ROTATOR CUFF RELIEF

The Ultimate Guide to Rotator Cuff Performance and Injury Prevention

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ROTATOR CUFF RELIEF

The Solution to Rotator Cuff Fitness and Injury Prevention

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INTRODUCTION

- Did you know that many commonly prescribed rotator cuff exercises are dangerous?
- Do you want to learn why so many people actually get tendonitis from working out and how you can prevent these injuries?
- Do you know how to combine strength and flexibility exercises?
- Are you already injured and tired of missing training sessions because of shoulder pain? Are you unsure how to modify your training accordingly?
- Did you know that you need more than just "shoulder" exercises to prevent shoulder injuries?

THIS PROGRAM WILL:

- Teach you a science-based progression of exercises that will prevent and alleviate current shoulder pain
- Teach you proper exercise technique
- Teach you to avoid the most common weightlifting errors that cause rotator cuff problems
- Eliminate your fear of training because of prior rotator cuff injury
- Increase shoulder strength as well as throwing, striking, and hitting power

WHO IS THIS PROGRAM FOR?

This program is for any athlete, from children who are starting to play in a sports league to athletes in all sports. All athletes can use this program as a warm-up as well as for injury prevention and increased performance.

WHY THIS PROGRAM IS DIFFERENT

Most health care professionals do not understand shoulder function as it relates to sports. One program from a famous orthopedic group recommends performing the same 10 upper extremity exercises in the same rep and set sequence with no diversification. No shoulder flexibility, core, or leg exercises are recommended. A balance of strength and flexibility of all the muscles around the shoulder is essential for injury prevention. In addition, proper shoulder function is linked to the movements of the lower extremity, the pelvis, and the trunk.

This program includes dozens of different strength and flexibility exercises for the shoulder, core, and legs that are performed in small groups with changing set and repetition sequences.

THE ROTATOR CUFF INJURY PROBLEM

Approximately 13.7 million people visited a doctor's office in 2003 for a shoulder problem, including 3.7 million visits for shoulder and upper arm sprains and strains.
http://orthoinfo.aaos.org/fact/thr_report.cfm?Thread_ID=121&topcategory=

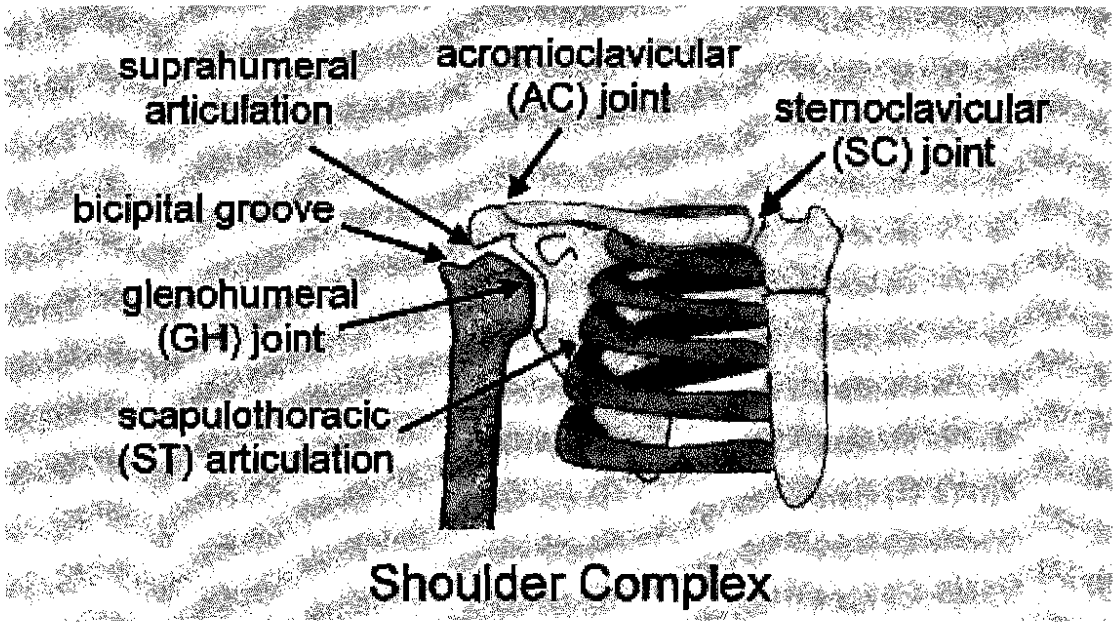
Rotator cuff injuries in sports are usually a result of either direct trauma or microtrauma from repetitive movements. This damage to the joint structures can significantly affect shoulder function and often force athletes to decrease their activity levels and change their life styles permanently.

Not all rotator cuff injuries are sports related. Many problems occur because of poor posture that can lead to muscle imbalance, weakness, lack of mobility, pain and eventually tendonitis and tears of the rotator cuff.

Rotator cuff tears are an extremely common and important injury of the shoulder that can significantly affect an athlete's activity level and quality of life. For competitive or recreational athletes involved in baseball, tennis, volleyball, golf, swimming or weightlifting, shoulder disorders--especially rotator cuff injuries--can be debilitating. **Rotator cuff injuries may require surgery and many months of rehabilitation before the athlete can return to a competitive level.**

A note to parents of youth baseball players: "Baseball is one of the most popular sports in the United States. Unfortunately, a large number of injuries couple this participation, particularly in young developing pitchers where repetitive stresses applied at the shoulder and elbow can perpetuate significant joint debilitation. Equally disconcerting is that these injuries are often the catalyst for significant long-term joint degradation, career ending surgeries, and restriction in routine upper limb function."
(http://www.kines.umich.edu/research/chmr/ibl.html)

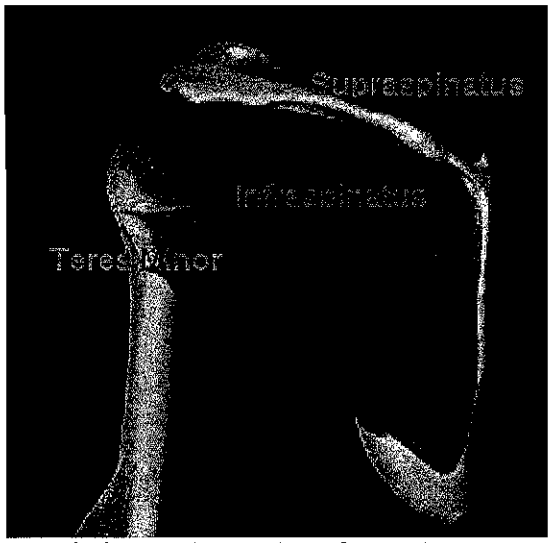
ROTATOR CUFF ANATOMY



Shoulder Complex

The shoulder is a ball and socket joint. The arm bone (humerus) ends in a ball shaped surface (humeral head) that fits into a very shallow socket (glenoid). This socket is part of the shoulder blade (scapula). This shallow socket allows the shoulder joint tremendous range of motion, making it the most flexible joint in the human body. The price for this tremendous mobility is a potential lack of stability. The function of the shoulder joint is to link the upper extremity (arm, forearm, wrist and hand) to the trunk and to provide mobility and stability of movement to the upper extremity.

The rotator cuff (not "cup") is a group of four muscles that rotate the humerus and hold the shoulder in place by keeping the humeral head in the proper position inside the glenoid socket. These four muscles, the size of four fingers, maintain the proper spacing in the joint so there is enough clearance between the ball and socket (humeral head and glenoid). If the proper anatomical amount of clearance ceases to exist, rubbing or impingement occur and subsequently damages the rotator cuff muscles. The four muscles that comprise the rotator cuff are: supraspinatus, infraspinatus, teres minor, and subscapularis. We call them the **SITS** muscles.



Left Shoulder - View from the rear **Left Shoulder - View from the front**

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The rotator cuff is used during daily repetitive motions such as scratching behind your head or back, painting, waxing a car, putting on a coat, reaching, and lifting overhead. In the athletic context, the rotator cuff plays an extensive role in such athletic activities as throwing a ball, serving a tennis ball, hitting a golf ball, spiking a volleyball, swimming, throwing a discus, putting the shot, and controlling your opponent in wrestling. Should any of the four muscles be weak or out of balance; inflammation, impingement, and even tearing can occur.

ROTATOR CUFF INJURY

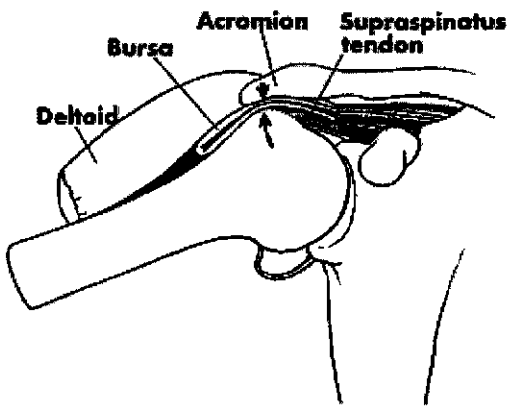
Rotator cuff injuries are usually the result of a combination of poor technique, repetitive overhead activity, and/or muscular imbalance. Sports such as baseball, softball, volleyball, tennis, golf, swimming, shot put, discus, javelin, weightlifting, and lacrosse each can give rise to subtle and unique technique faults that eventually cause an imbalance within the shoulder unit. No injury prevention program can be complete without proper technique coaching and performance of sports specific skills.

Any overhead activity involving the repetitious motion of moving the arm from below shoulder level to above shoulder level has the potential to damage the rotator cuff. If the rotator cuff and

surrounding muscles are not strong, flexible, and properly balanced, a cycle of impaired function and injury occurs.

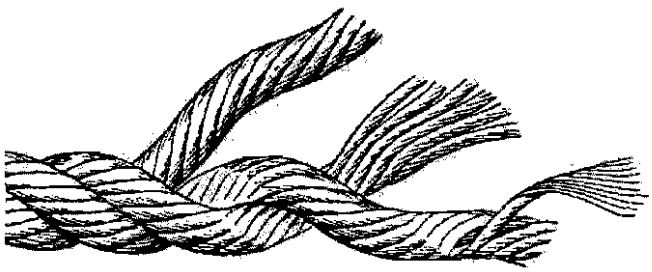
Frequently, the front and back of the shoulder and trunk are not balanced because athletes focus on developing the "beach muscles," i.e. the chest and arms. An imbalance occurs because athlete performs an overabundance of bench presses and curls (chest and arms – the triceps are typically neglected) without performing the necessary stretching for those areas. Strengthening of the muscles surrounding the shoulder blades (scapular stabilizers) is also neglected so they become weak relative to the chest. This front to back imbalance predisposes the shoulder to an impingement injury because it places the ball (head of the humerus) too close to the socket (glenoid).

During normal shoulder motion when the arm is raised the rotator cuff tendons pass beneath the acromion (the bone on the top of the shoulder). The space between the acromion and humeral head is normally quite narrow (see arrows), but large enough to allow the tendons to pass through without rubbing. When damage to the tendons occurs due to trauma or overuse, the space gets smaller and the rotator cuff tendons may be pinched. This pinching or impingement of the rotator cuff leads to excessive rubbing of the tendons against the acromial bone. The tendons begin to break down near the attachment. The process can cause a complete tear of the tendons from the bone and results in pain and restricted movement.



Injury to the rotator cuff comes in the form of muscle strain and tendonitis. A **muscle strain** is really a tear of the muscle. Think of

each muscle fiber as a single strand of rope. Did one strand of rope tear or did the entire rope tear?



What most people call a pull or strain is a tear of some of the muscle fibers, but not all, that make up the muscle. Strains are classified into three grades. Grade I is a mild tear in the muscle(s) that hinders range of motion with mild to moderate pain. Grade II is a moderate tear with a significant loss of range of motion with moderate to severe pain. Grade III is a severe or complete tear that severely limits range of motion and usually causes great pain.

Rotator Cuff Tear - Supraspinatus Muscle
Right Shoulder- View from the front

Tendonitis is an inflammation and fraying of the tendon (area that attaches muscle to the bone). Inflammation and fraying often occur prior to a tear and make a tear much more likely.

When the muscle(s) tears, the first response in the body is inflammation. Inflammation is a protective reaction of the body to injury. Inflammation is typically characterized by pain, swelling, redness, and heat. Most people will feel the pain; however, there is great variability in the amount of swelling, redness, and heat one will

experience.

After the initial injury, a process called the inflammatory process begins. The function of the inflammatory process is to localize the area of injury, clear away the damaged tissue (cellular debris), and allow the body to resist further injury. Part of this process includes the production of tough, dense tissue in the injured area called **scar tissue** or **adhesions**.

There are four problems with scar tissue: 1) It is weaker than the original muscle tissue, 2) It is less elastic (flexible) than the original muscle tissue, 3) It forms in all different directions, not just along the lines of the original muscle which contributes to the loss in elasticity, and 4) Many small nerve endings grow into the area. These changes make the injured area very painful when it is moved too far or too strenuously.

This scar tissue must be removed in order for full function, strength, and flexibility to return to the shoulder joint. Scar tissue will not disappear without effective therapy. Removal of the scar tissue can be accomplished by two highly effective techniques: Active Release Technique (www.activerelease.com) and Graston Technique (www.grastontechnique.com).

GRASTON®
TECHNIQUE

These techniques break up or knead away (similar to kneading away the lumps in bread dough) the scar tissue and provide the proper healing environment for the damaged tissue. This **cannot** be accomplished with anti-inflammatory medicines like ibuprofen (Advil, Motrin, Nuprin), naproxen (Aleve), Celebrex or Vioxx or by cortisone shots. These medications can help with the initial inflammation and pain, but they may disrupt and prevent proper healing of the muscle tissue. Problematic side effects such as gastro-intestinal bleeding and jaundice may also accompany anti-inflammatory drug use.

POSTURE

SLOUCH
- Head Forward
- Ears forward of shoulders
- Shoulders rounded
- Rib cage dropped
- Abs loose
- Buttocks loose

PROPER POSTURE
- Head reaches up like flame of candle
- Ears over shoulders
- Shoulders over hips
- Rib cage up
- Abs firm
- Buttock firm

Simply put, **DO NOT SLOUCH!** In a head forward, shoulders forward posture, great stress is placed on the neck and the shoulder joint. A slouching posture causes the chest muscles (pecs) to shorten and the muscles between the shoulder blades to weaken. It also causes the upper back to round and tilts the shoulder blades forward. This muscle imbalance and malpositioning of the shoulder blade causes the humeral head to roll forward in the socket. This decreases shoulder range of motion and starts the process of impingement. In addition to slouching, the excessive chest and biceps strengthening previously described predisposes the athlete to impingement. Any exercise performed in the slouched position worsens the impingement. All exercise programs must start with proper posture!

