trait necessary for androgen receptor binding. Although scientists long thought that epitestosterone was inert and served no biological function, we have since come to understand that it does play a role in regulating hormone activity. It weakly antagonizes the androgen receptor, inhibits testosterone biosynthesis, and prevents the reduction of testosterone to DHT[293]. Through these actions, it is believed to play a counter role in regulating such things as prostate growth and body hair distribution. If you think these facts make epitestosterone completely worthless as a performance-enhancing drug, think again. "Epitest" holds tremendous value as a masking agent, capable of skewing the results of a urinalysis screen so the illicit use of exogenous testosterone can be hidden. It may not improve performance itself, but it definitely is used in the realm of performance enhancement.

To understand how epitestosterone works as a masking agent, you need to first understand how testosterone is detected in the dreaded "piss test". Because testosterone is a material found in your body naturally, it hasn't been easy for scientists to come up with a method for detecting it. Early analytical methods, which are still largely applied today, can't tell the difference between testosterone that was injected and testosterone that your body manufactured itself. It all just appears as testosterone. To plug a hole in testing that is comparable to the size of the Holland Tunnel, a detection method was devised that relies on comparing levels of testosterone to those of epitestosterone, which your body manufactures at the same time. Normally these two compounds are produced in a 1:1 ratio; however, there are some variances in the natural chemistry of people that would allow for this figure to be different. Therefore, the IOC adopted a 6:1 ratio threshold that would allow for the natural differences in people without wrongly failing anyone. This means that if your urine screen shows your level of testosterone to be more than 6 times your level of epitestosterone, it is assumed you are using testosterone drugs.

Because the majority of people fall well below the 6:1 ratio threshold, the average athlete can get away with using a couple hundred milligrams of testosterone per week without failing a drug test. It is often thought of as a welcome loophole that allows for "a little something" to be used. But epitestosterone changes things considerably. It allows the athlete to break out of the constraints of testosterone/epitestosterone ratio testing, and use as much exogenous testosterone as they deem necessary to aid their performance. You simply need to take epitestosterone in similar doses to the testosterone drugs you are using, and your ratio will continue to read normal on a urine test. It can also be used in a single high dose shortly before testing, to correct an imbalanced ratio quickly. This way the athlete only needs to obtain a small amount of epitestosterone, which they can hold for the day it will be needed. Even if your testosterone to epitestosterone ratio becomes abnormally low from this practice, it will likely be perceived as a testing error instead of a failure for epitestosterone use.

Epitestosterone is not considered an anabolic steroid, nor is it a controlled drug in the United States at this time. Even though it is technically not an illegal substance, it is not an easy one to obtain. It is not sold as a commercial steroid, and is only scarcely available as a research chemical. Don't expect to pick some up with a couple of phone calls. For many in the upper echelons of competitive sports, however, it does seem to make itself available. Sources are likely diverting research material, or having it synthesized in private labs inside and outside the country. The existence of manufactured epitestosterone, and its ability to defeat a urine screen, has been known to testing officials for a long time. This has driven scientists to search for detection methods that do not rely on hormone profiling for a long time. After decades of work, a test was finally developed, and it might just close the ratio loophole for good. It relies on isotope ratio mass spectrometry (GC/C/IRMS) to determine if the testosterone in your body was actually of endogenous origin. Until this detection method becomes adopted in all drug-tested tested sports, epitestosterone will remain a compound of unique and profound value to those athletes who can use it.

Probenecid

Probenecid is a competitive inhibitor of organic acid transport in the kidneys and other organs. It was first developed in 1951 by Bayer as an adjunct to penicillin therapy, at a time when this antibiotic was in clinically short supply. Probenecid was the result of a long drug development program at Bayer, who saw an urgent need for a pharmaceutical that would inhibit the tubular secretion of penicillin. Probenecid would increase the levels of antibiotic in the blood (sometimes by several hundred percent), as well as its overall active lifespan, so that a therapeutic effect could be achieved at a much lower dosage. Although this technically remains an approved use of probenecid today, the drug is now more often prescribed as a uricosuric agent. It promotes the excretion of uric acid (the only endogenous compound it is known to increase the excretion of), which makes it important in the treatment of gout and gouty arthritis.

This drug is of no interest to athletes as a uricosuric agent. They have discovered a very unique "off label" use for probenecid, namely that it can be taken to mask the detection of anabolic steroids and other banned medications during urine testing at athletic competitions. This is accomplished by the drug's very strong ability to inhibit renal glucuronidation, a chemical reaction that attaches a water-soluble molecule (glucose) to a compound it wants to clear from the body. This shift in solubility allows the kidneys to remove byproducts from the blood, transferring them into the urine and bladder. Glucuronidation is a primary pathway for the disposal of anabolic steroids. While probenecid is being taken, the level of steroid byproducts in the urine will be dramatically lowered[294]. Combined this with a large volume of water intake and the pre-event secession of drug use, the metabolite density in the athlete's urine can suppressed to a low enough level to bypass detection. Detection is more difficult with probenecid, but not impossible.

Probenecid is a relatively old drug by today's standards, and has seen extensive clinical use. It is considered safe and reliable, however, like any medication, it is not without its potential risks and side effects. For one, great care should be taken when using it with other medications. It will alter the blood concentrations, half-lives, and excretion patterns of many medicines, sometimes with dangerous consequences. Other potential side effects include headache, upset stomach, vomiting, loss of appetite, dizziness, skin rash, difficulty breathing or swallowing, or unusual bleeding or bruising. The latter side effects are most serious, and warrant immediate medical attention. Although a case could be made that this could the anabolic effect of anabolic steroids by preventing their excretion, there seems to be little interest in taking probenecid for this purpose. Most athletes feel there are too many unanswered questions with extended use, as such, have instead adopted it as a last minute (short-term) masking agent, and not an "anabolic enhancer".

The fact that Probenecid can block the renal excretion of steroid metabolites is not news to athletic organizations. Its value as a masking agent has long been uncovered and eliminated. Banning the use of this drug in competitive sports and developing a detection method for this compound itself[295] have successfully accomplished this, feats that were undertaken and actualized over a decade ago. To this day, the International Olympic Committee and related governing athletic organizations continue to test for the prohibited use of Probenecid, and consider its use as serious an offense as any drug that it might be potentially masking. Therefore, there is currently no practical application for this drug unless you have somehow found a sport that has decided not (or doesn't know) to test for it.

Probenecid is sold by prescription in most countries, and found in numerous generic and "brand name" forms. U.S. brands include Benemid and Probalan, while Benuryl is most popular in Canada. Most formulations contain either 250 or 500mg, the latter being more popular. The typical therapeutic dose is in the range of 250-500mg (1 tablet) twice daily, amounts that would be common for use with athletes as well as patients. Sometimes, clinical requirements will call for as much as 2,000mg per day, which is considered the upper threshold of the safe dosage range for all purposes. There is a potential for death with severe overdose, so a "more is better" attitude should definitely not be taken with this agent. Also, you need to remember that this drug is being tested for practically every sport that tests their athletes for steroid use. It has become the official "masking agent of abuse" on all of the banned drug lists, and offers no value as such today.

REDUCTASE INHIBITORS Drug Profiles

Avodart® (dutasteride)

Avodart® (dutasteride) is one of the latest drugs in the treatment of benign prostate enlargement (BPH), gaining FDA approval as a prescription drug in 2002. Specifically, this agent is a 5-alpha reductase inhibitor, similar in action to Propecia (finasteride). Reductase inhibitors prevent the conversion of testosterone to its more androgenic counterpart, DHT (dihydrotestosterone). With androgens being implicated in numerous disorders in men including male pattern hair loss and benign prostate enlargement, DHT inhibition is an important treatment focus. Avodart® differs from the first generation reductase inhibitor, finasteride, in its tissue selectivity. Finasteride inhibits the type-2 isozyme of the 5-alpha reductase enzyme, which is found prominently in the scalp and prostate. Dutasteride, on the other hand, is non-specific for isotype (it inhibits both type-1 and type-2 reductase), and inhibits DHT conversion in all active tissues including the scalp, liver, prostate, and skin. It lowers systemic (whole body) levels of DHT much more effectively than finasteride, and represents a more effective "next generation" anti-DHT drug.

For bodybuilders concerned with the androgenic component of testosterone-based steroids, the release of Avodart® is big news. This drug is a substantial achievement in the minimization of androgenic side effects produced by DHT conversion, and is capable of changing the profile of testosterone measurably. When used with dutasteride, this potent androgen starts to become more like nandrolone in terms of its side effect profile. Maybe it will not be quite as weak in its level of androgenic activity as Deca (one of the least androgenic drugs known), but dutasteride will definitely allow testosterone to be a lot more "friendly" than it is normally. Occurrences of oily skin and acne should be considerably dampened, and the impact a steroid cycle will have on the hairline (for those genetically prone to baldness) somewhat reduced. Avodart® essentially finishes off what was started with finasteride. As a selective type-2 inhibitor, finasteride is effective at lowering DHT levels in the scalp, but it does not work as well for reducing oily skin and acne. Avodart® is an all around anti-DHT drug, effective at reducing androgenic side effects across the board.

It is important to remember a few things about dutasteride before running out to buy it. For starters, this drug does not stop all chances of noticing hair loss and acne. It works to minimize their occurrence by reducing, not eliminating, the level of androgenic activity in the body. This happens by preventing a moderately potent steroid (testosterone) from converting into a significantly stronger one (dihydrotestosterone). Testosterone is still a steroid. It mediates its effects through the same receptor that DHT does. This means that even if DHT conversion is blocked, testosterone is still capable of doing its job. There is a popular misconception that DHT is an unusual steroid in regard to hair loss, producing a side effect that other (non-DHT converting) steroids can't. Those who have this mindset might be tempted to take high doses of testosterone along with a reductase inhibitor, feeling they will not have any worries at all. They soon find that it is possible to take enough testosterone to compensate for the reduced levels of DHT conversion, making the cycle every bit as androgenic as a testosterone cycle.

You also need to remember that reductase inhibitors only affect testosterone, and its derivatives methyltestosterone and Halotestin. These three drugs are converted to stronger "dihydro" derivatives by the reductase enzyme. Nandrolone and most of its derivatives become weaker upon interaction with this enzyme, as their "dihydro" counterparts bind the androgen receptor very poorly. You definitely don't want to take Avodart® with Deca-Durabolin®, at least if side effects are your motivation. It will make them worse. Methandrostenolone and boldenone will undergo conversion to stronger 5-alpha reduced metabolites, but it occurs at such a slight extent in humans that it probably does not warrant the use of a drug like Avodart®. The rest of the synthetic anabolic agents are unaffected by reductase, making Avodart® inconsequential. Taking it during a cycle with anything like Winstrol, Primobolan, Dianabol, trenbolone, Anadrol, Anavar would be a waste of money. Avodart® is not a silver bullet anti-side effect drug, but is definitely worthy of consideration under the right circumstances.

Just as there are pluses to lowering 5-alpha reductase activity (less androgenic side effects), there are also minuses to the practice that should be taken into account. For one, the buildup of a strong androgen like DHT may be vital to the neuromuscular interaction, fostering strength, and even some muscle gain. Users of reductase inhibitors commonly report a drop in their maximum lifts soon after the drug is added, which is thought to be caused specifically by the drop in DHT levels. Libido may also decline as DHT concentrations are lowered, somewhat of a frequent complaint amongst users of the drug. A small percentage of men even find the need to keep Viagra on hand, as Avodart® renders them totally impotent. Dihydrotestosterone also serves as a potent endogenous anti-estrogen, as this non-aromatizable steroid competes with other substrates (like testosterone, which aromatizes) to bind with the aromatase enzyme. Gynecomastia or

other estrogenic side effects may, therefore, start to occur when this competition is absent. Gyno is, in fact, listed in the warnings taking this product, although the frequency of this in testing was very low (1.1% of users).

In terms of exactly how effective this drug is as a reductase inhibitor compared to finasteride, we see a very substantial difference in how well these two agents work. This is demonstrated in a study published in the Journal of Clinical Endocrinology and Metabolism (May, 2004). It looks directly at dutasteride and finasteride and how these two drugs compare[296]. In this investigation 399 males suffering with benign prostatic hypertrophy (a large group of patients by most standards) was assembled. They were separated into three general groups, each receiving dutasteride (subdivided by doses of .01, .05, .5, 2.5 or 5.0 mg daily), finasteride (.5mg daily) or placebo, for a period of 24 weeks. Over the 24-week period, the dutasteride group noted by far the strongest level of DHT inhibition. The beneficial effects of this drug also occurred over a wide range of dosages. For example, 5mg daily amount caused 98.4% inhibition in DHT levels, while 1/10th of this amount (.5mg daily, the adopted therapeutic dose) lowered levels by an average of 94.7%. This was in great contrast to the 5mg finasteride group, which noticed only 70.8% inhibition. Researchers also noted that there was significantly more of a variation in the results of the finasteride group, with some patients noting DHT suppression in the range of only 50-55%. Clearly, dutasteride is much more effective.

Currently the price of Avodart® in your average U.S. discount pharmacy is about $2 per .5mg softgel capsule. This drug is also sold under the brand names Avolve and Duogen in Europe, which may offer slightly different pricing. One capsule per day is the given therapeutic dose, and since this drug is so effective at .5mg daily, there should be no need to exceed this amount. It is likely that even .25mg per day will provide strong inhibition in many users, however, being a softgel, you don't really have the option of breaking it in half to try this out. That means that on a per month basis, you are adding about $60 to your cycle, not a bad value if you want to use a testosterone product and acne and hair loss are strong concerns. Combine this with a new generation anti-estrogen like raloxifene ($3 per pill), and your monthly costs for keeping side effects down will be about $150. With such a hefty price tag, it is understandable why many athletes opt to ignore reductase inhibitors (or buy primarily anabolic drugs and avoid testosterone) and instead use the much cheaper Nolvadex to prevent gyno. But for those who would like optimal benefit and don't mind paying for it, a stack of Evista® and Avodart® is about the best you can get right now. *They can't promise a side effect free cycle,* but should make one based on testosterone, Halotestin, or methyltestosterone much more comfortable.

Proscar® (finasteride)

Finasteride is a specific inhibitor of 5a-reductase, which is the enzyme responsible for converting testosterone into DHT (dihydrotestosterone). This drug can efficiently reduce the serum concentration of DHT, therefore minimizing the unwanted androgenic effects that result from its presence. The effect of this drug is quite rapid, suppressing serum DHT concentrations as much as 65% within 24 hours after taking a single 1mg tablet. Medically, this drug has been marketed to treat two specific conditions. The first release of finasteride in the U.S. was under the brand name of Proscar®, made for use by patients with benign prostate hyperplasia (prostate enlargement). More recently (December 1997), finasteride was approved for use as an anti-balding medication. We now have the additional brand name Propecia®, which is the same drug but the tablet contains only 1/5th of the Proscar® dosage. Scientists have long believed that DHT was the main culprit in many cases of male hair loss (along with genetic factors), so there was little doubt after the release of Proscar® that finasteride would eventually be used for this purpose. It has provided what many feel is a breakthrough for men with hair-loss problems.

Due to the very specific nature of finasteride, it has little effect on the other hormones in the body. It has no affinity for the androgen receptor, and does not exhibit any androgenic, anti-androgenic, estrogenic or anti-estrogenic properties. It should have no impact on circulating levels of cortisol, thyroid-stimulating hormone, or thyroxine, nor should it alter HDL/LDL cholesterol levels. Changes in luteinizing hormone (LH) or follicle-stimulating hormone (FSH) are also not notable, and it is not shown to have an effect on the hypothalamic-pituitary-testicular axis. In a small percentage of cases the decreased DHT level did produce symptoms of sexual disinterest/dysfunction. Although this is not a common complaint, this problem can usually be resolved quickly by discontinuing the drug. It is also interesting that finasteride has been shown to increase the circulating levels of testosterone by roughly 15%, since a greater amount of the androgen is being left unaltered by the reductase enzyme.

Proscar®/Propecia® shows great potential for the steroid using athlete. And as you know, the dihydrotestosterone (DHT) metabolite is responsible for many of the unwanted androgenic side effects associated with testosterone use. The high levels of DHT that form in certain tissues produce oily skin, acne, facial/body hair growth and accelerated male pattern baldness. By minimizing the production of DHT, we should greatly reduce many of these harsh side effects and make our testosterone cycles more comfortable. In many instances, Proscar®/Propecia® can allow the athlete the use of steroid compounds (testosterone esters such as cypionate, enanthate, Sustanon etc.), Halotestin® and methyltestosterone with much less androgenic side activity. Of course we must not forget that all steroids activate the androgen receptor, so while this item offers help by means of reduced androgenic activity, not drug exists that can completely block androgenic side effects from appearing with steroid use.

One other thing to note is that finasteride specifically blocks the Type II 5a reductase enzyme. There are actually two "isozymes" in the human body, labeled as type I and type II. Type I 5a-reductase is predominant in the sebaceous glands of most regions of skin. The Type II 5a-reductase isozyme is primarily found in prostate and hair follicles (among others). So although the Type II enzyme is responsible for about two-thirds of the circulating DHT, a small amount of DHT may still be produced in the body by the Type I enzyme. Finasteride may therefore have a more pronounced effect when preventing hair loss, and be somewhat of a lesser benefit when dealing with acne and body/facial hair growth (tissues where the Type I enzyme is still active). Of course the drop in serum DHT will still have some beneficial effect on all related side effects. This is not a major concern in any event, as hair loss is really the primary worry amongst most male steroid users who would use this drug. A little oily skin or new hair growth on the back/shoulders can be dealt with by other means or simply endured. The user knows these problems will only be temporary. But the advancement of a balding condition can be very difficult, if not impossible to reverse. We must also remember that testosterone, Halotestin® and methyltestosterone are really the only hormones that converts to stronger steroids via 5-alpha reductase. Boldenone and methandrostenolone do also I guess, but to such a low degree that one would think Proscar would be of little significance. Perhaps we will come to find that some other steroids are broken down into stronger metabolites via 5a-reductase, but needless to say for now the uses of this drug are not great in number.

There is no research to site on exactly what dosage would be the most appropriate for a steroid user. Logic would dictate that the typically prescribed amount of Propecia®, a single 1mg tablet per day, would most likely be sufficient. In clinical trials the effect of just a single tablet is clearly dramatic. But if after a while the androgenic content of the cycle is still perceived as too high, increasing the number of tablets per day or perhaps switching to the stronger

Proscar® (5mg tablet) may be necessary. Proscar®/ Propecia® is also a relatively expensive compound, so it can become quite costly as the dosage increases. It is probably best to keep the dosage at the lowest effective amount. Cost may not be the only basis for such a decision, as DHT is believed to affect the nervous & reproductive system in many beneficial ways. By minimizing this conversion we not only face the possibility of interference with sexual functioning, but might also be inadvertently lessening the level of strength gained during testosterone therapy (this being tied to the actions of DHT on the neuromuscular system). A "use only when necessary" position should likewise be taken in regard to this drug.

It is also important to note that while Women may receive some small benefit from the drug (although testosterone is really not a steroid for females), they must be very careful with it. Those who are, or might become pregnant, should never take or even handle a finasteride tablet. The DHT blocking action can cause severe developmental problems to an unborn fetus, even in very small amounts. Since the drug can be absorbed through the skin, handling a broken tablet may be all that is needed for such an occurrence. Since women generally stay away from testosterone, and the design of Proscar®/Propecia® has been strictly for men, as of yet there is little to report on the effectiveness of this compound for combating virilization symptoms.

Caverject® (alprostadil)

Caverject is Pharmacia & Upjohn's brand name for the injectable impotence drug alprostadil. This product appeared on the U.S. drug market in 1995, and was the first real effective drug introduced to treat impotence. Alprostadil is specifically a synthetically manufactured form of the natural prostaglandin PGE1, which has the ability to almost immediately (5-20 minutes) produce an erection when injected directly into the penis (PGE1 stimulates nitric oxide release, which is vital to the erectogenic process). This will be sustained for about an hour (in certain cases it can last as long as 4-6 hours, which is considered a prolonged erection). Injecting Caverject is probably not a pleasant experience (never tried it myself), however many patients do seem to report this form of impotency treatment extremely effective and reliable. Caverject was most popular before the advent of Viagra, which essentially accomplishes the same thing without the need for uncomfortable and embarrassing injections. Viagra was introduced only a few years after Caverject, so it no doubt has been cut into the expected sales of this drug considerably.

But bodybuilders (at least those without impotency issues) are looking at Caverject with something very different in mind. They are hoping it can be used as an effective pre-contest "site-enhancing" agent. I guess someone looked at Caverject with the idea that if it can swell the penis tissues, maybe injections into small muscles like the biceps, triceps, deltoids and calves can produce swell in these tissues as well. Caverject is definitely being pushed hard by a number of overseas online steroid-selling pharmacies with this very effect in mind. But is this a valid use for the drug, or just an attempt by these pharmacies to find an alternative to offer customers requesting the now discontinued site-enhancing steroid Esiclene? Unfortunately, there is little real-world feedback on Caverject in this regard, but the few people who have experimented with the drug seem to have been disappointed with its results. It may offer some effect, but if there is a true replacement for Esiclene, it is probably not going to be found here. The non-opioid analgesic Nolotil seems to be much more promising in this regard, and is also comparatively much less expensive to use.

Side effects from this drug seem to be very limited, and usually concern pain or discomfort at the site of injection. With a sensitive area such as the penis, a misplaced shot can definitely be an uncomfortable experience. In some cases this has included painful erections, burning or soreness, blood in the urine, numbness, or irregular ejaculation. Obviously many of these potential pitfalls are avoided with the "extra-penile" administration of the drug, leaving only some typical injection site pain to deal with. Aside from this, it is a relatively side-effect-free compound. Many patients actually continue to use Caverject over Viagra as their chosen form of impotency treatment because it does not cause the same problems for them (such as blurred or irregular vision, flushing, headaches, stomach discomfort or indigestion). Even factoring in the injection procedure, these people find Caverject to be the more comfortable option.

Alprostadil is readily available in the United States, where it is sold as a prescription drug. The brand name Caverject from Pharmacia & Upjohn is found in vials containing 10, 20 or 40mcg of alprostadil, as well as single-use syringe kits that contain a total dose of 5, 10 or 20mcg. At the pharmacy, a single kit of 6 vials of the 20mcg product will run you around $175, while the 40mcg version will run you a little shy of $200. The price for a 20mcg dose, in a single vial kit, is about $50 from a popular overseas mail-order pharmacy. There is little chance you will find this drug for a remarkably low price at any of the mail-order pharmacies. The market for this drug is pretty small, and as a consequence is not widely manufactured (not many companies competing for market share). Caverject is not considered a controlled substance, making it easy to divert this drug to the black market should a large demand arise (I do not expect it to).

Nolotil® (metamizol)

Nolotil is a current popular trade name for the non-opioid antipyretic (fever reducing) and analgesic (painkilling) drug metamizol. It is also sold under the generic name dipyrone in many countries. On a milligram for milligram basis this agent displays a level of analgesic potency very similar to that of mild opiate agonists/antagonists tramadol and pentacozine[297]. Like these opioid drugs, it possesses no additional anti-inflammatory properties. Being first used as a medicinal product in the early 1920's, metamizol has a long history in the medical world. But since drugs of its class (pyrazolone derivatives) were thought to have too much potential for side effects, and more effective analgesics (opiates) were being readily utilized, the uses for metamizol remained very limited for decades. Only toward the end of the 20th century did this drug become (somewhat) more accepted for use in certain areas of the world.

Metamizol is sought after in the bodybuilding arena not for its analgesic properties, but because it has the odd benefit of being a reliable "site-enhancement drug" when given by injection. By this, I mean it can cause a temporary swelling of the muscle in which it was administered, giving the appearance of a larger and fuller muscle. Within a short period of time it can help a bodybuilder bring up a lagging body part, or even enhance an already prominent muscle to a noticeable (eye-catching) degree. The typical procedure involves injecting 2.5-5mL of Nolotil (1/2 to 1 5mL ampule) deep into the belly of the muscle. A very light workout is then done focusing on that muscle part in order to get blood flowing and help disperse the drug. This may be repeated for a few days to optimize the overall effect of the drug. Reports are that as much as an inch increase can be made on the arms in a single day with the use of this compound. If used in larger muscle groups, it is likely to produce an uneven "bumpy" look however, so it is recommended only to inject this drug on smaller muscle groups such as the biceps, triceps, delts or calves. The site-enhancing effect of this drug is unfortunately temporary, and tends to subside within a few days after the last injection.

Metamizol is considered somewhat of a controversial medication. Its known and potentially dangerous side effects include shock, blood abnormalities, kidney failure, and agranulocytosis (a sudden high fever and drop in white blood cell count). In a number of cases these effects have been fatal. Unfavorable safety data has actually caused a number of countries to withdraw the drug from the market, including the United States and Canada where sales were discontinued in 1977 and 1997 respectively. The incidence of such severe side effects appears to be low (by one estimate one in 20,000 patients will develop agranulocytosis), however, the fact that they do occur is cause for many to rethink the use of this medication. Certainly the opiates, barring their risks for addiction, have a much better safety profile as pain killing drugs when used under medical guidance. If you plan on using this drug as a site-enhancing agent, you should at the very least be aware of why this drug is no longer being sold in the U.S.

Metamizol is available as an oral, suppository and injectable medication. The latter, of course, is the sole interest of the bodybuilding community, as it is the only form that is capable of imparting a site-enhancing effect. The correct use of site-enhancement compounds have no doubt meant the difference between winning and losing for many competitive bodybuilders. The now-discontinued steroid Esiclene was a highly sought-after drug for years for this reason, earning itself a reputation amongst bodybuilders as the agent of choice for pre-contest body sculpting. Nolotil only seems to be an improvement on Esiclene. Those experimenting with this drug in particular have been extremely satisfied with the rapid onset of its effect, the user not needing the weeks of continuous injections required with Synthol. With Nolotil, the same thing can be accomplished in a fraction of the time, with no concerns over where all that deposited slowly metabolized oil will end up (I don't love Synthol for this reason). Nolotil is not a long-term fix by any means, but is definitely a standout product in the market for effective pre-contest "site-enhancement" agents.

Synthol

Synthol is perhaps one of the most controversial tools in the bodybuilders' arsenal of performance-enhancing compounds. Chris Clark, a German inventor and bodybuilder, developed it several years ago. When it first hit the market it was immediately met with widespread skepticism and criticism. Much of the criticism centered on ethical grounds, as Synthol is an injectable spot-enhancing agent that can produce a rapid increase in the size of muscles; but the increase is totally artificial. What I mean is that the product is purely cosmetic. It offers no strength or performance enhancing benefit, and any increase you are going to see is not going to be actual muscle tissue. For lack of a better description, Synthol is the do-it-yourself answer to plastic surgery.

There is no active drug in Synthol, only an oily solution that is difficult for your body to metabolize. How it works is remarkably simple. You inject the solution into your smaller muscle groups, and it will sit in the tissues for a very long time because your body has trouble breaking it down. It will sit for so long actually, that the body will start to encapsulate it between the fascicles (muscle fiber bundles). With repeated injections, a bolus deposit of encapsulated solution will build in the muscle, expanding its total girth. It reportedly will take years for the body to fully break it down, giving the impression of a solid and permanent gain in overall muscle size. Gains of one inch or more are very typical with this product.

What was in the bottle was supposed to be a closely guarded secret. Early on, it was said to contain some synthetically developed oil that could not be disclosed or duplicated. That apparently was not really the case. Dan Duchaine reportedly had a vial analyzed, finding it to contain only a simple blend of C8-C12 fatty acids (medium-chain triglycerides). This was mixed with small amounts of lidocaine, a local anesthetic often included in irritating medications to reduce injection site pain. Benzyl alcohol was also added, which is a common antimicrobial (preservative) agent in injectable drugs. It looked like we had cheap bottles of injectable MCT oil, which were being marked up to a price of a few hundred dollars a piece. Not quite a good deal for the consumer. But then again, the ingenuity of the idea probably did deserve to be rewarded.

The original Synthol has been copied countless times now, no doubt owing to the fact that Duchaine was able to give the world access to the "secret" recipe. You can probably find a half a dozen or so different Synthol-type products advertised in the back of your favorite bodybuilding magazine right now, with a wide variety of different names and gimmicked add-on ingredients. Like the original Synthol, all of them are sold under the guise of being topically applied "posing oils". Sitting in vials with normal "multi-dose injectable" rubber-stoppers, the clear unspoken fact, however, is that these are anything but topical products. After all, if they were, you would be spending an awful lot of money just to get a bottle of MCT oil to rub on yourself.

Since injections of Synthol in larger muscle groups tend to produce a very unsightly bumpy and uneven look, bodybuilders typically only use this product in the biceps, triceps, shoulders or calves. The typical procedure involved starting with an injection of 1mL, placed deep into the belly of each muscle group targeted. This is repeated every day or two for about a week, maybe ten days. After this point, the amount administered is increased to 1.5-2mL per injection. This is continued for another week to ten days. If a desired increase is not produced after this, the user may increase the amount to 2.5-3mL per injection, given every day or two for another week or so. At this point the "loading" of Synthol is typically discontinued, and at best the bodybuilder will take a 1mL injection once or twice per week for a while (typically to around the time of a particular event) to help maintain the size increase. It might not actually be permanent, but the size gained with a cycle like this can stick around for quite some time, giving appearance it is.

I think if you told any doctor what the product was and how you intended to use it, he or she would tell you that you were fucking insane. The idea seems very risky, with a number of clear potential health concerns. We do not know if the product can cause long-term damage to your muscles for one, possibly leaving them with scarred tissues from the invasive injection solution. Such voluminous injections may also lead to infection and abscess. You might inject the fat into a vein or artery causing other serious problems. The bolus dose of oil could be transported into the lungs, causing a pulmonary embolism, or maybe even into the brain causing a stroke. There are just too many unanswered questions to ever recommend this product. But even with these risks known, many feel the rewards far outweigh them. Until people start dropping like flies from using this product, which does not appear to be happening, Synthol will likely remain a popular, but rarely talked about, part of bodybuilding.

TANNING AGENTS Drug Profiles

Trisoralen® (trioxsalen)

Trisoralen® is a trade name (ICN) for the synthetic melanizing agent trioxsalen. As you may be familiar with, the normal pigmentation of the skin is due to melanin. This chemical is produced in the melanocytes, which are located in the base layers of the epidermis (skin). Melanin is formed by an enzyme reaction, involving the conversion of tyrosine to DOPA via the enzyme tyrosinase. Radiant energy in the form of ultraviolet light is needed to complete this process, hence the procedure of tanning. The exact mechanism in which Trisoralen takes its action is not clear however. Some investigators feel that this drug has a direct impact on the epidermis, or more specifically the melanocytes. Others feel its action is an inflammatory one, and that the process of increased melanogenesis is only a secondary effect. Whatever the exact path, Trisoralen can clearly increase the rate in which the skin is pigmented.

Medically this drug is used to treat a number of specific skin conditions. For starters, it is used effectively with various cases of vitiligo. This is a disorder that involves a marked loss of skin pigmentation. In many instances it will take on a very blotchy, uneven appearance. Depending on the intensity of this problem, Trisoralen may need to be used for a number of consecutive months in order to slowly and safely rebuild the skin's appearance. In many instances periodic treatment will be continued indefinitely so as to control any future progress of the disease. Trisoralen is also used when an increase in a patient's tolerance to sunlight is necessary. The extreme would be cases of albinism, in which the body is manufacturing no pigment. While Trisoralen will not stimulate new coloring, it can prevent severe sunburns by increasing the exposure time it will take for damage to occur. This protective action is accomplished by a greater retention of melanin in the skin, although the full melanagenic process cannot be completed. More basically, fair skinned individuals use Trisoralen in order to reduce the tendency to burn when tanning or out in direct sunlight. In many instances people will use this drug in order to prepare themselves for a tropical vacation. Regular use prior to the trip should greatly increase the amount of time one can spend in direct sunlight, and also increase the tendency to tan instead of burn.

Competitive bodybuilders find this drug extremely useful when readying for a stage appearance. It is no secret that a dark tan will make the physique look much more appealing. Muscle features seem to be markedly improved with tanning, resulting in a more "ripped" and impressive look on stage. Many bodybuilders, especially fair skinned individuals, have trouble developing a very dark skin base. Although the use of various skin dyes (sun-less tanning products) may be popular, a tanning agent like Trisoralen will produce a much more natural look. This drug has therefore proven to be invaluable to many top-level competitors, whom may otherwise have a frustrating time when developing their show physiques.

The typical routine is to take two 5mg tablets, 2 to 4 hours before sun exposure. When beginning therapy, it is important to gradually increase the sun (or tanning bed) exposure time, as this drug may cause severe burning if exposure is too great. It is also important not to increase the amount of tablets taken from this point, as the chance for burning (or blistering!) will notably increase with the dosage. Should the user accidentally take too high a dosage, or be noticing an uncomfortable burn after the drug is taken, he/she should remove themselves from light (as much as possible) for the next 8 hours. It is also of note that some users complain about stomach upset with this compound. Taking the drug with milk or after a meal will generally diminish this effect. Others may need to lower the dosage to 5mg, which in many instances is more tolerable. This amount is still enough to elicit a beneficial effect, but it will appear more slowly. This drug has also been shown to place some strain on the liver. Cautious individuals may therefore wish to limit the intake of Trisoralen to no more than two to four weeks. In fact two weeks is the typical cut-off point when the drug is prescribed to increase a patient's sun tolerance. Since bodybuilders are generally only taking this drug for short periods of time before a show, this is probably not a major concern.

Oxsoralen (methoxsalen)

Oxsoralen (methoxsalen) is a repigmenting agent that is being manufactured by the international pharmaceutical firm ICN. It is similar in structure and action to Trisoralen (trioxsalen), a drug that ICN used to market in the U.S. Both of these drugs belong to a class of medicines known as psoralens, which are used along with ultra violet light exposure to treat certain disorders of the skin such as Vitiligo (where skin pigment is lost) and psoriasis (a skin condition characterized by red and scaly blotches). Although the exact underlying mechanism behind these agents is unknown, they ultimately work to increase the output of melanin in response to stimulation by sunlight (or artificial UV exposure). This enhances the rate of pigmentation, which in many cases will allow the lighter areas of the skin to become more evenly colored.

Bodybuilders are attracted to psoralens because they may be used to help them develop that deep tan that is so favored in the world of competition and modeling. A good tan helps bring out muscle separation and definition tremendously, to the point it is just about considered a necessity (most bodybuilders who won't tan on their own will apply an artificial brush-on tan). A natural tan usually looks much better (at least in an immediate sense), especially when you are going to be seeing people face to face. This drives many fairer skinned people to look for drugs that can help them achieve a deep bronze look that is otherwise difficult or impossible to achieve on their own. In this regard, Oxsoralen most certainly seems to deliver, at least for most people who have carefully and correctly used the drug.

It is important to remember that this drug offers you no protection from the sun. It is most certainly nothing like using suntan lotion. In fact, since it increases the skin's sensitivity to sunlight, it can actually make one much more prone to skin damage. Medical professionals never prescribe it for the simple purpose of cosmetic enhancement of ones "tan" for this reason. If asked, your doctor will most likely point out that it has caused very serious sunburns when it was not properly used, even to the point of increasing a person's chance of suffering from skin cancer and cataracts. Like getting too much sunlight, it can also cause your skin to prematurely age. There are many serious concerns with the use of this drug, so do not let the fact that it is used for something as simple as tanning fool you into thinking it is benign. It most certainly is not. I assure you, if you use it incorrectly, you may wind up wishing you never heard of Oxsoralen.

The actual dose used is usually tailored to one's bodyweight and individual sensitivity to the drug. For this reason most bodybuilders will start by taking a single capsule or tablet per day, and increase the drug slowly, over time, to a point no more than the recommended medical dose for their bodyweight. According to the accompanying paperwork, this would be a maximum of 40mg for one weighing 146-176lbs., 50mg for a weight of 179-198lbs. and 60mg for people less than 255lbs. Exposure to sunlight or ultraviolet light also must take place a certain number of hours after you take the medicine, or it will not work. For patients taking the normal capsules of methoxsalen, this will be 2 to 4 hours after administration. For patients taking the Oxsoralin Ultra softgels (which digest more rapidly), they will need to wait only 1 1/2 to 2 hours. The amount of time one spends exposed to light will usually also be increased slowly, starting with very brief intervals as the user becomes accustomed to the drug. The sheer number of variables, with both natural and artificial sunlight (time of year, location, total UV exposure), makes it impossible to give exact recommendations as to how long, so it will be important to judge your own exposure time and dosage response very carefully.

At the pharmacy, 30 tablets of Oxsoralen Ultra (10mg per capsule) will cost you about $180-$200. If you are lucky enough to find a way to get a prescription for it, there is only a slight savings advantage to be found in buying it from a pharmacy in Canada. With such prices, Oxsoralen is much more costly than Trisoralen on a per dose basis, but then again Trisoralen has been discontinued in both the U.S. and Canada, so it may be the only thing available to you. It may be possible to find a generic version, offering a much larger savings, if you look hard enough.

TESTOSTERONE STIMULATING AGENTS Drug Profiles

HCG (Human chorionic gonadotropin)

Chorionic gonadotropin is a hormone found in the female body during the early months of pregnancy (it is produced in the placenta). It is in fact the pregnancy indicator looked at by the over the counter pregnancy test kits, as due to its origin it is not found in the body at any other time. Blood levels of this hormone will become noticeable as early as seven days after ovulation. The level will rise evenly, reaching a peak at approximately two to three months into gestation. After this point, the hormone level will drop gradually until the point of birth. As a prescription drug, HCG offers us some interesting benefits. In the United States, we have the two popular brands, Pregnyl, made by Organon, and Profasi, made by Serono. These are FDA approved for the treatment of undescended testicles in young boys, hypogonadism (underproduction of testosterone) and as a fertility drug used to aid in inducing ovulation in women. When prepared as a medical item, this hormone comes from a human origin. Although there is often a fear of biological origin products, there is little research to be found regarding pathogen or sterility problems with HCG. The problems seen with human origin growth hormone are certainly not to be repeated with HCG, as this compound is obtained in a much different way.

While HCG offers the female no performance enhancing ability, it does prove very useful to the male steroid user. The obvious use of course being to stimulate the production of endogenous testosterone. The activity of HCG in the male body is due to its ability to mimic LH (luteinizing hormone), a pituitary hormone that stimulates the Leydig's cells in the testes to manufacture testosterone. Restoring endogenous testosterone production is a special concern at the end of each steroid cycle, a time when a subnormal androgen level (due to steroid induced suppression) could be very costly. The main concern is the action of cortisol, which in many ways is balanced out by the effect of androgens. Cortisol sends the opposite message to the muscles than testosterone, or to breakdown protein in the cell. Left unchecked (by an extremely low testosterone level) in the body, cortisol can quickly strip much of your new muscle mass away.

The main focus with HCG is to restore the normal ability of the testes to respond to endogenous luteinizing hormone. After a long period of inactivity, this ability may have been seriously reduced. In such a state testosterone levels may not reach a normal point, even though the release of endogenous LH has been resumed. Many who have suffered severe testicular shrinkage may be able to relate, as it is often some time before normal testicle size and feelings of virility are restored if ancillary drugs had not been used. The excessive stimulation brought forth by administration of HCG can likewise cause the testicles to rapidly return to their normal size and level of activity. We are not simply looking for it to fix the problem however, as the resulting high testosterone level can itself trigger negative feedback inhibition at the hypothalamus. Estrogen production is also heightened with the use of HCG, due to its ability to increase aromatase activity in the Leydig's cells[298]. This is due to the main action of HCG, namely the increase of cyclicAMP (a secondary messenger that regulates cellular activity). When stimulated by HCG, the ability of the testes to aromatize androgens could potentially be heightened several times greater than normal. This also may inhibit testosterone production, so we therefore use HCG only as a quick shock to the testes.

The usual protocol is to inject 1,500-3,000 I.U. every 4th or 5th day, for a duration usually no longer than 2 or 3 weeks. If used for too long or at too high a dose, the drug may actually function to desensitize the Leydig's cells to luteinizing hormone, further hindering a return to homeostasis. Timing the initial dose is also very crucial. If your were coming off a cycle of Sustanon for example, testosterone levels in your blood will likely stay elevated for at least 3 to 4 weeks after your last injection. Taking HCG on the day of your last shot would therefore be useless. Instead one would want to calculate the last week in which androgen levels are likely to be above normal, and begin ancillary drug therapy at this point. In this case HCG would be started around the third or fourth week. Likewise, after ending a cycle of Dianabol (an oral) your blood levels will be sub normal after the third day. Here you may want to begin HCG therapy a few days before your last intake of tablets, giving it a few days to take effect. One would also want to give some thought to the level of suppression that the cycle might have brought about. After an 8 week cycle of Equipoise® for example, 1,500-2,500 I.U. would likely be a sufficient initial dosage. The lower amount of hormonal suppression one associates with this drug would probably not require much more. On the other hand, 750-1,000mg of Sustanon per week might incline the user to inject a much larger HCG dose, perhaps as much as 5000 I.U. for the opening application. It may thereafter also be a good idea to reduce the dosage on subsequent shots, so as to step down the intake of HCG during the two or three weeks of intake.

As discussed above, HCG acts only to mimic the action of LH. It is likewise not the perfect hormone to combat testosterone suppression, and for this reason it is used most often in conjunction with estrogen antagonists such

as Clomid®, Nolvadex® or cyclofenil. These drugs have a different effect on the regulating system, namely inhibiting estrogen-induced suppression at the hypothalamus. This of course also helps to restore the release of testosterone, although through a much different mechanism than HCG. A combination of both drugs appears to be very synergistic, HCG providing an immediate effect on the testes (shocking them out of inactivity) while the antiestrogen helps later to block inhibition on the hypothalamus and resume the normal release of gonadotropins from the pituitary. The typical procedure involves giving the Clomid®/Nolvadex® dose from the start with HCG, but continuing ant-estrogen(s) alone for a few weeks once HCG has been discontinued. This practice should effectively raise testosterone levels, which will hopefully remain stable once Clomid®/Nolvadex® have been discontinued. While unfortunately there is no way to assure retention of all muscle gains produced by anabolic steroids, using ancillaries to restore a balanced hormonal state is the best way to minimize the loss felt with ending a cycle.

Below is a sample ancillary drug schedule after ending a moderate cycle of Sustanon® 250

When we find HCG, we see it is always packaged in 2 different vials (one with a powder and the other with a sterile solvent). These vials need to be mixed before injecting, and are to be refrigerated should any be left over for later use. This product is widely manufactured and easily obtained on the black market. To date counterfeits have not been much of a concern, although a couple of oddities have popped up (all in multi-dose vials). The current popular fake matches the fake green/gold Steris boxes in circulation (*see: Picture Library for counterfeit photos*). Since many other preparations are available, this item is easily avoided.

MON	TUE	WED	THU	FRI	SAT	SUN
*Sustanon 500 mg						
HCG 5000IU Clomid 100 mg	Clomid 100 mg	Clomid 100 mg	**HCG 2500IU** Clomid 100 mg	Clomid 100 mg	Clomid 100 mg	Clomid 100 mg
HCG 2500IU Clomid 100 mg	Clomid 100 mg	Clomid 100 mg	Clomid 100 mg	**HCG 2500IU** Clomid 100 mg	Clomid 100 mg	Clomid 100 mg
	HCG 2500IU Clomid 100 mg	Clomid 100 mg	Clomid 100 mg	Clomid 100 mg	**HCG 1250IU** Clomid 100 mg	Clomid 100 mg
Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg
Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg	Clomid 50 mg
Clomid 50 mg						

*Last shot of cycle

BIBLIOGRAPHY

1. Behind the Scenes: Hypertrophy. Gene. Mind and Muscle Magazine 5/2005
2. Regulation of skeletal muscle fiber size, shape and function. J Biomech. 24(suppl1):123-33 (1991)
3. Myostatin negatively regulates satellite cell activation and self-renewal. J Cell Biol. 162:1135-47 (2003)
4. Signaling satellite-cell activation in skeletal muscle: markers, models, stretch, and potential alternative pathways. A Wozniak, J Kong et al. Muscle Nerve 31: 283-300 (2005)
5. Initial events in exercise-induced muscular injury. Med Sci Sports Exerc 22(4):429-35 (1990)
6. Effects of physical exercise on phospholipid fatty acid composition in skeletal muscle. Agneta Andersson et al. Am J Physiol. 274 (Endocrinol. Metab. 37): E432-8 (1998)
7. Effects of Exercise on parameters of blood coagulation, platelet function and the prostaglandin system. H Sinzinger, I Virgolini. Sports Medicine 6: 238-45 (1988)
8. Mechanical stretch induces activation of skeletal muscle satellite cells in vitro. Tatsumi R, Sheehan SM et al. Exp Cell Res 267(1) 107-14 (2001)
9. Release of hepatocyte growth factor from mechanically stretched skeletal muscle satellite cells and role of pH and Nitric Oxide. Ryuichi Tatsumi et al. Mol Biol of the Cell 13 p 2909-18 (2002)
10. Hepatocyte growth factor as a key to modulate anti-ulcer action of prostaglandins in stomach. J Clin Inv 98:2604-11
11. The role of prostaglandins in bone formation. Harada SI, Balena R et al. Connect Tissue Res. 1995;31(4)279-82
12. Prostaglandin F2a stimulates proliferation of clonal osteoblastic MC3T3-E1 cells by up-regulation of Insulin-like Growth Factor 1 receptors. Yoshiyuky Hakeda et al. J Biol Chem 266(31): 21044-50 (1991)
13. Prostaglandin E2 stimulates insulin-like growth factor I synthesis in osteoblast-enriched cultures from fetal bone. McCarthy TL, Centrella M et al. Endocrinology 128(6):2895-900 (1991)
14. Sequence of IGF-I, IGF-II, and HGF expression in regenerating skeletal muscle. Hayashi S et al. Histochem Cell Biol. 122(5):427-34 (2004)
15. Expression of insulin like growth factor-1 splice variants and structural genes in rabbit skeletal muscle induced by stretch and stimulation. G McKoy, W Ashley et al. J Physiol 516(2) 583-92 (1999)
16. Expression of fibrolast growth factor family during postnatal skeletal muscle hypertrophy. P Mitchell, T Steenstrup, K Hannon. J Applied Physiol 86:313-19 (1999)
17. Fibroblast growth factor is stored in fiber extracellular matrix and plays a role in regulating muscle hypertrophy. Medicine and Science in Sports and Exercise 21(5) S173-80 (1989)
18. The insulin-like effect of muscle contraction. Ivy JL. Exerc Sport Sci Rev. 1987;15:29-51.
19. The role of prostaglandins as modulators of insulin-stimulated glucose metabolism in skeletal muscle. Leighton B et al. Horm Metab Res Suppl. 22:89-95 (1990)
20. Differential effects of prostaglandins derived from n-6 and n-3 polyunsaturated fatty acids on COX-2 expression and IL-6 secretion. Dilprit Bagga et al. PNAS 100(4) 1751-56 (2003)
21. The role of arachidonic acid metabolism in the activities of Interleukin 1 and 2. W Farrar, J Humes. J of Immunol 135(2) 1153-9 (1985)
22. Regulation of protein synthesis associated with skeletal muscle hypertrophy by insulin-, amino acid and exercise-induced signaling. D Bolster, L Jefferson, S Kimball. Proc of the Nutrition Society 63: 351-56 (2004).
23. Role of androgens in growth and development of the fetus, child, and adolescent. Rosenfield R.L. Adv Pediatr. 19 (1972) 172-213
24. Metabolism of Anabolic Androgenic Steroids, Victor A. Rogozkin, CRC Press 1991
25. Androgens and Erythropoeisis. J Clin Pharmacol. Feb-Mar 1974 p94-101
26. Effects of various modes of androgen substitution therapy on erythropoiesis. Jockenhovel F, Vogel E, Reinhardt W, Reinwein D. Eur J Med Res 1997 Jul 28;2(7):293-8
27. Testosterone increases lipolysis and the number of beta-adrenoceptors in male rat adipocytes. Xu XF, De Pergola G, Bjorntorp P. Endocrinology 1991 Jan;128(1):379-82
28. The effects of androgens on the regulation of lipolysis in adipose precursor cells. Endocrinol 126 (1990) 1229-34
29. Visceral fat accumulation in men is positively associated with insulin, glucose, and C-peptide levels, but negatively with testosterone levels. Seidell JC, Bjorntorp L, Sjostrom L, et al.Metabolism 39 (1990) 897-901
30. Effects of testosterone and estrogens on deltoid and trochanter adipocytes in two cases of transsexualism. Vague J, Meignen J.M. and Negrin J.F. Horm. Metabol. Res. 16 (1984) 380-381
31. Testosterone injection stimulates net protein synthesis but not tissue amino acid transport. Fernando A, Tipton K, Doyle D et al. Am J. Physiol (Endocrinology and Metabolism) 38:E864-71,1998.
32. Glucorticoid antagonism by exercise and androgenic-anabolic steroids. Hickson RC, Czerwinski SM, Falduto MT, Young AP. Med Sci Sports Exerc 22 (1990) 331-40
33. Binding of glucorticoid antagonists to androgen and glucorticoid hormone receptors in rat skeletal muscle. Danhaive PA, Rousseau GG. J Steroid Biochem Mol Biol 24 (1986) 481-71
34. Evidence for a sex-dependent anabolic response to androgenic steroids mediated by muscle glucorticoid receptors in the rat. Danhaive PA, Rousseau GG. J. Steroid Biochem Mol Biol. 29 (1988) 575-81
35. Glucorticoid antagonism by exercise and androgenic-anabolic steroids. Hickson RC, Czerwinski SM, Falduto MT, Young AP. Med Sci Sports Exerc 22 (1990) 331-40
36. The source of excess creatine following methyl testosterone. Samuels L. T., Sellers D. M., McCaulay C. J. J. Clin. Endocrinol. Metab. 6 (1946) 655-63
37. Ontogeny of growth hormone, insulin-like growth factor, estradiol and cortisol in the growing lamb: effect of testosterone. Arnold AM, Peralta JM,

Tonney MI. J Endocrinol 150 (1996) 391-9
38. Testosterone administration to elderly men increases skeletal muscle strength and protein synthesis. Am J Physiol 269 (1995) E820-6
39. Testosterone deficiency in young men: marked alterations in whole body protein kinetics, strength, and adiposity. Mausas N, Hayes V, Welch S et al. J Clin Endocrin Metab 83 (1998) 1886-92
40. Endocrinology 114(6):2100-06 1984 June,"Relative Binding Affinity of Anabolic-Androgenic Steroids...",Saartok T; Dahlberg E; Gustafsson JA
41. Endocrinology 114(6):2100-06 1984 June,"Relative Binding Affinity of Anabolic-Androgenic Steroids...",Saartok T; Dahlberg E; Gustafsson JA
42. Sex Hormone-Binding Globulin Response to the Anabolic Steroid Stanozolol: Evidence for Its Suitability as a Biological Androgen Sensitivity Test. J Clin Endocrinol Metab 68:1195,1989
43. Twenty two weeks of transdermal estradiol increases sex hormone-binding globulin in surgical menopausal women. Eur J Obstet Gynecol Reprod Biol 73: 149-52,1997
44. Aromatization of androgens by muscle and adipose tissue in vivo. Longcope C, Pratt JH, Schneider SH, Fineberg SE. J Clin Endocrinol Metab 1978 Jan;46(1):146-52
45. The aromatization of androstenedione by human adipose and liver tissue. J Steroid Biochem. 1980 Dec;13(12):1427-31.
46. Aromatase expression in the human male. Brodie A, Inkster S, Yue W. Mol Cell Endocrinol 2001 Jun 10;178(1-2):23-8
47. A review of brain aromatase cytochrome P450. Lephart ED. Brain Res Brain Res Rev 1996 Jun;22(1):1-26
48. Aromatization by skeletal muscle. Matsumine H, Hirato K, Yanaihara T, Tamada T, Yoshida M. J Clin Endocrinol Metab 1986 Sep;63(3):717-20
49. Pentose Cycle Activity in Muscle from Fetal, Neonatal and Infant Rhesus Monkeys. Arch Biochem Biophys 117:275-81 1966
50. The pentose phosphate pathway in regenerating skeletal muscle. Biochem J 170: 17 1978
51. Aromatization of androgens to estrogens mediates increased activity of glucose 6-phosphate dehydrogenase in rat levator ani muscle. Endocrinol 106(2):440-43 1980
52. Influence of tamoxifen, aminoglutethimide and goserelin on human plasma IGF-1 levels in breast cancer patients. J steroid Biochem Mol Bio 41:541-3,1992
53. Activation of the somatotropic axis by testosterone in adult males: Evidence for the role of aromatization. J Clin. Endocrinol Metab 76:1407-12 1993
54. Testosterone administration increases insulin-like growth factor-I levels in normal men. J Clin Endocrinol Metab 77(3):776-9 1993
55. Androgen-stimulated pubertal growth:the effects of testosterone and dihydrotestosterone on growth hormone and insulin-like growth factor-I in the treatment of short stature and delayed puberty. J Clin Endocrinol Metab 76(4)996-1001 1993
56. Modulation of the cytosolic androgen receptor in striated muscle by sex steroids. Endocrinology. 1984 Sep;115(3):862-6.
57. Effect of estrogen-serotonin interactions on mood and cognition. Zenab Amin et al. Behav Cogn Neurosci Reviews 4(1) 2005:43-58
58. Serotonin and the sleep/wake cycle: special emphasis on miscodialysis studies. Chiara M Portas et al. Progress in Neurology 60(200) 13-35.
59. Reduction of serotonin transporters of patients with chronic fatigue syndrome. Neuroreport 2004 Dec 3;15(17):2571-4
60. Association between serotonin transporter gene polymorphism and chronic fatigue syndrome. Narita M et al. Biochem Biophys Res Commun 2003 Nov 14;311(2)264-6
61. Premenstrual Syndrome. Dickerson LM et al. Am Fam Physician 2003 Apr 15;67(8):1743-52
62. Phase II trial of anastrozole in women with asymptomatic mullerian cancer. Gynecol Oncol. 2003 Dec;91(3):596-602.
63. Letrozole. A review of its use in postmenopausal women with advanced breast cancer. Drugs. 1998 Dec;56(6):1125-40. Review.
64. Exemestane: a review of its clinical efficacy and safety. Breast. 2001 Jun;10(3):198-208.
65. A study of fadrozole, a new aromatase inhibitor, in postmenopausal women with advanced metastatic breast cancer. J Clin Oncol. 1992 Jan;10(1):111-6.
66. Neural androgen receptor regulation: effects of androgen and antiandrogen. Lu S, Simon NG, Wang Y, Hu S. J Neurobiol 1999 Dec;41(4):505-12
67. A comparative study of the metabolic fate of testosterone, 17alpha-methyltestosterone, 19-nor-testosterone, 17alpha-methyl-19-nor-testosterone and 17alpha-methyl-estr-5(10)-ene-17beta-ol-3-one in normal males. Dimick D, Heron M, et al. Clin Chim Acta 6(1961) 63-71.
68. Unique steroid congeners for receptor studies. Ojasoo T, Raynaud J. Cancer Research 38 (1978) 4186-98
69. Cytosolic androgen receptor in regenerating rat levator ani muscle. Max S.R. Mufti S, Carlson B.M. J Biochem 200 (1981) 77
70. In vitro binding and metabolism of androgens in various organs: a comparative study. Kreig M., Voigt K.D. J Steroid Biochem 7 (1976) 1005
71. Androgen concentrations in sexual and non-sexual skin as well as striated muscle in man. Deslypere J.P., Sayed A., Verdonck L., Vermeulen A. J Steroid Biochem 13 (1980) 1455-8
72. Contrasting effects of testosterone and stanozolol on serum lipoprotein levels. JAMA 261:1165-8,1989
73. High-Density Lipoprotein Cholesterol Is Not Decreased if an Aromatizable Androgen Is Administered. Metabolism, 39:69-74,1990
74. Testosterone dose-response relationships in healthy young men. Shalender, Woodhouse et al. Am J Physiol Endocrinol Metab 281: e1172-81 2001
75. Metabolic effects of nandrolone decanoate and resistance training in men with HIV. Sattler et al. Am J Physiol Endocrinol Metab 283: e1214-22
76. Effects of an oral androgen on muscle and metabolism in older, community-dwelling men. Schroeder et al. Am J Physiol Endocrinol Metab 284: E120-28
77. Effect of long-term testosterone oenanthate administration on male reproductive function: Clinical evaluation, serum FSH, LH, Testosterone and seminal fluid analysis in normal men. J. Mauss, G. Borsch et al. Acta Endocrinol 78 (1975) 373-84
78. Desensitization to gonadotropins in cultured Leydig tumor cells involves loss of gonadotropin receptors and decreased capacity for steroidogenesis. Freeman DA, Ascoli M Proc Natl Acad Sci U S A 1981 Oct;78(10):6309-13
79. Acute stimulation of aromatization in Leydig Cells by Human Chorionic Gonadotropin In-vitro. Proc Natl Acad Sci USA 76:4460-3,1079
80. Detection of nandrolone metabolites in urine after a football game in professional and amateur players: a Bayesian comparison. Robinson N, Taroni F, Saugy M, Ayotte C, Mangin P, Dvorak J. Forensic Sci Int 2001 Nov 1;122(2-3):130-5
81. Detection of norbolethone, an anabolic steroid never marketed, in athletes' urine. Catlin D, Ahrens B, Kucherova Y. Rapid Commun. Mass Spectrom. 2002; 16: 1273-75
82. Schanzer W, Donike M. Anal Chim. Acta. 1993; 275: 23

83. Androgens and Anabolic Agents: Chemistry and Pharmacology, Julius A. Vida, Academic Press 1969
84. Les hormones anabolisantes du point de vue experimental. P.A. Desaulles. Helv. Med. Acta 1960 479-503
85. Studies on anabolic steroids-8. GC/MS characterization of unusual seco acidic metabolites of oxymetholone in human urine. J Steroid Biochem Mol Bio 42:229-42,1992
86. Methyltestosterone, related steroids, and liver function. DeLorimier, Gordan G, Lowe R. et al. Arch Int. Med 116 (1965) 289-94
87. Short-term oxandrolone administration stimulated net protein synthesis in young men. Sheffield-Moore et al. J Clin Endocrinol Metab 84(8) 2705-11 (1999)
88. Effects of Oxandrolone on Plasma Lipoproteins and the Intravenous Fat tolerance in Man. Atherosclerosis 19:337-46, 1974
89. Oxandrolone and Plasma Triglyceride Reduction: Effect of Triglyceride-Rich Diet and High Density Lipoproteins. Artery 9:328-41,1981
90. Plasma and Lipoprotein Lipid Responses to Four Hypolipid Drugs. Lipids 19:73-79, 1984
91. Studies on the treatment of idiopathic gynaecomastia with percutaneous dihydrotestosterone. Clin Endocrinol (Oxf). 1983 Oct;19(4):513-20.
92. Gynecomastia: effect of prolonged treatment with dihydrotestosterone by the percutaneous route] Presse Med. 1983 Jan 8;12(1):21-5.
93. Comparative pharmacokinetics of three doses of percutaneous dihydrotestosterone gel in healthy elderly men--a clinical research center study. Wang C, Iranmanesh A, Berman N et al. J Clin Endocrinol Metab 1998 Aug;83(8):2749-57
94. Transdermal dihydrotestosterone treatment of 'andropause'. Ann Med. 1993 Jun;25(3):235-41.
95. Which testosterone replacement therapy? Cantrill JA, Dewis P, Large DM et al. Clin Endocrinol (oxf) 21 (1984) 97-107
96. Contribution of Lymphatically Transported Testosterone Undecanoate to the Systemic Exposure of Testosterone after Oral Administration of Two Andriol Formulations in Conscious Lymph Duct-Cannulated Dogs. D. Shackleford, W. A.Faassen et al. J of Pharm and Exper Ther. 306:925–933, 2003
97. Metabolism of 1-dehydroandrostanes in man. Galletti F, Gardi R. Steroids 18:1 (1971) 39-50
98. The biological activity of 7 alpha-methyl-19-nortestosterone is not amplified in male reproductive tract as is that of testosterone. Endocrinology. 1992 Jun;130(6):3677-83
99. Different Pattern of Metabolism Determine the Relative Anabolic Activity of 19-Norandrogens. J Steroid Biochem Mol Bio 53:255-7,1995
100. Relative binding affinities of testosterone, 19-nortestosterone and their 5-alpha reduced derivatives to the androgen receptor and to other androgen-bidning proteins: A suggested role of 5alpha-reductive steroid metabolism in the dissociation of "myotropic" and "androgenic" activities of 19-nortestosterone. Toth M, Zakar T. J Steroid Biochem 17 (1982) 653-60
101. Biosynthesis of Estrogens, Gual C, Morato T, Hayano M, Gut M and Dorfman R. Endocrinology 71 (1962) 920-25
102. Aromatization of androstenedione and 19-nortestosterone in human placental, liver and adipose tissues (abstract). Nippon Naibunpi Gakkai Zasshi 62:18-25,1986
103. Competitive progesterone antagonists: receptor binding and biologic activity of testosterone and 19-nortestosterone derivatives. Reel JR, Humphrey RR, Shih YH, Windsor BL, Sakowski R, Creger PL, Edgren RA. Fertil Steril 1979 May;31(5):552-61
104. Studies of the biological activity of certain 19-nor steroids in female animals. Pincus G., Chang M., Zarrow M., Hafez E., Merrill A. December 1956.
105. Influence of nandrolonedecanoate on the pituitary-gonadal axis in males. Bijlsma J., Duursma S, Thijssen J, Huber O. Acta Endocrinol 101 (1982) 108-12
106. Norandrostenolone and noretiocholanolone: metabolite markers. Acta Clin Belg (suppl) 1:68-73,1999
107. Biological half-lives of [4-14C]testosterone and some of its esters after injection into the rat. K.C. James, P.J. Nicholls and M. Roberts. J. Pharm. Pharmacol 1969 v21 p24-27
108. Relative imporance of 5alpha reduction for the androgenic and LH-inhibiting activities of delta-4-3-ketosteroids. Steroids 29: 331-48,1997
109. Estrogen receptor binding radiopharmaceuticals: II. Tissue distribution of 17 alpha-methylestradiol in normal and tumor-bearing rats. J Nucl Med. 1983 Jun:24(6):522-8.
110. J. Mathieu. Proc Intern. Symp. Drug Res. 1967 p 134. Chem Inst. Can., Montreal, Canada 1967.
111. Biosynthesis of Estrogens, Gual C, Morato T, Hayano M, Gut M and Dorfman R. Endocrinology 71 (1962) 920-25
112. Metabolism of Boldenone in Man: gas Chromatographic/Mass Spectrometric Identification of Urinary Excreted Metabolites and Determination of Excretion Rates. Schanzer, Donike. Bol Mass Spec. 21 (1992) 3-16
113. Nutritional and metabolic effects of some newer steroids. V. Norbolethone. Albanese, Lorenze, Orto, Wein et al. New York State Journal of Medicine (1968), 68(18), 2392-406.
114. Testing for fluoxymesterone (Halotestin®) administration to man: Identification of urinary metabolites by gas chromatography-mass spectrometry. Kammerer R., Mardink J., Jangels M et al. J Steroid Biochem 36 (1990) 659-66
115. Huffman MN. Lasdon Foundation. U.S. Patent #2,996,524
116. R.E. Counsell, G.W. Adelstein et al. J. Med. Chem. 9,685 (1966)
117. Different patterns of metabolism determine the relative anabolic activity of 19-norandrogens. Sundaram K. Kumar N. et al. J Steroid Biochem Mol Biol. 1995 Jun;53(1-6):253-7
118. Aromatization of 7alpha-methyl-19-nortestosterone by human placental microsomes in vitro. Kumar N. LaMorte et al. J Steroid Biochem Mol Biol. 1994 Feb;48(2-3):297-304
119. Estrogenic and progestational activity of 7-alpha-methyl-19-nortestosterone, a synthetic androgen. Beri R, Kumar N, Savage T. et al. Steroid Biochem Mol Biol. 1998 Nov;67(3):275-83
120. Pharmacokinetics of 7a-methylnortestosterone in men and cynomolgus monkeys. Kumar N. et al. J Androl 18:352-58
121. Al Segaloff. Steroids 1, 299 (1963)
122. J.A. Campbell, S.C. Lyster et al. Steroids 1, 317 (1963)
123. Prostate-sparing effects in primates of the potent androgen 7a-methyl-nortestosterone: A potential alternative to testosterone for androgen replacement and male contraception. D Cummings, N Kumar et al. J Clin Endocrinol Metab. 83: 4212-19 (1998)
124. 7alpha-methyl-19-nortestosterone, a synthetic androgen with high potency: structure-activity comparisons with other androgens. Kumar N. et al. L Steroid Biochem Mol Biol. 1999 Dec 31;71(5-6_:213-22

125. Transdermal testosterone improves sexual function, mood, muscle strength, and body composition parameters in hypogonadal men. J. Clin Endocrinol. Metab. 85: 2839-53.
126. 7alpha-methyl-19-nortestosterone: an ideal androgen for replacement therapy. Sundaram K, Kumar N. Bardin CW. Recent Prog Horm Res. 1994;49:373-6.
127. A clinical trial of 7a-methyl-19-nortestosterone implants for possible use as a long-acting contraceptive for men. S. Eckardstein, G Noe et al. J Clin Enocrinol Metab 88: 5232-39 (2003)
128. 7a-methyl-19-nortestosterone maintains sexual behavior and mood in hypogonadal men. R.A. Anderson, C.W. Martin et al. J Clin Endocrinol Metab. 84:3556-62(1999)
129. Structure-activity relationship study of human liver microsomes-ctalized hydrolysis rate of ester prodrugs of MENT by comparative molecular field analysis (CoMFA). Bursi R. Grootenhuis A. et al. Steroids 2003 Mar;68(3):213-20
130. Liver toxicity of a new anabolic agent: methyltrienolone (17-alpha-methyl-4,9,11-estratriene-17 beta-ol-3-one). Kruskemper, Noell. Steroids. 1966 Jul;8(1):13-24.
131. T. Feyel-Cabanes, Compt. Rend. Soc. Biol. 157, 1428 (1963)
132. Liver toxicity of a new anabolic agent: methyltrienolone (17-alpha-methyl-4,9,11-estratriene-17 beta-ol-3-one). Kruskemper, Noell. Steroids. 1966 Jul;8(1):13-24.
133. Aromatization of 7 alpha-methyl-19-nortestosterone by human placental microsomes in vitro. LaMorte A, Kumar N, Bardin CW, Sundaram K. J Steroid Biochem Mol Biol 1994 Feb;48(2-3):297-304
134. Clin Pharmacol Ther. 1963 Nov-Dec;30:734-9.
135. Metabolism of anabolic steroid drugs in man and the marmoset monkey (callithrix jacchus)-I. Nilevar and Orabolin. Ward R., Lawson A.M., Shackleton C.L.H. J Steroid Biochem 8 (1977) 1057-63
136. U.S. Patent # 3,060,201. 4-hydroxy-17alpha-methyl-3-keto-delta4-steroids of androstane and 19-nor-androstane series and esters therof. Camerino, Patelli, Sala. Oct 23, 1962.
137. Anabolic steroid abuse and cardiac death. Kennedy MC, Lawrence C. Med J Aust. 1993 Mar 1;158(5):346-8.
138. A. Arnold and G.O. Potts. Acta Endocrinol. 52, 489 (1966)
139. G. A. Overbeek and J. de Visser, Acta Endocrinol. 22, 318 (1956)
140. Unique steroid congeners for receptor studies. T. Ojasoo, J. Raynaud. Cancer Res. 38, 4186-98 (1978)
141. Methylestrenolone, a new progestogenic substance more active than progesterone. Mansani FE. Minerva Ginecol. 1957 Move 30;9(22):935-41
142. Androgenic and Anabolic Agents: Chemistry and Pharmacology. J Vida. Academic Press (1969)
143. Jaundice during administration of methylestrenolone. Peters RH, Randall AH et al. L Clin Endorcinol Metab, 1958 Jan;18(1):114-5.
144. Comparative studies about the influence of metenoloneacetate and mesterolone on hypophysis and male gonads. Trenkner R, Senge T, Hienz H et al. Arzneimittelforschung. 1970 20(4) 545-7.
145. Contraceptive efficacy and adverse effects of testosterone enanthate in Thai men. Sukcharoen N, Aribarg A, Kriangsinyos R, Chanprasit Y, Ngeamvijawat J. J Med Assoc Thai 1996 Dec;79(12):767-73
146. Hormonal therapy of endometriosis. Metzger DA, Luciano AA. Obstet Gynecol Clin North Am. 1989 Mar;16(1):105-22.
147. Edgren, Peterson, Jones, et al. Recent Progr. Hormone Res. 22, 305 (1966)
148. Tetrahydrogestrinone Is a Potent Androgen and Progestin. Alison Death, Kristine McGrath et al. J Clin Endocrinol and Metab. 89: 2498-2500, 2004.
149. Disposition of 17 beta-trenbolone in humans. Spranger, Metzler. J Chromatogr 564 (1991) 485-92
150. Unique steroid congeners for receptor studies. Ojasoo, Raynaud. Cancer Research 38 (1978) 4186-98
151. Characterisation of the affinity of different anabolics and synthetic hormones to the human androgen receptor, human sex hormone binding globulin and to the bovine progestin receptor. Bauer, Meyer et al. Acta Pathol Microbiol Imunol Scand Suppl 108 (2000) 838-46
152. Unique steroid congeners for receptor studies. Ojasoo, Raynaud. Cancer Research 38 (1978) 4186-98
153. Progesterone is not essential to the differentiative potential of mammary epithelium in the male mouse. Freeman, Topper. Endocrinology. 1978 Jul;103(1):186-92
154. Protein synthesis in isolated forelimb muscles. The possible role of metabolites of arachidonic acid in the response to intermittent stretching. Smith, Palmer et al. Biochem J. 1983 214,153-61
155. The influence of changes in tension on protein synthesis and prostaglandin release in isolated rabbit muscles. Palemr, Reeds et al. Biochem J. 1983 214,1011-14
156. Protein synthesis and degradation in isolated muscle. Effect of n3 and n6 fatty acids. Palmer, Wahle. Biochem J. 1987 242, 615-18
157. Dietary effects of arachidonate-rich fungal oil and fish oil on murine hepatic and hippocampal gene expression. Alvin Berger, David M. Mutch, J Bruce German, Matthew A. Roberts. Lipids Health Dis. 2002; 1 (1): 2
158. Regular exercise modulates muscle membrane phospholipid profile in rats. Helge et al. J. Nutr. 1999 129:1636-42
159. Exercise training reduces skeletal muscle membrane arachidonate in obese (fa/fa) Zucker rat. Ayre et al. J. Appl. Physiol. 1998 85(5):1898-1902
160. Effects of physical exercise on phospholipid fatty acid composition in skeletal muscle. Andersson et al. Am. J. Physiol. 274 (Endocrinol. Metab. 37):E432-38 1998
161. A human dietary arachidonic acid supplementation study conducted in a metabolic research unit: rationale and design. Lipids 32:415-20
162. Effects of dietary arachidonic acid on human immune response. Nelson et al. Lipids 32:449-56
163. Effects of dietary arachidonic acid on metabolism of deuterated linoleic acid by adult male subjects. Nelson et al. Lipids 33:471-80
164. Influence of dietary arachidonic acid on metabolism in-vivo of 8cis,11cis,14-eicosatrienoic acid in humans. Nelson et al. Lipids 32:441-48
165. Effects of an omnivorous diet compared with a lactoovovegetarian diet on resistance-training –induced changes in body composition and skeletal muscle in older men. W Campbell, M Barton et al. Am J Clin Nutr 70:1032-9 (1999)
166. The effect of dietary arachidonic acid on plasma lipoprotein distribution, apoproteins, blood lipid levels, and tissue fatty acid composition in humans. G.J. Nelson, P.C. Schmidt et al. Lipids 32: 427-33 (1997)

