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The Dumbbell Bear

Michael Rutherford

While standing in a grocery store line the other day, I picked up one of the popular mainstream men's fitness publications. (I confess.) They are all the same. The models are topless, lean, and tan. Their makeup jobs take longer than those of all the girls I like, and their teeth are bigger and whiter than Mr. Ed's. To my utter amazement, though, the models in this particular issue were performing functional dumbbell movements (in this case the dumbbell snatch)! Not a biceps curl in sight! I would *like* to think the *CrossFit Journal* and this column are partly responsible...

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The Dumbbell Bear

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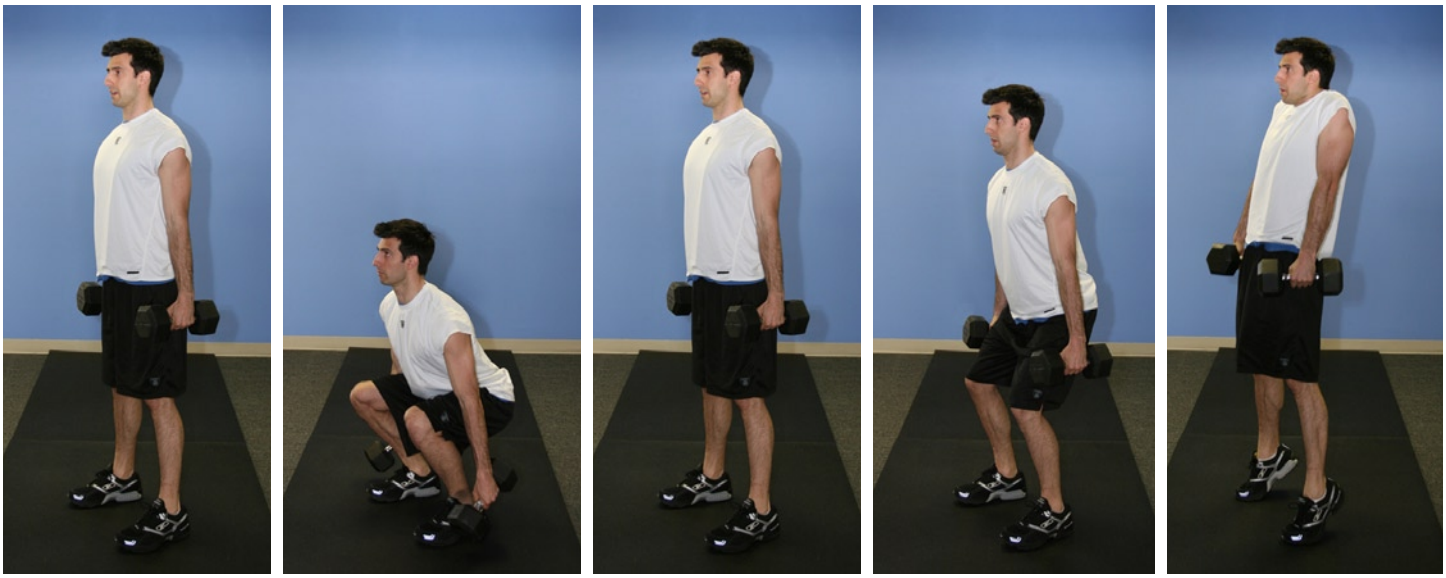


Mainstream or not, this month's installment of the "Dumbbell Coach" column will focus on a challenge from my DVD Dumbbell Moves, Vol. 2. The dumbbell Bear is a unique complex that combines three of the most productive weight-lifting movements in a smoker of a task-priority workout.

History

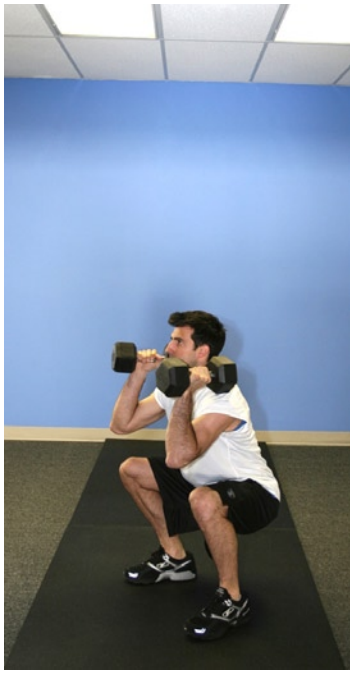
I learned of the barbell version of the Bear in 2003. That version included a power clean, front squat, push press, and back squat in succession. The push press to back squat transition was difficult. The back squat to hang position was even more awkward. I tried it with athletes for awhile, but they usually ended up defaulting to singles and dumping the back squat at the end and racking the bar for another set. The barbell complex has merit, but it takes a lot of space, equipment, and supervision, and I was uncomfortable using it in the larger group workouts that I often run. Enter the dumbbell.

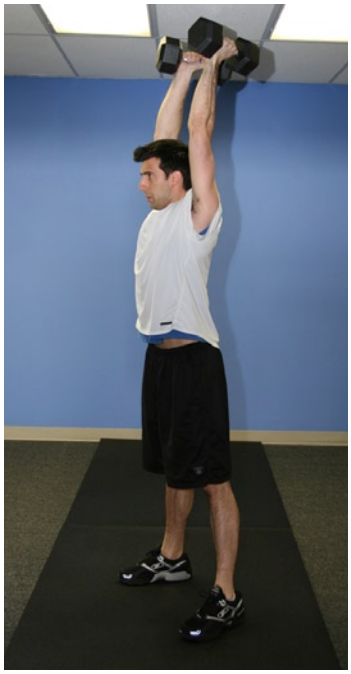
The movements

My dumbbell version of the Bear consists of deadlifts, hang power cleans, and front squat / push presses (thrusters).

In this case, the deadlift begins from standing, with the dumbbells at the sides in the hang position. They are then simply lowered to the deck and back up by flexing and then extending the hips and knees while maintaining a flat back and upright torso. The feet are at about shoulder width and toed out slightly. The properly performed lift will have the feet flat on the deck with the weight rear to mid foot. Coach the athlete to stay out of the front of the foot. The tendency will be to reach the leading blob (head) of the dumbbell toward the deck at the bottom of the lift. This is fine and is not considered a foul.

The second component, the dumbbell hang power clean, is initiated by dipping with the hips and knees from the hang to bring the dumbbells down to knee height, followed immediately by an explosive extension of the knee and hip and shrug of the dumbbells up to the rack position at the shoulders. I coach the hammer hand position for this complex. I like the way the dumbbell racks and it keeps the blob out of the athlete's grill.