So, what is your posture during the day? Are you working on a computer? Is it set up properly both at home and at work? This is called ergonomics, the study of designing the workplace to fit the human body properly to protect it from unnecessary wear and tear. To learn more about ergonomics, see www.youcanbefit.com/ergochk.html.

RELATIONSHIP BETWEEN THE ROTATOR CUFF, CORE, AND LEGS

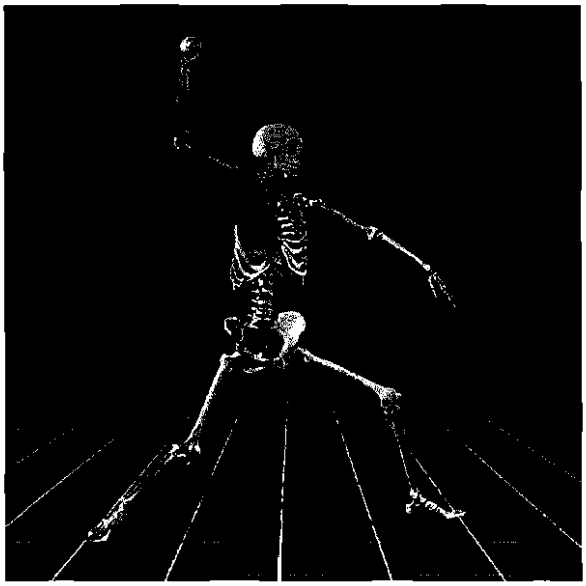
There is a significant relationship between lower body strength, abdominal strength, and upper body strength and the power generated when throwing, swinging, or hitting. Biomechanical studies show that forces are generated in the lower body or legs, directed and amplified through the pelvis and muscles of the trunk (core), and are transmitted and further amplified by the shoulder and arm.

In other words, the legs, trunk, and arms are linked, interdependent segments. ***"The shoulder does not function in isolation but provides an integral link in both producing and transferring energy from the trunk to the arm."*** (Primal Pictures, Sports Injuries The Shoulder 2nd Edition) Over 50% of power generation is derived from the lower body and trunk. Consequently, if the lower body and trunk have shown signs of decreased strength, poor flexibility, and muscular imbalance, the amount of force and velocity delivered from the hand will be significantly compromised.

For example, "The baseball pitcher who has a dysfunctional trunk still will attempt to perform at his optimal level late into a game. The forces generated by the legs will be incompletely transferred to the upper extremity. The pitcher will automatically compensate for this by attempting to generate more torque at the shoulder. Repeating this sequence enough times can lead to excessive loads on the shoulder, resulting in a rotator cuff injury." (NSCA Journal, February 2007, p. 16).
Furthermore, prior injury to other body parts can affect shoulder function. For example, a severe ankle sprain that has not been fully rehabilitated can cause decreased hip and trunk rotation and impaired function of the shoulder blade musculature resulting in potential injury to the rotator cuff.

THE THROWING MOTION

The following brief description of the throwing action shows how the legs, trunk, and arms work in an interdependent manner:



Wind Up
This is the initiation of action that prepares the body to throw. The lower body begins force generation by transferring body weight over the back leg with the front knee elevated to the chest.

Stride
The front leg strides forward while the shoulder assumes an externally rotated position.

Arm Cocking
The front foot strides forward and makes ground contact; the hips and trunk begin to rotate forward; the shoulder achieves maximal external rotation with 90° abduction. The deltoid, supraspinatus, infraspinatus, and teres minor muscles undergo forceful contraction as the chest and shoulder advance forward.

Arm Acceleration
The trunk fully rotates and begins to flex. The energy developed by the body moving forward is transferred to the arm. The shoulder

moves from an external rotation to internal rotation. The internal rotators contract forcefully while the external rotators (infraspinatus and teres minor) eccentrically contract.

Note: An eccentric contraction means that the muscle is lengthening as opposed to shortening while it is contracting. The commonly used term for eccentric contraction is a "negative." Let's use a biceps curl as an example. As you raise the weight you are contracting and shortening the biceps muscles (concentric contraction). You can see the muscle ball up as you raise the weight. As you slowly lower the weight under control, you are eccentrically contracting the biceps. The biceps is lengthening while you still maintain a contraction of the muscles. If you did not maintain the contraction of the biceps, the weight would come crashing down due to gravity.

Arm Deceleration

Trunk flexion and shoulder internal rotation continue and the shoulder external rotators work eccentrically to slow down the forward motion of the arm. At ball release, the arm motion must be quickly decelerated to prevent the arm from coming out of the shoulder socket. The rotator cuff and deltoid muscles must therefore contract.

Follow Through

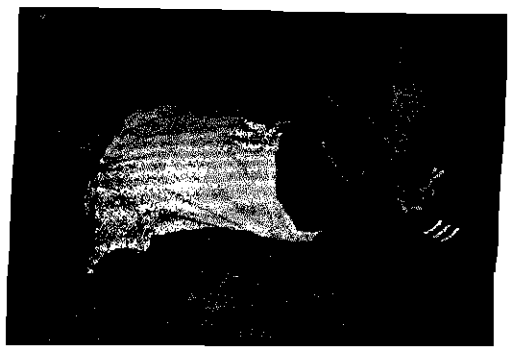
As the body moves forward with the arm, it reduces the forces acting on the entire shoulder, thereby reducing tension on the rotator cuff. The front knee extends and the back leg moves forward and is planted, helping the pitcher maintain balance during the smooth transition from violent deceleration to recovery.

This synchronous and sequential action of the body is why you MUST INCLUDE CORE AND LEG STRENGTHENING when addressing rotator cuff injury prevention and performance.

For more information on shoulder anatomy and the throwing motion, see www.primalpictures.com for **Sports Injuries The Shoulder 2nd Edition.**

UNDERSTANDING SHOULDER MOVEMENTS AND TERMINOLOGY

1 - *Shoulder Internal Rotation*
Subscapularis
Teres Major
Pectoralis Major
Latissimus Dorsi

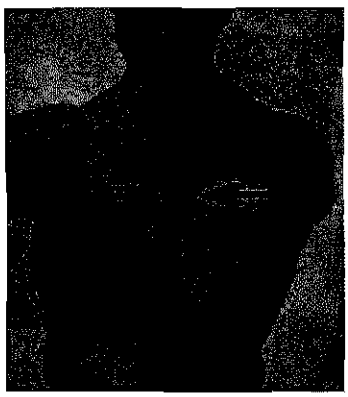


1

2 - *Shoulder External Rotation*
eres Minor
Infraspinatus
Posterior deltoid

2

3 – Scapular Retraction
(Shoulder Blade Squeeze)
Rhomboids
Middle Trapezius

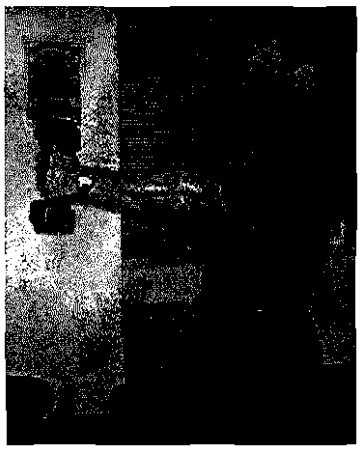


3

4 – Shoulder Abduction
Supraspinatus
Deltoid

4

5 - Shoulder Flexion
Deltoid
Pectoralis Major
Coracobrachialis



5

6 - Shoulder Extension
Deltoid
Latissimus Dorsi
Teres Major

6

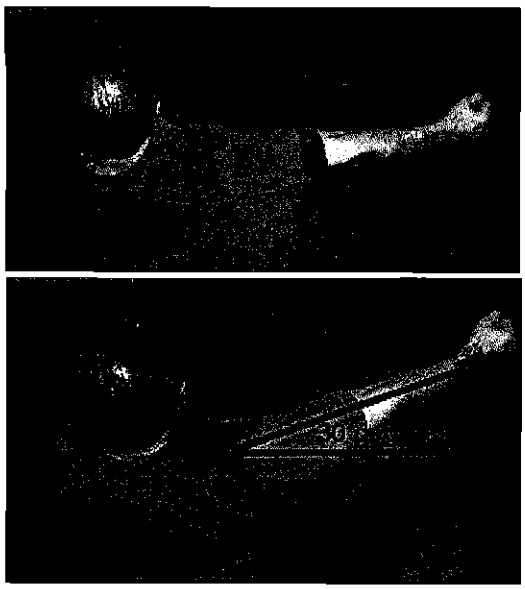
Other movements of the scapula include elevation (trapezius, levator scapulae, rhomboids), depression (latissimus dorsi, pectoralis major), upward rotation (serratus anterior, trapezius), downward rotation (latissimus dorsi, pectoralis major, levator scapulae), and protraction (serratus anterior, pectoralis major).

In addition to the anatomical terms described above, the terms below are used in the exercise descriptions that follow:

Arm: area between your shoulder and your elbow

Forearm: area between your elbow and your wrist

Scapular plane:
30° forward of arm out to the side



Supine: face up

Prone: face down

PROGRAM PRE-TEST

Perform these tests prior to beginning this program. If any of the movements cause pain and/or if there is a significant difference in movement between right and left sides, see a healthcare professional for a proper examination BEFORE starting this program.

PRETEST 1

Raise your arms overhead. Do you have any pain? Is your motion limited?

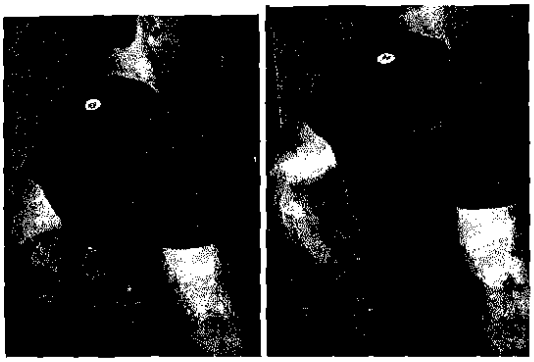
PRETEST 2

Touch your right shoulder with your left hand. Repeat on the opposite side. Do you have any pain? Is your motion limited?

PRETEST 3

Place your hands behind your back as shown in the picture. Do you have any pain? Is there a significant difference from side to side?

PRETEST 4



Place your hand behind your back as shown. Lift the back of your hand away from your lower back. Do you have any pain? Is there a significant difference from side to side?

PROGRAM DESCRIPTION

1. The Program has four groups of eight exercises organized into Routine A and Routine B.

2. Routine A and Routine B each have four exercises that concurrently develop and strengthen all parts of the shoulder.

3. Each Group is performed for four weeks. The athlete will alternate between Routine A, Routine B, and a stretching day.

4. The entire Program of all four Groups is 16 weeks long and may be repeated throughout the year.

5. Each routine has an exercise to strengthen a particular movement of the shoulder: internal rotation, external rotation, scapular retraction, scapular protraction, flexion, extension, and abduction. This constant change prevents staleness and introduces a new stimulus at regular intervals.

GROUP 1

Routine A	Routine B
1. Side-Lying External Rotation	1. Supine External Rotation at 90° Abduction
2. Side-Lying Internal Rotation	2. Supine Internal Rotation at 90° Abduction
3. Prone Shoulder Blade Squeeze	3. Standing Tubing Scapular Retraction
4. Side Raise in Scapular Plane	4. Side-Lying Arm Raise
5. CORE: Curl Up	5. CORE: Side Bridge off Knees
6. LEGS: Door Squat	6. LEGS: Bridge - Two Feet

GROUP 2

Routine A	Routine B
1. Standing Tubing Internal Rotation	1. Diagonal Raise 1
2. Standing Tubing External Rotation	2. Diagonal Raise 2
3. Ball Field Goal	3. Ball Cobra
4. Three Position Arm Raise	4. Shoulder Blade Push Up
5. CORE: Prone Plank	5. CORE: Side Bridge
6. LEGS: Ball Squat	6. LEGS: Bridge - One foot

GROUP 3

Routine A	Routine B
1. Supine Internal and External Rotation at 90° Abduction	1. Seated Dumbbell External Rotation 90° Abduction
2. Prone Internal Rotation	2. Prone Internal Rotation
3. Ball "T" Raise	3. Prone Bear Hug
4. Ball "H" Raise	4. Tubing Shoulder Press
5. CORE: Bird Dog	5. CORE: Lower Russian Twist
6. LEGS: Free Standing Squat	6. LEGS: Ball Bridge

GROUP 4

Routine A	Routine B
1. Standing Dumbbell Shoulder Extension	1. Standing Tubing High Row
2. Standing Tubing Low Row	2. Standing Tubing Internal Rotation
3. Standing Dumbbell Reverse Fly	3. Prone Lower Trap Raise
4. Standing Shoulder Shrug	4. Supine Floor Press
5. CORE: Upper Russian Twist	5. CORE: Medicine Ball Throws
6. LEGS: Free Standing Squat	6. LEGS: Ball Leg Curl

PROGRAM INSTRUCTIONS

- Perform each routine as a circuit.
- Move from one exercise to the next with no rest.
- Perform 10-15 repetitions per exercise. Start with 10 reps and work up to 15 over the 4-week period. Start with 10 reps per exercise when starting a new Group.
- Perform 1-3 circuits. Start with one circuit and work up over the 4-week period. Start each new Group with one circuit. This will prevent overtraining.

Week 1: 1 circuit	Week 2: 2 circuits
Week 3: 3 circuits	Week 4: 3 circuits

- Perform the routine four days per week - two days on, one day off, two days on, two days off.

Day 1: Routine A	Day 2: Routine B
Day 3: Stretching	Day 4: Routine A
Day 5: Routine B	Day 6: Stretching
Day 7: Stretching	

- Keep your core tight while performing each exercise.

- Add CORE and LEGS if you do not already do them as part of another workout. Add them to the circuit of shoulder exercises.