167. The effect of dietary arachidonic acid on platelet function, platelet fatty acid composition, and blood coagulation in humans. Nelson CJ, Schmidt PC et al. Lipids 32(4):421-5 (1997)
168. Effects of dietary arachidonic acid on human immune response. Kelley DS, Taylor PC et al. Lipids 32(4):449-56 (1997)
169. Dietary intake of N-3 and N-6 fatty acids and the risk of prostate cancer. M Leitzmann, M Stampfer et al. Am J Clin Nutr 80:204-16 (2004)
170. Dietary (n-6) PUFA and intestinal tumorigenesis. J Whelan, M McEntee et al. J Nutr 134:3421S-26S (2004).
171. A human dietary arachidonic acid supplementation study conducted in a metabolic research unit: rationale and design. Lipids 32:415-20
172. Action of heptaminol hydrochloride on contractile properties in frog isolated twitch muscle fibre. Allard B, Jacquemond V, Lemtiri-Chlieh F, Pourrias B, Rougier O. Br J Pharmacol. 1991 Nov;104(3):714-8.
173. Heptaminol chlorhydrate: new data. Pourrias B. Ann Pharm Fr. 1991;49(3):127-38.
174. On the mode of action of heptaminol (author's transl)] Grobecker H, Grobecker H. Arzneimittelforschung. 1976;26(12):2167-71.
175. Prostaglandins and the control of muscle protein synthesis and degradation. Prostaglandins Leukot Essent Fatty Acids. 1990 Feb;39(2):95-104
176. Prostaglandins promote and block adipogenesis through opposing effects on peroxisome proliferator-activated receptor gamma. Reginato MJ, Krakow SL, Bailey ST, Lazar MA. J Biol Chem 1998 Jan 23;273(4):1855-8
177. Effect of ibuprofen and acetaminophen on postexercise muscle protein synthesis. Trappe, White et al. Am J Physiol Endocrinol Metab. 2002 Mar;282(3):E551-6.
178. Skeletal muscle PGF(2)(alpha) and PGE(2) in response to eccentric resistance exercise: influence of ibuprofen acetaminophen. Trappe, White et al. J Clin Endocrinol Metab. 2001 Oct;86(10):5067-70.
179. Isotretinoin in acne vulgaris: a proscpective analysis of 160cases from Kuwait. Al-Mutairi N et al. J drug Dermatol. 2005 May-Jun;4(3):369-73
180. Affective psychosis following Accutane treatment. Barak Y et al. Int Clin Psychopharmacol 2005 Jan;20(1):39-41
181. Isotretinoin (13-cis-retinoic acid) associated atrial tachycardia. Husdemir C. et al. Pacing Clin Electrophysiol. 2005 Apr;28(4):348-9.
182. Hoarseness during isotretinoin therapy. Busso CI, Serrano RI. J Am Acad Dermatol. 2005 Jan;52(1) 168
183. Isotretinoin-associated intracranial hypertension. Fraunfelder FW et al. Ophthalmology 2004 Jun;111(6):1248-50.
184. Complications associated with isotretinoin use after rhinoplasty. Allen BC. Rhec JS. Aestheric Plast Surg. 2005 Mar-Apr;29(2):102-6
185. Functional brain imaging alterations in acne patients treated with isotretinoin. Bremner JD et al. Am J Psychiatry. 2005 May;162(5):983-91
186. Preclinical pharmacology of "Arimidex" (anastrozole; ZD1033)--a potent, selective aromatase inhibitor. J Steroid Biochem Mol Biol 1996 Jul;58(4):439-45
187. High activity and tolerability demonstrated for exemestane in postmenopausal women with metastatic breast cancer who had previously failed on tamoxifen treatment. Kvinnsland S, Anker G et al. Eur J Cancer 2000 May;36(8):976-82
188. The minimal effective exemestane dose for endocrine activity in advanced breast cancer. Bajetta E, Zilembo N et al. Eur J Cancer 1997 Apr;33(4):587-91
189. A new hypothesis based on suicide substrate inhibitor studies for the mechanis, of action of aromatase. Cancer Res. 1982 Aug;42(8 Suppl):3327 s-3333s.
190. Enzyme-generated intermediates derived from 4-androstene-3,6,17-trione and 1,4,6-androstatriene-3,17-dione cause a time-dependent decrease in human placental aromatase activity.
191. Inhibition of adrenal corticosteroid synthesis by aminoglutethimide: Studies on the mechanism of action. Dexter RN, FishmanLM, Ney RC et al. J Clin Endocrinol 27 (1967) 473-80
192. First generation aromatase inhibitors –aminoglutethimide and testololactone. Cocconi G. Breast Cancer Res Treat 1994;30(1):57-80
193. Stereoselective inhibition of aromatase by enantiomers of aminoglutethimide. Graves PE, Salhanick HA. Endocrinol 105 (1979) 52-57
194. Beneficial effects of raloxifene and tamoxifen in the treatment of pubertal gynecomastia. Lawrence SE, Faught et al. J. Pediatr. 2004 Jul;145(1):71-6
195. Effects of raloxifene on gonadotropins, sex hormones, bone turnover and lipids in healthy elderly men. Eur J Endocrinol. 2004 Apr;150(4):539-46
196. Raloxifene decreases serum IGF-1 in male patients with active acromegaly. Dimaraki EV, Symons KV, Barkan AL. Eur J Endocrinol. 2004 Apr;150(4):481-7
197. Antiatherogenic effects of adjuvant antiestrogens: a randomized trial comparing the effects of tamoxifen and toremifene on plasma lipid levels in postmenopausal women with node-positive breast cancer. Saarto T, Blomqvist C, Ehnholm C, Taskinen MR, Elomaa I. J Clin Oncol 1996 Feb;14(2):429-33
198. Fulvestrant, Formerly ICI 182,780, Is as Effective as Anastrozole in Postmenopausal Women With Advanced Breast Cancer Progressing After Prior Endocrine Treatment. Howell A, Robertson JFR, Quaresma Albano J, Aschermannova A, et al. J Clin Oncol. 2002; 1:57.
199. Fulvestrant, an estrogen receptor downregulator, reduces cell turnover index more effectively than tamoxifen. Anticancer Res. 2002 Jul-Aug;22(4):2317-9.
200. Fulvestrant. Cheung KL, Robertson JF. Expert Opin Investig Drugs 2002 Feb;11(2):303-308
201. Treatment of advanced breast cancer with formestane. Murray R, Pitt P. Ann Oncol 1994;5 Suppl 7:S11-3
202. Pilot study of formestane in postmenopausal women with breast cancer. Joseph JK, Lim AK. Med J Malaysia 1998 Mar;53(1):37-41
203. Formestane is feasible and effective in elderly breast cancer patients with comorbidity and disability. Venturino A, Comandini D. Breast Cancer Res Treat 2000 Aug;62(3):217-22
204. Formestane versus megestrol acetate in postmenopausal breast cancer patients after failure of tamoxifen: a phase III prospective randomised cross over trial of second-line hormonal treatment (SAKK 20/90). Swiss Group for Clinical Cancer Research (SAKK). Thurlimann B, Castiglione M. Eur J Cancer 1997 Jun;33(7):1017-24
205. Formestane in the treatment of advanced postmenopausal breast cancer. Possinger K, Jonat W, Hoffken K. Ann Oncol 1994;5 Suppl 7:S7-10
206. Comparison of the selective aromatase inhibitor formestane with tamoxifen as first-line hormonal therapy in postmenopausal women with advanced breast cancer. Perez Carrion R, Alberola Candel V. Ann Oncol 1994;5 Suppl 7:S19-24
207. An endocrine and pharmacokinetic study of four oral doses of formestane in postmenopausal breast cancer patients. Dowsett M, Mehta A. et al. Eur J Cancer 1992;28(2-3):415-20

208. Formestane is feasible and effective in elderly breast cancer patients with comorbidity and disability. Venturino A, Comandini D. et al. Breast Cancer Res Treat 2000 Aug;62(3):217-22
209. Formestane. A review of its pharmacological properties and clinical efficacy in the treatment of postmenopausal breast cancer. Wiseman LR, Goa KL. Drugs Aging 1996 Oct;9(4):292-306
210. An endocrine and pharmacokinetic study of four oral doses of formestane in postmenopausal breast cancer patients. Dowsett M, Mehta A, King N, Smith IE, Powles TJ, Stein RC, Coombes RC. Eur J Cancer 1992;28(2-3):415-20
211. A randomized, open, parallel-group trial to compare the endocrine effects of oral anastrozole (Arimidex) with intramuscular formestane in postmenopausal women with advanced breast cancer. Vorobiof DA, Kleeberg et al. Ann Oncol 1999 Oct;10(10):1219-25
212. Hormonal effects of an antiestrogen, tamoxifen, in normal and oligospermic men. Vermuelen A, Comhaire F. Fertil Ster 29 (1978) 320-27
213. Tamoxifen, serum lipoproteins and cardiovascular risk. Bruning P.F., Bonfrer J.M.G., Hart A.A.M., Jong-Bakker M. Br J Cancer 1988 Oct;58(4):497-9
214. The antiandrogenic effects of delta 1-testolactone (Teslac) in vivo in rats and in vitro in human cultured fibroblasts, rat mammary carcinoma cells, and rat prostate cytosol. Vigersky RA, Mozingo D, Eil C, Purohit V, Bruton J. Endocrinology 1982 Jan;110(1):214-9
215. Aromatase inhibition by delta 1-testolactone does not relieve the gonadotropin-induced late steroidogenic block in normal men. Smals AG, Dony JM, Smals AE et al. J Clin Endocrinol Metab 1985 Jun;60(6):1127-31
216. Rapid endocrine effects of tamoxifen and testolactone in prostatic carcinoma patients. Leinonen P, Bolton NJ, Kontturi M, Vihko R. Prostate 1982;3(6):589-97 Related Articles, Links
217. Effects of estrogen on the release of gonadotropins and prolactin in male pseudohermaphrodites. Barbarino A, De Darinis L et al. J endocrinol Invest. 1979 Jan-Mar;2(1):41-4
218. Estrogen-dependent plasma prolactin response to gonadotropin-releasing hormone in intact and castrated men. Barbarino A, De Marinis L. et al. J Clin Endocrinol Metab. 1982 Dec;55(6):1212-6
219. Effects of progesterone administration on follicle-stimulating hormone and prolactin release in estrogen treated eugonadal adult men. Mancini A, De Marinis L. et al. Andrologia 1991 Sep-Oct;23(5):373-9
220. Inhibitory effect of androgen on estrogen-induced prolactin messenger ribonucleic acid accumulation in the male rat anterior pituitary. Tong Y et al. Endocrinology. 1989 Oct;125(4):1821-8
221. Effects of depot testosterone administration on serum levels of testosterone, FSH, LH and prolactin. Ruiz E. et al. J Endocrinol Invest. 1980 Oct-Dec;3(4):385-8.
222. Response of serum hormones to androgen administration in power athletes. Alen M. Reinila M. et al. Med Sci Sports Exerc. 1985 Jun;17(3):354-9.
223. Effect of androgenic anabolic steroids on sperm quality and serum hormone levels in adult male bodybuilders. Torres-Calleja J. et al. Life Sci. 2001 Mar 2;68(15):1769-74.
224. Anabolic steroid-associated hypogonadism in male hemodialysis patients. Maeda Y. et al. Clin Nephrol. 1989 Oct;32(4):198-201.
225. Prescribing Information for Dostinex Tablets. Pharmacia & Upjohn 2003.
226. Enhancement of linear growth and weight gain by cyproheptadine in children with hypopituitarism receiving growth hormone therapy. Kaplowitz PB, Jennings S. Pediatr. 1987 Jan;110(1):140-3.
227. Megestrol acetate vs cyproheptadine in the treatment of weight loss associated with HIV infection. Summerbell CD, Youle M, McDonald V, Catalan J, Gazzard BG. Int J STD AIDS. 1992 Jul-Aug;3(4):278-80.
228. High level of skeletal muscle carnosine contributes to the latter half of exercise performance during 30-s maximal cycle ergometer sprinting. Sukuki Y, Mukai N et al. Jpn J Physiol. 2002 Apr;52(2):199-205
229. Stability of injectable carnosine solutions. Kondrat'eva TS et al. Biokhimiia. 1993 May;58(5):772-9
230. Effects of modafinil ingestion on exercise time to exhaustion. Jacobs I, Bell DG. Med Sci Sports Exerc. 2004 Jun;36(6):1078-82.
231. Spiropent (clenbuterol): another choice for patients with chronic reversible airways obstruction. Su WJ, Perng RP..Chung Hua I Hsueh Tsa Chih (Taipei) 1991 Jan;47(1):13-7
232. Oral tocolytic therapy with clenbuterol--clinical facts. Meinen K, Rahn M, Hermer M, Rominger KL, Kanitz T. Z Geburtshilfe Perinatol 1988 Jul-Aug;192(4):163-8
233. Oral tocolytic therapy with clenbuterol--determination of the plasma level. Meinen K, Rominger KL, Hermer M, Rahn M, Kanitz T. Z Geburtshilfe Perinatol 1988 Jul-Aug;192(4):158-62
234. Effects of beta(2)-agonist clenbuterol on biochemical and contractile properties of unloaded soleus fibers of rat. Ricart-Firinga C, Stevens L, Canu MH, Nemirovskaya TL, Mounier Y. Am J Physiol Cell Physiol 2000 Mar;278(3):C582-8
235. Long-term clenbuterol administration alters the isometric contractile properties of skeletal muscle from normal and dystrophin-deficient mdx mice. Hayes A, Williams DA. Clin Exp Pharmacol Physiol 1994 Oct;21(10):757-65
236. The effect of the anabolic agent, clenbuterol, on overloaded rat skeletal muscle. Maltin CA, Delday MI, Hay SM, Smith FG, Lobley GE, Reeds PJ. Biosci Rep 1987 Feb;7(2):143-9
237. Human fat cell beta-adrenergic receptors: beta-agonist-dependent lipolytic responses and characterization of beta-adrenergic binding sites on human fat cell membranes with highly selective beta 1-antagonists. J Lipid Res 1988 May;29(5):587-601
238. Clenbuterol: a substitute for anabolic steroids? Prather ID, Brown DE, North P, Wilson JR. Med Sci Sports Exerc 1995 Aug;27(8):1118-21
239. Clenbuterol and Spot Reduction. Dharkam. Muscle Monthly May 15,2001.
240. Modalities of the food intake-reducing effect of sibutramine in humans. Chapelot D, Marmonier C, Thomas F, Hanotin C. Physiol Behav. 2000 Jan;68(3):299-308.
241. Thermogenic effects of sibutramine and its metabolites. Connoley IP, Liu YL, Frost I, Reckless IP, Heal DJ, Stock MJ. Br J Pharmacol. 1999 Mar;126(6):1487-95.
242. A randomized, double-blind, placebo-controlled, multicenter study on sibutramine in over-weighted and obese subjects. Zhao Y, Wang X, Yan Z. Zhonghua Yu Fang Yi Xue Za Zhi. 2001 Sep;35(5):329-32.
243. The affinity of ractopamine, clenbuterol, and L-644,969 for the beta-Adrenergic receptor population in porcine adipose tissue and skeletal muscle

membrane. Spurlock M.E., Cusumano J.C., Mills S.E. J. Anim. Sci. 1993. 71:2061-65
244. Beta-adrenoceptor profile of ractopamine HCL in isolated smooth and cardiac muscle tissues of rat and guinea-pig. Colbert WE et al. J Pharm Pharmacol. 1991 Dec;43(12):844-7
245. Beta-adrenergic receptor subtypes that mediate ractopamine stimulation of lipolysis. Mills S.E., Spurlock M.E. et al. J. Anim. Sci. 2003. 81:662-8.
246. Alpha-2 adrenoceptors in lipolysis: A2 antagonists and lipid-mobilizing strategies. Lafontan, Berlan et al. Am J Clin Nutr (1992) 22:219s-27s
247. Adrenergic receptor function in fat cells. Arner P. Am J Clin Nutr 1992;55:2285-36S
248. Alpha2-Antagonist compounds and lipid mobilization: evidence for a lipid mobilizing effect of oral yohimbine in healthy male volunteers. Galitzky, Taouis et al. Eur J Clin Invest (1998) 18, 587-94
249. Plasma catecholamine levels and lipid mobilization induced induced by yohimbine in obese and non-obese women. Berlan, Galitzky et al. Int J Obesity (1991), 15, 305-15
250. Effects of Yohimbine on Autonomic Measures are Determined by Individual Values for Area Under the Concentration-Time Curve. Grasing, Sturgill et al. J Clin Pharm (1996) 36:814-22
251. Effects of ketotifen and clenbuterol on beta-adrenergic receptor functions of lymphocytes and on plasma TXB-2 levels of asthmatic patients. Huszar E, Herjavecz I et al. Z Erkr Atmungsorgane 1990;175(3):141-6
252. Effect of prednisolone and ketotifen on beta 2-adrenoceptors in asthmatic patients receiving beta 2-bronchodilators. Brodde OE, Howe U et al. Eur J Clin Pharmacol 1988;34(2):145-50
253. Plascenia et al. 1999 J. Anim. Sci. 77 [Suppl 1]:114
254. A double-blind clinical trial in weight control. Use of fenfluramine and phentermine alone and in combination. Weintraub M, Hasday JD, Mushlin AI, Lockwood DH.Arch Intern Med. 1984 Jun;144(6):1143-8
255. Alpha-2 Adrenoceptor Downregulation. Michalovich Dharkam Greutstein. Dirty Dieting Newsletter 1 (1997)
256. The effect of chronic captopril therapy on adrenergic receptors, plasma noradrenaline and the vascular response to infused nopradrenaline. Kondowe GB, Copelad S, Passmore AP et al. Eur J Clin Pharmacol 32 (1987) 229-35
257. Changes in plasma norepinephrine concentration and thrombocyte alpha 2-adrenoceptor density during long-term antihypertensive therapy with nitrendipine and captopril. Muller R, et al. J Cardiovasc Pharmacol. 1994 Sep;24(3):429-33
258. Effect of captopril, losartan, and bradykinin on early steps of insulin action. Carvalho CR, Thirone AC, Gontijo JA, Velloso LA, Sand MJ. Diabetes 46 (1997) 1950-7
259. Glucose intolerance in spontaneously hypertensive and Wistar-Kyoto rate: enhanced gene expression and synthesis of skeletal muscle glucose transporter 4. Katayama S, Inaba M, Maruno Y et al. Hypertens Res 20 (1997) 279-86
260. Use and abuse of appetite- suppressant drugs in the treatment of obesity. Bray GA. Ann Intern Med 1993;119(7 pt 2):707-13.
261. Detergent effects of sodium deoxycholate are a major feature of an injectable phosphatidylcholine formulation used for localized fat dissolution. Rotunda AM, Suzuki H et al. Dermatol Surg. 2004 Jul;30(7):1001-8
262. Phosphatidylcholine increases the secretion of triacylglycerol-rich lipoproteins by CaCo-2 cells. Mathur SN, Born E et al. Biochem J. 1996 Mar 1;314 (pt 2):569-75
263. Lipolysis injection with phosphatidylcholine (Lipostabil N) examination of blood values after subcutaneous administration. Dr. Franz Hasengschwandtner. Online Article.
264. Identification of an insulin-responsive element in the promoter of the human gene for insulin-like growth factor binding protein-1. J Biol Chem 268:17063-68,1995
265. Evidence supporting a direct suppressive effect of growth hormone on serum IGFBP-1 levels. Experimental studies in normal, obese and GH-deficient adults. Growth Hormone and IGF Research 9:52-60,1999
266. Growth hormone induced increase in serum IGFBP-3 level is reversed by anabolic steroids in substance abusing power athletes. Clin Endocrinol (Oxf) 49:459-63,1998
267. The molecular responses of skeletal muscle satellite cells to continuous expression of IGF-1: implications for the rescue of induced muscular atrophy in aged rats. Chakravarthy MV, Booth FW, Spangenburg EE. Int J Sport Nutr Exerc Metab. 2001 Dec;11 Suppl:S44-8.
268. Myostatin Is a Skeletal Muscle Target of Growth Hormone Anabolic Action. Wie Liu, Scott G. Thomas, et al. J Clin Endocrinol Metab 88:5490–5496, 2003
269. Recombinant human growth hormone and recombinant human insulin-like growth factor I diminish the catabolic effects of hypogonadism in man: metabolic and molecular effects. J Clin Endocrinol Metab. 2001 May;86(5):2211-9.
270. The anabolic effects of IGF-1 in skeletal muscle after burn injury are not caused by increased cell volume. Fang CH, Li BG, James JH, Fischer JE, Hasselgren PO. JPEN J Parenter Enteral Nutr. 1998 May-Jun;22(3):115-9.
271. Insulin-like growth factor-I and more potent variants restore growth of diabetic rats without inducing all characteristic insulin effects. Tomas FM, Knowles SE, Owens PC, Chandler CS, Francis GL, Ballard FJ. Biochem. J. (1993) 291 (781–786)
272. Design and biological activities of L-163,191 (MK-677): a potent, orally active growth hormone secretagogue. Proc Natl Acad Sci USA. 92:7001-5
273. MK-677, an orally active growth hormone secretagogue reverses diet-induced catabolism. M.G. Murphy et al. J Clin Endocrinol Metab 83:320-25, 1998
274. Prolonged oral treatment with MK-677, a novel growth hormone secretagogue, improves sleep quality in man. Copinschi G. et al. Neuroendocrinology. 1997 Oct;66(4):278-86.
275. Effect of alendronate and MK-677 (a growth hormone secretagogue), individually and in combination, on markers of bone turnover and bone mineral density in postmenopausal osteoporotic women. M.G. Murphy et al. J Clin Endcrinol Metab 86: 1116-25,2001.
276. Oral administration of the growth hormone secretagogue MK-677 increases markers of bone turnover in healthy and functionally impaired elderly adults. The MK-677 Study Group. Murphy MG. et al. J Bone Miner Res. 1999 Jul;14(7):1182-8
277. Effects of oral administration of ibutamoren mesylate, a nonpeptide growth hormone secretagogue, on the growth hormone-insulin-like growth factor I axis in growth hormone deficient children. Codner E. et al. Clin Pharmacol Ther. 2001 Jul;70(1):91-8.

278. Effects of a 7-day treatment with a novel, orally active, growth hormone secretagogue, MK-677, on 24-hour GH profiles, insulin-like growth factor I, and adrenocortical function in normal young men. Copinschi G. et al. J Clin Endocrinol Metab. 1996 Aug;81(8):2776-82
279. United Kingdom multicentre clinical trial of somatrem. Milner RD, Barnes ND, Buckler JM, Carson DJ, Hadden DR, Hughes IA, Johnston DI, Parkin JM, Price DA, Rayner PH, et al. Arch Dis Child 1987 Aug;62(8):776-9
280. Antigenicity and efficacy of authentic sequence recombinant human growth hormone (somatropin): first-year experience in the United Kingdom. Buzi F, Buchanan CR, Morrell DJ, Preece MA. Clin Endocrinol (Oxf) 1989 May;30(5):531-8
281. Hepatoprotective effects of Liv-52 on ethanol induced liver damage in rats. Indian J Exp Biol. 1999 Aug;37(8):762-6.
282. The effect of the heptoprotective agent LIV 52 on liver damage. Cas Lek Cesk. 1997 Dec 17;136(24):758-60.
283. Hepatoprotective effect of Liv-52 and kumaryasava on carbon tetrachloride induced hepatic damage in rats. Indian J Exp Biol. 1997 Jun;35(6):655-7.
284. Role of Liv-52 in protection against beryllium intoxication. Biol Trace Elem Res. 1994 Jun;41(3):201-15.
285. Alcohol hangover and Liv.52. Chauhan BL, Kulkarni RD. Eur J Clin Pharmacol. 1991;40(2):187-8.
286. Hepatoprotective effects of Liv-52 on ethanol induced liver damage in rats. Sandhir R, Gill KD. Indian J Exp Biol. 1999 Aug;37(8):762-6.
287. [The influence of therapy with silymarin on the survival rate of patients with liver cirrhosis (author's transl)] Wien Klin Wochenschr. 1980 Oct 10;92(19):678-83.
288. Selectivity of silymarin on the increase of the glutathione content in different tissues of the rat. Valenzuela A, Aspillaga M, Vial S, Guerra R. Planta Med. 1989 Oct;55(5):420-2.
289. Silymarin, an inhibitor of prostaglandin synthetase. Experientia. 1979 Dec 15;35(12):1550-2.
290. Johnston CS, et al. Am J Clin Nutr. 1993 Jul;58(1):103-105; Witschi A, et al. Eur J Clin Pharmacol. 1992;43(6):667-669
291. Reduced glutathione protection against rat liver microsomal injury by carbon tetrachloride. Dependence on O2. Biochem J. 1983 Dec 1;215(3):441-5.
292. Reduced intravenous glutathione in the treatment of early Parkinson's disease. Prog Neuropsychopharmacol Biol Psychiatry. 1996 Oct;20(7):1159-70.
293. Epitestosterone. Starka L. J Steroid Biochem Mol Biol. 2003 Oct;87(1):27-34.
294. Effects of drugs which influence renal transport systems on the urinary excretion of the beta 2-adrenoceptor agonist clenbuterol and the anabolic steroids ethinylestradiol and methyltestosterone. Gleixner A, Sauerwein H, Meyer HH. Food Addit Contam. 1997 Feb-Mar;14(2):143-50.
295. Approach to the analysis of diuretics and masking agents by high-performance liquid chromatography-mass spectrometry in doping control. Ventura R, Fraisse D, Becchi M, Paisse O, Segura J. J Chromatogr. 1991 Jan 2;562(1-2):723-36.
296. Marked suppression of dihydrotestosterone in men with benign prostatic hyperplasia by dutasteride, a dual 5-alpha reductase inhibitor. Clark RV, Hermann DJ, Cunningham GR et al. J Clin Endocrinol Metab 2004 May;89(5):2179-84
297. Metamizol--a new effective analgesic with a long history. Overview of its pharmacology and clinical use. Fendrich Z. Cas Lek Cesk 2000 Jul 19;139(14):440-4
298. Acute stimulation of aromatization in Leydig cells by human chorionic gonadotropin in vitro. Proc Natl Acad Sci USA 76:4460-3,1979

Deca-Durabolin®, Durabolin®, Sustanon 250® and Andriol® are registered trademarks of Organon Inc. Depo-testosterone®, Halotestin® and Winstrol® are registered trademarks of Pharmacia &Upjohn Inc. Oxandrin® is a registered trademark of BTG Pharmaceuticals. Anadrol 50® is a registered trademark of Unimed Inc. Valium® is a registered trademark of Roche Pharmaceuticals. Trisoralen® is a registered trademark of ICN Pharmaceuticals. Proviron®, Testoviron® and Primobolan® are registered trademarks of Schering Pharmaceuticals. Nolvadex® and Arimidex® are registered trademark of Zeneca Pharmaceuticals. Clomid® is a registered trademark of Merell Dow Inc. Cytadren® and Orimeten® are registered trademarks of Ciba Inc. Rezulin® is a trademark of Parke-Davis Inc. Aldactone® and Aldactazide® are registered trademarks of Searle Inc. Androderm® and Dyazide® are registered trademarks of Smithkline Beecham. Catapres® is a registered trademark of Boehringer Inc. Cytomel® is a registered trademark of Smith Kline Inc. Equipoise® is a registered trademark of Solvay Veterinary Inc. Finaplix® is a registered trademark of Hoechst-Roussel Inc. Proscar® and Propecia® are registered trademarks of Merck Inc. Humatrope® and Humulin® are registered trademarks or E. Lilly & Co. Saizen® and Serostim® are registered trademarks of Serono. Synthroid® is a registered trademark of Boots Inc. Any omissions or errors were unintentional.

APPENDIX A Steroid Lab Test Results

Steroid Lab Test Results

If we have learned anything over the past five or ten years, it is that counterfeit steroid manufacturers all around the world are working very hard to trick you out of money. The fake drugs of the 80's and 90's, with poorly printed labels, improperly sealed bottles, and obvious "basement-made" looks, are almost entirely things of the past. Nowadays, surreptitious manufacturers are investing tens, if not hundreds, of thousands of dollars on equipment that will allow them to duplicate their particular drugs of choice with previously unseen accuracy. In many cases they are using things like ampule sealing equipment, foil/plastic tablet sealers, even investing in custom pill dyes so they may duplicate a product down to its own unique tablet markings. Some of the fakes today are nearly impossible to spot if you do not know what to look for. I do the best job I can to keep you informed by staying up on global product availability, and comparing minute features of each new box I receive to known legitimate originals in an effort to spot inconsistencies. However, it is a battle that nobody, not even myself, is equipped to win every single time. The only true way of being 100% sure of the steroid content of your drug product is to have it analyzed and quantified in a laboratory. This section deals with exactly that.

Lab analysis also allows us to keep on top of which of the legitimate steroid manufacturers are truly honest. Mexico, for example, is the home of literally dozens of steroid manufacturing companies, and unfortunately is an area of the world where drug makers are much less actively scrutinized by government agencies, particularly in the field of veterinary medicine. For years we have been hearing reports of underdosing and underfilling from various Mexican veterinary manufacturers. This is probably owed to the fact that there is a very competitive market for steroids, and shaving a little off of your manufacturing costs can make a huge difference in the amount of profit brought home at the end of the day. Lately things have been changing, and more often than not companies are correctly dosing their steroid products. But things are still not perfect, as you will see. In an effort to help guide you to some of the better steroid makers in this and other countries I have, likewise, included this section of compiled independent lab analysis results.

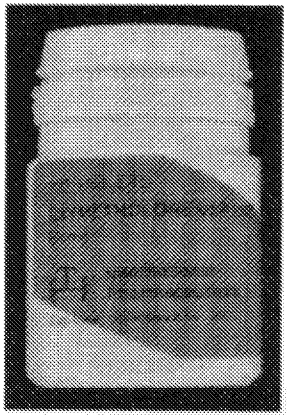
The following pages show the actual report sheets on the anabolic steroid products sent in for analysis. All tests in this section were conducted by San Rafael Chemical Services in Utah, one of the most well known laboratories for anabolic steroid testing in the United States. Each report lists the particular drug product sent in, the generic agent that it was supposed to contain, its lot or batch number, and the final quantification of steroid. Sometimes a product will contain a steroid different from what is listed on the label. In such cases the reports will usually make mention only of the compound tested for (it will report no drug present). The samples would need expensive reanalysis to determine the actual drug inside. I felt this was an unnecessary (and limiting) expense, given that at such point the drug is already mislabeled and unacceptable for consumers. The reports have been sorted by specific drug type, and photos were provided when possible. Obviously, there is no guarantee even if you have one of the steroids listed that your lot contains the same amount of drug as was reported here. But, at the very least, it will allow you to take an up-close look at what some of these companies are putting out, and perhaps may even change your mind as to what particular brand you will be shopping for next time.

Chemical Analysis Report

Set ID # 511043-2

Set Description : 1 lot of tablets
Date Received : 11/10/05
Date(s) Analyzed : 11/15/05 thru 11/17/05
Date Reported : 11/18/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Oxymetholone
Manufacturer:	Counterfeit Int. Pharm
Origin:	Underground
Label Claim:	**50mg**

Sample Preparation and Analysis Conditions :

For oxymetholone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 285 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxymetholone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511043-2	0.215	126.	27.1
Client ID#	International Pharmaceuticals Lot# 20032			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

Page 1 of 1

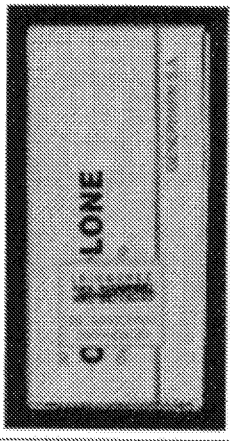
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 409013-2

Set Description : 1 lot of tablets
Date Received : 09/03/04
Date(s) Analyzed : 09/03/04
Date Reported : 09/09/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Oxymetholone
Manufacturer:	Genepharm
Origin:	Greece
Label Claim:	50mg

Sample Preparation and Analysis Conditions :

For oxymetholone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 285 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxymetholone	
		ave wt tab	mg/g	mg/tab
Laboratory ID#	409013-2	0.232	221.	51.3
Client ID#	Genepharm SA Oxybolone Tablets			

Analyzed _____ By

Release Authorized _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511043-1

Set Description : 1 lot of tablets
Date Received : 11/10/05
Date(s) Analyzed : 11/15/05 thru 11/17/05
Date Reported : 11/18/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Oxymetholone
Manufacturer:	Alhavi
Origin:	Iran
Label Claim:	50mg

Sample Preparation and Analysis Conditions :

For oxymetholone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 285 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxymetholone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511043-1	0.470	92.0	43.2
Client ID#	AL HAVI Lot# 0151083			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-4

Set Description : 1 lot of tablets
Date Received : 11/14/05
Date(s) Analyzed : 11/15/05 thru 11/17/05
Date Reported : 11/21/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Oxymetholone
Manufacturer:	Quality Vet
Origin:	Mexico
Label Claim:	75mg

Sample Preparation and Analysis Conditions :

For oxymetholone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 285 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxymetholone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511054-4	0.316	227.	71.7
Client ID#	Oxivet QV Lot# QVTOXI 023			

Analyzed _____ By

Release Authorized _____ By _____ Date

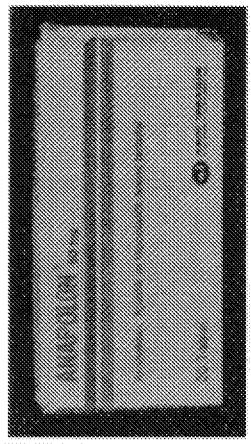
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511043-3

Set Description : 1 lot of tablets
Date Received : 11/10/05
Date(s) Analyzed : 11/15/05 thru 11/17/05
Date Reported : 11/18/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Oxymetholone
Manufacturer:	Abdi Ibrahim
Origin:	Turkey
Label Claim:	50mg

Sample Preparation and Analysis Conditions :

For oxymetholone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 285 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxymetholone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511043-3			
Client ID#	Anapolon Tablet Oksimetolon 50 mg Lot# 03.05/649	0.153	294.	45.0

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

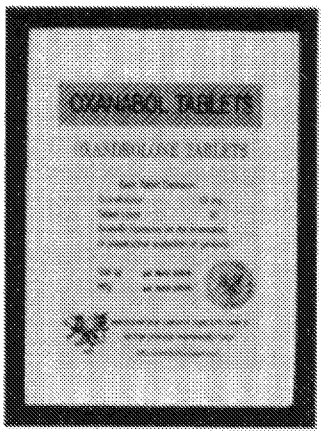
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 406036

Set Description : 1 lot of tablets
Date Received : 06/12/04
Date(s) Analyzed : 06/12/04
Date Reported : 06/14/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Oxandrolone
Manufacturer:	British Dragon
Origin:	Thailand
Label Claim:	10mg

Sample Preparation and Analysis Conditions :

For oxandrolone, a weighed portion of the sample was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 200 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxandrolone	
		ave. wt. g	mg/g	mg/tab
Laboratory ID#	406036-1			
Client ID#	British Dragon Oxanabol Lot# Mfg: 08 Mar 2004	0.0828	87.6	7.25

Analyzed _____ By

Release Authorized _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 408046-2

Set Description : 1 lot of capsules
Date Received : 08/18/04
Date(s) Analyzed : 08/18/04
Date Reported : 08/19/04

Company : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458

Drug:	Oxandrolone
Manufacturer:	Generic Supplements
Origin:	Underground
Label Claim:	5mg

Sample Preparation and Analysis Conditions :

For oxandrolone, a weighed portion of a composite of capsule contents was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 200 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Capsule Contents	Oxandrolone	
			mg/g	mg/cap
Laboratory ID#	408046-2	0.167	25.9	4.33
Client ID#	Generic Supplements Anavar Lot# 261323			

Analyzed _____ By

Release Authorized _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-3

Set Description : 1 lot of tablets
Date Received : 11/14/05
Date(s) Analyzed : 11/15/05 thru 11/17/05
Date Reported : 11/21/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458

Drug:	Oxandrolone
Manufacturer:	Pet's Pharma
Origin:	Mexico
Label Claim:	5mg

Sample Preparation and Analysis Conditions :

For oxandrolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 200 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxandrolone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511054-3			
Client ID#	Pet's Pharma Oxandrolona Lot# 05132 OXA	0.160	32.8	5.25

Analyzed _____ By

Release Authorized _____ By _____ Date

****

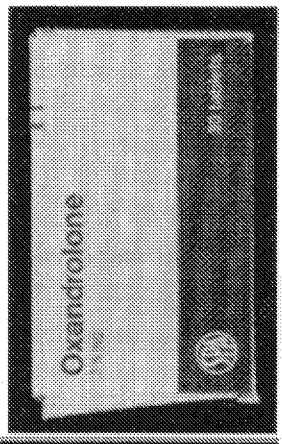
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 409013-1

Set Description : 1 lot of tablets
Date Received : 09/03/04
Date(s) Analyzed : 09/03/04
Date Reported : 09/09/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Oxandrolone
Manufacturer:	SPA
Origin:	Italy
Label Claim:	2.5mg

Sample Preparation and Analysis Conditions :

For oxandrolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 200 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Oxandrolone	
		ave wt tab	mg/g	mg/tab
Laboratory ID#	409013-1	0.149	14.9	2.22
Client ID#	SPA Milano Anavar Tablets			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

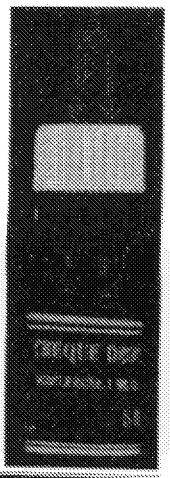
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 509030-1

Set Description : 1 lot of tablets
Date Received : 09/09/05
Date(s) Analyzed : 09/14/05
Date Reported : 09/19/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug: Mibolerone
Manufacturer: Hardcore Labs
Origin: Underground
Label Claim: 1mg/mL

Sample Preparation and Analysis Conditions :

For mibolerone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Mibolerone		
		ave wt g	mg/g	mg/tab	mg/mL*
Laboratory ID#	509030-1				
Client ID#	Hard Core Labs Cheque Drops Lot# CD 012	0.0617	16.6	1.02	1.02

Note(s): * Reported as per sample preparation requirements specified by client.

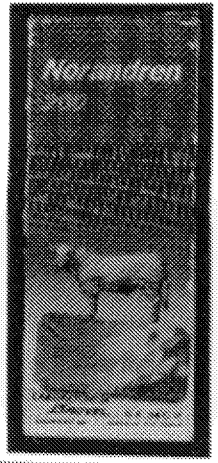
Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-4

Set Description	:	1 lot of liquid
Date Received	:	11/29/05
Date(s) Analyzed	:	11/29/05 thru 12/01/05
Date Reported	:	12/02/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Nandrolone decanoate
Manufacturer:	Brovel
Origin:	Mexico
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For nandrolone decanoate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Nandrolone Decanoate	
			mg/g	mg/mL
Laboratory ID#	511102-4	0.945	187.	177.
Client ID#	Brovel Norandren 200 Lot# 1105			

Analyzed _____ By

Release Authorized _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressees. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 507052-1

Set Description	1 lot of liquid
Date Received	07/18/05
Date(s) Analyzed	07/19/05
Date Reported	07/21/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458

Drug:	Nandrolone Decanoate
Manufacturer:	Norma Hellas (counterfeit)
Origin:	Greece
Label Claim:	**100mg/mL**

Sample Preparation and Analysis Conditions :

For nandrolone decanoate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Nandrolone Decanoate	
			mg/g	mg/mL
Laboratory ID#	507052-1	0.928	ND.*	-
Client ID#	Norma Hellas Deca Lot# 0402005			

Note(s): * None Detected. Detection Limit = 0.1 mg/g. The sample did contain a major constituent that did exhibit spectral and chromatographic retention characteristics of a steroidal compound other than the target analyte.

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 406040-1

Set Description : 1 lot of liquid
Date Received : 06/14/04
Date(s) Analyzed : 06/21/04
Date Reported : 06/23/04
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug: Nandrolone decanoate
Manufacturer: Organon
Origin: Greece
Label Claim: 50mg/mL

Sample Preparation and Analysis Conditions :

For nandrolone decanoate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Nandrolone Decanoate	
			mg/g	mg/mL
Laboratory ID#	406040-1			
Client ID#	Organon Deca Durabolin 50 mg Lot# 93201 B	0.925	60.7	56.1

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-5

Set Description : 1 lot of liquid
Date Received : 11/29/05
Date(s) Analyzed : 11/29/05 thru 12/01/05
Date Reported : 12/02/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Nandrolone decanoate
Manufacturer:	Quality Vet
Origin:	Mexico
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For nandrolone decanoate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Nandrolone Decanoate	
			mg/g	mg/mL
Laboratory ID#	511102-5	0.942	191.	180.
Client ID#	Deca QV 200 Lot# QVD2 007			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

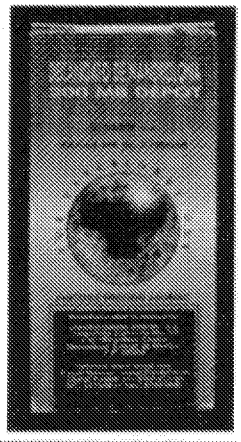
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-6

Set Description : 1 lot of liquid
Date Received : 11/29/05
Date(s) Analyzed : 11/29/05 thru 12/01/05
Date Reported : 12/02/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Nandrolone decanoate
Manufacturer:	Tornel
Origin:	Mexico
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For nandrolone decanoate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Nandrolone Decanoate	
			mg/g	mg/mL
Laboratory ID#	511102-6	0.952	141.	134.
Client ID#	Tornel 200 MB Depot Lot# 112			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

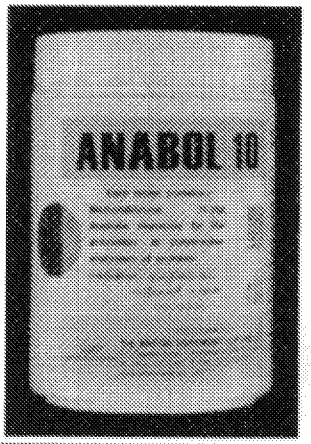
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 508007-2

Set Description : 1 lot of tablets
Date Received : 08/04/05
Date(s) Analyzed : 08/05/05
Date Reported : 08/08/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	British Dispensary
Origin:	Thailand
Label Claim:	10mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	508007-2			
Client ID#	British Dispensary Anabol Lot# 110188	0.120	53.6	6.43

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

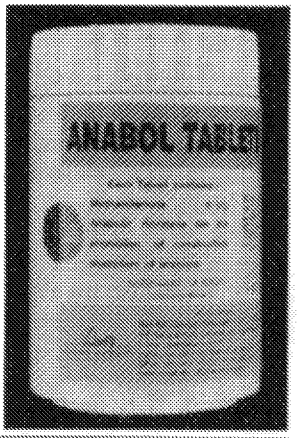
****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 508059

Set Description	:	1 lot of tablets
Date Received	:	02/09/05
Date(s) Analyzed	:	02/10/05 thru 02/11/05
Date Reported	:	02/14/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	**Methandrostenolone**
Manufacturer:	**British Dispensary**
Origin:	**Thailand**
Label Claim:	**5mg**

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	508059-1			
Client ID#	British Dispensary Thailand Tablets Lot# I 10019	0.116	38.2	4.43

Analyzed _____ **Release Authorized** _____ _____
By By Date

****

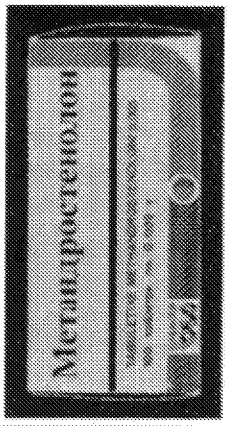
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 405077

Set Description : 1 lot of tablets
Date Received : 05/29/04
Date(s) Analyzed : 05/29/04
Date Reported : 06/02/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	Bioreaktor
Origin:	Russia
Label Claim:	5mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave. wt. g	mg/g	mg/tab
Laboratory ID#	405077-1			
Client ID#	Bioreactor Methandrostenolone Lot# 020201 Barcode# 000359	0.194	23.1	4.49

Analyzed _____ By

Release Authorized _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 510062-2

Set Description	:	1 lot of tablets
Date Received	:	10/14/05
Date(s) Analyzed	:	10/17/05
Date Reported	:	10/19/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	British Pharm
Origin:	Underground
Label Claim:	5mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	510062-2			
Client ID#	British Pharmaceuticals Anabol Tablets Lot# 120105	0.0956	48.3	4.62

Analyzed _____ By

Release Authorized _____ By _____ Date

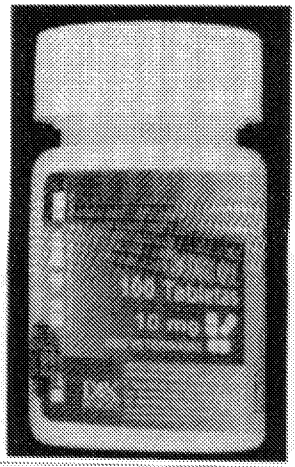
****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-A

Set Description : 3 lots of tablets
Date Received : 11/01/04
Date(s) Analyzed : 11/15/04
Date Reported : 11/17/04
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug: Methandrostenolone
Manufacturer: Denkall
Origin: Mexico
Label Claim: 10mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets from each sample was dissolved/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave. wt. g	mg/g	mg/tab
Laboratory ID#	411004-2			
Client ID#	Denkall D Bol Tablets Lot# TBD 012	0.116	83.6	9.70

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-A

Set Description	:	3 lots of tablets
Date Received	:	11/01/04
Date(s) Analyzed	:	11/15/04
Date Reported	:	11/17/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	Leadfar
Origin:	Mexico
Label Claim:	25mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets from each sample was dissolved/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave. wt. g	mg/g	mg/tab
Laboratory ID#	411004-3			
Client ID#	Reforvit Simple Tablets Lot# 1290603	0.117	187.	21.9

Analyzed _____ Release Authorized _____ _____

By By Date

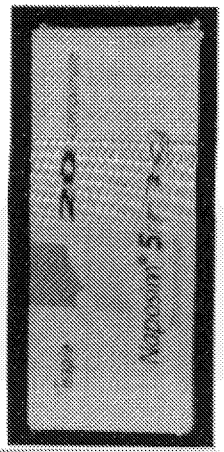
****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 509010

Set Description : 1 lot of tablets
Date Received : 09/06/05
Date(s) Analyzed : 09/13/05
Date Reported : 09/14/05
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug: Methandrostenolone
Manufacturer: Terapia
Origin: Rumania
Label Claim: 5mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	509010-1			
Client ID#	Naposim Methandienonum Lot# 1004984512	0.187	27.8	5.20

Analyzed _____ By

Release Authorized _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-2

Set Description	:	1 lot of tablets
Date Received	:	11/14/05
Date(s) Analyzed	:	11/15/05 thru 11/17/05
Date Reported	:	11/21/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	Pet's Pharma
Origin:	Mexico
Label Claim:	10mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511054-2			
Client ID#	Pet's Pharma Metandiol Tab Lot# 0503MT	0.149	50.8	7.57

Analyzed _____ By

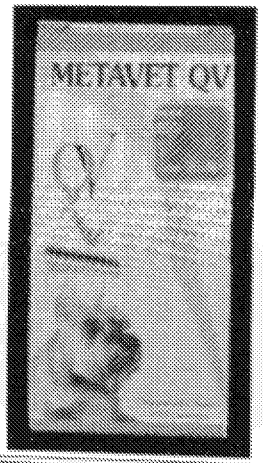
Release Authorized _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-A

Set Description : 3 lots of tablets
Date Received : 11/01/04
Date(s) Analyzed : 11/15/04
Date Reported : 11/17/04
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug: Methandrostenolone
Manufacturer: Quality Vet
Origin: Mexico
Label Claim: 10mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets from each sample was dissolved/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4μm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave. wt. g	mg/g	mg/tab
Laboratory ID#	411004-1			
Client ID#	Metavet QV Tablets Lot# QVTMTA 005	0.117	89.7	10.5

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

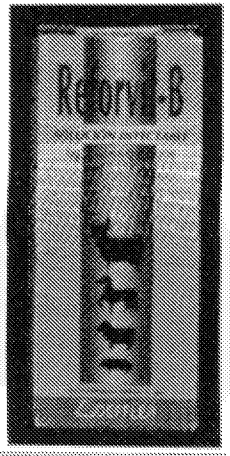
****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-1

Set Description : 1 lot of liquid
Date Received : 11/14/05
Date(s) Analyzed : 11/15/05 thru 11/17/05
Date Reported : 11/21/05
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	Loeffler
Origin:	Mexico
Label Claim:	25mg/mL

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of the sample was diluted/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Methandrostenolone	
			mg/g	mg/mL
Laboratory ID#	511054-1	1.041	21.2	22.1
Client ID#	Reforvit-B Lot# 170072003			

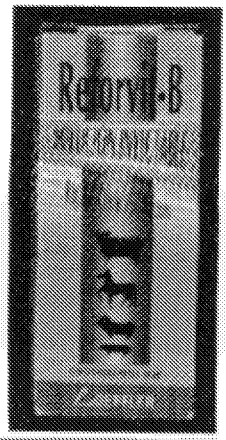
Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-B

Set Description	:	2 lots of liquid
Date Received	:	11/01/04
Date(s) Analyzed	:	11/15/04
Date Reported	:	11/17/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	Loeffler
Origin:	Mexico
Label Claim:	25mg/mL

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Methandrostenolone	
			mg/g	mg/mL
Laboratory ID#	411004-4	1.049	23.1	24.2
Client ID#	Reforvit-B Lot# 1320702			

Analyzed _____ By

Release Authorized _____ By _____ Date

****

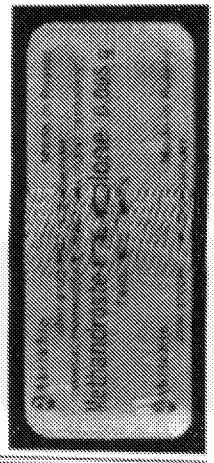
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 504052

Set Description : 1 lot of tablets
Date Received : 04/12/05
Date(s) Analyzed : 04/18/05
Date Reported : 04/21/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	Akrikhin
Origin:	Russia
Label Claim:	5mg

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methandrostenolone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	504052-1			
Client ID#	Akrikhin Methandrostenolone Tablets Lot# 341003	0.205	24.1	4.95

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-B

Set Description	2 lots of liquid
Date Received	11/01/04
Date(s) Analyzed	11/15/04
Date Reported	11/17/04
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Methandrostenolone
Manufacturer:	Salud Animal
Origin:	Mexico
Label Claim:	25mg/mL

Sample Preparation and Analysis Conditions :

For methandrostenolone, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

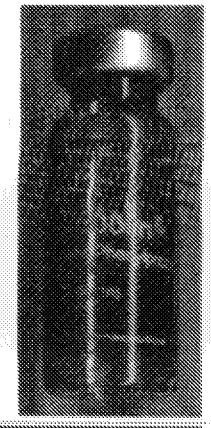
Sample Identification		Specific Gravity	Methandrostenolone	
			mg/g	mg/mL
Laboratory ID#	411004-5			
Client ID#	Salud Animals Labs Dianobol Lot# SA4F020	0.925	0.202	0.187

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 410005-1



Set Description	1 lot of liquid
Date Received	10/04/04
Date(s) Analyzed	10/04/04
Date Reported	10/05/04
Company Name	Molecular Nutrition
Directed To	William Llewellyn 5500 Military Trail #308 Jupiter, FL 33458

Drug:	Nandrolone phenylpropionate
Manufacturer:	Luoyang
Origin:	China
Label Claim:	**100mg/mL**

Sample Preparation and Analysis Conditions :

For nandrolone phenylpropionate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Nandrolone Phenylpropionate	
			mg/g	mg/mL
Laboratory ID#	410005-1	0.926	121.	112.
Client ID#	Luoyang Pharmaceuticals Nandrobolin Lot# L04084			

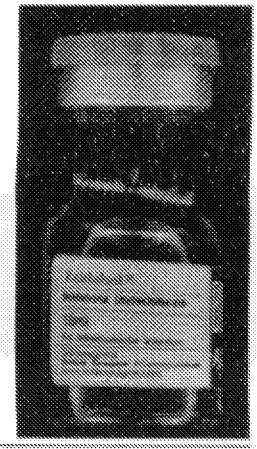
Analyzed _____ **Release Authorized** _____ _____
By By Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 408070-2

Set Description	:	1 lot of liquid
Date Received	:	08/24/04
Date(s) Analyzed	:	11/04/04 thru 11/09/04
Date Reported	:	11/11/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Boldenone Undecylenate
Manufacturer:	British Dragon
Origin:	Thailand
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For boldenone undecylenate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Boldenone Undecylenate	
			mg/g	mg/mL
Laboratory ID#	408070-2	0.973	136.	132.
Client ID#	British Dragon Boldabol® 02 2009			

Analyzed _____ By

Release Authorized _____ By

_____ Date

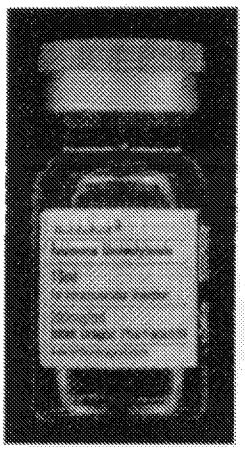
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 402026-1

Set Description : 1 lot of liquid
Date Received : 02/10/04
Date(s) Analyzed : 03/11/04
Date Reported : 02/12/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Boldenone Undecylenate
Manufacturer:	British Dragon
Origin:	Thailand
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For boldenone undecanoate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Boldenone Undecanoate*	
			mg/g	mg/mL
Laboratory ID#	402026-1			
Client ID#	British Dragon Boldenone Undecylenate Lot# MAN: 02 2003	0.962	161.	155.

Note(s): * Undecylenate

Analyzed _____ By **Release Authorized** _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-C

Set Description : 4 lots of liquid
Date Received : 11/01/04
Date(s) Analyzed : 11/15/04
Date Reported : 11/17/04
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Boldenone Undecylenate
Manufacturer:	Denkall
Origin:	Mexico
Label Claim:	100mg/mL

Sample Preparation and Analysis Conditions :

For boldenone undecylenate, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Boldenone Undecylenate	
			mg/g	mg/mL
Laboratory ID#	411004-7			
Client ID#	Denkall Ultragan 100 Lot# UB11	0.937	113.	106.

Analyzed _____ By

Release Authorized _____ By _____ Date

****

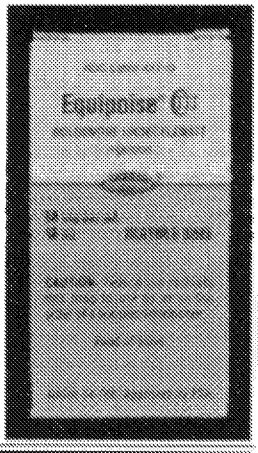
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-C

Set Description : 4 lots of liquid
Date Received : 11/01/04
Date(s) Analyzed : 11/15/04
Date Reported : 11/17/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Boldenone Undecylenate
Manufacturer:	Fort Dodge
Origin:	U.S.
Label Claim:	50mg/mL

Sample Preparation and Analysis Conditions :

For boldenone undecylenate, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Boldenone Undecylenate	
			mg/g	mg/mL
Laboratory ID#	411004-8			
Client ID#	Fort Dodge Equipoise Lot# TL0203109	0.924	58.3	53.9

Analyzed _____ By

Release Authorized _____ By

_____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411094

Set Description	:	1 lot of liquid
Date Received	:	11/30/04
Date(s) Analyzed	:	12/01/04
Date Reported	:	12/03/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Boldenone Undecylenate
Manufacturer:	Generic Suppements
Origin:	Underground
Label Claim:	**200mg/mL**

Sample Preparation and Analysis Conditions :

For boldenone undecylenate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Boldenone Undecylenate	
			mg/g	mg/mL
Laboratory ID#	411094-1	0.971	200.	194.
Client ID#	Generic Supplements Boldenone Undecylenate Lot# 352795			

Analyzed _____ Release Authorized _____ _____

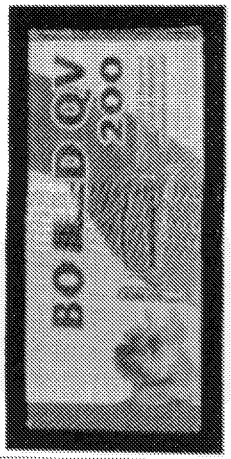
By By Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-C

Set Description	:	4 lots of liquid
Date Received	:	11/01/04
Date(s) Analyzed	:	11/15/04
Date Reported	:	11/17/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Boldenone Undecylenate
Manufacturer:	Quality Vet
Origin:	Mexico
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For boldenone undecylenate, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Boldenone Undecylenate	
			mg/g	mg/mL
Laboratory ID#	411004-9	0.948	209.	198.
Client ID#	Bold QV 200 Lot# QVB 013			

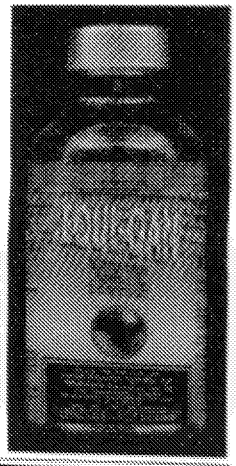
Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-C

Set Description	:	4 lots of liquid
Date Received	:	11/01/04
Date(s) Analyzed	:	11/15/04
Date Reported	:	11/17/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	**Boldenone Undecylenate**
Origin:	**Mexico**
Label Claim:	**50mg/mL**

Sample Preparation and Analysis Conditions :

For boldenone undecylenate, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Boldenone Undecylenate	
			mg/g	mg/mL
Laboratory ID#	411004-6	0.949	59.2	56.2
Client ID#	USO Vetrenario Equi-gan Lot# 170			

Analyzed _____ By _____ **Release Authorized** _____ By _____ Date _____

****

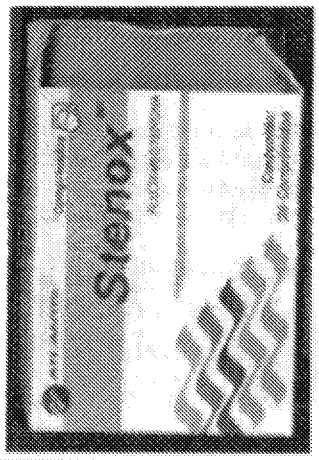
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 510050-2

Set Description : 1 lot of tablets
Date Received : 10/13/05
Date(s) Analyzed : 10/13/05 thru 10/14/05
Date Reported : 10/18/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug: Fluoxymesterone
Manufacturer: Atlantis
Origin: Mexico
Label Claim: 2.5mg

Sample Preparation and Analysis Conditions :

For fluoxymesterone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Fluoxymesterone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	510050-2	0.172	13.7	2.36
Client ID#	Atlantis Stenox Tablets Lot# 0320306			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 510050-2

Set Description	:	1 lot of tablets
Date Received	:	10/13/05
Date(s) Analyzed	:	10/13/05 thru 10/14/05
Date Reported	:	10/18/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Fluoxymesterone
Manufacturer:	Atlantis
Origin:	Mexico
Label Claim:	2.5mg

Sample Preparation and Analysis Conditions :

For fluoxymesterone, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Fluoxymesterone	
		ave wt g	mg/g	mg/tab
Laboratory ID#	510050-2	0.172	13.7	2.36
Client ID#	Atlantis Stenox Tablets Lot# 0320306			

Analyzed _____ By

Release Authorized _____ By _____ Date

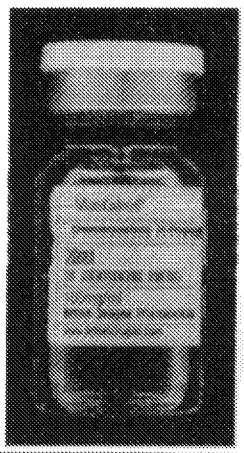
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 408070-1

Set Description : 1 lot of liquid
Date Received : 08/24/04
Date(s) Analyzed : 11/04/04 thru 11/09/04
Date Reported : 11/11/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Drostanolone propionate
Manufacturer:	British Dragon
Origin:	Thailand
Label Claim:	**100mg/mL**

Sample Preparation and Analysis Conditions :

For drostanolone propionate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 200 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Drostanolone Propionate	
			mg/g	mg/mL
Laboratory ID#	408070-1	0.988	89.8	88.7
Client ID#	British Dragon Mastabol® 02 2009			

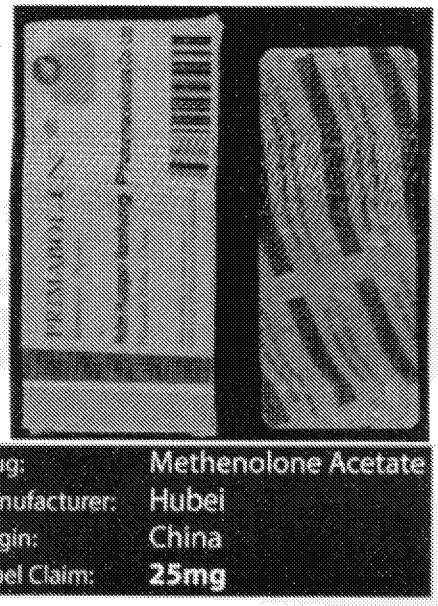
Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511043-6

Set Description	1 lot of tablets
Date Received	11/10/05
Date(s) Analyzed	11/15/05 thru 11/17/05
Date Reported	11/18/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Sample Preparation and Analysis Conditions :

For methenolone acetate, a weighed portion of a composite of ground tablets was dissolved/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Methenolone Acetate	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511043-6			
Client ID#	Hubei Huangshi Primabolin Lot# 5114308	0.146	ND.*	-

Note(s): * None Detected. Detection Limit = 0.10 mg/g.

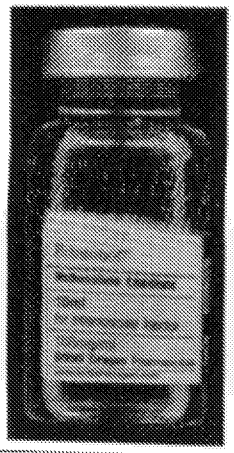
Analyzed _____ By **Release Authorized** _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 408070-3

Set Description : 1 lot of liquid
Date Received : 08/24/04
Date(s) Analyzed : 11/04/04 thru 11/09/04
Date Reported : 11/11/04
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Methenolone enanthate
Manufacturer:	British Dragon
Origin:	Thailand
Label Claim:	100mg/mL

Sample Preparation and Analysis Conditions :

For methenolone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Methenolone Enanthate	
			mg/g	mg/mL
Laboratory ID#	408070-3	1.001	154.	154.
Client ID#	British Dragon Primobol® 05 2009			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

Page 1 of 1

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 408046-1

Set Description : 1 lot of liquid
Date Received : 08/18/04
Date(s) Analyzed : 08/18/04
Date Reported : 08/19/04

Company : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458

Drug:	Methenolone enanthate
Manufacturer:	Generic Supplements
Origin:	Underground
Label Claim:	**100mg/mL**

Sample Preparation and Analysis Conditions :

For methenolone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Methenolone Enanthate	
			mg/g	mg/mL
Laboratory ID#	408046-1			
Client ID#	Generic Supplements Primobolan Depot Lot# 261324	0.953	100.	95.3

Analyzed _____ By

Release Authorized _____ By

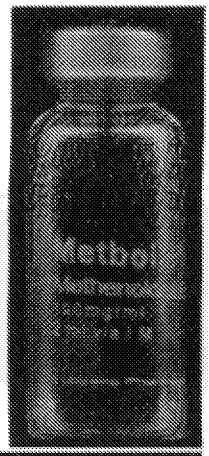
_____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 410005-2

Set Description	:	1 lot of liquid
Date Received	:	10/04/04
Date(s) Analyzed	:	10/04/04
Date Reported	:	10/05/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn 5500 Military Trail #308 Jupiter, FL 33458



Drug:	Methenolone enanthate
Manufacturer:	Luoyang
Origin:	China
Label Claim:	**100mg/mL**

Sample Preparation and Analysis Conditions :

For methenolone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Methenolone Enanthate	
			mg/g	mg/mL
Laboratory ID#	410005-2	0.954	97.4	92.9
Client ID#	Luoyang Pharmaceuticals Metbolin Lot# L04075			

Analyzed _____ By _____ **Release Authorized** _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-6

Set Description	:	1 lot of liquid
Date Received	:	11/14/05
Date(s) Analyzed	:	11/15/05 thru 11/17/05
Date Reported	:	11/21/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Methenolone enanthate
Manufacturer:	British Dragon
Origin:	Thailand
Label Claim:	100mg/mL

Sample Preparation and Analysis Conditions :

For methenolone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Methenolone Enanthate	
			mg/g	mg/mL
Laboratory ID#	511054-6	0.960	70.6	67.8
Client ID#	Suprimo 100 Lot# 69993			

Analyzed _____ By

Release Authorized _____ By

_____ Date

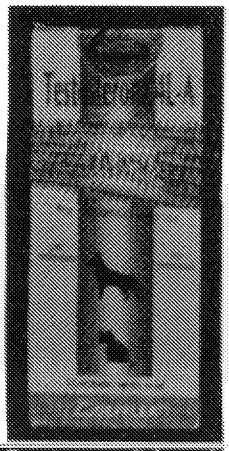
Page 1 of 1

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-9

Set Description	:	1 lot of liquid
Date Received	:	11/14/05
Date(s) Analyzed	:	11/15/05 thru 11/17/05
Date Reported	:	11/21/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	**Sustanon (clone)**
Manufacturer:	**Loeffler**
Origin:	**Mexico**
Label Claim:	**250mg/mL**

Sample Preparation and Analysis Conditions :

For testosterone esters, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Laboratory ID#	511054-9
Client ID#	Loeffler Testosterona 4L-A Lot# 1840704 Specific Gravity = 0.935

Analyte	mg/g	mg/mL
Testosterone Decanoate	93.3	87.2
Testosterone Isocaproate	53.2	49.7
Testosterone Phenylpropionate	24.3	50.8
Testosterone Propionate	25.2	23.4

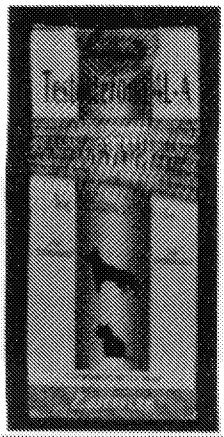
Analyzed _____ **Release Authorized** _____ _____
By By Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-10

Set Description	:	1 lot of liquid
Date Received	:	11/29/05
Date(s) Analyzed	:	11/29/05 thru 12/01/05
Date Reported	:	12/02/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Sustanon (clone)
Manufacturer:	Loeffler
Origin:	Mexico
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone esters, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Laboratory ID#	511102-10
Client ID#	Tornel Super Test-250 Lot# 5637L Specific Gravity = 0.944

Analyte	mg/g	mg/mL
Testosterone Decanoate	74.4	70.3
Testosterone Isocaproate	48.8	46.1
Testosterone Phenylpropionate	53.3	50.3
Testosterone Propionate	25.0	23.6

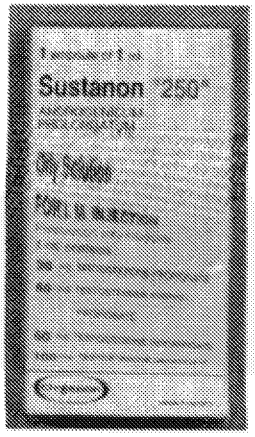
Analyzed _____ Release Authorized _____ _____
By By Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 406021

Set Description	:	1 lot of liquid
Date Received	:	06/07/04
Date(s) Analyzed	:	06/08/04
Date Reported	:	06/15/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Sustanon
Manufacturer:	Nile
Origin:	Egypt
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone esters, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Laboratory ID#	406021-1
Client ID#	NILE Sustanon 250 Lot# 093104 Specific Gravity = 0.965

Analyte	mg/g	mg/mL
Testosterone Decanoate	91.1	87.9
Testosterone Isocaproate	55.7	53.8
Testosterone Phenylpropionate	56.8	54.8
Testosterone Propionate	28.7	27.7

Analyzed _____ By **Release Authorized** _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-8

Set Description	1 lot of liquid
Date Received	11/14/05
Date(s) Analyzed	11/15/05 thru 11/17/05
Date Reported	11/21/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone (blend)
Manufacturer:	Denkall
Origin:	Mexico
Label Claim:	400mg/mL

Sample Preparation and Analysis Conditions :

For testosterone esters, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Laboratory ID#	511054-8
Client ID#	Denkall Test 400 Lot# TT013 Specific Gravity = 0.980

Analyte	mg/g	mg/mL
Testosterone Enanthate	125.	123.
Testosterone Cypionate	161.	158.
Testosterone Propionate	21.8	21.4

Analyzed _____ By **Release Authorized** _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-7

Set Description	:	1 lot of liquid
Date Received	:	11/29/05
Date(s) Analyzed	:	11/29/05 thru 12/01/05
Date Reported	:	12/02/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone cypionate
Manufacturer:	Animal Power
Origin:	Mexico
Label Claim:	**250mg/mL**

Sample Preparation and Analysis Conditions :

For testosterone cypionate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Cypionate	
			mg/g	mg/mL
Laboratory ID#	511102-7	0.976	197.	192.
Client ID#	Animal Power CypioTest 250 Lot# APCYP 001			

Analyzed _____ By

Release Authorized _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-D

Set Description	2 lots of liquid
Date Received	11/01/04
Date(s) Analyzed	11/15/04
Date Reported	11/17/04
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone cypionate
Manufacturer:	Denkall
Origin:	Mexico
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone cypionate, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Cypionate	
			mg/g	mg/mL
Laboratory ID#	411004-11	0.968	246.	238.
Client ID#	Denkall Cypiotest 250 Lot# CYP 004			

Analyzed ..... By Release Authorized ..... By ..... Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 411004-D

Set Description	2 lots of liquid
Date Received	11/01/04
Date(s) Analyzed	11/15/04
Date Reported	11/17/04
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone cypionate
Manufacturer:	Quality Vet
Origin:	Mexico
Label Claim:	**200mg/mL**

Sample Preparation and Analysis Conditions :

For testosterone cypionate, a weighed portion of each sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Cypionate	
			mg/g	mg/mL
Laboratory ID#	411004-10	0.965	172.	166.
Client ID#	Teston QV 200 Lot# QV 010			

Analyzed _____ By _____ **Release Authorized** _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-8

Set Description	:	1 lot of liquid
Date Received	:	11/29/05
Date(s) Analyzed	:	11/29/05 thru 12/01/05
Date Reported	:	12/02/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	**Testosterone cypionate**
Manufacturer:	**Quality Vet**
Origin:	**Mexico**
Label Claim:	**200mg/mL**

Sample Preparation and Analysis Conditions :

For testosterone cypionate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Cypionate	
			mg/g	mg/mL
Laboratory ID#	511102-8	0.951	143.	136.
Client ID#	Teston QV 200 Lot# QVT 015			

Analyzed ..... By **Release Authorized** ..... By ..... Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-3

Set Description	1 lot of liquid
Date Received	11/29/05
Date(s) Analyzed	11/29/05 thru 12/01/05
Date Reported	12/02/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone enanthate
Manufacturer:	Brovel
Origin:	Mexico
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	511102-3	0.942	212.	199.
Client ID#	Brovel Testerona 200 Lot# 11304			

Analyzed _____ By

Release Authorized _____ By

_____ Date

****

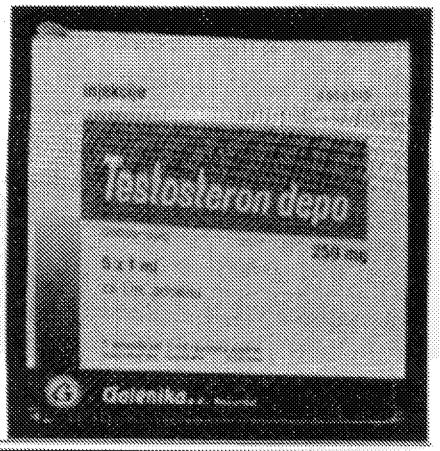
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 408073-2

Set Description : 1 lot of liquid
Date Received : 08/25/04
Date(s) Analyzed : 08/25/04
Date Reported : 08/26/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Testosterone enanthate
Manufacturer:	Galenika
Origin:	Serbia
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	408073-2	0.937	282.	264.
Client ID#	Galinika Testosterone Enanthate Lot# 3850			

Analyzed _____ Release Authorized _____

By By Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 506070

Set Description	1 lot of liquid
Date Received	06/24/05
Date(s) Analyzed	06/24/05
Date Reported	06/27/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458

Drug:	Testosterone Enanthate
Manufacturer:	Golden Gear
Origin:	Underground
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	506070-1			
Client ID#	Golden Gear Testosterone Enanthate Lot# TE 104	0.982	169.	166.

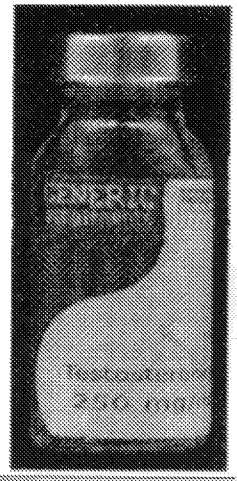
Analyzed _____ By

Release Authorized _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 403106-1R



Set Description	1 lot of liquid
Date Received	03/29/04
Date(s) Analyzed	03/30/04
Date Reported	04/15/04
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458

Drug:	Testosterone enanthate
Manufacturer:	Generic Supplements
Origin:	Underground
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	403106-1			
Client ID#	Generic Supplements Testosterone Enanthate Lot# 264323	0.971	313.	304.

Note(s): * Quantitated against a secondary reference material.