The complex is finished with the thruster. At the conclusion of the final rep of the clean, the athlete maintains the racked position and performs a front squat. The same form rules apply as with the deadlift. The torso must be erect and tight, with the dumbbells racked at the shoulders. A flimsy rack position will punish the athlete, pitching him forward out of position. The finish is an upward drive out of the squat and explosive drive of the dumbbells overhead to full extension of the shoulders and arms. In my opinion, the thruster is a launching-pad movement for complex training. This is a brutal way to finish the dumbbell Bear.

The Dumbbell Bear

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Execution

After mastering each of the movements that make up the sequence, it is time to begin. The strongest athletes will start with a set of dumbbells weighing about 45 percent of their body weight. Obviously, the coach must assess the athlete's strength fitness and scale the load appropriately. The coach will also need a countdown stopwatch that will count at least twenty intervals, or a wall clock with a second hand and a way to count and record rounds completed. The stopwatch is set for twenty one-minute periods. On the start command, the athlete performs the following, in immediate sequence:

1. Five dumbbell dead lifts
2. Five dumbbell hang power cleans
3. Five dumbbell thrusters

The dumbbells may be placed on the floor as the athlete awaits the next interval. If the athlete completes the sequence in 40 seconds, for example, then 20 seconds of recovery are left before the start of the next interval. The objective is to stay on the interval, performing five reps of each movement within the minute, for a total of twenty intervals. The score is recorded as X/Y, where X equals the number of rounds performed as prescribed (within the minute) and Y equals the number of rounds completed for the remainder of the 20 minutes, however long each one takes. Most intermediate to advanced athletes will find this very demanding.

There are a couple of technique issues that you will no doubt observe. The deadlift tends to erode into a straight-legged venture. The hang power clean starts to look like a power curl, and the thruster sometimes does not conclude with full extension all the way overhead. I do not allow the straight-legged deadlift to continue, and I insist on full overhead extension (overhead—not out front) on the thruster. Anything less is a foul. I do tolerate a certain amount of power curling as the athlete tires, since it's only less efficient and powerful, not dangerous or incomplete. Be a hard ass. This is coaching.

Scaling

This challenge can and should be scaled to make it accessible and useful to a variety of athletes. You can scale it down (or up) by altering the number of reps, the time requirements, and the load, and also by modifying the movements. The novice will not survive this as written. Let them be successful! Scale it to their ability; make it challenging but completable.

Bear progression

When an athlete completes all reps on the interval for the whole period, it's time to dial up the workout intensity. Increase the reps to six of each per minute for the next challenge. Once six has been mastered, seven becomes the magic number. The load remains static. The litmus test lies in the ability to perform more and more work with this same load.

Variant 1

While I've never pulled this variant out for public consumption, I propose that this cousin to the Bear be known as Smokey Bear. This version would be a density version (rather than the set-interval version) looking to cram as many rounds as possible into a 15-minute period. Stay with the same boundaries. Use sets of five reps, just as in the original version, and loading of 45 percent of bodyweight. I estimate that an elite performance would number about 17 to 20 rounds in the allotted period.

Variant 2

Another (brutal) approach to the Bear—providing a somewhat different stimulus and an intense neural-pathway challenge—is to string one rep of each of the three movements together to constitute a single rep of the complex. In series, perform one dumbbell deadlift, then one power clean, and then immediately one thruster. That is rep #1. Return the bells to the hang, and go again. You could do this on set intervals, as in the original (three complexes per minute would likely be enough of a challenge), or in a density incarnation (max reps in, say, 15 minutes?), as in variant 1. Compare your performances across the different ways of structuring the complex.

I'm interested in receiving feedback on this challenge. Post your results, and your suggestions for variations, scaling, and progressions, to the CrossFit message board. I look forward to hearing your take on it.

Online Video

Dumbbell Bear

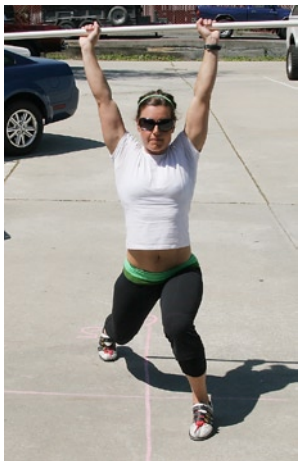
http://media.crossfit.com/cf-video/Rutherford_Dumbbell_Bear.wmv

http://media.crossfit.com/cf-video/Rutherford_Dumbbell_Bear.mov

Michael Rutherford (a.k.a. Coach Rut) is the owner of CrossFit Kansas City/Boot Camp Fitness. He has over a quarter-century of fitness coaching experience with athletes of all ages. He has also worked in hospital wellness environments and rehabilitation clinics. Rut holds academic degrees in biology, physical education, and exercise physiology and sports biomechanics. He is a USAW-certified Club Coach and is a CrossFit level-3 trainer. You can learn more dumbbell exercises from his DVDs *Dumbbell Moves Volume 1* and Volume 2.

Teaching the Jerk: Part 2

Mike Burgener, with Tony Budding



The overwhelming majority of all competitive Olympic-style weightlifters use the split foot position when receiving the bar in the jerk, primarily because the split jerk has a larger margin of error than the push jerk or squat jerk in terms of exact placement of the bar in the frontal plane overhead.

In this article, we'll take you through a progression for developing an effective split landing position for receiving the barbell overhead. The first step is determining the dominant leg (the one that will be forward in the split). Then you must establish the proper placement of the feet in the split landing and practice hitting that position dynamically on every attempt.

Determining the dominant leg

To determine the dominant leg to drive forward in the split, we use one of two high-tech techniques that we call "Trust me" and "Shove me."

Method 1: "*Trust me*"

1. The athlete stands at attention facing me.
2. I place my hands on the front of the athlete's shoulders and ask him to lean forward and let me support his weight.
3. While my hands are supporting him and he is leaning forward and trusting my grip, I explain that I will be letting him go without warning. (I normally take him down about 10 degrees to a position of 80 degrees or so.)
4. When appropriate, I release him suddenly, so that he must catch his fall by stepping forward. The foot that steps out is normally the dominant one.
5. If the athlete appears to be anticipating the release too much, I sometimes ask a simple but out-of-context question, such as "What city was your mother born in?" This distracts him just enough to allow his natural instincts to kick in as he falls.