- **CORE EXERCISES:** Strengthening progresses from static movements that develop stability to dynamic movements that directly simulate sports.
  - Prone Plank, Side Bridge, Bird Dog: Start with a 15 second hold and progress to a 60 second hold.
  - Curl Ups, Upper Russian Twist, Lower Russian Twist: perform 10 reps per set.
  - Medicine Ball Tosses: Start with five tosses and work up to 10.

- **LEG EXERCISES:** Perform 5-10 reps per set.

- **STRETCHING:** Try each stretch to determine which stretches feel tight and which stretches feel easy. Perform the stretches that feel tight. This will change over time.
    - Perform static stretching after your workout/practice/game.
    - Perform at least two - three stretches per day.
    - Start by holding each stretch for one rep of 30 seconds. Practice the "breathing stretch" as explained on page 53. As you get comfortable, perform all static stretching as a breathing stretch.
    - To learn more about Dynamic Stretching - Active Isolated Stretches (AIS) and Facilitated Stretches (FS) – see pages 53-54.

- **FOAM ROLLER:** This is an excellent tool for a post workout/practice/game recovery in order to relieve tightness and soreness. It is also effective for self care to discover and treat trigger points (tight knots) in the muscles. See pages 69-70 to learn how to use the foam roller.

- TECHNIQUE: **NEVER SACRIFICE FORM TO LIFT MORE WEIGHT!** Practice each exercise so that your technique (form) is perfect. Become a technique master!

GROUP 1
ROUTINE A

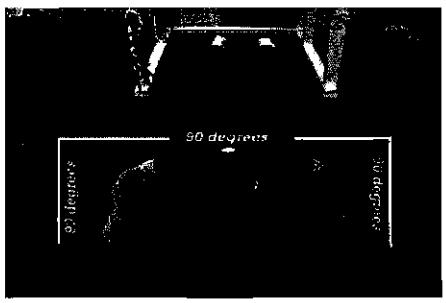
1 – Side-Lying External Rotation

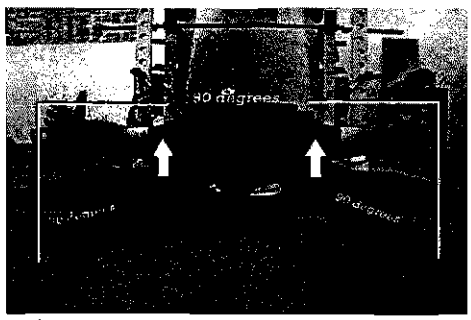

Lie on your side with the top elbow bent to 90° and a towel between the elbow and side. Hold the dumbbell with your wrist straight and rotate your arm as high as you can comfortably.

2 - Side-Lying Internal Rotation


Lie on your side with the bottom elbow bent to 90°. Hold the dumbbell with your wrist straight and rotate your arm as high as you can comfortably.

3 - Shoulder Blade Squeeze

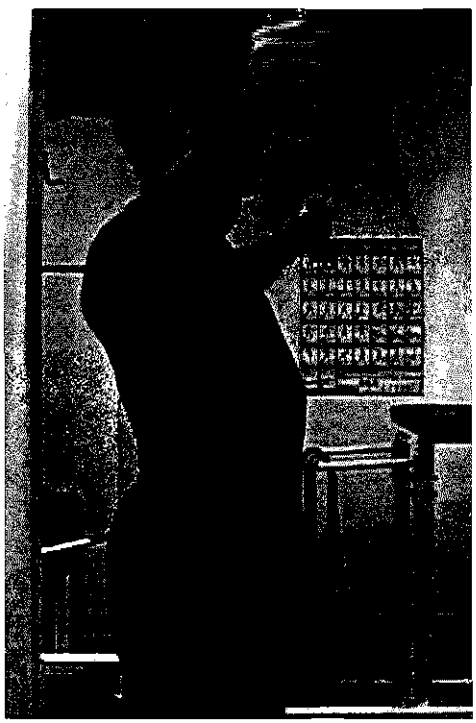




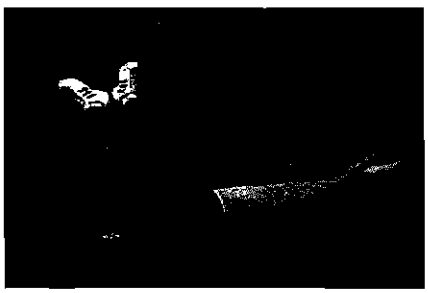
Lie facedown on a mat with a folded towel under your chest if desired. The shoulders and elbows should be positioned at 90 degrees. Contract your abs and buttocks. Squeeze the shoulder blades together without picking the arms off the ground. While keeping the shoulder blades together and the elbows at 90° lift the elbows and hands (thumbs up) towards the ceiling. Be sure to maintain the

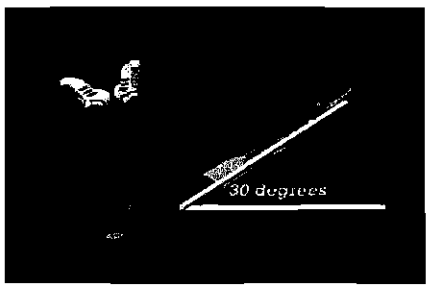
90/90 position and keep the shoulder blades squeezed together.

4- Side Raise in Scapular Plane



Scapular Plane

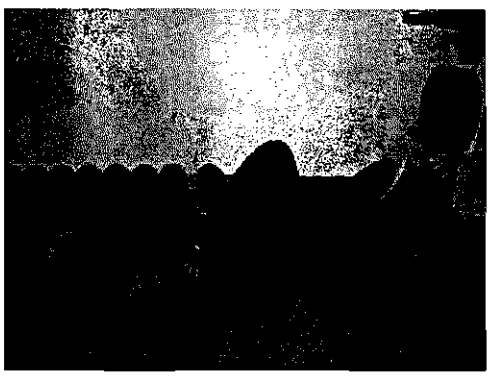




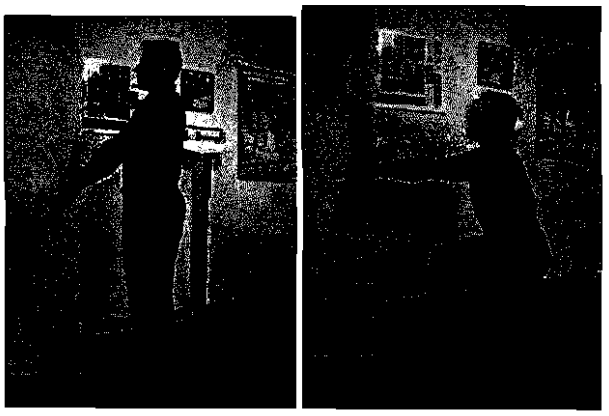
Raise the arms in the scapular plane with the thumbs up and the elbows fully extended in the scapular plane. Raise until your arms are parallel to the floor.

CORE: Curl Up

Lie on your back, tongue on roof of mouth behind front teeth, palms down under small of back. Keep one leg straight and one leg bent to 90°. Contract abs and glutes before starting curl up –feel your back push down on your hands. Raise head, neck, shoulders, breastbone, and rib cage as a unit (make believe your head is bolted to your neck like Frankenstein and that it cannot move forward or backward). Elbows remain on floor. If your neck hurts, you must strengthen it by performing isometric neck exercises.



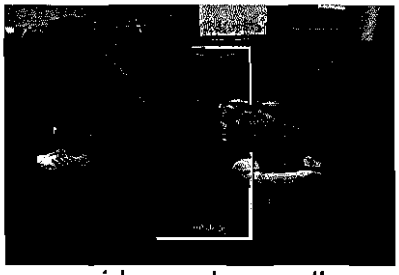
LEGS: Door Squat
Grasp a doorknob (make sure it is secure) with both hands. Keep your feet about 6"-8" from the edge of the door, feet shoulder width apart, and arms straight (no bend in elbow). Lower down to a comfortable depth and rise up.



Static Stretching: At the end of the routine or anytime later in the day.
Foam Roller

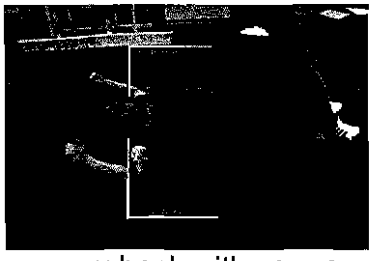
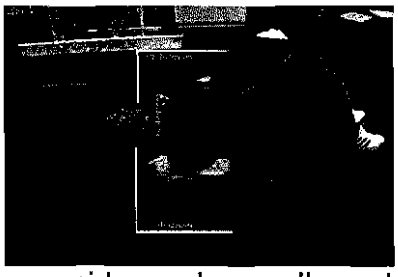
GROUP 1
ROUTINE B

1 - Supine External Rotation at 90° Abduction

Lie on your back with your arms out at 90° to your sides and your elbows bent. Rotate your arms backward in the direction of your head as far as they can go comfortably.

2 - Supine Internal Rotation at 90° Abduction

Lie on your back with your arms out at 90° to your sides and your elbows bent. Rotate your arms forward in the direction of your feet as far as they can go comfortably.

3 - Tubing Standing Scapular Retraction


Stand up straight. Wrap the tubing around your hands behind the knuckles with your arms out straight in front of you. Separate the tubing without bending your elbows or wrists until the tubing touches your chest.

4 - Side-Lying Arm Raise

Place your arm slightly in front of your body. Lift your arm up to a 60° angle. Your arm should move in front of your body. Your arm should move through a 90° arc of motion. Lower your arm slowly (3-5 seconds) and repeat.

CORE: Side Bridge from Knees

Lie on your side, knees bent to 90°, supported by elbow bent to 90°. Place the free hand on your opposite shoulder or leave it along your side. Keep torso straight and lift buttocks off the ground. Keep hips forward, squeeze the buttocks and keep the abs tight Hold right side for 15 seconds, then left side 15 seconds, rest 30 seconds. Perform 3-5 holds. Build to 1-minute hold on each side before trying this off your feet.

LEGS: Supine Bridge - Two Feet

Lie on your back with your arms out above head and bent at elbow. Your feet should be flat and your knees are bent. Contract your buttocks (like you are holding in a bowel movement) and then slowly raise your hips off the floor until your knees, hips and shoulders make a straight line.

Static Stretching: At the end of the routine or anytime later in the day.
Foam Roller

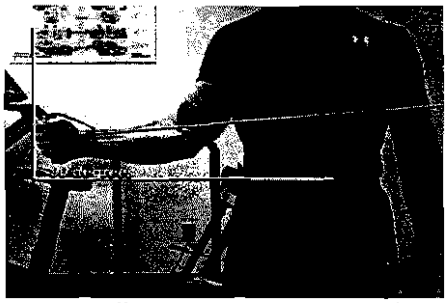
GROUP 2

ROUTINE A

1 - Standing Tubing Internal Rotation


Start with the elbow fully extended, the palm pointing forward, and the thumb pointing upward. Pull the tube behind the back, with the palm facing away from the back, attempting to touch the thumb to the bottom of the opposite shoulder blade. It may take time to develop enough strength to be able to touch the opposite shoulder blade.

2 - Standing Tubing External Rotation

Keep the elbow tucked into your side as you externally rotate your arm. As you externally rotate, keep your shoulder blades pinched together. A towel can be placed in the armpit.

3 - Ball Field Goal

Lie face down on a fitness ball with the arms hanging down. Pinch the shoulder blades together. Pull the elbows back so they are even with your body. Rotate your arms like you are giving a "field goal" sign with the thumbs up. Be sure to reverse each motion SLOWLY!

4 – Three Position Arm Raise

Start

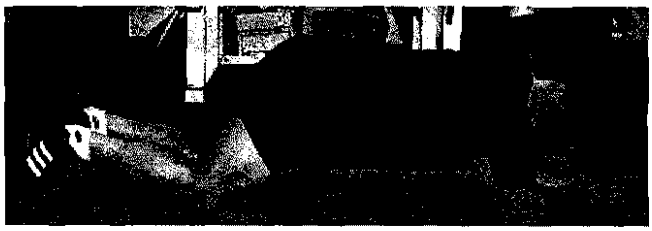
1

2

3

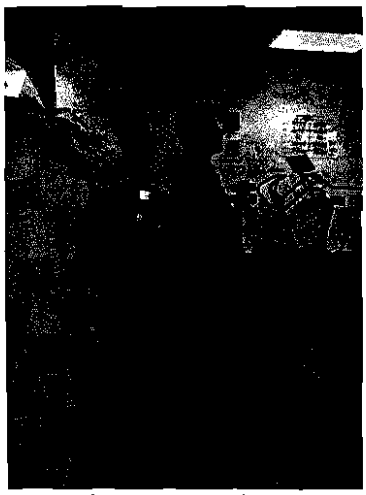
Start by standing up straight with the abs and buttocks tight. The first action for each of the three movements is to **squeeze the shoulder blades together. Position 1:** raise the arms with the thumbs up and the elbows fully extended. **Position 2:** raise the arms (slightly forward of your body) with the thumbs up and the elbows fully extended. **Position 3:** Raise the arms out by your sides with the thumbs up and the elbows fully extended. One repetition is completed after all three positions are performed.

CORE: Prone Plank Off Knees



Elbows under shoulders, knees behind hips. Make sure your abs and glutes are tight when you hold this position. Hold right side for 15 seconds, then left side 15 seconds, rest 30 seconds. Perform 3-5 holds. Build to 1-minute hold on each side before trying this movement off your toes.

LEGS: Ball Squat



Place the ball against the wall and stand with your back to ball - half the ball below your belt and half above. Keep feet shoulder width apart. Keep toes forward or slightly toed out. Look straight ahead and keep chest up. Lower to a comfortable depth keeping knees aligned over toes while lowering and rising up. Perform 10 repetitions each set.

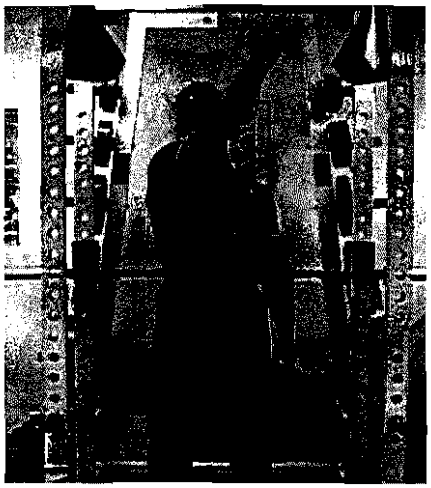
Static Stretching: At the end of the routine or anytime later in the day.
Foam Roller

GROUP 2

ROUTINE B

1 – Diagonal Raise #1

FLEXION



Grasp the tubing handle with palm turned thumbs down, slightly away from your side. Bring your arm across your body and up toward your opposite shoulder while turning your palm thumbs up.