Analyzed _____ By

Release Authorized _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 510050-1

Set Description : 1 lot of liquid
Date Received : 10/13/05
Date(s) Analyzed : 10/13/05 thru 10/14/05
Date Reported : 10/18/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Testosterone Enanthate
Manufacturer:	Aburihan
Origin:	Iran
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was dissolved/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	510050-1	0.947	224.	212.
Client ID#	Aburaihan Lot# 020			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

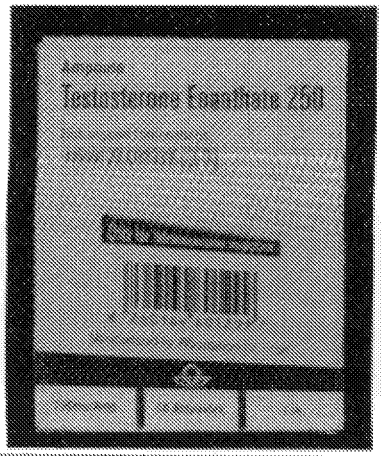
Page 1 of 1

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511043-7

Set Description	1 lot of liquid
Date Received	11/10/05
Date(s) Analyzed	11/15/05 thru 11/17/05
Date Reported	11/18/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone Enanthate
Manufacturer:	Aburihan
Origin:	Iran
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	511043-7	0.945	173.	163.
Client ID#	Aburaihan Testosterone Enanthate Lot# 080			

Analyzed _____ By

Release Authorized _____ By _____ Date

****

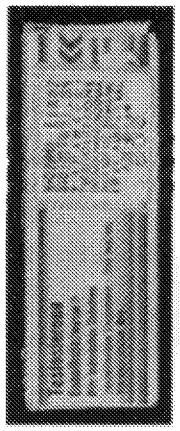
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 410060

Set Description : 1 lot of liquid
Date Received : 10/18/04
Date(s) Analyzed : 10/20/04
Date Reported : 10/22/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Testosterone enanthate
Manufacturer:	Norma Hellas
Origin:	Greece
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	410060-1	1.026	271.	278.
Client ID#	Testosterone Enanthate/Norma® Lot# 0403015			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-7

Set Description : 1 lot of liquid
Date Received : 11/14/05
Date(s) Analyzed : 11/15/05 thru 11/17/05
Date Reported : 11/21/05
Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Testosterone Enanthate
Manufacturer:	Pet's Pharma
Origin:	Mexico
Label Claim:	350mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	511054-7	0.991	221.	219.
Client ID#	Pet's Pharma Enantato 350 Lot# 0507 ET			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-2

Set Description	:	1 lot of liquid
Date Received	:	11/29/05
Date(s) Analyzed	:	11/29/05 thru 12/01/05
Date Reported	:	12/02/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone enanthate
Manufacturer:	Quality Vet
Origin:	Mexico
Label Claim:	250mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	511102-2	0.967	164.	158.
Client ID#	Enantat QV 250 Lot# QVE 029			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

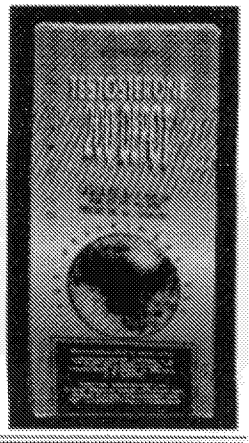
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-1

Set Description : 1 lot of liquid
Date Received : 11/29/05
Date(s) Analyzed : 11/29/05 thru 12/01/05
Date Reported : 12/02/05

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Testosterone enanthate
Manufacturer:	Tornel
Origin:	Mexico
Label Claim:	200mg/mL

Sample Preparation and Analysis Conditions :

For testosterone enanthate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Enanthate	
			mg/g	mg/mL
Laboratory ID#	511102-1	0.962	184.	177.
Client ID#	Tornel Testosterone 200 Depot Lot# 185			

Analyzed _____ By

Release Authorized _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511102-9

Set Description	:	1 lot of liquid
Date Received	:	11/29/05
Date(s) Analyzed	:	11/29/05 thru 12/01/05
Date Reported	:	12/02/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone propionate
Manufacturer:	Animal Power
Origin:	Mexico
Label Claim:	**100mg/mL**

Sample Preparation and Analysis Conditions :

For testosterone propionate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Propionate	
			mg/g	mg/mL
Laboratory ID#	511102-9			
Client ID#	Animal Power PropioTest 100 Lot# APP 001	0.955	97.3	92.9

Analyzed _____ By

Release Authorized _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 408073-1

Set Description	:	1 lot of liquid
Date Received	:	08/25/04
Date(s) Analyzed	:	08/25/04
Date Reported	:	08/26/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458

Drug:	Testosterone propionate
Manufacturer:	Generic Pharma
Origin:	Underground
Label Claim:	**100mg/mL**

Sample Preparation and Analysis Conditions :

For testosterone propionate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Propionate	
			mg/g	mg/mL
Laboratory ID#	408073-1	0.955	103.	98.4
Client ID#	Generic Pharma Testosterone Propionate			

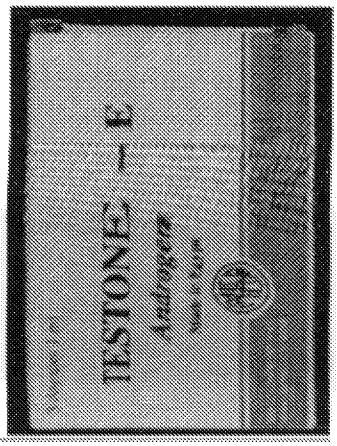
Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 406040-2

Set Description	:	1 lot of liquid
Date Received	:	06/14/04
Date(s) Analyzed	:	06/21/04
Date Reported	:	06/23/04
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Testosterone propionate
Manufacturer:	Misr
Origin:	Egypt
Label Claim:	25mg/mL

Sample Preparation and Analysis Conditions :

For testosterone propionate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 245 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Testosterone Propionate	
			mg/g	mg/mL
Laboratory ID#	406040-2	0.917	25.3	23.2
Client ID#	Testone-E Lot# 20198			

Analyzed _____ By

Release Authorized _____ By _____ Date

****

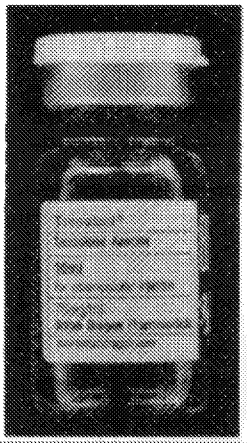
The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 402026-2

Set Description : 1 lot of liquid
Date Received : 02/10/03
Date(s) Analyzed : 02/11/04
Date Reported : 02/12/04

Company Name : Molecular Nutrition
Directed To : William Llewellyn
Address : 5500 Military Trail #308
Jupiter, FL 33458



Drug:	Trenbolone acetate
Manufacturer:	British Dragon
Origin:	Thailand
Label Claim:	75mg/mL

Sample Preparation and Analysis Conditions :

For trenbolone acetate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 340 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Trenbolone Acetate	
			mg/g	mg/mL
Laboratory ID#	402026-2			
Client ID#	British Dragon Trenabol Lot# MAN: 03 2003	0.974	89.9	87.5

Analyzed _____ By

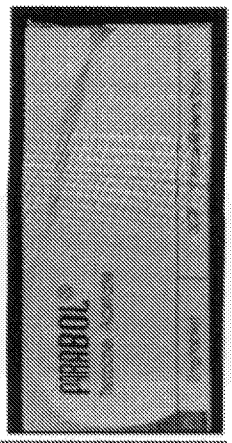
Release Authorized _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 504013-1

Set Description	1 lot of tablets
Date Received	04/04/05
Date(s) Analyzed	04/06/05
Date Reported	04/19/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Trenbolone Acetate
Manufacturer:	Body Research (counterfeit)
Origin:	Thailand
Label Claim:	50mg

Sample Preparation and Analysis Conditions :

For trenbolone acetate, a weighed portion of a composite of ground tablets was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 340 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Trenbolone Acetate	
		ave tab wt	mg/g	mg/tab
Laboratory ID#	504013-1			
Client ID#	Body Research Parabol Lot# 120844I	0.213	ND.*	-

Note(s): * None Detected. Detection Limit = 0.10 mg/g

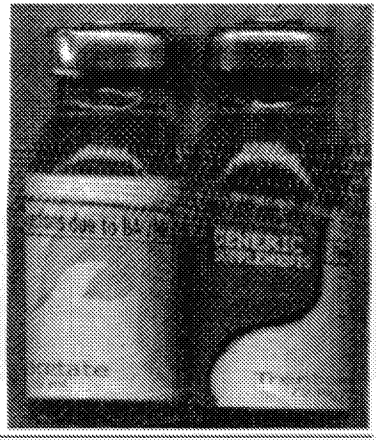
Analyzed _____ **Release Authorized** _____ _____
By By Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 403106-3

Set Description	1 lot of liquid
Date Received	03/29/04
Date(s) Analyzed	03/30/04
Date Reported	03/31/04
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Trenbolone acetate
Manufacturer:	Generic Supplements
Origin:	Underground
Label Claim:	75mg/mL

Sample Preparation and Analysis Conditions :

For trenbolone acetate, a weighed portion of the sample was diluted/extracted in acetonitrile, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 340 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Specific Gravity	Trenbolone Acetate	
			mg/g	mg/mL
Laboratory ID#	403106-3			
Client ID#	Generic Supplements Trenbolone Acetate Lot# 261323	0.990	97.8	91.9

Analyzed _____ By

Release Authorized _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 508007-1

Set Description	1 lot of tablets
Date Received	08/04/05
Date(s) Analyzed	08/05/05
Date Reported	08/08/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Stanozolol
Manufacturer:	British Dispensary
Origin:	Thailand
Label Claim:	5mg

Sample Preparation and Analysis Conditions :

For stanozolol, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 225 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Stanozolol	
		ave wt g	mg/g	mg/tab
Laboratory ID#	508007-1	0.130	43.2	5.62
Client ID#	British Dispensary Azolol Lot# 110108			

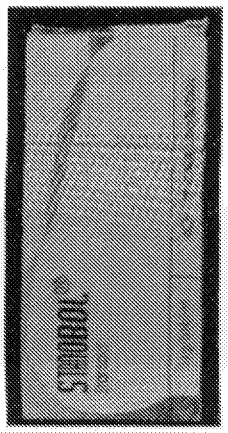
Analyzed _____ By **Release Authorized** _____ By _____ Date

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressees. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 504013-2

Set Description	1 lot of tablets
Date Received	04/04/05
Date(s) Analyzed	04/06/05
Date Reported	04/19/05
Company Name	Molecular Nutrition
Directed To	William Llewellyn
Address	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Stanozolol
Manufacturer:	Body Research (counterfeit)
Origin:	Thailand
Label Claim:	**10mg**

Sample Preparation and Analysis Conditions :

For stanozolol, a weighed portion of a composite of ground tablets was diluted/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 225 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Stanozolol	
		ave tab wt	mg/g	mg/tab
Laboratory ID#	504013-2			
Client ID#	Body Research Stanabol Lot# 1200341	0.0939	ND.*	-

Note(s): * None Detected. Detection Limit = 0.10 mg/g

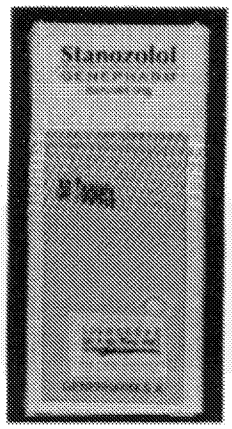
Analyzed _____ By _____ **Release Authorized** _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511043-4

Set Description	:	1 lot of tablets
Date Received	:	11/10/05
Date(s) Analyzed	:	11/15/05 thru 11/17/05
Date Reported	:	11/18/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Stanozolol
Manufacturer:	Genepharm
Origin:	Greece
Label Claim:	5mg

Sample Preparation and Analysis Conditions :

For stanozolol, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 225 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Stanozolol	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511043-4	0.119	45.5	5.41
Client ID#	Stanozolol/Genepharm Lot# 2009 Ex1 05			

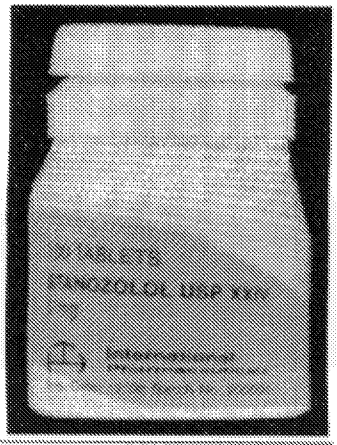
Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511043-5

Set Description	:	1 lot of tablets
Date Received	:	11/10/05
Date(s) Analyzed	:	11/15/05 thru 11/17/05
Date Reported	:	11/18/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	**Stanozolol**
Manufacturer:	**International Pharmaceuticals**
Origin:	**Underground**
Label Claim:	**5mg**

Sample Preparation and Analysis Conditions :

For stanozolol, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 225 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Stanozolol	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511043-5			
Client ID#	International Pharmaceuticals Lot# 200501	0.205	22.2	4.55

Analyzed _____ By **Release Authorized** _____ By _____ Date

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

Chemical Analysis Report

Set ID # 511054-5

Set Description	:	1 lot of tablets
Date Received	:	11/14/05
Date(s) Analyzed	:	11/15/05 thru 11/17/05
Date Reported	:	11/21/05
Company Name	:	Molecular Nutrition
Directed To	:	William Llewellyn
Address	:	5500 Military Trail #308 Jupiter, FL 33458



Drug:	Stanozolol
Manufacturer:	Quality Vet
Origin:	Mexico
Label Claim:	10mg

Sample Preparation and Analysis Conditions :

For stanozolol, a weighed portion of a composite of ground tablets was dissolved/extracted in 1:1:1 – acetonitrile/methanol/water, filtered, and then analyzed under the following instrumental conditions:

Chromatograph : High performance liquid chromatograph (Hewlett Packard Model 1090 II / L)
Column : Synergi Hydro-RP, 150 x 3.0mm, 4µm, 80Å
Detector : Photodiode array, scanning from 190 to 600 nm; quantitation at 225 nm

Analytical Results

Reporting results to three significant figures is for statistical evaluation only and is not intended to be an indication of analytical precision

Sample Identification		Tablets	Stanozolol	
		ave wt g	mg/g	mg/tab
Laboratory ID#	511054-5	0.116	94.4	11.0
Client ID#	Stan QV 10 Lot# QVTST 024			

Analyzed _____ By _____ Release Authorized _____ By _____ Date _____

****

The results provided in this report represent to the fullest extent possible under the criteria for good faith and professionalism in the field of analytical chemistry, true and factual data that are provided for the sole use of the addressee. Any use of the report or its contents except under the guidelines of this expressed intent is not condoned or permitted.

APPENDIX B Drug Availability Tables (Generic Name)

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
boldenone (blend)	Equalon 100	100 mg/ml	5 ml vial	WDV	Myanmar/Burma		VET
boldenone acetate	Boldabol Acetate	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
boldenone undecylenate	Ana-Bolic	50 mg/ml	10 ml vial	Fort	Argentina		VET
boldenone undecylenate	Anabolic BD	50 mg/ml	10 ml vial	SYD Group	Australia		VET
boldenone undecylenate	Anabolic BD	100, 200 mg/ml	10 ml vial	SYD Group	Mexico		VET
boldenone undecylenate	Anabolic-BD	100 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
boldenone undecylenate	Bold 200	200 mg/ml	10 ml vial	Animal Pharm	Mexico		VET
boldenone undecylenate	Bold QV 200	200 mg/ml	10 ml vial	Quality Vet	Mexico		VET
boldenone undecylenate	Boldabol 200	200 mg/ml	10 ml vial	British Dragon	Thailand		
boldenone undecylenate	Boldebal-H	50 mg/ml	10 ml vial	Ilium/Troy	Australia		VET
boldenone undecylenate	Boldemax AP	50 mg/ml	10, 50, 100, 250ml vial	Agrovet	Peru		VET
boldenone undecylenate	Boldenol 25	25 mg/ml	10, 50, 100, 250ml vial	Comandina	Colombia		VET
boldenone undecylenate	Boldenol R	50 mg/ml	10, 50, 100, 250ml vial	Comandina	Colombia		VET
boldenone undecylenate	Boldenon	200 mg/ml	10 ml vial	Ttokkyo	Mexico	[NLM]	VET
boldenone undecylenate	Boldenona	50 mg/ml	50 ml vial	Formula Magistral	Argentina		VET
boldenone undecylenate	Boldenona	50 mg/ml	10, 20, 100 ml vial	Biogen	Colombia		VET
boldenone undecylenate	Boldenona	50 mg/ml	10, 50, 100, 250ml vial	Vecol	Colombia		VET
boldenone undecylenate	Boldenona 200	200 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
boldenone undecylenate	Boldenona 50	50 mg/ml	10, 50, 100, 250ml vial	Servivequipos	Colombia		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Bolivia		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Colombia		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Costa Rica		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Dom. Rep.		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Ecuador		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	El Salvador		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Guatemala		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Honduras		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Nicaragua		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Panama		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Peru		VET
boldenone undecylenate	Boldenone 50	50 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
boldenone undecylenate	Cebulin 50	50 mg/ml	10, 50, 250 ml vial	Provet	Colombia		VET
boldenone undecylenate	Crecabol	25 mg/ml	10, 30 ml vial	Univet	Mexico		VET
boldenone undecylenate	Dynabolin 50	50 mg/ml	10, 50, 100, 250ml vial	Kryovet	Colombia		VET
boldenone undecylenate	Equibold	200 mg/ml	10 ml vial	Provet	Mexico		VET
boldenone undecylenate	Equifort	50 mg/ml	10, 50 ml vial	Purina	Brazil		VET
boldenone undecylenate	Equi-gen	50 mg/ml	10, 50, 100, 250 ml vial	Tornel	Mexico		VET
boldenone undecylenate	Equipoise®	50 mg/ml	10, 50 ml vial	Fort Dodge	Mexico	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Fort Dodge	U.S.		VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Ciba-Geigy	Canada	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Squibb	Canada	[NLM]	VET
boldenone undecylenate	Equipoise®	50 mg/ml	50 ml vial	Wyeth	Canada		VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Solvay	Mexico	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Squibb	Mexico	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Squibb	U.S.	[NLM]	VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
boldenone undecylenate	Ex-Pois	50 mg/ml	10 ml vial	Agofarma	Argentina		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Bolivia		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Bolivia		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Chile		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Chile		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Colombia		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Colombia		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Dom. Rep.		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Dom. Rep.		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Ecuador		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Ecuador		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	El Salvador		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	El Salvador		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Guatemala		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Guatemala		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Honduras		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Honduras		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Panama		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Panama		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Paraguay		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Paraguay		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Peru		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Peru		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Venezuela		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Venezuela		VET
boldenone undecylenate	Legacy	50 mg/ml	50 ml vial	Iesmequimica	Colombia		VET
boldenone undecylenate	Maxigan	50 mg/ml	10, 50 ml vial	Inpel/Denkall	Mexico	[NLM]	VET
boldenone undecylenate	Maxigan 50	50 mg/ml	50 ml vial	Callbrenia	Colombia		VET
boldenone undecylenate	Porkybol 1%	10 mg/ml	10, 50, 100 ml vial	Compania California	Colombia		VET
boldenone undecylenate	Sybolin	25 mg/ml	10 ml vial	Norvet	Australia		VET
boldenone undecylenate	Ultra EQ 300	300 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
boldenone undecylenate	Ultragan	100 mg/ml	10 ml vial	Denkall	Mexico		VET
boldenone undecylenate	Ultragan	50 mg/ml	50 ml vial	Denkall	Mexico		VET
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba-Geigy	Australia	[NLM]	VET
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba-Geigy	Germany		VET
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba-Geigy	Switzerland	[NLM]	VET
chlorodehydromethyltestosterone	Turanabol	10 mg tablet	500 tablet pouch	British Dragon	Thailand		
clostebol acetate	Alfa-Trofodermin	.5% gel	n/a	Farmitalia	Italy	[NLM]	
clostebol acetate	Alfa-Trofodermin	.5% gel	n/a	Pharmacia & Upjohn	Italy		
clostebol acetate	Megagrisevit Mono	10 mg/1.5ml	1.5 ml vial	Pharmacia	Germany	[NLM]	
clostebol acetate	Megagrisevit-Mono	10 mg/1.5ml	1.5 ml vial	Pharmacia	Germany	[NLM]	
clostebol acetate	Steranabol	20 mg/ml	2 ml ampule	Farmitalia	Italy	[NLM]	
clostebol acetate	Trofodermin Crema	cream	30 gram tube	Carlo Erba OTC	Italy		
clostebol acetate	Trofodermin Spray	n/a	30 ml spray	Carlo Erba OTC	Italy		
dihydrotestosterone	Andractim	25 mg/g	80 gram gel	Piette	Belgium		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
dihydrotestosterone	Andractim	25 mg/g	100 gram gel	Besins-Iscovesco	France		
dihydrotestosterone	Andractim	25 mg/g	100 gram gel	Chemec	India		
dihydrotestosterone	Andractim	25 mg/g	80 gram gel	n/a	Korea		
dihydrotestosterone	Andractim	25 mg/g	80 gram gel	Servimedic	Uruguay		
drostanolone	Dromostanol	50 mg/ml	5 ml vial	Xelox (export)	Philippines		
drostanolone propionate	Drolban	50 mg/1ml	1 ml vial	Lilly	U.S.	[NLM]	
drostanolone propionate	Mastabol 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
drostanolone propionate	Mastabol 50	50 mg/ml	10 ml vial	British Dragon	Thailand	[NLM]	
drostanolone propionate	Masteril	100 mg/2ml	2 ml amp	Chemmar	Germany	[NLM]	
drostanolone propionate	Masteril	100 mg/2ml	2 ml ampule	Syntex	Bulgaria	[NLM]	
drostanolone propionate	Masteril	100 mg/2ml	2 ml amp	Syntex	United Kingdom	[NLM]	
drostanolone propionate	Masteron	100 mg/2ml	2 ml amp	Sarva-Syntex	Belgium	[NLM]	
drostanolone propionate	Masteron	100 mg/2ml	2 ml amp	Ciba	Portugal	[NLM]	
drostanolone propionate	Mastisol	5% injection sol.	n/a	Shionogi	Japan	[NLM]	
drostanolone propionate	Metormast	100 mg/2ml	2 ml amp	Syntex	Spain	[NLM]	
drostanolone propionate	Permastril	100 mg/2ml	2 ml ampule	Cassenne	France	[NLM]	
ethylestrenol	Maxibolin	2 mg tablet	n/a	Organon	U.S.	[NLM]	
ethylestrenol	Maxibolin Elixir	2 mg/5ml	n/a	Organon	U.S.	[NLM]	
ethylestrenol	Nandrobol	5 mg tablet	100, 500 tablet bottle	Intervet	Australia		VET
ethylestrenol	Nitrotain	15 mg/4gram	60, 250, 1000 gram tube	Nature-Vet	Australia		VET
ethylestrenol	Orabolin-H	100 mg/5g base	20 ml plastic tube	Vetsearch	Australia	[NLM]	VET
ethylestrenol	Orabolin®	2 mg tablet	n/a	Organon	Belgium	[NLM]	
ethylestrenol	Orabolin®	2 mg tablet	10 tablet box	Intas	India		
ethylestrenol	Orabolin®	2 mg tablet	100 tablet box	Organon	Pakistan		
ethylestrenol	Orabolin®	2 mg tablet	n/a	Diamed/Organon	South Africa	[NLM]	
ethylestrenol	Orabolin®	2 mg tablet	n/a	Organon	United Kingdom	[NLM]	
ethylestrenol	Orgabolin	2 mg tablet	n/a	Organon	France		
ethylestrenol	Orgabolin	2 mg tablet	n/a	Organon	Netherlands	[NLM]	
ethylestrenol	Orgabolin	2 mg tablet	n/a	Santa	Turkey	[NLM]	
ethylestrenol	Orgabolin Drops	2 mg	n/a	Santa	Turkey	[NLM]	
ethylestrenol	Stabolin	25, 50 mg/ml	1 ml ampule	Farmakon	Russia	[NLM]	
fluoxymesterone	Android-F	10 mg tablet	100 tablet bottle	Brown	U.S.	[NLM]	
fluoxymesterone	Bacien	5 mg capsule	500 capsule bottle	Te Fong	Taiwan		
fluoxymesterone	Chinglicosan	5 mg capsule	n/a	Ciiphar	Taiwan		
fluoxymesterone	Fgrone	1 mg tablet	30 tablet box	Sanus	Argentina		
fluoxymesterone	Flouoxymesterone cap	5 mg capsule	n/a	Yuan Chou	Taiwan		
fluoxymesterone	Fluoxymesterone	5 mg capsule	n/a	Chen Ho	Taiwan		
fluoxymesterone	Fluoxymesterone	10 mg tablet	100 tablet bottle	Rosemont	U.S.		
fluoxymesterone	Fosteron	5 mg capsule	n/a	Health Chemical	Taiwan		
fluoxymesterone	Fu Lao Shu	10 mg capsule	n/a	Ming Ta	Taiwan		
fluoxymesterone	Fulcas	10 mg capsule	n/a	New Chem & Pharm	Taiwan		
fluoxymesterone	Halotestin®	5 mg tablet	50 tablet bottle	Pharmacia	Canada		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Denmark	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Finland		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Pharmacia-Upjohn	France	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
fluoxymesterone	Halotestin®	5 mg tablet	20 tablet box	Upjohn	Greece		
fluoxymesterone	Halotestin®	5 mg tablet	20 tablet box	Upjohn	Italy	[NLM]	
fluoxymesterone	Halotestin®	2, 5 mg tablet	n/a	n/a	Japan		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Netherlands	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Norway	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Pharmacia & Upjohn	Philippines		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Sweden	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	100 tablet bottle	Pharmacia	Taiwan		
fluoxymesterone	Halotestin®	2, 5, 10 mg tablet	100 tablet bottle	Pharmacia & Upjohn	U.S.		
fluoxymesterone	Halotestin®	10 mg tablet	100 tablet bottle	Warner Chilcott	U.S.	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Galenika	YugoslaviaFRMR	[NLM]	
fluoxymesterone	Hydrotone	20 mg tablet	100 tablet bottle	Merck	U.S.	[NLM]	
fluoxymesterone	Lipaw	10 mg capsule	n/a	Long Der	Taiwan		
fluoxymesterone	Lipaw	10 mg capsule	n/a	Formosa	Taiwan		
fluoxymesterone	ODK	5 mg capsule	n/a	Winston	Taiwan		
fluoxymesterone	Oxandrolone	5 mg capsule	n/a	Long Der	Taiwan		
fluoxymesterone	Ora-Testryl	5 mg tablet	100 tablet bottle	Squibb Mark	U.S.	[NLM]	
fluoxymesterone	Sdrenon	5 mg capsule	n/a	n/a	Taiwan		
fluoxymesterone	Stenox	2.5 mg tablet	20 tablet box	Atlantis	Mexico		
fluoxymesterone	Teragon	5 mg capsule	n/a	Ming Ia	Taiwan		
fluoxymesterone	Ton Lin	10 mg capsule	n/a	Chin Teng	Taiwan		
fluoxymesterone	Ultandren	1,5 mg tablet	n/a	Ciba	United Kingdom	[NLM]	
fluoxymesterone	Vewon	5 mg tablet	n/a	Yung Shin	Taiwan		
fluoxymesterone	Yi Jang	10 mg capsule	n/a	Shyh Ser	Taiwan		
fluoxymesterone	Waromom	5 mg tablet	n/a	Washington	Taiwan		
formebolone	Esiclene	1 mg drops	n/a	LPB	Italy	[NLM]	
formebolone	Esiclene	2 mg/ml	2 ml ampule	LPB	Italy	[NLM]	
formebolone	Esiclene	5 mg tablet	n/a	LPB	Italy	[NLM]	
formebolone	Esiclene	1 mg drops	n/a	Biofarma	Portugal	[NLM]	
formebolone	Esiclene	5 mg tablet	n/a	Biofarma	Portugal	[NLM]	
formebolone	Hubernol	5 mg dragee	n/a	ICN Hubber	Spain	[NLM]	
formebolone	Hubernol	1 mg drops	n/a	ICN Hubber	Spain	[NLM]	
furazabol	Miotolan	1 mg tablet	n/a	Daiichi Seiyaku	Japan	[NLM]	
mesterolone	Mesterolon	25 mg tablet	n/a	Brown & Burk	Hungary		
mesterolone	Mesterolon	25 mg tablet	n/a	Schering	Sweden	[NLM]	
mesterolone	Mesterolone	25 mg tablet	n/a	Schering	Denmark		
mesterolone	Mestoranum	25 mg tablet	n/a	Schering	Norway	[NLM]	
mesterolone	Potiviron	25 mg dragee	50 dragee box	Asche	Germany	[NLM]	
mesterolone	Proviron	25 mg tablet	20 tablet box	Schering	Algeria		
mesterolone	Proviron	25 mg tablet	50 tablet box	Schering	Taiwan		
mesterolone	Proviron	25 mg tablet	20 tablet box	Schering	Turkey		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Argentina		
mesterolone	Proviron®	25, 50 mg tablet	n/a	Schering	Australia		
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Austria		
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Belgium		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Brazil		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Bulgaria		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Colombia		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Costa Rica		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Croatia		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Czech. Rep.		
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Dom. Rep.		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering/CID	Egypt	[NLM]	
mesterolone	Proviron®	25 mg tablet	n/a	Schering	El Salvador		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Estonia	[NLM]	
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Finland		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	France	[NLM]	
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Germany	[NLM]	
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Greece		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Guatemala		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Honduras		
mesterolone	Proviron®	25 mg tablet	10, 15, 20, 50, 100, 150 tab bt	Schering	Hungary		
mesterolone	Proviron®	25 mg tablet	30 tablet box	Schering	India		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Indonesia		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Israel		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Italy		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Latvia	[NLM]	
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Lithuania	[NLM]	
mesterolone	Proviron®	25 mg tablet	10 tablet box	Schering	Mexico		
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Netherlands		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Nicaragua		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Panama		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Paraguay		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Poland		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Portugal		
mesterolone	Proviron®	25 mg tablet	30 tablet bottle	Schering	Russia		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet bottle	Schering	Slovakia		
mesterolone	Proviron®	25 mg tablet	25, 100 tablet bottle	Schering/Bellmed	South Africa		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Spain		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Switzerland	[NLM]	
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Ukraine		
mesterolone	Proviron®	25 mg tablet	30 tablet box	Schering	United Kingdom		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Uruguay		
mesterolone	Proviron®	25 mg tablet	15 tablet box	Schering	Venezuela		
mesterolone	Proviron®	25 mg tablet	n/a	Alkoid	YugoslaviaFRMR		
mesterolone	Proviron®	25 mg tablet	30 tablet box	Organon	Singapore		
mesterolone	Provironum	25 mg tablet	150 tablet box	Schering	Thailand		
mesterolone	Provironum®	25 mg tablet	30 tablet box	Schering	India	[NLM]	
mesterolone	Restore	25 mg tablet	20 tablet box	Brown & Burk	India		
mesterolone	Viaron	25 mg tablet	20 tablet box	Jenapharm	Germany	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
mesterolone	Vistimon	25 mg tablet	n/a	n/a	Korea		
[illegible]	Vistimon	25 mg tablet	30 tablet box	[illegible]	Taiwan		
methandrostenolone	Ammipire	5 mg tablet	1000 tablet bottle	Ammipire	Thailand		
[illegible]	Anabol	50 mg tablet	n/a	British Dragon	Thailand	[NLM]	
methandrostenolone	Anabol Tablets	5 mg tablet	1000 tablet bottle	British Dispensary	Thailand		
[illegible]	Anabol Tablets	5 mg tablet	1000 tablet bottle	[illegible]	Thailand	[NLM]	
methandrostenolone	Anabolex	3 mg tablet	100 tablet box	Ethical	Dom. Rep.		
[illegible]	Anabolicum 2.5%	25 mg/ml	50 ml vial	Mack G.	Germany	[NLM]	VET
methandrostenolone	Anabolin	5 mg tablet	n/a	Leiras	Finland	[NLM]	
[illegible]	Anabolin	0.5% cream	n/a	Leiras	Poland	[NLM]	
methandrostenolone	Anabol-Jet	25 mg/ml	30, 100, 250 ml vial	Norvet	Mexico		VET
[illegible]	Anabol-Jet ADE	10 mg/ml	100, 250 ml vial	Norvet	Mexico		VET
methandrostenolone	Anabol-Pet's	10, 25 mg tablet	200 tablet bottle	Norvet	Mexico		VET
[illegible]	Androlon	5 mg tablet	n/a	Takeda Pharmaceuticals	Japan	[NLM]	
methandrostenolone	Averbol 25	25 mg/ml	10, 20 ml vial	British Dragon	Thailand		
[illegible]	Bionabol	2 mg tab	40 tablet box	Pharmaceuticals	Bulgaria	[NLM]	
methandrostenolone	Bionabol	2 mg tablet	40 tablet bottle	Pharmacia	Bulgaria	[NLM]	
[illegible]	Bionabol	5 mg tab	40 tablet bottle	Pharmacia	Bulgaria	[NLM]	
methandrostenolone	Chinlipan Tab	2 mg tablet	n/a	Chin Tien	Taiwan		
[illegible]	Dianabol DS	10 mg tablet	500 tablet bottle	Body Research	Thailand	[NLM]	
methandrostenolone	D-Bol	10 mg tablet	100 tablet bottle	Denkall	Mexico		VET
[illegible]	D-Bol	10 mg capsule	60 capsule box	Denkall	Mexico		VET
methandrostenolone	D-Bol	10 mg capsule	300 capsule bottle	Denkall	Mexico		VET
[illegible]	D-Bol	25 mg/ml	10 ml vial	Denkall	Mexico		VET
methandrostenolone	Dialone	5 mg tablet	100 tablet bottle	Major	U.S.	[NLM]	
[illegible]	Dianabol	10 mg tablet	100 tablet bottle	Salud	Mexico		VET
methandrostenolone	Dianabol	25 mg/ml	10, 50, 100 ml vial	Salud	Mexico		VET
[illegible]	Dianabol	25 mg tablet	30 tablet bottle	Floral Pharmacy	Belize		
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	Germany	[NLM]	
[illegible]	Dianabol	5 mg tablet	500 tablet bottle	Ciba	U.S.	[NLM]	
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	United Kingdom	[NLM]	
[illegible]	Ehrenban	5 mg tablet	n/a	Sato	Japan	[NLM]	
methandrostenolone	Ganabol	25 mg/ml	50 ml vial	Salud	Mexico	[NLM]	VET
[illegible]	Mabo	5 mg tablet	1000 tablet box, bottle	Pharmaland	Thailand		
methandrostenolone	Metaboline	2 mg tablet	60, 500 tablet bottle	Desbergers	Canada	[NLM]	
[illegible]	Metanabol	5 mg tablet	20 tablet box	Jelfa	Poland		
methandrostenolone	Metanabol	5 mg tablet	20 tablet box	Polfa	Poland	[NLM]	
[illegible]	Metanabol	1 mg tablet	20 tablet box	Polfa	Poland	[NLM]	
methandrostenolone	Metanabol	0.5% cream	n/a	Polfa	Poland	[NLM]	
[illegible]	Metandienol	25 mg/ml	50 ml vial	Quimefar	Mexico		VET
methandrostenolone	Metandienon	5 mg tablet	100 tablet box	Bioreaktor	Russia		
[illegible]	Metandiol 60	60 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
methandrostenolone	Metandiol Tab	10 mg tablet	100 tablet bottle	Pet's Pharma	Mexico		VET
[illegible]	Metanoral 10	10 mg tablet	500 tablet bottle	Brons Labs	Mexico	[NLM]	VET
methandrostenolone	Metandrostenolon	5 mg tablet	100 tablet box	Akrihin	Russia	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methandrostenolone	Metandienon	5 mg tablet	100 tablet box	Alvogen	Russia		
methandrostenolone	Metandrostenolon	5 mg tablet	100 tablet box	Bioreaktor	Russia	[NLM]	
methandrostenolone	Nerobol tab	10 mg tablet	100 tablet bottle	Animal Pharm	Mexico		VET
methandrostenolone	Methanabol	5 mg tablet	500 tablet pouch	British Dragon	Thailand	[NLM]	
methandrostenolone	Methanabol	10 mg tablet	500 tablet pouch	British Dragon	Thailand		
methandrostenolone	Methanabol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
methandrostenolone	Methandienone	5, 10 mg tablet	100, 1000 tablet bottle	Thaifoo	Mexico	[NLM]	VET
methandrostenolone	Methandon	5 mg tablet	1000 tablet bottle	Acdhon Co.	Thailand		
methandrostenolone	Nerobin	5 mg tablet	20 tablet box	Terapia	Romania		
methandrostenolone	Neo-Anabolene	5 mg tablet	10 tablet strip	Haurus	Indonesia		
methandrostenolone	Nerobil	5 mg tablet	20 tablet box	Gedeon Richter	Hungary	[NLM]	
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Gedeon Richer	Hungary	[NLM]	
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Gedeon	Yugoslavia(FRY)	[NLM]	
methandrostenolone	Pronabol-5	5 mg tablet	100 tablet box	P&B Labs	India		
methandrostenolone	Reforvit Strong	5, 10, 25 mg tab	100, 500, 1000 tablet bottle	Loeffler	Mexico		VET
methandrostenolone	Reforvit-B	25 mg/ml	10, 50 ml	Loeffler	Mexico		VET
methandrostenolone	Reparnol	2 mg tablet	n/a	Glob. Puppy	Mexico	[NLM]	
methandrostenolone	Stenolon	5 mg tablet	20 tablet box	Leciva	Czech. Rep.	[NLM]	
methandrostenolone	Stenolon	1 mg tablet	30 tablet box	Leciva	Czech. Rep.	[NLM]	
methandrostenolone	Trinergic	5 mg capsule	n/a	Unimed	India	[NLM]	
methandrostenolone	Ultra-D Bol	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
methandrostenolone/stanozolol	Diosterol	50 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
methenolone acetate	Blastolon 25	25 mg tablet	100 tablet bottle	Brabs Labs	Mexico	[NLM]	VET
methenolone acetate	Metenol QV	50 mg tablet	50 tablet bottle	Quality Vet	Mexico		VET
methenolone acetate	Primobex	50 mg tablet	30 tablet pouch	British Dragon	Thailand		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Austria	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Belgium	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Bolivia	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Costa Rica	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Dom. Rep.	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Ecuador	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	El Salvador	[NLM]	
methenolone acetate	Primobolan®	50 mg tablet	n/a	Schering	France	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Germany	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Guatemala	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Honduras	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	100, 1000 tablet box	Schering	Japan		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Mexico	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Nicaragua	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Panama	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering-Berlimed	South Africa	[NLM]	
methenolone acetate	Primobolan® Acetate	25 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Lekas	Finland	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Germany	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Netherlands	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methenolone acetate	Primobolan® S	25 mg tablet	50 tablet bottle	Schering/Berlimed	South Africa		
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Thailand	[NLM]	
methenolone acetate	Primo-Plus 50	50 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
methenolone acetate	Ultra Prime	100 mg/ml	10 ml vial	Norbrook	Mexico		VET
methenolone enanthate	Methenolone Enanthate Inj BP	100 mg/ml	1 ml ampule	Belco Pharma	India		
methenolone enanthate	Primobol 100	100 mg/ml	10 ml vial	Bolco Organon	Australia		
methenolone enanthate	Primobolan Depot	100 mg/ml	1 ml ampule	Schering/CID	Egypt	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	France	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Belgium	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Czech Rep	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Ecuador		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	France	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Greece	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Guatemala		
methenolone enanthate	Primobolana Depot	100 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
methenolone enanthate	Primobolan® Depot	50 mg/ml	1 ml ampule	Schering	Japan	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Japan		
methenolone enanthate	Primobolan® Depot	50 mg/ml	1 ml ampule	Schering	Mexico		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Paraguay		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Portugal	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering/Parkwold	South Africa	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Spain		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Switzerland	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Turkey		
methenolone enanthate	Primobolan® Depot mite	50 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone enanthate	Primo-Plus 100	100 mg/ml	1 ml ampule	Ttokkyo	Mexico	[NLM]	VET
methenolone enanthate	Supreme 100	100 mg/ml	10 ml vial	SYD Group	Mexico		VET
methylandrostenediol	Andris	10 mg tablet	n/a	Chifar	Greece	[NLM]	
methylandrostenediol	Methyldiol	2 mg tablet	n/a	Vortech	U.S.	[NLM]	
methylandrostenediol	Methyldiol Aqueous	50 mg/ml	n/a	Vortech	U.S.	[NLM]	
methylandrostenediol	Methylandrostenediol	10, 25 mg tablet	n/a	Jelfa	Poland	[NLM]	
methylandrostenediol	Novandrol	10, 25 mg dragee	n/a	Galenika	YugoslaviaFRMR	[NLM]	
methylandrostenediol (blend)	Anabolic NA	75 mg/ml	10 ml vial	SYD Group	Australia		VET
methylandrostenediol (blend)	Anabolic NA	75 mg/ml	10 ml vial	SYD Group	Mexico		VET
methylandrostenediol (blend)	Anabolic NA	75 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
methylandrostenediol (blend)	Drive	55 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Hybrid	75 mg/ml	10, 20 ml vial	Parnell	Australia		VET
methylandrostenediol (blend)	Libriol	75 mg/ml	10, 20 ml vial	RWR	Australia	[NLM]	VET
methylandrostenediol (blend)	RWR 4 Plus	75 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Spectriol	65 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Tribolin	75 mg/ml	10, 20 ml vial	Parnell	Australia		VET
methylandrostenediol dipropionate	Anadiol	5 mg tab	10, 100 tablet bottle	Ilium/Troy	Australia		VET
methylandrostenediol dipropionate	Anadiol Depot	75 mg/ml	10 ml vial	Ilium/Troy	Australia		VET
methylandrostenediol dipropionate	Arbolic	50 mg/ml	n/a	Burgin Arden	U.S.	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methylandrostenediol dipropionate	Anabolic	50 mg/ml	n/a	Nutrition	U.S.	[NLM]	
methylandrostenediol dipropionate	Denkadiol	75 mg/ml	10 ml vial	Denkall	Mexico		VET
methylandrostenediol dipropionate	Durandrol	50 mg/ml	n/a	Pharmex	U.S.	[NLM]	
methylandrostenediol dipropionate	Hybolin	50 mg/ml	n/a	Hyrex	U.S.	[NLM]	
methylandrostenediol dipropionate	Methanabol	75 mg/ml	10 ml vial	Intervet	Australia	[NLM]	VET
methylandrostenediol dipropionate	Methandriol Dipropionate	75 mg/ml	10 ml vial	British Dragon	Thailand		
methylandrostenediol dipropionate	Methosus 50	50 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
methylandrostenediol dipropionate	Protabol	75 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol dipropionate	Superbolin	75 mg/ml	10 ml vial	Vetsearch	Australia		VET
methyltestosterone	Afro	25 mg tablet	40 tablet box	Casel	Turkey		
methyltestosterone	Agovirin	10 mg dragee	100 dragee bottle	Laevia	Czech Rep.	[NLM]	
methyltestosterone	Android	5, 10, 25 mg tablet	60 tablet bottle	ICN Pharm	U.S.		
methyltestosterone	Android	5, 10, 25 mg tablet	n/a	Brown	U.S.	[NLM]	
methyltestosterone	Androral	10 mg tablet	n/a	Gedeon Richer	Hungary		
methyltestosterone	Arcosterone	10 mg sub.	n/a	Acrum	U.S.	[NLM]	
methyltestosterone	Arcosterone	10, 25 mg tablet	n/a	Acrum	U.S.	[NLM]	
methyltestosterone	Debristeron	n/a	n/a	n/a	Korea		
methyltestosterone	Geri Tabs	2 mg tablet	50, 200 tablet bottle	Vetcom	Canada		VET
methyltestosterone	Glenco Stridox	10 mg tablet	20 tablet box	ion	Uruguay		
methyltestosterone	Hormobin	5 mg tablet	40 tablet box	Munrin Sahin	Turkey		
methyltestosterone	Kang Und Sing	n/a	n/a	n/a	Korea		
methyltestosterone	Longivol (plus estrogen)	1 mg tablet	n/a	Medical S.A.	Spain		
methyltestosterone	Mediamic	10 mg tablet	n/a	Wyeth-Ayerst	U.S.	[NLM]	
methyltestosterone	Mesteron	10 mg tablet	n/a	Jelfa	Poland	[NLM]	
methyltestosterone	Metandren	5 mg sub. dragee	n/a	Ciba	U.S.	[NLM]	
methyltestosterone	Metandren	10, 25 mg tablet	n/a	Ciba	U.S.	[NLM]	
methyltestosterone	Metandren	10, 25 mg tablet	100 tablet bottle	Novartis	U.S.	[NLM]	
methyltestosterone	Metesto	25 mg tablet	100 tablet bottle	Acdhon	Thailand		
methyltestosterone	Methyltestosterone	10 mg tablet	n/a	Global	U.S.		
methyltestosterone	Methyltestosterone	10 mg tablet	n/a	Goldline	U.S.	[NLM]	
methyltestosterone	Meto Testosteron	10 mg tablet	30 tablet box	Temple	Romania		
methyltestosterone	Metil Thomsina S	10 mg tablet	20 tablet box	Celsius	Uruguay		
methyltestosterone	Metil-Test	50 mg tablet	100 tablet bottle	Biovet	Mexico		VET
methyltestosterone	Metiltestosterona	n/a	n/a	Botica	Paraguay		
methyltestosterone	Neo Aptro	5 mg tablet	20 tablet	Mist	Egypt		
methyltestosterone	Oreton	n/a	n/a	n/a	Venezuela		
methyltestosterone	Oreton Methyl	10 mg tablet	n/a	Schering	U.S.	[NLM]	
methyltestosterone	Oreton Methyl	10 mg sub. tablet	n/a	Schering	U.S.	[NLM]	
methyltestosterone	Ti Lingvalda	5 mg sub. dragee	n/a	Galenika	Yugoslavia/FRMR	[NLM]	
methyltestosterone	Testo Tab	25 mg tablet	n/a	Samil	Korea		
methyltestosterone	Testoa	25 mg tablet	30 tablet box	Farmak	Ukraine		
methyltestosterone	Testopropon	25 mg tablet	n/a	Scanpharm	Malaysia		
methyltestosterone	Testormon	10 mg tablet	n/a	Unitas	Portugal		
methyltestosterone	Testosteron	5 mg tablet	n/a	Berco	Germany	[NLM]	
methyltestosterone	Testosure	n/a	n/a	Europharm	Hong Kong		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methyltestosterone	Testovis	10 mg tablet	n/a	SIT	Italy		
methyltestosterone	Testoviron	25 mg dragee	30 dragee box	Farmitalia	Germany	[NLM]	
methyltestosterone	Testred	10 mg capsule	100 capsule bottle	ICN	U.S.		
methyltestosterone	TP Mes Hormone	50 mg dragee	25 dragee	TP Drugs	Thailand		
methyltestosterone	Virilon (time released)	10 mg capsule	100,1000 capsule bottle	Star	U.S.		
mibolerone	Cheque Drops	100 mcg/ml	55 mg bottle	Upjohn	U.S.	[NLM]	VET
mibolerone	mibolerone drops	100 mcg/ml	55 mg bottle	Wedgewood	U.S.		VET
nandrolone (base)	Dinandrol	100 mg/ml	2 ml vial	Xelox (exp'd)	Philippines		
nandrolone cyclohexylpropionate	Genadrag	50 mg/ml	10 ml vial	Drag Pharma	Chile		VET
nandrolone cyclohexylpropionate	Sanabolicum	25, 50 mg/ml	1 ml ampule	Bachem/Alfa	Egypt		
nandrolone cyclohexylpropionate	Sanabolicum-Vet	50 mg/ml	10 ml vial	Werfft-Chemie	Austria		VET
nandrolone cypionate	Anabolic DN	50 mg/ml	10 ml vial	SYD Group	Australia		VET
nandrolone cypionate	Anabolic DN	50, 300 mg/ml	10 ml vial	SYD Group	Mexico		VET
nandrolone cypionate	Anabolic DN	50 mg/ml	10 ml vial	Orion Trading	Uganda	[NLM]	VET
nandrolone cypionate	Dynabol	50 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
nandrolone decanoate	Anabolicum	25 mg/ml	10, 50 ml vial	Bela-Pharm	Germany		VET
nandrolone decanoate	Anabolin Forte	50 mg/ml	10, 50 ml vial	Alfasan	Netherlands		VET
nandrolone decanoate	Anabolin Forte	50 mg/ml	10 ml vial	Alfasan	Portugal		VET
nandrolone decanoate	Anabolin Forte	50 mg/ml	10, 50 ml vial	Alfasan	Spain		VET
nandrolone decanoate	Anabolin Depot	50 mg/ml	1 ml	Alfasan	Greece		
nandrolone decanoate	Anaprolina	25, 50 mg/ml	1 ml ampule	Silesia	Chile		
nandrolone decanoate	Androlone-D 200	200 mg/ml	1 ml	Keene	U.S.	[NLM]	
nandrolone decanoate	Canoate Inj	25, 50 mg/ml	n/a	n/a	Korea		
nandrolone decanoate	Deca 300	300 mg/ml	10 ml vial	Animal Power	Ukraine		VET
nandrolone decanoate	Deca QV 200	200 mg/ml	10, 50 ml vial	Quality Vet	Mexico		VET
nandrolone decanoate	Deca QV 300	300 mg/ml	10 ml vial	Quality Vet	Mexico		VET
nandrolone decanoate	Decabol 250	250 mg/ml	10 ml vial	British Dragon	Thailand		
nandrolone decanoate	Deca-Cubol 100	100 mg/ml	2 ml vial	BM Pharmaceutical	India		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Argentina		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	2 ml	Organon	Argentina		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml	Organon	Austria	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule, syringe	Organon	Belgium		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Brazil		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Canada		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	2 ml	Organon	Canada	[NLM]	
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml	Organon	Canada		
nandrolone decanoate	Deca-Durabolin®	25, 50, 100 mg/ml	1 ml ampule	Organon	Chile		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Colombia		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Denmark	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon/Nile	Egypt		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Finland		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml	Organon	Finland		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml	Organon	France	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Germany	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml vial	Organon	Greece		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Greece		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Greece		
nandrolone decanoate	Deca-Durabolin®	25, 50, 100 mg/ml	1 ml ampule	Inter	India		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Indonesia		
nandrolone decanoate	Deca-Durabolin®	n/a	n/a	Organon	Ireland		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Italy		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Korea		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Malaysia		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Netherlands		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	New Zealand		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Norway		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Peru		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Poland	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Poland		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Portugal		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Singapore		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Denmed/Organon	South Africa		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Spain		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Sweden		
nandrolone decanoate	Deca-Durabolin®	25, 100 mg/ml	1, 2 ml	Organon	Sweden	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Switzerland	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Switzerland		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Taiwan		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Thailand		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1, 2 ml vial	Organon	U.S.	[NLM]	
nandrolone decanoate	Deca-Durabolin®	200 mg/ml	1 ml vial	Organon	U.S.	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	United Kingdom		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1, 2 ml ampule	Organon	United Kingdom	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Venezuela		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml syringe	Organon	Venezuela		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Netherlands		
nandrolone decanoate	Deca-Evabolin	25 mg/ml	1 ml ampule	Concept	India		
nandrolone decanoate	Decagic	100 mg/ml	10 ml vial	Unichem	India	[NLM]	
nandrolone decanoate	Decanandrolen	200mg/ml	10 ml vial	Denkall	Mexico		VET
nandrolone decanoate	Decandrol 300	300 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
nandrolone decanoate	Decaneurabol	25, 50 mg/ml	1 ml ampule	Cadila	India		
nandrolone decanoate	Decaneurophen	25, 50 mg/ml	1 ml ampule	Ind Swift	India		
nandrolone decanoate	Decanoato de Nandrolona	200 mg/ml	10 ml vial	Tornel	Mexico		VET
nandrolone decanoate	Decanoato Nandrolona	25, 50 mg/ml	1 ml ampule	Asforga	Chile		
nandrolone decanoate	Decanoato Nandrolona	50 mg/ml	1 ml ampule	Biosano	Chile		
nandrolone decanoate	Decanofort	25 mg/ml	1 ml ampule	Terapia	Rumania		
nandrolone decanoate	Deca-Pronabol	100 mg/ml	2 ml ampule	P&B Labs	India		
nandrolone decanoate	Decatron 250	250 mg/ml	10 ml vial	Bratis Labs	Mexico	[NLM]	VET
nandrolone decanoate	Dimetabol	50 mg/ml	50 ml vial	Bremer Pharma	Dom. Rep.	[NLM]	VET
nandrolone decanoate	Dimetabol ADE	25 mg/ml	50, 100 ml vial	Leprsa	Mexico	[NLM]	VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone decanoate	Dynabolon Inj	40 mg/.5 ml	1 ml ampule	n/a	Korea		
nandrolone decanoate	Extraboline	50 mg/ml	1 ml	Genepharm	Greece	[NLM]	
nandrolone decanoate	Extraboline	50 mg/ml	2 ml vial	Genepharm	Greece		
nandrolone decanoate	Genabolin	25 mg/ml	1 ml ampule	Rite	Egypt		
nandrolone decanoate	Hybolin Decanoate	50, 100 mg/ml	1, 2 ml vial	Hyrex	U.S.	[NLM]	
nandrolone decanoate	Ideven	50 mg/ml	1 ml ampule	Eczacibasi	Turkey	[NLM]	
nandrolone decanoate	Metadec	25, 50 mg/ml	1 ml ampule	Jagsonpal	India		
nandrolone decanoate	Myobolin	25 mg/ml	1 ml ampule	Inibsa	Spain		
nandrolone decanoate	Nandro Plus	100 mg/ml	100 ml vial	PharmaVet	Argentina		VET
nandrolone decanoate	Nandrolone L.A.	100 mg/ml	1, 2 ml vial	Forest	U.S.	[NLM]	
nandrolone decanoate	Nandrolona 300 L.A.	300mg/ml	10 ml vial	Ttokkyo	Mexico	[NLM]	VET
nandrolone decanoate	nandrolone decanoate	50 mg/ml	2 ml ampule	Delta	Spain		
nandrolone decanoate	nandrolone decanoate	200 mg/2ml	2 ml vial	Norma Hellas	Greece		
nandrolone decanoate	nandrolone decanoate	100 mg/ml	1,2 ml vial	Lyphomed	U.S.	[NLM]	
nandrolone decanoate	nandrolone decanoate	100 mg/ml	1, 2 ml vial	Quad	U.S.	[NLM]	
nandrolone decanoate	nandrolone decanoate	50, 100, 200 mg/ml	1,2 ml vial	Steris	U.S.	[NLM]	
nandrolone decanoate	Nandrolone Decanoate Inj	100 mg/ml	2 ml vial	Watson Pharma	U.S.		
nandrolone decanoate	Nandrolone Decanoate Inj	200 mg/ml	2 ml vial	Watson Pharma	U.S.		
nandrolone decanoate	Nandrolone Decanoate Inj BP	25, 50, 100 mg/ml	1,2 ml ampule	Belco Pharma	India		
nandrolone decanoate	Nandromax	25, 50, 100 mg/ml	1 ml ampule	Sanderson	Chile		
nandrolone decanoate	Neo-Durabolic	100, 200 mg/ml	1, 2 ml vial	Hauck	U.S.	[NLM]	
nandrolone decanoate	Norandren 20	20 mg/ml	10, 50 ml vial	Brovel	Mexico		VET
nandrolone decanoate	Norandren 200	200 mg/ml	50 ml vial	Brovel	Mexico	[NLM]	VET
nandrolone decanoate	Norandren 200	200 mg/ml	10 ml vial	Brovel	Mexico		VET
nandrolone decanoate	Norandren 50	50 mg/ml	10, 50 ml vial	Brovel	Mexico		VET
nandrolone decanoate	Nurzan	50 mg/ml	1 ml ampule	Rafarm	Greece		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Bulgaria	[NLM]	
nandrolone decanoate	Retabolil	50 mg/ml	1 ml ampule	Human/Biochemia	Egypt		
nandrolone decanoate	Retabolil	50 mg/ml	1 ml ampule	Gedeon Richter	Estonia		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Hungary		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Malaysia		
nandrolone decanoate	Retabolin	50 mg/ml	1 ml ampule	Medicopont Russia	Russia	[NLM]	
nandrolone decanoate	RWR Deca 50	50 mg/ml	10 ml vial	RWR	Australia		VET
nandrolone decanoate	Sterobion	50 mg/ml	1 ml ampule	Orion	Finland	[NLM]	
nandrolone decanoate	Turinabol Depot	50 mg/ml	1 ml ampule	Jenapharm	Bulgaria	[NLM]	
nandrolone decanoate	Turinabol Depot	50 mg/ml	1 ml ampule	Jenapharm	Czech. Rep.	[NLM]	
nandrolone decanoate	Turinabol Depot	50 ma/ ml	1 ml ampule	Jenapharm	Germany	[NLM]	
nandrolone decanoate	Ultra Deca 300	300 mg/ml	10 ml vial	Norbrook	Mexico		VET
nandrolone decanoate	Ziremilon	50 mg/ml	1 ml ampule	Demo	Greece		
nandrolone hexyloxyphenylpropionate	Anador	25 mg/ml	2 ml ampule	Pharmacie Upjohn	France	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Austria	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Belgium	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Czech. Rep.	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25 mg/ml	2 ml ampule	Lundbeck	Denmark	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Finland	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kala Pharmacal	Germany	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Netherlands	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kala Pharmacal	Norway	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25 mg/ml	2 ml ampule	Leo	Spain	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kala Pharmacal	Switzerland	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25 mg/ml	2 ml ampule	Eczacibasi	Turkey	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadurin	50 mg/ml	1 ml ampule	Xbanel	Greece	[NLM]	
nandrolone laurate	Fortabol	20 mg/ml	10, 50 ml vial	Parfam	Mexico		VET
nandrolone laurate	Fortabol	25, 50 mg/ml	n/a	Hydro	Germany		VET
nandrolone laurate	Laudrol LA	250 mg/ml	10 ml vial	Loeffler	Mexico		VET
nandrolone laurate	Laurabolin	25, 50 mg/ml	10 ml vial	Intervet	Australia		VET
nandrolone laurate	Laurabolin	50 mg/ml	n/a	Werfft-Chemie	Austria		VET
nandrolone laurate	Laurabolin	50 mg/ml	10, 50 ml	Intervet	Belgium		VET
nandrolone laurate	Laurabolin	25, 50 mg/ml	5, 10, 50 ml	Vemie	Germany		VET
nandrolone laurate	Laurabolin	20, 50 mg/ml	10, 50, 100 ml vial	Intervet	Mexico		VET
nandrolone laurate	Laurabolin V	50 mg/ml	10, 50 ml	Intervet	Netherlands		VET
nandrolone phenylpropionate	Activin	10 mg/ml	n/a	Jelagyl	Spain	[NLM]	
nandrolone phenylpropionate	Anabolin	50 mg/ml	n/a	Alto	U.S.	[NLM]	
nandrolone phenylpropionate	Anabolin-IM	50 mg/ml	n/a	Alto	U.S.	[NLM]	
nandrolone phenylpropionate	Anabolin-LA	100 mg/ml	n/a	Alto	U.S.	[NLM]	
nandrolone phenylpropionate	Androlone	50 mg/ml	n/a	Keene	U.S.	[NLM]	
nandrolone phenylpropionate	Daily Reborn Inj	25 mg/ml	n/a	Shiteh	Taiwan		
nandrolone phenylpropionate	Dubol-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
nandrolone phenylpropionate	Dubol-50	50 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
nandrolone phenylpropionate	Durabol 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Organon	Belgium	[NLM]	
nandrolone phenylpropionate	Durabolin®	25, 50 mg/ml	n/a	Organon	Canada	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Organon	Finland		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Greece	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Infar	India		
nandrolone phenylpropionate	Durabolin®	12.5 mg/ml	2 ml ampule	Organon	Indonesia		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Malaysia		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Netherlands		
nandrolone phenylpropionate	Durabolin®	50 mg/ml	n/a	Organon	Portugal		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Spain	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Opopharma	Switzerland	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	2 ml vial	Organon	Taiwan		
nandrolone phenylpropionate	Durabolin®	25, 50 mg/ml	n/a	Organon	U.S.	[NLM]	
nandrolone phenylpropionate	Durabolin®	50 mg/ml	1 ml ampule	Organon	United Kingdom	[NLM]	
nandrolone phenylpropionate	Durabolin®	50 mg/ml	n/a	Organon	YugoslaviaFRMR		
nandrolone phenylpropionate	Equibolin-50	50 mg/ml	n/a	Vortech	U.S.	[NLM]	
nandrolone phenylpropionate	Estigor	10 mg/ml	250 ml	Burnet	Argentina		VET
nandrolone phenylpropionate	Evabolin	25 mg/ml	1 ml ampule	Concept	India		
nandrolone phenylpropionate	Fenobolin	20 mg/ml	n/a	Medexport Russia	Russia	[NLM]	
nandrolone phenylpropionate	Fherbolico	50 mg/ml	n/a	Fher	Spain	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone phenylpropionate	Ganekyl	50 mg/ml	10, 100 ml vial	Over Labs	Argentina		VET
nandrolone phenylpropionate	Hybolin	25, 50 mg/ml	n/a	Hyrax	U.S.	[NLM]	
nandrolone phenylpropionate	Macrabone	25 mg/ml	n/a	Ta Fong	Taiwan		
nandrolone phenylpropionate	Maradolin	25 mg/ml	1 ml ampoule	Theramex	Monaco		
nandrolone phenylpropionate	Metabol	25 mg/ml	1 ml ampule	Jagsonpal	India		
nandrolone phenylpropionate	Metrocrin	25 mg/ml	n/a	Metro	Taiwan		
nandrolone phenylpropionate	Nandrobolic	25 mg/ml	n/a	Forest	U.S.	[NLM]	
nandrolone phenylpropionate	Nandrolin	50 mg/ml	25 ml vial	Intervet	Australia		VET
nandrolone phenylpropionate	Nandrolin	25 mg/ml	10 ml vial	Intervet	Australia		VET
nandrolone phenylpropionate	nandrolone phenylpropionate	50, 100 mg/ml	2 ml vial	Hayden Biologics	India	[NLM]	
nandrolone phenylpropionate	nandrolone phenylpropionate	25 mg/ml	1 ml ampule	Iran Hormone	Iran		
nandrolone phenylpropionate	Nandrolone Phenylpropionate	50 mg/ml	n/a	Qualet	U.S.	[NLM]	
nandrolone phenylpropionate	Nandrolone Phenylpropionate BP	25, 50 mg/ml	1,2 ml ampule	Belco Pharma	India		
nandrolone phenylpropionate	Nerobol	25 mg/ml	1 ml ampule	Richter Roche	Hungary	[NLM]	
nandrolone phenylpropionate	Nerobolil	25 mg/ml	n/a	Godeon Richter	Hungary	[NLM]	
nandrolone phenylpropionate	Neurabol inj	25 mg/ml	1 ml ampule	Cadila	India		
nandrolone phenylpropionate	Neurophen	25 mg/ml	1 ml ampule	Ind-Swift	India		
nandrolone phenylpropionate	Nibolon	25 mg/ml	1 ml ampule	Polydar	Thailand		
nandrolone phenylpropionate	Nu-Bolic	25 mg/ml	n/a	Seatrace	U.S.	[NLM]	
nandrolone phenylpropionate	Protein inj	25 mg/ml	n/a	Aetar	Taiwan		
nandrolone phenylpropionate	Rubolin	25 mg/ml	n/a	Ying Yuan	Taiwan		
nandrolone phenylpropionate	Stabolic	25 mg/ml	n/a	Stirol	Brazil		
nandrolone phenylpropionate	Superanabolon	25 mg/ml	1 ml ampule	Spofa	Czech. Rep.		
nandrolone phenylpropionate	Turbolan	25 mg/ml	n/a	Jenapharm	Bulgaria	[NLM]	
nandrolone phenylpropionate	Turinabol	25 mg/ml	n/a	Germed	Czech. Rep.	[NLM]	
nandrolone phenylpropionate	Turinabol	25 mg/ml	n/a	Jenapharm	Germany	[NLM]	
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Theramex	France	[NLM]	
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Theramex	Italy	[NLM]	
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Fournier	Italy		
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1ml ampule	Theramex	Greece	[NLM]	
norethandrolone	Anaplex	5 mg tablet	100 tablet bottle	Jurox	Australia		VET
norethandrolone	Nilevar	10 mg tablet	30 tablet bottle	Searle	France		
norethandrolone	Nilevar	10 mg tablet	30 tablet bottle	Searle	Switzerland	[NLM]	
norethandrolone	Nilevar	10 mg tablet	100 tablet bottle	Searle	U.S.	[NLM]	
Omnadren (testosterone blend)	Omnadren	250 mg/ml	1ml ampule	Jelfa	Poland		
Omnadren (testosterone blend)	Omnadren	250 mg/ml	1ml ampule	Polfa	Poland	[NLM]	
Omnadren (testosterone blend)	Omnadren 250	250 mg/ml	1 ml ampule	Jelfa	Bulgaria		
oxandrolone cyclodextrin	Biorandron Ripmin	12.5 mg/ml	2 ml ampule	Pharmacia & Upjohn	Italy	[NLM]	
oxandrolone	Anatrophill	2.5 mg tablet	n/a	Searle	France	[NLM]	
oxandrolone	Anavar	5 mg tablet	30 tablet strip	Fabel Huargen	Spain		
oxandrolone	Anavar	2.5 mg tablet	100 tablet bottle	Searle	U.S.	[NLM]	
oxandrolone	Benevar	2.5 mg tablet	100 tablet strip	Roxy Research	Thailand	[NLM]	
oxandrolone	Kicker Tab	2.5 mg tablet	n/a	n/a	Korea		
oxandrolone	Lipidex	2.5 mg tablet	n/a	Searle	Brazil	[NLM]	
oxandrolone	Lonavar	2.5 mg tablet	100 tablet bottle	BTG	Israel		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
oxandrolone	Lonavar	2 mg tablet	n/a	Daiichipoli	Japan	[NLM]	
oxandrolone	Lonavar	2.5 mg tablet	n/a	Searle	Argentina	[NLM]	
oxandrolone	Oxafort	5 mg tablet	100 tablet bottle	Loeffler	Mexico		VET
oxandrolone	Oxanabol	10 mg tablet	100 tablet pouch	British Dragon	Thailand		
oxandrolone	Oxanabol	5 mg tablet	100 tablet pouch	British Dragon	Thailand	[NLM]	
oxandrolone	Oxandrin®	2.5, 10 mg tablet	100 tablet bottle	Savient	U.S.		
oxandrolone	Oxandrin®	2.5, 10 mg tablet	100 tablet bottle	BTG	U.S.	[NLM]	
oxandrolone	Oxandro Tabs	5 mg tablet	100 tablet bottle	Animal Power	Mexico		VET
oxandrolone	Oxandrol 10	10 mg tablet	100 tablet bottle	Brotes Labs	Mexico	[NLM]	VET
oxandrolone	Oxandrolone	5 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
oxandrolone	Oxandrolone	2.5 tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
oxandrolone	Oxandrolone	5 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
oxandrolone	Oxandrolone SPA	2.5 mg tablet	30 tablet box	SPA	Italy	[NLM]	
oxandrolone	Oxandrolone SPA (Export)	2.5 mg tablet	30 tablet box	SPA	Italy		
oxandrolone	Oxandrolone tablets BP	2.5, 5 mg tablet	n/a	Beko Pharma	India		
oxandrolone	Oxandrovet	5 mg tablet	100 tablet bottle	Denkall	Mexico		VET
oxandrolone	Oxanol	5 mg tablet	50 tablet box	Xenkon	Myanmar/Burma		
oxandrolone	Oxavet QV	5 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
oxandrolone	Ultra Var	5 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
oxandrolone	Vasorome	0.5 mg tablet	n/a	Kowa	Japan	[NLM]	
oxandrolone	Vasorome	2 mg tablet	n/a	Kowa	Japan	[NLM]	
oxymetholone	Anabrol 50	50 mg tablet	100 tablet bottle	Brovel	Mexico		VET
oxymetholone	Anadrol	5 mg tablet	n/a	n/a	Japan		
oxymetholone	Anadrol 50®	50 mg tablet	100 tablet bottle	Unimed	U.S.		
oxymetholone	Anadrol 50®	50 mg tablet	100 tablet bottle	Syntex	Canada	[NLM]	
oxymetholone	Anadrol 50®	50 mg tablet	100 tablet bottle	Syntex	U.S.	[NLM]	
oxymetholone	Anapolon	50 mg tablet	n/a	Syntex	Bulgaria	[NLM]	
oxymetholone	Anapolon	50 mg tablet	20 tablet box	Ibrahim	Turkey		
oxymetholone	Anapolon	2.5, 5 mg tablet	20 tablet box	Ibrahim	Turkey	[NLM]	
oxymetholone	Anapolon 50	50 mg tablet	100 tablet bottle	Syntex	Malaysia	[NLM]	
oxymetholone	Anapolon 50	50 mg tablet	50 tablet strip	Syntex	Mexico	[NLM]	
oxymetholone	Anapolon 50	50 mg tablet	100 tablet bottle	Syntex	United Kingdom	[NLM]	
oxymetholone	Anapolon 50®	50 mg tablet	100 tablet bottle	Hoffman-La Roche	Canada	[NLM]	
oxymetholone	Anasteron	25 mg tablet	60 tablet bottle	Farmaprod	Greece		
oxymetholone	Anasteron	50 mg tablet	n/a	Syntex	Greece	[NLM]	
oxymetholone	Anasteron	50 mg tablet	n/a	Syntex	Sweden	[NLM]	
oxymetholone	Androlic	50 mg tablet	100 tablet bottle	British Dispensary	Thailand		
oxymetholone	Androlic	50 mg tablet	100 tablet pouch	British Dispensary	Thailand	[NLM]	
oxymetholone	Androlic (Export)	50 mg tablet	20 tablet pouch	British Dragon	Thailand	[NLM]	
oxymetholone	Androyd	5 mg tablet	100 tablet	Parke Davis	India		
oxymetholone	Bonabone	50 mg tablet	100 tablet bottle	Body Research	Thailand	[NLM]	
oxymetholone	Dynasten	50 mg tablet	n/a	Cilag	Portugal	[NLM]	
oxymetholone	Hemogenin	50 mg tablet	10 tablet box	Syntex	Brazil	[NLM]	
oxymetholone	Hemogenin	50 mg tablet	n/a	Aventis	Brazil		
oxymetholone	Hemogenin	50 mg tablet	10 tablet box	Sense	Brazil	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
oxymetholone	Kanestron	50 mg tablet	100 tablet bottle	Loeffler	Mexico		VET
oxymetholone	Mesalon Tabs	75 mg tablet	100 tablet bottle	Animal Power	Mexico		VET
oxymetholone	Oximetalon	75 mg tablet	100 tablet bottle	Denkall	Mexico		VET
oxymetholone	Oxistrol 50	50 mg tablet	100 tablet box	Syntex	Spain	[NLM]	
oxymetholone	Oxitron 50	50 mg tablet	100 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
oxymetholone	Oxivet QV	75 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
oxymetholone	Oxybolone	50 mg tablet	20 tablet box	Genapharm	Greece		
oxymetholone	Oxydrol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
oxymetholone	Oxydrol	100 mg tablet	50 tablet pouch	British Dragon	Thailand	[NLM]	
oxymetholone	Oxyfort	50 mg tablet	100 tablet bottle	Pharmaforce	Malaysia		
oxymetholone	Oxymetholone	50 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
oxymetholone	oxymetholone	50 mg tablet	n/a	Shree Darby	Malaysia		
oxymetholone	Oxymetholone	50 mg tablet	100 tablet pouch	British Dispensary	Thailand	[NLM]	
oxymetholone	Oxymetholone 50	50 mg tablet	100 tablet bottle	Zydus	India		
oxymetholone	Oxymetholone Dongindang	n/a	n/a	Dongindang	Korea		
oxymetholone	Oxymetholone HanBul	50 mg tablet	n/a	HanBul	Korea		
oxymetholone	Oxymetholone HanSeo	50 mg tablet	100 tablet bottle	HanSeo	Korea		
oxymetholone	Oxymetholone Korea United	50 mg tablet	n/a	Korea United	Korea		
oxymetholone	Oxymetholone Miverva	50 mg tablet	100 tablet	Minerva	Greece	[NLM]	
oxymetholone	Oxymetholone Tablets BP	5 mg tablet	n/a	Boots Pharma	India		
oxymetholone	Oxymetolona 50	50 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
oxymetholone	Oxyvos 50	50 mg tablet	100 tablet bottle	SD Laboratories	Thailand		
oxymetholone	Plenastril	50 mg tablet	n/a	Grunenthal	Austria	[NLM]	
oxymetholone	Plenastril	50 mg tablet	n/a	Protea/Inamia	Switzerland	[NLM]	
oxymetholone	Roboral	50 mg tablet	100 tablets	Abic/Ramat-Gan	Israel	[NLM]	
oxymetholone	Synasteron	50 mg tablet	30 tablet bottle	Isarca	Bulgaria	[NLM]	
oxymetholone	Ultra Drol	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
quinbolone	Anabolicum Vister	10 mg tablets	20 tablets bottle	Parke Davis	Italy	[NLM]	
quinbolone	Anabolicum Vister	oral drops	n/a	Parke Davis	Italy	[NLM]	
stanozolol	Acetol	5 mg tablet	100 tablet bottle	British Dispensary	Thailand		
stanozolol (inj)	Anabolic ST	50 mg/ml	20 ml vial	SYD Group	Australia		VET
stanozolol (inj)	Anabolic ST	50 mg/ml	20 ml vial	SYD Group	Mexico		VET
stanozolol (inj)	Anabolico Cimol	60 mg/ml	5 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Anabolico Propuyet	10 mg/ml	25 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Anabolic-ST	50 mg/ml	20 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
stanozolol (inj)	Estanozolol	50 mg/ml	5 ml vial	Calestrene	Argentina		VET
stanozolol (inj)	Estanozolol	50 mg/ml	5, 30 ml vial	Formula Magistral	Argentina		VET
stanozolol (inj)	Estrombol	25 mg/ml	10 ml vial	Fundacion	Argentina		VET
stanozolol (inj)	Nabolic	2 mg/ml	50 ml vial	Chinfield Ind.	Argentina		VET
stanozolol (inj)	Nabolic Strong	50 mg/ml	50 ml vial	Chinfield Ind.	Argentina		VET
stanozolol (inj)	Stan 50	50 mg/ml	10 ml vial	Animal Power	Mexico		VET
stanozolol (inj)	Stan QV 100	100 mg/ml	20 ml vial	Quality Vet	Mexico		VET
stanozolol (inj)	Stan QV 50	50 mg/ml	20 ml vial	Quality Vet	Mexico		VET
stanozolol (inj)	Stanabolic	50 mg/ml	20 ml vial	Ram/Troy	Australia		VET
stanozolol (inj)	Stanazol	50 mg/ml	20, 50 ml vial	RWR	Australia	[NLM]	VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
oxymetholone	Kanestron	50 mg tablet	100 tablet bottle	Loeffler	Mexico		VET
oxymetholone	Metalon Tabs	75 mg tablet	100 tablet bottle	Animal Power	Mexico		VET
oxymetholone	Oximetalon	75 mg tablet	100 tablet bottle	Denkall	Mexico		VET
oxymetholone	Oxitosona 50	50 mg tablet	100 tablet box	Syntex	Spain	[NLM]	
oxymetholone	Oxitron 50	50 mg tablet	100 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
oxymetholone	Oxivet QV	75 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
oxymetholone	Oxybolone	50 mg tablet	20 tablet box	Genapharm	Greece		
oxymetholone	Oxydrol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
oxymetholone	Oxydrol	100 mg tablet	50 tablet pouch	British Dragon	Thailand	[NLM]	
oxymetholone	Oxyfort	50 mg tablet	100 tablet bottle	Ayerst	Mexico		
oxymetholone	Oxymetholone	50 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
oxymetholone	oxymetholone	50 mg tablet	n/a	Shree Pacific	Malaysia		
oxymetholone	Oxymetholone	50 mg tablet	100 tablet pouch	British Dispensary	Thailand	[NLM]	
oxymetholone	Oxymetholone 50	50 mg tablet	100 tablet bottle	Ayerst	Mexico		
oxymetholone	Oxymetholone DongIndang	n/a	n/a	Dongindang	Korea		
oxymetholone	Oxymetholone HanBul	50 mg tablet	n/a	HanBul	Korea		
oxymetholone	Oxymetholone HanSeo	50 mg tablet	100 tablet bottle	HanSeo	Korea		
oxymetholone	Oxymetholone Korea United	50 mg tablet	n/a	Korea United	Korea		
oxymetholone	Oxymetholone Miverva	50 mg tablet	100 tablet	Minerva	Greece	[NLM]	
oxymetholone	Oxymetholone Tablets BP	5 mg tablet	n/a	Deco Pharma	India		
oxymetholone	Oxymetolona 50	50 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
oxymetholone	Oxyzone 50	50 mg tablet	100 tablet bottle	SB Laboratories	Thailand		
oxymetholone	Plenastril	50 mg tablet	n/a	Grunenthal	Austria	[NLM]	
oxymetholone	Plenastril	50 mg tablet	n/a	Proto Chemie	Switzerland	[NLM]	
oxymetholone	Roboral	50 mg tablet	100 tablets	Abic/Ramat-Gan	Israel	[NLM]	
oxymetholone	Superstrol	50 mg tablet	30 tablet bottle	Servi	Belgium	[NLM]	
oxymetholone	Ultra Drol	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
quinbolone	Anabolicum Vister	10 mg capsule	20 capsule bottle	Parke Davis	Italy	[NLM]	
quinbolone	Anabolicum Vister	oral drops	n/a	Parke Davis	Italy	[NLM]	
stanozolol	Azaol	5 mg tablet	100 tablet bottle	British Dispensary	Thailand		
stanozolol (inj)	Anabolic ST	50 mg/ml	20 ml vial	SYD Group	Australia		VET
stanozolol (inj)	Anabolic ST	50 mg/ml	20 ml vial	SYD Group	Mexico		VET
stanozolol (inj)	Anabolico Cimol	60 mg/ml	5 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Anabolico Prolong	10 mg/ml	25 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Anabolic-ST	50 mg/ml	20 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
stanozolol (inj)	Estanozolol	50 mg/ml	5 ml vial	Calesene	Argentina		VET
stanozolol (inj)	Estanozolol	50 mg/ml	5, 30 ml vial	Formula Magistral	Argentina		VET
stanozolol (inj)	Estronabol	25 mg/ml	10 ml vial	Fundersan	Argentina		VET
stanozolol (inj)	Nabolic	2 mg/ml	50 ml vial	Chinfield Ind.	Argentina		VET
stanozolol (inj)	Nabolic Strong	50 mg/ml	30 ml vial	Chinfield Ind.	Argentina		VET
stanozolol (inj)	Stan 50	50 mg/ml	10 ml vial	Animal Power	Mexico		VET
stanozolol (inj)	Stan QV 100	100 mg/ml	20 ml vial	Quality Vet	Mexico		VET
stanozolol (inj)	Stan QV 50	50 mg/ml	20 ml vial	Quality Vet	Mexico		VET
stanozolol (inj)	Stanabolic	50 mg/ml	20 ml vial	Alpharoy	Australia		VET
stanozolol (inj)	Stanazol	50 mg/ml	20, 50 ml vial	RWR	Australia	[NLM]	VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
stanozolol (inj)	Stanol	50, 100 mg/ml	20 ml 10ml vial	Denkall	Mexico		VET
stanozolol (inj)	Stanol 50	50 mg/ml	20 ml vial	Bratis Labs	Mexico	[NLM]	VET
stanozolol (inj)	Stanol V	50, 100 mg/ml	20 ml vial	Tekkvo	Mexico	[NLM]	VET
stanozolol (inj)	Stansus	50 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
stanozolol (inj)	Stromb	50 mg/ml	n/a	Sterling Research	United Kingdom	[NLM]	
stanozolol (inj)	Stromba	50 mg/ml	n/a	Sterling-Winthrop	Sweden	[NLM]	
stanozolol (inj)	Stromba	50 mg/ml	n/a	Winthrop	Sweden	[NLM]	
stanozolol (inj)	Strombaject	50 mg/ml	n/a	Winthrop	Belgium	[NLM]	
stanozolol (inj)	Strombaject	50 mg/ml	n/a	Winthrop	Germany	[NLM]	
stanozolol (inj)	Tanoxol	25 mg/ml	10 ml vial	Burnet	Argentina		VET
stanozolol (inj)	Uni-Inject	50 mg/ml	20 ml vial	Nutri-Vet	Mexico		VET
stanozolol (inj)	Vitabolic	20 mg/ml	10, 100 ml vial	Over Labs	Argentina		VET
stanozolol (inj)	Winny®	50 mg/ml	n/a	Winthrop	Greece	[NLM]	
stanozolol (inj)	Winstrol® Depot	50 mg/ml	1 ml vial	Zambon	Italy	[NLM]	
stanozolol (inj)	Winstrol® Depot	50 mg/ml	1 ml ampule	Zambon	Spain		
stanozolol (inj)	Winstrol® V	50 mg/ml	10, 30ml vial	Pharmacia	Canada		VET
stanozolol (inj)	Winstrol®-V	50 mg/ml	10, 30ml vial	Pharmacia & Upjohn	U.S.		VET
stanozolol (inj)	Winstrol®-V	50 mg/ml	10, 30ml vial	Winthrop	U.S.	[NLM]	VET
stanozolol (oral)	Anazol	2 mg tablet	100 tablet box	Xelox (export)	Philippines		
stanozolol (oral)	Anazol	2 mg tablet	100, 1000 tablet bottle	Xelox (export)	Philippines		
stanozolol (oral)	Apsil	4 mg/ml	10 ml dropper bottle	Holliday	Argentina		VET
stanozolol (oral)	Cetabon	2 mg tablet	10 tablet strip	Therapharma	Thailand		
stanozolol (oral)	Estano-Vet	10, 25 mg tablet	100 tablet bottle	Norvet	Mexico		VET
stanozolol (oral)	Estanozolol comp	10 mg tablet	100 tablet bottle	Formula Magistral	Argentina		VET
stanozolol (oral)	Megabol	5 mg tablet	100 tablet box	n/a	India		
stanozolol (oral)	Neurabol	2 mg capsule	10 capsule box	Cadila	India		
stanozolol (oral)	Stanbon	2 mg tablet	100 tablet box	Seoul Pharm	Korea		
stanozolol (oral)	Stabon	2 mg tablet	n/a	n/a	Korea		
stanozolol (oral)	Stan QV 10	10 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
stanozolol (oral)	Stan Tabs	10 mg tablet	100 tablet bottle	Animal Power	Mexico		VET
stanozolol (oral)	Stanabol	5 mg tablet	250 tablet pouch	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	5 mg tablet	200, 1000 tablet bottle	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	5 mg tablet	250 tablet pouch	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	10 mg tablet	100, 500 tablet pouch	British Dragon	Thailand		
stanozolol (oral)	Stanabol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
stanozolol (oral)	Stanazolic	6 mg cap	300 capsule bottle	Denkall	Mexico		VET
stanozolol (oral)	Stanazolic	10 mg tablet	100 tablet bottle	Denkall	Mexico		VET
stanozolol (oral)	Stanol	2 mg tablet	n/a	Hua Shin	Taiwan		
stanozolol (oral)	Stanol	5 mg tablet	200 tablet bottle	Body Research	Thailand	[NLM]	
stanozolol (oral)	Stanol 10	10 mg tablet	250 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
stanozolol (oral)	Stanol V	10 mg tablet	100, 500 tablet bottle	Tekkvo	Mexico	[NLM]	VET
stanozolol (oral)	Stanozodon	2 mg tablet	1000 tablet bottle	Acdhon Co.	Thailand		
stanozolol (oral)	stanozolol	25 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
stanozolol (oral)	stanozolol	5 mg tablet	30 tablet box	Genepharm	Greece		
stanozolol (oral)	Stanozolol Tab	2 mg tablet	n/a	Chen Ho	Taiwan		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
stanozolol (oral)	Stanozolol Tablets BP	2 mg tablet	n/a	Belco Pharma	India		
stanozolol (oral)	Stanozol	5 mg tablet	500 tablet bottle	SB Laboratories	Thailand		
stanozolol (oral)	Stromba	5 mg tablet	10 tablet box	Winthrop	Belgium	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	50 tablet box	n/a	Greece		
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling-Health	Hungary		
stanozolol (oral)	Stromba	5 mg tablet	n/a	Berger	Austria	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling-Health	Czech. Rep.	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Denmark	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Germany	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	100 tablet box	Sanofi	Netherlands		
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Netherlands	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Sweden	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Switzerland	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sanofi	United Kingdom	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling	United Kingdom	[NLM]	
stanozolol (oral)	Tesenon	2 mg tablet	10 tablet strip	Jo Yang	Korea		
stanozolol (oral)	Ultra Winny	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
stanozolol (oral)	Winstrol	2 mg tablet	n/a	n/a	Japan		
stanozolol (oral)	Winstrol®	2 mg tablet	20 tablet box	Zambon	Italy	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	20 tablet box	Zambon	Spain		
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Sanofi	U.S.		
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Upjohn	U.S.	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Winthrop	U.S.	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	n/a	Winthrop	Greece	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	n/a	Winthrop	Portugal	[NLM]	
stanozolol (oral)	Winstrol-V	2 mg tablet	100 tablet bottle	Pharmacia & Upjohn	U.S.		VET
stanozolol (oral)	Winstrol®-V	2 mg chewable tab	100 tablet bottle	Pharmacia & Upjohn	U.S.		VET
stanozolol (oral)	Winstrol-V®	2 mg tablet	100 tablet bottle	Pharmacia	Canada		VET
Sten (testosterone blend)	Sten	50 mg/ml	2 ml ampule	Atlantis	Mexico		
Sustanon 100 (testosterone blend)	Sustanon (Schering)	100 mg/ml	1 ml ampule	Inter	Chile		
Sustanon 100 (testosterone blend)	Sustanon 100	100 mg/ml	1 ml ampule	Organon	Germany	[NLM]	
Sustanon 100 (testosterone blend)	Sustanon '100'®	100 mg/ml	1 ml ampule	Organon Nile	Egypt		
Sustanon 100 (testosterone blend)	Sustanon '100'®	100 mg/ml	1 ml ampule	Organon	Netherlands		
Sustanon 100 (testosterone blend)	Sustanon '100'®	100 mg/ml	1 ml ampule	Organon	United Kingdom		
Sustanon 100 (testosterone blend)	Testonon '100'®	100 mg/ml	1 ml ampule	Nile	Egypt		
Sustanon 250 (testosterone blend)	4 Test	250 mg/ml	5 ml vial	Quality Vet	Mexico		VET
Sustanon 250 (testosterone blend)	Durandron	250 mg/ml	1 ml ampule	Organon	Spain	[NLM]	
Sustanon 250 (testosterone blend)	Durateston	250 mg/ml	5 ml vial	Inter-vet	Australia		VET
Sustanon 250 (testosterone blend)	Durateston 250®	250 mg/ml	1 ml ampule	Organon	Bolivia		
Sustanon 250 (testosterone blend)	Durateston 250®	250 mg/ml	1 ml ampule	Organon	Brazil		
Sustanon 250 (testosterone blend)	Gonadon-250	250 mg/ml	1 ml ampule	Belco Pharma	India		
Sustanon 250 (testosterone blend)	Polyteron 250	250 mg/ml	1 ml ampule	Organon	Venezuela		
Sustanon 250 (testosterone blend)	Sistanon 250	250 mg/ml	1 ml ampule	Jackson Labs	India		
Sustanon 250 (testosterone blend)	Sostenon 250®	250 mg/ml	5 ml ampule	Organon	Mexico		
Sustanon 250 (testosterone blend)	Sostenon 250®	250 mg/ml	1 ml ampule	Organon	Spain	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Sustanon 250 (testosterona blend)	Super Iet 250	250 mg/ml	5, 10 ml vial	Tornel	Mexico		VET
Sustanon 250 (testosterone **blend**)	Sustanon	250 mg/ml	1 ml ampule	Organon	Ireland		
Sustanon 250 (testosterona blend)	Sustanon	250 mg/ml	1 ml ampule	Organon	Brazil		
Sustanon 250 (testosterone **blend**)	Sustanon	250 mg/ml	1 ml ampule	Organon	Slovakia		
Sustanon 250 (testosterona blend)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Argentina		
Sustanon 250 (testosterone **blend**)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Indonesia		
Sustanon 250 (testosterona blend)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Singapore		
Sustanon 250 (testosterone **blend**)	Sustanon "250"	250 mg/ml	1ml ampule	Organon	Vietnam		
Sustanon 250 (testosterona blend)	Sustanon (Cyclatroh 250)	250 mg/ml	1 ml ampule	Organon	Russia		
Sustanon 250 (testosterone **blend**)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Czech. Rep.		
Sustanon 250 (testosterona blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Germany	[NLM]	
Sustanon 250 (testosterone **blend**)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	New Zealand		
Sustanon 250 (testosterona blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Taiwan		
Sustanon 250 (testosterone **blend**)	Sustanon 250 (Cyctahoh)	250 mg/ml	1 ml ampule	Infar	India		
Sustanon 250 (testosterona blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Belgium		
Sustanon 250 (testosterone **blend**)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Estonia		
Sustanon 250 (testosterona blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Poland		
Sustanon 250 (testosterone **blend**)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Netherlands		
Sustanon 250 (testosterona blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Turkey		
Sustanon 250 (testosterone **blend**)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon/Nile	Egypt		
Sustanon 250 (testosterona blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon	Malaysia		
Sustanon 250 (testosterone **blend**)	Sustanon '250'®	250 mg/ml	1ml ampule	Organon	Pakistan		
Sustanon 250 (testosterona blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon/Organon	South Africa		
Sustanon 250 (testosterone **blend**)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon	Thailand		
Sustanon 250 (testosterona blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon	United Kingdom		
Sustanon 250 (testosterone **blend**)	Sustanon®	250 mg/ml	1 ml ampule	Organon	Italy		
Sustanon 250 (testosterona blend)	Sustanon 250	250 mg/ml	1 ml ampule	Shri Pharmaceuticals	India		
Sustanon 250 (testosterone **blend**)	Sustenan 250	250 mg/ml	1 ml ampule	Organon	Chile		
Sustanon 250 (testosterona blend)	Sustenon 250®	250 mg/ml	1 ml ampule	Organon	Portugal		
Sustanon 250 (testosterone **blend**)	Testenon 250	250 mg/ml	5 ml vial	Ttokkyo	Mexico	[NLM]	VET
Sustanon 250 (testosterona blend)	Testo-Sol-A	250 mg/ml	10 ml vial	Norvet	Mexico		VET
Sustanon 250 (testosterone **blend**)	Testonon 250'®	250 mg/ml	1 ml ampule	Nile	Egypt		
Sustanon 250 (testosterona blend)	Testosteron 250	250 mg/ml	1 ml ampule	Rotex Medica	Germany	[NLM]	
Sustanon 250 (testosterone **blend**)	Testosterona 250	250 mg/ml	10 ml vial	Qualityvet	Costa Rica		VET
Sustanon 250 (testosterona blend)	Testosterona 250 U/A	250 mg/ml	10 ml vial	Leanfar	Mexico		VET
Sustanon 250 (testosterone **blend**)	Testron 4 250	250 mg/ml	10 ml vial	Bratis Labs	Mexico	[NLM]	VET
Test 400 (testosterona blend)	Test 400	400 mg/ml	10 ml vial	Genkell	Mexico		VET
testosterone	Ultra Suspension	50 mg/ml	20 ml vial	Nutri-Vet	Mexico		VET
testosterone (gel)	Androgel	25, 50 mg	single dose packet	Solvay	Canada		
testosterone (gel)	Androgel	25, 50 mg	single dose packet	Besins	Netherlands		
testosterone (gel)	Androgel	25, 50 mg	single dose packet	Besins	Sweden		
testosterone (gel)	Androgel	50, 75, 100 mg	single dose packet	Unimed	U.S.		
testosterone (gel)	Androgel Gel	50 mg	single dose packet	Kade/Besins	Germany		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Schering	Australia		
testosterone (gel)	Testogel	50 mg	single dose packet	Schering	Austria		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Jenapharm	Germany		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Besins	Netherlands		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Besins	Sweden		
testosterone (implant)	Nutrol Testosterone Pellets	22.5 mg pellet	100, 500 pellet bottle	Nutrol	Australia		VET
testosterone (patch)	Androderm®	12.2 mg patch.	30 patches/box	Pharmascience	Canada		
testosterone (patch)	Androderm®	12.2 mg patch	10, 30, 60 patches/box	AstraZeneca	Germany		
testosterone (patch)	Androderm®	12.2 mg patch.	n/a	Schwarz Pharma	Italy		
testosterone (patch)	Androderm®	12.2 mg patch	n/a	n/a	Korea		
testosterone (patch)	Androderm®	2.5 mg patch	30, 60 patch box	Schwarz Pharma	Spain		
testosterone (patch)	Androderm®	5 mg patch	30 patch box	Schwarz Pharma	Spain		
testosterone (patch)	Androderm®	12.2 mg patch	n/a	Astrazenica	Switzerland		
testosterone (patch)	Androderm®	12.2 mg patch	60 patches/box	Smith Kline Beecham	U.S.	[NLM]	
testosterone (patch)	Androderm®	12.2, 24.3 mg patch	60 patches/box	Watson Pharma	U.S.		
testosterone (patch)	Andropatch	12.2 mg patch	30, 60 patch box	Schwarz Pharma	Netherlands		
testosterone (patch)	Andropatch	2.5 mg patch	60 patches/box	GSK	United Kingdom		
testosterone (patch)	Andropatch	5 mg patch	30 patches/box	GSK	United Kingdom		
testosterone (patch)	Atmos	5 mg patch	30 patch box	Astra Zenica	Norway		
testosterone (patch)	Atmos	5 mg patch	n/a	Astra	Sweden		
testosterone (patch)	Testoderm	15 mg patch	n/a	Alza	Malaysia		
testosterone (patch)	Testoderm	6 mg patch	10, 30 patch box	Esteve	Spain		
testosterone (patch)	Testoderm	4 mg patch	10 patch box	Esteve	Spain		
testosterone blend (misc)	Andronate 275	275 mg/ml	10, 20 ml vial	Fujian Dragon	Thailand		
testosterone blend (misc)	Deposterona	60 mg/ml	10 ml vial	Fort Dodge	Mexico		VET
testosterone blend (misc)	Deposterona	60 mg/ml	10 ml vial	Syntex	Mexico	[NLM]	VET
testosterone blend (misc)	Equitest 200	200 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET
testosterone blend (misc)	Triolandren	250 mg/ml	1 ml ampule	Novartis	Egypt		
testosterone blend (misc)	Triolandren	250 mg/ml	1 ml ampule	Novartis	Taiwan		
testosterone cyclohexylpropanoate	Testosterone CHP Theramex	250, 100, 50 mg/ml	1 ml ampule	Theramex	France	[NLM]	
testosterone cypionate	Anabolic TL	100 mg/ml	10 ml vial	SYD Group	Australia		VET
testosterone cypionate	Anabolic TL	200 mg/ml	10 ml vial	SYD Group	Australia		VET
testosterone cypionate	Andro-Cyp	100, 200 mg/ml	10 ml vial	Brown	U.S.	[NLM]	
testosterone cypionate	Andro-Cyp	100, 200 mg/ml	10 ml vial	Keene	U.S.	[NLM]	
testosterone cypionate	Andronaq LA	100, 200 mg/ml	10 ml vial	Central	U.S.	[NLM]	
testosterone cypionate	Andronate	100, 200 mg/ml	10 ml vial	Pasadena	U.S.	[NLM]	
testosterone cypionate	Banrot	75 mg/ml	200 ml bladder	Coopers	Australia	[NLM]	VET
testosterone cypionate	Biosteron Depot	50 mg/ml	n/a	Te Fong	Taiwan		
testosterone cypionate	Cyclo-Testosterone Depot	130 mg/ml	n/a	Astar	Taiwan		
testosterone cypionate	Cypionex	100 mg/ml	2 ml ampule	Rugby Research	Thailand	[NLM]	
testosterone cypionate	Cypiotest 250	250 mg/ml	10 ml vial	Animal Power	Mexico		VET
testosterone cypionate	Cypiotest 250	250 mg/ml	10 ml vial	Denkell	Mexico		VET
testosterone cypionate	Cypriotest L/A	250 mg/ml	10 ml vial	Loeffler	Mexico		VET
testosterone cypionate	Dep-Andro-100-200	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone cypionate	Deposteron	100 mg/ml	2 ml ampule	Novaquimica/Sigma	Brazil		
testosterone cypionate	Depo-Testo	50 mg/ml	n/a	Gentle	Taiwan		
testosterone cypionate	Depo-TCP	200mg/ml	n/a	n/a	Korea		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone cypionate	Depotest	100, 200 mg/ml	10 ml vial	Hyrex	U.S.	[NLM]	
testosterone cypionate	Depotest	100, 200 mg/ml	10 ml vial	Kay	U.S.	[NLM]	
testosterone cypionate	Depo-Testermon	200 mg/ml	n/a	CCPC	Taiwan		
testosterone cypionate	Depo-Testerone	200 mg/ml	n/a	Metro	Taiwan		
testosterone cypionate	Depo-Testomon	100 mg/ml	n/a	C.T.S.	Taiwan		
testosterone cypionate	Depo-Testosterone	100 mg/ml	10 ml vial	Pharmacia & Upjohn	South Africa		
testosterone cypionate	Depo-Testosterone CPP	100 mg/ml	n/a	Metro	Taiwan		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	10 ml vial	Pharmacia	Canada		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	n/a	Pharmacia	Malaysia		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	10 ml vial	Pharmacia & Upjohn	New Zealand		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	10 ml vial	Pharmacia & Upjohn	Singapore		
testosterone cypionate	Depo-Testosterone®	100, 200 mg/ml	10 ml vial	Pharmacia & Upjohn	U.S.		
testosterone cypionate	Depo-Testosterone®	200 mg/ml	1 ml vial	Pharmacia & Upjohn	U.S.		
testosterone cypionate	Depot-Hormon MF	50 mg/ml	n/a	Sintong	Taiwan		
testosterone cypionate	Depotrone	100 mg/ml	2 ml ampule	Primex Zurich	South Africa		
testosterone cypionate	Depovirin Inj	125 mg/ml	2 ml	n/a	Korea		
testosterone cypionate	Dep-Test	100 mg/ml	10 ml vial	Rocky Mountain	U.S.	[NLM]	
testosterone cypionate	D-Test 100/200	100, 200 mg/ml	10 ml vial	Sig	U.S.	[NLM]	
testosterone cypionate	Duratest-100 200	100, 200 mg/ml	10 ml vial	Roberts	U.S.	[NLM]	
testosterone cypionate	Duratest-100-200	100, 200 mg/ml	10 ml vial	Hauck	U.S.	[NLM]	
testosterone cypionate	Malogen Cyp	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone cypionate	Miro Depo	125 mg/ml	2 ml vial	Hanil Pharm	Korea		
testosterone cypionate	Nanmomon Depot	50, 100 mg/ml	n/a	Chi Sheng	Taiwan		
testosterone cypionate	Ridrot Testosterone Inj.	75 mg/ml	250 ml vial	Troy	Australia		VET
testosterone cypionate	Schein Pharma Testone Cyp	100 mg/ml	10 ml vial	Schein	Canada		
testosterone cypionate	Testabol Depot 200	200 mg/ml	10 ml vial	British Dragon	Thailand		
testosterone cypionate	Testa-C	200 mg/ml	10 ml vial	Vortech	U.S.	[NLM]	
testosterone cypionate	Testacyp	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone cypionate	Testadiem-Depot	200 mg/ml	10 ml vial	Kay	U.S.	[NLM]	
testosterone cypionate	Testex Leo prolongatum	50, 125 mg/ml	2 ml ampule	Altana Pharma	Spain		
testosterone cypionate	Testex Leo prolongatum	50, 125 mg/ml	2 ml ampule	Leo	Spain	[NLM]	
testosterone cypionate	Testo LA	100 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
testosterone cypionate	Testoject	100 mg/ml	n/a	Mayrand	U.S.	[NLM]	
testosterone cypionate	Testoject 50	50 mg/ml	n/a	Mayrand	U.S.	[NLM]	
testosterone cypionate	Testoject-LA	200 mg/ml	n/a	Mayrand	U.S.	[NLM]	
testosterone cypionate	Teston QV 200	200 mg/ml	10 ml vial	Quality Vet	Mexico		VET
testosterone cypionate	Testonate Depot	100 mg/ml	n/a	Gentle	Taiwan		
testosterone cypionate	Testosterona Ultra Lenta	100 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	5 ml ampule	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone cypionate	testosterone cypionate	100 mg/ml	10 ml vial	Geneva Generics	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Goldline	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	50, 100, 200 mg/ml	10 ml vial	Hillman	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	200 mg/ml	10 ml vial	Legere	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Schein	U.S.	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone cypionate	Testosterone Cypionate 200	200 mg/ml	10 ml vial	Teraka	Mexico	[NLM]	VET
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Charmaine	Hong Kong		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Chia Chyang	Taiwan		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Tai Yu	Taiwan		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	10 ml vial	Watson Pharm	U.S.		
testosterone cypionate	Testosterone Cypionate Inj.	100 mg/ml	2 ml vial	Cytex	Canada		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	10 ml vial	Bayer	Canada		
testosterone cypionate	Testosterone Cypionate L.A.	100 mg/ml	10 ml vial	Ttokkyo	Mexico	[NLM]	VET
testosterone cypionate	Testosterone Depocelom	n/a	n/a	SPA	Italy		
testosterone cypionate	Testred Cypionate	200 mg/ml	10 ml vial	ICN	U.S.	[NLM]	
testosterone cypionate	Ultra Cyp 250	250 mg/ml	10 ml vial	Nutri Vet	Mexico		VET
testosterone cypionate	Vironate	200 mg/ml	5 ml vial	Xelox (export)	Philippines		
testosterone cypionate	Xeltest 250	250 mg/ml	10 ml vials	Laboratorios	Mexico		VET
testosterone enanthate	Anderone 100/200	100, 200 mg/ml	10 ml vial	Burgin-Arden	U.S.	[NLM]	
testosterone enanthate	Andro 100	100 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone enanthate	Andro L.A. 200	200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone enanthate	Andropository	200 mg/ml	10 ml vial	Rugby	U.S.	[NLM]	
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Algeria		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Ecuador		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Morocco		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Tunisia		
testosterone enanthate	Andryl 200	200 mg/ml	10 ml vial	Keene	U.S.	[NLM]	
testosterone enanthate	Anx-E	250 mg/ml	2 ml ampule	Drug Pharma	Chile		VET
testosterone enanthate	Cioteston Depot	250 mg/ml	1 ml ampule	CID	Egypt		
testosterone enanthate	Delatest	100 mg/ml	10 ml vial	Denver	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	Theramed	Canada		
testosterone enanthate	Delatestryl	200 mg/ml	1 ml syringe	Savient	U.S.		
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	Savient	U.S.		
testosterone enanthate	Delatestryl	200 mg/ml	1 ml syringe	BTG	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	BTG	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	10 ml vial	Mead Johnson	U.S.	[NLM]	
testosterone enanthate	DepoTestmon Inj	65 mg/ml	n/a	CCPC	Taiwan		
testosterone enanthate	Dura-Testerone	200 mg/ml	10 ml vial	Pharmex	U.S.	[NLM]	
testosterone enanthate	Durathate-200 Injection	200 mg/ml	n/a	Hauck	U.S.	[NLM]	
testosterone enanthate	Durathate-200 Injection	200 mg/ml	n/a	Roberts	U.S.	[NLM]	
testosterone enanthate	Enantat QV 250	250 mg/ml	10, 50 ml vial	Quality Vet	Mexico		VET
testosterone enanthate	Enantato 250	250 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
testosterone enanthate	Enantest 250	250 mg/ml	10 ml vial	Animal Power	Mexico		VET
testosterone enanthate	Enermon Depot	125 mg/ml	n/a	Taikyo Pharma	Japan		
testosterone enanthate	Everone	100, 200 mg/ml	10 ml vial	Hyrex	U.S.	[NLM]	
testosterone enanthate	Jenasteron Inj	250 mg/ml	n/a	n/a	Korea		
testosterone enanthate	Jenasteron Inj	250 mg/ml	1 ml ampule	Jenahexal	Malaysia		
testosterone enanthate	Macrotest E	250 mg/ml	10 ml vial	CPMex	Mexico		VET
testosterone enanthate	Malogen 100/200 L.A.	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	Malogex LA200	200 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone enanthate	PMS-Testosterone Enanthate	200 mg/ml	10 ml vial	Pharmascience	Canada		
testosterone enanthate	Primoteston-Depot 250	250 mg/ml	1 ml ampule	Schering/Chile	Chile	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering/CID	Egypt	[NLM]	
testosterone enanthate	Primoteston-Depot	250 mg/ml	1 ml ampule	Leras	Finland	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Norway		
testosterone enanthate	Primoteston-Depot	250 mg/ml	1 ml ampule	Schering	United Kingdom	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Australia		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Ecuador		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Guatemala		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Jordan		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Kuwait	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Mauritius		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Mexico		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml syringe	Schering	New Zealand		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Sudan		
testosterone enanthate	Proviron®-Depot	250 mg/ml	1 ml ampule	Schering	Venezuela		
testosterone enanthate	Ropel Liquid Testosterone	75 mg/ml	200 ml vial	Jurox	Australia		VET
testosterone enanthate	Sunamon Depot Inj	130 mg/ml	n/a	Astar	Taiwan		
testosterone enanthate	Sunamon Inj	250 mg/ml	n/a	Astar	Taiwan		
testosterone enanthate	Sustanabolic	250 mg/ml	1 ml ampule	Jaclsons Labs	India		
testosterone enanthate	Tesone L.A.	200 mg/ml	10 ml vial	Sig	U.S.	[NLM]	
testosterone enanthate	Testabol Enanthate 250	250 mg/ml	10 ml vial	British Dispen	Thailand		
testosterone enanthate	Testanate No. 1	100 mg/ml	n/a	Kenyon	U.S.	[NLM]	
testosterone enanthate	Testaval	100, 200 mg/ml	10 ml vial	Legere	U.S.	[NLM]	
testosterone enanthate	Testen-250	250 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone enanthate	Testenan Depot	250 mg/ml	n/a	Sinton	Taiwan		
testosterone enanthate	Testenat 10%	100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
testosterone enanthate	Testenat 5%	50 mg/ml	1 ml ampule	Farmadon	Russia		
testosterone enanthate	Testermon	25 mg/ml	n/a	CCPC	Taiwan		
testosterone enanthate	Testiron-Depot	n/a	n/a	IVB	Israel		
testosterone enanthate	Testoenan L/A	250 mg/ml	10 ml vial	Loeffler	Mexico		VET
testosterone enanthate	Testo-Enant	125 mg/ml	2 ml ampule	Geymonat	Italy		
testosterone enanthate	Testo-Enant	250 mg/ml	1 ml ampule	Geymonat	Italy		
testosterone enanthate	Testoject Inj	250 mg/ml	1 ml ampule	Abdi Dawa	Pakistan		
testosterone enanthate	Testosteron Depot	100 mg/ml	1 ml ampule	Rotex Medica	Germany	[NLM]	
testosterone enanthate	Testosteron Depot	250 mg/ml	1 ml ampule	Rotex Medica	Germany		
testosterone enanthate	Testosterona 200	200 mg/ml	10 ml vial	Brovel	Mexico		VET
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Biosano	Chile		
testosterone enanthate	testosterona enantato	100 mg/ml	1 ml ampule	Chile	Chile	[NLM]	
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Chile	Chile		
testosterone enanthate	Testosteron-Depo	100 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR	[NLM]	
testosterone enanthate	Testosteron-Depo	250 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR		
testosterone enanthate	Testosteron-Depot	100, 250 mg/ml	1 ml ampule	Hemofarm	YugoslaviaFRMR	[NLM]	
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Eifelfango	Germany		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Bulgaria		
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Germany		
testosterone enanthate	Testosterone 200 Depot	200 mg/ml	10 ml vial	Tornel	Mexico		VET
testosterone enanthate	Testosterone Enanthate	250 mg/ml	1 ml ampule	Gedeon	Hungary		
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Geneva Geriarics	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Geneva	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Quad	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Schein	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone enanthate	Testosterone Enanthate	100 mg/ml	1 ml ampule	Aburaihan	Iran		
testosterone enanthate	Testosterone Enanthate 250	250 mg/ml	1 ml ampule	Aburaihan	Iran		
testosterone enanthate	Testosterone Enanthate Daim	250 mg/ml	1 ml	Daim	Korea		
testosterone enanthate	Testosterone Enanthate Inj	200 mg/ml	10 ml vial	Taro	Canada	[NLM]	
testosterone enanthate	Testosterone Enanthate Inj	200 mg/ml	10 ml vial	Watson Pharma	U.S.		
testosterone enanthate	Testosterone Heptylate	50, 100, 250 mg/ml	1 ml ampule	Theramex	France		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Polfa	Belgium	[NLM]	
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Jelfa	Bulgaria	[NLM]	
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Jelfa	Poland		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Polfa	Poland	[NLM]	
testosterone enanthate	Testoviron Depot	250 mg/ml	1 ml ampule	Schering	Taiwan		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Argentina		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Ireland	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Peru		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Hong Kong		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Iceland		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Thailand		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Yemen		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Austria		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Bahrain	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Colombia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Czech. Rep.	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Denmark		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Dom. Rep.		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Ethiopia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Germany		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Greece		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Hungary		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	India		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Iran		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Italy		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Japan		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Lebanon	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Malaysia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Malta		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Pakistan		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Paraguay		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Portugal		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Qatar	[NLM]	
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Saudi Arabia		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Spain		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Sri Lanka		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Sweden		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Switzerland		
testosterone enanthate	Testoviron®Depot	250 mg/ml	1 ml ampule	Schering	Uruguay		
testosterone enanthate	Testo-PA	200 mg/ml	n/a	Pennsaid Res	U.S.	[NLM]	
testosterone enanthate	Testron Depot	125, 250 mg/ml	1 ml vial	n/a	Japan		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Kenya		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Mozambique		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Zimbabwe		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Zimbabwe		
testosterone phenylpropionate	Testoviron	100 mg/ml	1 ml ampule	Stourmed	Bulgaria	[NLM]	
testosterone propionate	Agovirin injectable	25 mg/ml	n/a	Leciva	Czech. Rep.	[NLM]	
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Rhone	Canada	[NLM]	VET
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Sterivet	Canada	[NLM]	VET
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Vetoquinol	Canada		VET
testosterone propionate	Androfort-Richter	10, 25 mg/ml	n/a	Gedeon Richter	Hungary		
testosterone propionate	Androlan	50, 100 mg/ml	n/a	Lannett	U.S.	[NLM]	
testosterone propionate	Ara-Test	25 mg/ml	10 ml vial	Aranda Laboratories	Mexico	[NLM]	VET
testosterone propionate	Aztrim	50 mg/ml	1 ml ampule	Aztrim	Malaysia		
testosterone propionate	AVP Supertest	50 mg/ml	10 ml vial	Vetsearch	Australia		VET
testosterone propionate	Dabol	25 mg/ml	1 ml ampule	n/a	China		
testosterone propionate	Facovit	1 mg/ml	10 ml vial	Teofarma	Italy		
testosterone propionate	Hybolin Inj.	25, 50 mg/ml	n/a	Rivex	U.S.	[NLM]	
testosterone propionate	Malogen In Oil	100 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone propionate	Nandron Depot	25 mg/ml	n/a	Chi Sheng	Taiwan		
testosterone propionate	Neo-Hombreol	50 mg/ml	n/a	Organon	Netherlands	[NLM]	
testosterone propionate	Oreton	25 mg/ml	n/a	Gelofine	Mexico	[NLM]	
testosterone propionate	Propionat QV 100	100 mg/ml	10 ml vial	Quality Vet	Mexico		VET
testosterone propionate	Propionato	100 mg/ml	10 ml vial	Formula Magistral	Argentina		VET
testosterone propionate	Propionato de Testosterona	25 mg/ml	20 ml vial	Induvet	Argentina		VET
testosterone propionate	Propionat UV	100 mg/ml	10 ml vial	Animal Pharm	Mexico		VET
testosterone propionate	Tepro Hormone	100 mg/ml	500 ml vial	Virbac	Australia		VET
testosterone propionate	Testabol Propionate 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
testosterone propionate	Testex	50, 100 mg/ml	n/a	Pasadena	U.S.	[NLM]	
testosterone propionate	Testex Leo	25 mg/ml	1 ml ampule	Allana Pharma	Spain		
testosterone propionate	Testex Leo	25 mg/ml	1 ml ampule	Leo	Spain	[NLM]	
testosterone propionate	Testo	50 mg/ml	10 ml vial	Sanofi	Korea		
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Costa Rica		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Dom. Rep.		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Ecuador		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	El Salvador		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Guatemala		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Honduras		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Nicaragua		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Panama		VET
testosterone propionate	Testolic	50 mg/ml	2 ml ampule	Body Research	Thailand	[NLM]	
testosterone propionate	Testona-E	25 mg/ml	1 ml ampule	Mac	Egypt		
testosterone propionate	Testopin-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone propionate	Testopin-100	100 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
testosterone propionate	Testopro L/A	250 mg/ml	10 ml vial	Loeffler	Mexico		VET
testosterone propionate	Testosteron	25 mg/ml	1 ml ampule	Sopharma	Bulgaria		[NLM]
testosterone propionate	Testosteron	50 mg/ml	1 ml ampule	Sopharma	Bulgaria		
testosterone propionate	Testosteron	5, 10, 25, 50 mg/ml	1 ml ampule	Hexacima	Hungary		[NLM]
testosterone propionate	Testosteron	50 mg/ml	1 ml ampule	Streuli & Co. AG	Switzerland	[NLM]	
testosterone propionate	Testosteron	5, 10, 25, 50 mg/ml	1 ml ampule	Galenika	Yugoslavia		[NLM]
testosterone propionate	Testosteron Depot	25 mg/ml	n/a	Gentle	Taiwan		
testosterone propionate	Testosterona	50 mg/ml	25 ml vial	Chemopharma	Argentina		VET
testosterone propionate	Testosterona 100	100 mg/ml	10 ml vial	Brovel	Mexico		VET
testosterone propionate	Testosterona 25	25 mg/ml	10, 30 ml vial	Brovel	Mexico		VET
testosterone propionate	Testosterona 50	50 mg/ml	10, 20 ml vial	Brovel	Mexico		VET
testosterone propionate	Testosterona Fenilpropionat	50, 100 mg/ml	1ml ampule	Farmaton	Russia		[NLM]
testosterone propionate	Testosterona Propionato	n/a	n/a	Botica	Paraguay		
testosterone propionate	Testosterone Depot Susp.	40 mg suspension	10 susp. box	Fluke	Germany		[NLM]
testosterone propionate	Testosterone Jenapharm	25 mg/ml	1 ml ampule	Jenapharm	Germany		[NLM]
testosterone propionate	testosterone propionate	50 mg/ml	n/a	Cord & Lilly	U.S.		[NLM]
testosterone propionate	testosterone propionate	100 mg/ml	10, 30 ml vial	Rugby	U.S.		[NLM]
testosterone propionate	testosterone propionate	100 mg/ml	10 ml vial	Steris	U.S.		[NLM]
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Cytex	Canada		
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Dominion	Canada		VET
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Taro	Canada		[NLM]
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	1 ml ampule	Ilsa	France		
testosterone propionate	Testosterone Propionate Inj	25 mg/ml	n/a	Charmaine	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	n/a	Hong Kong Med	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	25 mg/ml	n/a	Tai Yu	Taiwan		
testosterone propionate	Testosterone Propionate Inj BP	10, 25, 50 mg/ml	1, 2 ml ampule	Batco Pharma	India		
testosterone propionate	Testosterone Streuli	n/a	5, 10, 25, 50 mg/ml	Streuli & Co. AG	Austria		[NLM]
testosterone propionate	Testosteron Vital	n/a	10, 25 mg/ml	Neopharma	Germany		[NLM]
testosterone propionate	Testosterone-Prop. Disp.	n/a	10, 20 mg/ml	Disperga	Austria		[NLM]
testosterone propionate	Testosteronpropionat	10, 25 mg/ml	1 ml ampule	Eifelfango	Germany		[NLM]
testosterone propionate	testosteronpropionat	50 mg/ml	1 ml ampule	Eifelfango	Germany		
testosterone propionate	Testosteronum Propionicum	25 mg/ml	1 ml ampule	Jelfa	Poland		
testosterone propionate	Testosterony Propionat	50 mg/ml	1 ml ampule	Farmak	Ukraine		
testosterone propionate	Testoviron®	50 mg/ml	1 ml ampule	Schering	Greece		
testosterone propionate	Testoviron®	10, 25, 50 mg/ml	1 ml ampule	Schering	Italy		[NLM]