Online Video — Trust me

http://media.crossfit.com/cf-video/TrustMe.wmv

http://media.crossfit.com/cf-video/TrustMe.mov

Teaching the Jerk: Part 2

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Method 2: "*Shove me*"

The athlete stands at attention facing away from me.

1. I walk behind the athlete and mildly shove him forward when he is not expecting it.

2. As in method 1, the foot the athlete catches himself with is usually the dominant one and will be the forward one in his split position.

Online Video
Shove me
http://media.crossfit.com/cf-video/ShoveMe.wmv
http://media.crossfit.com/cf-video/ShoveMe.mov

Online Video
Shove me - Why it's a dangerous method
http://media.crossfit.com/cf-video/ShoveMeIssue.wmv
http://media.crossfit.com/cf-video/ShoveMeIssue.mov

Of course, using these techniques when teaching a class of 55 to 60 high school students requires discipline and in some cases cannot be used, for obvious chaos-control reasons (see the video "Shove me—Why it's a dangerous method"). Nevertheless, both are good techniques for finding the dominant leg for the split jerk.

Learning proper footwork

Once the dominant leg is found, we want to establish a visual tool for learning the base of the split as well as the length of the lunge while splitting. On each platform, using a piece of yellow chalk, I draw a Murray cross, which is essentially just a cross with clock positions for 11, 12, and 1 o'clock marked at the top and 5, 6, and 7 o'clock at the bottom of the vertical axis, and a horizontal axis from 9 to 3 o'clock. I use the Murray cross to give a visual feel while working footwork drills for receiving the bar in the split jerk position. (It can be useful for teaching footwork and diagnosing and correcting landing problems in the clean and snatch as well.)

One of the first exercises I teach my high school students and my private clients is the walking lunge. I do this for several reasons, but a primary one is that I want the student to feel confident with their leg strength and flexibility while in a lunge position early on. Later, I can use the Murray cross and draw on the athlete's familiarity with the lunge to teach positioning of the feet while in the split.

Teaching the Jerk: Part 2

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Teaching progression

1. The first step is simply walking the feet into the proper receiving stance. With your feet on the 9-to-3 o'clock line, step a foot forward to either the 1 o'clock (right foot) or 11 o'clock (left foot) position. Now walk your back leg to the 7 o'clock or the 5 o'clock position, accordingly. At this point, you should be in about a half-lunge position. The hips should be square to the front, with the chest upright and the torso perpendicular to the ground. Note that the feet are not on the same vertical axis; each one is several inches out to the side (11 and 5 o'clock or 1 and 7 o'clock). Having this distance between the feet—a wider base—makes the position much stronger and more stable and balanced.

2. The next step is jumping the feet into the proper stance. Place the toes on the 9-to-3 o'clock line. Dip and drive the body upward while quickly jumping the feet out to the proper positions. The body will be in the same position as described in step 1. Recover by stepping back to the start position and then repeat for several reps, getting the feel of the feet. First do this with the hands on the hips, and then with the hands locked overhead throughout the movement.

3. On the recovery back to the starting position, the front foot steps back first and then the back foot comes forward, aligning the feet on the same horizontal line, at approximately the same width as in the landing position for the snatch, clean, and front squat.

4. Add a dowel or PVC pipe to the drill by placing the pipe on the back using a clean grip—i.e., with the hands just outside the shoulders. (In an actual jerk, of course, the bar will begin racked in front, on the anterior deltoids. We teach it from behind the neck first to drill the feeling of the bar traveling directly up rather than having to clear the face, which tends to distract novice lifters.) Dip, drive upward, and then split the feet into the landing lunge position while driving the body down under the bar with the arms.

Online Video — Walk Split Land
http://media.crossfit.com/cf-video/WalkSplitLand.wmv
http://media.crossfit.com/cf-video/WalkSplitLand.mov

Online Video — Walk Split Land with PVC
http://media.crossfit.com/cf-video/WalkSplitLandPVC.wmv
http://media.crossfit.com/cf-video/WalkSplitLandPVC.mov

Online Video — Jump Split Land
http://media.crossfit.com/cf-video/JumpSplitLand.wmv
http://media.crossfit.com/cf-video/JumpSplitLand.mov

Online Video — Jump Split Land with PVC
http://media.crossfit.com/cf-video/JumpSplitLandPVC.wmv
http://media.crossfit.com/cf-video/JumpSplitLandPVC.mov

Teaching the Jerk: Part 2

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Common problems

It takes a lot of practice to hit this landing position consistently. It is essential in these early stages to correct the landing position every time before standing. This is especially true when working with PVC. There are a few common mistakes that people make.

1. Landing too narrow

   Looking at the stance from the front, the feet should be about the same width as they are in a squat. Many new lifters land with the feet too narrow, closer to 12 and 6 o'clock than 1 and 7 (or 11 and 5) o'clock. Every time this happens in practice, the feet should be adjusted out to the proper width before recovering back to the starting position.

2. Landing too far forward

   The front knee should be just above or slightly behind the front ankle, not in front of it. The weight should be spread throughout the front foot, especially the heels, not concentrated in the toes or balls of the feet. The total load of the body and barbell should be spread evenly between the front and rear foot. The athlete should be able to step the front foot back first without much issue. A strong inclination to bring the back foot forward first means too much weight is on the front foot. The weight should be transferred back to a balanced position with the front leg at the proper angle before standing up.

3. Landing with the back heel down and in

   The back heel should be up off the ground and very slightly turned out, with the weight on the ball of the foot, as in a lunge. In the incorrect position, the hip opens on one side, the torso twists a little, and the back heel comes slamming down. This is more common as an athlete approaches his or her limits.

Weight should not be added to the bar until the athlete moves consistently well an unweighted dowel or PVC pipe. The athlete should be able to perform ten repetitions at speed perfectly before adding weight. It takes much longer to undo bad habits than to learn them correctly from the start.