EXTENSION

Grasp the tubing handle with palm turned thumbs up, across your body and slightly above shoulder level. Bring your arm across your body and down toward your opposite side pocket while turning your palm thumbs down.

2 – Diagonal Raise #2

FLEXION

Grasp the tubing handle with palm turned thumbs down with your hand by your opposite side pocket. Bring your arm across your body and up toward your opposite shoulder while turning your palm thumbs up. Think of unsheathing a sword.

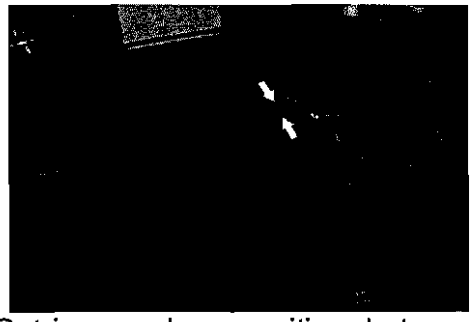
EXTENSION

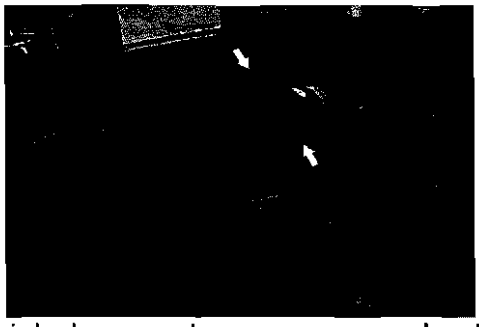
Grasp the tubing handle with palm turned thumbs up with your hand out to the side and above your head. Bring your arm across your body and down toward your opposite side pocket while turning your palm thumbs down. Think of sheathing a sword.

3 – Ball Cobra

Lie face down on the ball with your arms at a 30-45° angle to your body. Raise your head, chest, and arms off the ball. Pull your shoulder blades together and contract your buttocks.

4 – Shoulder Blade Push Up



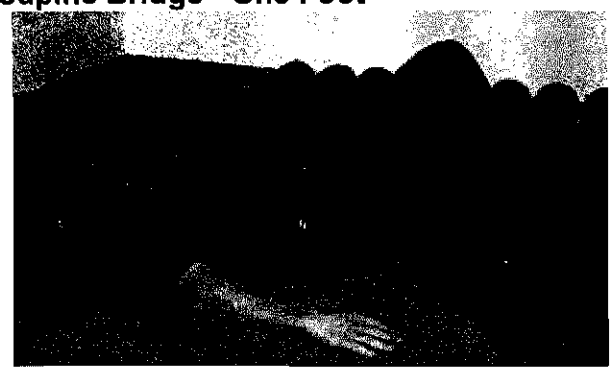


Get in a push up position. Let your body sink down and squeeze your shoulder blades together. The torso, spine and legs are kept rigid. Push the floor away from you. Your elbows stay straight throughout the movement. Do not "hunch" your back. Your motion may be limited to start.

CORE: Side Bridge off Feet

Lie on your side, supported by elbow bent to 90°. Place top leg in front of the bottom leg or place one on top of the other. Keep torso straight and lift buttocks off the ground. Keep the hips forward, buttocks squeezed, and abs tight. Hold right side for 15 seconds, then left side 15 seconds, rest 30 seconds. Perform 3-5 holds. Build to 1-minute hold on each side.

Supine Bridge - One Foot



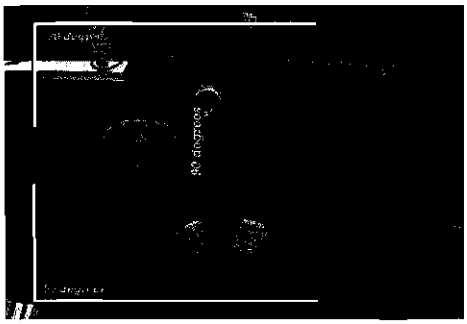
Lie on your back with your arms out above head and bent at elbow. Your feet are flat and knees are bent. Contract your buttocks (like you are holding in a bowel movement) and then slowly raise your hips off the floor and extend one leg until your knees, hips and shoulders make a straight line.

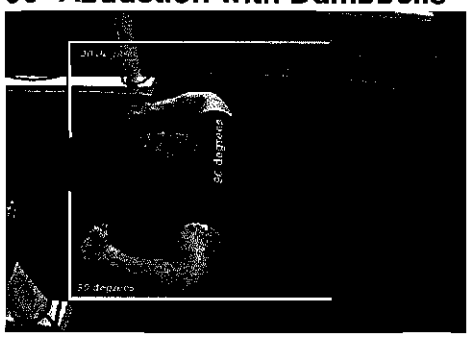
Static Stretching: At the end of the routine or anytime later in the day.
Foam Roller

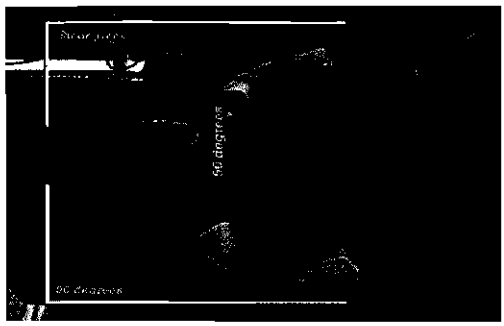
GROUP 3

ROUTINE A

1 - Supine Internal and External Rotation at 90° Abduction with Dumbbells

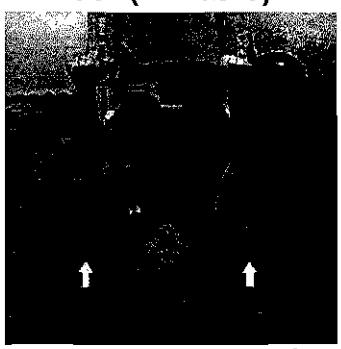


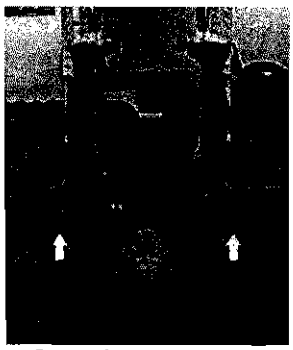




Lie on your back and grasp a dumbbell. Start with your arms out to your sides, elbows bent to 90° and forearms vertical. Rotate the dumbbells backwards until the backs of your hands reach (almost reach) the floor. Change directions and rotate your arms forward as far as you can. Control the movement of the weight. Move no faster than one second per direction.

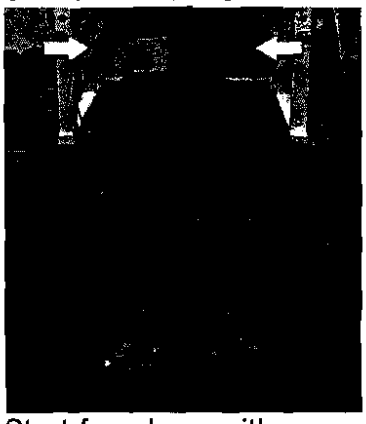
2 – Floor (Serratus) Punch

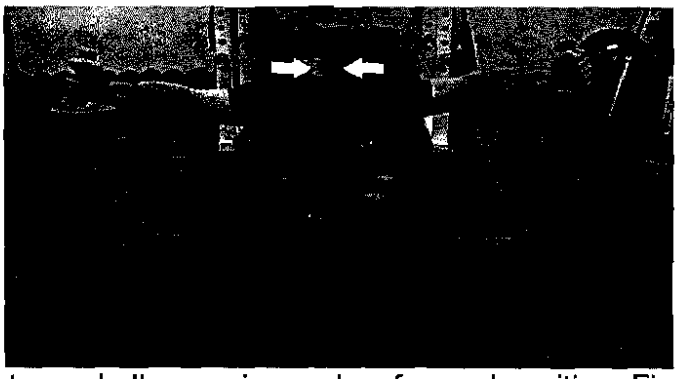




Lie on your back with your knees bent and feet flat on the floor. Grasp the dumbbells and press them up toward the ceiling while keeping your elbows locked straight. Lift your shoulder blades off the floor, but keep the back of your head on the floor. Make sure to control the lowering phase.

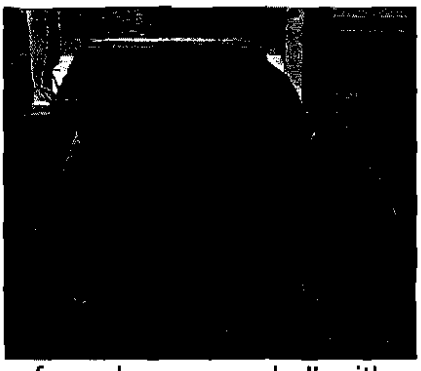
3 - Ball "T" Raise

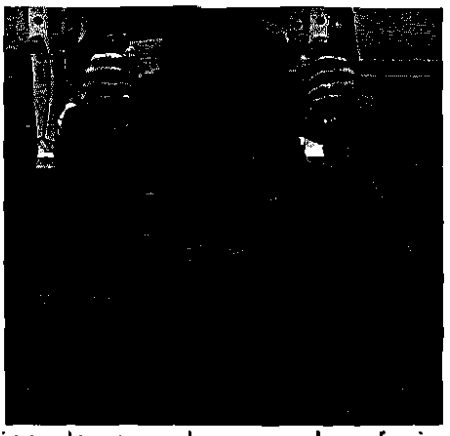




Start facedown with your chest on a ball, arms in a palms forward position. First, squeeze the shoulder blades together. Then raise your arms out to your sides with the thumbs up and arms straight until they are parallel with the floor. DO NOT swing the arms! Focus on the shoulder blade squeeze.

4 – Ball "H" Raise





Lie face down on a ball with your arms hanging down and your palms facing each other. Keep your feet about shoulder width apart and your knees slightly bent. Grasp the dumbbells, keep your elbows straight and raise both arms until they are parallel with the floor. Pause for 1 second and return to the start position.

CORE: Bird Dog


Get on all fours; keep knees under hips and hands under shoulders. Squeeze your buttocks and abs. To learn this exercise properly, start by reaching forward with one arm to a horizontal position and hold for 5 seconds. Then, reach back with one leg to a horizontal position and hold for 5 seconds. Make your limbs "long" when your reach. Make sure you do not twist your torso. Repeat with opposite arm and leg.

Once you can reach with a single limb and keep your torso from twisting, reach forward with the right arm and reach back with the left leg to a horizontal position. Your hips should be level in this position (one hip should not be higher than the other). Hold for 5 seconds on each side and perform 3-reps. Repeat sequence 1-2 more times.

LEGS: Free Standing Squat

- Eyes looking up
- Head straight
- Arms out in front
- Feet straight or slightly toed out
- Feet slightly wider than shoulders
- Knees over toes
- Abs tight, butt tight

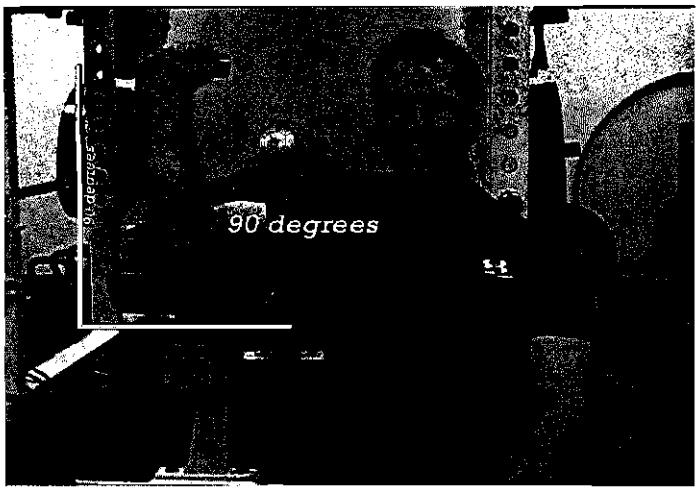
- SIT BACK, NOT DOWN!
- Push feet out–grab ground with toes
- Push knees out
- Keep the arch in the lower back
- Chest up
- Shoulder blades together

Static Stretching: At the end of the routine or anytime later in the day.
Foam Roller

GROUP 3

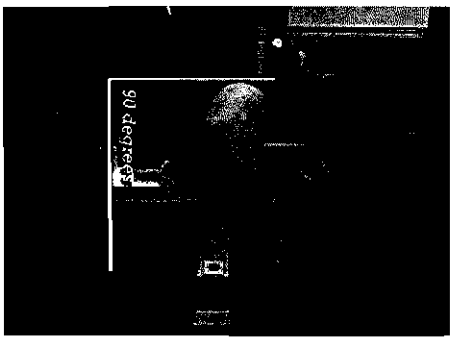
Routine B

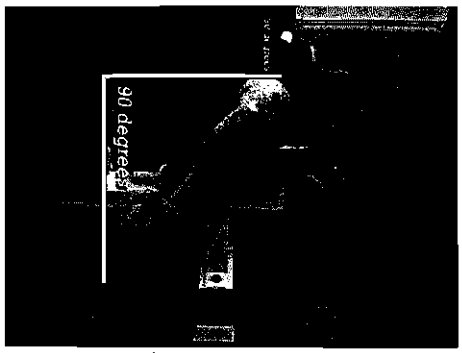
1 - Seated Dumbbell External Rotation 90° Abduction



Sit up straight with your elbow and forearm on a bench or chair. Keep your abs tight. Rotate your arm backwards (external rotation) until your forearm is in the vertical position and return to the upright position.