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testoviron®	10, 25 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
testosterone propionate	Testovis	50 mg/ml	2 ml ampule	SIT	Italy		
testosterone propionate	Thalandren	20 mg/ml	n/a	Ciba Geigy Cy	Switzerland	[NLM]	
testosterone propionate	Ultra Prop	100 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
testosterone propionate	Uni-Test Inj	100 mg/ml	10 ml vial	Univet	Canada		VET
testosterone propionate	Virormone	50, 100 mg/ml	1 ml ampule	Paines	Thailand		
testosterone propionate	Virormone	50 mg/ml	2 ml ampule	Fenning	United Kingdom	[NLM]	
testosterone propionate	Virormone	50 mg/ml	2 ml ampule	Nordic	United Kingdom		
testosterone propionate	VR Testprop	50 mg/ml	10 ml vial	Jurox	Australia		VET
testosterone propionate (implant)	Implus-H	22 mg/pellet	n/a	Upjohn	U.S.		
testosterone propionate (implant)	Progyn-H (plus estradiol)	20 mg/pellet	n/a	Pro Bevel	Australia		VET
testosterone propionate (implant)	Synovex®-H (plus estradiol)	20 mg/pellet	n/a	Ayerst	Canada		
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Fort Dodge	Australia		VET
testosterone propionate (implant)	Synovex®-H (plus estrogen)	25 mg/pellet	80 pellet cartridge	Fort Dodge	Mexico		
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Syntex	Mexico	[NLM]	
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Fort Dodge	U.S.		VET
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Syntex	U.S.	[NLM]	VET
testosterone propionate (implant)	Virbac Tepro Pellets	23.5 mg pellet	450 pellets	Virbac	Australia		VET
testosterone suspension	Anabolic TS	100 mg/ml	20 ml vial	SYD Group	Australia		VET
testosterone suspension	Anabolic TS	100 mg/ml	20 ml vial	SYD Group	Mexico		VET
testosterone suspension	Anabolic-TS	100 mg/ml	20 ml vial	Grupo Terasec	Mexico	[NLM]	VET
testosterone suspension	Androlan Aqueous	25, 50, 100 mg/ml	n/a	Lannet	U.S.	[NLM]	
testosterone suspension	Andron	100 mg/ml	n/a	Lincoln	U.S.	[NLM]	
testosterone suspension	Andronaq-50	50 mg/ml	n/a	Central	U.S.	[NLM]	
testosterone suspension	AquaTest	100 mg/ml	10 ml vial	Dechra	Mexico		VET
testosterone suspension	Aquaviron	25 mg/ml	1 ml ampule	Nicholas	India		
testosterone suspension	Histerone Injection	100 mg/ml	n/a	Roberts	U.S.	[NLM]	
testosterone suspension	Histerone Injection	100 mg/ml	n/a	Hauck	U.S.	[NLM]	
testosterone suspension	Malogen	25, 50, 100 mg/ml	n/a	Forest	U.S.	[NLM]	
testosterone suspension	Malogen Aqueous	100 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone suspension	Malogex	25, 50 mg/ml	n/a	Bluco	U.S.	[NLM]	
testosterone suspension	RWR Suspension	100 mg/ml	20 ml vial	RWR	Australia		VET
testosterone suspension	Tesamone	25, 50, 100, mg/ml	n/a	Dunhall	U.S.	[NLM]	
testosterone suspension	Testolin	25, 50, 100, mg/ml	n/a	Pasadena	U.S.	[NLM]	
testosterone suspension	Testos 100	100 mg/ml	10 ml vial	Valcom	Canada		VET
testosterone suspension	testosterone suspension	100 mg/ml	n/a	Legere	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Schein	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Steris	U.S.	[NLM]	
testosterone suspension	Testosus 100	100 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
testosterone suspension	Uni-Test Suspension	100 mg/ml	30 ml vial	Univet	Canada		VET
testosterone suspension	Velo-Test Sus	100 mg/ml	30 ml vial	Avalon	Canada		VET
testosterone suspension (isobutyrate)	Agovirin-Depot	25 mg/ml	2 ml ampule	Biotika	Czech. Rep.		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Algeria		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Aruba		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Australia		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Austria		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Bahrain		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Bangladesh		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Belgium		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Canada		
testosterone undecanoate	Andriol	40 mg capsules	10 capsule box	Organon	Chile		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Cyprus		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Dubai Airports		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ecuador		
testosterone undecanoate	Andriol	40 mg capsules	30 capsule box	Organon/Sedico	Egypt		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Georgia		
testosterone undecanoate	Andriol	40 mg capsules	30, 60 capsule bottle	Organon	Germany		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ghana		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Hong Kong		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Hungary		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Indonesia		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Italy		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Jordan		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Kenya		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Korea		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Kuwait		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Lebanon		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Malaysia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Mauritius		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Morocco		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Myanmar/Burma		VET
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Netherlands		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Nigeria		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Oman		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Philippines		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Portugal		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Qatar		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Russia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Saudi Arabia		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Singapore		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Sri Lanka		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Switzerland		
testosterone undecanoate	Andriol	40 mg capsules	30 capsule box	Organon	Thailand		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Tunisia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ukraine		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	United Arab E		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Vietnam		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Yemen		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Yugoslavia FR		
testosterone undecanoate	Andriol capsulas	40 mg capsules	30 capsule bottle	Organon	Mexico		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone undecanoate	Androxon	40 mg capsules	n/a	Organon	Venezuela		
testosterone undecanoate	Androxon	40 mg capsules	20 capsule box	Organon	Brazil		
testosterone undecanoate	Androxon	40 mg capsules	30 capsule bottle	Organon	Israel		
testosterone undecanoate	Androxon	40 mg capsules	60 capsule bottle	Organon	Norway		
testosterone undecanoate	Androxon	40 mg capsules	n/a	Organon	Pakistan		
testosterone undecanoate	Androxon	40 mg capsules	60 capsule bottle	Donmed/Orgaion	South Africa		
testosterone undecanoate	Atra	40 mg capsules	30 capsule bottle	Organon	India		
testosterone undecanoate	Panteston	40 mg capsules	60 capsule bottle	Organon	Finland		
testosterone undecanoate	Panteston	40 mg capsules	n/a	Organon	Latvia		
testosterone undecanoate	Panteston	40 mg capsules	n/a	Organon	Lithuania		
testosterone undecanoate	Panteston	40 mg capsules	30, 60 capsule bottle	Organon	Peru		
testosterone undecanoate	Panteston capsules	40 mg capsules	n/a	Organon	New Zealand		
testosterone undecanoate	Pantestone	40 mg capsules	60 capsule bottle	Organon	Estonia		
testosterone undecanoate	Pantestone	40 mg capsules	60 capsule bottle	Organon	France		
testosterone undecanoate	Restandol	40 mg capsules	60 capsule bottle	Organon	Denmark		
testosterone undecanoate	Restandol	40 mg capsules	60 capsule bottle	Organon	Greece		
testosterone undecanoate	Restandol	40 mg capsules	n/a	Organon	Taiwan		
testosterone undecanoate	Restandol	40 mg capsules	28, 56 capsule box	Organon	United Kingdom		
testosterone undecanoate	Restandol Gel	40 mg capsules	n/a	Organon	Chile		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Argentina		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Belgium		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Bulgaria		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Czech. Rep.		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Luxemburg		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Poland		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Rumania		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Slovakia		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Sweden		
testosterone undecanoate	Undestor	40 mg capsules	30 capsule bottle	Organon	Turkey		
Testoviron (testosterone blend)	Aratest 2500	250 mg/ml	10 ml vial	Aranda	Mexico		VET
Testoviron (testosterone blend)	Cipiotest	90 mg/ml	10 ml vial	Cipiotest	Argentina		VET
Testoviron (testosterone blend)	Macrotest	250 mg/ml	10 ml vial	CPMax	Mexico		VET
Testoviron (testosterone blend)	Primoteston®-Depot 100	135 mg/ml	1 ml ampule	Schering-Chile	Chile	[NLM]	
Testoviron (testosterone blend)	Primoteston Depot 100	135 mg/ml	1 ml ampule	Schering	Australia	[NLM]	
Testoviron (testosterone blend)	Primoteston Depot 50	75 mg/ml	1 ml ampule	Schering	Australia	[NLM]	
Testoviron (testosterone blend)	Primoteston®-Depot 100	135 mg/ml	1 ml ampule	Schering/CID	Egypt	[NLM]	
Testoviron (testosterone blend)	Sustanon	250 mg/ml	1 ml ampule	Farmasoft	Russia	[NLM]	
Testoviron (testosterone blend)	Testenon	135 mg/ml	2 ml vial	BM Pharmaceuticals	India		
Testoviron (testosterone blend)	Testenon	135 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
Testoviron (testosterone blend)	Testoprim-D	250 mg/ml	1 ml ampule	Labs. Tocogino	Mexico		
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Argentina	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Dom. Rep.		
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Germany	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Greece	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Netherlands	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Portugal	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Switzerland	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 135	135 mg/ml	1 ml ampule	Schering	Denmark		
Testoviron (testosterone blend)	Testoviron® Depot 135	135 mg/ml	1 ml ampule	Schering	Sweden	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
trenbolone acetate	Acetrenbo 50	50 mg tablet	20 tablet bottle	Loeffler	Mexico		VET
trenbolone acetate	ComponentTE-CP (+ estradiol)	20 mg pellet	80 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentTE-S® (+ estradiol)	20 mg pellet	120 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentT-HP	20 mg pellet	200 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentT-S®	20 mg pellet	140 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	Finaject	20 mg/ml	n/a	Roussel	France	[NLM]	VET
trenbolone acetate	Finaject	30 mg/ml	50 ml vial	Hoechst	U.S.	[NLM]	VET
trenbolone acetate	Finaject	30 mg/ml	50 ml vial	Hoechst	United Kingdom	[NLM]	VET
trenbolone acetate	Finaplix-H®	20 mg pellet	100 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Finaplix-HP	20 mg pellet	100 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Finaplix-H®	20 mg pellet	70, 100 pellet cartridge	Roussel	Mexico	[NLM]	VET
trenbolone acetate	Finaplix-S®	20 mg pellet	70 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Parabolan Tabs (Export)	25 mg tablet	20 tablet pouch	British Dragon	Thailand	[NLM]	
trenbolone acetate	Revalor-200 (plus estradiol)	20 mg pellet	100 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-G (plus estradiol)	20 mg pellet	20 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Intervet	Canada		VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-IH (plus estradiol)	20 mg pellet	40 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-IS (plus estradiol)	20 mg pellet	40 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	60 pellet cartridge	Intervet	Canada		VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	60 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	60 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Wyeth	Canada		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Fort Dodge	Mexico		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Fort Dodge	U.S.		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Syntex	U.S.	[NLM]	VET
trenbolone acetate	Trenbolone QV 75	75 mg/ml	10 ml vial	Quality Vet	Mexico		VET
trenbolone acetate	Trenabol 75	75 mg/ml	10 ml vial	British Dragon	Thailand		
trenbolone acetate	Trenbo 75	75 mg/ml	10 ml vial	Animal Pharm	Mexico		VET
trenbolone acetate	Trenbol 75	75 mg/ml	20 ml vial	Ttokkyo	Mexico	[NLM]	VET
trenbolone acetate	Trenbolon 75	75 mg/ml	10, 20 ml vial	Pet's Pharma	Mexico		VET
trenbolone acetate	Trenol 50	50 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
trenbolone acetate	Ultra Tren	100 mg/ml	10 ml vial	Nuro-Vet	Mexico		VET
trenbolone blend	Tri-Trenabol 150	150 mg/ml	10 ml vial	British Dragon	Thailand		
trenbolone enanthate	Trenabol 200	200 mg/ml	10 ml vial	British Dragon	Thailand		
trenbolone hexahydrobenzylcarbonate	Danabolin	76 mg/ml	1.5 ml ampule	Body Researcl	Thailand	[NLM]	
trenbolone hexahydrobenzylcarbonate	Parabolin	76 mg/1.5 ml	1.5 ml ampule	Nalpharma	Kenya	[NLM]	
trenbolone hexahydrobenzylcarbonate	TrenabolDepot 100	100 mg/ml	10 ml vial	British Dragon	Thailand		

APPENDIX C Drug Availability Tables (Brand Name)