Landing too narrow

Landing too far forward

Landing with the back heel down and in

Online Video
Adjusting Jumping Too Narrow
http://media.crossfit.com/cf-video/JumpNarrowAdjust.wmv
http://media.crossfit.com/cf-video/JumpNarrowAdjust.mov

Online Video
Adjusting Jumping Too Short
http://media.crossfit.com/cf-video/JumpShortAdjust.wmv
http://media.crossfit.com/cf-video/JumpShortAdjust.mov

Online Video
Adjusting Jumping with Back Heel Down
http://media.crossfit.com/cf-video/JumpBackHeelDownAdjust.wmv
http://media.crossfit.com/cf-video/JumpBackHeelDownAdjust.mov

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Physics, Physiology, and Food

Lon Kilgore

When people think about "diet," they almost always think of losing weight. Pritikin, Atkins, Weight Watchers, Jenny Craig, South Beach, SlimFast, Nutrisystem, Learn, Paleolithic, Zone—diets galore and hype galore. All touted to provide you the means to a "healthy" weight, what do all these diets have in common . . . besides costing you money if you buy the books, supplements, or the prepackaged special foods that go with them? They all do three basic things: (1) modify the composition of your diet (limit your food selection), (2) either directly or indirectly limit your caloric intake, and (3) expect you to exercise as part of your diet. So they all are all basically variations on the same theme but there is a tremendous amount of controversy about which diet is superior.

Currently, the biggest debate in the media and among health academics is low-fat versus low-carbohydrate. Who would have ever guessed that a simple manipulation of a couple macronutrients would be such of point of contention with fitness professionals, physicians, the media, and the public in general? Who would have thought that the tremendous amount of federal and private funds expended on nutrition and obesity research would create such a wealth of wrong thinking? Wrong thinking? How could I even suggest that some of the best minds in obesity research aren't producing useful information? They are forgetting basic physics, and they are also forgetting to consider the basic reasons why we eat. We'll come back to this latter consideration in a bit as it is particularly relevant to eating for CrossFit.

But first let's consider the current debate about dietary composition in the light of some simple laws of physics. The various kinds of diets prescribed, marketed, and researched are distinguished by their composition—by the kinds of foods and/or by the ratios of macronutrients (protein, carbohydrate, and fat) that they stipulate. Variations in composition make these diets easy to differentiate and easy to describe, but does the composition of your diet really matter?

Whether anyone likes to admit it or not, for sheer weight loss, it probably doesn't. It is the total amount of energy consumed (calories) that matters. And this is not an arguable point. There is this pesky little physical law of the universe that forms the basis of all weight loss and weight gain. The first law of thermodynamics states that energy cannot be created or destroyed but is always conserved. In other words, energy that enters a system will necessarily equal the energy that remains in the system or leaves the system. Food, as far as the body is concerned, is merely a form of energy, and the amount of calories you take in (eat and drink) must equal the amount of calories stored in the body or expended through metabolism. Nowhere in this inalterable equation is the quality of the diet or composition of the diet a consideration, only the math of caloric deficit or surplus. It's old, but the phrase "calories count" is still as viable today as it was when the first diet hucksters tried to cash in on the vain American obsession with skinniness. So, according to the law of energy conservation, if you eat according to the food pyramid and keep the numbers of calories you eat to less than you expend, you can lose weight. If you go low-fat and low-calorie, you can eat and drink nothing but Choco Cap'n Crunch and Coke in appropriate quantities and you can lose weight. If you go low-carbohydrate, you can eat and drink nothing but bacon and diet Coke in appropriate quantities and you can lose weight. If you go low-protein, you probably can't think clearly enough to comprehend this, but, believe me, the same energetic relationships apply.

While we don't recommend any of these diets for CrossFitters, it is prudent for trainers and trainees to understand the diets that are receiving the lion's share of media and clinical attention. There is some very simple calorie-based logic underlying both the low-fat and low-carbohydrate diets. The low-fat diet presumes, quite correctly, that since fat is a very energy-dense macronutrient at 9 calories (kilocalories, to be precise, but we'll just call them calories, per popular use) per gram, reducing how much fat you eat will reduce your caloric intake significantly. The average American gets somewhere around 34 percent of total dietary calories from fats in food. Reducing this intake to 20 percent would be enough of a caloric reduction for someone to lose about a pound a week—if the calories were not replaced with carbohydrate or protein. (Though, even replacing them on a gram-for-gram basis would likely net a weight loss of about a pound every ten days or so, since both carbohydrate and protein contain 4 calories per gram.) If you can hang with the food choices of the low-fat diet, you can effectively lose weight.

But high-carbohydrate diets have an innate problem that makes compliance with them difficult over the long term. Carbohydrate consumption stimulates insulin secretion (and this happens whether it is a "good" carbohydrate or a "bad" carbohydrate). Insulin stimulates the transport of that newly digested carbohydrate, now in the form of blood sugar, to be moved out of the blood into the various tissues of the body. The inevitable result of insulin action, a reduction in blood sugar, stimulates hunger, which is a response to depressions in blood sugar. You get hungry more frequently on a low-fat diet. That tiny little problem usually dooms low-fat diets to failure and abandonment in a matter of weeks. For a chance at success with a low-fat diet, not only do you need to change the foods you eat, you also need to change how you eat. Instead of three squares a day, it is much more effective to eat four or five smaller meals with little snacks between. Spreading the food relatively uniformly across the waking day helps minimize the time between insulin concentration troughs, thereby helping limit between-meal hunger pangs. It is interesting to note that, in the last decade, the government-sponsored campaign against dietary fat has resulted in a decrease in the percent of fat in the American diet (it peaked out at over 42 percent a few years ago). But, over the same time, the average body weight and body fat of the average citizen has increased despite the decrease in dietary fat. Oops. Looks like there was a misfire with this magic bullet for health. A blanket promotion of a low-fat lifestyle as a means toward national health does no good if we fail to consider the basic physics of eating and the fact that, for weight loss, it is calories—not food selections—that really count. We may be eating less fat but we are negating that reduction by adding a caloric excess of low-fat foods in their stead.

The highly touted low-carbohydrate diet has some quite clever elements that are biologically effective and promotionally effective. "Eat as much protein and fat as you like" is one element that almost every one of its practitioners loves. "Wait, I'm on a diet and I can eat as much as I want? Sign me up!" Despite its outward

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appearance, though, a low-carbohydrate diet is not a high-calorie diet. Two interesting things will initially prevent over-consumption of calories. First, fat is a very satisfying macronutrient. A protein- and fat-rich meal will satisfy hunger more effectively than a high-carbohydrate meal. Second, severely limiting carbohydrate consumption limits insulin secretion, and the dieter will not experience the swings in blood glucose seen in the low-fat diet. With a more consistent level of blood sugar throughout the day, the low-carbohydrate dieter will experience fewer hunger pangs (and mood and energy swings). Less perceived hunger results in a self-selected reduction in calories consumed. So eating "as much as you want" actually turns out to be less than you normally would eat with a typical American pattern of eating lots of carbohydrates along with your fats and proteins. There is a misconception out there that low-carbohydrate diets drop your body fat faster and to a greater magnitude than low-fat diets. You do lose "weight" very quickly in the early stages of the low-carbohydrate diet. This is because the body mobilizes and uses its existing carbohydrate stores (i.e., glycogen and glucose) when you stop consuming them in your meals. That elimination of stored carbohydrate carries with it an elimination of water weight as well. Any time carbohydrate is stored in a cell, it is stored in conjunction with water. Get rid of the carbohydrate and you will also get rid of the water. The end result is a rapid loss of body weight that is composed mostly of stored sugars and water and minimally of fat. But that loss of carbohydrate and water is fast enough and large enough for most dieters to perceive a difference in the mirror and on the scales. Success makes you feel good and contributes to staying on the diet longer. Once the initial carbohydrate losses have petered out, the body will then begin to tap into stored fat and the rate of fat loss will increase and be similar in rate and magnitude to that seen in a successful long-term low-fat diet.