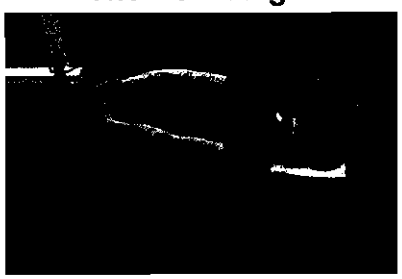
2 - Prone Internal Rotation

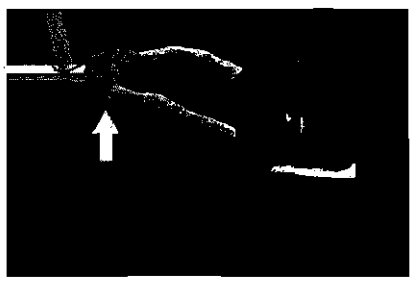




Lie facedown on a bench with your upper arm at a 90° angle to your torso, and your elbow flexed to 90° degrees. The bench should support the upper arm. Squeeze your shoulder blades together and rotate the humerus (internal rotation) so that the dumbbell moves back toward your buttocks. Try to keep your wrist straight. You should feel a contraction of the muscles in your armpit; do not shrug your shoulders.

3 – Prone Bear Hug





Step 1: Place your hands on your buttocks with your fingers interlocked and squeeze the shoulder blades together. Slide your hands down to your buttocks.

Step 2: While keeping your hands together lift them off of your buttocks.

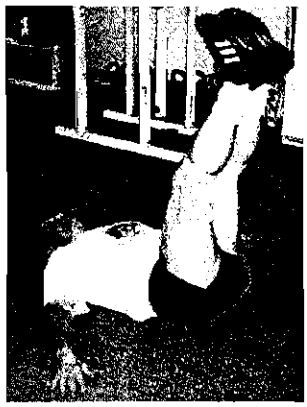
Step 3: Slowly release your hands allowing them to separate. Begin to turn your arms so that your palms face the floor.

Step 4: Continue to move your arms toward your shoulders while turning your thumb up as if you are going to give someone a bear hug. The ending position is with your elbows slightly above shoulder level and the thumbs up. DO NOT go any higher! Reverse the motion slowly. The next repetition is started from position one.
(a great idea from Dale Buchberger, DC, PT)

4 - Tubing Shoulder Press

Stand on tubing. Press one arm straight up. Repeat with other arm.

CORE: Lower Russian Twist



Lie on your back with your feet straight up (a 90° angle between your torso and thighs). To start, keep your knees bent to 90°. As you get stronger you will be able to perform the exercise with your knees straight. Lower your thighs to your side while maintaining the 90° angle between your torso and thighs. Perform 3 sets of 5 reps with a 30 second rest period between sets. Work up to 3 sets of 10 reps.

LEGS: Ball Bridge Hip Extension

Lie on back with feet on ball with arms at a 30° -45° angle from body. Squeeze buttocks as if you were trying to pinch a quarter. Raise hips off floor by pushing your heels into the ball. Hold the top position for 1-2 seconds. Slowly lower and repeat.

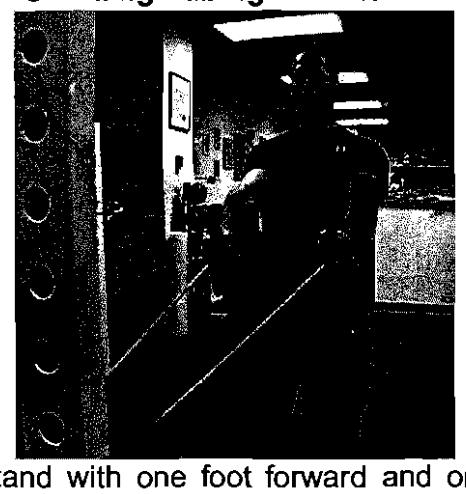
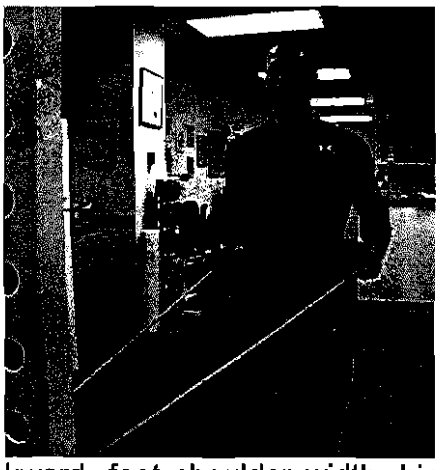
Static Stretching: At the end of the routine or anytime later in the day.
Foam Roller

GROUP 4
Routine A

1 - Standing Dumbbell Shoulder Extension

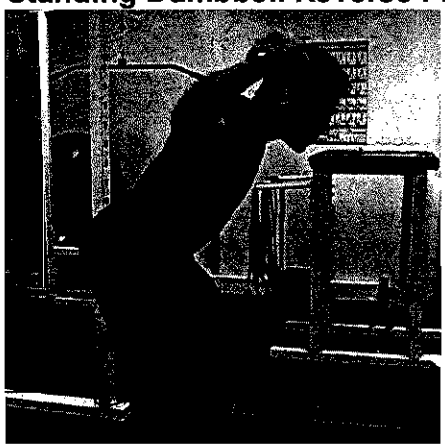

Get in a partial squat position as if you are going to sit in a chair. Keep your abs and buttocks tight. Hold the dumbbells with your palms toward your side. Raise your arms backwards as far as you are able. Return to the start position.

2 – Standing Tubing Low Row

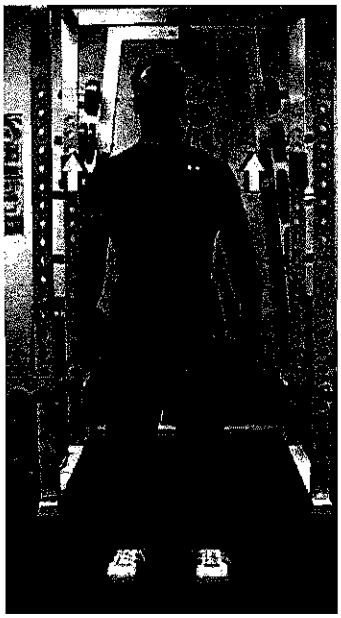
Stand with one foot forward and one foot backward, feet shoulder width, hips back, and knees slightly bent. Grasp the tubing handles with your elbows straight and hands at the level of your rib cage. Pull the handles toward you by squeezing your shoulder blades together and keep your elbows by your sides. Think of pulling with your elbows, not your hands. Your elbows should end up by your sides and forearms parallel to the floor.

3 - Standing Dumbbell Reverse Fly



Bend forward by pushing your buttocks backward and allowing your torso to come forward. Keep your abs and buttocks contracted tightly during this exercise. Grasp the dumbbells with your arms hanging down to the floor. Raise the arms, palms down, out to the sides until they are parallel with the floor.

4 - Standing Shoulder Shrug



Grasp the dumbbells with your palms facing into your sides. Shrug your shoulders as high as you can **without** jutting your jaw forward. Lift up and down only; do not roll your shoulders forwards or backwards. Once you perfect your technique with light weights, you may use heavy dumbbells, a straight bar, or a trap bar. This exercise can be performed with as heavy a weight as you can use **with proper technique.**

CORE: Upper Russian Twist

Lie on your back on a fitness ball. Keep your palms together, elbows straight, feet flat and shoulder width apart. Rotate your torso to one side while keeping your palms together and elbows straight. Rotate only to the point of comfort (your goal is to have your arms parallel to the floor) and your ability to maintain your balance. Pause for a split second and rotate to the opposite side. Your range of motion will increase as your practice this exercise. Perform 3 sets of 5 reps. Work up to 3 sets of 10 reps. As your strength increases you can hold a weight plate, dumbbell, or medicine ball.

LEGS: Free Standing Squat

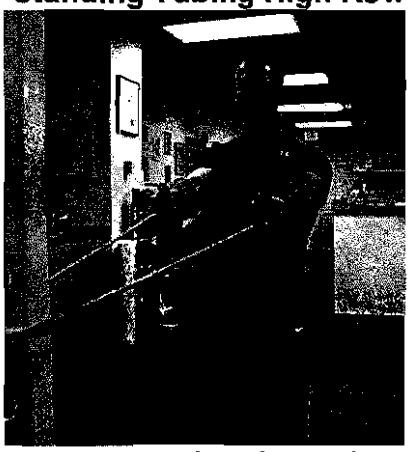
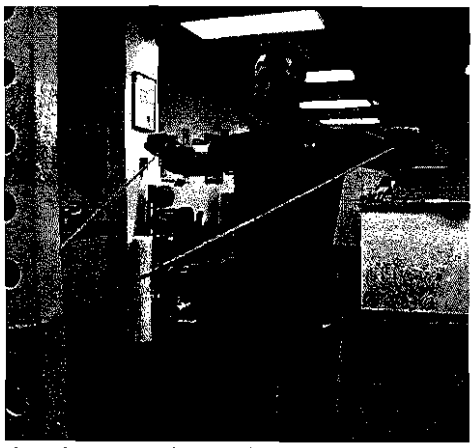
- Eyes looking up
- Head straight
- Arms out in front
- Feet straight or slightly toed out
- Feet slightly wider than shoulders
- SIT BACK, NOT DOWN!
- Push feet out–grab ground with toes
- Push knees out
- Keep the arch in the lower back
- Chest up
- Shoulder blades together

Static Stretching: At the end of the routine or anytime later in the day.
Foam Roller

GROUP 4

Routine B

1 – Standing Tubing High Row

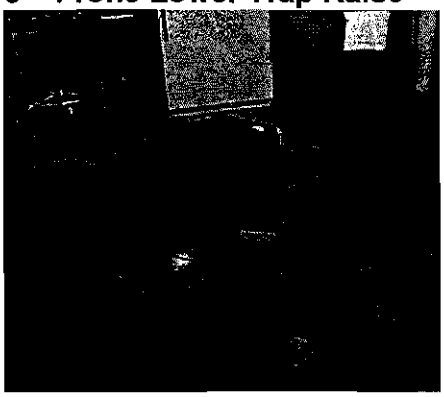



Stand with one foot forward and one foot backward, feet shoulder width, hips back, and knees slightly bent. Grasp the tubing handles with your elbows straight and hands at the level of your rib cage. Pull the handles toward you by squeezing your shoulder blades together while lifting your elbows out and up (abduction). Think of pulling with your elbows, not your hands. Your elbows should end up away from your sides (90° abduction) and forearms parallel to the floor.

2 - Standing Tubing Internal Rotation

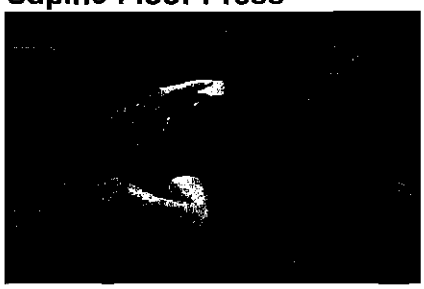

Start with the elbow fully extended and the thumb pointing upward. Pull the tube behind the back, attempting to touch the thumb to the bottom of the opposite shoulder blade. It may take time to develop enough strength to be able to touch the opposite shoulder blade.

3 – Prone Lower Trap Raise




Lie face down on a fitness ball with your arms out in front of you in a "Y" position. Grasp the dumbbells with your thumbs up and raise them to parallel to the floor, or if you can, in line with the angle your body makes on the ball. You can perform this exercise on a weight bench as well.

4 - Supine Floor Press




Lie on your back with your feet flat and knees bent to 90°. Perform a pressing motion, reaching one arm upwards at a time. Your shoulder blades, arm, forearm, and back of your hand should maintain contact with the floor at all times.

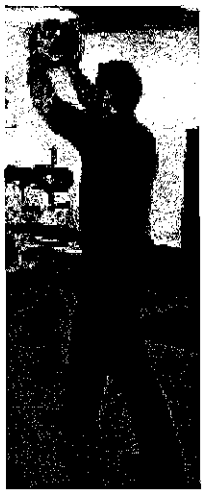
CORE: Medicine Ball Throws

Forward: Face wall or partner and throw ball with two hands from overhead position.

Backward: Stand with back to partner and throw ball with two hands backwards from overhead position

Rotation: Throw ball from across body position.

During all throws keep your abs and buttocks tight.



LEGS: Ball Leg Curl

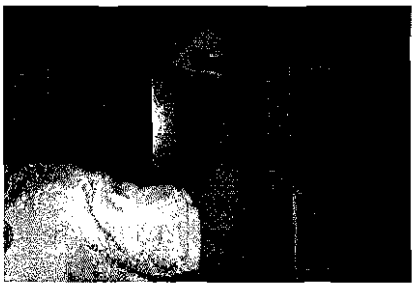

Lie on back with feet on ball with arms at a 30° -45° angle from body. Raise hips off floor. Pull ball into buttocks with your feet. Slowly roll ball out and keep buttocks raised off floor. Repeat.

Static Stretching: At the end of the routine or anytime later in the day.

Foam Roller

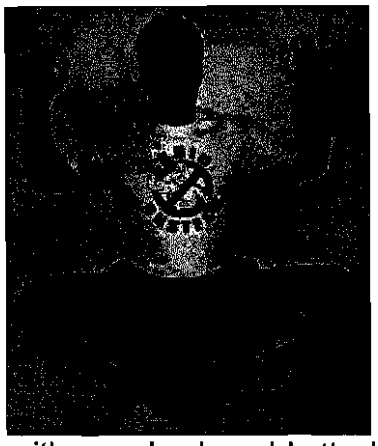
ADDITIONAL EXERCISES

Tubing Curl

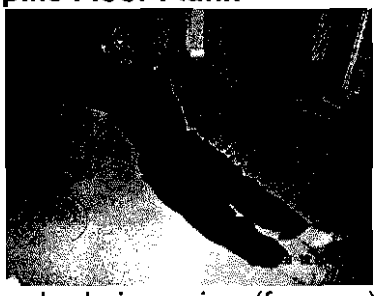
Stand or sit with good posture. First, curl the weight with your palm towards you. Second, curl the weight with your palm away from you. Keep your arm parallel to the floor, i.e. do not drop your elbow at any time during this exercise.

Wall Press




Sit with your back and buttocks against the wall. Press the back of your head, shoulders, elbows, and wrists against the wall. Slide one arm up the wall without losing contact (arm, elbows, forearm, and hand) with the wall. Repeat with the opposite arm.