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Sustanon 250 (testosterone blend)	A-Test	250 mg/ml	5 ml vial	Quality Vet	Mexico		VET
trenbolone acetate	Acetrenbo 50	50 mg tablet	20 tablet bottle	Loeffler	Mexico		VET
nandrolone phenylpropionate	Activin	10 mg/ml	n/a	Antibiotic	Spain	[NLM]	
methyltestosterone	Afro	25 mg tablet	40 tablet box	Casel	Turkey		
methyltestosterone	Agovirin	10 mg dragee	100 dragee bottle	Leciva	Czech. Rep.	[NLM]	
testosterone propionate	Agovirin injectable	25 mg/ml	n/a	Leciva	Czech. Rep.	[NLM]	
testosterone suspension (isobutyrate)	Agovirin Depot	25 mg/ml	2 ml ampule	Leciva	Czech. Rep.		
clostebol acetate	Alfa-Trofodermin	.5% gel	n/a	Farmitalia	Italy	[NLM]	
clostebol acetate	Alfa-Trofodermin	.5% gel	n/a	Pharmacia & Upjohn	Italy		
methandrostenolone	Ammipire	5 mg tablet	1000 tablet bottle	Ammipire	Thailand		
methandrostenolone	Anabol	50 mg tablet	n/a	British Dispensary	Thailand	[NLM]	
methandrostenolone	Anabol Tablets	5 mg tablet	1000 tablet bottle	British Dispensary	Thailand		
methandrostenolone	Anabol Tablets	5 mg tablet	1000 tablet bottle	L.P.Standard	Thailand	[NLM]	
boldenone undecylenate	Ana-Bolde	50 mg/ml	10 ml vial	Forti	Argentina		VET
methandrostenolone	Anabolex	5 mg tablet	100 tablet box	Elmed	Dom. Rep.		
boldenone undecylenate	Anabolic BD	50 mg/ml	10 ml vial	SYD Group	Australia		VET
boldenone undecylenate	Anabolic BD	100, 200 mg/ml	10 ml vial	SYD Group	Mexico		VET
nandrolone cypionate	Anabolic DN	50 mg/ml	10 ml vial	SYD Group	Australia		VET
nandrolone cypionate	Anabolic DN	50, 200 mg/ml	10 ml vial	SYD Group	Mexico		VET
methylandrostenediol (blend)	Anabolic NA	75 mg/ml	10 ml vial	SYD Group	Australia		VET
methylandrostenediol (blend)	Anabolic NA	75 mg/ml	10 ml vial	SYD Group	Mexico		VET
stanozolol (inj)	Anabolic ST	50 mg/ml	20 ml vial	SYD Group	Australia		VET
stanozolol (inj)	Anabolic ST	50 mg/ml	20 ml vial	SYD Group	Mexico		VET
testosterone cypionate	Anabolic TL	100 mg/ml	10 ml vial	SYD Group	Australia		VET
testosterone cypionate	Anabolic TL	200 mg/ml	10 ml vial	SYD Group	Mexico		VET
testosterone suspension	Anabolic TS	100 mg/ml	20 ml vial	SYD Group	Australia		VET
testosterone suspension	Anabolic TS	100 mg/ml	20 ml vial	SYD Group	Mexico		VET
boldenone undecylenate	Anabolic-BD	100 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
nandrolone cypionate	Anabolic-DN	50 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
methylandrostenediol (blend)	Anabolic-NA	75 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
stanozolol (inj)	Anabolico Cimol	50 mg/ml	5 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Anabolico Produvet	10 mg/ml	25 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Anabolic-ST	50 mg/ml	20 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
testosterone suspension	Anabolic-TS	100 mg/ml	20 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
nandrolone decanoate	Anabolicum	25 mg/ml	10, 50 ml vial	Pelo Pharm	Germany		VET
quinbolone	Anabolicum Vister	10 mg capsule	30 capsule bottle	Parke Davis	Italy	[NLM]	
quinbolone	Anabolicum Vister	oral drops	n/a	Parke Davis	Italy	[NLM]	
methandrostenolone	Anabolikum 2.5%	25 mg/ml	50 ml vial	Meca G	Germany	[NLM]	VET
methandrostenolone	Anabolin	5 mg tablet	n/a	Leiras	Finland	[NLM]	
methandrostenolone	Anabolin	0.5% cream	n/a	Leiras	Finland	[NLM]	
nandrolone phenylpropionate	Anabolin	50 mg/ml	n/a	Abic	U.S.	[NLM]	
nandrolone decanoate	Anabolin Forte	50 mg/ml	10, 50 ml vial	Alfasan	Netherlands		VET
nandrolone decanoate	Anabolin Forte	50 mg/ml	10 ml vial	Alfasan	Romania		VET
nandrolone decanoate	Anabolin Forte	50 mg/ml	10, 50 ml vial	Alfasan	Spain		VET
nandrolone decanoate	Anabolin Depot	50 mg/ml	1 ml	Agetol	Greece		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone phenylpropionate	Anabolin-IM	50 mg/ml	n/a	Alto	U.S.	[NLM]	
nandrolone phenylpropionate	Anabolin-LA	100 mg/ml	n/a	Alto	U.S.	[NLM]	
methandrostenolone	Anabol-Jet	25 mg/ml	30, 100, 250 ml vial	Norvet	Mexico		VET
methandrostenolone	Anabol-Jet ADE	30 mg/ml	100, 250 ml vial	Norvet	Mexico		VET
methandrostenolone	Anabol-Pet's	10, 25 mg tablet	200 tablet bottle	Norvet	Mexico		VET
oxymetholone	Anabol 50	50 mg tablet	100 tablet bottle	Norvet	Mexico		VET
methylandrostenediol dipropionate	Anadiol	5 mg tab	10, 100 tablet bottle	Ilium/Troy	Australia		VET
methylandrostenediol dipropionate	Anadiol Depot	75 mg/ml	10 ml vial	Ilium/Troy	Australia		VET
nandrolone hexyloxyphenylpropionate	Anador	25 mg/ml	2 ml ampule	Pharmacia-Upjohn	France	[NLM]	
oxymetholone	Anadrol	5 mg tablet	n/a	n/a	Spain		
oxymetholone	Anadrol 50®	50 mg tablet	100 tablet bottle	Unimed	U.S.		
oxymetholone	Anadrol 50®	50 mg tablet	100 tablet bottle	Syntex	Ukraine	[NLM]	
oxymetholone	Anadrol 50®	50 mg tablet	100 tablet bottle	Syntex	U.S.	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25 mg/ml	2 ml ampule	Kabi Pharmacia	Norway	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Switzerland	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Kenya	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Germany	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Norway	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25 mg/ml	2 ml ampule	Leo	Spain	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25 mg/ml	2 ml ampule	Lundbeck	Denmark	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Belgium	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Czech. Rep.	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Finland	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Netherlands	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadurin	50 mg/ml	1 ml ampule	Xponei	Greece	[NLM]	
nandrolone	Anaplex	5 mg tablet	100 tablet bottle	Turox	Australia		VET
oxymetholone	Anapolon	50 mg tablet	20 tablet box	Ibrahim	Turkey		
oxymetholone	Anapolon	50 mg tablet	n/a	Syntex	Bulgaria	[NLM]	
oxymetholone	Anapolon	2.5, 5 mg tablet	20 tablet box	Ibrahim	Turkey	[NLM]	
oxymetholone	Anapolon 50	50 mg tablet	100 tablet bottle	Syntex	Morocco	[NLM]	
oxymetholone	Anapolon 50	50 mg tablet	20 tablet strip	Syntex	Mexico	[NLM]	
oxymetholone	Anapolon 50	50 mg tablet	100 tablet bottle	Syntex	United Kingdom	[NLM]	
oxymetholone	Anapolon 50®	50 mg tablet	100 tablet bottle	Hoffman-La Rouche	Canada	[NLM]	
nandrolone decanoate	Anapolon	25, 50 mg/ml	1 ml ampule	Silesia	China		
oxymetholone	Anasteron	25 mg tablet	60 tablet bottle	Farmaprod	Greece		
oxymetholone	Anasteron	50 mg tablet	n/a	Syntex	Greece	[NLM]	
oxymetholone	Anasteron	50 mg tablet	n/a	Syntex	Sweden	[NLM]	
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Sterivet	Canada	[NLM]	VET
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Sterivet	Canada		VET
oxandrolone	Anatrophill	2.5 mg tablet	n/a	Searle	France	[NLM]	
oxandrolone	Anavar	2.5 mg tablet	30 tablet strip	Hubei Huangshi	China		
oxandrolone	Anavar	2.5 mg tablet	100 tablet bottle	Searle	U.S.	[NLM]	
stanozolol (oral)	Anazol	2 mg tablet	100 tablet box	Xelox (export)	Philippines		
stanozolol (oral)	Anazol	2 mg tablet	100, 1000 tablet bottle	Xelox (export)	Philippines		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	Anderone 100/200	100, 200 mg/ml	10 ml vial	Burgin-Arnold	U.S.	[NLM]	
methandrostenolone	Andoredan	5 mg tablet	n/a	Takeshima-Kodama	Japan	[NLM]	
dihydrotestosterone	Andractim	25 mg/g	100 gram gel	Besins-Iscovesco	France		
dihydrotestosterone	Andractim	25 mg/g	100 gram gel	Chemec	India		
dihydrotestosterone	Andractim	25 mg/g	30 gram gel	n/a	Korea		
dihydrotestosterone	Andractim	25 mg/g	80 gram gel	Piette	Belgium		
dihydrotestosterone	Andractim	25 mg/g	80 gram gel	Servimedic	Uruguay		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Algeria		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Aruba		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Australia		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Austria		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Bahrain		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Bangladesh		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Belarus		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Canada		
testosterone undecanoate	Andriol	40 mg capsules	16 capsule box	Organon	China		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Cyprus		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Dutch Antilles		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ecuador		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Georgia		
testosterone undecanoate	Andriol	40 mg capsules	30, 60 capsule bottle	Organon	Germany		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ghana		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Hong Kong		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Hungary		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Indonesia		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Italy		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Jordan		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Kenya		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Korea		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Kuwait		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Lebanon		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Malaysia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Mauritius		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Morocco		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Myanmar/Burma		VET
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Netherlands		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Nigeria		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Oman		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Philippines		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Portugal		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Qatar		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Russia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Saudi Arabia		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Singapore		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Sri Lanka		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Switzerland		
testosterone undecanoate	Andriol	40 mg capsules	10 capsule strip	Organon	Thailand		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Tunisia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Uganda		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	United Arab E		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Uruguay		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Yemen		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Yugoslav (FRY)		
testosterone undecanoate	Andriol	40 mg capsules	20 capsule box	Organon/Sedico	Egypt		
testosterone undecanoate	Andriol capsules	40 mg capsules	20 capsule bottle	Organon	Mexico		
testosterone undecanoate	Andriol capsulas	40 mg capsules	n/a	Organon	Venezuela		
methyltestosterone	Android	10 mg tablet	n/a	Other	Canada	[NLM]	
testosterone enanthate	Andro 100	100 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone enanthate	Andro L.A. 200	200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone cypionate	Andro-Cyp	100, 200 mg/ml	10 ml vial	Brown	U.S.	[NLM]	
testosterone cypionate	Andro-Cyp	100, 200 mg/ml	10 ml vial	Keene	U.S.	[NLM]	
testosterone (patch)	Androderm®	12.2 mg patch.	10, 30, 60 patches/box	AstraZenica	Germany		
testosterone (patch)	Androderm®	12.2 mg patch	n/a	AstraZenica	Switzerland		
testosterone (patch)	Androderm®	12.2 mg patch.	n/a	n/a	Korea		
testosterone (patch)	Androderm®	12.2 mg patch	30 patches/box	Pharmascience	Canada		
testosterone (patch)	Androderm®	12.2 mg patch.	n/a	Schwarz Pharma	Italy		
testosterone (patch)	Androderm®	2.5 mg patch	30, 60 patch box	Schwarz Pharma	Spain		
testosterone (patch)	Androderm®	5 mg patch	30 patch box	Schwarz Pharma	Spain		
testosterone (patch)	Androderm®	2.2 mg patch	60 patches/box	Smithkline Beecham	U.S.	[NLM]	
testosterone (patch)	Androderm®	12.2, 24.3 mg patch	60 patches/box	Watson Pharma	U.S.		
testosterone propionate	Androgel Richter	10, 25 mg/ml	n/a	Gedeon Richter	Hungary		
testosterone (gel)	Androgel	25, 50 mg	single dose packet	Besins	Netherlands		
testosterone (gel)	Androgel	25, 50 mg	single dose packet	Besins	Sweden		
testosterone (gel)	Androgel	25, 50 mg	single dose packet	Solvay	Canada		
testosterone (gel)	Androgel	50, 75, 100 mg	single dose packet	Unimed	U.S.		
methyltestosterone	Android	5, 10, 25 mg tablet	60 tablet bottle	ICN Pharm	U.S.		
methyltestosterone	Android	5, 10, 25 mg tablet	n/a	Brown	U.S.	[NLM]	
fluoxymesterone	Android-F	10 mg tablet	100 tablet bottle	Brown	U.S.	[NLM]	
testosterone propionate	Andronaq	50, 100 mg/ml	n/a	Lannett	U.S.	[NLM]	
testosterone suspension	Androlan Aqueous	25, 50, 100 mg/ml	n/a	Lannet	U.S.	[NLM]	
oxymetholone	Androlic	50 mg tablet	100 tablet bottle	British Dispensary	Thailand		
oxymetholone	Androlic	50 mg tablet	100 tablet pouch	British Dispensary	Thailand	[NLM]	
oxymetholone	Androlic (Export)	50 mg tablet	20 tablet pouch	British Dispen.	Thailand	[NLM]	
testosterone suspension	Androlin	100 mg/ml	n/a	Lincoln	U.S.	[NLM]	
nandrolone phenylpropionate	Androlone	50 mg/ml	n/a	Keene	U.S.	[NLM]	
nandrolone decanoate	Androlone-D 200	200 mg/ml	1 ml	Keene	U.S.	[NLM]	
testosterone cypionate	Andronan LA	100, 200 mg/ml	10 ml vial	Central	U.S.	[NLM]	
testosterone suspension	Andronaq-50	50 mg/ml	n/a	Central	U.S.	[NLM]	
testosterone cypionate	Andronate	100, 200 mg/ml	10 ml vial	Pasadena	U.S.	[NLM]	
testosterone (patch)	Andropatch	2.5 mg patch	60 patches/box	GSK	United Kingdom		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone (patch)	Andropatch	5 mg patch	30 patches/box	GSK	United Kingdom		
testosterone (patch)	Andropatch	12.2 mg patch	30, 60 patch box	Schwarz Pharma	Netherlands		
testosterone blend (mix)	Andropan 275	275 mg/ml	10, 20 ml vial	British Dragon	Thailand		
testosterone enanthate	Andropository	200 mg/ml	10 ml vial	Rugby	U.S.	[NLM]	
methyltestosterone	Androral	10 mg tablet	n/a	Gedeon Richter	Hungary		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Algeria		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Europe		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Morocco		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Tunisia		
testosterone (gel)	Androtop Gel	50 mg	single dose packet	Kade/Besins	Germany		
testosterone undecanoate	Androxon	40 mg capsules	60 capsule bottle	Organon/Orgalpha	South Africa		
testosterone undecanoate	Androxon	40 mg capsules	20 capsule box	Organon	Brazil		
testosterone undecanoate	Androxon	40 mg capsules	30 capsule bottle	Organon	Israel		
testosterone undecanoate	Androxon	40 mg capsules	60 capsule bottle	Organon	Norway		
testosterone undecanoate	Androxon	40 mg capsules	n/a	Organon	Pakistan		
oxymetholone	Androyd	5 mg tablet	100 tablet	Parke Davis	India		
testosterone enanthate	Andryl 200	200 mg/ml	10 ml vial	Kaesa	U.S.	[NLM]	
stanozolol (oral)	Apetil	4 mg/ml	10 ml dropper bottle	Holliday	Argentina		VET
testosterone suspension	AquaTest	100 mg/ml	10 ml vial	Del-Toll	Mexico		VET
testosterone suspension	Aquaviron	25 mg/ml	1 ml ampule	Nicholas	India		
testosterone propionate	Ara-Test	25 mg/ml	10 ml vial	Aranda Laboratories	Mexico	[NLM]	VET
Testoviron (testosterone blend)	Aratest 2500	250 mg/ml	10 ml vial	Aranda	Mexico		VET
methylandrostenediol dipropionate	Arbolic	50 mg/ml	n/a	Burgin Arbet	U.S.	[NLM]	
methyltestosterone	Arcosterone	10 mg sub.	n/a	Acrum	U.S.	[NLM]	
methyltestosterone	Arcosterone	10, 25 mg tablet	n/a	Acrum	U.S.	[NLM]	
testosterone propionate	Astrapin	50 mg/ml	1 ml ampule	Astrapin	Malaysia		
testosterone (patch)	Atmos	5 mg patch	n/a	Astra	Sweden		
testosterone (patch)	Atmos	5 mg patch	30 patch box	Astra Zenica	Norway		
methandrostenolone	Averbol 25	25 mg/ml	10, 20 ml vial	British Dragon	Thailand		
testosterone propionate	AVP Supertest	50 mg/ml	10 ml vial	Vetsearch	Australia		VET
diazepam	Axdol	5 mg tablet	100 tablet bottle	British Dispensary	Thailand		
testosterone cypionate	Banrot	75 mg/ml	200 ml bladder	Coopers	Australia	[NLM]	VET
fluoxymesterone	Baroten	5 mg capsule	500 capsule bottle	Ta Feng	Taiwan		
methandrostenolone	Bionabol	2, 5 mg tab	40 tablet box	Balkanpharma	Bulgaria	[NLM]	
methandrostenolone	Bionabol	2 mg tablet	40 tablet bottle	Pharmacia	Bulgaria	[NLM]	
methandrostenolone	Bionabol	5 mg tab	40 tablet bottle	Pharmacia	Bulgaria	[NLM]	
testosterone cypionate	Blastmon Depot	50 mg/ml	n/a	Ta Feng	Taiwan		
Testoviron (testosterone blend)	Bi-Testo	60 mg/ml	10 ml vial	Cimol	Argentina		VET
boldenone undecylenate	Bold 200	200 mg/ml	10 ml vial	Animal Pharm	Mexico		VET
boldenone undecylenate	Bold QV 200	200 mg/ml	10 ml vial	Quality Vet	Mexico		VET
boldenone undecylenate	Boldabol 200	200 mg/ml	10 ml vial	British Dragon	Thailand		
boldenone acetate	Boldabol Acetate	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
boldenone undecylenate	Boldetal-H	50 mg/ml	10 ml vial	Farm Troy	Australia		VET
boldenone undecylenate	Boldemax A.P.	50 mg/ml	10, 50, 100, 250ml vial	Agrovet	Peru		VET
boldenone undecylenate	Boldenol 25	25 mg/ml	10, 50, 100, 250ml vial	Coopandina	Colombia		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
boldenone undecylenate	Boldenol R	50 mg/ml	10, 50, 100, 250ml vial	Comandina	Colombia		VET
boldenone undecylenate	Boldenon	200 mg/ml	10 ml vial	Tornel	Mexico	[NLM]	VET
boldenone undecylenate	Boldenona	50 mg/ml	10, 20, 100 ml vial	Biogen	Colombia		VET
boldenone undecylenate	Boldenona	50 mg/ml	50 ml vial	Fabrica Hispanica	Argentina		VET
boldenone undecylenate	Boldenona	50 mg/ml	10, 50, 100, 250ml vial	Vecol	Colombia		VET
boldenone undecylenate	Boldenona 200	200 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
boldenone undecylenate	Boldenona 50	50 mg/ml	10, 50, 100, 250ml vial	Servinsumos	Colombia		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Bolivia		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Colombia		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Costa Rica		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Dom. Rep.		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Ecuador		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	El Salvador		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Guatemala		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Honduras		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Nicaragua		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Panama		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Peru		VET
boldenone undecylenate	Boldenone-50	50 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
oxymetholone	Bonalone	50 mg tablet	100 tablet bottle	Body Research	Thailand	[NLM]	
oxandrolone	Bonavar	2.5 mg tablet	10 tablet strip	Body Research	Thailand	[NLM]	
nandrolone decanoate	Cernelle Inj	25, 50 mg/ml	n/a	n/a	Korea		
boldenone undecylenate	Cebulin 50	50 mg/ml	10, 50, 250 ml vial	Provet	Colombia		VET
stanozolol (oral)	Cetabon	2 mg tablet	10 tablet strip	Thaco Pharma	Thailand		
mibolerone	Cheque Drops	100 mcg/ml	55 mg bottle	Upjohn	U.S.	[NLM]	VET
fluoxymesterone	Chlorpiconon	5 mg capsule	n/a	Chobar	Taiwan		
methandrostenolone	Chinlipan Tab	2 mg tablet	n/a	Chin Tien	Taiwan		
testosterone phenylacetate	Depo-S	300 mg/ml	2 ml ampule	Drug Pharma	Chile		VET
testosterone enanthate	Cioteston Depot	250 mg/ml	1 ml ampule	CID	Egypt		
trenbolone acetate	ComponentTE-200 (+ estradiol)	200 mg pellet	40 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentTE-S® (+ estradiol)	20 mg pellet	120 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentTE-HR	20 mg pellet	200 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentT-S®	20 mg pellet	140 pellet cartridge	VetLife	U.S.		VET
boldenone undecylenate	Crecibol	25 mg/ml	10, 30 ml vial	Univet	Mexico		VET
methylandrostenediol dipropionate	Crestabolic	50 mg/ml	n/a	Nutrition	U.S.	[NLM]	
testosterone cypionate	Cydo-Testosterone Depot	100 mg/ml	n/a	Asia	Taiwan		
testosterone cypionate	Cypionax	100 mg/ml	2 ml ampule	Body Research	Thailand	[NLM]	
testosterone cypionate	Cyprobol 250	250 mg/ml	10 ml vial	Animal Pharm	Mexico		VET
testosterone cypionate	CypioTest 250	250 mg/ml	10 ml vial	Denkall	Mexico		VET
testosterone cypionate	Cyptotest U/A	250 mg/ml	10 ml vial	Laprin	Mexico		VET
nandrolone phenylpropionate	Daily Reborn Inj	25 mg/ml	n/a	Shiteh	Taiwan		
methandrostenolone	Danabol DS	10 mg tablet	500 tablet bottle	Body Research	Thailand	[NLM]	
trenbolone hexahydrobenzylcarbonate	Danabolan	76 mg/ml	1.5 ml ampule	Body Research	Thailand	[NLM]	
methandrostenolone	D-Bol	10 mg tablet	100 tablet bottle	Denkall	Mexico		VET
methandrostenolone	D-Bol	10 mg capsule	96 capsule box	Denkall	Mexico		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methandrostenolone	D-Bol	10 mg capsule	200 capsule bottle	Denkall	Mexico		VET
methandrostenolone	D-Bol	25 mg/ml	10 ml vial	Denkall	Mexico		VET
methyltestosterone	Deborabolin	n/a	n/a	n/a	Korea		
nandrolone decanoate	Deca 300	300 mg/ml	10 ml vial	Animal Power	Mexico		VET
nandrolone decanoate	Deca QV 200	200 mg/ml	10, 50 ml vial	Quality Vet	Mexico		VET
nandrolone decanoate	Deca QV 300	300 mg/ml	10 ml vial	Quality Vet	Mexico		VET
nandrolone decanoate	Decabol 250	250 mg/ml	10 ml vial	British Dragon	Thailand		
nandrolone decanoate	Deca-Dubol-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Donald Pharma	South Africa		
nandrolone decanoate	Deca-Durabolin®	25, 50, 100 mg/ml	1 ml ampule	Infar	India		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Russia		
nandrolone decanoate	Deca-Durabolin®	25, 50, 100 mg/ml	1 ml ampule	Organon	Chile		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Colombia		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Denmark	[NLM]	
nandrolone decanoate	Deca-Durabolin®	n/a	n/a	Organon	Israel		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Korea		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Malaysia		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	New Zealand		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Norway		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Peru		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Poland	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Poland		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Singapore		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Taiwan		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Thailand		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Argentina		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	2 ml	Organon	Argentina		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml	Organon	Austria	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule, syringe	Organon	Belgium		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Brazil		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	2 ml	Organon	Canada	[NLM]	
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml	Organon	Canada		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Finland		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1,2 ml	Organon	Finland		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml	Organon	France	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Germany	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml vial	Organon	Greece		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Greece		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Greece		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Indonesia		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Italy		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Netherlands		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Portugal		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Spain		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Sweden		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone decanoate	Deca-Durabolin®	25, 100 mg/ml	1, 2 ml	Organon	Sweden	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Switzerland	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Switzerland		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1,2 ml vial	Organon	U.S.	[NLM]	
nandrolone decanoate	Deca-Durabolin®	200 mg/ml	1 ml vial	Organon	U.S.	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	United Kingdom		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1, 2 ml ampule	Organon	United Kingdom	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Venezuela		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml syringe	Organon	Venezuela		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon Nv	Egypt		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Netherlands		
nandrolone decanoate	Deca-Durabolin	25 mg/ml	1 ml ampule	Cadicepi	India		
nandrolone decanoate	Decagic	100 mg/ml	10 ml vial	Unichem	India	[NLM]	
nandrolone decanoate	Decanandrolon	200 mg/ml	10 ml vial	Denkall	Mexico		VET
nandrolone decanoate	Decandrol 300	300 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
nandrolone decanoate	Decaneurobol	25, 50 mg/ml	1 ml ampule	Cadila	India		
nandrolone decanoate	Decaneurophen	25, 50 mg/ml	1 ml ampule	Ind-Swift	India		
nandrolone decanoate	Decanoato de Nandrolona	200 mg/ml	10 ml vial	Tornel	Mexico		VET
nandrolone decanoate	Decanoato Nandrolona	25, 50 mg/ml	1 ml ampule	Astorga	Chile		
nandrolone decanoate	Decanoato Nandrolona	50 mg/ml	1 ml ampule	Recalcine	Chile		
nandrolone decanoate	Decanofort	25 mg/ml	1 ml ampule	Terapia	Rumania		
nandrolone decanoate	Deca-Pronabol	100 mg/ml	2 ml ampule	FAB Labs	India		
nandrolone decanoate	Decatron 250	250 mg/ml	10 ml vial	Bratis Labs	Mexico	[NLM]	VET
testosterone enanthate	Delatest	100 mg/ml	10 ml vial	Denkall	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	1 ml syringe	BTG	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	BTG	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	10 ml vial	Mead Johnson	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	1 ml syringe	Savient	U.S.		
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	Savient	U.S.		
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	Thornton	Canada		
methylandrostenediol dipropionate	Denkadiol	75 mg/ml	10 ml vial	Denkall	Mexico		VET
testosterone cypionate	Dep Andro 100-300	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone cypionate	Deposteron	100 mg/ml	2 ml ampule	Novaquimica/Sigma	Brazil		
testosterone blend (misc)	Deposterona	60 mg/ml	10 ml vial	Fort Dodge	Mexico		VET
testosterone blend (misc)	Deposterona	60 mg/ml	10 ml vial	Syntex	Mexico	[NLM]	VET
testosterone cypionate	Depot-Pharon	50 mg/ml	n/a	Gerda	Taiwan		
testosterone cypionate	Depo-TCP	200mg/ml	n/a	n/a	Korea		
testosterone cypionate	Depotest	100, 200 mg/ml	10 ml vial	Hinex	U.S.	[NLM]	
testosterone cypionate	Depotest	100, 200 mg/ml	10 ml vial	Kay	U.S.	[NLM]	
testosterone cypionate	Depo-Testerone	200 mg/ml	n/a	CCPC	Taiwan		
testosterone cypionate	Depo-Testerone	200 mg/ml	n/a	Metro	Taiwan		
testosterone enanthate	DepoTestmon Inj	65 mg/ml	n/a	CCPC	Taiwan		
testosterone cypionate	Depo-Testomon	100 mg/ml	n/a	Li Ta	Taiwan		
testosterone cypionate	Depo-Testosterone	100 mg/ml	10 ml vial	Pharmacia & Upjohn	South Africa		
testosterone cypionate	Depo-Testosterone CPP	100 mg/ml	n/a	Metro	Taiwan		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone cypionate	Depo-Testosterone®	100 mg/ml	n/a	Pharmacia	Malaysia		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	10 ml vial	Pharmacia	Canada		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	10 ml vial	Pharmacia & Upjohn	New Zealand		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	10 ml vial	Pharmacia & Upjohn	Singapore		
testosterone cypionate	Depo-Testosterone®	100, 200 mg/ml	10 ml vial	Pharmacia & Upjohn	U.S.		
testosterone cypionate	Depo-Testosterone®	200 mg/ml	1 ml vial	Pharmacia & Upjohn	U.S.		
testosterone cypionate	Depot-Hormon MF	50 mg/ml	n/a	Sintong	Taiwan		
testosterone cypionate	Depotrone	100 mg/ml	2 ml ampule	Propan-Zurich	South Africa		
testosterone cypionate	Depo-Trin Inj	125 mg/ml	2 ml	n/a	Korea		
testosterone cypionate	Dep-Test	100 mg/ml	10 ml vial	Rocky Mountan	U.S.	[NLM]	
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	U.S.	[NLM]	
methandrostenolone	Dianabol	10 mg tablet	100 tablet bottle	Salud	Mexico		VET
methandrostenolone	Dianabol	25 mg/ml	10, 50, 100 ml vial	Salud	Mexico		VET
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	Germany	[NLM]	
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	U.S.	[NLM]	
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	United Kingdom	[NLM]	
methandrostenolone	Dianabol	25 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
nandrolone decanoate	Dimetabol	50 mg/ml	50 ml vial	Bremer Pharma	Dom. Rep.	[NLM]	VET
nandrolone decanoate	Dimetabol ADE	25 mg/ml	50, 100 ml vial	Laposa	Mexico	[NLM]	VET
nandrolone (blend)	Dinandrol	100 mg/ml	2 ml vial	Xelox (export)	Philippines		
methandrostenolone/stanozolol	Dinavol	50 mg tablet	50 tablet bottle	Planet Pharmacy	Belize		
methylandrostenediol (blend)	Drive	55 mg/ml	10 ml vial	RWR	Australia		VET
drostanolone propionate	Drolban	50 mg/ml	1 ml vial	Lilly	U.S.	[NLM]	
drostanolone	Dromostan	50 mg/ml	5 ml vial	Xelox (export)	Philippines		
testosterone cypionate	D-Test 100/200	100, 200 mg/ml	10 ml vial	Rio	U.S.	[NLM]	
testosterone propionate	Dubol	25 mg/ml	1 ml ampule	n/a	China		
nandrolone phenylpropionate	Dubol-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
nandrolone phenylpropionate	Dubol-50	50 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
nandrolone phenylpropionate	Durabol 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Infar	India		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Ciba-Geigy	Switzerland	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Malaysia		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	2 ml vial	Organon	Taiwan		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Organon	Belgium	[NLM]	
nandrolone phenylpropionate	Durabolin®	25, 50 mg/ml	n/a	Organon	Canada	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Organon	Finland		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Greece	[NLM]	
nandrolone phenylpropionate	Durabolin®	12.5 mg/ml	2 ml ampule	Organon	Indonesia		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Netherlands		
nandrolone phenylpropionate	Durabolin®	50 mg/ml	n/a	Organon	Portugal		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Spain	[NLM]	
nandrolone phenylpropionate	Durabolin®	25, 50 mg/ml	n/a	Organon	U.S.	[NLM]	
nandrolone phenylpropionate	Durabolin®	50 mg/ml	1 ml ampule	Organon	United Kingdom	[NLM]	
nandrolone phenylpropionate	Durabolin®	50 mg/ml	n/a	Organon	YugoslaviaFRMR		
methylandrostenediol dipropionate	Durandrol	50 mg/ml	n/a	PharmaX	U.S.	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Sustanon 250 (testosterone blend)	Durandron	250 mg/ml	1 ml ampule	Organon	Spain	[NLM]	
testosterone cypionate	Duratest-100-200	100, 200 mg/ml	10 ml vial	Roberts	U.S.	[NLM]	
testosterone cypionate	Duratest-100-200	100, 200 mg/ml	10 ml vial	Hauck	U.S.	[NLM]	
Sustanon 250 (testosterone blend)	Durateston	250 mg/ml	5 ml vial	Intervet	Australia		VET
Sustanon 250 (testosterone blend)	Durateston 250®	250 mg/ml	1 ml ampule	Organon	Bolivia		
Sustanon 250 (testosterone blend)	Durateston 250®	250 mg/ml	1 ml ampule	Organon	Brazil		
testosterone enanthate	Dura-Testosterone	200 mg/ml	10 ml vial	Pharmex	U.S.	[NLM]	
testosterone enanthate	Durathate-200 Injection	200 mg/ml	n/a	Hauck	U.S.	[NLM]	
testosterone enanthate	Durathate-200 Injection	200 mg/ml	n/a	Roberts	U.S.	[NLM]	
nandrolone cyclohexylpropionate	Dynabol	50 mg/ml	10 ml vial	Intervet	Australia	[NLM]	VET
boldenone undecylenate	Dynabolin 50	50 mg/ml	10, 50, 100, 250ml vial	Kryovet	Colombia		VET
nandrolone undecanoate	Dynabolon	30.5 mg/ml	1 ml ampule	Fabrevet	Italy	[NLM]	
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Fournier	Italy		
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Theramex	France	[NLM]	
nandrolone decanoate	Dynabolon Inj	40 mg/.5 ml	1 ml ampule	n/a	Korea		
oxymetholone	Dynaedon	50 mg tablet	n/a	Ciba	Portugal	[NLM]	
nandrolone decanoate	Elpihormo	50 mg/ml	1 ml	Chemica	Greece	[NLM]	
testosterone enanthate	Enanvet QV 250	250 mg/ml	10, 50 ml vial	Quality Vet	Mexico		VET
testosterone enanthate	Enantato 350	350 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
testosterone enanthate	Enanthovet 250	250 mg/ml	10 ml vial	Animal Pharm	Mexico		VET
testosterone enanthate	Enarmon-Depot	125 mg/ml	n/a	Teskoku Hormone	Japan		
methandrostenolone	Ercandian	5 mg tablet	n/a	Kaori	Japan	[NLM]	
boldenone undecylenate	Equibold	200 mg/ml	10 ml vial	Brovel	Mexico		VET
nandrolone phenylpropionate	Equibolin 50	50 mg/ml	n/a	Kinetech	U.S.	[NLM]	
boldenone undecylenate	Equifort	50 mg/ml	10, 50 ml vial	Purina	Brazil		VET
boldenone undecylenate	Equi-gen	50 mg/ml	10, 50, 100, 250 ml vial	Tornel	Mexico		VET
boldenone (blend)	Equilon 100	100 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET
boldenone undecylenate	Equipoise 600	50 mg/ml	10, 50 ml vial	Fort Dodge	Mexico	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Fort Dodge	U.S.		VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Ciba-Geigy	Canada	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Solvay	Mexico	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Squibb	Canada	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Squibb	Mexico	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Squibb	U.S.	[NLM]	VET
boldenone undecylenate	Equipoise®	50 mg/ml	50 ml vial	Wyeth	Canada		VET
testosterone blend (misc.)	Equitest 200	200 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET
formebolone	Esiclene	1 mg drops	n/a	Biofarma	Portugal	[NLM]	
formebolone	Esiclene	5 mg tablet	n/a	Biofarma	Portugal	[NLM]	
formebolone	Esiclene	1 mg drops	n/a	LPB	Italy	[NLM]	
formebolone	Esiclene	2 mg/ml	2 ml ampule	LPB	Italy	[NLM]	
formebolone	Esiclene	5 mg tablet	n/a	LPB	Italy	[NLM]	
stanozolol (oral)	Estano-Pet's	10, 25 mg tablet	100 tablet bottle	Norvet	Mexico		VET
stanozolol (inj)	Estanozolol	50 mg/ml	5 ml vial	Calastreme	Argentina		VET
stanozolol (inj)	Estanozolol	50 mg/ml	5, 30 ml vial	Formula Magistral	Argentina		VET
stanozolol (oral)	Estanozolol comp	10 mg tablet	100 tablet bottle	Formula Magistral	Argentina		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone phenylpropionate	Estiger	10 mg/ml	250 ml	Bunet	Argentina		VET
stanozolol (inj)	Estrombol	25 mg/ml	10 ml vial	Fundacion	Argentina		VET
nandrolone phenylpropionate	Eviabolin	25 mg/ml	1 ml ampule	Concept	India		
testosterone enanthate	Everone	100, 200 mg/ml	10 ml vial	Hyrex	U.S.	[NLM]	
boldenone undecylenate	Ex-Pos	50 mg/ml	10 ml vial	Agrotorre	Argentina		VET
nandrolone decanoate	Extraboline	50 mg/ml	2 ml vial	Genepharm	Greece		
testosterone propionate	Factovit	1 mg/ml	10 ml vial	Tecfarma	Italy		
nandrolone phenylpropionate	Fenobolin	20 mg/ml	n/a	Medexport Russia	Russia	[NLM]	
fluoxymesterone	Ferona	1 mg tablet	20 tablet box	Sidus	Argentina		
nandrolone phenylpropionate	Fherbolico	50 mg/ml	n/a	Fher	Spain	[NLM]	
methyltestosterone/trenbol (blend)	Flybol	75 mg/ml	10, 20 ml vial	Parker	Australia		VET
trenbolone acetate	Finaject	30 mg/ml	n/a	Roussel	France	[NLM]	VET
trenbolone acetate	Finajet	30 mg/ml	50 ml vial	Hoechst	U.S.	[NLM]	VET
trenbolone acetate	Finajet	30 mg/ml	50 ml vial	Hoechst	United Kingdom	[NLM]	VET
trenbolone acetate	Finaplix-H®	20 mg pellet	100 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Finaplix-H®	20 mg pellet	100 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Finaplix-H®	20 mg pellet	70, 100 pellet cartridge	Roussel	Mexico	[NLM]	VET
trenbolone acetate	Finaplix-S®	20 mg pellet	70 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
fluoxymesterone	Fluoxymesterone cap	5 mg capsule	n/a	Yuen Chou	Taiwan		
fluoxymesterone	Floxymesterone	5 mg capsule	n/a	Chen Ho	Taiwan		
fluoxymesterone	Fluoxymesterone	10 mg tablet	100 tablet bottle	Rosemont	U.S.		
nandrolone laurate	Fortabol	20 mg/ml	10, 50 ml vial	Parfam	Mexico		VET
nandrolone laurate	Fortadex	25, 50 mg/ml	n/a	Hydro	Germany		VET
fluoxymesterone	Fosteron	5 mg capsule	n/a	Health Chemical	Taiwan		
fluoxymesterone	Fu Lan Shu	10 mg capsule	n/a	Ming Te	Taiwan		
fluoxymesterone	Fuloan	10 mg capsule	n/a	New Chem & Pharm	Taiwan		
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Bolivia		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Bolivia		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Chile		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Chile		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Colombia		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Colombia		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Dom. Rep.		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Dom. Rep.		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Ecuador		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Ecuador		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	El Salvador		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	El Salvador		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Guatemala		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Guatemala		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Honduras		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Honduras		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Panama		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Panama		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Paraguay		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Paraguay		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Peru		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Peru		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Venezuela		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Venezuela		VET
methandrostenolone	Ganabol	20 mg/ml	50 ml vial	Salud	Mexico	[NLM]	VET
nandrolone phenylpropionate	Ganekyl	50 mg/ml	10, 100 ml vial	Over Labs	Argentina		VET
nandrolone cyclohexylpropionate	Genabeg	50 mg/ml	10 ml vial	Drug Pharma	Chile		VET
nandrolone decanoate	Gerabolin	25 mg/ml	1 ml ampule	Nile	Egypt		
methyltestosterone	Glen Test	2 mg tablet	50, 200 tablet bottle	Vetcom	Canada		VET
methyltestosterone	Glando Stridox	10 mg tablet	20 tablet box	Ion	Uruguay		
Sustanon 250 (testosterone blend)	Genabol 250	250 mg/ml	1 ml ampule	Belco Pharma	India		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Galenika	YugoslaviaFRMR	[NLM]	
fluoxymesterone	Halotestin®	2, 5 mg tablet	n/a	n/a	Japan		
fluoxymesterone	Halotestin®	5 mg tablet	50 tablet bottle	Pharmacia	Canada		
fluoxymesterone	Halotestin®	5 mg tablet	100 tablet bottle	Pharmacia	Thailand		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Pharmacia & Upjohn	Philippines		
fluoxymesterone	Halotestin®	2, 5, 10 mg tablet	100 tablet bottle	Pharmacia & Upjohn	U.S.		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Pharmacia-Upjohn	France	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Denmark	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Finland		
fluoxymesterone	Halotestin®	5 mg tablet	20 tablet box	Upjohn	Greece		
fluoxymesterone	Halotestin®	5 mg tablet	20 tablet box	Upjohn	Italy	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Netherlands	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Norway	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Sweden	[NLM]	
fluoxymesterone	Halotestin®	10 mg tablet	100 tablet bottle	Warner-Chilcott	U.S.	[NLM]	
oxymetholone	Hemogenin	50 mg tablet	10 tablet box	Syntex	Brazil	[NLM]	
oxymetholone	Hemogenin	50 mg tablet	n/a	Aventis	Brazil		
oxymetholone	Hemogenin	50 mg tablet	10 tablet box	Sanos	Brazil	[NLM]	
testosterone suspension	Histerone Injection	100 mg/ml	n/a	Roberts	U.S.	[NLM]	
testosterone suspension	Histerone Injection	100 mg/ml	n/a	Mayne	U.S.	[NLM]	
methyltestosterone	Hormobin	5 mg tablet	40 tablet box	Munrin Sahin	Turkey		
formebolone	Hubernol	5 mg dragee	n/a	ICN Hubber	Spain	[NLM]	
formebolone	Hubernol	1 mg drops	n/a	ICN Hubber	Spain	[NLM]	
methandrostenolone dipropionate	Hybolin	50 mg/ml	n/a	Hyrex	U.S.	[NLM]	
nandrolone phenylpropionate	Hybolin	25, 50 mg/ml	n/a	Hyrex	U.S.	[NLM]	
nandrolone decanoate	Hybolin Decanoate	50, 100 mg/ml	1, 2 ml vial	Hyrex	U.S.	[NLM]	
testosterone propionate	Hybolin Imp.	25, 50 mg/ml	n/a	Hyrex	U.S.	[NLM]	
fluoxymesterone	Hysterone	10 mg tablet	100 tablet bottle	Major	U.S.	[NLM]	
testosterone propionate (implant)	Implus-H	22 mg/pellet	n/a	Upjohn	U.S.		
nandrolone decanoate	Jetolan	50 mg/ml	1 ml ampule	Etern	Turkey	[NLM]	
testosterone enanthate	Jenasteron Inj	250 mg/ml	1 ml ampule	Jenahexal	Malaysia		
testosterone enanthate	Jenasteron Inj	250 mg/ml	n/a	n/a	Korea		
oxymetholone	Kanestron	50 mg tablet	100 tablet bottle	Loeffler	Mexico		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methyltestosterone	KangJungBing	n/a	n/a	n/a	Korea		
oxandrolone	Kicker Tab	2.5 mg tablet	n/a	n/a	Korea		
nandrolone laurate	Laudrol LA	250 mg/ml	10 ml vial	Loefler	Mexico		VET
nandrolone laurate	Laurabolin	25, 50 mg/ml	10 ml vial	Intervet	Australia		VET
nandrolone laurate	Laurabolin	50 mg/ml	10, 50 ml	Intervet	Colombia		VET
nandrolone laurate	Laurabolin	20, 50 mg/ml	10, 50, 100 ml vial	Intervet	Mexico		VET
nandrolone laurate	Laurabolin	25, 50 mg/ml	5, 10, 50 ml	Vemie	Germany		VET
nandrolone laurate	Laurabolin	50 mg/ml	n/a	Werfft-Chemie	Austria		VET
nandrolone laurate	Laurabolin V	50 mg/ml	10, 50 ml	Intervet	Netherlands		VET
boldenone undecylenate	Legacy	50 mg/ml	50 ml vial	Technoquimicas	Colombia		VET
methylandrostenediol (blend)	Libriol	75 mg/ml	10, 20 ml vial	RWR	Australia	[NLM]	VET
fluoxymesterone	Lipaw	10 mg capsule	n/a	Long Der	Taiwan		
oxandrolone	Lipidex	2.5 mg tablet	n/a	Searle	Brazil	[NLM]	
oxandrolone	Lonavar	2.5 mg tablet	100 tablet bottle	BTG	Israel		
oxandrolone	Lonavar	2 mg tablet	n/a	Dainippon	Japan	[NLM]	
oxandrolone	Lonavar	2.5 mg tablet	n/a	Searle	Argentina	[NLM]	
fluoxymesterone	Long	10 mg capsule	n/a	Century	Taiwan		
methyltestosterone	Longivol (plus estrogen)	1 mg tablet	n/a	Medical S.A.	Spain		
nandrolone phenylpropionate	Macabolone	25 mg/ml	n/a	Ta Fong	Taiwan		
Testoviron (testosterone blend)	Macrotest	250 mg/ml	10 ml vial	CPMax	Mexico		VET
testosterone enanthate	Macrotest B	250 mg/ml	10 ml vial	CPMax	Mexico		VET
testosterone suspension	Malogen	25, 50, 100, mg/ml	n/a	Forest	U.S.	[NLM]	
testosterone enanthate	Malogen 100/200 L.A.	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone suspension	Malogen Aqueous	100 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone cypionate	Malogen Cyp	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone propionate	Malogen In Oil	100 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone enanthate	Malogen LA200	200 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone suspension	Malotrone	25, 50 mg/ml	n/a	Bluco	U.S.	[NLM]	
drostanolone propionate	Mastabol 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
drostanolone propionate	Mastabol 50	50 mg/ml	10 ml vial	British Dragon	Thailand	[NLM]	
drostanolone propionate	Masteril	100 mg/2ml	2 ml amp	Qruenthal	Germany	[NLM]	
drostanolone propionate	Masteril	100 mg/2ml	2 ml ampule	Syntex	Bulgaria	[NLM]	
drostanolone propionate	Masteril	100 mg/2ml	2 ml amp	Syntex	United Kingdom	[NLM]	
drostanolone propionate	Masteron	100 mg/2ml	2 ml amp	Cilag	Portugal	[NLM]	
drostanolone propionate	Masteron	100 mg/2ml	2 ml amp	Sarva-Syntex	Belgium	[NLM]	
drostanolone propionate	Mastisol	5% injection sol.	n/a	Shionogi	Japan	[NLM]	
ethylestrenol	Maxibolin	2 mg tablet	n/a	Organon	U.S.	[NLM]	
ethylestrenol	Maxibolin Elixir	2 mg/5ml	n/a	Organon	U.S.	[NLM]	
boldenone undecylenate	Maxigan	50 mg/ml	10, 50 ml vial	Inpharzam	Mexico	[NLM]	VET
methyltestosterone	Mediatric	10 mg tablet	n/a	Wyeth-Ayerst	U.S.	[NLM]	
clostebol acetate	Megagrisevit-Mono	15 mg dragee	30 dragee box	Pharmacia	Germany	[NLM]	
clostebol acetate	Megagrisevit-Mono	10 mg/1.5ml	1.5 ml vial	Pharmacia	Germany	[NLM]	
methandrostenolone	Metic	5 mg tablet	1000 tablet box, bottle	Pharmasant	Thailand		
stanozolol (oral)	Menabol	5 mg tablet	100 tablet box	n/a	India		
nandrolone phenylpropionate	Menebolin	25 mg/ml	1 ml ampule	Theramex/Memphis	Egypt		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
mesterolone	Mesterolon	25 mg tablet	n/a	Brown & Burk	Philippines		
mesterolone	Mesterolon	25 mg tablet	n/a	Schering	Sweden	[NLM]	
methyltestosterone	Mesteron	10 mg tablet	n/a	Jelfa	Poland	[NLM]	
mesterolone	Mesteronum	25 mg tablet	n/a	Schering	Denmark		
mesterolone	Mestoranum	25 mg tablet	n/a	Schering	Norway	[NLM]	
nandrolone phenylpropionate	Metabol	25 mg/ml	1 ml ampule	Jagsonpal	India		
methandrostenolone	Metaboline	2 mg tablet	60, 500 tablet bottle	Desbergers	Canada	[NLM]	
methenolone acetate	Metabolin 25	25 mg tablet	100 tablet bottle	Parke Labs	Mexico	[NLM]	VET
nandrolone decanoate	Metadec	25, 50 mg/ml	1 ml ampule	Jagsonpal	India		
methandrostenolone	Metalon Tabs	25 mg tablet	500 tablet bottle	Animal Pharm	Mexico		VET
methandrostenolone	Metanabol	5 mg tablet	20 tablet box	Jelfa	Poland		
methandrostenolone	Metanabol	5 mg tablet	20 tablet box	Polfa	Poland	[NLM]	
methandrostenolone	Metanabol	I mg tablet	20 tablet box	Polfa	Poland	[NLM]	
methenolone acetate	Metanabol	0.5% cream	50g	Polfa	Poland	[NLM]	
methandrostenolone	Metandiabol	25 mg/ml	50 ml vial	Quimper	Mexico		VET
methandrostenolone	Metandienon	5 mg tablet	100 tablet box	Balkanfar	Russia		
methandrostenolone	Metandiol 60	60 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
methandrostenolone	Metandiol Tab	10 mg tablet	100 tablet bottle	Pet's Pharma	Mexico		VET
methyltestosterone	Metandren	5 mg sub. dragee	n/a	Ciba	U.S.	[NLM]	
methyltestosterone	Metandren	10, 25 mg tablet	n/a	Ciba	U.S.	[NLM]	
methyltestosterone	Metandren	10, 25 mg tablet	100 tablet bottle	Novartis	U.S.	[NLM]	
methandrostenolone	Metandrol 10	10 mg tablet	500 tablet bottle	Parke Labs	Mexico	[NLM]	VET
methandrostenolone	Metandrostenolon	5 mg tablet	100 tablet box	Akrihin	Russia	[NLM]	
methandrostenolone	Metandrostenolon	5 mg tablet	100 tablet box	Bioreaktor	Russia	[NLM]	
methenolone acetate	Metanol 50	50 mg tablet	50 tablet bottle	Quality Vet	Mexico		VET
methyltestosterone	Metesto	25 mg tablet	100 tablet bottle	Acdhon	Thailand		
methandrostenolone	Metilan Tabs	10 mg tablet	100 tablet bottle	Animal Pharm	Mexico		VET
methandrostenolone	Methanabol	5 mg tablet	500 tablet pouch	British Dragon	Thailand	[NLM]	
methandrostenolone	Methanabol	10 mg tablet	500 tablet pouch	British Dragon	Thailand		
methandrostenolone	Methanabol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
methandrostenolone	Methan-Serona	5, 10 mg tablet	100, 1000 tablet bottle	Tornajo	Mexico	[NLM]	VET
methandrostenolone	Methandon	5 mg tablet	1000 tablet bottle	Acdhon Co.	Thailand		
methylandrostenediol dipropionate	Methandrol	75 mg/ml	10 ml vial	Ram Troy	Australia	[NLM]	VET
methylandrostenediol dipropionate	Methandriol Dipropionate	75 mg/ml	10 ml vial	British Dragon	Thailand		
methylandrostenediol dipropionate	Methasaus 50	50 mg/ml	20 ml vial	Jamx	Australia	[NLM]	VET
methenolone enanthate	Methenolone Enanthate Inj BP	100 mg/ml	1 ml ampule	Belco Pharma	India		
methylandrostenediol	Methyldiol	5 mg tablet	n/a	Jordan	U.S.	[NLM]	
methylandrostenediol	Methyldiol Aqueous	50 mg/ml	n/a	Vortech	U.S.	[NLM]	
methyltestosterone	Methyltestosterone	10 mg tablet	n/a	Glenal	U.S.		
methyltestosterone	Methyltestosterone	10 mg tablet	n/a	Goldline	U.S.	[NLM]	
methyltestosterone	Metil Testosterona	10 mg tablet	50 tablet box	Tarapaz	Romania		
methyltestosterone	Metil Thomsina S	10 mg tablet	20 tablet box	Celsius	Uruguay		
methyltestosterone	Metil Test	50 mg tablet	100 tablet bottle	Provet	Mexico		VET
methyltestosterone	Metiltestosterona	n/a	n/a	Botica	Paraguay		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
drostanolone propionate	Metormon	100 mg/2ml	2 ml ampl	Syntex	Spain	[NLM]	
nandrolone phenylpropionate	Metrobolin	25 mg/ml	n/a	Metro	Taiwan		
methandrostenediol	Methandrostenediol	10, 25 mg tablet	n/a	Jelfa	Poland	[NLM]	
mibolerone	mibolerone drops	100 mcg/ml	55 mg bottle	Wedgewood	U.S.		VET
fluoxymesterone	Methitest	5 mg tablet	n/a	Daiichi Seiyaku	Japan	[NLM]	
testosterone cypionate	Miro Depo	125 mg/ml	2 ml vial	Hanil Pharm	Korea		
boldenone undecylenate	Mitgan 50	50 mg/ml	50 ml vial	Calframo	Colombia		VET
nandrolone decanoate	Myobolin	25 mg/ml	1 ml ampule	Troikaa	India		
stanozolol (inj)	Nabolic	2 mg/ml	50 ml vial	Chinfield Ind.	Argentina		VET
stanozolol (inj)	Nabolic Strong	50 mg/ml	30 ml vial	Chinfield Ind.	Argentina		VET
ethylestrenol	Nandoral	5 mg tablet	100, 500 tablet bottle	Intervet	Australia		VET
nandrolone decanoate	Nandro Plus	100 mg/ml	100 ml vial	PharmaVet	Argentina		VET
nandrolone phenylpropionate	Nandrobolic	25 mg/ml	n/a	Forest	U.S.	[NLM]	
nandrolone decanoate	Nandrobolic L.A.	100 mg/ml	1, 2 ml vial	Forest	U.S.	[NLM]	
nandrolone phenylpropionate	Nandrolin	50 mg/ml	25 ml vial	Intervet	Australia		VET
nandrolone phenylpropionate	Nandrolin	25 mg/ml	10 ml vial	Intervet	Australia		VET
nandrolone decanoate	Nandrolona 300 L.A.	300mg/ml	10 ml vial	Tekvio	Mexico	[NLM]	VET
nandrolone decanoate	nandrolona decanoato	50 mg/ml	1 ml ampule	Chile	Chile		
nandrolone decanoate	nandrolona decanoato	100 mg/ml	1,2 ml vial	Lyphomed	U.S.	[NLM]	
nandrolone decanoate	nandrolone decanoate	200 mg/2ml	2 ml vial	Norma Hellas	Greece		
nandrolone decanoate	nandrolone decanoate	100 mg/ml	1, 2 ml vial	Quad	U.S.	[NLM]	
nandrolone decanoate	nandrolone decanoate	50, 100, 200 mg/ml	1, 2 ml vial	Steris	U.S.	[NLM]	
nandrolone decanoate	Nandrolone Decanoate Inj	100 mg/ml	2 ml vial	Watson Pharma	U.S.		
nandrolone decanoate	Nandrolone Decanoate Inj	200 mg/ml	1 ml vial	Watson Pharma	U.S.		
nandrolone decanoate	Nandrolone Decanoate Inj BP	25, 50, 100 mg/ml	1,2 ml ampule	Belco Pharma	India		
nandrolone phenylpropionate	nandrolone phenylpropionate	50, 100mg/ml	2 ml vial	Hayrian Biologcals	India	[NLM]	
nandrolone phenylpropionate	nandrolone phenylpropionate	25 mg/ml	1 ml ampule	Iran Hormone	Iran		
nandrolone phenylpropionate	nandrolone phenylpropionate	50 mg/ml	n/a	Quad	U.S.	[NLM]	
nandrolone phenylpropionate	Nandrolone Phenylpropionate BP	25, 50 mg/ml	1,2 ml ampule	Belco Pharma	India		
nandrolone decanoate	Nandrosande	25, 50, 100 mg/ml	1 ml ampule	Sanderson	Chile		
testosterone cypionate	Nansmon Depot	50, 100 mg/ml	n/a	Chi Sheng	Taiwan		
testosterone propionate	Nansmon Depot	25 mg/ml	n/a	Chi Sheng	Taiwan		
methandrostenolone	Narostim	5 mg tablet	20 tablet box	Terapia	Rumania		
methyltestosterone	Neo Aphro	5 mg tablet	30 tablet	Misr	Egypt		
methandrostenolone	Neo-Anabolene	5 mg tablet	10 tablet strip	Haunts	Indonesia		
nandrolone decanoate	Neo-Durabolic	100, 200 mg/ml	1, 2 ml vial	Hauck	U.S.	[NLM]	
testosterone propionate	Neo-Hombreol	50 mg/ml	n/a	Organon	Netherlands	[NLM]	
testosterone decanoate	Neotest 250	250 mg/ml	10 ml bottle	Loeffler	Mexico		VET
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Gedeon Richter	Yugoslavia (Former)	[NLM]	
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Gedeon Richter	Bulgaria	[NLM]	
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Gedeon Richter	Hungary	[NLM]	
nandrolone phenylpropionate	Nerobolil	25 mg/ml	1 ml ampule	Godeon Richter	Bulgaria	[NLM]	
nandrolone phenylpropionate	Nerobolil	25 mg/ml	n/a	Godeon Richter	Hungary	[NLM]	
stanozolol (oral)	Neurabol	2 mg capsule	10 capsule box	Cadila	India		
nandrolone phenylpropionate	Neurabol Inj	25 mg/ml	1 ml ampule	Cadila	India		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone phenylpropionate	Neurophen	25 mg/ml	1 ml ampule	Ind-Swift	India		
norethandrolone	Nilevar	10 mg tablet	30 tablet bottle	Searle	Switzerland	[NLM]	
norethandrolone	Nilevar	10 mg tablet	30 tablet bottle	Searle	U.S.	[NLM]	
ethylestrenol	Nitrotain	15 mg/4gram	60, 250, 1000 gram tube	Nature-Vet	Australia		VET
nandrolone phenylpropionate	Norabol	25 mg/ml	1 ml ampule	Brovel	Mexico		VET
nandrolone decanoate	Norandren 20	20 mg/ml	10, 50 ml vial	Brovel	Mexico	[NLM]	VET
nandrolone decanoate	Norandren 200	200 mg/ml	10 ml vial	Brovel	Mexico		VET
nandrolone decanoate	Norandren 50	50 mg/ml	10, 50 ml vial	Galenika	YugoslaviaFRMR	[NLM]	
methylandrostenediol	Novandrol	10, 25 mg dragee	n/a	Rafarm	Greece		
nandrolone phenylpropionate	Nurabol	25 mg/ml	n/a	Winston	Taiwan		
nandrolone decanoate	Nurezan	50 mg/ml	1 ml ampule	Polfa	Poland	[NLM]	
fluoxymesterone	ODK	5 mg capsule	n/a	Long Der	Taiwan		
Omnadren (testosterone blend)	Omnadren	250 mg/ml	1ml ampule	n/a	Venezuela		
Omnadren (testosterone blend)	Omnadren 250	250 mg/ml	1 ml ampule	Schering	U.S.	[NLM]	
ethylestrenol	Orabol-H	100 mg/5g paste	30 ml plastic tube	Organon	Indonesia		
ethylestrenol	Orabolin®	2 mg tablet	10 tablet box	Infar	India		
ethylestrenol	Orabolin®	2 mg tablet	n/a	Organon	Pakistan		
ethylestrenol	Orabolin®	2 mg tablet	100 tablet box	Organon	Turkey	[NLM]	
fluoxymesterone	Oralsterone	5 mg capsule	n/a	Long Der	Taiwan		
methyltestosterone	Oreton	n/a	n/a	n/a	Venezuela		
methyltestosterone	Oreton Methyl	10 mg tablet	n/a	Schering	U.S.	[NLM]	
ethylestrenol	Orgabolin	2 mg tablet	n/a	Organon	Indonesia		
ethylestrenol	Orgabolin	2 mg tablet	n/a	Santa	Turkey	[NLM]	
oxandrolone	Oxafort	5 mg tablet	100 tablet bottle	Loeffler	Mexico		VET
oxandrolone	Oxanabol	5 mg tablet	100 tablet pouch	British Dragon	Thailand	[NLM]	
oxandrolone	Oxandrin®	2.5, 10 mg tablet	100 tablet bottle	Savient	U.S.	[NLM]	
oxandrolone	Oxandrol 10	10 mg tablet	100 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
oxandrolone	Oxandrolone	2.5 tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
oxandrolone	Oxandrolone SPA	2.5 mg tablet	30 tablet box	SPA	Italy	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
oxandrolone	Oxandrolone SPA (Export)	2.5 mg tablet	30 tablet box	SPA	Italy		
oxandrolone	Oxandrolone Tablets BP	2.5, 5 mg tablet	n/a	Belco Pharma	India		
oxandrolone	Oxandroval	5 mg tablet	100 tablet bottle	Denkall	Mexico		VET
oxandrolone	Oxanol	5 mg tablet	60 tablet box	Xenion	Myanmar/Burma		
oxandrolone	Oxavet QV	5 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
oxymetholone	Oximetalon	75 mg tablet	100 tablet bottle	Denkall	Mexico		VET
oxymetholone	Oxitesona 50	50 mg tablet	100 tablet box	Syntex	Spain	[NLM]	
oxymetholone	Oxitron 50	50 mg tablet	100 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
oxymetholone	Oxivet QV	75 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
oxymetholone	Oxybolone	50 mg tablet	20 tablet box	Genapharm	Greece		
oxymetholone	Oxydrol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
oxymetholone	Oxydrol	100 mg tablet	50 tablet pouch	British Dragon	Thailand	[NLM]	
oxymetholone	Oxyfort	50 mg tablet	100 tablet bottle	Duopharma	Malaysia		
oxymetholone	Oxymetholone	50 mg tablet	100 tablet pouch	British Dispensary	Thailand	[NLM]	
oxymetholone	Oxymetholone	50 mg tablet	50 tablet bottle	Planet Pharmacy	Belize		
oxymetholone	oxymetholone	50 mg tablet	n/a	Sime Darby	Malaysia		
oxymetholone	Oxymetholone 50	50 mg tablet	100 tablet bottle	Ahwa	Iran		
oxymetholone	Oxymetholone DongIndang	n/a	n/a	Dongindang	Korea		
oxymetholone	Oxymetholone HanBul	50 mg tablet	n/a	HanBul	Korea		
oxymetholone	Oxymetholone HanSeo	50 mg tablet	100 tablet bottle	HanSeo	Korea		
oxymetholone	Oxymetholone Korea United	50 mg tablet	n/a	Korea United	Korea		
oxymetholone	Oxymetholone Miverva	50 mg tablet	100 tablet	Minerva	Greece	[NLM]	
oxymetholone	Oxymetolona Tablets BP	5 mg tablet	n/a	Belco Pharma	India		
oxymetholone	Oxymetolona 50	50 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
oxymetholone	Oxyvar 50	50 mg tablet	100 tablet bottle	SS Laboratories	Thailand		
testosterone undecanoate	Panteston	40 mg capsules	60 capsule bottle	Organon	Finland		
testosterone undecanoate	Panteston	40 mg capsules	n/a	Organon	Latvia		
testosterone undecanoate	Panteston	40 mg capsules	n/a	Organon	Lithuania		
testosterone undecanoate	Panteston	40 mg capsules	30, 60 capsule bottle	Organon	Peru		
testosterone undecanoate	Panteston capsules	40 mg capsules	n/a	Organon	New Zealand		
testosterone undecanoate	Pantestone	40 mg capsules	60 capsule bottle	Organon	Estonia		
testosterone undecanoate	Pantestone	40 mg capsules	60 capsule bottle	Organon	France		
trenbolone hexahydrobenzylcarbonate	Parabolan	76 mg/1.5 ml	1.5 ml ampule	Neorpa	France	[NLM]	
trenbolone acetate	Parabolan Tabs (Export)	25 mg tablet	20 tablet pouch	British Dragon	Thailand	[NLM]	
drostanolone propionate	Parmasmil	100 mg/2ml	2 ml ampule	Cassenne	France	[NLM]	
oxymetholone	Plenastril	50 mg tablet	n/a	Grunenthal	Austria	[NLM]	
oxymetholone	Plenastril	50 mg tablet	n/a	Prosa pharma	Switzerland	[NLM]	
mesterolone	Pluriviron	25 mg dragee	30 dragee box	Asche	Germany	[NLM]	
testosterone enanthate	PMS-Testosterone Enanthate	200 mg/ml	10 ml vial	Pharmascience	Canada		
Sustanon 250 (testosterone blend)	Polysteron 250	250 mg/ml	1 ml ampule	Organon	Venezuela		
boldenone undecylenate	Ponybol 1%	10 mg/ml	10, 50, 100 ml vial	Compania California	Colombia		VET
methenolone acetate	Primobol	50 mg tablet	30 tablet pouch	British Dragon	Thailand		
methenolone enanthate	Primobol 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
methenolone enanthate	Primobolan Depot	100 mg/ml	1 ml ampule	Schering/CID	Egypt	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Austria	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Belgium	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Brazil	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Costa Rica	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Czech Rep.	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Ecuador	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	El Salvador	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Germany	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Guatemala	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Honduras	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	100, 1000 tablet box	Schering	Israel		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Mexico	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Nicaragua	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Panama	[NLM]	
methenolone acetate	Primobolan®	50 mg tablet	n/a	Schering	Puerto Rico	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering/Berlimed	South Africa	[NLM]	
methenolone acetate	Primobolan® Acetate	25 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Ecuador		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	France	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Guatemala		
methenolone enanthate	Primobolan® Depot	50 mg/ml	1 ml ampule	Schering	Israel	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Japan		
methenolone enanthate	Primobolan® Depot	50 mg/ml	1 ml ampule	Schering	Mexico		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Paraguay		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Belgium	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Czech Rep.	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Greece	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Portugal	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Spain		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Switzerland	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Turkey		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering/Berlimed	South Africa	[NLM]	
methenolone enanthate	Primobolan® Depot mite	50 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Lenire	Brazil	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Germany	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Netherlands	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Thailand	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	30 tablet bottle	Schering/Berlimed	South Africa		
Testoviron (testosterone blend)	Primoniat®-Depot 100	135 mg/ml	1 ml ampule	Schering-Chile	Chile	[NLM]	
testosterone enanthate	Primoniat®-Depot 250	250 mg/ml	1 ml ampule	Schering-Chile	Chile	[NLM]	
methenolone enanthate	Primo-Plus 100	100 mg/ml	1 ml ampule	Ttokkyo	Mexico	[NLM]	VET
methenolone acetate	Primo-Plus 50	50 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
Testoviron (testosterone blend)	Primoteston Depot 100	135 mg/ml	1 ml ampule	Schering	Australia	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Testoviron (testosterone blend)	Primoteston Depot 50	75 mg/ml	1 ml ampule	Schering	Australia	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Leiras	Finland	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Norway		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	United Kingdom	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering/CHO	Egypt	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Australia		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Ecuador		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Guatemala		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Jordan		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Kuwait	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Mauritius		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Mexico		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml syringe	Schering	New Zealand		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Sudan		
Testoviron (testosterone blend)	Primoteston®-Depot 100	135 mg/ml	1 ml ampule	Schering/CHO	Egypt	[NLM]	
testosterone propionate (implant)	Progro-H (plus estradiol)	20 mg/pellet	n/a	Pro Beef	Australia		VET
methandrostenolone	Pronabol-5	5 mg tablet	100 tablet box	P&B Labs	India		
testosterone propionate	Propionat QV 100	100 mg/ml	10 ml vial	Quality Vet	Mexico		VET
testosterone propionate	Propionato	100 mg/ml	10 ml vial	Fabrivet Magistral	Argentina		VET
testosterone propionate	Propionato de Testosterona	25 mg/ml	20 ml vial	Induvet	Argentina		VET
testosterone propionate	Propiotest 100	100 mg/ml	10 ml vial	Animal Powel	Mexico		VET
methylandrostenediol dipropionate	Protabol	75 mg/ml	10 ml vial	RWR	Australia		VET
nandrolone phenylpropionate	Proviron Inj	25 mg/ml	n/a	Astar	Taiwan		
mesterolone	Proviron	25 mg tablet	20 tablet box	Schering	Algeria		
mesterolone	Proviron	25 mg tablet	50 tablet box	Schering	Taiwan		
mesterolone	Proviron	25 mg tablet	20 tablet box	Schering	Turkey		
mesterolone	Proviron®	25 mg tablet	n/a	Alcolo	Yugoslavia(FRY)		
mesterolone	Proviron®	25 mg tablet	n/a	Leiras	Finland		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Argentina		
mesterolone	Proviron®	25, 50 mg tablet	n/a	Schering	Australia		
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Austria		
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Belgium		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Brazil		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Bulgaria		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Colombia		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Costa Rica		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Croatia		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Czech. Rep.		
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Dom. Rep.		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	El Salvador		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Estonia	[NLM]	
mesterolone	Proviron®	25 mg tablet	n/a	Schering	France	[NLM]	
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Germany	[NLM]	
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Greece		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Guatemala		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Honduras		
mesterolone	Proviron®	25 mg tablet	10, 15, 20, 50, 100, 150 tab bt	Schering	Hungary		
mesterolone	Proviron®	25 mg tablet	30 tablet box	Schering	India		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Indonesia		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Israel		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Italy		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Latvia	[NLM]	
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Lithuania	[NLM]	
mesterolone	Proviron®	25 mg tablet	10 tablet box	Schering	Mexico		
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Netherlands		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Nicaragua		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Panama		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Paraguay		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Poland		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Portugal		
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Russia		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet bottle	Schering	Slovakia		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Spain		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Switzerland	[NLM]	
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Ukraine		
mesterolone	Proviron®	25 mg tablet	30 tablet box	Schering	United Kingdom		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Uruguay		
mesterolone	Proviron®	25 mg tablet	15 tablet box	Schering	Venezuela		
mesterolone	Proviron®	25 mg tablet	40, 100 tablet bottle	Schering-Plough	South Africa		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering/CID	Egypt	[NLM]	
testosterone enanthate	Proviron® Depot	250 mg/ml	1 ml ampule	Schering	Venezuela		
mesterolone	Provironum	25 mg tablet	50 tablet box	Organon	Singapore		
mesterolone	Provironum	25 mg tablet	150 tablet box	Schering	Thailand		
mesterolone	Provironum®	25 mg tablet	30 tablet box	Schering	India	[NLM]	
nandrolone undecanoate	Psychobolan	50 mg/ml	1ml ampule	Theramex	Greece	[NLM]	
methandrostenolone	Reforvit Simple	5, 10, 25 mg tab	100, 500, 1000 tablet bottle	Loeffler	Mexico		VET
methandrostenolone	Reforvit-B	50 mg/ml	10, 50 ml	Loeffler	Mexico		VET
testosterone undecanoate	Restandol	40 mg capsules	60 capsule bottle	Organon	Denmark		
testosterone undecanoate	Restandol	40 mg capsules	60 caps/bottle	Organon	Greece		
testosterone undecanoate	Restandol	40 mg capsules	n/a	Organon	Taiwan		
testosterone undecanoate	Restandol	40 mg capsules	30, 90 capsule box	Organon	United Kingdom		
methandrostenolone	Restauvit	2 mg tablet	n/a	Ciba, Rugby	Mexico	[NLM]	
methandriol	Restovis	25 mg tablet	20 tablet box	Brown & Burk	Italy		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Bulgaria	[NLM]	
nandrolone decanoate	Retabolil	50 mg/ml	1 ml ampule	Gedeon Richter	Estonia		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Hungary		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Lithuania		
nandrolone decanoate	Retabolil	50 mg/ml	1 ml ampule	Medimpex/Alxndria	Egypt		
nandrolone decanoate	Retabolil	50 mg/ml	1 ml ampule	Medexport/Rosta	Russia	[NLM]	
trenbolone acetate	Revalor-200 (plus estradiol)	20 mg pellet	100 pellet cartridge	Intervet	U.S.		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
trenbolone acetate	Revalor-G (plus estradiol)	20 mg pellet	20 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Intervet	Canada		VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-IS (plus estradiol)	20 mg pellet	40 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	80 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	60 pellet cartridge	Intervet	Canada		VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	80 pellet cartridge	Intervet	U.S.		VET
testosterone cypionate	Ridrot Testosterone Inj.	75 mg/ml	250 ml vial	Troy	Australia		VET
oxymetholone	Roisone	50 mg tablet	100 tablets	Abic/Rannat Ltd.	Israel	[NLM]	
testosterone enanthate	Ropel Liquid Testosterone	75 mg/ml	200 ml vial	Jurox	Australia		VET
testosterone (implant)	Ropel Testosterone Pellets	23.6 mg pellet	450, 500 pellet bottle	Jurox	Australia		VET
nandrolone phenylpropionate	Rubolin	25 mg/ml	n/a	Ying Yuan	Taiwan		
methylandrostenediol (blend)	RWR 4 Plus	75 mg/ml	10 ml vial	RWR	Australia		VET
nandrolone decanoate	RWR Deca 50	50 mg/ml	10 ml vial	RWR	Australia		VET
testosterone (suspension)	RWR Suspension	100 mg/ml	20 ml vial	RWR	Australia		VET
nandrolone cyclohexylpropionate	Sanabolicum	25, 50 mg/ml	1 ml ampule	Biochemie/Nile	Egypt		
nandrolone cyclohexylpropionate	Sanabolicum Vet	50 mg/ml	10 ml vial	Nile Chemie	Austria		VET
testosterone cypionate	Scheinpharma Testone-Cyp	100 mg/ml	10 ml vial	Schein	Canada		
stanozolol (oral)	Seizon	2 mg tablet	100 tablet box	Seoul Pharm	Korea		
fluoxymesterone	Sidomon	5 mg capsule	n/a	n/a	Taiwan		
ethylestrenol	Silobolin	25, 50 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
nandrolone phenylpropionate	Sinbolin	25 mg/ml	n/a	Sinton	Taiwan		
Sustanon 250 (testosterone blend)	Sostenon 250	250 mg/ml	1 ml ampule	Jackson Labs	India		
Sustanon 250 (testosterone blend)	Sostenon 250®	250 mg/ml	1 ml ampule	Organon	Mexico		
Sustanon 250 (testosterone blend)	Sostenon 250®	250 mg/ml	1 ml ampule	Organon	Spain	[NLM]	
methylandrostenediol (blend)	Spectriol	65 mg/ml	10 ml vial	RWR	Australia		VET
stanozolol (oral)	Stabon	2 mg tablet	n/a	n/a	Korea		
stanozolol (inj)	Stan 50	50 mg/ml	10 ml vial	Animal Power	Mexico		VET
stanozolol (oral)	Stan QV 10	10 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
stanozolol (inj)	Stan QV 100	100 mg/ml	20 ml vial	Quality Vet	Mexico		VET
stanozolol (inj)	Stan QV 50	50 mg/ml	20 ml vial	Quality Vet	Mexico		VET
stanozolol (oral)	Stan Tabs	10 mg tablet	100 tablet bottle	Animal Power	Mexico		VET
stanozolol (oral)	Stanabol	5 mg tablet	250 tablet pouch	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	5 mg tablet	200, 1000 tablet bottle	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	5 mg tablet	250 tablet pouch	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	10 mg tablet	100, 500 tablet pouch	British Dragon	Thailand		
stanozolol (oral)	Stanabol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
stanozolol (inj)	Stanabolic	50 mg/ml	20 ml vial	Ilium/Troy	Australia		VET
stanozolol (inj)	Stanazol	50 mg/ml	20, 50 ml vial	RWR	Australia	[NLM]	VET
stanozolol (inj)	Stanazolic	50, 100 mg/ml	20 ml, 10ml vial	Denkall	Mexico		VET
stanozolol (oral)	Stanazolic	6 mg cap	500 capsule bottle	Denkall	Mexico		VET
stanozolol (oral)	Stanazolic	10 mg tablet	100 tablet bottle	Denkall	Mexico		VET
stanozolol (oral)	Stanol	5 mg tablet	200 tablet bottle	Body Research	Thailand	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
stanozolol (oral)	Stanol	2 mg tablet	n/a	Hua Shin	Taiwan		
stanozolol (oral)	Stanol 10	10 mg tablet	250 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
stanozolol (inj)	Stanol 50	50 mg/ml	20 ml vial	Bratis Labs	Mexico	[NLM]	VET
stanozolol (inj)	Stanol-V	50, 100 mg/ml	20 ml vial	Ttokkyo	Mexico	[NLM]	VET
stanozolol (oral)	Stanol-V	10 mg tablet	100, 500 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
stanozolol (inj)	Stanosus	50 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
stanozolol (oral)	Stanozodon	2 mg tablet	1000 tablet bottle	Acdhon Co.	Thailand		
stanozolol (oral)	stanozolol	5 mg tablet	30 tablet box	Genepharm	Greece		
stanozolol (oral)	stanozolol	25 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
stanozolol (oral)	Stanozolol Tab	2 mg tablet	n/a	Chen Ha	Taiwan		
stanozolol (oral)	Stanozolol Tablets BP	2 mg tablet	n/a	Belco Pharma	India		
stanozolol (oral)	Stanzol	5 mg tablet	200 tablet bottle	Ell Laboratories	Thailand		
Sten (testosterone blend)	Sten	50 mg/ml	2 ml ampule	Atlantis	Mexico		
methandrostenolone	Stenolon	5 mg tablet	20 tablet box	Leciva	Czech. Rep.	[NLM]	
methandrostenolone	Stenolon	1 mg tablet	20 tablet box	Leciva	Czech. Rep.	[NLM]	
fluoxymesterone	Sterlon	2.5 mg tablet	20 tablet box	Atlantis	Mexico		
clostebol acetate	Steranabol	20 mg/ml	2 ml ampule	Farmitalia	Italy	[NLM]	
testosterone cypionate	Sterandrol Depot	100 mg/ml	1 ml ampule	Pharmacia & Upjohn	Italy	[NLM]	
nandrolone decanoate	Sterobolin	50 mg/ml	1 ml ampule	Orion	Finland	[NLM]	
stanozolol (inj)	Stromba	50 mg/ml	n/a	Sterling Research	United Kingdom	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	56 tablet box	n/a	Greece		
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling Health	Hungary		
stanozolol (oral)	Stromba	5 mg tablet	10 tablet box	Winthrop	Belgium	[NLM]	
stanozolol (inj)	Stromba	50 mg/ml	n/a	Sterling Winthrop	Sweden	[NLM]	
stanozolol (inj)	Stromba	50 mg/ml	n/a	Winthrop	Sweden	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Berger	Austria	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	100 tablet box	Sanofi	Netherlands		
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sanofi	United Kingdom	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling	United Kingdom	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling Health	Czech. Rep.	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Denmark	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Germany	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Netherlands	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Sweden	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Switzerland	[NLM]	
stanozolol (inj)	Strombaject	50 mg/ml	n/a	Winthrop	Belgium	[NLM]	
stanozolol (inj)	Strombaject	50 mg/ml	n/a	Winthrop	Germany	[NLM]	
testosterone enanthate	Sunamon Depot Inj	100 mg/ml	n/a	Astar	Taiwan		
testosterone enanthate	Sunamon Inj	250 mg/ml	n/a	Astar	Taiwan		
Sustanon 250 (testosterone blend)	Super Test-250	250 mg/ml	5, 10 ml vial	Ismel	Mexico		VET
nandrolone phenylpropionate	Superanabolon	25 mg/ml	1 ml ampule	Spofa	Czech. Rep.		
methandrostenolol dipropionate	Superbolin	75 mg/ml	10 ml vial	Vetoquinol	Australia		VET
methenolone enanthate	Suprimo 100	100 mg/ml	10 ml vial	SYD Group	Mexico		VET
Sustanon 250 (testosterone blend)	Sustanon	250 mg/ml	1 ml ampule	Organon	Ireland		
Sustanon 250 (testosterone blend)	Sustanon	250 mg/ml	1 ml ampule	Organon	Israel		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Sustanon 250 (testosterone blend)	Sustanon	250 mg/ml	1 ml ampule	Organon	Slovakia		
Sustanon 250 (testosterone blend)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Indonesia		
Sustanon 250 (testosterone blend)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Singapore		
Sustanon 250 (testosterone blend)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Argentina		
Sustanon 250 (testosterone blend)	Sustanon "250"	250 mg/ml	1ml ampule	Organon	Vietnam		
Sustanon 250 (testosterone blend)	Sustanon (Cyctahoh 250)	250 mg/ml	1 ml ampule	Organon	Russia		
Sustanon 100 (testosterone blend)	Sustanon (Cyctahoh)	100 mg/ml	1 ml ampule	Infar	India		
Sustanon 100 (testosterone blend)	Sustanon 100	100 mg/ml	1 ml ampule	Organon	Germany	[NLM]	
Sustanon 100 (testosterone blend)	Sustanon 100®	100 mg/ml	1 ml ampule	Organon	Netherlands		
Sustanon 100 (testosterone blend)	Sustanon '100'®	100 mg/ml	1 ml ampule	Organon	United Kingdom		
Sustanon 100 (testosterone blend)	Sustanon 100®	100 mg/ml	1 ml ampule	Organon/Infar	Egypt		
Sustanon 250 (testosterone blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Germany	[NLM]	
Sustanon 250 (testosterone blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	New Zealand		
Sustanon 250 (testosterone blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Taiwan		
Sustanon 250 (testosterone blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Czech Rep.		
Sustanon 250 (testosterone blend)	Sustanon 250 (Cyctahoh)	250 mg/ml	1 ml ampule	Infar	India		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Sweden		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Estonia		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Finland		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Netherlands		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Turkey		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Donmed/Organon	South Africa		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon	Malaysia		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1ml ampule	Organon	Pakistan		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Thailand		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon	United Kingdom		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon/Infar	Egypt		
Sustanon 250 (testosterone blend)	Sustanon®	250 mg/ml	1 ml ampule	Organon	Italy		
Sustanon 250 (testosterone blend)	Sustenland 250	250 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
testosterone enanthate	Sustaverone	250 mg/ml	1 ml ampule	Jackson Labs	India		
Sustanon 250 (testosterone blend)	Sustenon 250	250 mg/ml	1 ml ampule	Organon	Chile		
testosterone undecanoate	Sustenan Oral	40 mg capsules	n/a	Organon	Chile		
Sustanon 250 (testosterone blend)	Sustenon 250®	250 mg/ml	1 ml ampule	Organon	Portugal		
boldenone undecylenate	Sybolin	25 mg/ml	10 ml vial	Ranvet	Australia		VET
oxymetholone	Synastenon	50 mg tablet	50 tablet bottle	Searle	Belgium	[NLM]	
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Fort Dodge	Mexico		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Fort Dodge	U.S.		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Syntex	U.S.	[NLM]	VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Wyeth	Canada		VET
testosterone propionate (implant)	Synovex®-H (plus estradiol)	20 mg/pellet	n/a	Ayerst	Canada		
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Fort Dodge	Australia		VET
testosterone propionate (implant)	Synovex®-H (plus estrogen)	25 mg/pellet	80 pellet cartridge	Fort Dodge	Mexico		
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Fort Dodge	U.S.		VET
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Syntex	Mexico	[NLM]	
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Syntex	U.S.	[NLM]	VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methyltestosterone	T. Lingvalete	5 mg sub. dragee	n/a	Galenika	YugoslaviaFRMR	[NLM]	
stanozolol (inj)	Tenoxol	25 mg/ml	10 ml vial	Biomet	Argentina		VET
fluoxymesterone	Tealigen	5 mg capsule	n/a	Ming ta	Taiwan		
testosterone propionate	Teare Hormone	100 mg/ml	500 ml vial	Vetec	Australia		VET
stanozolol (oral)	Terabon	2 mg tablet	10 tablet strip	Jin Yang	Korea		
testosterone suspension	Tesamone	25, 50, 100 mg/ml	n/a	Dunhall	U.S.	[NLM]	
testosterone enanthate	Tesone L.A.	200 mg/ml	10 ml vial	Sig	U.S.	[NLM]	
Test 400 (testosterone blend)	Test 400	400 mg/ml	10 ml vial	Denkai	Mexico		VET
testosterone cypionate	Testabol Depot 200	200 mg/ml	10 ml vial	British Dragor	Thailand		
testosterone enanthate	Testabol Enanthate 250	250 mg/ml	10 ml vial	British Dragor	Thailand		
testosterone propionate	Testabol Propionate 100	100 mg/ml	10 ml vial	British Dragor	Thailand		
testosterone cypionate	Test-C	200 mg/ml	10 ml vial	Ivomec	U.S.	[NLM]	
testosterone cypionate	Testacyp	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone cypionate	Testadiem Depo	200 mg/ml	10 ml vial	Key	U.S.	[NLM]	
testosterone enanthate	Testanate No. 1	100 mg/ml	n/a	Kenyon	U.S.	[NLM]	
testosterone enanthate	Testaval	100, 200 mg/ml	10 ml vial	Legere	U.S.	[NLM]	
testosterone enanthate	Testen-250	250 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone enanthate	Testenan Depot	250 mg/ml	n/a	Sinkin	Taiwan		
Testoviron (testosterone blend)	Testenat	100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
testosterone enanthate	Testenat 10%	100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
testosterone enanthate	Testenat 5%	50 mg/ml	1 ml ampule	Farmadon	Russia		
Testoviron (testosterone blend)	Testenon	135 mg/ml	2 ml vial	BM Pharmaceuticals	India		
Testoviron (testosterone blend)	Testenon	135 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
Testoviron 250 (testosterone blend)	Testenon 250	250 mg/ml	5 ml vial	Denkai	Mexico	[NLM]	VET
testosterone enanthate	Testermon	25 mg/ml	n/a	CCPC	Taiwan		
testosterone propionate	Testex	50, 100 mg/ml	n/a	Parkedale	U.S.	[NLM]	
testosterone propionate	Testex Leo	25 mg/ml	1 ml ampule	Altana Pharma	Spain		
testosterone propionate	Testex Leo	25 mg/ml	1 ml ampule	Leo	Spain	[NLM]	
testosterone cypionate	Testex Leo prolongatum	50, 125 mg/ml	2 ml ampule	Altana Pharma	Spain		
testosterone cypionate	Testex Leo prolongatum	50, 125 mg/ml	2 ml ampule	Leo	Spain	[NLM]	
testosterone enanthate	Testinon-Depot	n/a	n/a	n/a	Japan		
testosterone propionate	Testo	50 mg/ml	10 ml vial	Sanil	Korea		
testosterone cypionate	Testo LA	100 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
methyltestosterone	Testo Tab	25 mg tablet	n/a	Sanil	Korea		
testosterone (patch)	Testoderm	15 mg patch	n/a	Alza	Malaysia		
testosterone (patch)	Testoderm	6 mg patch	10, 30 patch box	Esteve	Spain		
testosterone (patch)	Testoderm	4 mg patch	10 patch box	Esteve	Spain		
testosterone enanthate	Testoenan L/A	250 mg/ml	10 ml vial	Laster	Mexico		VET
testosterone enanthate	Testo-Enant	125 mg/ml	2 ml ampule	Geymonat	Italy		
testosterone enanthate	Testo-Enant	250 mg/ml	1 ml ampule	Geymonat	Italy		
testosterone enanthate	Testofort Inj	250 mg/ml	1 ml ampule	Albert David	Pakistan		
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Costa Rica		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Dom. Rep.		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Ecuador		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	El Salvador		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Guatemala		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Honduras		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Nicaragua		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Panama		VET
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Besins	Netherlands		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Besins	Sweden		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Jenapharm	Germany		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Schering	Australia		
testosterone (gel)	Testogel	50 mg	single dose packet	Schering	Russia		
testosterone cypionate	Testoject	100 mg/ml	n/a	Mayrand	U.S.	[NLM]	
testosterone cypionate	Testoject 50	50 mg/ml	n/a	Mayrand	U.S.	[NLM]	
testosterone cypionate	Testoject-LA	200 mg/ml	n/a	Mayrand	U.S.	[NLM]	
Sustanon 250 (testosterone blend)	Testo-Sol L.A.	250 mg/ml	10 ml vial	Novet	Mexico		VET
testosterone phenylpropionate	Testolent	100 mg/ml	1 ml ampule	Sicomed	Rumania	[NLM]	
testosterone propionate	Testolin	50 mg/ml	2 ml ampule	Body Research	Thailand	[NLM]	
testosterone suspension	Testolin	25, 50, 100, mg/ml	n/a	Pasadena	U.S.	[NLM]	
methyltestosterone	Teston	25 mg tablet	30 tablet box	Rorer	Greece		
testosterone cypionate	Teston QV 200	200 mg/ml	10 ml vial	Quality Vet	Mexico		VET
testosterone propionate	Testone-E	25 mg/ml	1 ml ampule	Mini	Egypt		
Sustanon 100 (testosterone blend)	Testonon '100'®	100 mg/ml	1 ml ampule	Nile	Egypt		
Sustanon 250 (testosterone blend)	Testonon '250'®	250 mg/ml	1 ml ampule	Nile	Egypt		
testosterone propionate	Testopin-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone propionate	Testopin-100	100 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
Testoviron (testosterone blend)	Testoprim-D	250 mg/ml	1 ml ampule	Labs. Tocogino	Mexico		
testosterone propionate	Testopro L/A	250 mg/ml	10 ml vial	Laprisa	Mexico		VET
methyltestosterone	Testopropon	25 mg tablet	n/a	Scanpharm	Malaysia		
methyltestosterone	Testormon	10 mg tablet	n/a	Unitas	Portugal		
testosterone cypionate	Testorone Depot	100 mg/ml	n/a	Gentle	Taiwan		
testosterone suspension	Testos 100	100 mg/ml	10 ml vial	Vetcom	Canada		VET
methyltestosterone	Testosteron	5 mg tablet	n/a	Berco	Germany	[NLM]	
testosterone propionate	Testosteron	25 mg/ml	1 ml ampule	Sicomed	Rumania	[NLM]	
testosterone propionate	Testosteron	5, 10, 25, 50 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR	[NLM]	
testosterone propionate	Testosteron	5, 10, 25, 50 mg/ml	1 ml ampule	Human	Hungary	[NLM]	
testosterone propionate	Testosteron	50 mg/ml	1 ml ampule	Sopharma	Bulgaria		
testosterone propionate	Testosteron	50 mg/ml	1 ml ampule	Streuli & Co. AG	Switzerland	[NLM]	
Sustanon 250 (testosterone blend)	Testosteron 250	250 mg/ml	1 ml ampule	Rotex Medica	Germany	[NLM]	
testosterone enanthate	Testosteron Depot	100 mg/ml	1 ml ampule	Rotex Medica	Germany	[NLM]	
testosterone enanthate	Testosteron Depot	250 mg/ml	1 ml ampule	Rotex Medica	Germany		
testosterone propionate	Testosteron Depot	25 mg/ml	n/a	Gentle	Taiwan		
testosterone propionate	Testosterona	50 mg/ml	25 ml vial	Calastreme	Argentina		VET
testosterone propionate	Testosterona 100	100 mg/ml	10 ml vial	Brovel	Mexico		VET
testosterone enanthate	Testosterona 200	200 mg/ml	10 ml vial	Brovel	Mexico		VET
testosterone propionate	Testosterona 25	25 mg/ml	10, 20 ml vial	Brovel	Mexico		VET
Sustanon 250 (testosterone blend)	Testosterona 250	250 mg/ml	10 ml vial	Qualityvet	Costa Rica		VET
testosterone propionate	Testosterona 50	50 mg/ml	10, 20 ml vial	Brovel	Mexico		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Biosano	Chile		
testosterone enanthate	testosterona enantato	100 mg/ml	1 ml ampule	Chile	Chile	[NLM]	
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Chile	Chile		
Durathon 250 (testosterone blend)	Testosterona XXI LA	250 mg/ml	10 ml vial	Laprin	Mexico		VET
testosterone propionate	Testosterona Propionat	50, 100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
testosterone propionate	Testosterone Propionato	n/a	n/a	Bayer	Paraguay		
testosterone cypionate	Testosterona Ultra Lenta	100 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	5 ml ampule	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone enanthate	Testoteron-Depo	100 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR	[NLM]	
testosterone enanthate	Testosteron-Depo	250 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR		
testosterone enanthate	Testosteron-Depo	100, 250 mg/ml	1 ml ampule	Ratiopharm	YugoslaviaFRMR	[NLM]	
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Eifelfango	Germany		
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Bulgaria		
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Germany		
testosterone enanthate	Testosterone 200 Depot	200 mg/ml	10 ml vial	Tornel	Mexico		VET
testosterone propionate	Testosterone Berco Supp.	40 mg/suppository	18 supp. box	Funke	Germany	[NLM]	
testosterone cyclopentylpropionate	Testosterone CPP Theramex	250, 100, 87 mg/ml	1 ml ampule	Theramex	France	[NLM]	
testosterone cypionate	testosterone cypionate	100 mg/ml	10 ml vial	Geneva Geriatrics	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Goldline	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	50, 100, 200 mg/ml	10 ml vial	Huffman	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	200 mg/ml	10 ml vial	Legere	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Schein	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone cypionate	Testosterone Cypionate 200	200 mg/ml	10 ml vial	Ttokkyo	Mexico	[NLM]	VET
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Cheamed	Hong Kong		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Gwo Chyang	Taiwan		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Te Yu	Taiwan		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	10 ml vial	Watson Pharma	U.S.		
testosterone cypionate	Testosterone Cypionate Inj	100 mg/ml	1 ml vial	Cyrex	Canada		
testosterone cypionate	Testosterone Cypionate Inj.	200 mg/ml	10 ml vial	Sabex	Canada		
testosterone cypionate	Testosterone Cypionate LA	100 mg/ml	10 ml vial	Tornel	Mexico	[NLM]	VET
testosterone cypionate	Testosterone Depositum	n/a	n/a	SPA	Italy		
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Geneva Geriatrics	U.S.	[NLM]	
testosterone enanthate	Testosterone Enanthate	250 mg/ml	1 ml ampule	Geofman	Pakistan		
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Goldline	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Quad	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Schein	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone enanthate	Testosterone Enanthate	100 mg/ml	1 ml ampule	Aburaihan	Iran		
testosterone enanthate	Testosterone Enanthate 250	250 mg/ml	1 ml ampule	Aburaihan	Iran		
testosterone enanthate	Testosterone Enanthate Dalim	250 mg/ml	n/a	Dalim	Korea		
testosterone enanthate	Testosterone Enanthate Inj	200 mg/ml	10 ml vial	Taro	Canada	[NLM]	
testosterone enanthate	Testosterone Enanthate Inj	200 mg/ml	10 ml vial	Watson Pharma	U.S.		
testosterone enanthate	Testosterone Heptylate	50, 100, 250 mg/ml	1 ml ampule	Theramex	France		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testosterone Jenapharm	25 mg/ml	1 ml ampule	Jenapharm	Germany	[NLM]	
testosterone propionate	testosterone propionate	50 mg/ml	n/a	Quad & Lilly	U.S.	[NLM]	
testosterone propionate	testosterone propionate	100 mg/ml	10, 30 ml vial	Rugby	U.S.	[NLM]	
testosterone propionate	testosterone propionate	100 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Cyrex	Canada		
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Dominion	Canada		VET
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Taro	Canada	[NLM]	
testosterone propionate	Testosterone Propionate Inj	25 mg/ml	n/a	Charmaine	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	n/a	Hong Kong Med.	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	1 ml ampule	n/a	China		
testosterone propionate	Testosterone Propionate Inj	25 mg/ml	n/a	Tai Yu	Taiwan		
testosterone propionate	Testosterone Propionate Inj BP	10, 25, 50 mg/ml	1, 2 ml ampule	Belco Pharma	India		
testosterone propionate	Testosterone Streuli	n/a	5, 10, 25, 50 mg/ml	Streuli & Co. AG	Austria	[NLM]	
testosterone suspension	testosterone suspension	100 mg/ml	n/a	Legere	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Schein	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Steris	U.S.	[NLM]	
testosterone propionate	Testosterone Vitis	n/a	10, 25 mg/ml	Neopharma	Germany	[NLM]	
testosterone propionate	Testosterone-Prop. Disp.	n/a	10, 20 mg/ml	Disperga	Austria	[NLM]	
testosterone propionate	testosteronpropionat	10, 25 mg/ml	1 ml ampule	Eifelfango	Germany	[NLM]	
testosterone propionate	testosteronpropionat	50 mg/ml	1 ml ampule	Eifelfango	Germany		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Jelfa	Bulgaria	[NLM]	
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Jelfa	Poland		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Polfa	Belgium	[NLM]	
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Polfa	Poland	[NLM]	
testosterone propionate	Testosteronum Propionicum	25 mg/ml	1 ml ampule	Jelfa	Poland		
testosterone propionate	Testosterony Propionat	50 mg/ml	1 ml ampule	Farmak	Ukraine		
methyltestosterone	Testosuss	n/a	n/a	Europharm	Hong Kong		
testosterone suspension	Testosus 100	100 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
testosterone enanthate	Testoviron Depot	250 mg/ml	1 ml ampule	Schering	Taiwan		
testosterone propionate	Testoviron®	50 mg/ml	1 ml ampule	Schering	Greece		
testosterone propionate	Testoviron®	10, 25, 50 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
testosterone propionate	Testoviron®	10, 25 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Argentina		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Ireland	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Peru		
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Argentina	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Dom. Rep.		
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Greece	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Netherlands	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Portugal	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Biosano	Chile		
testosterone enanthate	testosterona enantato	100 mg/ml	1 ml ampule	Chile	Chile	[NLM]	
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Chile	Chile		
Durabolin 250 (testosterone blend)	Testosterona IV LA	250 mg/ml	10 ml vial	Lipofar	Mexico		VET
testosterone propionate	Testosterona Propionat	50, 100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
testosterone propionate	Testosterona Propionato	n/a	n/a	Bolica	Paraguay		
testosterone cypionate	Testosterona Ultra Lenta	100 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	5 ml ampule	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone enanthate	Testosteron-Depo	100 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR	[NLM]	
testosterone enanthate	Testosteron-Depo	250 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR		
testosterone enanthate	Testosteron-Depo	100, 250 mg/ml	1 ml ampule	Hemofarm	YugoslaviaFRMR	[NLM]	
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Eifelfango	Germany		
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Bulgaria		
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Germany		
testosterone enanthate	Testosterone 200 Depot	200 mg/ml	10 ml vial	Tolmar	Mexico		VET
testosterone propionate	Testosterone Berco Supp.	40 mg/suppository	18 supp. box	Funke	Germany	[NLM]	
testosterone cyclopentylpropionate	Testosterone CYP Theramex	250, 150, 37 mg/ml	1 ml ampule	Theramex	France	[NLM]	
testosterone cypionate	testosterone cypionate	100 mg/ml	10 ml vial	Geneva Geriatrics	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Goldline	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	50, 100, 200 mg/ml	10 ml vial	Huffman	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	200 mg/ml	10 ml vial	Legere	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Schein	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone cypionate	Testosterone Cypionate 200	200 mg/ml	10 ml vial	Ttokkyo	Mexico	[NLM]	VET
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Choumarex	Hong Kong		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Gwo Chyang	Taiwan		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Tai Yu	Taiwan		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	10 ml vial	Watson Pharma	U.S.		
testosterone cypionate	Testosterone Cypionate Inj	100 mg/ml	2 ml vial	Cytex	Canada		
testosterone cypionate	Testosterone Cypionate Inj.	200 mg/ml	10 ml vial	Sabex	Canada		
testosterone cypionate	Testosterone Cypionate LA	100 mg/ml	10 ml vial	Ttokkyo	Mexico	[NLM]	VET
testosterone cypionate	Testosterone Depositum	n/a	n/a	SPA	Italy		
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Geneva Geriatrics	U.S.	[NLM]	
testosterone enanthate	Testosterone Enanthate	250 mg/ml	1 ml ampule	Geofman	Pakistan		
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Goldline	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Quad	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Schein	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone enanthate	Testosterone Enanthate	100 mg/ml	1 ml ampule	Aburaihan	Iran		
testosterone enanthate	Testosterone Enanthate 250	250 mg/ml	1 ml ampule	Aburaihan	Iran		
testosterone enanthate	Testosterone Enanthate Dalim	250 mg/ml	n/a	Dalim	Korea		
testosterone enanthate	Testosterone Enanthate Inj	200 mg/ml	10 ml vial	Taro	Canada	[NLM]	
testosterone enanthate	Testosterone Enanthate Inj	200 mg/ml	10 ml vial	Watson Pharma	U.S.		
testosterone enanthate	Testosterone Heptylate	50, 100, 250 mg/ml	1 ml ampule	Theramex	France		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testosterone Jenapharm	25 mg/ml	1 ml ampule	Jenapharm	Germany	[NLM]	
testosterone propionate	testosterone propionate	50 mg/ml	n/a	Quad & Lilly	U.S.	[NLM]	
testosterone propionate	testosterone propionate	100 mg/ml	10, 30 ml vial	Rugby	U.S.	[NLM]	
testosterone propionate	testosterone propionate	100 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Cytex	Canada		
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Dominion	Canada		VET
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Taro	Canada	[NLM]	
testosterone propionate	Testosterone Propionate Inj	25 mg/ml	n/a	Charmaine	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	n/a	Hong Kong Med.	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	1 ml ampule	n/a	China		
testosterone propionate	Testosterone Propionate Inj	25 mg/ml	n/a	Tai Yu	Taiwan		
testosterone propionate	Testosterone Propionate Inj BP	10, 25, 50 mg/ml	1, 2 ml ampule	Belco Pharma	India		
testosterone propionate	Testosterone Strasi	n/a	5, 10, 25, 50 mg/ml	Strasi & Co. AG	Austria	[NLM]	
testosterone suspension	testosterone suspension	100 mg/ml	n/a	Legere	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Schein	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Steris	U.S.	[NLM]	
testosterone propionate	Testosterone Vitis	n/a	10, 25 mg/ml	Neopharma	Germany	[NLM]	
testosterone propionate	Testosterone-Prop. Disp.	n/a	10, 20 mg/ml	Disperga	Austria	[NLM]	
testosterone propionate	testosteronpropionat	10, 25 mg/ml	1 ml ampule	Eifelfango	Germany	[NLM]	
testosterone propionate	testosteronpropionat	50 mg/ml	1 ml ampule	Eifelfango	Germany		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Jelfa	Bulgaria	[NLM]	
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Jelfa	Poland		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Polfa	Belarus	[NLM]	
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Polfa	Poland	[NLM]	
testosterone propionate	Testosteronum Propionicum	25 mg/ml	1 ml ampule	Jelfa	Poland		
testosterone propionate	Testosterony Propionat	50 mg/ml	1 ml ampule	Farmak	Ukraine		
methyltestosterone	Testosus	n/a	n/a	Europharm	Hong Kong		
testosterone suspension	Testosus 100	100 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
testosterone enanthate	Testoviron Depot	250 mg/ml	1 ml ampule	Schering	Taiwan		
testosterone propionate	Testoviron®	50 mg/ml	1 ml ampule	Schering	Greece		
testosterone propionate	Testoviron®	10, 25, 50 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
testosterone propionate	Testoviron®	10, 25 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Argentina		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Ireland	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Peru		
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Argentina	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Dom. Rep.		
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Greece	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Netherlands	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Portugal	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Switzerland	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 135	135 mg/ml	1 ml ampule	Schering	Denmark		
Testoviron (testosterone blend)	Testoviron® Depot 135	135 mg/ml	1 ml ampule	Schering	Sweden	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Hong Kong		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Iceland		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Thailand		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Yemen		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	German Remedes	India		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Austria		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Bahrain	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Colombia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Czech. Rep.	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Denmark		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Dom. Rep.		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Estonia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Germany		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Greece		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	India		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Israel		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Italy		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Japan		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Lebanon	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Malaysia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Malta		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Pakistan		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Paraguay		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Portugal		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Qatar	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Saudi Arabia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Spain		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Sri Lanka		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Sweden		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Switzerland		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Uruguay		
methyltestosterone	Testovis	10 mg tablet	n/a	SIT	Italy		
testosterone propionate	Testovis	50 mg/ml	2 ml ampule	SIT	Italy		
methyltestosterone	Testoxyphen	25 mg drages	30 drages box	Paul Mertens	Germany	[NLM]	
methyltestosterone	Testred	10 mg capsule	100 capsule bottle	ICN	U.S.		
testosterone cyclonate	Testred Cyclonate	200 mg/ml	10 ml vial	ICN	U.S.	[NLM]	
testosterone enanthate	Testrin-P.A.	200 mg/ml	n/a	Pasadena Res.	U.S.	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
Sustanon 250 (testosterone blend)	Testron 4 250	250 mg/ml	10 ml vial	Bristo Labs	Mexico	[NLM]	VET
testosterone enanthate	Testron Depot	125, 250 mg/ml	1 ml vial	n/a	Japan		
fluoxymesterone	Top Lin	10 mg capsule	n/a	Chin Teng	Taiwan		
methyltestosterone	TP Men Hormone	10 mg dragee	24 tablets	TP Drugs	Thailand		
trenbolone acetate	Trenbolone CV 75	75 mg/ml	10 ml vial	Quality Vet	Mexico		VET
trenbolone enanthate	Trenabol 200	200 mg/ml	10 ml vial	British Dragon	Thailand		
trenbolone acetate	Trenabol 75	75 mg/ml	10 ml vial	British Dragon	Thailand		
trenbolone hexahydrobenzylcarbonate	Trenabol Depot 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
trenbolone acetate	Trenbo 75	75 mg/ml	10 ml vial	Animal Power	Mexico		VET
trenbolone acetate	Trenbol 75	75 mg/ml	20 ml vial	Ttokkyo	Mexico	[NLM]	VET
trenbolone acetate	Trenbolon 75	75 mg/ml	10, 20 ml vial	Pera Pharma	Mexico		VET
trenbolone acetate	Trenol 50	50 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET
methyldrostanolone (DMT)	Trilodin	75 mg/ml	10, 20 ml vial	Kernel	Australia		VET
methandrostenolone	Trinergic	5 mg capsule	n/a	Unimed	India	[NLM]	
testosterone blend (misc)	Triolandren	250 mg/ml	1 ml ampule	Novartis	Egypt		
testosterone blend (misc)	Triolandren	250 mg/ml	1 ml ampule	Novartis	Taiwan		
testosterone propionate	Triolandren	20 mg/ml	n/a	Ciba Geigy CH	Switzerland	[NLM]	
trenbolone blend	Tri-Trenabol 150	150 mg/ml	10 ml vial	British Dragon	Thailand		
clostebol acetate	Trofodermin Crema	cream	30 gram tube	Carlo Erba OTC	Italy		
clostebol acetate	Trofodermin Spray	n/a	30 ml spray	Carlo Erba OTC	Italy		
chlorodehydromethyltestosterone	Turanabol	10 mg tablet	500 tablet pouch	British Dragon	Thailand		
nandrolone phenylpropionate	Turinabol	25 mg/ml	n/a	Germed	Czech. Rep.	[NLM]	
nandrolone phenylpropionate	Turinabol	25 mg/ml	n/a	Jenaizharm	Bulgaria	[NLM]	
nandrolone phenylpropionate	Turinabol	25 mg/ml	n/a	Jenapharm	Germany	[NLM]	
nandrolone decanoate	Turinabol Depot	50 mg/ml	1 ml ampule	Jenapharm	Bulgaria	[NLM]	
nandrolone decanoate	Turinabol Depot	50 mg/ml	1 ml ampule	Jenapharm	Czech. Rep.	[NLM]	
nandrolone decanoate	Turinabol Depot	50 mg/ml	1 ml ampule	Jenapharm	Germany	[NLM]	
fluoxymesterone	Ultandren	1,5 mg tablet	n/a	Ciba	United Kingdom	[NLM]	
testosterone cyclonate	Ultra Cyp 250	250 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
methandrostenolone	Ultra D-Boll	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
nandrolone decanoate	Ultra Deca 300	300 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
oxymetholone	Ultra Drol	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
boldenone undecylenate	Ultra EQ 300	300 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
methenolone acetate	Ultra Primo	100 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
testosterone propionate	Ultra Prop	100 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
testosterone	Ultra Suspension	50 mg/ml	20 ml vial	Nutri-Vet	Mexico		VET
trenbolone acetate	Ultra Tren	100 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
oxandrolone	Ultra Var	5 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
stanozolol (inj)	Ultra Winny	50 mg/ml	20 ml vial	Nutri-Vet	Mexico		VET
stanozolol (oral)	Ultra Winny	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
boldenone undecylenate	Ultragan	100 mg/ml	10 ml vial	Denkall	Mexico		VET
boldenone undecylenate	Ultragan	50 mg/ml	50 ml vial	Denkall	Mexico		VET
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Argentina		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Belgium		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Bulgaria		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Czech. Rep.		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Luxembourg		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Poland		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Romania		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Slovakia		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Sweden		
testosterone propionate	Uni-Test Inj	100 mg/ml	10 ml vial	Univet	Canada		VET
testosterone propionate	Uni-Test Suspension	100 mg/ml	30 ml vial	Univet	Canada		VET
oxandrolone	Vasorome	0.5 mg tablet	n/a	Kowa	Japan	[NLM]	
oxandrolone	Vasorome®	2 mg tablet	n/a	Kowa	Japan	[NLM]	
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba-Geigy	Australia	[NLM]	VET
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba-Geigy	Germany		VET
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba-Geigy	Switzerland	[NLM]	VET
testosterone suspension	Vetu-Test Sus	100 mg/ml	30 ml vial	Austin	Canada		VET
fluoxymesterone	Vewon	5 mg tablet	n/a	Yung Shin	Taiwan		
fluoxymesterone	Vi-Tone	10 mg capsule	n/a	Shyh Sar	Taiwan		
testosterone propionate (implant)	Virbac Tepro Pellets	23.5 mg pellet	450 pellets	Virbac	Australia		VET
testosterone undecanoate	Virgel	40 mg capsules	30 capsule bottle	Organon	Turkey		
methyltestosterone	Virilon (time released)	10 mg capsule	100,1000 capsule bottle	Star	U.S.		
testosterone cypionate	Virormate	200 mg/ml	5 ml vial	Kaken (Torigen)	Philippines		
testosterone propionate	Virormone	50 mg/ml	2 ml ampule	Ferring	United Kingdom	[NLM]	
testosterone propionate	Virormone	50 mg/ml	2 ml ampule	Nordic	United Kingdom		
testosterone propionate	Virormone	50, 100 mg/ml	1 ml ampule	Paines	Thailand		
mesterolone	Vistimon	25 mg tablet	20 tablet box	Jenapharm	Taiwan		
mesterolone	Vistimon	25 mg tablet	20 tablet box	Jenapharm	Germany	[NLM]	
mesterolone	Vistimon	25 mg tablet	n/a	n/a	Korea		
stanozolol (inj)	Vitabolic	20 mg/ml	10, 100 ml vial	Over Labs	Argentina		VET
testosterone propionate	VR Testoprop	50 mg/ml	10 ml vial	Jurox	Australia		VET
fluoxymesterone	Waromom	5 mg tablet	n/a	Washington	Taiwan		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Algeria		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Mozambique		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Zambabwe		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharma	Zimbabwe		
stanozolol (oral)	Winstrol	2 mg tablet	n/a	n/a	Japan		
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Sanofi	U.S.		
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Upjohn	U.S.	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Winthrop	U.S.	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	20 tablet box	Zambon	Italy	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	20 tablet box	Zambon	Spain		
stanozolol (inj)	Winstrol®	50 mg/ml	n/a	Winthrop	Greece	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	n/a	Winthrop	Portugal	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	n/a	Winthrop	Greece	[NLM]	
stanozolol (inj)	Winstrol® Depot	50 mg/ml	1 ml vial	Zambon	Italy	[NLM]	
stanozolol (inj)	Winstrol® Depot	50 mg/ml	1 ml ampule	Zambon	Spain		
stanozolol (inj)	Winstrol® V	50 mg/ml	10, 30ml vial	Pharmacia	Canada		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
stanazolol (inj)	Winstrol®-V	50 mg/ml	10, 30ml vial	Pharmacia & Upjohn	U.S.		VET
stanozolol (inj)	Winstrol®-V	50 mg/ml	10, 30ml vial	Winthrop	U.S.	[NLM]	VET
stanozolol (oral)	Winstrol®-V	2 mg tablet	100 tablet bottle	Pharmacia & Upjohn	U.S.		VET
stanozolol (oral)	Winstrol®-V	2 mg chewable tab	100 tablet bottle	Pharmacia & Upjohn	U.S.		VET
stanozolol (oral)	Winstrol-V®	2 mg tablet	100 tablet bottle	Pharmacia	Canada		VET
nandrolone decanoate	Ziremilon	50 mg/ml	1 ml ampule	Demo	Greece		