Despite all the hype and hyperbole, there is enough research produced to date to demonstrate that any of the aforementioned diets will result in about a pound of weight loss per month. Hey! That's not what the commercials say. Well, hit pause on your Tivo when the diet ads are on and read the disclaimers about the big weight losses shown; "Results not typical" is always in the small print that flashes across the bottom of the screen for a microsecond. If we really evaluate all the research out there on all the diets, it is apparent that small to moderate weight loss is all we can expect to happen with any diet. And we can expect it only if the dieter persists with the regimen over the long haul. This typically doesn't happen. The average "diet" lasts only a matter of weeks, and even the longer-term success stories generally relapse to gaining weight eventually. So dieting for weight loss seems to be at best a transient and very short-term fix for what is considered to be a national health epidemic.

This isn't new information. The medical and health professions have failed to get the nation to make progress toward "healthy" body weights with thirty years of beating the dead horse of dietary modification. Why do we continue in the futile effort to find just the right dietary intervention for the entirety of the American population? Job security for clinical researchers in obesity? Catering to the endless need for promotional fodder of the political machine in its quest to appear as though it is saving us from certain death? Stop spending my tax dollars on something you know is doomed to failure. Dietary intervention research siphons off valuable federal research funds that could be more effectively used elsewhere. (Uh oh, looks like I slipped onto my soapbox for a minute there.)

Dietary intervention is not the only way to fight obesity. Everyone seems to loudly promote the energy-consumed component of the first law of thermodynamics—the "eat less" part—and forgets about the other component, the effective and easily manipulated one, the energy-expended component—"exercise more." In actuality, the diet industry and at least one government regulatory agency have not forgotten exercise. They do pay a very small, lawsuit-minimizing, amount of attention to it. That small disclaimer on every diet ad that says "results not typical" also says "part of a comprehensive program of diet and exercise." So let's think about exercise for a moment. The medical community, the exercise industry, and even Hollywood have framed everything, eating and exercising, as a means to being skinny, beautiful, and therefore healthy. But skinny is not the primary concern we should have when we eat. How much we weigh is not the important issue here.

We need to consider function when we consider health. We need to consider our ability to survive and our ability to manage the challenges of our daily lives and recreational pursuits. With CrossFit we consume food to fuel our efforts at gaining fitness and a better quality of life. When we focus on physical fitness, everything else tends to fall in line over time, including body fat.

We should never blindly follow conventional wisdom, so to best understand what we need to eat, we need to understand how training affects both the number of calories we need to consume and how it dictates the composition of our dietary needs. So let's work backward from conventional dietary prescription methods that start with appearance and begin here with how training drives the body's metabolic and dietary needs.

CrossFit programming stresses glycolytic and phosphagenic metabolism. Aerobic adaptations piggyback on top of adaptations to those systems. Glycolytic adaptations require carbohydrate to be present, phosphagenic adaptations rely in part on high-phosphagen foods (meats), and aerobic adaptations involve the oxidation of carbohydrate and fat. So right off the bat, it appears that extremely low-fat and extremely low-carbohydrate diets won't meet the nutritional needs of CrossFitters. Let's be a little more specific and evaluate the metabolic needs of the three basic exercise modes used in CrossFit training: gymnastic exercises, metabolic conditioning exercises, and weighted exercises.

Gymnastic activities are usually done with body weight and although an individual move is completed in a matter of seconds (a pull-up, a muscle-up, etc.), they are typically done for many repetitions and for many many seconds. These exercises expend stored high-energy phosphates and tap into stored carbohydrate. Metabolic conditioning exercises are done for up to several minutes and are driven primarily by stored carbohydrate (with a little fat if the intensity is low enough). Weight exercises in the low end of the repetition continuum are dependent on stored high-energy phosphates but as the repetitions get out into the double digits, anaerobic glycolysis is active and some carbohydrate gets used to power sets. Doing CrossFit, we are doing all these types of work, often blended indistinguishably. So it is easy to see that we can't eliminate any of the macronutrients from an athletic diet and that low-carbohydrate diets might not be a wise choice to support

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CrossFit training. In fact, it is well known that low-carbohydrate diets reduce the amount of stored carbohydrate and it is similarly well known that lowering carbohydrate stores in the muscle and liver predisposes trainees to early fatigue. "Diane" can tire your butt out all on her own; you don't need to have your diet helping her.

It is not as easy to see that low-fat diets are not so relevant to fitness, and then there's the hurdle of getting over the popular belief that they automatically help prevent heart disease. First off, let's consider fat as a good thing, in the diet and in the body. Just sitting there reading this article, you are deriving about 66 percent or more of the energy you are using from fat stored in your body. If we extend that ratio to the average non-exercising American who might be expending 2500 calories per day, 1650 calories are coming from fat metabolism. If we use the average daily protein requirement numbers proposed by the American Dietetic Association (0.8 grams per kilogram of body weight per day), a 165-pound trainee would need to consume 240 calories of dietary protein per day. Simple subtraction provides us the number of carbohydrate calories Joe Couch would then need to consume per day, 610 calories. These numbers hardly paint the picture of the need for a low-fat diet; rather, they suggest fat is an essential element of the diet (it has been since the emergence of mankind).