Supine Floor Plank

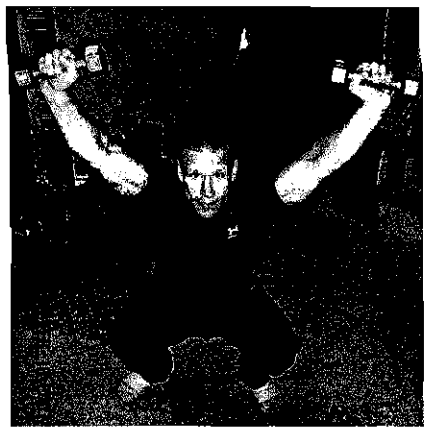



Your body is supine (face up) with your arms extended and palms on the floor. You are balancing on your heels with your toes straight up. Push your hands into the floor and lift your chest and buttocks as high as you can. Hold this position for time.

Side-Lying Chest Opener

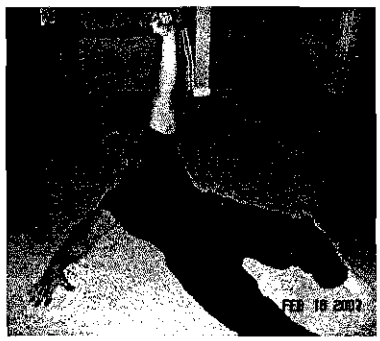

Lie on your side with your hips and knees bent to at least 90°. Place your bottom arm straight out from your shoulder (90°) with the palm up. Place your top arm on top of your bottom arm as if to clap your hands. While keeping your knees together and your hips forward, rotate your torso and open your arm toward the floor. Your hips and your torso/arm are moving in opposite directions.

Overhead Squat

Grasp two equal weight dumbbells. Squat down while keeping your arms overhead. Focus on squeezing your shoulder blades and pushing the dumbbell through the ceiling.

Partial Turkish Get-Up

Lie on your back with a dumbbell in your hand, arm straight overhead. Punch the dumbbell overhead using your core to rotate your torso.
(thank you to Pavel Tsatsouline www.dragondoor.com)

ISOMETRIC EXERCISES

Great for those of you with loss of range of motion in your shoulder.

Isometric Shoulder Flexion
Stand facing a doorway or wall, with your palm facing inward toward your side and make a gentle fist. Place the thumb side of the fist against the wall or doorframe. Push forward into the wall or doorframe and hold for 5 seconds.

Isometric Shoulder Extension
Stand with your back to a doorway or wall, with fist against the wall or doorframe. Push backward into the wall or doorframe and hold for 5 seconds.

Isometric Shoulder Abduction
Stand with your side to a wall or doorway. Make a gentle fist and place the back of your fist against the wall. Push your fist against the wall, attempting to move the arm into abduction (out to the side). Hold for 5 seconds.

Isometric Shoulder Internal Rotation
Stand facing a doorway with your elbow bent to 90° and your arm rotated outward. Make a gentle fist and place the front of your fist against the doorframe. Push into the doorframe attempting to move your fist inward (internal rotation). Hold for 5 seconds.

Isometric Shoulder External Rotation
Stand in a doorway with your elbow bent to 90° and your elbow at your side. Make a gentle fist and place the back of your fist against the doorframe. Push into the doorframe attempting to move your fist outward (external rotation). Hold for 5 seconds.

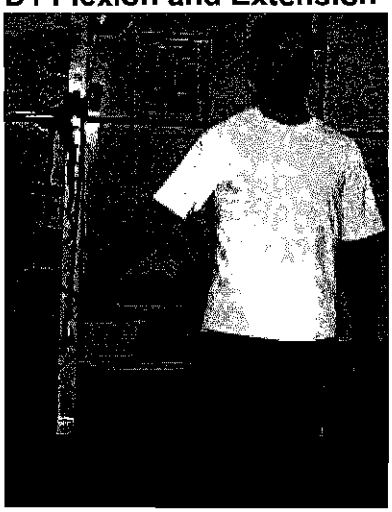
Rotation Ball Tosses – Single Arm
You will need a partner and a rubber medicine ball for this exercise. Stand up straight facing a wall, with your arm out to the side, elbow bent to 90°, and your palm facing the wall. With the ball in your hand toss the ball against the wall and catch it while trying to maintain the starting position of your arm (internal rotation).

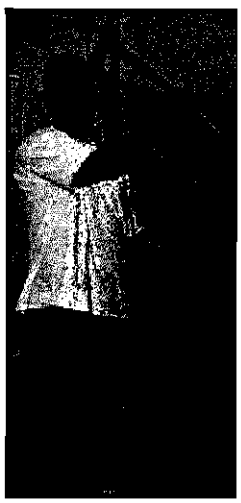
The second phase of this exercise is to keep the same arm position and toss the ball backwards to a partner who will toss it back (external rotation).

BODYBLADE (www.bodyblade.com)

The bodyblade is a wonderful tool used to train joint stability. Shaking the bodyblade requires the muscles around the shoulder to stabilize while the arm is in different positions. Practice shaking the bodyblade until you are able to produce a smooth, rhythmic movement. (Disclosure: I am a Bodyblade affiliate).

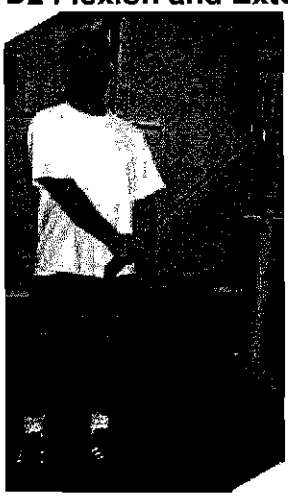
D1 Flexion and Extension





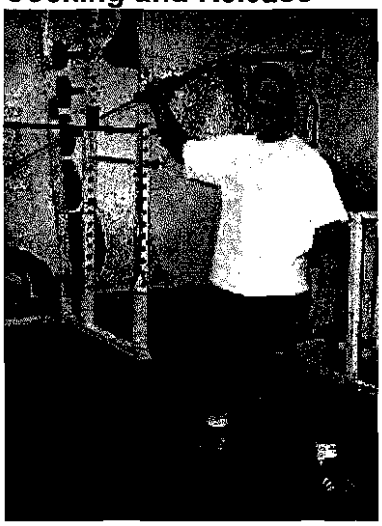
Start with palm turned thumbs down, slightly away from your side. Bring your arm across your body and up toward the opposite shoulder while turning your palm thumbs up. Reverse movement by bringing your arm across your body and up toward the opposite side pocket while turning your palm thumbs down.

D2 Flexion and Extension



Start with palm turned thumbs down, slightly away from your side. Bring your arm across your body and up toward your opposite shoulder while turning your palm thumbs up. Reverse movement by brining your arm across your body and up toward your opposite side pocket while turning your palm thumbs down.

Cocking and Release



Position the bodyblade in the cocked position and shake for 30 – 60 seconds.

Position the bodyblade in the release position and shake for time.

ADDITIONAL CORE EXERCISE

Medicine Ball Chop

Stand with your feet parallel, shoulder width apart. Hold the medicine ball with two hands overhead and to one side. Keep your abs tight! Reach down with the ball toward your opposite side hip. This will cause your torso to rotate slightly. Keep your head in line with your hips and waist (nose in line with your navel). Perform 3 sets of 5 reps with a 2 lb. medicine ball. Work up to 3 sets of 10 reps. As your strength increases you can use a heavier medicine ball.

STRETCHING METHODS

STATIC STRETCHING

Static stretching is the simplest method of stretching. I recommend this type of stretch AFTER your workout has been completed. It can be done immediately after or several hours later. The key to static stretching is what I call the **BREATHING STRETCH**. It is as simple as this:

1. Place your body part into a position of gentle stretch.
2. Take a deep breath in.
3. Exhale and increase the stretch position ever so slightly. Just take what your body will give you. THIS SHOULD BE COMFORTABLE, NOT PAINFUL! DO NOT HOLD YOUR BREATH!
4. Repeat this process until you can no longer increase your range of motion. It may be two cycles or 10 cycles, again, just take what your body gives you.

Reference:

Sport Stretch, Michael Alter, Human Kinetics

ACTIVE ISOLATED STRETCHING (AIS)

AI is a unique, active way to stretch muscles developed by Aaron Mattes (www.stretchingusa.com). It uses an active contraction of the muscle OPPOSITE to the one being stretched. For example, if you lie on your back and raise one leg as high as you can, eventually you will feel the stretch in the rear thigh (hamstring). While you are feeling a stretch, you are also contracting the front thigh and hip muscles (quadriceps and hip flexor muscles) to raise the thigh. It is this contraction of the opposing muscle group that allows a greater stretch in the muscle being stretched. It would be very helpful to get an anatomy book and learn the different muscles and their function.

Here are the rules for AIS:

1. Determine which muscle you wish to stretch and the opposing muscle you are going to contract. Make a mental picture in your head BEFORE you start the stretch.
2. Actively contract the opposing muscle BEFORE you start the stretch movement.
3. Maintain the contraction throughout the entire movement.
4. When you reach the end of the movement (as far as you can go COMFORTABLY), maintain that position for no more than 2 seconds. Maintain the contraction of the opposing muscle for those 2 seconds.
5. Release the contraction and return to the starting position.
6. Exhale during the stretching phase and inhale during the recovery phase. DO NOT HOLD YOUR BREATH!
7. Repeat the process 10 times and with each subsequent stretch attempt to increase the range of motion each time.
8. STRETCHING SHOULD NOT CAUSE PAIN!

References:

Specific Stretching For Everyone, Aaron Mattes www.stretchingusa.com
The Whartons' Stretch Book, Jim and Phil Wharton, Three Rivers Press

FACILITATED STRETCHING

Facilitated Stretching is another type of active stretching developed by physicians and therapists over the last 50 years. The method I describe below uses active motion and isometric muscle contraction to improve flexibility. Another name for facilitated stretching is CRAC – contract relax antagonist contract. You will need a strap (Stretch Out Strap) or partner for many of the stretches. Using the same example as in the AIS section, lie on your back with the strap around your foot and actively contract the hip flexor muscles to lift your leg to the point when you feel a stretch in the hamstring. Do not just pull your leg up with the strap. At this point, keep your leg in this position and push your heel into the strap toward the floor for 5-10 seconds. Now you are contracting the SAME muscle you are stretching. Then, release the contraction and ACTIVELY raise your leg higher; use your hip flexor muscles, not the strap. This will be repeated several times.

Here are the rules for Facilitated Stretching:

1. Determine which muscle you wish to stretch. Make a mental picture in your head BEFORE you start the stretch.
2. Actively contract the opposing muscle to move your limb or body to the point when you feel a MILD stretch.
3. Contract the muscle you are stretching into the strap or your partner and hold for 5 – 10 seconds. The force of the contraction should be relevant to the condition of the muscle. For example, if the muscle has been injured, do not apply a maximum contraction.
4. Release the contraction and use the opposing muscles to move your limb or body to the point when you feel the stretch again.
5. Inhale during the contraction phase (when you are contracting the muscle being stretched) and exhale during the lengthening phase (when you are contracting the opposing muscle group). DO NOT HOLD YOUR BREATH!
6. Repeat this process until you can no longer increase your range of motion. It may be two cycles or 10 cycles, just take what your body gives you.
7. STRETCHING SHOULD NOT CAUSE PAIN!

Reference:

Facilitated Stretching, Robert McAtee and Jeff Charland, Human Kinetics

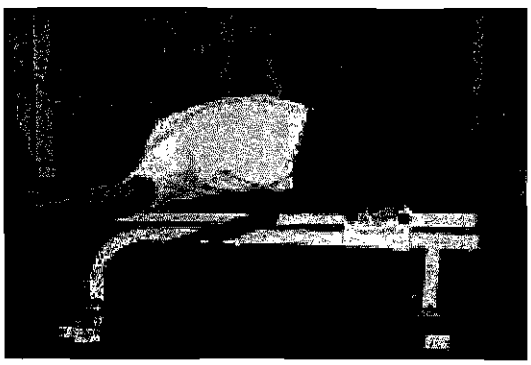
SHOULDER STRETCHES

The best way to determine which stretches to use is to take the time to try each stretch. You will find that one of the following three things occur when attempting to decide which stretch to use. First, the stretch position is difficult for you to get into and you feel a significant stretch. Second, the stretch you feel is mild to moderate. Third, the stretch position is easy to get into and you do not feel any stretch. Prioritize your stretching based on the difficulty. The harder it is to perform, the more you need to do it. Choose 4 – 5 stretches at a time to work on.

Shoulder Joint (Superior Capsule) Stretch
Place a rolled towel under your arm and keep your elbow next to your side. With the other hand, gently pull your elbow across your abdomen. A common error is to use a roll that is not large enough to provide adequate stretch.

Rotator Cuff (Supraspinatus) Stretch
Place your arm behind your back, elbow bent and grasp a chair back with your hand. Lean away from your hand. Do not twist your body or bend at the waist.
An alternative technique is to grasp your right hand behind your back with the left hand and pull the right arm toward the left side. Switch sides.

External Rotation Stretch
While on your back, take a light dumbbell (2 – 5lb) and rotate your arm back until you feel a gentle stretch. Allow the weight to apply the stretch.

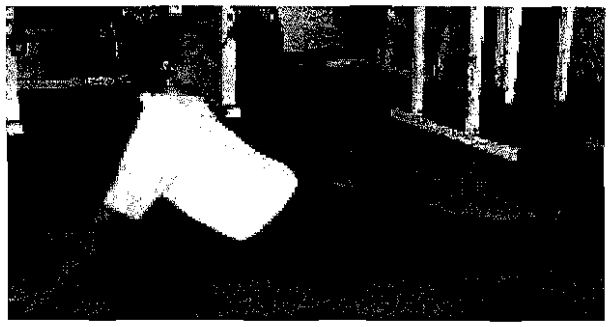


Internal Rotation Stretch
While on your back, take a light dumbbell (2 – 5lb) and rotate your arm forward until you feel a gentle stretch. Allow the weight to apply the stretch.

Behind Back Shoulder Stretch
Grasp a strap or towel and place your hands behind your back as shown. Use the top hand to pull the bottom hand up your back.

Anterior Shoulder Stretch Standing
Interlace your fingers and place your hands on a surface that is above waist height. Squat down to the point when you feel a mild stretch. Keep your abs and buttocks tight.

Anterior Shoulder Stretch Supine
While seated with legs extended, extend your arms behind you until you feel a mild stretch.