APPENDIX D Drug Availability Tables (Country)

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
mesterolone	Proviron	25 mg tablet	20 tablet box	Schering	Algeria		
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Algeria		
testosterone enanthate	Metandienone 250	250 mg/ml	1 ml ampule	Warner Pharma	Algeria		
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Algeria		
boldenone undecylenate	Ara-Bolic	50 mg/ml	10 ml vial	Fort	Argentina		VET
boldenone undecylenate	Boldenona	50 mg/ml	50 ml vial	Formula Magistral	Argentina		VET
boldenone undecylenate	Ex-Pola	50 mg/ml	10 ml vial	Agrofarma	Argentina		VET
fluoxymesterone	Ferona	1 mg tablet	30 tablet box	Sidus	Argentina		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Argentina		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Argentina		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	2 ml	Organon	Argentina		
nandrolone decanoate	Nandro Plus	100 mg/ml	100 ml vial	PharmaVet	Argentina		VET
nandrolone phenylpropionate	Extigor	10 mg/ml	250 ml	Burnet	Argentina		VET
nandrolone phenylpropionate	Ganekyl	50 mg/ml	10, 100 ml vial	Over Labs	Argentina		VET
oxandrolone	Lonavar	2.5 mg tablet	n/a	Searle	Argentina	[NLM]	
stanozolol (inj)	Anabolico Cimol	60 mg/ml	5 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Anabolico Prodiavet	10 mg/ml	25 ml vial	Cimol	Argentina		VET
stanozolol (inj)	Estanozolol	50 mg/ml	5 ml vial	Calastreme	Argentina		VET
stanozolol (inj)	Estanozolol	50 mg/ml	5, 30 ml vial	Formula Magistral	Argentina		VET
stanozolol (inj)	Estrombol	25 mg/ml	10 ml vial	Fundacion	Argentina		VET
stanozolol (inj)	Nabolic	2 mg/ml	30 ml vial	Chinfield Ind.	Argentina		VET
stanozolol (inj)	Nabolic Strong	50 mg/ml	30 ml vial	Chinfield Ind.	Argentina		VET
stanozolol (inj)	Tanoxol	25 mg/ml	10 ml vial	Burnet	Argentina		VET
stanozolol (inj)	Vitabolic	20 mg/ml	10, 100 ml vial	Over Labs	Argentina		VET
stanozolol (oral)	Acwil	1 mg/ml	10 ml dropper bottle	Hokovy	Argentina		VET
stanozolol (oral)	Estanozolol comp	10 mg tablet	100 tablet bottle	Formula Magistral	Argentina		VET
Sustanon 250 (testosterone blend)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Argentina		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Argentina		
testosterone propionate	Propionato	100 mg/ml	10 ml vial	Formula Magistral	Argentina		VET
testosterone propionate	Propionato de Testosterona	25 mg/ml	20 ml vial	Induvet	Argentina		VET
testosterone propionate	Testosterona	50 mg/ml	25 ml vial	Calastreme	Argentina		VET
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Argentina		
Testoviron (testosterone blend)	Si-Testo	60 mg/ml	10 ml vial	Cimol	Argentina		VET
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Argentina	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Australia		
boldenone undecylenate	Anabolic BD	50 mg/ml	10 ml vial	SYD Group	Australia		VET
boldenone undecylenate	Boldebal-H	50 mg/ml	10 ml vial	Bimeda	Australia		VET
boldenone undecylenate	Boldenone-50	50 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
boldenone undecylenate	Equibolin	25 mg/ml	10 ml vial	Ranvet	Australia		VET
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba-Geigy	Australia	[NLM]	VET
ethylestrenol	Nandoral	5 mg tablet	100, 500 tablet bottle	Intervet	Australia		VET
ethylestrenol	Nitrotain	15 mg/4gram	60, 250, 1000 gram tube	Nature-Vet	Australia		VET
ethylestrenol	Orabol-P	100 mg/kg paste	30 ml plastic tube	Veterandy	Australia	[NLM]	VET
mesterolone	Proviron®	25, 50 mg tablet	n/a	Schering	Australia		
methylandrostenediol (blend)	Anabolic MA	75 mg/ml	10 ml vial	SYD Group	Australia		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methylandrostenediol (blend)	Drive	55 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Fitbol	75 mg/ml	10, 20 ml vial	Harvet	Australia		VET
methylandrostenediol (blend)	Libriol	75 mg/ml	10, 20 ml vial	RWR	Australia	[NLM]	VET
methylandrostenediol (blend)	RWR 4 Bles	75 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Spectriol	65 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Tribolin	75 mg/ml	10, 20 ml vial	Harvet	Australia		VET
methylandrostenediol dipropionate	Anadiol	5 mg tab	10, 100 tablet bottle	Ilium/Troy	Australia		VET
methylandrostenediol dipropionate	Anadiol Depot	75 mg/ml	10 ml vial	Ilium/Troy	Australia		VET
methylandrostenediol dipropionate	Methandriol	75 mg/ml	10 ml vial	Ilium/Troy	Australia	[NLM]	VET
methylandrostenediol dipropionate	Methandriol 50	50 mg/ml	20 ml vial	Ilium/Troy	Australia	[NLM]	VET
methylandrostenediol dipropionate	Protabol	75 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol dipropionate	Superbolin	75 mg/ml	10 ml vial	Vetsearch	Australia		VET
nandrolone cypionate	Anabolic DN	50 mg/ml	10 ml vial	SYD Group	Australia		VET
nandrolone decanoate	Anadrol	50 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
nandrolone decanoate	RWR Deca 50	50 mg/ml	10 ml vial	RWR	Australia		VET
nandrolone decanoate	Laurabolin	25, 50 mg/ml	10 ml vial	Intervet	Australia		VET
nandrolone phenylpropionate	Nandrolin	50 mg/ml	25 ml vial	Intervet	Australia		VET
nandrolone phenylpropionate	Nandrolin	75 mg/ml	10 ml vial	Intervet	Australia		VET
norethandrolone	Anaplex	5 mg tablet	100 tablet bottle	Jurox	Australia		VET
stanozolol (inj)	Anabol-SX	50 mg/ml	20 ml vial	SYD Group	Australia		VET
stanozolol (inj)	Stanabolic	50 mg/ml	20 ml vial	Ilium/Troy	Australia		VET
stanozolol (inj)	Stanabol	50 mg/ml	20, 50 ml vial	Rhone	Australia	[NLM]	VET
stanozolol (inj)	Stanosus	50 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
Sustanon 250 (testosterone blend)	Durateston	250 mg/ml	5 ml vial	Intervet	Australia		VET
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Schering	Australia		
testosterone (implant)	Ralgro Hormone Pellets	72.3 mg pellet	100, 500 pellet bottle	Jurox	Australia		VET
testosterone cypionate	Anabolic TL	100 mg/ml	10 ml vial	SYD Group	Australia		VET
testosterone cypionate	Ridrot	75 mg/ml	400 ml bottle	Cheplers	Australia	[NLM]	VET
testosterone cypionate	Ridrot Testosterone Inj.	75 mg/ml	250 ml vial	Troy	Australia		VET
testosterone cypionate	Testo LA	100 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Australia		
testosterone enanthate	Ridrot Long Act Testosterone	75 mg/ml	250 ml vial	Jurox	Australia		VET
testosterone propionate	AVP Supertest	50 mg/ml	10 ml vial	Vetsearch	Australia		VET
testosterone propionate	Ilium Hormone	100 mg/ml	500 ml vial	Troy	Australia		VET
testosterone propionate	VR Testprop	50 mg/ml	10 ml vial	Jurox	Australia		VET
testosterone propionate (implant)	Progro-O (plus estradiol)	20 mg/pellet	n/a	Fort Dodge	Australia		VET
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Fort Dodge	Australia		VET
testosterone propionate (implant)	Virbac Teamb Pellets	20.3 mg pellet	100 pellet	Virbac	Australia		VET
testosterone suspension	Anabolic TS	100 mg/ml	20 ml vial	SYD Group	Australia		VET
testosterone suspension	RWR Sustanon	100 mg/ml	20 ml vial	RWR	Australia		VET
testosterone suspension	Testosus 100	100 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
testosterone undecanoate	Aprinol	40 mg capsules	30 capsule bottle	Organon	Australia		
Testoviron (testosterone blend)	Primoteston Depot 100	135 mg/ml	1 ml ampule	Schering	Australia	[NLM]	
Testoviron (testosterone blend)	Primoteston Depot 50	75 mg/ml	1 ml ampule	Schering	Australia	[NLM]	
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Austria		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Austria	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
nandrolone cyclohexylpropionate	Sanabolicum-Vet	50 mg/ml	10 ml vial	Werfft-Chemie	Austria		VET
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml	Organon	Austria	[NLM]	
nandrolone phenylpropionate	Anabolicum	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Austria	[NLM]	
nandrolone laurate	Laurabolin	50 mg/ml	n/a	Werfft-Chemie	Austria		VET
oxymetholone	Plenasteron	50 mg tablet	n/a	Grunenthal	Austria	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Berger	Austria	[NLM]	
testosterone (oral)	Testoviron	50 mg	single dose packet	Schering	Austria		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Austria		
testosterone propionate	Testoviron® Depot	n/a	5, 10, 25, 50 mg/ml	Strakan & Co. AG	Austria	[NLM]	
testosterone propionate	Testosterone-Prop. Disp.	n/a	10, 20 mg/ml	Disperga	Austria	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Austria		
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Austria	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Bahrain		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Bahrain	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Bangladesh		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Barbados		
dihydrotestosterone	Andractim	25 mg/g	80 gram gel	Piette	Belgium		
drostanolone propionate	Masteron	100 mg/2ml	2 ml amp	Serve-Synthe	Belgium	[NLM]	
ethylestrenol	Orabolin®	2 mg tablet	n/a	Organon	Belgium	[NLM]	
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Belgium		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Belgium	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Belgium	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule, syringe	Organon	Belgium		
nandrolone hexyloxyphenylpropionate	Anabol	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Belgium	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Organon	Belgium	[NLM]	
oxymetholone	Synasteron	50 mg tablet	50 tablet bottle	Serve	Belgium	[NLM]	
stanozolol (inj)	Strombaject	50 mg/ml	n/a	Winthrop	Belgium	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	10 tablet box	Winthrop	Belgium	[NLM]	
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Belgium		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Polfa	Belgium	[NLM]	
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Belgium		
methandrostenolone	Dianabol	25 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
methandrostenolone/stanozolol	Diosterol	50 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
oxandrolone	Oxandrolone	5 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
oxymetholone	Oxymetholone	50 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
stanozolol (oral)	stanozolol	25 mg tablet	30 tablet bottle	Planet Pharmacy	Belize		
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Bolivia		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Bolivia		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Bolivia		VET
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Bolivia	[NLM]	
Sustanon 250 (testosterone blend)	Durateston 250®	250 mg/ml	1 ml ampule	Organon	Bolivia		
boldenone undecylenate	Equifort	50 mg/ml	10, 50 ml vial	Purina	Brazil		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methylandrostenediol (blend)	Drive	55 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Hybrid	75 mg/ml	10, 20 ml vial	Ranvet	Australia		VET
methylandrostenediol (blend)	Libriol	75 mg/ml	10, 20 ml vial	RWR	Australia	[NLM]	VET
methylandrostenediol (blend)	RWR 4 Way	75 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Spectriol	65 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol (blend)	Tribolin	75 mg/ml	10, 20 ml vial	Ranvet	Australia		VET
methylandrostenediol dipropionate	Anadiol	5 mg tab	10, 100 tablet bottle	Ilium/Troy	Australia		VET
methylandrostenediol dipropionate	Anadiol Depot	75 mg/ml	10 ml vial	Ranvet	Australia		VET
methylandrostenediol dipropionate	Methandriol	75 mg/ml	10 ml vial	Ilium/Troy	Australia	[NLM]	VET
methylandrostenediol dipropionate	Methandriol 50	50 mg/ml	20 ml vial	Troy	Australia	[NLM]	VET
methylandrostenediol dipropionate	Protabol	75 mg/ml	10 ml vial	RWR	Australia		VET
methylandrostenediol dipropionate	Supertest	75 mg/ml	10 ml vial	Vetsearch	Australia		VET
nandrolone cypionate	Anabolic DN	50 mg/ml	10 ml vial	SYD Group	Australia		VET
nandrolone decanoate	Decadiol	50 mg/ml	10 ml vial	Ranvet	Australia	[NLM]	VET
nandrolone decanoate	RWR Deca 50	50 mg/ml	10 ml vial	RWR	Australia		VET
nandrolone laurate	Laurabolin	25, 50 mg/ml	10 ml vial	Intervet	Australia		VET
nandrolone phenylpropionate	Nandrolin	50 mg/ml	25 ml vial	Intervet	Australia		VET
nandrolone phenylpropionate	Nandrolin	75 mg/ml	10 ml vial	Intervet	Australia		VET
norethandrolone	Anaplex	5 mg tablet	100 tablet bottle	Jurox	Australia		VET
stanozolol (inj)	Anabolic SA	50 mg/ml	20 ml vial	SYD Group	Australia		VET
stanozolol (inj)	Stanabolic	50 mg/ml	20 ml vial	Ilium/Troy	Australia		VET
stanozolol (inj)	Stanazol	50 mg/ml	20, 50 ml vial	Troy	Australia	[NLM]	VET
stanozolol (inj)	Stanosus	50 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
testosterone 250 (testosterone blend)	Strodalone	250 mg/ml	5 ml vial	Ranvet	Australia		VET
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Schering	Australia		
testosterone (implant)	Ralgro Testosterone Pellets	25.5 mg pellet	100, 500 pellet bottle	Jurox	Australia		VET
testosterone cypionate	Anabolic TL	100 mg/ml	10 ml vial	SYD Group	Australia		VET
testosterone cypionate	Bernol	75 mg/ml	200 ml bottle	Chemvet	Australia	[NLM]	VET
testosterone cypionate	Ridrot Testosterone Inj.	75 mg/ml	250 ml vial	Troy	Australia		VET
testosterone cypionate	Testo CA	100 mg/ml	10 ml vial	Jurox	Australia	[NLM]	VET
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Australia		
testosterone enanthate	Ridrot Liquid Testosterone	75 mg/ml	250 ml vial	Troy	Australia		VET
testosterone propionate	AVP Supertest	50 mg/ml	10 ml vial	Vetsearch	Australia		VET
testosterone propionate	Testo Hormone	100 mg/ml	500 ml vial	Virbac	Australia		VET
testosterone propionate	VR Testprop	50 mg/ml	10 ml vial	Jurox	Australia		VET
testosterone propionate (implant)	Progro-R (plus estradiol)	20 mg/pellet	n/a	Fort Dodge	Australia		VET
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Fort Dodge	Australia		VET
testosterone propionate (implant)	Virbac Testo Pellets	25.5 mg pellet	100 pellet	Virbac	Australia		VET
testosterone suspension	Anabolic TS	100 mg/ml	20 ml vial	SYD Group	Australia		VET
testosterone suspension	RWR Suspension	100 mg/ml	20 ml vial	RWR	Australia		VET
testosterone suspension	Testosus 100	100 mg/ml	20 ml vial	Jurox	Australia	[NLM]	VET
testosterone undecanoate	Andriol	40 mg capsule	60 capsule bottle	Organon	Australia		
Testoviron (testosterone blend)	Primoteston Depot 100	135 mg/ml	1 ml ampule	Schering	Australia	[NLM]	
Testoviron (testosterone blend)	Primoteston Depot 50	75 mg/ml	1 ml ampule	Schering	Australia	[NLM]	
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Austria		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Brazil		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
oxandrolone	Lipidex	2.5 mg tablet	n/a	Searle	Brazil	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
oxymetholone	Hemogenin	50 mg tablet	n/a	Aventis	Brazil		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Sustanon 250 (testosterone blend)	Durateston 250®	250 mg/ml	1 ml ampule	Organon	Brazil		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
testosterone undecanoate	Androxon	40 mg capsules	20 capsule box	Organon	Brazil		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Bulgaria		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
methandrostenolone	Bionabol	2 mg tablet	40 tablet bottle	Pharmacia	Bulgaria	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Gedeon Richter	Bulgaria	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Bulgaria	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
nandrolone phenylpropionate	Nerobolil	25 mg/ml	1 ml ampule	Godeon Richter	Bulgaria	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
Omnadren (testosterone blend)	Omnadren 250	250 mg/ml	1 ml ampule	Jelfa	Bulgaria		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Bulgaria		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
testosterone propionate	Testosteron	50 mg/ml	1 ml ampule	Sopharma	Bulgaria		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Ciba-Geigy	Canada	[NLM]	VET
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	VET
boldenone undecylenate	Equipoise®	50 mg/ml	50 ml vial	Wyeth	Canada		VET
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
methandrostenolone	Metaboline	2 mg tablet	60, 500 tablet bottle	Desbergers	Canada	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		VET
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	2 ml	Organon	Canada	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
nandrolone phenylpropionate	Durabolin®	25, 50 mg/ml	n/a	Organon	Canada	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
oxymetholone	Anapolon 50®	50 mg tablet	100 tablet bottle	Hoffman-La Rouche	Canada	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		VET
stanozolol (oral)	Winstrol-V®	2 mg tablet	100 tablet bottle	Pharmacia	Canada		VET
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
testosterone (patch)	Androderm®	12.2 mg patch.	30 patches/box	Pharmascience	Canada		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
testosterone cypionate	Scheinpharma Testone-Cyp	100 mg/ml	10 ml vial	Schein	Canada		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
testosterone cypionate	Testosterone Cypionate Inj.	200 mg/ml	10 ml vial	Sabex	Canada		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	Theramed	Canada		
testosterone enanthate	Malogex LA200	200 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone enanthate	PMS-Testosterone Enanthate	200 mg/ml	10 ml vial	Pharmascience	Canada		
testosterone enanthate	Testosterone Enanthate Inj	200 mg/ml	10 ml vial	Taro	Canada	[NLM]	
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Ayerst	Canada	[NLM]	VET
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Sterivet	Canada	[NLM]	VET
testosterone propionate	Anatest	100 mg/ml	10 ml vial	Veterquivet	Canada		VET
testosterone propionate	Malogen In Oil	100 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone propionate	Testosterone Propionate Inj	100 mg/ml	10 ml vial	Cyrex	Canada		
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Dominion	Canada		VET
testosterone propionate	Testosterone Propionate Inj.	100 mg/ml	10 ml vial	Taro	Canada	[NLM]	
testosterone propionate	Uni-Test Inj	100 mg/ml	10 ml vial	Univet	Canada		VET
testosterone propionate (implant)	Synovex-H (plus estradiol)	20 mg/pellet	n/a	Ayerst	Canada		
testosterone suspension	Malogen Aqueous	100 mg/ml	10 ml vial	Germiphene	Canada	[NLM]	
testosterone suspension	Testos 100	100 mg/ml	10 ml vial	Vercom	Canada		VET
testosterone suspension	Uni-Test Suspension	100 mg/ml	30 ml vial	Univet	Canada		VET
testosterone suspension	Vetu-Test Sus	100 mg/ml	30 ml vial	Austin	Canada		VET
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Canada		
trenbolone acetate	Revalor-H (plus estradiol)	200 mg pellet	70 pellet cartridge	Intervet	Canada		VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	60 pellet cartridge	Intervet	Canada		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	50 pellet cartridge	Wyeth	Canada		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Chile		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Chile		VET
nandrolone cyclohexylpropionate	Genadrag	50 mg/ml	10 ml vial	Drag Pharma	Chile		VET
nandrolone decanoate	Anaprolina	25, 50 mg/ml	1 ml ampule	Biosano	Chile		
nandrolone decanoate	Deca-Durabolin®	25, 50, 100 mg/ml	1 ml ampule	Organon	Chile		
nandrolone decanoate	Decanoato Nandrolona	25, 50 mg/ml	1 ml ampule	Asloge	Chile		
nandrolone decanoate	Decanoato Nandrolona	50 mg/ml	1 ml ampule	Biosano	Chile		
nandrolone decanoate	Nandrolona decanoato	50 mg/ml	1 ml ampule	Chile	Chile		
nandrolone decanoate	Nandrosande	25, 50, 100 mg/ml	1 ml ampule	Sanderson	Chile		
Sustanon 250 (testosterone blend)	Sustenan 250	250 mg/ml	1 ml ampule	Organon	Chile		
testosterone enanthate	ciclo-6	300 mg/ml	2 ml ampule	Drag Pharma	Chile		VET
testosterone enanthate	Primoniat®-Depot 250	250 mg/ml	1 ml ampule	Schering-Chile	Chile	[NLM]	
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Biosano	Chile		
testosterone enanthate	testosterona enantato	100 mg/ml	1 ml ampule	Chile	Chile	[NLM]	
testosterone enanthate	testosterona enantato	250 mg/ml	1 ml ampule	Chile	Chile		
testosterone undecanoate	Sustanon Oral	40 mg capsules	n/a	Organon	Chile		
Testoviron (testosterone blend)	Primoniat®-Depot 100	135 mg/ml	1 ml ampule	Schering-Chile	Chile	[NLM]	
oxandrolone	Anavar	5 mg tablet	30 tablet strip	Hubei Huaxingsu	China		
testosterone propionate	Dubol	25 mg/ml	1 ml ampule	n/a	China		
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	1 ml ampule	n/a	China		
testosterone undecanoate	Andriol	40 mg capsules	16 capsule box	Organon	China		
boldenone undecylenate	Boldenol 25	25 mg/ml	10, 50, 100, 250ml vial	Comandina	Colombia		VET
boldenone undecylenate	Boldenol R	50 mg/ml	10, 50, 100, 250ml vial	Comandina	Colombia		VET
boldenone undecylenate	Boldenona	50 mg/ml	10, 20, 100 ml vial	Biogen	Colombia		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
boldenone undecylenate	Boldenona	50 mg/ml	10, 50, 100, 250ml vial	Vecol	Colombia		VET
boldenone undecylenate	Boldenona 50	50 mg/ml	10, 50, 100, 250ml vial	Servet-ums	Colombia		VET
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Colombia		VET
boldenone undecylenate	Ciclotin 50	50 mg/ml	10, 50, 250 ml vial	Provet	Colombia		VET
boldenone undecylenate	Dynabolin 50	50 mg/ml	10, 50, 100, 250ml vial	Kryovet	Colombia		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios \M	Colombia		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios \M	Colombia		VET
boldenone undecylenate	Legacy	50 mg/ml	50 ml vial	Technoquimicas	Colombia		VET
boldenone undecylenate	Mitgan 50	50 mg/ml	50 ml vial	California	Colombia		VET
boldenone undecylenate	Potrobol 5%	10 mg/ml	10, 50, 100 ml vial	Compania California	Colombia		VET
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Colombia		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Colombia		
nandrolone laurate	Laurabolin	50 mg/ml	10, 50 ml	Intervet	Colombia		VET
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Colombia		
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Costa Rica		VET
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Costa Rica		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Costa Rica	[NLM]	
Sustanon 250 (testosterone blend)	Testosterona 250	250 mg/ml	10 ml vial	Qualivet	Costa Rica		VET
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Costa Rica		VET
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Croatia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Cyprus		
mesterolone	Proviron®	25 mg tablet	20, 90 tablet box	Schering	Czech. Rep.		
methandrostenolone	Stenolon	5 mg tablet	20 tablet box	Leciva	Czech. Rep.	[NLM]	
methandrostenolone	Stenolon	1 mg/tablet	20 tablet box	Leciva	Czech. Rep.	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Czech. Rep.	[NLM]	
methyltestosterone	Agovirin	10 mg dragee	100 dragee bottle	Leciva	Czech. Rep.	[NLM]	
nandrolone decanoate	Turinabol Depot	50 mg/ml	1 ml ampule	Jenapharm	Czech. Rep.	[NLM]	
nandrolone hexyloxyphenylpropionate	Anabur	25, 50 mg/ml	1,2 ml ampule	Pharmacia	Czech. Rep.	[NLM]	
nandrolone phenylpropionate	Superanabolon	25 mg/ml	1 ml ampule	Spofa	Czech. Rep.		
nandrolone phenylpropionate	Turinabol	25 mg/ml	n/a	Leciva	Czech. Rep.	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling-Health	Czech. Rep.	[NLM]	
Sustanon 250 (testosterone blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Czech. Rep.		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Czech. Rep.	[NLM]	
testosterone propionate	Agovirin Inectable	25 mg/ml	n/a	Leciva	Czech. Rep.	[NLM]	
testosterone suspension (isobutyrate)	Agovirin-Depot	25 mg/ml	2 ml ampule	Biotika	Czech. Rep.		
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Czech. Rep.		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Denmark	[NLM]	
mesterolone	Mesterolon®	25 mg tablet	n/a	Schering	Denmark		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Denmark	[NLM]	
nandrolone hexyloxyphenylpropionate	Anabur	25 mg/ml	2 ml ampule	Lundbeck	Denmark	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Denmark	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Denmark		
testosterone undecanoate	Restandol	40 mg capsules	60 capsule bottle	Organon	Denmark		
Testoviron (testosterone blend)	Testoviron® Depot 135	135 mg/ml	1 ml ampule	Schering	Denmark		
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Dom. Rep.		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Dom. Rep.		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Dom. Rep.		VET
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Dom. Rep.		
methandrostenolone	Anabolex	3 mg tablet	100 tablet box	Ethical	Dom. Rep.		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Dom. Rep.	[NLM]	
nandrolone decanoate	Dimetabol	50 mg/ml	50 ml vial	Bremer Pharma	Dom. Rep.	[NLM]	VET
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Dom. Rep.		
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Dom. Rep.		VET
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Dom. Rep.		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Dutch Antilles		
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Ecuador		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Ecuador		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Ecuador		VET
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Ecuador	[NLM]	
methenolone acetate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Ecuador		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Ecuador		
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Ecuador		VET
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ecuador		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering/CID	Egypt	[NLM]	
methenolone enanthate	Primobolan Depot	100 mg/ml	1 ml ampule	Schering/CID	Egypt	[NLM]	
methyltestosterone	Neo Aptin	5 mg tablet	30 tablet	Misr	Egypt		
nandrolone cyclohexylpropionate	Sanabolicum	25, 50 mg/ml	1 ml ampule	Biochemie/Nile	Egypt		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon/Nile	Egypt		
nandrolone decanoate	Gerabolin	25 mg/ml	1 ml ampule	Nile	Egypt		
nandrolone decanoate	Retabolil	50 mg/ml	1 ml ampule	Medimpex/Aurobia	Egypt		
nandrolone phenylpropionate	Menabolin	25 mg/ml	1 ml ampule	Theramex/Menphis	Egypt		
Sustanon 100 (testosterone blend)	Sustanon '100'®	100 mg/ml	1 ml ampule	Organon/Nile	Egypt		
Sustanon 100 (testosterone blend)	Testonon '100'®	100 mg/ml	1 ml ampule	Nile	Egypt		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon/Nile	Egypt		
Sustanon 250 (testosterone blend)	Testonon '250'®	250 mg/ml	1 ml ampule	Nile	Egypt		
testosterone blend (misc)	Triolandron	250 mg/ml	1 ml ampule	Novartis	Egypt		
testosterone enanthate	Cioteston Depot	250 mg/ml	1 ml ampule	CID	Egypt		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering/CID	Egypt	[NLM]	
testosterone propionate	Testone-E	25 mg/ml	1 ml ampule	Misr	Egypt		
testosterone undecanoate	Andriol	40 mg capsules	20 capsule box	Organon/Sadico	Egypt		
Testoviron (testosterone blend)	Primoteston®-Depot 100	135 mg/ml	1 ml ampule	Schering/CID	Egypt	[NLM]	
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	El Salvador		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	El Salvador		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	El Salvador		VET
mesterolone	Proviron®	25 mg tablet	n/a	Schering	El Salvador		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	El Salvador	[NLM]	
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	El Salvador		VET
mesterolone	Proviron®	25 mg tablet	20 tablet Box	Schering	Estonia	[NLM]	
nandrolone decanoate	Retabolil	50 mg/ml	1 ml ampule	Gedeon Richter	Estonia		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Estonia		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone undecanoate	Pantestone	40 mg capsules	60 capsule bottle	Organon	Estonia		
testosterone enanthate	Testoviron-Depot	250 mg/ml	1 ml ampule	Schering	Finland		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Finland		
mesterolone	Proviron®	25 mg tablet	n/a	Leiras	Finland		
methandrostenolone	Anabolin	5 mg tablet	n/a	Leiras	Finland	[NLM]	
methandrostenolone	Anabolin	0.5% cream	n/a	Leiras	Finland	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Leiras	Finland	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Finland		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1,2 ml	Organon	Finland		
nandrolone heptylate	Durabolin	50 mg/ml	1 ml ampule	Organon	Finland	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Finland	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	n/a	Organon	Finland		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Finland		
testosterone enanthate	Primobolan® Depot	250 mg/ml	1 ml ampule	Leiras	Finland	[NLM]	
testosterone undecanoate	Panteston	40 mg capsules	60 capsule bottle	Organon	Finland		
androstanolone	Andractim	25 mg/g	100 gram gel	Berlin-Chemie AG	France		
drostanolone propionate	Permastril	100 mg/2ml	2 ml ampule	Cassenne	France	[NLM]	
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Pharmacia-Upjohn	France	[NLM]	
mesterolone	Proviron®	25 mg tablet	n/a	Schering	France	[NLM]	
methandrostenolone	Primobolan®	50 mg tablet	n/a	Schering	France	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	France	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml	Organon	France	[NLM]	
nandrolone hexyloxyphenylpropionate	Anador	25 mg/ml	2 ml ampule	Pharmacia-Upjohn	France	[NLM]	
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Theramex	France	[NLM]	
norethandrolone	Nilevar	10 mg tablet	30 tablet bottle	Searle	France		
oxandrolone	Anavar®	2.5 mg tablet	n/a	Searle	France	[NLM]	
testosterone cyclohexylpropionate	Testosterone CHP Theramex	296, 148, 37 mg/ml	1 ml ampule	Theramex	France	[NLM]	
testosterone enanthate	Andriol Testocaps	250 mg/ml	1 ml ampule	Schering	France		
testosterone enanthate	Testosterone Heptylate	50, 100, 250 mg/ml	1 ml ampule	Theramex	France		
testosterone undecanoate	Panteston	40 mg capsules	60 capsule bottle	Organon	France		
trenbolone acetate	Finaject	30 mg/ml	n/a	Roussel	France	[NLM]	VET
trenbolone hexahydrobenzylcarbonate	Parabolan	76 mg/1.5 ml	1.5 ml ampule	Negma	France	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Georgia		
boldenone undecylenate	Vebonol	25 mg/ml	10 ml vial	Ciba Geigy	Germany		VET
clostebol acetate	Megagrisevit-Mono	15 mg dragee	30 dragee box	Pharmacia	Germany	[NLM]	
clostebol acetate	Megagrisevit-Mono	10 mg/1.5ml	1.5 ml vial	Pharmacia	Germany	[NLM]	
drostanolone propionate	Masterid	100 mg/2ml	2 ml amp	Gruenthal	Germany	[NLM]	
mesterolone	Proviron	25 mg dragee	30 dragee box	Asche	Germany	[NLM]	
mesterolone	Proviron®	25 mg tablet	50 tablet bottle	Schering	Germany	[NLM]	
mesterolone	Viagmon	25 mg tablet	50 tablet box	Jenapharm	Germany	[NLM]	
methandrostenolone	Anabolikum 2.5%	25 mg/ml	50 ml vial	Meca G	Germany	[NLM]	VET
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	Germany	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Germany	[NLM]	
methenolone acetate	Primobolan® Acetate	25 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Germany	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methenolone enanthate	Primobolan® Depot mite	50 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
methyltestosterone	Testosteron	5 mg tablet	n/a	Rexo	Germany	[NLM]	
methyltestosterone	Testoyohim	25 mg dragee	30 dragee box	Paul Mehner	Germany	[NLM]	
nandrolone decanoate	Anabolicum	25 mg/ml	10, 50 ml vial	Beta Pharm	Germany		VET
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml	Organon	Germany	[NLM]	
nandrolone decanoate	Turinabol Depot	50 mg/ml	1 ml ampule	Jenapharm	Germany	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmaci	Germany	[NLM]	
nandrolone laurate	Fortedex	25, 50 mg/ml	n/a	Hydro	Germany		VET
nandrolone laurate	Laurabolin	25, 50 mg/ml	5, 10, 50 ml	Vemie	Germany		VET
nandrolone phenylpropionate	Turinabol	25 mg/ml	n/a	Jenapharm	Germany	[NLM]	
stanozolol (inj)	Strombaject	50 mg/ml	n/a	Winthrop	Germany	[NLM]	
stanozolol (oral)	Strombal	5 mg tablet	n/a	Winthrop	Germany	[NLM]	
Sustanon 100 (testosterone blend)	Sustanon 100	100 mg/ml	1 ml ampule	Organon	Germany	[NLM]	
Sustanon 250 (testosterone blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	Germany	[NLM]	
Sustanon 250 (testosterone blend)	Testosteron 250	250 mg/ml	1 ml ampule	Rotex Medica	Germany	[NLM]	
testosterone (gel)	Androtop Gel	50 mg	single dose packet	Kade/Besins	Germany		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Jenapharm	Germany		
testosterone (patch)	Andropatch®	12.2 mg patch	10, 30, 60 patches/box	ActivaScience	Germany		
testosterone enanthate	Testosteron Depot	100 mg/ml	1 ml ampule	Rotex Medica	Germany	[NLM]	
testosterone enanthate	Testosteron Depot	250 mg/ml	1 ml ampule	Rotex Medica	Germany		
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Eifelfango	Germany		
testosterone enanthate	Testosteron-Depot	250 mg/ml	1 ml ampule	Jenapharm	Germany		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Germany		
testosterone enanthate	Testoviron-Depot Perlon Supp	40 mg/suppository	10 supp. box	Funke	Germany	[NLM]	
testosterone propionate	Testosterone Jenapharm	25 mg/ml	1 ml ampule	Jenapharm	Germany	[NLM]	
testosterone propionate	Testosterone Vita	n/a	10, 25 mg/ml	Neopharma	Germany	[NLM]	
testosterone propionate	testosteronpropionat	10, 25 mg/ml	1 ml ampule	Eifelfango	Germany	[NLM]	
testosterone propionate	testosteronpropionat	50 mg/ml	1 ml ampule	Eifelfango	Germany		
testosterone undecanoate	Andriol	40 mg capsules	30, 60 capsule bottle	Organon	Germany		
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Germany	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ghana		
fluoxymesterone	Halotestin®	5 mg tablet	20 tablet box	Upjohn	Greece		
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Greece		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Greece	[NLM]	
methyltestosterone	Andriol	10 mg tablet	n/a	Organon	Greece	[NLM]	
methyltestosterone	Teston	25 mg tablet	30 tablet box	Remek	Greece		
nandrolone decanoate	Anabolina Depot	50 mg/ml	1 ml	Adelco	Greece		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml vial	Organon	Greece		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Greece		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	2 ml vial	Organon	Greece		
nandrolone decanoate	Ephorma	50 mg/ml	1 ml	Chemica	Greece	[NLM]	
nandrolone decanoate	Extraboline	50 mg/ml	2 ml vial	Genepharm	Greece		
nandrolone decanoate	nandrolone decanoate	200 mg/2ml	2 ml vial	Norma Hellas	Greece		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone decanoate	Nurezan	50 mg/ml	1 ml ampule	Rafarm	Greece		
nandrolone decanoate	Deca-Durabolin	50 mg/ml	1 ml ampule	Organon	Greece	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadurin	50 mg/ml	1 ml ampule	Xponei	Greece	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Greece	[NLM]	
nandrolone undecanoate	Psychobolan	80.5 mg/ml	1ml ampule	Theramex	Greece	[NLM]	
oxymetholone	Anasteron	25 mg tablet	60 tablet bottle	Farmaprod	Greece		
oxymetholone	Anasteron	50 mg tablet	n/a	Syntex	Greece	[NLM]	
oxymetholone	Oxybolone	50 mg tablet	20 tablet box	Genopharm	Greece		
oxymetholone	Oxymetholone Miverva	50 mg tablet	100 tablet	Minerva	Greece	[NLM]	
stanozolol (inj)	Winstrol®	50 mg/ml	n/a	Winthrop	Greece	[NLM]	
stanozolol (oral)	stanozolol	5 mg tablet	30 tablet box	Genepharm	Greece		
stanozolol (oral)	Stromba	5 mg tablet	50 tablet box	n/a	Greece		
stanozolol (oral)	Winstrol®	2 mg tablet	n/a	Winthrop	Greece	[NLM]	
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Greece		
testosterone propionate	Testoviron®	50 mg/ml	1 ml ampule	Schering	Greece		
testosterone undecanoate	Restandol	40 mg capsules	60 capsule bottle	Organon	Greece		
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Greece	[NLM]	
boldenone undecylenate	Boldenone 50 Geo Far	50 mg/ml	10, 50, 100, 250ml vial	Geo Far	Guatemala		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Guatemala		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Guatemala		VET
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Guatemala		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Guatemala	[NLM]	
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Guatemala		
testosterone enanthate	Primotestan Depot	250 mg/ml	1 ml ampule	Schering	Guatemala		
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Guatemala		VET
boldenone undecylenate	Boldenone 50 Geo Far	50 mg/ml	10, 50, 100, 250ml vial	Geo Far	Honduras		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Honduras		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Honduras		VET
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Honduras		
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Honduras	[NLM]	
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Honduras		VET
methylandrostenediol	Protandrol	n/a	n/a	Eurogenerics	Hong Kong		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Charmaine	Hong Kong		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	25 mg/ml	n/a	Charmaine	Hong Kong		
testosterone propionate	Testosterone Propionate Inj	50 mg/ml	n/a	Hong Kong Med	Hong Kong		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Hong-Kong		
testosterone	Proviron®	25 mg tablet	10, 15, 20, 30, 100, 150 tab pk	Schering	Hungary		
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Gedeon Richter	Hungary	[NLM]	
methandrostenolone	Andriol	10 mg tablet	n/a	Gedeon Richter	Hungary		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Hungary		
nandrolone phenylpropionate	Nerobol	25 mg/ml	n/a	Gedeon Richter	Hungary	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling-Health	Hungary		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
testosterone propionate	Androfort-Richter	10, 25 mg/ml	n/a	Gedeon Richter	Hungary		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testosteron	5, 10, 25, 50 mg/ml	1 ml ampule	Homolard	Hungary	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Hungary		
Testoviron (testosterone blend)	Testoviron® Depot	135 mg/ml	1 ml ampule	Schering	Hungary	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Iceland		
dihydrotestosterone	Andractim	25 mg/g	100 gram gel	Chemex	India		
ethylestrenol	Orabolin®	2 mg tablet	10 tablet box	Infar	India		
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	India		
mesterolone	Provironum®	25 mg tablet	30 tablet box	Schering	India	[NLM]	
mesterolone	Restoro	25 mg tablet	20 tablet box	Brown & Burk	India		
methandrostenolone	Pronabol-5	5 mg tablet	100 tablet box	P&B Labs	India		
methandrostenolone	Trinergic	5 mg capsule	n/a	Unimed	India	[NLM]	
methenolone enanthate	Methenolone Enanthate Inj BP	100 mg/ml	1 ml ampule	Belco Pharma	India		
nandrolone decanoate	Deca Dubol-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
nandrolone decanoate	Deca-Durabolin®	25, 50, 100 mg/ml	1 ml ampule	Infar	India		
nandrolone decanoate	Deca-Evabolin	25 mg/ml	1 ml ampule	Concept	India		
nandrolone decanoate	Decagic	100 mg/ml	10 ml vial	Unichem	India	[NLM]	
nandrolone decanoate	Decaneurabol	25, 50 mg/ml	1 ml ampule	Cadila	India		
nandrolone decanoate	Decaneurophen	25, 50 mg/ml	1 ml ampule	Ind-Swift	India		
nandrolone decanoate	Deca-Proviron	100 mg/ml	2 ml ampule	P&B Labs	India		
nandrolone decanoate	Metadec	25, 50 mg/ml	1 ml ampule	Jagsonpal	India		
nandrolone decanoate	Myobolin	25 mg/ml	1 ml ampule	Troikaa	India		
nandrolone decanoate	Nandrolone Decanoate Inj BP	25, 50, 100 mg/ml	1,2 ml ampule	Belco Pharma	India		
nandrolone phenylpropionate	Dubol-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
nandrolone phenylpropionate	Dubol-50	50 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Infar	India		
nandrolone phenylpropionate	Evabolin	25 mg/ml	1 ml ampule	Concept	India		
nandrolone phenylpropionate	Metabol	25 mg/ml	1 ml ampule	Jagsonpal	India		
nandrolone phenylpropionate	nandrolone phenylpropionate	50, 100mg/ml	2 ml vial	Hayrian Biologicals	India	[NLM]	
nandrolone phenylpropionate	Nandrolone Phenylpropionate BP	25, 50 mg/ml	1,2 ml ampoule	Belco Pharma	India		
nandrolone phenylpropionate	Neurabol Inj	25 mg/ml	1 ml ampule	Cadila	India		
nandrolone phenylpropionate	Neurophen	25 mg/ml	1 ml ampule	Ind-Swift	India		
oxandrolone	Oxandrolone Tablets BP	2.5, 5 mg tablet	n/a	Belco Pharma	India		
oxymetholone	Anadrol	5 mg tablet	100 tablet	Parke Davis	India		
oxymetholone	Oxymetholone Tablets BP	5 mg tablet	n/a	Belco Pharma	India		
stanozolol (oral)	Menabol	5 mg tablet	100 tablet box	n/a	India		
stanozolol (oral)	Neurabol	2 mg capsule	10 capsule box	Cadila	India		
stanozolol (oral)	Stanozolol Tablets BP	2 mg tablet	n/a	Belco Pharma	India		
Sustanon 100 (testosterone blend)	Sustanon (Cyctahoh)	100 mg/ml	1 ml ampule	Infar	India		
Sustanon 250 (testosterone blend)	Conatron 250	250 mg/ml	1 ml ampule	Belco Pharma	India		
Sustanon 250 (testosterone blend)	Sistanon 250	250 mg/ml	1 ml ampule	Jackson Labs	India		
Sustanon 250 (testosterone blend)	Sustanon 250 (Cyctahoh)	250 mg/ml	1 ml ampule	Infar	India		
Sustanon 250 (testosterone blend)	Sustaretard 250	250 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
testosterone cypionate	Testacyp	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone enanthate	Sustaverone	250 mg/ml	1 ml ampule	Jackson Labs	India		
testosterone enanthate	Testen 250	250 mg/ml	2 ml vial	BM Pharmaceuticals	India		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	German Remedies	India		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	India		
testosterone propionate	Testopin-100	100 mg/ml	2 ml vial	BM Pharmaceuticals	India		
testosterone propionate	Testopin-100	100 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
testosterone propionate	Testosterone Propionate Inj BP	10, 25, 50 mg/ml	1, 2 ml ampule	Belco Pharma	India		
testosterone suspension	Agovirin	25 mg/ml	1 ml ampule	Nicholas	India		
testosterone undecanoate	Nuvir	40 mg capsules	30 capsule bottle	Organon	India		
Testoviron (testosterone blend)	Testenon	135 mg/ml	2 ml vial	BM Pharmaceuticals	India		
Testoviron (testosterone blend)	Testenon	135 mg/ml	1 ml ampule	BM Pharmaceuticals	India		
ethylestrenol	Orabolin	2 mg tablet	n/a	Organon	Indonesia		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Indonesia		
methandrostenolone	Neo-Anabolene	5 mg tablet	30 tablet amp	Nicholas	Indonesia		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Indonesia		
nandrolone phenylpropionate	Durabolin	12.5 mg/ml	2 ml ampule	Organon	Indonesia		
Sustanon 250 (testosterone blend)	Sustanon "250"	250 mg/ml	1 ml ampule	Organon	Indonesia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Indonesia		
nandrolone phenylpropionate	nandrolone phenylpropionate	25 mg/ml	1 ml ampule	Iran Hormone	Iran		
oxymetholone	Oxymetholone 50	50 mg tablet	100 tablet bottle	Abadi	Iran		
testosterone enanthate	Testosterone Enanthate	100 mg/ml	1 ml ampule	Aburaihan	Iran		
testosterone enanthate	Testosterone Enanthate 250	250 mg/ml	1 ml ampule	Aburaihan	Iran		
nandrolone decanoate	Deca-Durabolin®	n/a	n/a	Organon	Ireland		
Sustanon 250 (testosterone blend)	Sustanon	250 mg/ml	1 ml ampule	Organon	Ireland		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Ireland	[NLM]	
mesterolone	Proviron®	25 mg tablet	20, 50 tablet box	Schering	Israel		
oxandrolone	Lonavar	2.5 mg tablet	100 tablet bottle	BTG	Israel		
oxymetholone	Roboral	50 mg tablet	100 tablet	Abic/Kanoll-Gan	Israel	[NLM]	
Sustanon 250 (testosterone blend)	Sustanon	250 mg/ml	1 ml ampule	Organon	Israel		
testosterone enanthate	Testoviron® Depot	250 mg/ml	1 ml ampule	Schering	Israel		
testosterone undecanoate	Androxon	40 mg capsules	30 capsule bottle	Organon	Israel		
clostebol acetate	Alfa-Trofodermin	.5% gel	n/a	Farmitalia	Italy	[NLM]	
clostebol acetate	Alfa-Trofodermin	.5% gel	n/a	Pharmacia & Upjohn	Italy		
clostebol acetate	Steranabol	20 mg/ml	2 ml ampule	Farmasister	Italy	[NLM]	
clostebol acetate	Trofodermin Crema	cream	30 gram tube	Carlo Erba OTC	Italy		
clostebol acetate	Trofodermin Spray	n/a	30 ml spray	Carlo Erba OTC	Italy		
fluoxymesterone	Halotestin®	5 mg tablet	20 tablet box	Upjohn	Italy	[NLM]	
formebolone	Esiclene	1 mg drops	n/a	LPB	Italy	[NLM]	
formebolone	Esiclene	2 mg/ml	2 ml ampule	LPB	Italy	[NLM]	
formebolone	Esiclene	5 mg tablet	n/a	LPB	Italy	[NLM]	
mesterolone	Proviron®	50 mg tablet	20 tablet box	Schering	Italy		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
methyltestosterone	Testovis	10 mg tablet	n/a	SIT	Italy		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Italy		
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Farmasister	Italy	[NLM]	
nandrolone undecanoate	Dynabolon	80.5 mg/ml	1 ml ampule	Fournier	Italy		
oxabolone cypionate	Steranabol Ritardo	12.5 mg/ml	2 ml ampule	Pharmacia & Upjohn	Italy	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
oxandrolone	Oxandrolone SPA (Export)	2.5 mg tablet	30 tablet box	SPA	Italy		
quinbolone	Anabolicum Vister	oral drops	n/a	Parke Davis	Italy	[NLM]	
stanozolol (oral)	Winstrol®	2 mg tablet	20 tablet box	Zambon	Italy	[NLM]	
testosterone (patch)	Androderm®	12.2 mg patch.	n/a	Schwarz Pharma	Italy		
testosterone enanthate	Testo-Enant	125 mg/ml	2 ml ampule	Geymonat	Italy		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Italy		
testosterone propionate	Testoviron®	10, 25, 50 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	60 capsule bottle	Organon	Italy		
Testoviron (testosterone blend)	Testoviron® Depot 50	75 mg/ml	1 ml ampule	Schering	Italy	[NLM]	
fluoxymesterone	Halotestin®	2, 5 mg tablet	n/a	n/a	Japan		
methandrostenolone	Andoredan	5 mg tablet	n/a	Takeshima-Kodama	Japan	[NLM]	
methenolone acetate	Primobolan®	5 mg tablet	100, 1000 tablet box	Schering	Japan		
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Japan		
oxandrolone	Vasorome	0.5 mg tablet	n/a	Kowa	Japan	[NLM]	
oxymetholone	Anadrol	5 mg tablet	n/a	n/a	Japan		
testosterone enanthate	Enarmon-Depot	125 mg/ml	n/a	Teskoku Hormone	Japan		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Japan		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Jordan		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Kenya		
mesterolone	Vistimon	25 mg tablet	n/a	n/a	Korea		
methyltestosterone	KangJungBing	n/a	n/a	n/a	Korea		
nandrolone decanoate	Canoate Inj	25, 50 mg/ml	n/a	n/a	Korea		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone decanoate	Dynabolon Inj	40 mg/.5 ml	1 ml ampule	n/a	Korea		
oxymetholone	Oxymetholone DongIndang	n/a	n/a	Dongindang	Korea		
oxymetholone	Oxymetholone HanSeo	50 mg tablet	100 tablet bottle	HanSeo	Korea		
stanozolol (oral)	Seidon	2 mg tablet	100 tablet box	Seoul Pharm	Korea		
stanozolol (oral)	Terabon	2 mg tablet	10 tablet strip	Jin Yang	Korea		
testosterone cypionate	Depo-TCP	200mg/ml	n/a	n/a	Korea		
testosterone cypionate	Miro Depo	125 mg/ml	2 ml vial	Hanil Pharm	Korea		
testosterone enanthate	Testosterone Enanthate Dalim	250 mg/ml	n/a	Dalim	Korea		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Korea		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Kuwait		
testosterone undecanoate	Panteston	40 mg capsules	n/a	Organon	Latvia		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Lebanon		
testosterone undecanoate	Panteston	40 mg capsules	n/a	Organon	Lithuania		
methyltestosterone	Testopropon	25 mg tablet	n/a	Scanpharm	Malaysia		
nandrolone decanoate	Retabolil	25, 50 mg/ml	1 ml ampule	Gedeon Richter	Malaysia		
oxymetholone	Anapolon 50	50 mg tablet	100 tablet bottle	Syntex	Malaysia	[NLM]	
oxymetholone	oxymetholone	50 mg tablet	n/a	Sime Darby	Malaysia		
testosterone (patch)	Testoderm	15 mg patch	n/a	Alza	Malaysia		
testosterone enanthate	Jenasteron Inj	250 mg/ml	1 ml ampule	Jenahexal	Malaysia		
testosterone propionate	Astrapin	50 mg/ml	1 ml ampule	Astrapin	Malaysia		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Malta		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Mauritius		
boldenone undecylenate	Anabolic-BD	100 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
boldenone undecylenate	Bold 200	200 mg/ml	10 ml vial	Agrovet Products	Mexico		VET
boldenone undecylenate	Bold QV 200	200 mg/ml	10 ml vial	Quality Vet	Mexico		VET
boldenone undecylenate	Boldenona 200	200 mg/ml	10 ml vial	Tecnica	Mexico	[NLM]	VET
boldenone undecylenate	Boldenona 200	200 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
boldenone undecylenate	Equibold	200 mg/ml	10 ml vial	Unimed	Mexico		VET
boldenone undecylenate	Equibol	200 mg/ml	10 ml vial	Brovel	Mexico		VET
boldenone undecylenate	Equipoise®	50 mg/ml	10, 50 (100, 250) ml vial	Fort Dodge	Mexico	[NLM]	VET
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Squibb	Mexico	[NLM]	VET
boldenone undecylenate	Ultra EQ 300	300 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
boldenone undecylenate	Ultragan	50 mg/ml	50 ml vial	Denkall	Mexico		VET
mesterolone	Proviron®	25 mg tablet	10 tablet box	Schering	Mexico		
methandrostenolone	Anabol-Jet ADE	30 mg/ml	100, 250 ml vial	Norvet	Mexico		VET
methandrostenolone	D-Bol	10 mg tablet	100 tablet bottle	Denkall	Mexico		VET
methandrostenolone	D-Bol	10 mg capsule	300 capsule bottle	Denkall	Mexico		VET
methandrostenolone	Dianabol	10 mg tablet	100 tablet bottle	Salud	Mexico		VET
methandrostenolone	Ganabol	25 mg/ml	50 ml vial	Salud	Mexico	[NLM]	VET
methandrostenolone	Metandiol 60	60 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
methandrostenolone	Metandrol 10	10 mg tablet	500 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
methandrostenolone	Methandienone	5, 10 mg tablet	100, 1000 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
methandrostenolone	Reforvit-B	25 mg/ml	10, 50 ml	Loeffler	Mexico		VET
methandrostenolone	Ultra D-Boll	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
methenolone acetate	Metenol QV	50 mg tablet	50 tablet bottle	Quality Vet	Mexico		VET
methenolone acetate	Primo-Plus 50	50 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
methenolone enanthate	Primobolan® Depot	50 mg/ml	1 ml ampule	Schering	Mexico		
methenolone enanthate	Suprimo 100	100 mg/ml	10 ml vial	SYD Group	Mexico		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methylandrostenediol (blend)	Anabolic-NA	75 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
methyltestosterone	Metil-Test	50 mg tablet	100 tablet bottle	Brovel	Mexico		VET
nandrolone cypionate	Anabolic-DN	50 mg/ml	10 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
nandrolone decanoate	Deca QV 200	200 mg/ml	10, 50 ml vial	Quality Vet	Mexico		VET
nandrolone decanoate	Decanandrolen	200mg/ml	10 ml vial	Denkall	Mexico		VET
nandrolone decanoate	Decanoato de Nandrolona	200 mg/ml	10 ml vial	Tornel	Mexico		VET
nandrolone decanoate	Dimetabol ADE	25 mg/ml	50, 100 ml vial	Lapisa	Mexico	[NLM]	VET
nandrolone decanoate	Norandren 20	20 mg/ml	10, 50 ml vial	Brovel	Mexico		VET
nandrolone decanoate	Norandren 200	200 mg/ml	10 ml vial	Brovel	Mexico		VET
nandrolone decanoate	Ultra Deca 300	300 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
nandrolone laurate	Laudrol LA	250 mg/ml	10 ml vial	Loeffler	Mexico		VET
oxandrolone	Oxafort	5 mg tablet	100 tablet bottle	Loeffler	Mexico		VET
oxandrolone	Oxandrol 10	10 mg tablet	100 tablet bottle	Bratis Labs	Mexico	[NLM]	VET
oxandrolone	Oxandrolone	5 mg tablet	100 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
oxandrolone	Oxavet QV	5 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
oxymetholone	Anabrol 50	50 mg tablet	100 tablet bottle	Brovel	Mexico		VET
oxymetholone	Kanestron	50 mg tablet	100 tablet bottle	Loeffler	Mexico		VET
oxymetholone	Oximetalon	75 mg tablet	100 tablet bottle	Denkall	Mexico		VET
oxymetholone	Oxivet QV	75 mg tablet	100 tablet bottle	Quality Vet	Mexico		VET
oxymetholone	Ultra Drol	50 mg tablet	100 tablet bottle	Nutri-Vet	Mexico		VET
stanozolol (inj)	Anabolic-ST	50 mg/ml	20 ml vial	Grupo Tarasco	Mexico	[NLM]	VET
stanozolol (inj)	Stan QV 100	100 mg/ml	20 ml vial	Quality Vet	Mexico		VET
stanozolol (inj)	Stanazolic	50, 100 mg/ml	20 ml, 10ml vial	Denkall	Mexico		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
stanozolol (inj)	Stanol-V	50, 100 mg/ml	20 ml vial	Ttokkyo	Mexico	[NLM]	VET
stanozolol (oral)	Estano-Pet's	10, 25 mg tablet	100 tablet bottle	Norvet	Mexico		VET
stanozolol (oral)	Stan Tabs	10 mg tablet	100 tablet bottle	Animal Power	Mexico		VET
stanozolol (oral)	Stanazolic	10 mg tablet	100 tablet bottle	Denkall	Mexico		VET
stanozolol (oral)	Stanol-V	10 mg tablet	100, 500 tablet bottle	Ttokkyo	Mexico	[NLM]	VET
Sten (testosterone blend)	Sten	50 mg/ml	2 ml ampule	Atlantis	Mexico		
Sustanon 250 (testosterone blend)	Sostenon 250®	250 mg/ml	1 ml ampule	Organon	Mexico		
Sustanon 250 (testosterone blend)	Testenon 250	250 mg/ml	5 ml vial	Ttokkyo	Mexico	[NLM]	VET
Sustanon 250 (testosterone blend)	Testosterona IV L/A	250 mg/ml	10 ml vial	Loeffler	Mexico		VET
Test 400 (testosterone blend)	Test 400	400 mg/ml	10 ml vial	Denkall	Mexico		VET
testosterone blend (misc)	Deposterona	60 mg/ml	10 ml vial	Fort Dodge	Mexico		VET
testosterone cypionate	Anabolic TL	200 mg/ml	10 ml vial	SYD Group	Mexico		VET
testosterone cypionate	CypioTest 250	250 mg/ml	10 ml vial	Denkall	Mexico		VET
testosterone cypionate	Teston QV 200	200 mg/ml	10 ml vial	Quality Vet	Mexico		VET
testosterone cypionate	Testosterone Cypionate L.A.	100 mg/ml	10 ml vial	Ttokkyo	Mexico	[NLM]	VET
testosterone decanoate	Neotest 250	250 mg/ml	10 ml bottle	Loeffler	Mexico		VET
testosterone enanthate	Enantato 350	350 mg/ml	10 ml vial	Pet's Pharma	Mexico		VET
testosterone enanthate	Macrotest E	250 mg/ml	10 ml vial	CPMax	Mexico		VET
testosterone enanthate	Testoenan L/A	250 mg/ml	10 ml vial	Loeffler	Mexico		VET
testosterone enanthate	Testosterone 200 Depot	200 mg/ml	10 ml vial	Tornel	Mexico		VET
testosterone propionate	Oreton	25 mg/ml	n/a	Goldline	Mexico	[NLM]	
testosterone propionate	Propiotest 100	100 mg/ml	10 ml vial	Animal Power	Mexico		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testosterona 100	100 mg/ml	10 ml vial	Brovel	Mexico		VET
testosterone propionate	Testosterona 50	50 mg/ml	10, 20 ml vial	Brovel	Mexico		VET
testosterone propionate (implant)	Synovex®-H (plus estrogen)	25 mg/pellet	80 pellet cartridge	Fort Dodge	Mexico		
testosterone suspension	Anabolic TS	100 mg/ml	20 ml vial	SYD Group	Mexico		VET
testosterone suspension	AquaTest	100 mg/ml	10 ml vial	Denkall	Mexico		VET
Testoviron (testosterone blend)	Aratest 2500	250 mg/ml	10 ml vial	Aranda	Mexico		VET
Testoviron (testosterone blend)	Testoprim-D	250 mg/ml	1 ml ampule	Labs. Tocogino	Mexico		
trenbolone acetate	Finaplix-H®	20 mg pellet	70, 100 pellet cartridge	Roussel	Mexico	[NLM]	VET
trenbolone acetate	Trembolone QV 75	75 mg/ml	10 ml vial	Quality Vet	Mexico		VET
trenbolone acetate	Trenbol 75	75 mg/ml	20 ml vial	Ttokkyo	Mexico	[NLM]	VET
trenbolone acetate	Ultra Tren	100 mg/ml	10 ml vial	Nutri-Vet	Mexico		VET
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Morocco		
boldenone (blend)	Equilon 100	100 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET
testosterone blend (misc)	Equitest 200	200 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET
trenbolone acetate	Trenol 50	50 mg/ml	6 ml vial	WDV	Myanmar/Burma		VET
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Upjohn	Netherlands	[NLM]	
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Netherlands	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Netherlands		
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Pharmacia	Netherlands	[NLM]	
nandrolone phenylpropionate	Durabolin®	25 mg/ml	1 ml ampule	Organon	Netherlands		
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Netherlands	[NLM]	
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Netherlands		
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Besins	Netherlands		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Neo-Hombreol	50 mg/ml	n/a	Organon	Netherlands	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Netherlands	[NLM]	
Sustanon 250 (testosterone blend)	Sustanon 250	250 mg/ml	1 ml ampule	Organon	New Zealand		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml syringe	Schering	New Zealand		
boldenone undecylenate	Boldenona 50 Gen-Far	50 mg/ml	10, 50, 100, 250ml vial	Gen-Far	Nicaragua		VET
methenolone acetate	Primobolan®	5 mg tablet	n/a	Schering	Nicaragua	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Nigeria		
mesterolone	Mestoranum	25 mg tablet	n/a	Schering	Norway	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Norway	[NLM]	
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Norway		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Oman		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1ml ampule	Organon	Pakistan		
testosterone enanthate	Testosterone Enanthate	250 mg/ml	1 ml ampule	Geofman	Pakistan		
testosterone undecanoate	Androxon	40 mg capsules	n/a	Organon	Pakistan		
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Panama		VET
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Panama		
testosterone propionate	Testogan	25 mg/ml	50 ml vial	Laguinsa	Panama		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Paraguay		VET
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Paraguay		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Paraguay		
boldenone undecylenate	Boldemax A.P.	50 mg/ml	10, 50, 100, 250ml vial	Agrovet	Peru		VET
boldenone undecylenate	Ganabol	50 mg/ml	500 ml vial	Laboratorios VM	Peru		VET