And as for the heart-disease-prevention angle used to promote low-fat diets, most recent comparative research has shown that cardiovascular disease risk decreases similarly with low-fat and low-carbohydrate diets neither is heart-healthier than the other. Now let's add exercise into the picture, since surely exercise increases the need for carbohydrate? Yes, in fact, it does, but how much? A broad assessment of all exercise modalities might indicate that if 400 calories worth of exercise are added to Joe Couch's daily habits, about 300, or 75 percent, of the calories used to power exercise would come from carbohydrate, with the other 25 percent coming from fat. If we add those 300 calories to the 610 calories derived from carbohydrate needed for sedentary existence, that brings us to about 31 percent of our total caloric need from carbohydrate. That's not "low-carb," but it's pretty low compared to the 55 percent or more carbohydrate content pushed by the clinical and aerobic fitness communities.

The final macronutrient for consideration is dietary protein, which provides the building blocks of all structural and metabolic enzyme proteins. When we recover from exercise we don't just replete the expended energy substrates (fat and carbohydrate); we also have to replace any broken down structural proteins and enzymes that resulted from the exercise bout. That means we have to match protein intake to protein broken down just to maintain the status quo of fitness. With regular aerobic exercise (of the long-slow-distance ilk) it has been shown that up to 1.8 grams of dietary protein per kilogram of body weight are required to maintain a positive nitrogen balance. With intense weight training, up to 2.5 grams of protein consumption per kilogram body weight are needed to maintain a positive nitrogen balance. A positive nitrogen balance means that you have enough protein building blocks to support fitness gain. With a compromise of 2.2 grams of dietary protein per kilogram of body weight per day intake (in between 1.8 and 2.5 g/kg/day), more than 24 percent of the diet would need to be protein to support the fitness gains possible with CrossFit.

So where does this leave us? If we want to choose a named diet that best fits CrossFit, we would not choose Pritikin (low-fat), and we would not choose Atkins (low-carbohydrate). We need to have a diet that delivers a moderate quantity of every macronutrient—fat, carbohydrate, and protein—according to the demands of the basic physics and physiology of exercise adaptation. We need less carbohydrate than conventionally thought but more than the truly low-carbohydrate diets. We need about the American Dietetic Association recommendation for fat content, 30 percent—not the exorbitantly low quantities suggested by lots of low-fat diets. And we need more protein than most clinicians generally prescribe. Of all the diets listed in the first paragraph, the Zone is the best fit. Although not an exact match, the metabolic and structural stress placed on the body by CrossFit training will be best accommodated by the 40 percent carbohydrate, 30 percent fat, and 30 percent protein recommendations of the Zone.

Understanding nutrition is not that hard when we get rid of the hype and misinterpretations promulgated by clinicians, supplement manufacturers, and so many exercise professionals. Exercise is about adaptation. Nutrition is about the support of that adaptation. When we think of it this way, there is a hierarchy of adaptive support that diet must provide. First, the gross caloric content of the diet must meet or mildly exceed caloric expenditure for adaptations to occur. Second, the balance of macronutrient consumption must reflect actual biological need in order for adaptations to occur optimally (in rate and magnitude). Third, micronutrient intake must be adequate to support macronutrient utilization. And finally, peripheral issues such as food quality, timing, ergogenic aids, and so on, can be considered as tweaks of the overall adaptive system.

Most articles and books on nutrition and exercise jump the gun on this hierarchy and consider the peripheral issues before taking care of the basics. Hopefully this article has established (1) a basic appreciation of the physics of eating, (2) the concept that "diet" and "dieting" are two distinct entities, and (3) that survival and training—not socially driven concepts of health and beauty—drive the realities and requirements of dietary composition. Every CrossFit trainer should be cognizant of these basic concepts and be able to explain them, as training success hinges on our ability to get trainees to buy in to better nutrition to support better training. It really is the bedrock for the hierarchy of athletic development.

Lon Kilgore, Ph.D., is associate professor of kinesiology at Midwestern State University, where he teaches exercise physiology and anatomy. He has held faculty appointments in exercise science at Warnborough University (UK) and in kinesiology at Kansas State University. A nationally ranked weightlifter from age 13, he has extensive practical experience as an NCAA strength coach and as coach of international-caliber competitive weightlifters. He is a coaching certification instructor for all levels of USA Weightlifting's coaching development system and has been a member or Chair of the USAW Sports Science Committee for 9 years. In addition to having published numerous articles in both academic and popular publications, he is coauthor of the books *Starting Strength: A Simple and Practical Guide for Coaching Beginners* and *Practical Programming for Strength Training*.

Ground and Pound Sequence

Becca Borawski

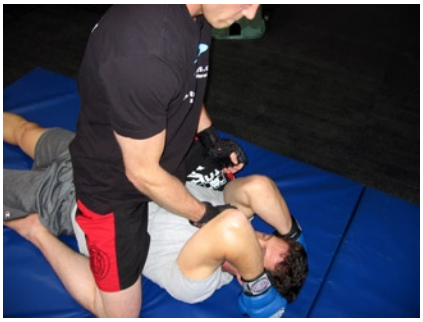
One of the things that differentiates Mixed Martial Arts from other combat sports, in an exciting and sometimes shocking way, is the dimension of striking on the ground. Striking a downed opponent is considered by some to be an acceptable and realistic tactic, and by others as one of the factors that makes MMA brutal and equivalent to street fighting. In truth, it is a highly technical area of fighting, and it is a piece that bridges the sports of boxing, wrestling, and jiu-jitsu.

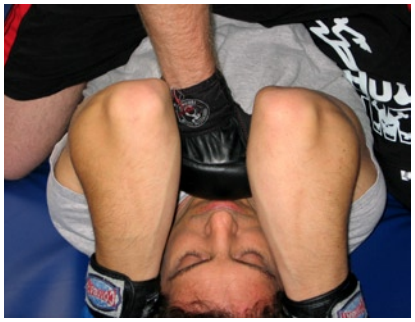
Taking an opponent down and striking him is commonly referred to as "ground and pound." This month's article will illustrate one sequence of ground and pound (GNP) techniques. Comprising both offensive movements and counters, this sequence originates from the mount position. As I describe the technique, the photos of professional MMA fighter Traver Boehm will illustrate the movements that make up one of his favorite sequences.

This GNP sequence begins from the mount position. Traver is seated on top of his opponent, Andy. Traver controls Andy's hips and torso by keeping his feet in tight to Andy's body and driving his knees down into the mat, thereby pinning Andy to the ground. Traver is seated upright so he has the space to twist his upper body and throw powerful punches at Andy's head. In this instance, Andy is doing a good job of turtling up and protecting his head. This prevents Traver's punches from being completely effective.