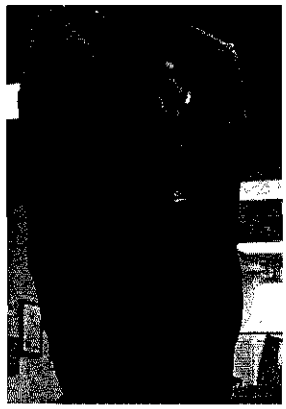
Rear Shoulder Stretch
While standing or sitting, place one arm across the chest with the palm down or facing toward your body. Use the other arm to apply pressure to area just above the elbow and gently pull the arm across your chest until you feel the stretch in the rear shoulder.

Shoulder (Deltoid Muscle) Stretch
Stand or sit and bring your arm across your body while turning your thumb down until you feel a mild stretch.

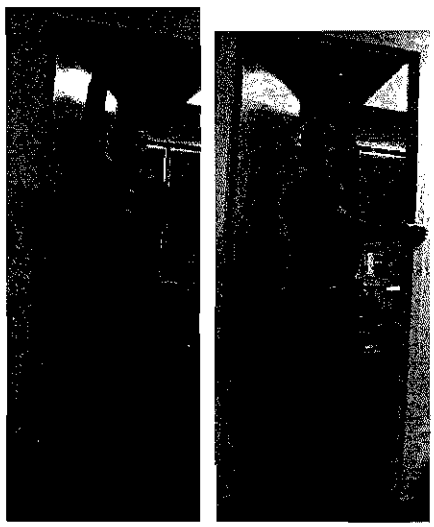
Chest Stretch
Stand facing a doorway. Place your hands at shoulder level and place one foot forward and one behind. Keep your torso up straight – do not arch your back or lean forward from the waist. Lean into the doorway feeling the stretch in the pectoral (chest) area. Repeat stretch with the opposite leg forward.

Biceps Stretch
Stand with your back to a door way and grasp the door way frame with a thumb down grip. Rotate the opposite shoulder back toward the doorway until you feel a mild stretch.

Triceps Stretch
While standing or sitting, place one hand behind your head trying to keep the elbow pointing straight up and reach to the back of the neck. Use the other arm to pull the tip of the elbow backward until you feel the stretch in your triceps and along that side of your body. Hold for 20-30 seconds and repeat on opposite side.



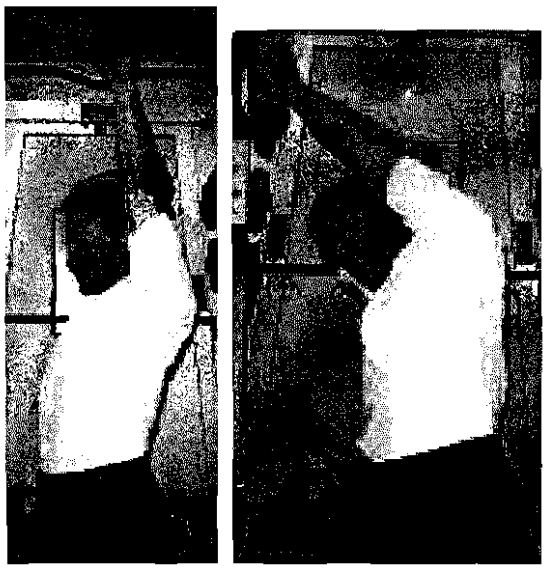
Upper Extremity Stretch
Stand up straight in a doorway and keep your abs tight. Reach straight up with one arm to the top of the doorframe. With the other arm reach across your body and grasp the doorframe. This will stretch the side (Latissimus dorsi) where the arm reaches up and the rear shoulder of the arm reaching across. Hold for 20-30 seconds and repeat on opposite side.



Hip Rotation/ Shoulder Stretch
Stand next to a wall with your shoulders perpendicular to it. Step forward with the right leg, knee bent. Keeping most of your weight on the right leg, place your hands on the wall and turn your shoulders to the right, sliding your hands back as far as you can. Repeat stretch on opposite side.

Side (Lat) Stretch
Reach straight up as high as you can and cross your arms while keeping your palms facing each other.

Side (Lat) Stretch
Reach straight up as high as you can. Keep your arm close to your ear. Bend to the side and keep your arm close to your ear. Do not let the arm move away from your ear while bending to the side. Repeat stretch on opposite side.



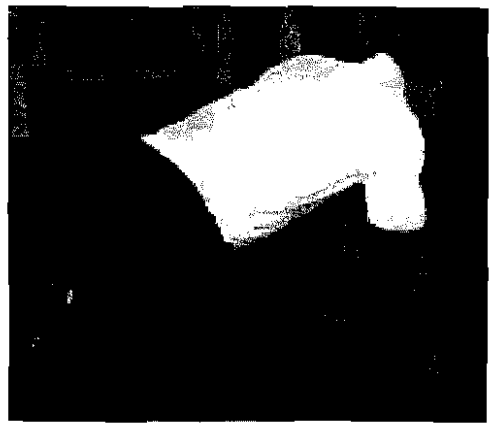
NECK STRETCHES

Neck: Upper Trapezius Stretch
Stand up straight and keep your abs tight. Place left arm behind your back. Tilt your head to the right and slowly draw the right ear to the right shoulder. The stretch is felt on the left side. Repeat stretch on opposite side.

Neck: Levator Scapulae Stretch
Stand up straight and keep your abs tight. Place left arm behind your back. Tuck the chin and slowly draw the right ear to the right shoulder. Rotate the head so you are looking into your right armpit. Use right arm to gently pull head forward and to the right. The stretch is felt on the left side. Repeat stretch on opposite side.

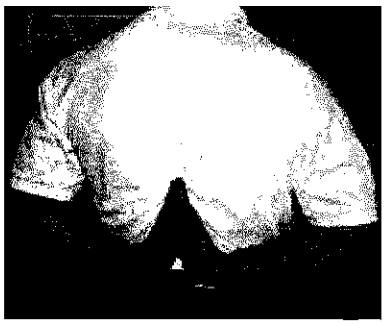
FOREARM STRETCHES

Kneeling Forearm Stretch
Kneel and place your hands on the ground, fingers facing your knees. Keep your palms completely on the ground. The closer your hands are to your knees, the greater the stretch.



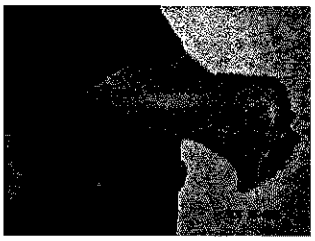
Forearm Stretch
Place the back of your wrists together in front of your waist. Then try to make a fist while keeping the back of your wrists together.

Behind Back Forearm Stretch
Place hands palms together behind your back.



Forearm Stretch #1 (Forearm flexors)
Start with your elbow at your side and bent at 90°. Your palm faces away from you. Grasp your fingers just below the knuckles and pull your fingers back toward you as you extend your arm forward.

Forearm Stretch 2 (Forearm extensors)
Start with your elbow at your side and bent at 90°. Your palm faces toward you. Grasp your hand just above the knuckles and pull your hand back toward you as you extend your arm forward.



Forearm Stretch #3
In the palm-up position grasp a rod no greater than one inch in diameter. Bend your elbows bringing the rod closer to you. Flip your wrists over and under to end up in position #2.

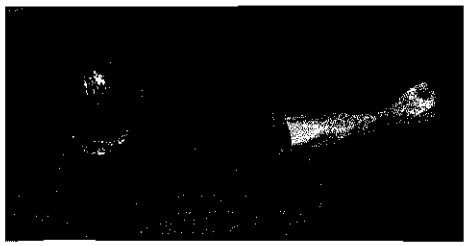
1 

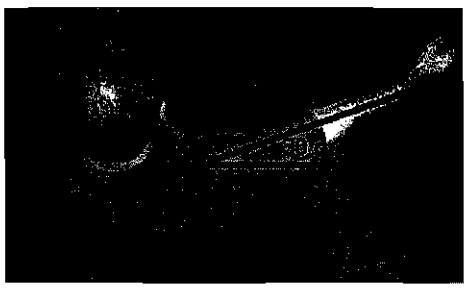
2 

BE CAREFUL WHEN PERFORMING THE FOLLOWING EXERCISES

IMPORTANT NOTE: Most throwing and hitting athletes are stronger on the front side muscles of the body (chest), which thereby increases injury risk to the unbalanced and weaker areas. Balancing the strength between the front and back of the shoulder muscles is imperative for rotator cuff health.

LATERAL RAISE

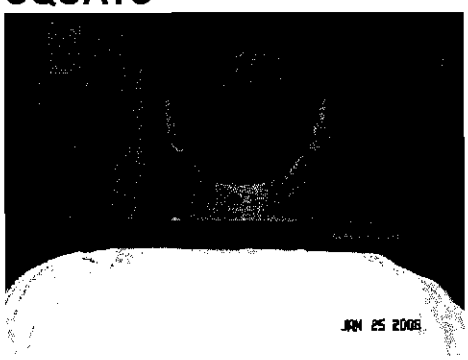




- Follow scapular plane
- 30 degrees anterior to mid-frontal plane
- Do NOT go beyond 90 degrees abduction

No jokes about the authors bald spot please!

SQUATS



- Bar position on back is too high
- Bar places pressure over spinous process (tail portion of vertebra). Feel bony bumps on the back of your neck. These are the spinous processes.

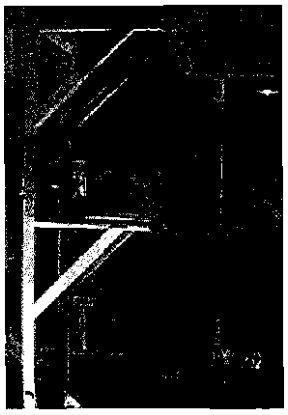
PULL-OVERS

- If you bring dumbbell or bar too far behind head the movement will overstretch pecs and rectus abdominus
- Do not lower your elbows below your ears.

EMPTY CAN

- Causes shoulder impingement if greater than 45° abduction with thumb down
- Rotate to thumb up ("full can") position after 45° abduction

DIPS



- If dip too low – elbow angle less than 90° - creates anterior shearing force and stress at A/C joint (front of the shoulder)
- Do NOT do if you have had separated shoulder
- Head position must be straight

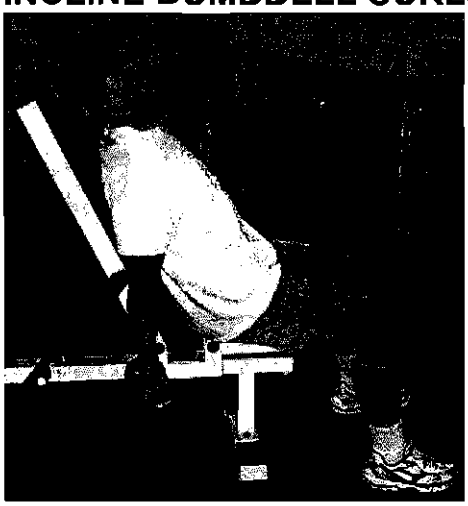
BAR BENCH PRESS

- Straight bar weakens and damages the shoulder
- Touching too high on chest and elbows out (elbow flair) put unnecessary pressure on shoulder
- Use dumbbells to replace straight bar

UPRIGHT ROWS

- Can cause shoulder impingement due to abduction and internal rotation motion
- Stop below shoulder height
- Normal shoulder motion is to externally rotate and abduct

INCLINE DUMBBELL CURLS



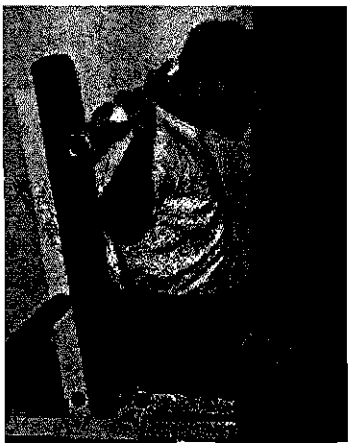
- Shoulder placed in extended position
- Puts great tension on long head of biceps tendon
- Possible overuse and/or rupture of tendon

DO NOT PERFORM THE FOLLOWING EXERCISES

BEHIND THE NECK PULL DOWNS

- Behind the neck position causes shearing forces through the anterior (front) shoulder
- Will eventually cause neck and shoulder pain if done frequently
- Replace with front pull downs to upper chest

BEHIND THE NECK PRESS



- Behind neck position puts great stress on shoulder joint
- Head forward position puts great stress on neck and shoulder joint
- Can cause anterior shoulder instability
- Can cause shoulder impingement

SPORTS PERFORMANCE PREPARATION: THE WARM-UP

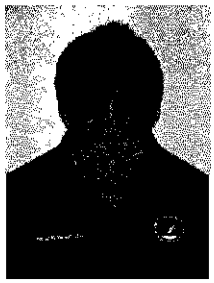
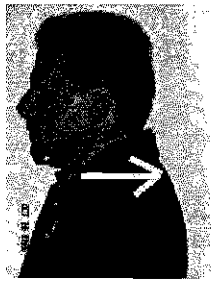
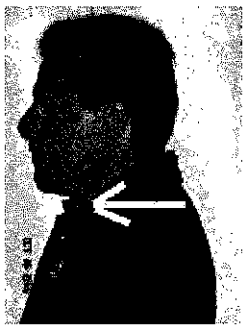
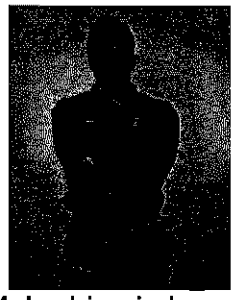
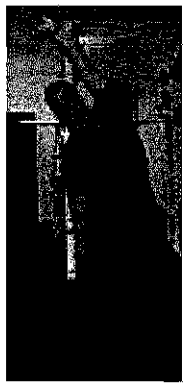
The terms warm-up and stretching are thrown around interchangeably when discussing what to do before a game, practice, or workout session. They are BOTH part of **Preparation**. **Preparation** is a term used to describe a variety of activities that prepare the body and mind for physical exertion. The first reason for preparation is to literally warm up - elevating your core temperature one to two degrees above normal. This increased blood flow lubricates the muscles and tendons, improves suppleness, and enhances the rate and force of muscle contraction.