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Peru		
testosterone undecanoate	Panteston	40 mg capsules	30, 60 capsule bottle	Organon	Peru		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Pharmacia & Upjohn	Philippines		
nandrolone (blend)	Dinandrol	100 mg/ml	2 ml vial	Xelox (export)	Philippines		
stanozolol (oral)	Anazol	2 mg tablet	100, 1000 tablet bottle	Xelox (export)	Philippines		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Philippines		
methandrostenolone	Metanabol	5 mg tablet	20 tablet box	Jelfa	Poland		
methandrostenolone	Metanabol	I mg tablet	20 tablet box	Polfa	Poland		[NLM]
methylandrostenediol	Metylandrostendiol	10, 25 mg tablet	n/a	Jelfa	Poland		[NLM]
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Poland		[NLM]
Omnadren (testosterone blend)	Omnadren	250 mg/ml	1ml ampule	Jelfa	Poland		
testosterone enanthate	Testosteronum Prolongatum	100 mg/ml	1 ml ampule	Jelfa	Poland		
testosterone propionate	Testosteronum Propionicum	25 mg/ml	1 ml ampule	Jelfa	Poland		
drostanolone propionate	Masteron	100 mg/2ml	2 ml amp	Cilag	Portugal		[NLM]
formebolone	Esiclene	5 mg tablet	n/a	Biofarma	Portugal		[NLM]
methenolone enanthate	Primobolan® Depot	100 mg/ml	1 ml ampule	Schering	Portugal		[NLM]
nandrolone phenylpropionate	Durabolin®	50 mg/ml	n/a	Organon	Portugal		
stanozolol (oral)	Winstrol®	2 mg tablet	n/a	Winthrop	Portugal		[NLM]
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Portugal		
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Portugal		[NLM]
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Qatar		
methyltestosterone	Metil Testosteron	10 mg tablet	50 tablet box	Terapia	Rumania		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	Rumania		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone phenylpropionate	Testolent	100 mg/ml	1 ml ampule	Sicomed	Rumania	[NLM]	
testosterone undecanoate	Undestor	40 mg capsules	60 capsule bottle	Organon	Rumania		
mesterolone	Proviron®	25 mg tablet	20 tablet bottle	Schering	Russia		
methandrostenolone	Metandrostenolon	5 mg tablet	100 tablet box	Akrihin	Russia	[NLM]	
methandrostenolone	Metandrostenolon	5 mg tablet	100 tablet box	Bioreaktor	Russia	[NLM]	
nandrolone phenylpropionate	Fenobolin	20 mg/ml	n/a	Medexport Russia	Russia	[NLM]	
testosterone enanthate	Testenat 10%	100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
testosterone propionate	Testosterona Propionat	50, 100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
Testoviron (testosterone blend)	Testenat	100 mg/ml	1 ml ampule	Farmadon	Russia	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Saudi Arabia		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Singapore		
testosterone cypionate	Depo-Testosterone®	100 mg/ml	10 ml vial	Pharmacia & Upjohn	Singapore		
mesterolone	Proviron®	25 mg tablet	20, 50 tablet bottle	Schering	Slovakia		
testosterone undecanoate	Undestor	40 mg capsules	n/a	Organon	Slovakia		
mesterolone	Proviron®	25 mg tablet	20, 100 tablet bottle	Schering/Berlimed	South Africa		
methenolone acetate	Primobolan® S	25 mg tablet	50 tablet bottle	Schering/Berlimed	South Africa		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Donmed/Organon	South Africa		
testosterone cypionate	Depo-Testosterone	100 mg/ml	10 ml vial	Pharmacia & Upjohn	South Africa		
testosterone undecanoate	Androxon	40 mg capsules	60 capsule bottle	Donmed/Organon	South Africa		
formebolone	Hubernol	5 mg dragee	n/a	ICN Hubber	Spain	[NLM]	
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Spain		
methyltestosterone	Longivol (plus estrogen)	1 mg tablet	n/a	Medical S.A.	Spain		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Spain		
nandrolone phenylpropionate	Activin	10 mg/ml	n/a	Aristegvi	Spain	[NLM]	
nandrolone phenylpropionate	Fherbolico	50 mg/ml	n/a	Fher	Spain	[NLM]	
stanozolol (inj)	Winstrol® Depot	50 mg/ml	1 ml ampule	Zambon	Spain		
Sustanon 250 (testosterone blend)	Durandron	250 mg/ml	1 ml ampule	Organon	Spain	[NLM]	
testosterone (patch)	Androderm®	2.5 mg patch	30, 60 patch box	Schwarz Pharma	Spain		
testosterone (patch)	Testoderm	6 mg patch	10, 30 patch box	Esteve	Spain		
testosterone cypionate	Testex Leo prolongatum	50, 125 mg/ml	2 ml ampule	Altana Pharma	Spain		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Spain		
testosterone propionate	Testex Leo	25 mg/ml	1 ml ampule	Leo	Spain	[NLM]	
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Spain	[NLM]	
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Sri Lanka		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	Sudan		
mesterolone	Mesterolon	25 mg tablet	n/a	Schering	Sweden	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25, 100 mg/ml	1, 2 ml	Organon	Sweden	[NLM]	
stanozolol (inj)	Stromba	50 mg/ml	n/a	Sterling-Winthrop	Sweden	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Sweden	[NLM]	
testosterone (gel)	Testogel	25, 50 mg	single dose packet	Besins	Sweden		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Sweden		
Testoviron (testosterone blend)	Testoviron® Depot 135	135 mg/ml	1 ml ampule	Schering	Sweden	[NLM]	
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Switzerland	[NLM]	
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Switzerland	[NLM]	
nandrolone hexyloxyphenylpropionate	Anadur	25, 50 mg/ml	1, 2 ml ampule	Kabi Pharmacia	Switzerland	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
norethandrolone	Nilevar	10 mg tablet	30 tablet bottle	Searle	Switzerland	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
stanozolol (oral)	Stromba	5 mg tablet	n/a	Winthrop	Switzerland	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Switzerland		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
testosterone propionate	Triolandren	20 mg/ml	n/a	Ciba Geigy CH	Switzerland	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Testoviron (testosterone blend)	Testoviron® Depot 100	135 mg/ml	1 ml ampule	Schering	Switzerland	[NLM]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	Chinglicosan	5 mg capsule	n/a	Ciiphar	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	Floxymesterone	5 mg capsule	n/a	Chen Ho	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	Fu Lao Shu	10 mg capsule	n/a	Ming Ta	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	Lipaw	10 mg capsule	n/a	Long Der	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	ODK	5 mg capsule	n/a	Winston	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	Sidomon	5 mg capsule	n/a	n/a	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	Ton Lin	10 mg capsule	n/a	Chin Teng	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
fluoxymesterone	Vi Jane	10 mg capsule	n/a	Shyh Sar	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
mesterolone	Proviron	25 mg tablet	50 tablet box	Schering	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
methandrostenolone	Chinlipan Tab	2 mg tablet	n/a	Chin Tien	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
nandrolone phenylpropionate	Daily Reborn Inj	25 mg/ml	n/a	Shiteh	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
nandrolone phenylpropionate	Macrabone	25 mg/ml	n/a	Ta Fong	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
nandrolone phenylpropionate	Protosin Inj	25 mg/ml	n/a	Astar	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
nandrolone phenylpropionate	Sinbolin	25 mg/ml	n/a	Sinton	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
stanozolol (oral)	Stanozolol Tab	2 mg tablet	n/a	Chen Ho	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
testosterone blend (misc)	Triolandren	250 mg/ml	1 ml ampule	Novartis	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
testosterone cypionate	Cyclo-Testosterone Depot	130 mg/ml	n/a	Astar	Taiwan		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone cypionate	Depo-Testermon	200 mg/ml	n/a	CCPC	Taiwan		
testosterone cypionate	Depo-Testomon	100 mg/ml	n/a	Li Ta	Taiwan		
testosterone cypionate	Depot-Hormon MF	50 mg/ml	n/a	Sintong	Taiwan		
testosterone cypionate	Testorone Depot	100 mg/ml	n/a	Gentle	Taiwan		
testosterone cypionate	Testosterone Cypionate Inj	200 mg/ml	n/a	Tai Yu	Taiwan		
testosterone enanthate	Sunamon Depot Inj	130 mg/ml	n/a	Astar	Taiwan		
testosterone enanthate	Testenan Depot	250 mg/ml	n/a	Sinton	Taiwan		
testosterone enanthate	Testoviron Depot	250 mg/ml	1 ml ampule	Schering	Taiwan		
testosterone propionate	Testosteron Depot	25 mg/ml	n/a	Gentle	Taiwan		
testosterone undecanoate	Restandol	40 mg capsules	n/a	Organon	Taiwan		
boldenone undecylenate	Boldabol 200	200 mg/ml	10 ml vial	British Dragon	Thailand		
drostanolone propionate	Mastabol 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
fluoxymesterone	Halotestin®	5 mg tablet	100 tablet bottle	Pharmacia	Thailand		
methandrostenolone	Ammipire	5 mg tablet	1000 tablet bottle	Ammipire	Thailand		
methandrostenolone	Anabol Tablets	5 mg tablet	1000 tablet bottle	British Dispensary	Thailand		
methandrostenolone	Averbol 25	25 mg/ml	10, 20 ml vial	British Dragon	Thailand		
methandrostenolone	Melic	5 mg tablet	1000 tablet box, bottle	Pharmasant	Thailand		
methandrostenolone	Methanabol	10 mg tablet	500 tablet pouch	British Dragon	Thailand		
methandrostenolone	Methandon	5 mg tablet	1000 tablet bottle	Acdhon Co.	Thailand		
methenolone acetate	Primobolan® S	25 mg tablet	n/a	Schering	Thailand	[NLM]	
methylandrostenediol dipropionate	Methandriol Dipropionate	75 mg/ml	10 ml vial	British Dragon	Thailand		
methyltestosterone	TP Men Hormone	10 mg dragee	24 tablets	TP Drugs	Thailand		
nandrolone decanoate	Deca-Durabolin®	25, 50 mg/ml	1 ml ampule	Organon	Thailand		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone phenylpropionate	Norabon	25 mg/ml	1 ml ampule	Phihalab	Thailand		
oxandrolone	Oxanabol	10 mg tablet	100 tablet pouch	British Dragon	Thailand		
oxymetholone	Androlic	50 mg tablet	100 tablet bottle	British Dispensary	Thailand		
oxymetholone	Androlic (Export)	50 mg tablet	20 tablet pouch	British Dragon	Thailand	[NLM]	
oxymetholone	Oxydrol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
oxymetholone	Oxymetholone	50 mg tablet	100 tablet pouch	British Dispensary	Thailand	[NLM]	
stanozolol	Azolol	5 mg tablet	400 tablet bottle	British Dispensary	Thailand		
stanozolol (oral)	Stanabol	5 mg tablet	250 tablet pouch	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	5 mg tablet	200 tablet pouch	British Dragon	Thailand	[NLM]	
stanozolol (oral)	Stanabol	50 mg tablet	100 tablet pouch	British Dragon	Thailand		
stanozolol (oral)	Stanozodon	2 mg tablet	1000 tablet bottle	Acdhon Co.	Thailand		
Sustanon 250 (testosterone blend)	Sustanon '250'®	250 mg/ml	1 ml ampule	Organon	Thailand		
testosterone cypionate	Cypionax	100 mg/ml	2 ml ampule	Body Research	Thailand	[NLM]	
testosterone enanthate	Testabol Enanthate 250	250 mg/ml	10 ml vial	British Dragon	Thailand		
testosterone propionate	Testabol Propionate 100	100 mg/ml	10 ml vial	British Dragon	Thailand		
testosterone propionate	Virormone	50, 100 mg/ml	1 ml ampule	Paines	Thailand		
trenbolone acetate	Parabolan Tabs (Export)	25 mg tablet	20 tablet pouch	British Dragon	Thailand	[NLM]	
trenbolone blend	Tri-Trenabol 150	150 mg/ml	10 ml vial	British Dragon	Thailand		
trenbolone hexahydrobenzylcarbonate	Danabolan	76 mg/ml	1.5 ml ampule	Body Research	Thailand	[NLM]	
testosterone enanthate	Androtardyl®	250 mg/ml	1 ml ampule	Schering	Tunisia		
ethylestrenol	Orgabolin	2 mg tablet	n/a	Santa	Turkey	[NLM]	
mesterolone	Proviron	25 mg tablet	20 tablet box	Schering	Turkey		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methyltestosterone	Afro	25 mg tablet	40 tablet box	Casel	Turkey		
nandrolone decanoate	Jebolan	50 mg/ml	1 ml ampule	Etem	Turkey	[NLM]	
oxymetholone	Anapolon	50 mg tablet	20 tablet box	Ibrahim	Turkey		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	Turkey		
boldenone undecylenate	Equipoise®	25, 50 mg/ml	50 ml vial	Fort Dodge	U.S.		VET
drostanolone propionate	Drolban	50 mg/1ml	1 ml vial	Lilly	U.S.	[NLM]	
ethylestrenol	Maxibolin Elixir	2 mg/5ml	n/a	Organon	U.S.	[NLM]	
fluoxymesterone	Fluoxymesterone	10 mg tablet	100 tablet bottle	Rosemont	U.S.		
fluoxymesterone	Halotestin®	10 mg tablet	100 tablet bottle	Warner-Chilcott	U.S.	[NLM]	
fluoxymesterone	Ora-Testryl	5 mg tablet	100 tablet bottle	Squibb Mark	U.S.	[NLM]	
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	U.S.	[NLM]	
methylandrostenediol	Methyldiol Aqueous	50 mg/ml	n/a	Vortech	U.S.	[NLM]	
methylandrostenediol dipropionate	Crestabolic	50 mg/ml	n/a	Nutrition	U.S.	[NLM]	
methylandrostenediol dipropionate	Hybolin	50 mg/ml	n/a	Hyrex	U.S.	[NLM]	
methyltestosterone	Android	5, 10, 25 mg tablet	n/a	Brown	U.S.	[NLM]	
methyltestosterone	Arcosterone	10, 25 mg tablet	n/a	Acrum	U.S.	[NLM]	
methyltestosterone	Metandren	5 mg sub. dragee	n/a	Ciba	U.S.	[NLM]	
methyltestosterone	Metandren	10, 25 mg tablet	100 tablet bottle	Novartis	U.S.	[NLM]	
methyltestosterone	Methyltestosterone	10 mg tablet	n/a	Goldline	U.S.	[NLM]	
methyltestosterone	Oreton Methyl	10 mg sub. tablet	n/a	Schering	U.S.	[NLM]	
methyltestosterone	Virilon (time released)	10 mg capsule	100,1000 capsule bottle	Star	U.S.		
mibolerone	mibolerone drops	100 mcg/ml	55 mg bottle	Wedgewood	U.S.		VET
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1, 2 ml vial	Organon	U.S.	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
nandrolone decanoate	Hybolin Decanoate	50, 100 mg/ml	1, 2 ml vial	Hyrex	U.S.	[NLM]	
nandrolone decanoate	nandrolone decanoate	100 mg/ml	1, 2 ml vial	Lyphomed	U.S.	[NLM]	
nandrolone decanoate	nandrolone decanoate	50, 100, 200 mg/ml	1, 2 ml vial	Steris	U.S.	[NLM]	
nandrolone decanoate	Nandrolone Decanoate Inj	200 mg/ml	1 ml vial	Watson Pharm	U.S.		
nandrolone phenylpropionate	Anabolin	50 mg/ml	n/a	Alto	U.S.	[NLM]	
nandrolone phenylpropionate	Anabolin-LA	100 mg/ml	n/a	Alto	U.S.	[NLM]	
nandrolone phenylpropionate	Durabolin®	25, 50 mg/ml	n/a	Organon	U.S.	[NLM]	
nandrolone phenylpropionate	Hybolin	25, 50 mg/ml	n/a	Hyrex	U.S.	[NLM]	
nandrolone phenylpropionate	nandrolone phenylpropionate	50 mg/ml	n/a	Quad	U.S.	[NLM]	
norethandrolone	Nilevar	10 mg tablet	100 tablet bottle	Searle	U.S.	[NLM]	
oxandrolone	Oxandrin®	2.5, 10 mg tablet	100 tablet bottle	BTG	U.S.	[NLM]	
oxymetholone	Anadrol 50®	50 mg tablet	100 tablet bottle	Unimed	U.S.		
stanozolol (inj)	Winstrol®-V	50 mg/ml	10, 30ml vial	Pharmacia & Upjohn	U.S.		VET
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Sanofi	U.S.		
stanozolol (oral)	Winstrol®	2 mg tablet	100 tablet bottle	Winthrop	U.S.	[NLM]	
stanozolol (oral)	Winstrol®-V	2 mg chewable tab	100 tablet bottle	Pharmacia & Upjohn	U.S.		VET
testosterone (patch)	Androderm®	12.2 mg patch	60 patches/box	SmithKline Beecham	U.S.	[NLM]	
testosterone cypionate	Andro-Cyp	100, 200 mg/ml	10 ml vial	Brown	U.S.	[NLM]	
testosterone cypionate	Andronaq LA	100, 200 mg/ml	10 ml vial	Central	U.S.	[NLM]	
testosterone cypionate	Dep Andro-100-200	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone cypionate	Depotest	100, 200 mg/ml	10 ml vial	Kay	U.S.	[NLM]	
testosterone cypionate	Depo-Testosterone®	200 mg/ml	1 ml vial	Pharmacia & Upjohn	U.S.		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone cypionate	D-Test 100/200	100, 200 mg/ml	10 ml vial	Sig	U.S.	[NLM]	
testosterone cypionate	Duratest-100-200	100, 200 mg/ml	10 ml vial	Hauck	U.S.	[NLM]	
testosterone cypionate	Testa-C	200 mg/ml	10 ml vial	Vortech	U.S.	[NLM]	
testosterone cypionate	Testoject	100 mg/ml	n/a	Mayrand	U.S.	[NLM]	
testosterone cypionate	Testoject-LA	200 mg/ml	n/a	Mayrand	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Goldline	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	200 mg/ml	10 ml vial	Legere	U.S.	[NLM]	
testosterone cypionate	testosterone cypionate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone cypionate	Testred Cypionate	200 mg/ml	10 ml vial	ICN	U.S.	[NLM]	
testosterone enanthate	Andro 100	100 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone enanthate	Andropository	200 mg/ml	10 ml vial	Rugby	U.S.	[NLM]	
testosterone enanthate	Delatest	100/mg/ml	10 ml vial	Dunhall	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	5 ml vial	BTG	U.S.	[NLM]	
testosterone enanthate	Delatestryl	200 mg/ml	1 ml syringe	Savient	U.S.		
testosterone enanthate	Dura-Testosterone	200 mg/ml	10 ml vial	Pharmex	U.S.	[NLM]	
testosterone enanthate	Durathate-200 Injection	200 mg/ml	n/a	Roberts	U.S.	[NLM]	
testosterone enanthate	Malogen 100/200 L.A.	100, 200 mg/ml	10 ml vial	Forest	U.S.	[NLM]	
testosterone enanthate	Testanate No. 1	100 mg/ml	n/a	Kenyon	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Geneva Geriatrics	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Quad	U.S.	[NLM]	
testosterone enanthate	testosterone enanthate	100, 200 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone enanthate	Testrin-P.A.	200 mg/ml	n/a	Pasadena Res.	U.S.	[NLM]	
testosterone propionate	Hybolin Imp.	25, 50 mg/ml	n/a	Hyrex	U.S.	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone propionate	Testex	50, 100 mg/ml	n/a	Pasadena	U.S.	[NLM]	
testosterone propionate	testosterone propionate	50 mg/ml	n/a	Quad & Lilly	U.S.	[NLM]	
testosterone propionate	testosterone propionate	100 mg/ml	10, 30 ml vial	Rugby	U.S.	[NLM]	
testosterone propionate	testosterone propionate	100 mg/ml	10 ml vial	Steris	U.S.	[NLM]	
testosterone propionate (implant)	Implus-H	22 mg pellet	n/a	Upjohn	U.S.		
testosterone propionate (implant)	Synovex®-H (plus estrogen)	20 mg/pellet	n/a	Fort Dodge	U.S.		VET
testosterone propionate (implant)	Synovex-H (plus estrogen)	20 mg/pellet	n/a	Syntex	U.S.	[NLM]	VET
testosterone suspension	Androlan Aqueous	25, 50, 100 mg/ml	n/a	Lannet	U.S.	[NLM]	
testosterone suspension	Aqueous	100 mg/ml	n/a	Lincoln	U.S.	[NLM]	
testosterone suspension	Andronaq-50	50 mg/ml	n/a	Central	U.S.	[NLM]	
testosterone suspension	Histerone Injection	100 mg/ml	n/a	Roberts	U.S.	[NLM]	
testosterone suspension	Histerone Injection	100 mg/ml	n/a	Hauck	U.S.	[NLM]	
testosterone suspension	Malogen	25, 50, 100 mg/ml	n/a	Forest	U.S.	[NLM]	
testosterone suspension	Malotrone	25, 50 mg/ml	n/a	Bluco	U.S.	[NLM]	
testosterone suspension	Testamone	25, 50, 100 mg/ml	n/a	Dunhall	U.S.	[NLM]	
testosterone suspension	Testolin	25, 50, 100, mg/ml	n/a	Pasadena	U.S.	[NLM]	
testosterone suspension	testosterone suspension	100 mg/ml	n/a	Legere	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Schein	U.S.	[NLM]	
testosterone suspension	testosterone suspension	50, 100 mg/ml	10, 30 ml vial	Steris	U.S.	[NLM]	
trenbolone acetate	ComponentTE-G® (+ estradiol)	20 mg pellet	40 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentTE-S® (+ estradiol)	20 mg pellet	120 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentT-H®	20 mg pellet	200 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	ComponentT-S®	20 mg pellet	140 pellet cartridge	VetLife	U.S.		VET
trenbolone acetate	Finajet	30 mg/ml	50 ml vial	Hoechst	U.S.	[NLM]	VET
trenbolone acetate	Finaplix-IH®	20 mg pellet	100 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Finaplix-H®	20 mg pellet	100 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Finaplix-SH®	20 mg pellet	70 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Revalor-200 (plus estradiol)	20 mg pellet	100 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-G (plus estradiol)	20 mg pellet	20 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Revalor-H (plus estradiol)	20 mg pellet	70 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-IH (plus estradiol)	20 mg pellet	40 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	40 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	60 pellet cartridge	Hoechst-Roussel	U.S.	[NLM]	VET
trenbolone acetate	Revalor-S (plus estradiol)	20 mg pellet	60 pellet cartridge	Intervet	U.S.		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Fort Dodge	U.S.		VET
trenbolone acetate	Synovex plus (plus estradiol)	25 mg pellet	80 pellet cartridge	Syntex	U.S.	[NLM]	VET
mesterolone	Proviron®	25 mg tablet	20 tablet box	Schering	Ukraine		
testosterone propionate	Testosteronu Propionat	50 mg/ml	1 ml ampule	Farmak	Ukraine		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Ukraine		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	United Arab E.		
drostanolone propionate	Masteril	100 mg/2ml	2 ml amp	Syntex	United Kingdom	[NLM]	
ethylestrenol	Orabolin®	2 mg tablet	n/a	Organon	United Kingdom	[NLM]	
fluoxymesterone	Ultandren	1,5 mg tablet	n/a	Ciba	United Kingdom	[NLM]	
mesterolone	Proviron®	25 mg tablet	30 tablet box	Schering	United Kingdom		

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
methandrostenolone	Dianabol	5 mg tablet	100 tablet bottle	Ciba	United Kingdom	[NLM]	
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml ampule	Organon	United Kingdom		
nandrolone decanoate	Deca-Durabolin®	100 mg/ml	1, 2 ml ampule	Organon	United Kingdom	[NLM]	
nandrolone phenylpropionate	Durabolin®	50 mg/ml	1 ml ampule	Organon	United Kingdom	[NLM]	
oxymetholone	Anapolon 50	50 mg tablet	100 tablet bottle	Syntex	United Kingdom	[NLM]	
stanozolol (im)	Stromba	50 mg/ml	n/a	Sterling Research	United Kingdom	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sanofi	United Kingdom	[NLM]	
stanozolol (oral)	Stromba	5 mg tablet	n/a	Sterling	United Kingdom	[NLM]	
Sustanon 100 (testosterone blend)	Sustanon '100'®	100 mg/ml	1 ml ampule	Organon	United Kingdom		
Sustanon 250 (testosterone blend)	Sustanon 250®	250 mg/ml	1 ml ampule	Organon	United Kingdom		
testosterone (patch)	Andropatch	2.5 mg patch	60 patches/box	GSK	United Kingdom		
testosterone (patch)	Andropatch	5 mg patch	30 patches/box	GSK	United Kingdom		
testosterone enanthate	Primoteston®-Depot	250 mg/ml	1 ml ampule	Schering	United Kingdom	[NLM]	
testosterone propionate	Virormone	50 mg/ml	2 ml ampule	Nordic	United Kingdom	[NLM]	
testosterone undecanoate	Restandol	40 mg capsules	28, 60 capsule box	Organon	United Kingdom		
trenbolone acetate	Finajet	30 mg/ml	50 ml vial	Hoechst	United Kingdom	[NLM]	VET
dihydrotestosterone	Anabolin	2.5 mg/g	60 gram gel	Schering	Uruguay		
mesterolone	Proviron®	25 mg tablet	n/a	Schering	Uruguay		
methyltestosterone	Glandulon Simplex	10 mg tablet	20 tablet box	Ipi	Uruguay		
methyltestosterone	Metil Thomsina S	10 mg tablet	20 tablet box	Celsius	Uruguay		
testosterone cypionate	Testosterona Ultra Lenta	100 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	5 ml ampule	Dispert Labs.	Uruguay		VET
testosterone cypionate	Testosterona Ultra Lenta Fuerte	200 mg/ml	20 ml vial	Dispert Labs.	Uruguay		VET
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Uruguay		
boldenone undecylenate	Ganabol	50 mg/ml	5000 ml vial	Laboratorios VM	Venezuela		VET
boldenone undecylenate	Ganabol	25, 50 mg/ml	10, 50, 100, 250ml vial	Laboratorios VM	Venezuela		VET
mesterolone	Proviron®	25 mg tablet	15 tablet box	Schering	Venezuela		
methyltestosterone	Oreton	n/a	n/a	n/a	Venezuela		
nandrolone decanoate	Deca-Durabolin®	25 mg/ml	1 ml ampule	Organon	Venezuela		
nandrolone decanoate	Deca-Durabolin®	50 mg/ml	1 ml syringe	Organon	Venezuela		
Sustanon 250 (testosterone blend)	Polyandrón 250	250 mg/ml	1 ml ampule	Organon	Venezuela		
testosterone enanthate	Proviron®-Depot	250 mg/ml	1 ml ampule	Schering	Venezuela		
testosterone undecanoate	Andriol capsules	40 mg capsules	n/a	Organon	Venezuela		
Sustanon 250 (testosterone blend)	Sustanon "250"	250 mg/ml	1ml ampule	Organon	Vietnam		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Vietnam		
testosterone enanthate	Testoviron®-Depot	250 mg/ml	1 ml ampule	Schering	Yemen		
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	Yemen		
fluoxymesterone	Halotestin®	5 mg tablet	n/a	Galenika	YugoslaviaFRMR	[NLM]	
mesterolone	Proviron®	25 mg tablet	n/a	Abbott	YugoslaviaFRMR		
methandrostenolone	Nerobol	5 mg tablet	20 tablet box	Galenika	YugoslaviaFRMR	[NLM]	
methandrostenolone	Nerobolil	10, 25 mg dragee	n/a	Galenika	YugoslaviaFRMR	[NLM]	
methyltestosterone	T. Lingvalete	5 mg sub. dragee	n/a	Galenika	YugoslaviaFRMR	[NLM]	
nandrolone phenylpropionate	Durabolin®	50 mg/ml	n/a	Organon	YugoslaviaFRMR		
testosterone enanthate	Testosteron-Depo	100 mg/ml	1 ml ampule	Galenika	YugoslaviaFRMR	[NLM]	

Generic Name	Trade Name	Dose	Packaging	Company	Country	Status	Vet
testosterone enanthate	Testosteron-Depo	100, 250 mg/ml	1 ml ampule	Hemofarm	YugoslaviaFRMR	[NLM]	
testosterone undecanoate	Andriol	40 mg capsules	n/a	Organon	YugoslaviaFRMR		
testosterone enanthate	Weratestone 250	250 mg/ml	1 ml ampule	Weimer Pharm	Zimbabwe		

ABBREVIATIONS: [NLM] = No Longer Manufactured
VET = Veterinary Drug



Generic from Alhavi (Iran) - New Packaging

Alhavi - Previous packaging



Older bottle from Iran

Anapolon from Turkey (real box)

Countefeit Anapolon #1



Counterfeit Anapolon #2

Real and Counterfeit Anapolon Strips (Real on Left)



Oxivet from Quality Vet (Mexico)

Generic from Pet's Pharma (Mexico)





Metalon from Animal Power (Mexico)



Oxymetolona from Ttokkyo Mexico (NLM)





Kanestron from Loeffler (Mexico)



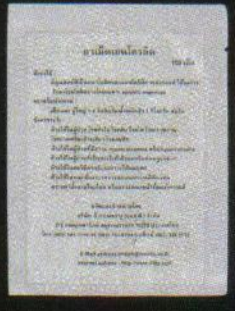
Oximetalon from Denkall (Mexico)



Bratis Oxitron UG from Mexico (NLM)

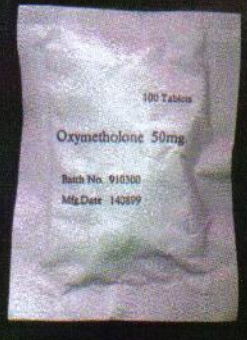


Androlic from British Dispensary (Thailand)





Older Androlic pouch



Another old BD pouch



British Dragon Oxydrol 50mg (Thailand)





100mg Oxydrol (NLM)



Old Androlic-50 from British Dragon (NLM)



Hemogenin from Syntex/Sarsa Brazil (NLM)

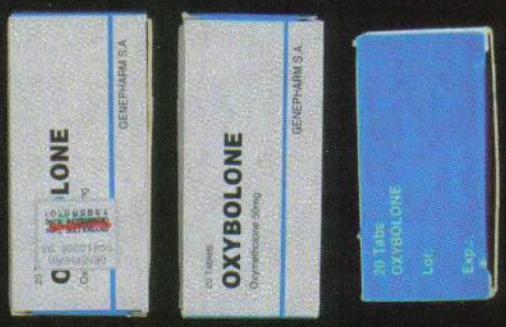




Hemogenin from Aventis Brazil



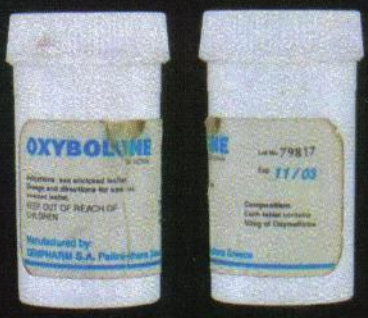
Another Older Hemogenin box and tablet strip



Oxybolone from Greece (NLM)



Oxybolone tablet strip



Counterfeit Oxybolone



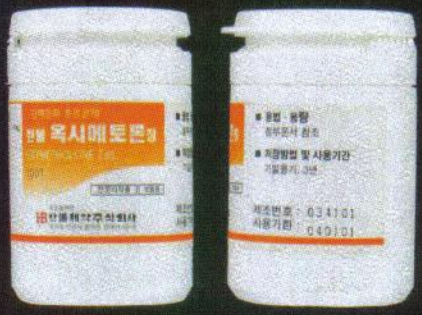
Bogus Anasteron (Greek Export)



Oxitosona from Spain (NLM)



Counterfeit Oxitosona



Han Bul Generic (Korea)



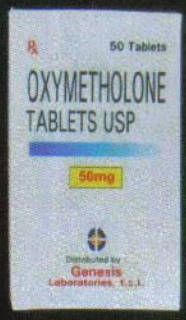
Han Seo Oxymetholone (Korea)



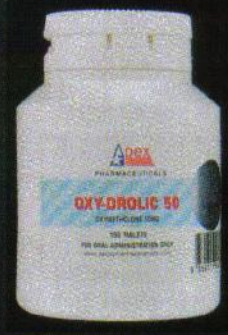
Planet Pharmacy Generic (Belize)



Oxylone from Duopharma (Malaysia)



Genesis (Singapore)









Apex oral and injectable oxymetholone products (Underground)



Orbit Oxy (UG)



International Pharmaceuticals Oxy (UG)



Counterfeit IP bottle



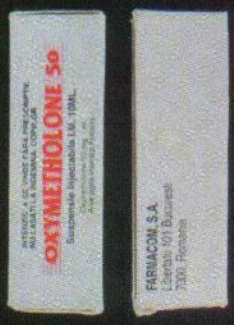
Pronadrol-50 from Valopharm (UG)



Oxy from Generic Supplements (Underground)



Alpha Tech (Underground - NLM)



Injectable (Underground)



Jenaka Anadrol (Underground - NLM)



Xenadrol from World (Underground)



Bogus Strip



Bogus Oxitosone (no such brand exists)



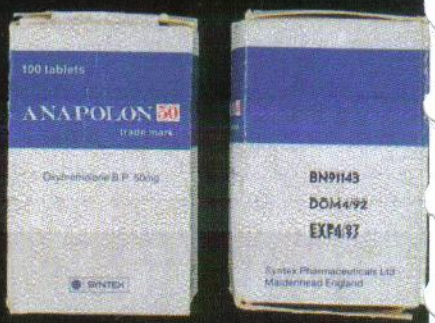
Counterfeit Synasteron (Belgium)



Counterfeit U.S. Anadrol (Syntex)



Countefeit U.S. Anadrol (Unimed)



Counterfeit Anapolon from the U.K.

Anavar



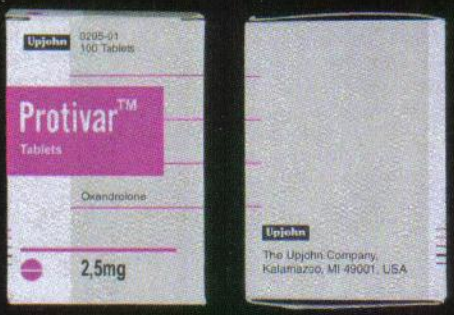
Oxandrin 10mg tablets (U.S.)



Two different bottles of 2.5mg Oxandrin (U.S.)



Bogus U.S. Anavar



Bogus U.S. Protivar



Oxandrovet from Denkall (Mexico)



Loeffler's Oxafort (Mexico)



Oxandro Tabs from Animal Power (Mexico)



5mg and 2.5mg Oxandrolone from Ttokkyo Mexico (NLM)



Oxavet from Quality Vet (Mexico)



Bratis Oxandrol 10 - Underground MX "import" (NLM)



Oxanabol from British Dragon (Thailand)



Bonavar from Body Research in Thailand (NLM)



Bogus Italian export (found in Thailand)



Real Italian Export (from SPA)



Italian domestic from SPA (NLM)



Counterfeit SPA #1



Counterfeit SPA #2



Bogus Anavar (Italy)



Planet Pharmacy generic (Belize)



Genesis generic (Singapore)



Pegasus Anavar (UG)



Fake Anavar from Hubei (China)



Bogus Anavar from Argentina



Fake Holliday bottle (Argentina)



Bogus generic bottle

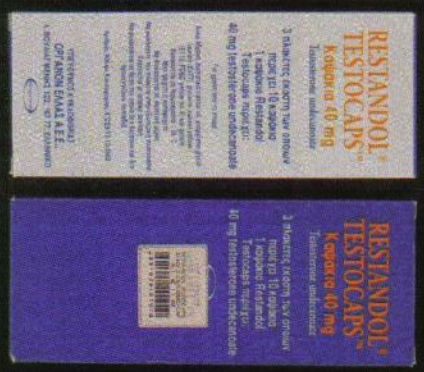
Andriol



Pantestone (France)



Restandol from Greece (NLM)



Greek Restandol Testocaps



Andriol from Mexico



Andriol from Portugal (new packaging)



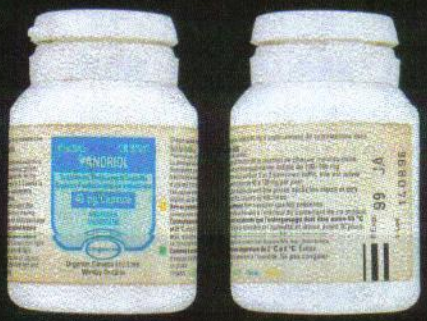
Old packaging (Portugal)



Andriol from Egypt



Italian Andriol



Canadian Andriol



Andriol strip from Thailand



Androxon (Brazil)



30 capsule bottle of Andriol



Genesis generic (Singapore)

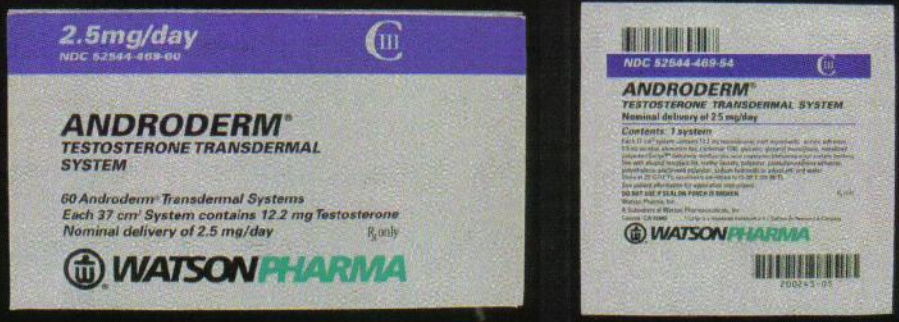


Old Genesis box

Androderm



U.S. Androderm from Watson Pharma (5mg)



U.S. Androderm (2.5mg)





Old U.S. packaging

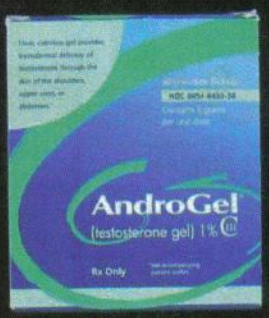


Atmos from Sweden



Canadian Androderm

Androgel







U.S. Androgel box and gel packet

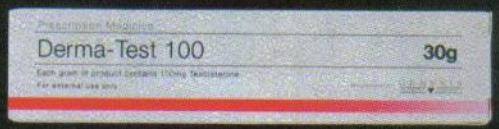


Old packet





U.S.Testim





Derma-Test 100 from Genesis (Singapore)



Testogel (Iceland)

Cheque Drops



Cheque Drops from Hardcore Labs (UG)

Deca-Durabolin





Canadian Deca-Durabolin

Appendix E



U.S. Deca-Durabolin from Organon



U.S. Organon countefeit #1



U.S. Organon counterfeit #2 and #3



U.S. Watson Generic (box)



Watson vial (U.S.)





Schein generic box and vial (U.S.)





Counterfeit U.S. Steris generics - 100mg/ml and 200mg/ml (NLM)



Signature Pharmacy (U.S.)



Older Signature Vial (U.S.)



Another U.S. Pharmacy vial



Ultra Deca from Nutri-Vet (Mexico)



Brovel Norandren 200 (Mexico)



Older Norandren box and vial (10ml)



Older 50ml box and vial



Counterfeit Norandren 200



Old Norandren 50 (Mexico)



Animal Power Deca 300 (Mexico)



Decandrol 350 from Pet's Pharma (Mexico)



Denkall Decanandrolen (Mexico)



Tornel generic (Mexico)



Deca 300 from Quality Vet (Mexico) | QV Deca 200 (10ml) | QV Deca 200 (50ml)



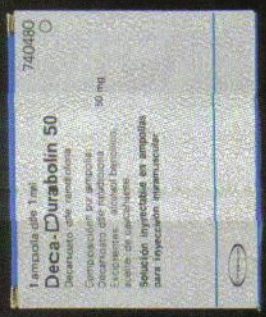
Old QV Deca 200 box (Mexico) | Cheap counterfeit of QV Deca 300 | Ttokkyo Nandrolona 300 from Mexico (NLM)



Ttokkyo counterfeit | Decatron - MX Underground (NLM) | Deca-Durabolin from Organon (Mexico)

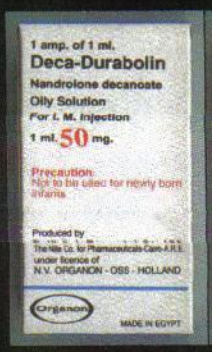


Deca-Durabolin from Portugal | New style Spanish Deca-Durabolin





Old style Spanish box







Deca-Durabolin from Nile Egypt





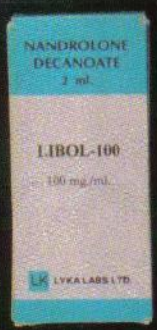


Deca-Durabolin from Organon (left) and Infar (right) India





Decagic from Unichem India (NLM)















Fake Indian Libol

Deca-Durabolin from Pakistan

Counterfeit amps.

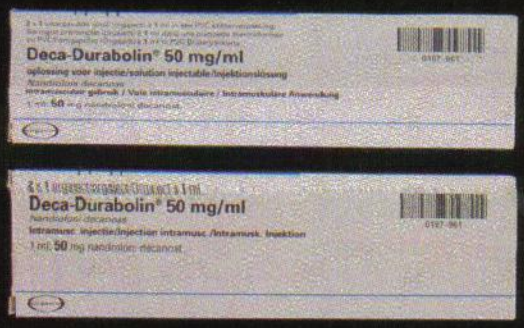




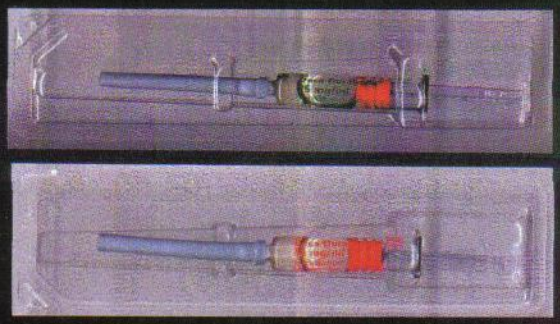




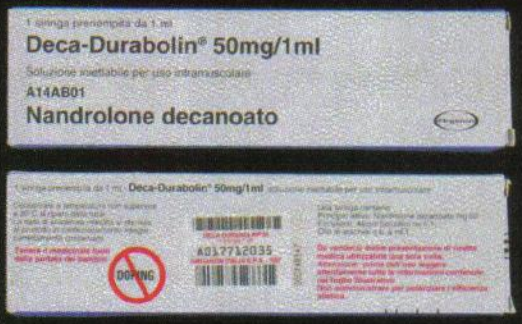
Deca-Durabolin box and ampules from Organon (Belgium)



Belgian pre-loads (new box on top)



Belgian pre-loaded syringes (25 top, 50mg bottom)





Organon pre-loaded syringes from Italy



Deca-Durabolin from Brazil



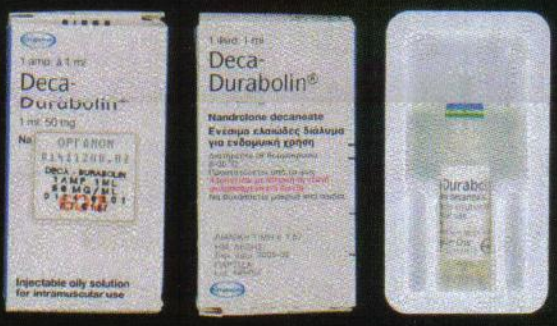
Deca-Durabolin from Organon Libya



Korean Deca-Durabolin



Deca-Durabolin from Austria



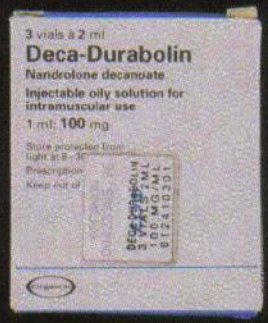
Greek 50mg Deca-Durabolin box and ampule



Deca-Durabolin multi-dose vials from Organon Greece



Greek "Yellow Top" vials



Previous Greek box and vials





Greek Deca circa 1991



Counterfeit Greek Deca #1



#2



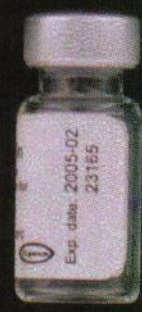
#3



#4



#5



#6



#7







Fake box and vial with mock pharmacy sticker (#8)



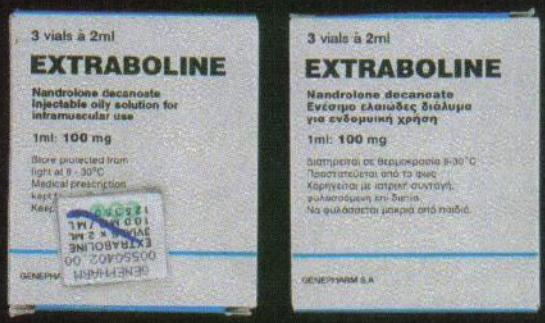
Another fake w/mock sticker



Counterfeit #7 - Logo peels off with label



Counterfeit #8





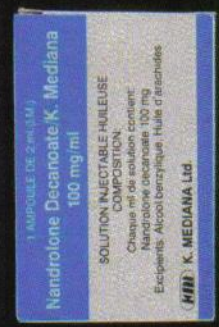
Greek Extraboline

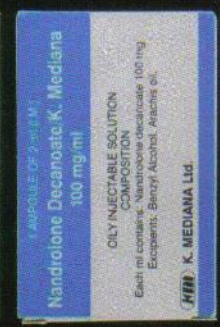






Counterfeit Extraboline box and vial





Fake Mediana Deca (Greece)









Deca-Durabolin from Organon Australia



Counterfeit RWR Deca (Australia)



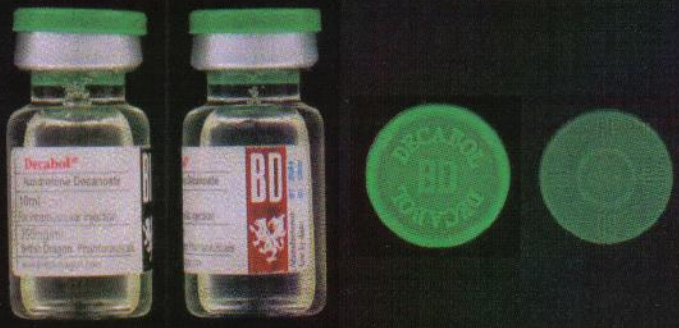
RWR counterfeit box and vial (#2)



Bogus RWR Deca 100



Another fake Deca 100



Decabol from British Dragon (Thailand)



Another legit BD vial



Retabolil from Gedeon Richter (Bulgaria) older style on right



Genesis generic (Singapore)



Generic Supplements (Underground)



International Pharmaceuticals 10ml and 1m



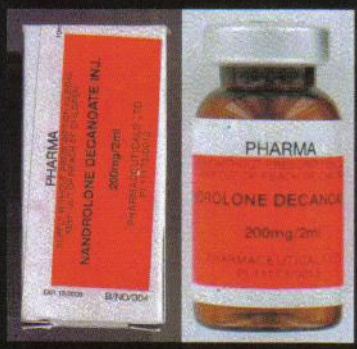
Apex generic (Underground)



Eurochem Decaject (Underground) 10ml and 5ml vials



Hardcore Labs (Underground)



Underground product from Pharma



Olympian Deca 300 (UG)







Underground products from Tapatia, Quest, and Quality Gear Labs



Underground product from SIUG, Meso Dyne, and Empire



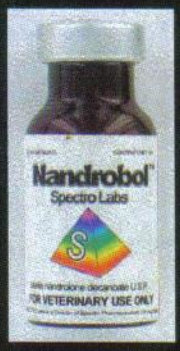
Continental Labs (Underground)



Underground from Int. Pharmacy



LGL and LFC Underground vials



UG Spectro (NLM)



Moonlight (UG)



World (UG)



Fake Deca 300 by Lifetech (U.S.)



Farmadon counterfeit (Russia)



Counterfeit Deca (Argentina)





Fake Decanoate



Fake French Noralone



Fake Durabolic (Franc



Fake Sila (Russia)



Bogus generic box (with no manufacturer name) and ampules



Counterfeit Dimetabol

Fake Organon Amps

Deposterona

Deposterona from Fort Dodge (Mexico)

Dianabol

Anabol 10 from British Dispensary (Thailand)

Anabol 5mg tab and bottle from British Dispoensary

Real bottle with "pormotion" typo

Counterfeit with same typo

Another counterfeit

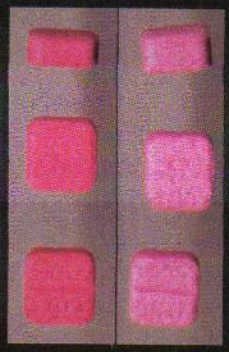
Counterfeit tabs

Old LP Standard Anabol (NLM)

Fake 100 tab LP bottle

50mg Methanabol from British Dragon (Thailand)





British Dragon 10mg (Thailand) - all tabs real



BD's injectable Averbol (Thailand)



Methandon (Thailand)



Melic from Thailand



Fake Italian D-Bol (sold in Thailand)





Methan Tabs from Animal Power (Mexico)





Anabol-Pet's from Norvet (Mexico)



Oral Metandiol from Pet's Pharma (Mexico)



Injectable Metandiol



Loeffler Reforvit Simple (Mexico)



Older Reforvit packaging



Reforvit-B 10ml injectable



Reforvit-B 50ml injectable



Much older Reforvit-B vials



Old Reforvit-B tabs (NLM)



Denkall injectable (Mexico)



Denkall 100 tablet bottle



96 and 300 capsule packaging



Metavet from Quality Vet (Mexico)



Dianabol tabs from Salud (Mexico)



10ml injectable from Salud



Older 50ml packaging



Old Ganabol from Salud (NLM)



Ttokkyo generic in 5mg and 10mg from Mexico (NLM)



Two versions of Bratis Metandrol - Mexican UG product (NLM)



Generic from Genesis (Singapore)



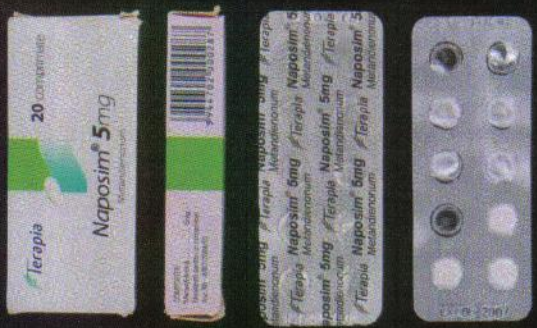
Bionabol from Bulgaria (NLM)



Old Bionabol box and bottle



Three different counterfeit Bionabol products



Naposim from Rumania



Older look to Naposim



Fake Naposim on left (no nipple on blister, lacks numbers on both ends)



Nerobol from Hungary (NLM)



Bioreaktor generic from Russia (NLM)



Bioreaktor packaging (circa 2000-2004)



Counterfeit strip







Russian Dianabol from Akrikhin







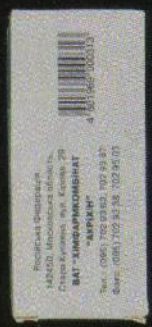
Older packaging



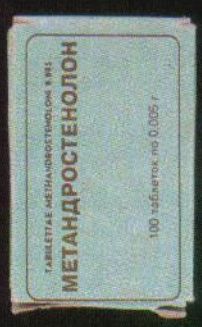


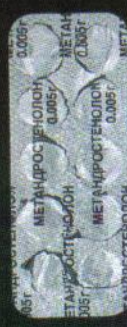
Older packaging w/English text





Russian Export to Ukraine





Very old Russian D-Bol



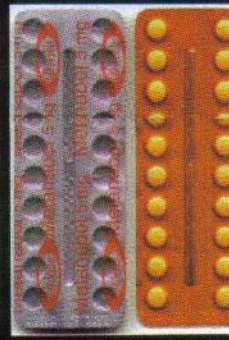




Three different counterfeit bottles







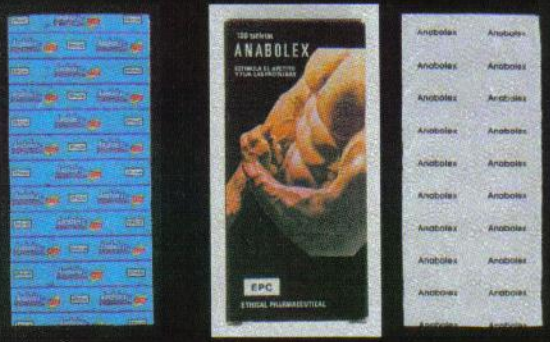
Metanabol from Poland (NLM)



Pronabol from P/B/L India



Trinergic from Unichem India (NLM)



Anabolex from Dominican Republic (old strip on right)



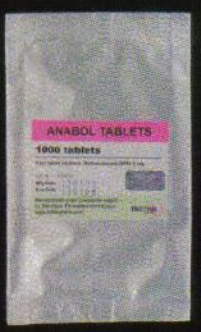
Dianabol and a D-Bol/Winstrol blend from Planet Pharmacy (Belize)



Generic from Ramopharmin (Iranian export)



U.S. generic (NLM)



British Pharm (Underground)







Underground products from Generic Supplements, Continental, and Golden Triangle



Underground products from International Pharmaceuticals, Alpha Tech (NLM) , Spectro (NLM), and Moonlight



Three fake products with fabricated trade names

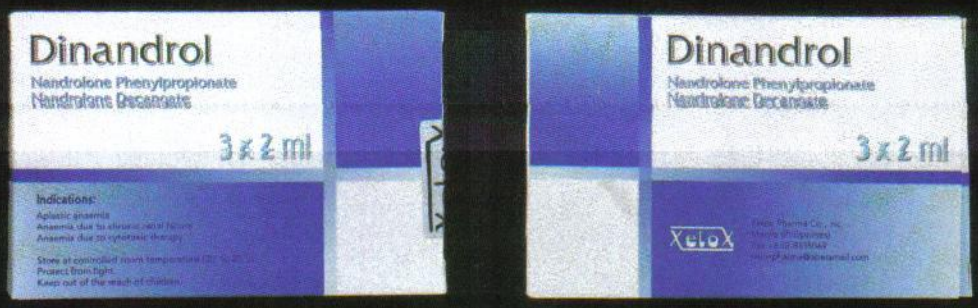


Four more fake methandrostenolone products



Another five bogus Dianabol products

Dinandrol



Dinandrol from Xelox (Philippines)

Drive



Drive from RWR Australia - older packaging on right



Counterfeit with mispelling (steriod)

Another counterfeit box and vial



Two less crafty counterfeits

Generic Supplements (UG)



British Dragon Durabol (Thailand)



Older style vial from BD





Superanabolan from Spofa (Czech Republic) - older packaging on right



Nandrolone phenylpropionate from BM India



Ampules from Iran Hormone



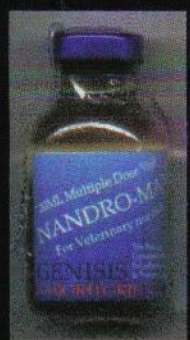
Durabolin from Luoyang (China



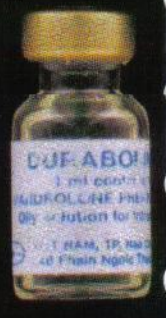
Jenaka Underground (NLM)



G.A.R.D. blend (UG)



Genisis (UG)



Counterfeit (Vietnar



Farmadon counterfeit (Russia)



Fake U.S. Anabolin

Dynabol



Dynabol 50 from Jurox Australia (NLM)



Anabolic DN from SYD Group (Mexico)

Dynabolon



Dynabolon from France (NLM)

Equipoise



Ultragan 10ml from Denkall (Mexico)

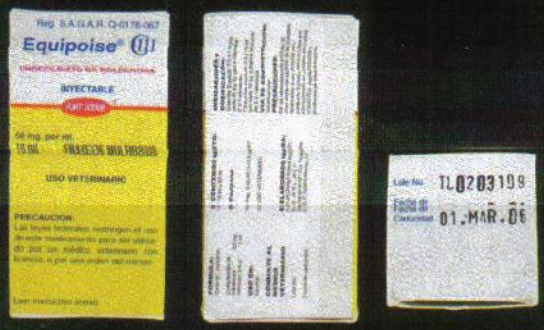


Ultragan 50ml size



Maxigan from Inpel/Denkall Mexico (NLM)

Appendix E



Fort Dodge 10ml from Mexico (NLM)



50ml box and vial from Mexico (NLM)



Counterfeit box and vial (Mexico)



Animal Power Bold 200 (Mexico)



SYD Group Anabolic BD (Mexico)



Pet's Pharma generic (Mexico)



Quality Vet Bold 200 (Mexico)



Two older QV boxes



Cheap QV counterfeit (Mexico



Equi-Gan 10ml from Tornel (Mexico)



Equi-Gan 50ml - older style packaging



Mexican Crecibol



Equifort from Purina (Mexico)



Anabolic BD from Grupo Mexico (NLM)





Ttokkyo Boldenon 200 from Mexico (NLM)





Equipoise from Fort Dodge (U.S.)



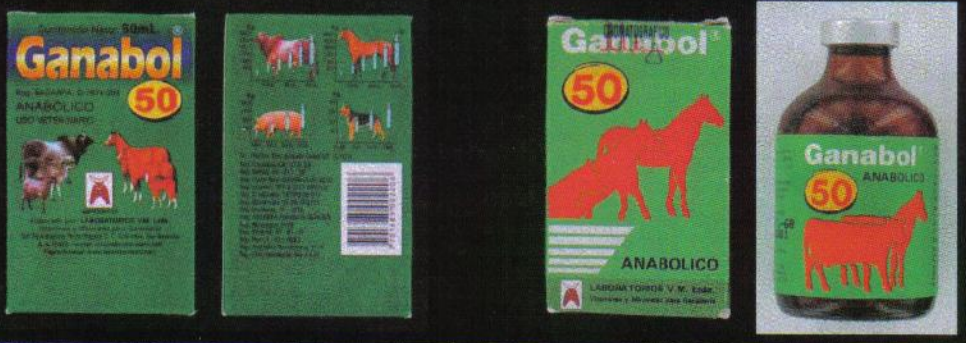
Legacy 50ml product (Colombia)



Biometabol and Boldenona 50 from Colombia



Ganabol from Colombia



Another South American box

Previous Ganabol packaging (Colombia)



Old 100ml vial

Ganabol countefeit box and vial



Another counterfeit Ganabol



Counterfeit 50ml vial



British Dragon Boldabol (Thailand)





Old BD vial with hologram



Bolde 250 (Singapore)



Australian Jurox Boldenone 50 (NLM)



Vebonol from Australia (NLM)



Ilium Boldebal-H (Australia)



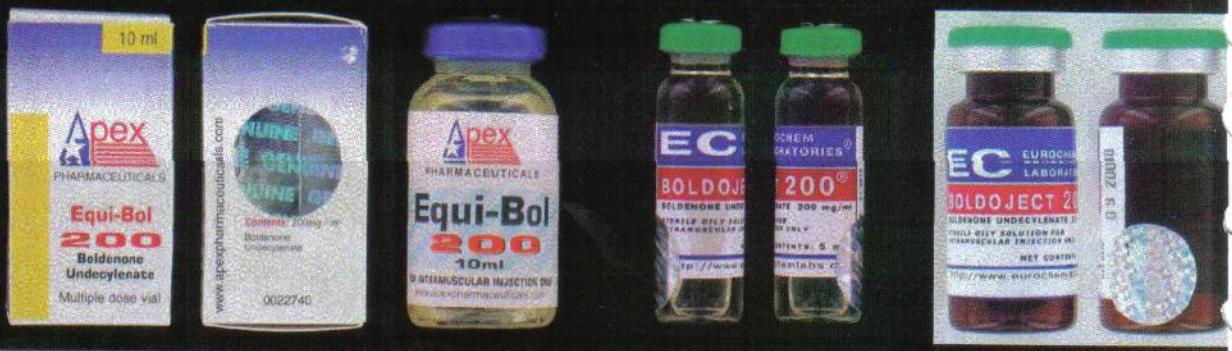
Boldebal-H counterfeit #1



Counterfeit #2



Counterfeit #3



Underground Equi-Bol from Apex

Eurochem 5ml and 10ml vials (Underground)



Generic Supplements (UG)

Hardcore Labs (Underground)

International Pharmaceuticals (UG)



Underground vials from PTG Pharma, SIUG, and Tapatia Labs



Underground products from Generic Labs, Pacific Rim, and Continental Labs







Underground vials from Golden Triangle, Mexi-Pharm, and Proline



Spectro Underground (NLM)



Moonlight (Underground)





QFS and unlabaled generic (UG)



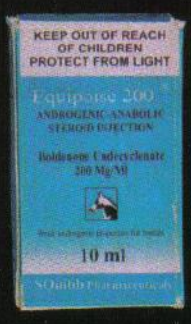


Fake Androbolic (Argentina)





Two counterfeit vials of Ex-Pois (Holland)







Two counterfeits of Canadia Equipoise

Equiest 200







Similar testosterone blend from Apex (Underground)

Appendix E

Estandron



Estandron from Turkey

Halotestin

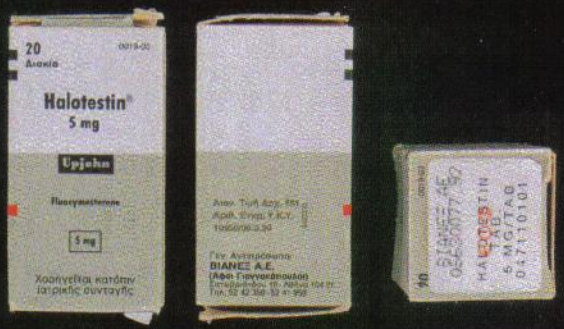




Stenox from Atlantis (Mexico)



Halotestin from Pharmacia & Upjohn (U.S.)