In order to combat Andy's defense, Traver is going to throw a double slapping strike to Andy's head. This move was made famous in MMA by Japanese fighter Kazushi Sakuraba and is sometimes referred to as the "Mongolian chop." To execute the chop, Traver continues to keep Andy pinned to the ground with his hips and legs. He brings his arms out high to his sides and then swings his hands down on both sides of Andy's head. Traver is aiming approximately for Andy's ears, in the space between his gloves and shoulders that Andy can't protect.

The desired result of the smacking to either side of his head is that Andy will open up his turtle defense in reaction. Andy's elbows will separate only briefly, so Traver must be prepared to immediately throw a punch straight down at Andy's face.





Ground and Pound Sequence

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It is very common at this point, after receiving multiple blows to the head, for the fighter on the bottom to turn on his side as a defensive tactic. When Andy does this, Traver continues to control him by keeping his weight pressing down on Andy's body and keeping his foot tight into Andy's hip. Traver's left knee is behind Andy's upper body, preventing him from rolling back, his bodyweight is pressing down on Andy's torso, and his right heel is tight into Andy's waist, preventing him from making any explosive movements generated from his hips.

Once Traver has Andy in this position, he uses his left hand to push Andy's right hand away from his face and down to the mat. He then reaches underneath Andy's head with his left hand and grabs Andy's wrist. Basically, Traver is grabbing Andy's wrist and then exchanging which hand is gripping it. Traver then pulls with his left hand until Andy's own arm is tight around his head and he is unable to entirely defend the right side of his face.

The most Andy can do from here is to try to defend with his opposite hand, but he will not be able to cover very well, and Traver has a great deal of control over Andy's body as well as the freedom to throw heavy punches to his head. Despite Andy's best attempts, at first by turtling and fully protecting his head, and then later by rolling to escape, he remains trapped and Traver has maintained his dominant offensive position. It is quite possible for Traver to finish the fight from this position.

Because MMA fighters are permitted to pin their opponents against the cage, there are many fine examples of ground and pound throughout the history of the UFC. Some names to look for would be Mark Coleman, Matt Hughes, and Randy Couture. All are excellent wrestlers, whose main goal is to down an opponent and then finish him with strikes.

Traver Boehm is a professional MMA fighter who also trains at Petranek Fitness. He is fighting next in Santa Monica, Calif., on June 14, 2007, as part of the Total Fighting Alliance show.

Becca Borawski, CSCS, teaches and trains at *Petranek Fitness/CrossFit Los Angeles* in Santa Monica. She has a master's degree in film from the University of Southern California and a background in martial arts training. She has blended these skills to produce DVDs and build websites for professional fighters. Her main job is as the music editor on the TV show *Scrubs*. She currently trains Brazilian Jiu-Jitsu with Rey Diogo, a Carlson Gracie affiliate.

Turkish Get-Up: Part 2

Jeff Martone

I hope that Part 1 of this series, in last month's *Journal,* motivated you to practice and experience the benefits of the Turkish get-up (TGU). Now let's build on that foundation. Last month you learned the "arm-bar" stretch and the tactical TGU. In this issue, we will move on to the gladiator and explore implement alternatives for when kettlebells aren't readily available.

The gladiator

This move is a tremendous core and stabilizer strengthening exercise that seamlessly blends into the tactical Turkish get-up. To begin, grab a kettlebell and perform the sit-up portion of the tactical TGU.

Then, from the sit-up position:

1. Press the shoulder of your support hand (the hand that is on the ground) away from your ear. This is an important but often overlooked step. It puts your shoulder in a strong position. It keeps the shoulder "active," as when you are performing dips on parallel bars.
2. Simultaneously press off that support hand and your posted foot, lifting your hips off the floor. This will create the space necessary to slowly extend your left leg in front of you. The side of your foot is pressed firmly against the ground, and the knee on that leg is straight.
3. Once you are stable in this position, move your right foot on top of your left. Keep your torso rigid, and hold this position for three to five seconds.
4. To complete the gladiator, extend your right leg into the air and hold for another three to five seconds.

To transition to kneeling:

5. Slowly bring your right foot down *in front* of your left leg.
6. Bend your left leg, bringing your knee under your body, and establish the three-point kneeling position.
7. Slowly straighten your torso and pull your left arm up off the ground so that you are in a two-point kneeling position. Keep your eyes on the kettlebell, and actively press the kettlebell straight up toward the ceiling throughout this step.
8. Stand up as described last month.
9. Slowly descend and return to the starting position, minus the gladiator pose in the middle. I find that it's best to perform the gladiator on the upward movement of the TGU only.

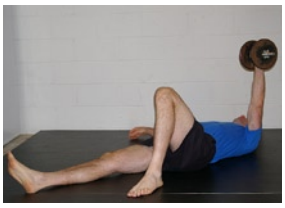
Keep your movements slow and controlled, and take the time to find solid balance points at each step.

Turkish Get-Up: Part 2

...continued

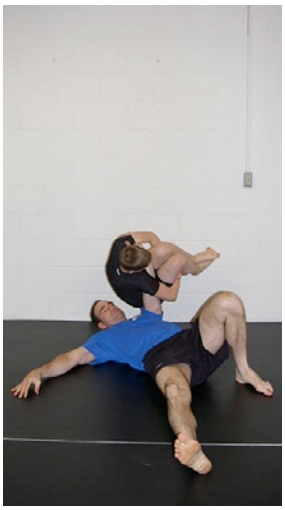
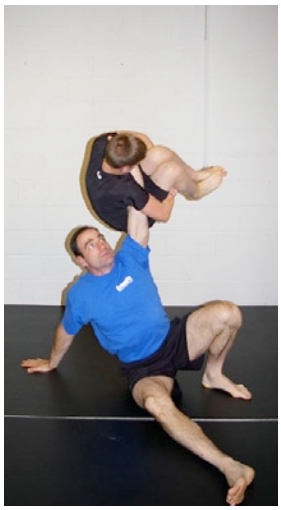
Implement variations

If you travel a lot, there is a chance you may find yourself one day without your kettlebell. (Oh no!) If this happens, do not fear. With a little imagination, you can to adapt and overcome. TGUs are beneficial regardless of the implement you practice with. Dumbbells are economical and plentiful, and they will work in a pinch. Unfortunately, a dumbbell doesn't have the benefit of an offset center of gravity, but it's better than doing nothing. Short, thick-handled barbells and full-sized Olympic barbells also lack the offset center of gravity but make up for it by the requirement of having to balance longer and/or thicker bar. (Old-time strongman and stunt man Joe Bonomo demonstrates the use of the barbell for this exercise in his classic book *Barbell Training Routines*.) Sandbags and rucksacks are great options, especially in austere training environments. They both have an offset center of gravity, which strengthens and stretches the shoulder throughout the entire exercise. Whatever you "get up" with, be sure to keep your wrist straight.