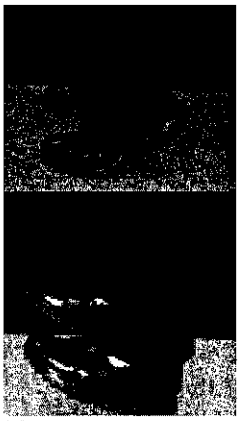
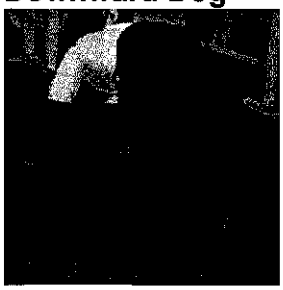
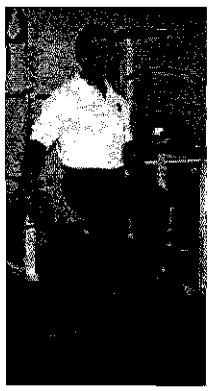
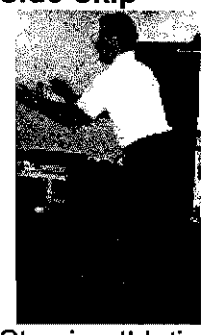
The second reason for proper preparation has to do with the central nervous system. The only way muscles can work is for the brain to send signals to the muscles via the spinal cord and for the muscles to provide feedback to the brain. This process can and must be "warmed-up" as well. This improves coordination, skill accuracy, and reaction time. Almost all sports require coordinated, fast, powerful movements that exert great stress on the muscles, tendons, ligaments and joints. Equate this essential preparation step to installing a racing computer chip in your car. No professional pitcher would throw his/her first pitch without proper preparation of what is essentially, the central nervous system!

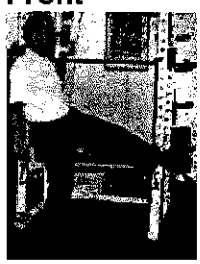
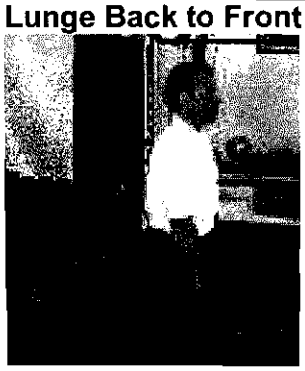
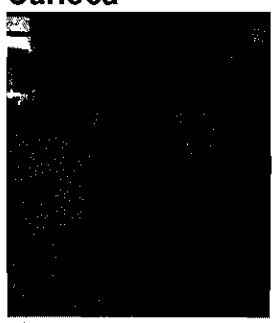
Dynamic flexibility movements have been shown to be the most effective way to warm-up. In order to most effectively increase blood flow around the body and warm up the central nervous system, save static stretching for the cool down after practice.

PREPARATION INSTRUCTIONS:

- Perform 10 repetitions of each movement. Forward/Backward, Side to Side equals one repetition.
- Pause briefly when changing the direction of each movement.
- Run, jog, or skips are 20 yards; Walks are 10 yards
- This is a suggested progression of movements. Use your creativity and add sport-specific movements to your preparation.
- The most important thing is to keep moving!

Neck Bend Forward/Backward 	**Neck Bend Side** 	**Neck Rotation** 	**Shrug With Backward Roll** 
Shrug With Forward Roll 	**Arm Circles**  Make big circles with your arms in front of your body	**Pendulum Swing**  Swing to each side like pendulum	**Side to Side**  Arms overhead; elbow straight and close to ear, lean body to side.
Shoulder Rotations  Arms out to sides, turn one palm up and the other palm down	**Shoulder Blade Squeezes**  	**Internal/External Rotation**  Stand against a wall, fence. One arm up, one arm down. With or without dumbbell	**Wrist Bends**  Fingers interlaced, forearms together, bend wrists back and forth and in circles

Wrist Circles  Make circles with each wrist both clockwise and counterclockwise	**Hip Circles**  Circle hips like using hoolahoop, perform clockwise and counter clockwise	**Knee Circles**  Palms on knees, circle knees clockwise and counterclockwise	**Heel/ Side to Side-Groin**  Butt back, move side to side to stretch groin
Heel/Toe Raises  Up on heels to up on toes and repeat.	**Downward Dog**  Get in above position and place one heel flat on floor to stretch calf, other heel raises up, like jogging in place	**Adductor Walk**  Swing knee out on each step to stretch groin	**Abductor Walk**  Swing knee in across other leg to stretch outside thigh
Forward Jog Focus on good technique!	**Backward Jog** Focus on good technique!	**Side Skip**  Stay in athletic position, look straight ahead	**Monster Walk**  Raise one leg up with knee straight to stretch hamstring

Inverted Toe Touch  1 Leg reaches back parallel to ground, opposite side hand touches toe of stance leg- pause for 1 second. Take a step and perform on opposite side. Stretch is felt in hamstring of stance leg.	**Quad Walk**  Keep torso straight while grasping ankle with the same or opposite side hand – pause for 1 second. Stretch is felt in front thigh (quadriceps)	**Leg Swings-Front**   Brace yourself on wall or fence. Swing outside leg forward with straight knee and back with bent knee. Stretches hamstring going forward and quadriceps going backward.	**Leg Swings Side**  Face wall or fence and swing leg from right to left with straight leg. Stretches groin muscles.
Lunge Back to Front  Do not let knee go forward of toes. Eyes forward, abs tight. 5-10 lunges forward and backward.	**Power Skip Forward** Skip forwards vigorously - 20 yards	**Power Skip Backward** Skip backwards vigorously - 20 yards	**Carioca**  Keep crossover step distance to a minimum. 20 yards in each direction.

1 Leg Hop Forward/Backward  Plant each landing before next hop. 10 hops moving forward and 10 moving backward.	**1 Leg Hop Side to Side**  Plant each landing before hopping again. 10 hops right and 10 hops left.	**Squat Jumps**  Plant each landing before next jump. Land in athletic position. 10 jumps.	Sport Specific Drills can now be performed by the athlete.

LISTENING TO YOUR BODY: INJURY PREVENTION GUIDE

As you begin your exercise program, pay attention to how your body feels before, during, and after exercising. Learn what feels good and what feels uncomfortable. By learning to listen to your body, you will gain tremendous insight into what works for you. Keep a journal that describes how you feel during and after each workout. You may notice some interesting patterns.

TRAIN, DON'T STRAIN

Please do not pay attention to this "no pain, no gain" nonsense. Don't misunderstand - pushing yourself is OK and even necessary to make gains. However, pain is your body's way of warning you that something is wrong - pay attention and heed this warning! Replace "No pain, No gain" with **"TRAIN, DON'T STRAIN."** Many people play a sport in an attempt to get in shape. You must get in shape to play a sport! Start training weeks or months before the season begins.

R.I.C.E.

If you have pain while exercising, stop and remember **R.I.C.E.** - Rest, Ice, Compression, and Elevation. Rest - stop what you are doing and rest for at least one day. **Ice** the area as soon as possible for 20 minutes every one to two hours. Keep a thin towel between the ice bag and your skin to prevent frostbite. An alternative to an ice pack is ice massage. Fill a Styrofoam or Dixie cup with water leaving ½" at the top of the cup. Once the water freezes you can tear away the top of the cup to reach the ice. Hold the cup and massage the ice directly against the skin for up to five minutes. If you're the area becomes numb before five minutes, stop icing to prevent frostbite. **Compression** helps decrease swelling. **Elevation** of the area above the level of the heart will help decrease swelling by allowing fluid to flow back toward the heart.

When Should I See A Doctor for an Injury?

1. Your pain persists for more than 1 week.
2. You can't move the injured area.
3. The injured area is swollen.
4. You get an infection (look for spreading redness under the skin). You only have one body - take care of it properly.

R.E.S.T.

Before returning to exercise you must remember to **REST: Resume Exercise Below the Soreness Threshold.** Here are the 4 stages of injury:

Stage 1: You are able to exercise, but you have pain afterwards.

Stage 2: You are able to exercise, but you have pain during exercise. This pain does not affect the quality or quantity of your exercise, e.g. if you run, the

pain does not affect how fast or far you run.
Stage 3: You have pain during exercise and it affects your performance. E.g. the pain slows your pace or causes you to shorten your distance, or both.
Stage 4: You are unable to exercise at all due to pain.

You may return to your activity when you are no longer in Stage 1. The criteria for allowing a return to play are: full range of motion of the area, normal strength, normal neurological evaluation, no joint swelling or instability, ability to replicate the activity or sport with no pain, and no reliance on pain medication. When to return to your activity is best discussed with your doctor.

MUSCLE SORENESS

You should NOT be sore after a workout! In the beginning, this may occur even if you are careful. However, soreness after every workout does not mean your workouts are effective. It means you are doing damage to your muscles by not letting them recover properly. Muscles grow by tearing down and building back up. The building up phase requires rest. Constant muscle soreness means you are not giving your body the time it needs to rebuild and grow. Adjust your routine to allow your muscles to properly recover.

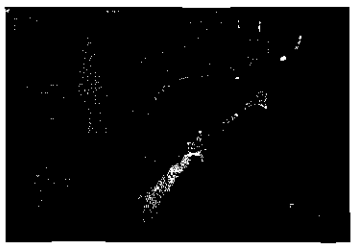
Do not underestimate the importance of resting. Recovery from your workouts is just as important as the workout itself. Many elite athletes, after being forced to rest due to injury or illness, return and perform at a higher level than before the injury. The symptoms of overtraining - fatigue, general body malaise, disinterest, sleeping difficulties, listlessness, sweating - are sure signs you need rest. Either decrease the intensity of your workouts or just skip one (or two, it won't kill you).

HOW TO USE *THE STICK*

THE STICK should be used as part of your preparation. Ideally, use it prior to the Preparation movements shown in Appendix A. It is a great way to warm-up your muscles, break up any tight areas or knots, enhance blood flow and improve flexibility.

Roll *THE STICK* back and forth along each muscle group. Cover a 6" to 10" area with each stroke. Make sure you loosen up the entire length of the muscle. Keep the muscle relaxed while using *THE STICK*. Do not hold your breath while using *THE STICK*! When you hold your breath you are telling your body to contract. This is not what you want to occur when using THE STICK. Breathe normally. Perform about 20 – 30 strokes (1 back and forth motion) over each muscle. The more pressure you use, the deeper you will penetrate the muscle. Start lightly and increase the pressure with each stroke. Below are pictures of how to use *THE STICK* on the major muscle groups used in sports.

To order ***THE STICK***, call us at 301-622-9000.



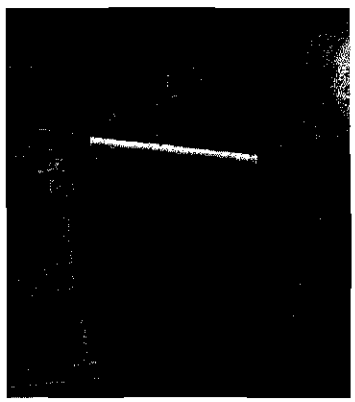
Hamstrings (Rear Thigh)

Calves

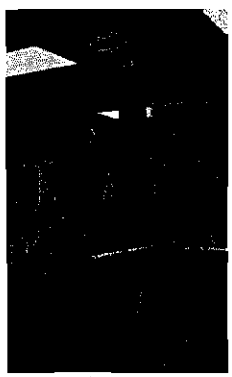
Quadriceps (Front Thigh)

Buttocks

Lower Back



Neck (Upper Trapezius)



Side (Lats)

HOW TO USE THE FOAM ROLLER

When using the foam roller you apply your own body weight to the foam roll, massaging away restrictions and restoring muscle function. When you feel a tight and painful spot, stop rolling and **REST** on the painful areas for 15-45 seconds. You may roll back and forth on the spot **SLOWLY**. Do not hold your breath! Try to slow down your breathing and apply more weight to the spot as you exhale. Do not roll back and forth over any bony prominence like at the hip or directly over the shoulder blade.

Calves

Sit with your calf on the roller. Support yourself with your hands behind you and raise your buttocks off the floor. Roll from the knee to the ankle.

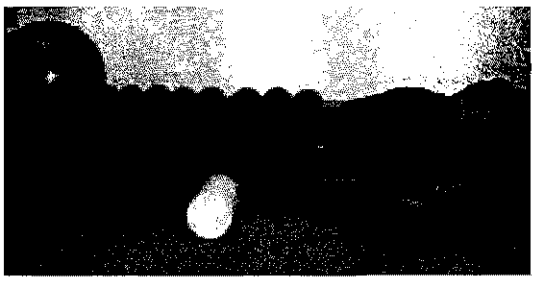
Hamstrings (Rear Thigh)

Place hamstrings on the roll while supporting yourself with your hands behind you. Roll slowly from knee toward to the buttocks. Roll out the hamstring in thirds: top (just below buttocks), middle, bottom (just above knee).

Ilio-Tibial Band (ITB) - (outside of thigh)

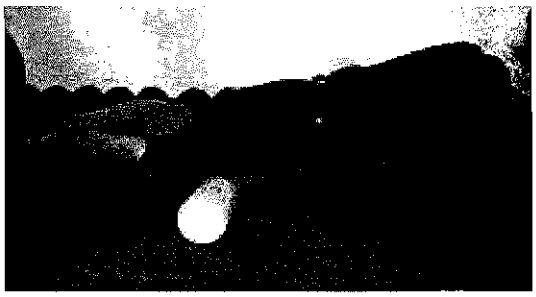
Position yourself side lying on foam roll. Top leg is in front of bottom leg. Maintain head in "neutral" with ears aligned with shoulders. Roll just below hip joint down the outside of the thigh to the knee. Roll out the ITB in thirds: top (just below buttocks), middle, bottom (just above knee).

Buttocks
Begin with the bottom leg crossed over the topside knee. Roll on the outside of the buttocks. Do NOT roll down the middle of your buttocks as you may roll directly over the sciatic nerve. In other words, stay on your side. Rolling over the nerve is a NO, NO!



Quadriceps (Front Thigh)
Lie face down on the roll starting just below the hips. Roll down to the knee. Keep your abs tight and support yourself with your forearms. Roll out the quadriceps in thirds: top (just below hips), middle, bottom (just above knee).

Latissimus Dorsi (Lats)
Lie on your side with the roller under your armpit and your arm outstretched. Roll down your side almost until the waist. Roll out the Lats in thirds: top (armpit area), middle, bottom (a few inches above your waist line).



Middle Back
Lie on your back on top of the foam roller. Reach your arms back over your head and lift up your buttocks with your legs. Roll slowly along the spine between the shoulder blades. Make sure you do not hold your breath. Do not roll onto your neck or lower back.