Greek Halotestin (NLM)



Upjohn Halotestin from Italy (NLM)

Laurabolin



Laurabolin 10ml box and vial (Mexico)



Old Laurabolin packaging (Mexico)



Laurabolin from Belgium



Older packaging from Belgium | Vial from Colombia | Counterfeit from Holland

Libriol



Three different Libriol counterfeits (Australia)

Masteron



Masteron from Syntex Belgium (NLM) | British Dragon Mastabol (Thailand)



Dromostan from Xelox (Philippines) | Eurochem 5ml (UG)



Eurochem 20ml vial



Masteron from Apex (Underground)



Underground vials from Generic Supplements, Golden Triangle, and Moonlight



Pinnacle Labs (UG) Quest (UG) LGL (UG) Continental (UG)



MesoDyne (UG) Olympian (UG) SIUG (UG)



Fake Squbb Drostanolon

Methandriol



Denkadiol from Denkall (Mexico)



Old box when Ilium still made for DK



Methandriol from BD (Thailand)

Methyltestosterone



U.S.Testred



Greek Teston 25



Generic from Rumania



Sukrol Vigor (Guatemala)



Russian generic



Afro (Turkey)

Nilevar



Anaplex from Jurox (Australia)

Omnadren

Omnadren from Poland - new style packaging

Excellent looking counterfeit box and ampule

Fake ampule is shorter

Two different versions of the older packaging

Two different examples of Omnadren when the company was still called Polfa

Drabolin







Russian Silabolin

Oral Turinabol

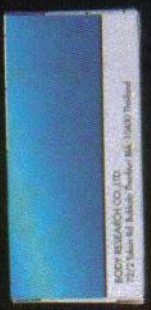




British Dragon Oral Turanabol (Thailand)

Parabolan





Danabolan from Thailand (NLM)



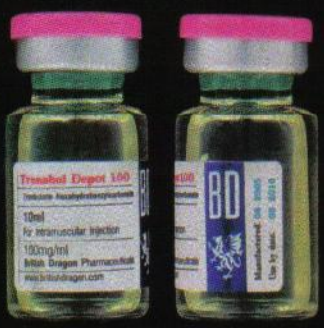
Real French Parabolan (NLM)



Counterfeit Parabolan box and ampule



Another Parabolan counterfeit



Trenabol from British Dragon (Thailand)



Counterfeit British Dragon



Bogus Ranvet Trenbol V (Australia)



Fake Hexabolan amp

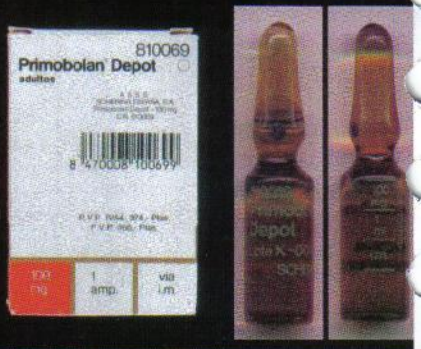
Primobolan Depot



Primobolan Depot from Scherimed (Spain)



Previous packaging for Spanish Primobolan



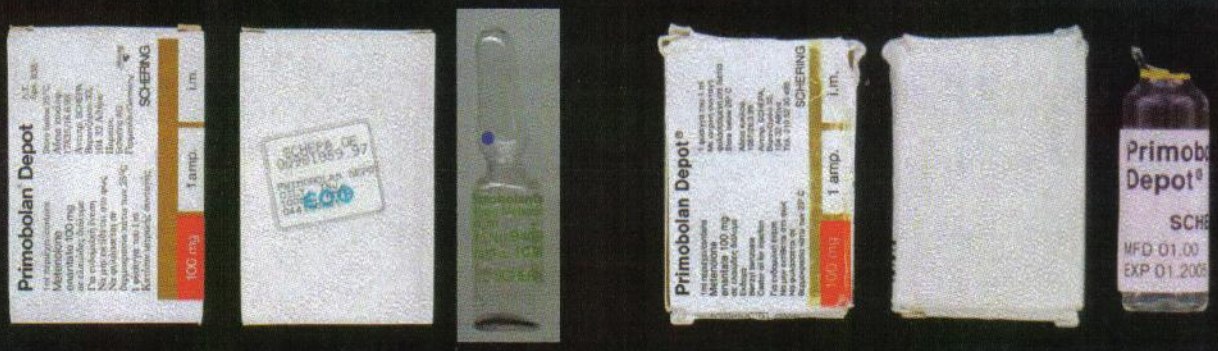
An even earlier box and ampule



Counterfeit #1 Counterfeit #2 Counterfeit #3



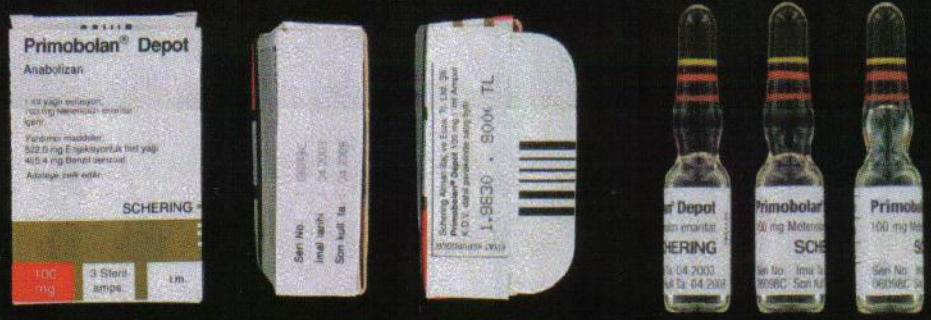
Counterfeit #4 Counterfeit #5 Counterfeit #6 Counterfeit #7



Greek Primobolan (NLM) Greek counterfeit box and amp



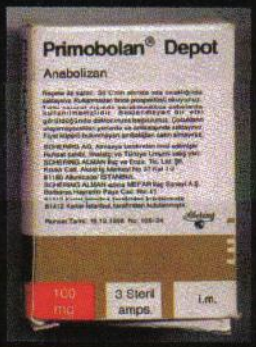
Primobolan Depot from Turkey



Counterfeit box and ampules (Turkey)



Turkish Counterfeit #2



Counterfeit #3



#4



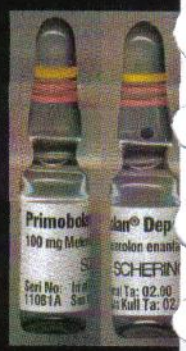
#5



#6



#7

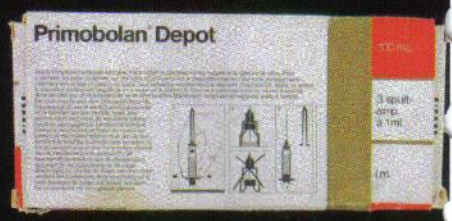


#8



Turkish counterfeit #9





Pre-loaded syringe from Belgium (NLM)



Old German box (NLM)



Counterfeit German amps

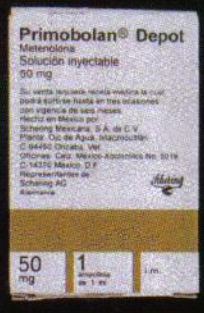








Primobolan Depot from Colombia

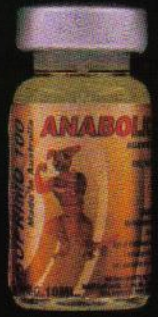




Primobolan from Mexico

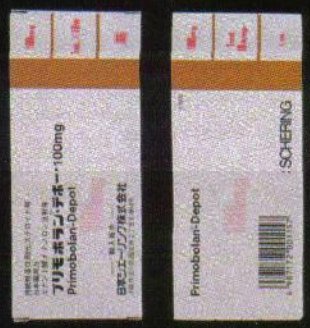








Suprimo 100 from SYD Group (Mexico)



Primobolan from Japan



Primobol from British Dragon (Thailand)





Older BD vial



Metbolin from LP China



Apex Primobolan Depot (Underground)



Eurochem vial (UG)



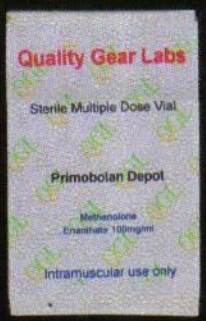
Primobolan from SIUG (UG)



Pacific Rim Primo-100 (UG)



Supra vial (UG)





Primobolan from Quality Gear Labs (UG)

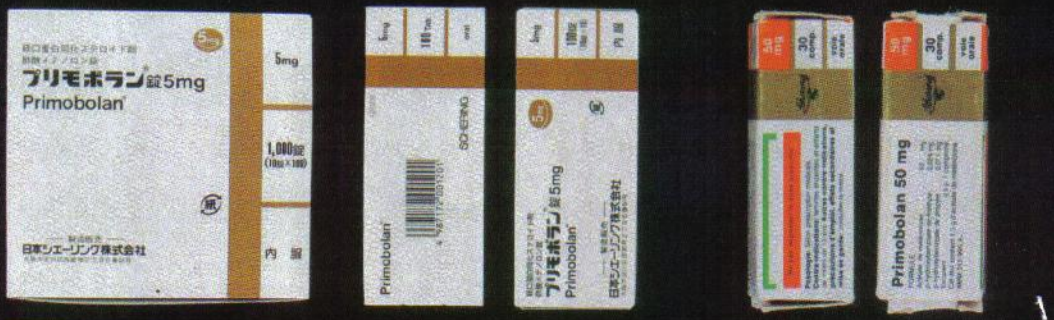


Pegasus Prim-Depot (UG)

Appendix E



Primobolan tablets from Belgium and Germany (both NLM)



Primobolan from Japan 1,000 and 100 tab box

Counterfeit of French product NLM



Metenol from Quality Vet (Mexico)

Metabolan from Bratis - Mexican UG (NLM)



Eurochem Primo Acetate injectable (UG)

Fake Primobolan from Hubei China

Proviron



Proviron from Mexico



Older Mexican packaging



Spanish Proviron



Previous Spanish packaging



Much older Proviron from Spain



Proviron from Portugal



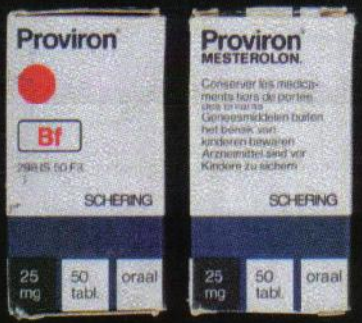
Previous packaging from Portugal



Belgian Proviron



Previous Belgian packaging



Old Belgian Proviron



Proviron from Indonesia



Proviron from Greece



Proviron from Egypt



Older Egyptian Proviron



Proviron from Brazil



Older Brazilian Proviron



German Proviron



Czech Proviron



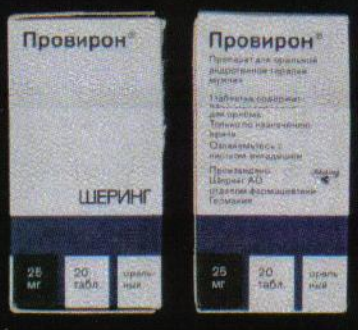
Proviron from India



Older box from India



Italian Proviron



Russian Proviron



Generic from Genesis

Sanabolicum



Genadrag from Chile - both vials are legit and from same production run

Spectriol



Three different counterfeits of Australian Spectriol

Sten



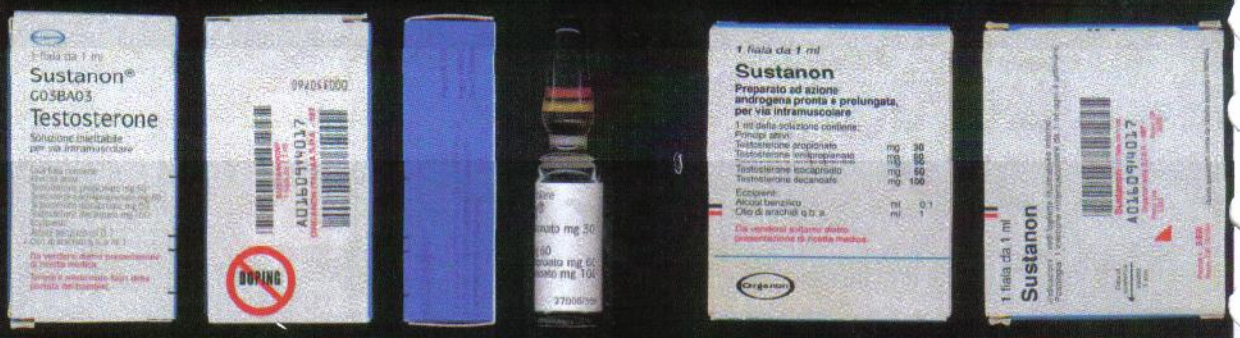
Sten from Mexico

Old Sten amp (Mexico)

Sustanon

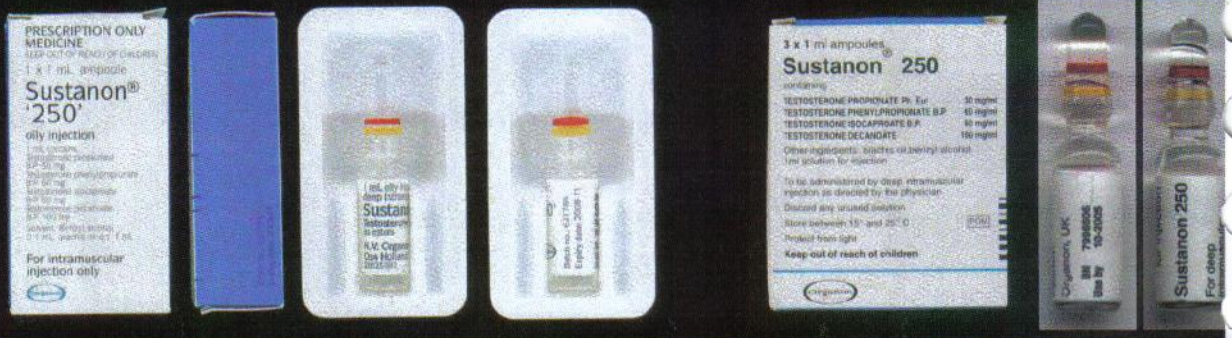


Sustanon '250' from South Africa



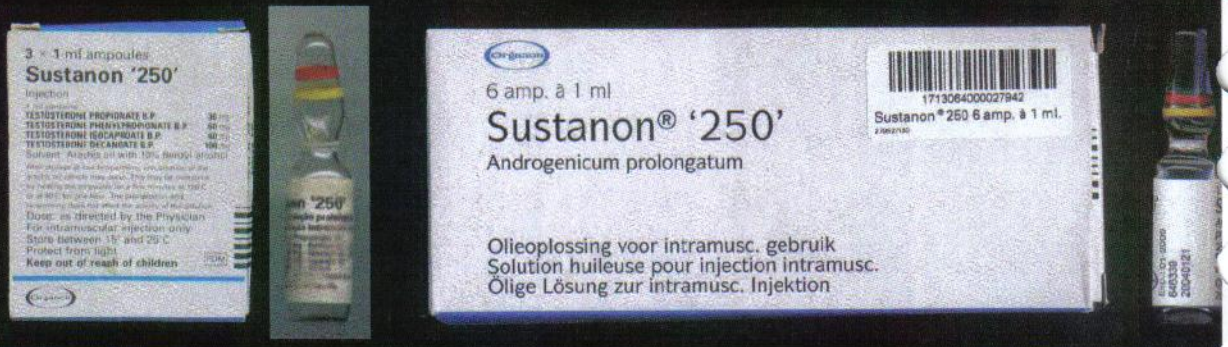
Sustanon from Italy

Old Italian packaging



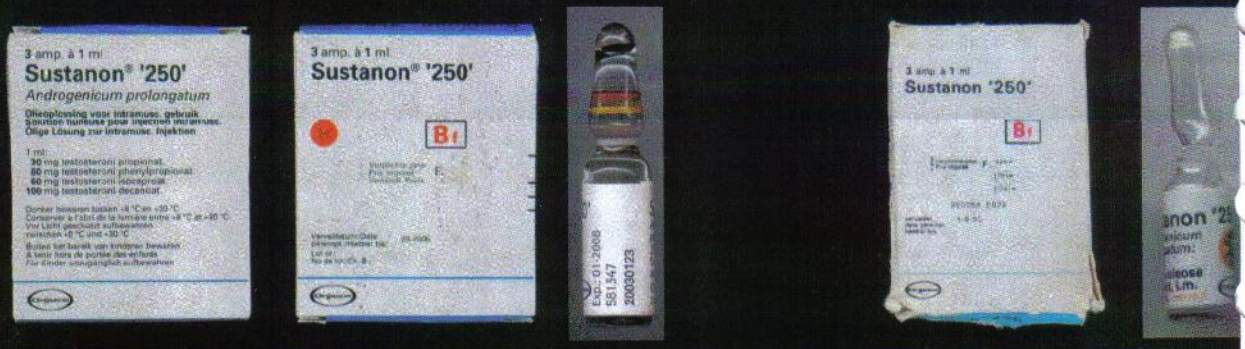
Sustanon '250' from Australia

Sustanon '250' (U.K.)



Old UK packaging

Sustanon '250' from Belgium



Older Sustanon '250' (Belgium)

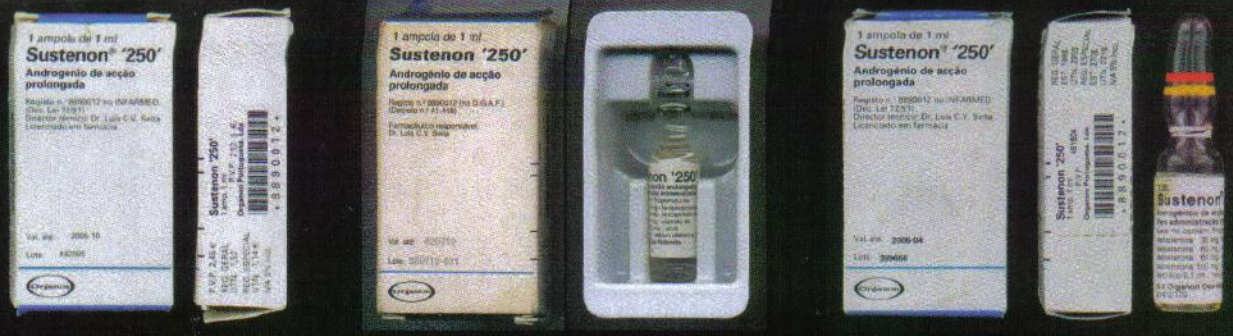
Belgian counterfeit



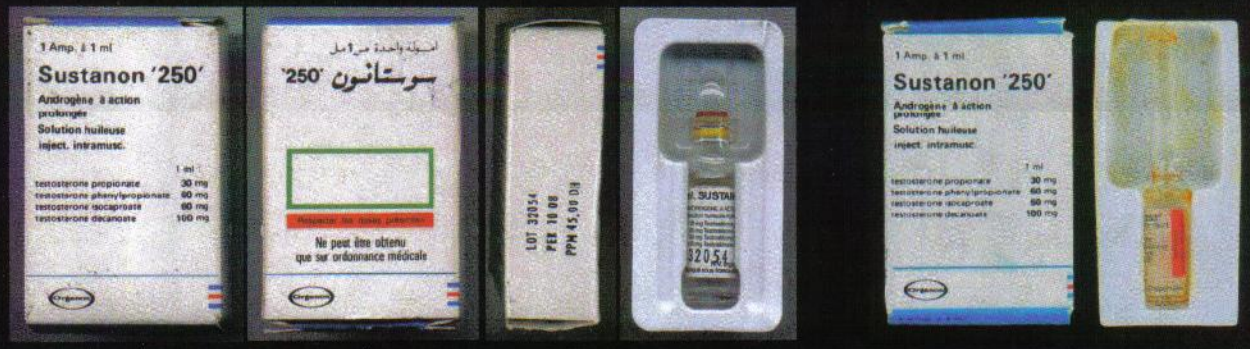
Belgian Durateston (50mg/mL) | Sustanon '250' from Holland | Sustanon '250' from Estonia



Sustenon '250' (Portugal) | Old style packaging (Portugal)



Portuguese counterfet #1 | Counterfeit #2 | Counterfeit #3



Sustanon '250' from Morocco | Moroccan counterfeit

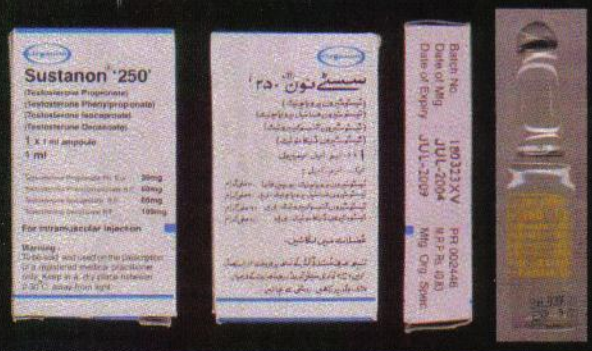


Sustanon 250 (Costa Rica)

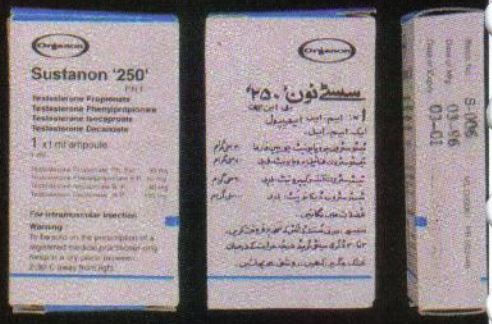
Sustanon '250' from Turkey

Real

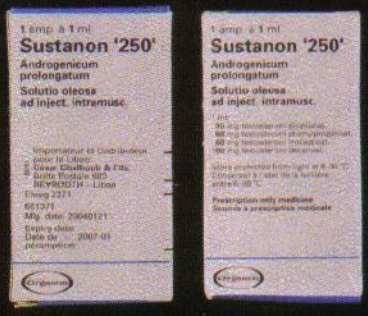
Fake



Sustanon '250' from Pakistan



Old box of Pakistani Sustanon '250'



Sustanon '250' from Lebanon



Testonon 250 by The NILE Co. (Egypt)



Sustanon "250" by The NILE Co. (Egypt)



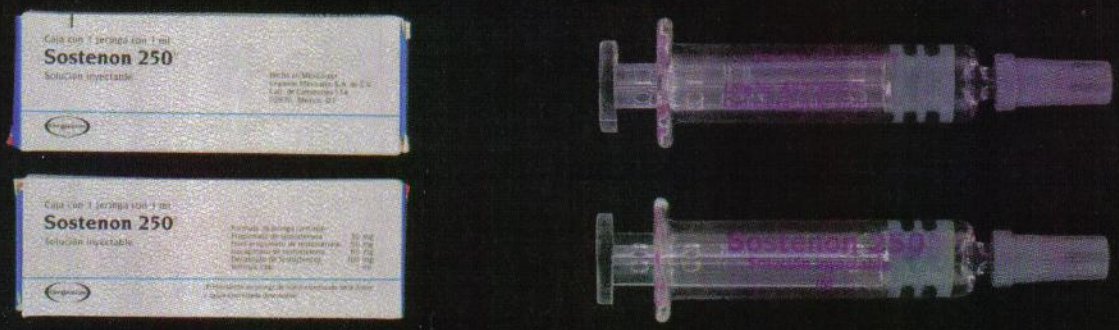
Older NILE Sustanon "250" box



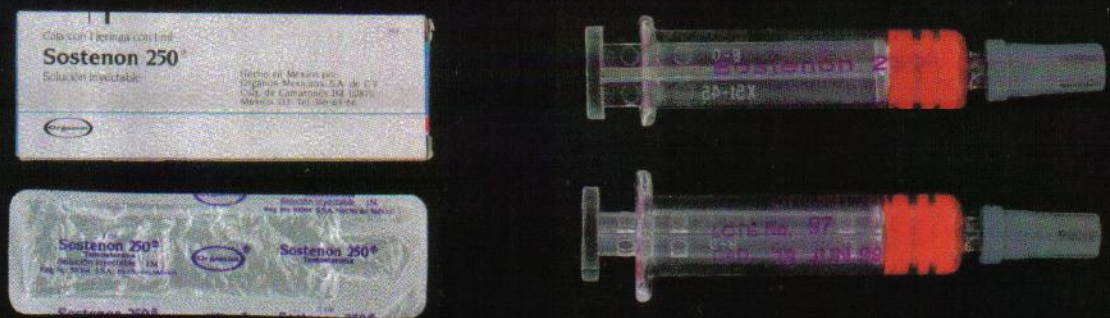
Counterfeit Sustanon"250" by The NILE Co. (Egypt) | Russian Sustanon '250' from Organon | Fake



"Russia Sustanon" export from Infar India (NLM)



Sostenon 250 pre-loaded syringes from Organon (Mexico)



Older packaging for Mexican Sustanon



4Test from Quality Vet (Mexico)



Testosterona-4 from loeffler (Mexico)



Old Loeffler box



SuperTest-250 from Tornel (Mexico)



Teston 250 from Ttokkyo Mexico (NLM)



Mexican UG product from Bratis (NLM)



Durateston (Brazil)



Durateston older box and ampules



Sustaretard-250 from BM (India)



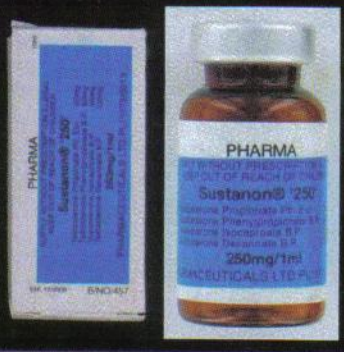
British Dragon Andropen 275 (Thailand)



Testone 250 from Genesis (Singapore)



SIUG Sustanon (Underground)



Underground Pharma box and vial



Hardcore Labs (UG)



Int Pharmacy (Underground)



Worldwide (UG)



Bogus French product



Russian fake



Another bogus Russian Sustanon



Counterfeit IP Sustanon



Fake Farmadon box and vial (Russia)



Counterfeit vial (Portugal)

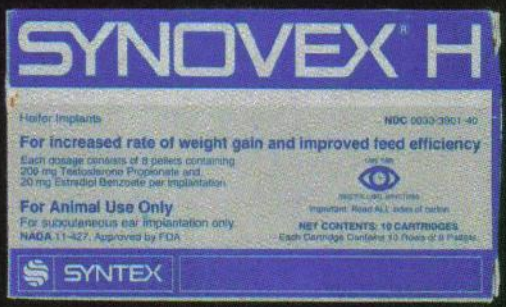


Two counterfeit ampules



Bogus Loniton

Synovex



Synovex H (U.S.)

Test400



Test 400 from Denkall (Mexico)



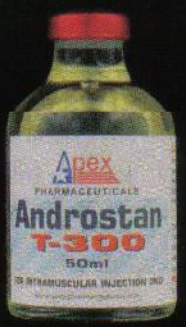
Counterfeit Test 400 with fake hologram



300mg/mL clone from Hardcore Labs (UG)



HCL 500mg/mL similar blend

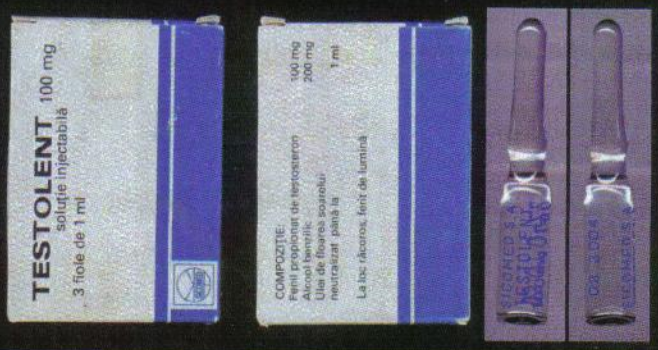


Similar blend from Apex (UG)

Testolent



Similar blend from Olympian (UG)



Testolent from Rumania (NLM)

Testosterone Butyrate



Red Star Drytest (Underground)



Bogus Calastreme hydrobenzoate (similar compound)

Testosterone Cypionate



Anabolic TL from SYD Group (Mexico)



Nutri-Vet Ultra Cyp 300 (Mexico)



Denkall Cypiotest 250 (Mexico)



Animal Power Cypiotest 250 (Mexico)



Teston QV from Quality Vet (Mexico)



Older Teston QV box



Ttokkyo 200mg/mL and 100 mg/mL generics from Mexico (NLM)



Testo LA from Jurox (Australia)



Counterfeit Jurox Testo LA



100mg/mL and 200mg/mL products from Dispert Labs (Uruguay)



Deposteron from Brazil



Vironate from WDV (Philippines)





Cypionax from Body Research in Thailand (NLM)



British Dragon Testabol Depot (Thailand)





Depotrone from South Africa



Testex Prolongatum from Altana (Spain)



Old Spanish Testex from BYK/ELMU (NLM)



Detailed counterfeit of Spanish Testex



Detailed counterfeit of previous Testex brand



Miro-Depo from Hanil (Korea)

Previous Miro-Depo packaging



Canadian Depo Testosterone from Pharmacia

Depo Testosterone from Pharmacia S. Africa



Depo Testosterone from Pharmacia (.U.S.)

Older packaging for U.S. Depo Testosterone



Counterfeit U.S. Depo Testosterone

Real

Fake

Another Counterfeit Depo Testosterone





Watson generic (U.S.)



Generic from Schein/Steris (NLM)



U.S. Goldline generic (NLM)



Goldline Counterfeit



Counterfeit U.S. Steris cypionate



U.S. Steris counterfeit #2



Another Goldline counterfeit



Counterfeit U.S. Steris #3







Four different cypionate vials compounded in pharmacies (U.S.)

Appendix E



Testastan Depot from Apex (Underground) | Generic Supplements (UG) | SIUG vial (Underground)



International Pharmaceuticals (UG) | Eurochem 10mL and 5mL vials (Underground) | Pinnacle (Underground)



Jenaka underground vial (NLM) | Mexi-Pharm (Underground) | LGL vial (UG)



Cytest from Spectro (NLM) | Fake cypionate from India | Bogus Cyp 200 (Argentina)

Testosterone Enanthate





Bogus Duratest (U.S.) and Test-Depot (Russia)



Fake cypionate from Australia



Enantest 250 from Animal Power (Mexico)



Testosterona 200 from Brovel (Mexico)



Previous Brovel packaging



A very old Brovel box



Brovel counterfeit #1



Counterfeit #2



Counterfeit #3



Enantato 350 from Pet's Pharma (Mexico)



Testosterone 200 Depot from Tornel (Mexico)



Older style Tornel box and vial



Macrotest-E from CPMax (Mexico)





Enantat QV 250 from Quality Vet (Mexico) - 10mL and 50mL versions



Ttokkyo generic from Mexico (NLM)



Schering Primoteston Depot (Mexico)



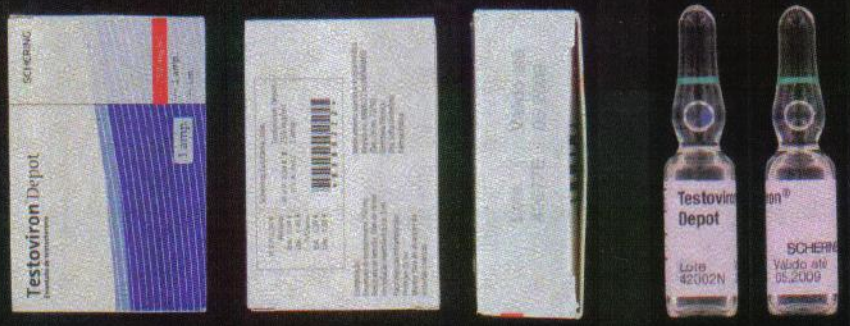
Older Mexican box



Italian testo enant



Testoviron from Schering (Italy)



Testoviron from Portugal (small box)



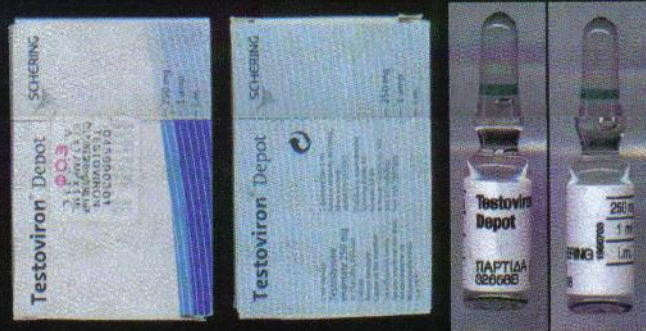
Counterfeit ampule



Testoviron from Portugal (slightly larger box)



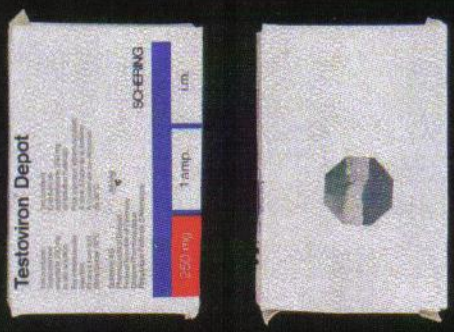
Older packaging from Portugal



Testoviron from Greece



Enanthate from Norma Hellas (Greece)



Testoviron Depot from Lebanon



Testoviron from Japan



Testoviron from Scherimed (Spain)



Previous version when Testoviron was sold under the Schering label in Spain



Very old Spanish box

Counterfeit Spanish Testoviron

Fake amp



Androtardyl from France

French export Weratestone



Heptylate de Testosterone from Theramex (France)



German Testoviron box and (export) amp

Counterfeit German box and ampules



Testoviron from Sri Lanka

Thai Testoviron



Testabol from British Dragon (Thailand)



Testoviron Depot from Argentina



Cidoteston from CID (Egypt)



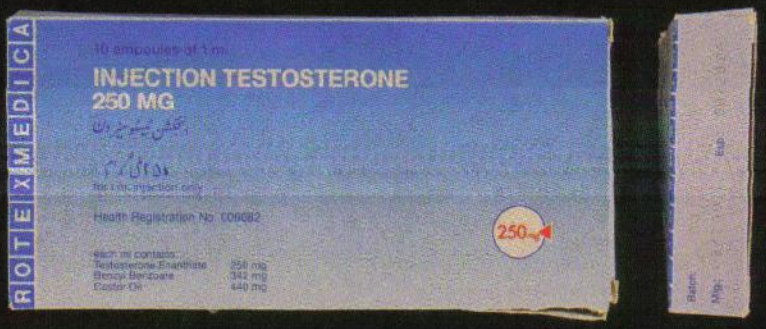
Primoteston-Depot from CID/Schering Egypt (NLM)



Old Schering/CID packaging



Testoviron from Pakistan



Rotexmedica Testoviron from Pakistan (German export)





Testofort Injection from Pakistan





Generic from Geofman (Pakistan)

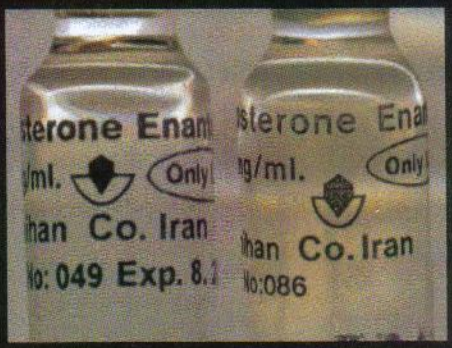




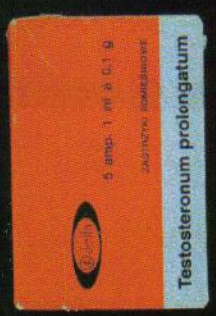
Generic from Aburihan (Iran)



Fake Real



Fake Real





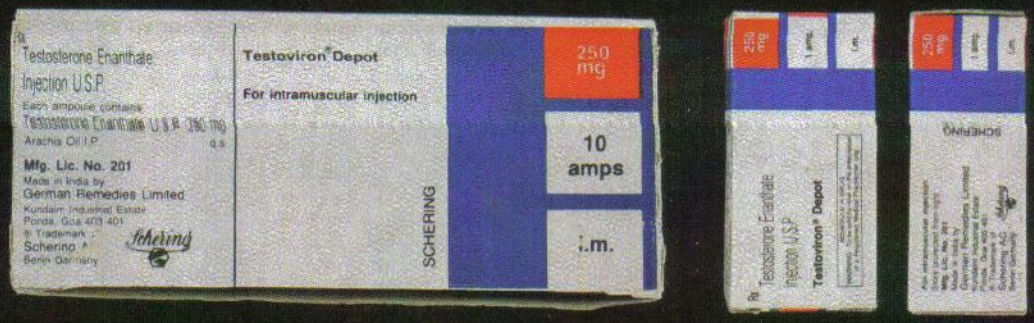


Testosteronum Prolongatum from Jelfa (Poland)





Testoviron Depot from India



Older packaging from India



Testen-100 from BM Pharmaceuticals (India)





Counterfeit Lyka product (India)







Testosteron Depo from Galenika (Serbia)



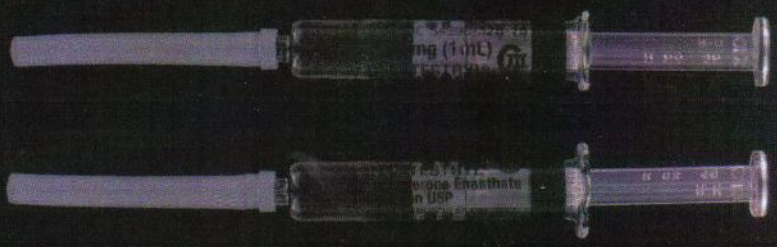




Two different older boxes of Galenika enanthate (Serbia)



ciclo-6 from Chile



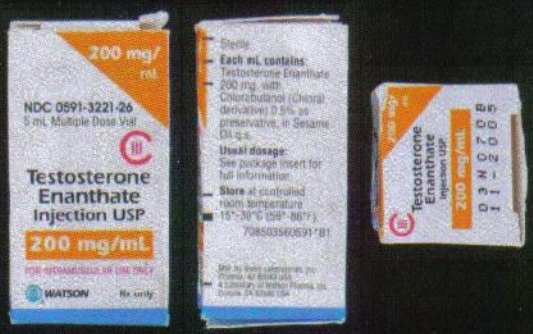
Delatestryl syringes from BTG U.S. (NLM)



U.S. Delatestryl from BTG (NLM)



Delatestryl from Savient (U.S.)



Enanthate generic from Watson (U.S.)



U.S. Schein generic [NLM]



Counterfeit Steris (U.S.)



Delatestryl from Theramed Canada



Ropel from Jurox (Australia)



Counterfeit enanthate from Jurox (Australia) Counterfeit Ilium enanthate (Australia) Genesis enanthate (Singapore)



Apex generic (Underground) Underground products from Hardcore Labs and Generic Supplement



Underground enanthate products from Eurochem and Europa Quality Labs



Underground enanthate products from PTG, SIUG, Tapatia, and Moonlight



Underground enanthate from QFS (NLM), Stark, X Pharma, and Continental



Davinci TE 250 (Underground)



Counterfeit of Underground IP



Counterfeit Farmadon vial (Russia)



Counterfeit Farmadon box and ampule (Russia)

Testosterone Propionate



Brovel 100mg/mL propionate (Mexico)



Previous Brovel packaging



Brovel 50mg/mL propionate (Mexico)



Old Brovel packaging



Propiotest 100 from Animal Power (Mexico)



Testopro from Loeffler (Mexico)



Propionate from Quality Vet (Mexico)



Ttokkyo propionate from Mexico (NLM)



Testex Elmu from Altana (Spain)



Older packaging of Testex Elmu



German Eifelfango box



Testoviron from Italy (NLM)



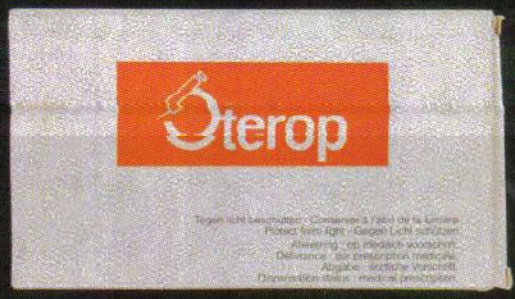
Testovis from Italy



Two older boxes of Italian Testovis



Testone-E from Egypt





Sterop from Belgium



Belgian Sterop ampules







Virormone from the U.K.





Older Virormone box



Propionate from Calastreme (Argentina)



Testabol from British Dragon (Thailand)





Testolic from Body Research (Thailand)



Samil Testo from Korea



Propionate from China



Older Anatest box (Canada)



Anatest from Canada



Fake Canadian propionate



Testopin (vials) box from BM India

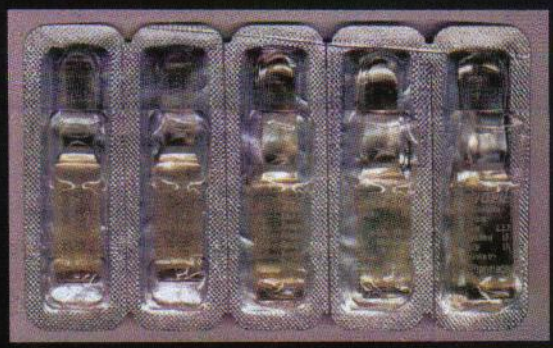


Testopin-100 (ampules) from BM India



BM amp and vial





Foil and plastic tray of 5 ampules







Testosteron from Sopharma (Bulgaria)





Propionate from Farmadon (Russia)





Counterfeit Farmadon box and ampules (Russia)



Fake Russian 10mL Farmadon vial



Testoprop from Jurox (Australia)



Countefeit Jurox



Bogus Australian Ultratest



Propionate from Apex (Underground)







Underground propionate vials from Eurochem, Hardcore Labs, and DutchLab







Underground products from Pharma, Jenaka (NLM), and Olympian







Propionate from SIUG, Continental, and PTG Pharma (UG)







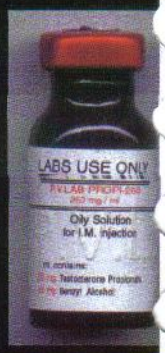


Underground products from Quality Gear Labs, LGL, Moonlight, and Pinnacle









Underground propionate vials from Baja Vet, Mexi-Pharm, Spectro (NLM), and PVL













U.S. counterfeits of Geneva, Steris, and Zenith



Bogus Sila vial from Russia



Fake LifeTech vial



Fake box from Paynes Labs (Kenya)

Testosterone Suspension









Suspension from SYD Group (Mexico)



Denkall Aquatest (Mexico)



Mexican Grupo Tarasco suspension (NLM)



Ttokkyo generic from Mexico (NLM)



Univet suspension (Canada)



Counterfeit Univet vial



Counterfeit Canadian Malogen



U.S. Steris suspension (NLM)



Steris counterfeit (U.S.)



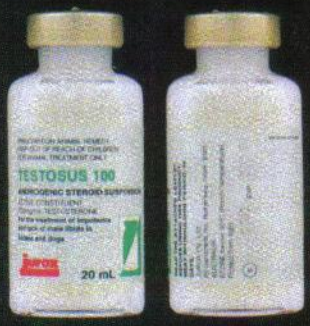
U.S. Geneva counterfeit (NLM)



U.S. Private pharmacy compound



Another private label U.S. Product



Jurox suspension (NLM)



RWR suspension (Australia)



RWR counterfeit (Australia)



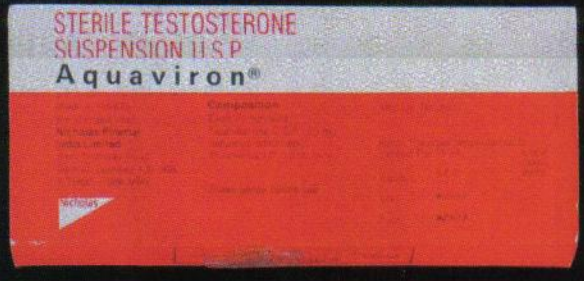
Another counterfeit RWR vial



Czech Agovirin Depot from Biotika



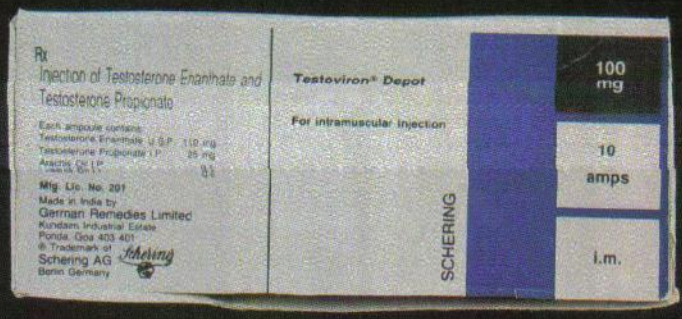
Aquaviron from Nicholas (India)



Old Aquaviron packaging



Underground products from Spectro (NLM) and QP



Testoviron Depot from India (NLM)





Spanish Testoviron (NLM)





Italian Testoviron (NLM)



Fake vial (France)





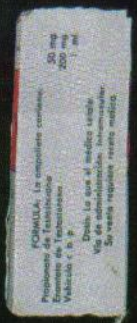






Testoprim-D from Mexico





Old Testoprim box





Ara-Test from Mexico





Counterfeit Farmadon product

Trenbolone Acetate



Trenbo 75 from Animal Power (Mexico)



Ttokkyo Trenbol 75 from Mexico (NLM)



Pet's Pharma Trenbolon 75 (Mexico)



Quality Vet Trembolona QV 75 (Mexico)



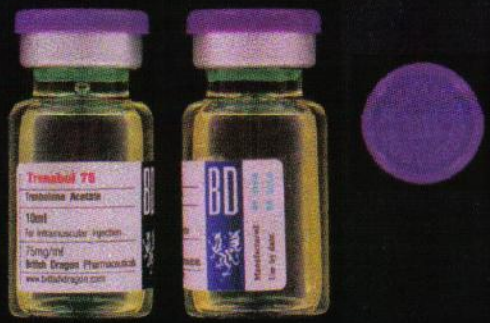
Old QV box



Loeffler Acetrenbo tabs (Mexico)



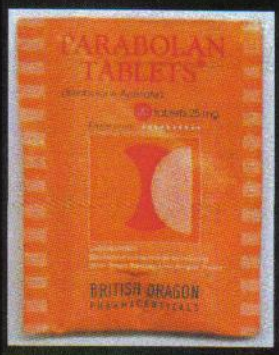
Nutri-Vet Ultra Tren (Mexico)



British Dragon Trenabol (Thailand)



Counterfeit BD Trenabol



British Dragon oral (NLM)



Fake Body Research Parabol (Thailand)



Trenol 50 from WDV (Myanmar)





Finaplix-H from Intervet (U.S.)





Old U.S. Finaplix-H



Trenbol 75 from Genesis (Singapore)



Trenbol 75-R from Apex (Underground)



Trenbolone acetate vials from Hardcore Labs and Eurochem (Underground companies)



Underground products from Dutchlab, Elite, and Generic Labs



Underground products from Olympian, Pharma, and PTG



Trenbolone acetate and a trenbolone acetate blend from SIUG (UG)



Older SIUG vial (UG)







Underground products from LGL, Moonlight, and Pacific Rim







Underground vials from PVL, Pharma Tech and Quest (NLM)



IP (UG) note hidden numbers in glue line



Generic Supplements vial (UG)



Fake Ilium injectable (Australia)



Fake Jurox injectable (Australia)











Generic from Quality Gear Labs (Underground) Fake Finabolan (France) Fake Finaplix Gold from Canada



Continental (Underground)



Fake Trenvet (Guatemala)



Fake Trenaplix and Trembolone

Trenbolone Enanthate



Trenbolone blend from Generic Labs (UG)





Tren Enanthate from SIUG and Moonlight (Underground)





Underground blends with Tren Enanthate from HCL and Pac Rim



Hardcore Labs vial (Underground)

Tribolin



Tribolin from Ranvet (Australia)

Trinabol



Trinabol from British Dragon (Thailand)



Counterfeit Trinabol





200 mg/mL clone from Generic Labs (UG)

Winstrol







Anabolic ST from SYD Group (Mexico)





Stan 50 from Animal Power (Mexico)





Stan Tabs from Animal Power (Mexico)





Old Grupo Tarasco box and vial from Mexico (NLM)





Estano-Pet's NRV from Norvet (Mexico)



Stan QV tabs from Quality Vet (Mexico)



Quality Vet 50mg/mL injectable (Mexico)



Stan QV 100 (Mexico)



500 count tab bottle from Ttokkyo Mexico (NLM)



100 count Ttokkyo bottle (NLM)



100mg/mL and 50mg/mL injectables from Ttokkyo Mexico (NLM)



Stanazolic 100 from Denkall (Mexico)



Counterfeit Stanazolic 100



50mg/mL Stanazolic from Denkall (Mexico)

Ilium Stanazolic (Australia/former Mexico import)



Stanazolic 10mg tabls from Denkall (Mexico)

6mg Stanazolic capsules

Bratis injectable - MX UG (NLM)



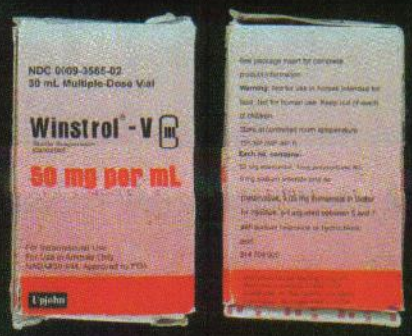
Bratis Tabs - Mexican Underground (NLM)

Canadian WInstrol from Upjohn (NLM)



Canadian counterfeit

U.S. Winstrol-V from Pharmacia & Upjohn



U.S. Winstrol counterfeit



Winstrol Depot from Zambon (Spain)



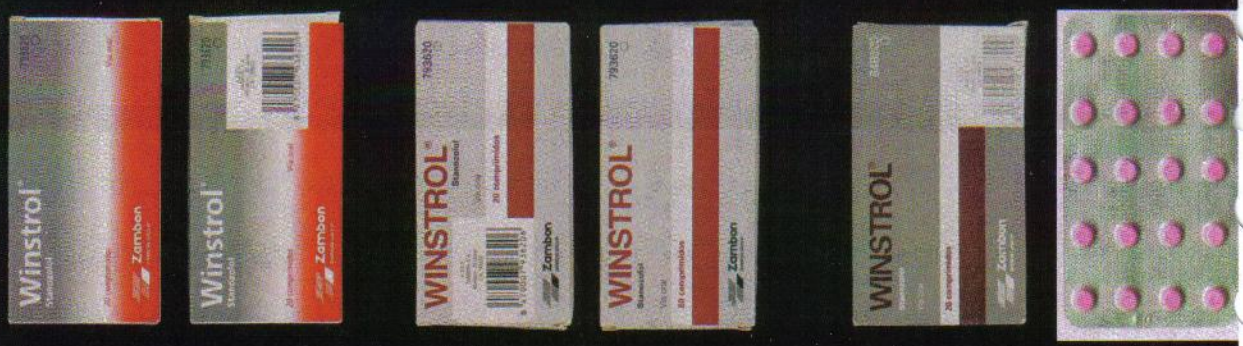
Four older boxes and old ampule of Spanish Winstrol Depot



Counterfeit Zambon vial



Spanish WInstrol tablets



Three older boxes and old strip of Spanish Winstrol



Neurabol tablets (India)



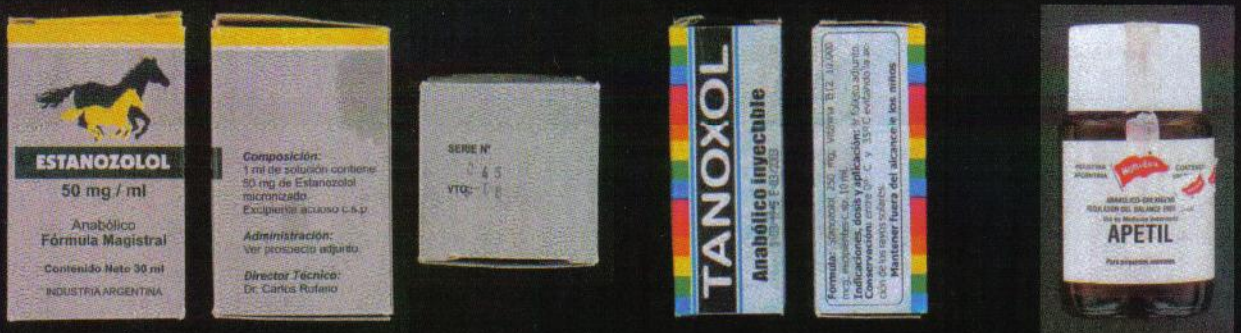
Menabol tablets (India)



Anabolico Cimol (Argentina)



Nabolic Strong from Chinfield S.A. (Argentina)



Estanozolol from Formula Magistral (Argentina)

Tanoxol from Argentina

Fake Apetil (Argentina)



Azolol from British Dispensary (Thailand)



Stanabol 10mg tabs from British Dragon (Thailand)



50mg British Dragon tabs



Older versions of 10mg and 50mg Stanabol



Old bottle and tabs from BD



Stanol tabs from Body Research Thailand (NLM)





Body Research Stanol injectable (NLM)



Counterfeit Body Research (Thailand)



Thai Cetabon tablet strip



Fake Italian stanozolol (sold in Thailand)



Genesis tabs (Singapore)



Genesis injectable (Singapore)



Genepharm tabs (Greece)



Generic from Planet Pharmacy (Belize)



Terabon tablet strip (Korea)





Anazol tablets and injection from Xelox (Philippines)



Stanosus from Jurox Australia (NLM)



Counterfeit Jurox stanozolol



Fake Jurox Winstrol tabs



Old RWR Stanazol box (Australia)



Counterfeit box and vial



Another RWR counterfeit



Ilium Stanabolic (Australia)



Fake Aquastanbolic (Australia)



Generic Supplements tablets (Underground)



Continental Labs Stanobol (UG)



Win-50 from Pacific Rim (Underground





Generic Labs tablets (Underground)



International Pharmaceuticals tabs (UG)





Older tabs and IP injectable







Stanoil from Apex (Underground)

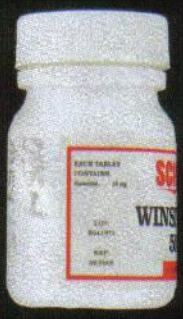




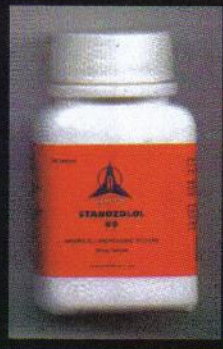


Stanoplex tablets by Apex









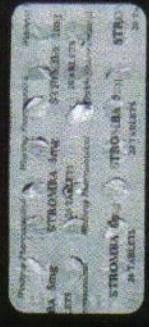


Underground tablets from Scion, Spectro (NLM), and Alpha Tech (NLM)











Eurochem vial (UG) Mexi-Pharm injectable (UG) Bogus Stromba tabs Fake Turkish bottle

Albuterol







Albuterol from Greece and Turkey

Aldactazide

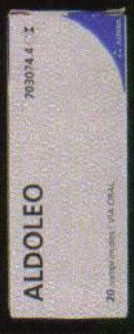


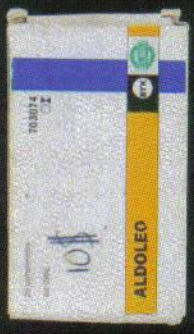
(France)

Aldactone

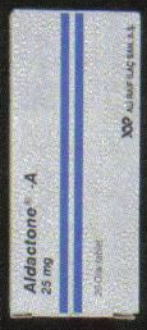


(Spain)





Aldoleo from Spain (old box on right)



(Turkey)



(France)

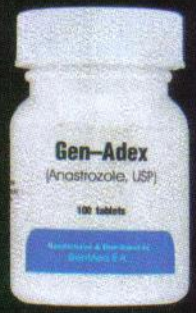
Arimidex



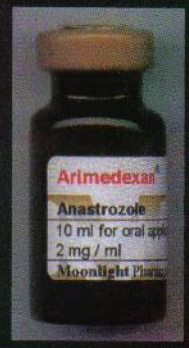
(Spain)



British Dragon (Thailand)









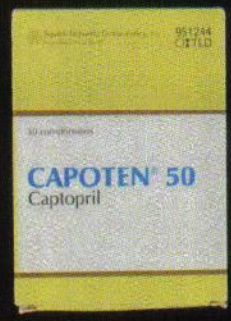
Four different underground preparations containing anastrozole

Avodart



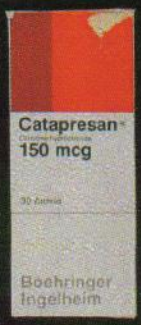
French Avodart

Capoten



Capoten from Spain

Catapres







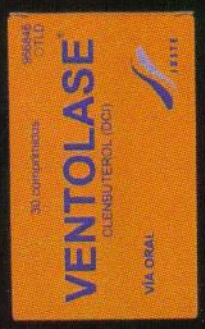
(Greece) (Germany)

Clenbuterol

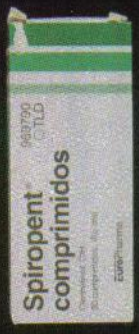




Monores and Spiropent from Italy

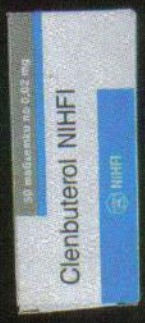












Ventolase, Broncoterol, and Spiropent (Spain) Ventipulmin and Spiropent from Germany (Bulgaria)













(Greece) (Thailand) Pulmol from Xelox (Philippines) Italian fake











Novegam (Mexico) Mexican Spiropent Mexican Oxyflux

Clomid

Brogen (Mexico) and Brontel (Brazil)

Generic Supplements (UG)

Clomid from Egyp

Ovamit and Duinum (Cyprus)

Generic and Serpafar (Greece)

Omifin and Serophene (Mexic

Italian Clomid and Serophene

Clomid and Dufine from Portugal

(Spain)

(Israel)

Cyclofenil

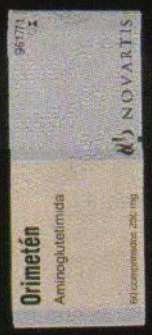
(Thailand)

(Turkey)

(Turkey)

(Sweden)

Cytadren



(Spain)



(England)

Cytomel



U.S. Cytomel



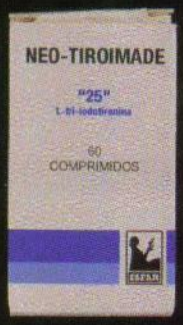
Cynomel (Mexico)



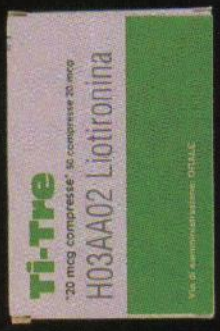
(Turkey)



(Greece)



(Portugal)



(Italy)



(Brazil)

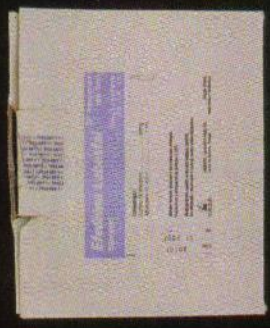
Ephedrine



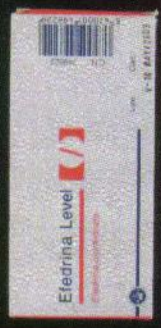
(Brazil)



(Turkey)

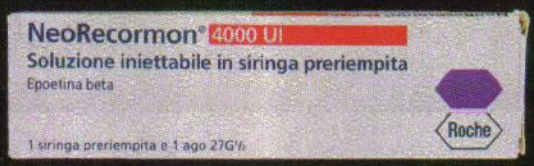


Injectable from Portugal



(Spain)

EPO





Two different brands of EPO from Italy

Femara





Letroz (India)

Geref





Geref from Spain

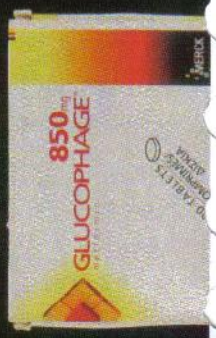
Glucophage



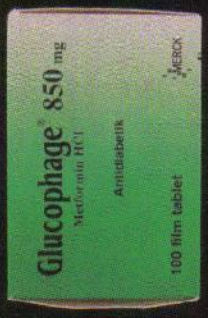
(Portugal)



(France)

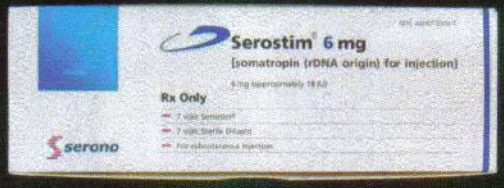


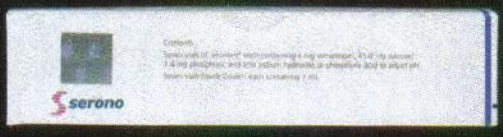
(Greece)



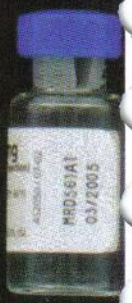
(Turkey)

Growth Hormone









U.S. Serostim





Older U.S. Serostim box



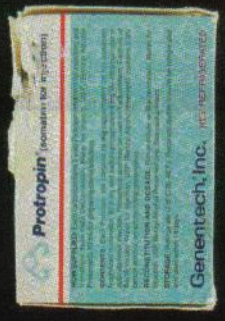


U.S. Saizen





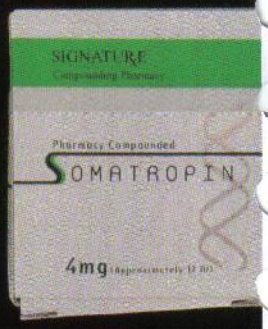
Old U.S. Saizen packaging



U.S. Protropin (somatrem)



(U.S.)



U.S. private label GH



Humatrope (Mexico) Counterfeit Mexican Humatrope Saizen (Mexico)



Hormotrop, Humatrope, Saizen, and Somatrop from Brazil



Norditropin from Iran, Italy, and Denmark Norditropin SimpleXX



Genotonorm (Belgium) Serostim from Switzerland





Humatrope and Saizen from Spain





Jintropin from China



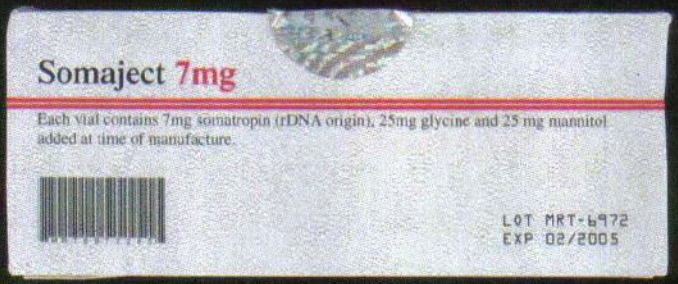
Counterfeit Jintropin



Kexing GH (China)



Genitropin (China)







Somaject from Eurotech - Underground product (NLM)

Chinese Fitropin



Russian GH



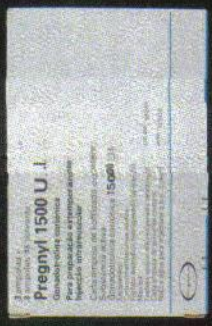


GH from Genesis (Singapore)

HCG



U.S. Novarel



(Greece)





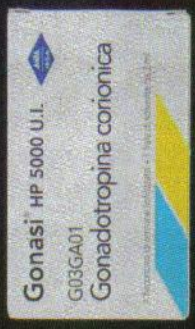
Choragon and Pregnyl from Brazil



(Estonia)



(France)







Gonasi, and two different boxes of Profasi from Italy



(Switzerland)



HCG from China





Two boxes from Portugal







Three different brands from Mexico



HCG-Lepori (Spain)

HELIOS

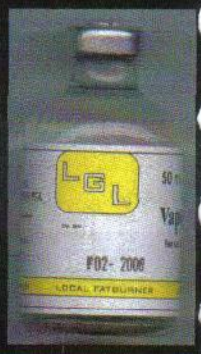


(Spain)



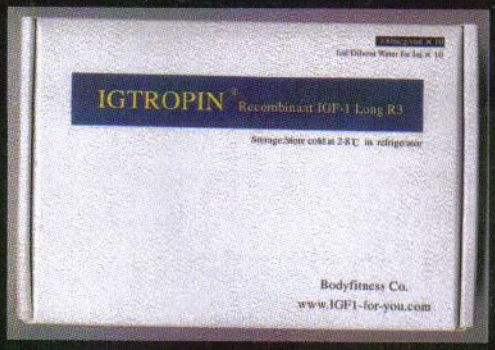


HELIOS injectable and gel from Generic Supplements (UG)



LGL clone (UG)

IGF-1



IGTropin (China)





Underground Long-R3

Insulin



U.S. UG Long-R3



U.S. Humulin



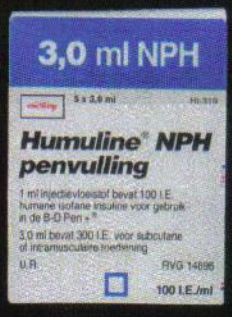
Humulin from Brazil





Humalog (France)





Humalog and Humuline from Lilly



(Tunisia)

Two versions of French Humuline

Kynoselen

Kynoselen (U.K.)

Lasix

(France)

(Mexico)

(Portugal)

Three different boxes from Spain

Lasix from Tunisia

Lentaron

Lentaron Depot from Novartis

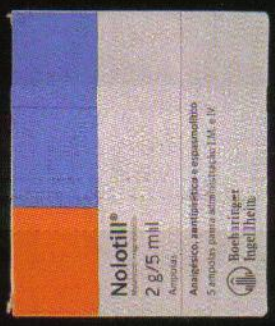
Lipostabil

Lipostabil N from Germany

Meridia

(Greece)

Nolotil



(Portugal)



(Spain)



(Turkey)



(Rumania)

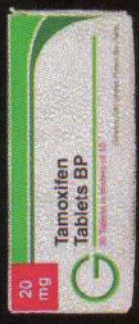
Nolvadex



U.S. generic



AstraZeneca Nolvadex-D from Australia, Greece, U.K., and Portugal



(U.K.)





Two brands from India



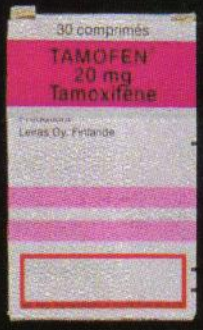
(Bulgaria)

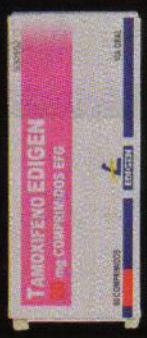


(Israel)



(Singapore)





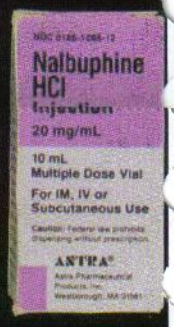


Tamofen from Finland, Tamoxifeno Edigen from Spain, and APS Generic

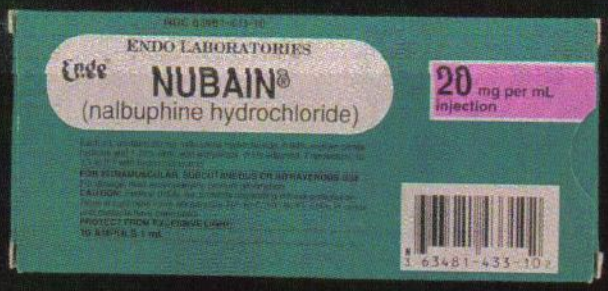
Nubain



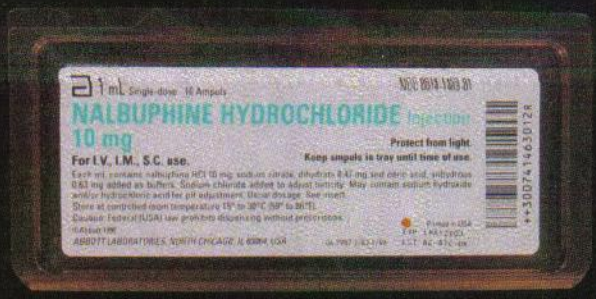
(Mexico)



Astra (U.S.)



Nubain from Endo (U.S.)



Abbott generic (U.S.)

Parlodel



(Italy)



(Greece)

Proscar





U.S. Proscar and Propecia



(Canada)



(Greece)



(Holland)



(Sri Lanka)

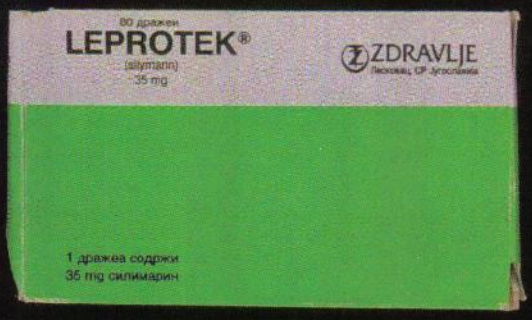


(Thailand)



(Turkey)

Silymarin



Russian Leprotek

Synthol



Cosmostan (blend with steroids) from Apex (UG)

Synthroid

(France) (Brazil) (Greece) (Portugal) (Spain)

(Turkey) (Serbia)

Tationil

Tationil vial

Thiomucase

Spanish injectable

Thiomucase from Spain and Hirudoid from Holland

Triacana

(France) (Singapore)

Yohimbine

(France)

Zaditen

(Greece) (Mexico) (Spain) (Turkey)

Ketotifen from Bulgaria

Appendix F

Drug Security Stickers



Animal Power (Mexico)



Brovel (Mexico)



Older Brovel hologram



Denkall (Mexico)



Counterfeit



Loeffler (Mexico)



Old Loeffler sticker



Nutri-Vet Mexico (no longer in use)



Ttokkyo Mexico (line no longer made)



Serono (U.S.)



Older Serono sticker



Older Serono sticker

Drug Security Stickers



Pet's Pharma (Mexico)



SYD Group (Mexico)



Zambon (Spain)



Xelox (Philippines)



British Dispensary (Thailand)



Counterfeit BD sticker



British Dragon (Thailand)



Apex (Underground)

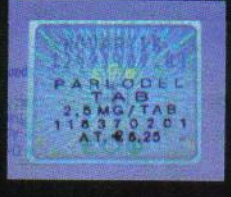


Eurochem (Underground)





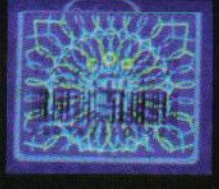
(2002)



(2003)

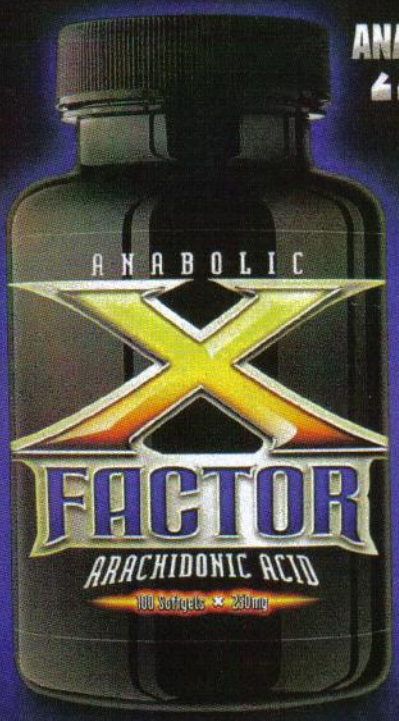


(2004)



(2005)

The pharmacy sticker on all legitimate Greek drugs shows a hidden mark under ultraviolet light (black light)



39,108 hours of anabolic research

5,832 published studies

50 days of real-life trials

12 pounds of muscle

1 Breakthrough Innovation

ANABOLIC X FACTOR

www.AnabolicX-Factor.com

1-888-828-8008

Molecular NUTRITION

ANABOLIC EXPERT, WILLIAM LLEWELLYN DISCOVERS SECRET TO

"INCREASING MUSCLE MASS IN HUMANS"

U.S. PATENT #6,841,573

X-Factor™ is becoming the single greatest anabolic innovation of the new century, with a contribution to human muscle building so gigantic it is being considered by scientists to be an epic discovery! **X-Factor™** is the product of Anabolic Expert, William Llewellyn, and the mysterious key to muscle tissue's anabolic vault. It is so significant, so core, so completely primary to anabolic amplification, that no serious bodybuilder can afford to train without it. No matter if you are a beginner or professional bodybuilder, **X-Factor™** is absolutely essential to developing massive muscle and unlocking your genetic potential. This anabolic science is so unique and incredible that the U.S. Patent office agreed. Molecular Nutrition's anabolic **X-Factor™** is patented for ***Increasing Muscle Mass In Humans!*** Yeah, this is big time!

What Llewellyn discovered, and all serious bodybuilders need to know, is that in every muscle cell is a biochemical that is released after intense exercise. This newly discovered super-anabolic is called *arachidonic acid*, now identified as the **X-Factor™**. Released during intense muscular contractions, this core biochemical initiates the anabolic cascade that results with serious gains in muscle mass.

Initial real-life trials have shown up to 12 lbs of rock solid muscle after just one 50-day cycle.

Increasing the intramuscular reserve of **X-Factor™** strengthens the tissue rebuilding process, supporting androgen steroidal activity, protein synthesis, IGF-1 signaling, nitric oxide release, and cellular metabolism, the anabolic processes responsible for muscle growth. **X-Factor™** is the key to the anabolic vault that creates intense muscle blasting pumps and explosive growth!

X-Factor™ is the ONLY patented super anabolic that uniquely amplifies a cascade of intracellular muscle building events. **X-Factor™**...

- ✗ Increased Androgen Receptors - *Amplifying the Anabolic Actions of Testosterone!*
- ✗ Increased Protein Synthesis - *Real Gains of 1-2 lbs. of Solid Muscle Per Week!*
- ✗ Increased Workout Productivity - *Intensified Residual Soreness!*
- ✗ Increased Pumps - *Greater Nutrient Availability to the Muscles*
- ✗ Increased IGF-1 Signaling – *Supports Muscle Satellite Cell Proliferation*
- ✗ Maximum Muscle-Mass Retention - *No Post-cycle Hormonal Crash That Robs Your Gains!*
- ✗ Significant Fat Loss - *Gain Muscle AND Lose Fat at the Same Time!*
- ✗ Comfortable and Effective - *No Hair loss, Libido Issues, or Acne!*

Here is what some real-life trial users are said about X-Factor™ after just one 50 day cycle...

Joel T. (WA) – "X-Factor is certainly the best, most effective supplement I have ever used... EVER."

Andrew P. (PA) – "This stuff has blown me away."

Eric S. (WI) – "I have to say this is the BEST supplement I have used so far in my years of lifting."

Cody K. (NV) – "Pumps have been unreal, better than any NO2 I have taken."

Rod H. (WI) – "...12lbs gain of lean muscle and body fat 8%. As the trainer in the gym said, these results are incredible."

Austin M. (MD) – "Pumps during workouts were amazing, freaking amazing."

Noel B. (CA) – "I started with my bodyweight of 193lbs. Well, after 8 weeks I now weigh 204lbs. that's an 11 lb increase. ...I love it."

X-Factor™ is for every serious bodybuilder who knows the awesome feeling of training in the zone. Banging off reps with burning muscles pumped so hard you swear your skin is going to explode. Yeah, being in the zone is a big time thrill and for sure the fastest way to build freakish muscle. But, the zone is nothing without the "X". The zone is how you train, the pain is what you feel, and the **X-Factor™** is how you grow! To reach your potential you need to add **X-Factor™** to your training and supplement program. ***Then, and only then, will you begin to experience muscle-building technology so revolutionary it's patented.***

Get on a 50 day cycle of X-Factor™ and start turning your "X" potential into 8, 10, or even 12 lbs of new muscle mass! Your muscles can't wait, so call today 1-888-828-8008 or log on to www.anabolicX-Factor.com