Last but not least, a family man (or woman) is never with out a training implement—kids! Unlike steel weights or sandbags, kids are dynamic and their lack of handles makes them challenging weights. But they're also breakable! Be careful. Before attempting to lift children, be sure your technique is flawless and your strength levels are well beyond the weight of the child. My kids love it. I've been practicing TGUs with my daughter and son since they weighed only 50 pounds. By God's grace, perfect practice, and continuous prayer, I can still lift them at ages 12 and 14. Michael's a wiry 118 pounds. At the rate of their growth, the next few years are going to be quite a challenge! (But I'm going to give it a go, Milo-like.)


My advice is to heartily go forth and have fun. Training doesn't have to be all serious and dour. Practice the gladiator and Turkish get-ups. Experiment with different resistance implements. You're limited only by your imagination.


Jeff Martone, owner of *Tactical Athlete Training Systems*, was one of the first certified senior kettlebell instructors in the United States. He is best known as the creator of "hand- 2-hand" kettlebell juggling, SHOT training, and the T.A.P.S. pull-up system. He is also the author of six training DVDs. He was the first to implement kettlebell training in a federal law enforcement agency and now offers instructor-level certifications. He has over 15 years of experience as a full-time defensive tactics, firearms, and special-response-team instructor.

Ring Row

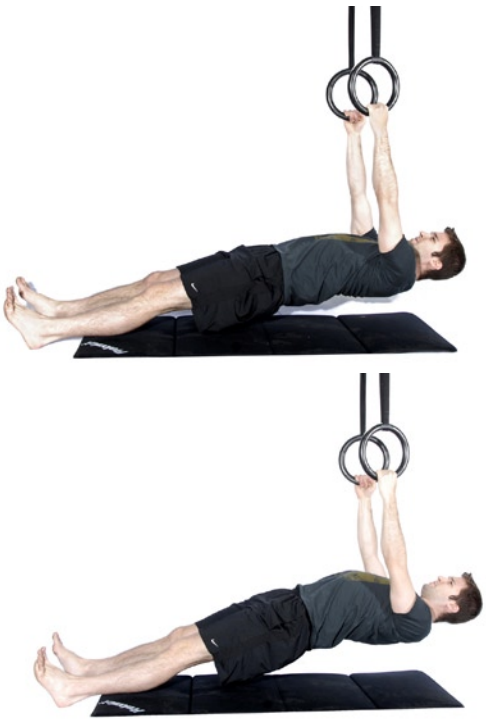
Beginning Pulls on the Rings

Tyler Hass

The ring row is known by many names, including body row, horizontal row, and reverse push-up. It is a valuable movement to have in your toolbox, as it provides a functional and effective horizontal pulling motion that is hard to duplicate. Its applicability to sports such as rock climbing and wrestling is fairly obvious. Its value extends to other sports as well, as a means of correcting muscle imbalances, improving midline stabilization, and training muscles that you don't see in the mirror. For gymnasts, it provides an early stepping stone toward harder skills. Bulgarian gymnast Jordan Jovtchev describes it as a good movement for "creating the muscles for the front lever."

It is also a great movement for developing the strength required to do a pull-up. It is a good complement to working assisted pull-ups with a stretch band or assisted pull-up machine. It is also helpful for people who can do kipping pull-ups but struggle with strict ones. If a workout calls for pull-ups, you can scale it for non-pull-uppers by simply plugging in the ring row. For some trainees, a 1:1 substitution might be difficult, because no kipping is involved here. Start at a 1:2 or 2:3 ratio of ring rows to pull-ups, and see how it modifies the character of the workout for a given trainee, and adjust accordingly. You can also change up the difficulty of the ring row by altering the angle of the body. As your body angle increases, the difficulty of the movement decreases. For a beginner, it is fine to perform them from nearly a standing position. At the advanced level, your body will be perfectly horizontal.

Horizontal shrug



Full movement

Technical execution of the ring row

One of the alternative names for the ring row gives insight into its technical execution: the ring row is essentially a push-up in reverse. (The same lessons we learned in *CFJ* issue 7 for the push-up also apply to the ring row.) Midline stabilization is a critical component of both movements. The goal is to keep the body tight and straight. Unlike the kipping pull-up, which uses the core of the body as a power generator, in the ring row the body is kept rock solid, just as in a perfect push-up.

Begin by practicing the horizontal shrug. With your feet on the ground and arms held straight, using only your back muscles, pull your chest forward as high as possible and then back down. The arms do not bend at any point during the horizontal shrug. Once you have this movement down and can feel how to initiate the pull from the upper back, you are ready to work the full movement.

The pulling motion goes from core to extremity, beginning with contraction of the scapulae, drawing the shoulder blades together and the shoulders back. Next, drive the elbows back, brushing them past the rib cage, and pull with the arms until the chest passes through the rings. While I have described these as distinct phases of the pull, the overall motion should be smooth. Return to full extension at the bottom position, maintaining a straight body. Do

Ring Row

...continued

not worry about the distinction between a pull-up (pronated) and chin-up (supinated) grip. Since you are holding onto rings, and not a bar, you are free to adjust the grip dynamically throughout the movement to what you find most comfortable.

It is important to note that this movement is not a bodyweight biceps curl! The curl involves only flexion in the elbow joint. It is not initiated from the core. It begins and ends at the elbow joint. Let's leave curls to the guys at Globo Gym wearing the neon spandex unitards.

Variations on the ring row

Several variations of the ring row exist, expanding the movement to suit a variety of skill levels. The first is the crunch and row, which scales down the difficulty considerably, while still maintaining functionality. The crunch and row is performed from a seated position. It looks a lot like an assisted sit-up. The ab and hip flexors are assisting your upper back and arms (and vice versa) to complete the movement.

To increase the difficulty, try the elevated ring row, in which the feet are raised level with or above the rings. It is the same movement as the standard ring row, but you are now pulling a greater percentage of your body weight.

Next month, we will dig into some more variations on the ring row, including some unique twists you might not expect. Start building your strength now, because it only gets harder from here.

Tyler Hass is the founder of ringtraining.com and designer and producer of the Elite Rings. His company is dedicated to spreading gymnastics into the broader fitness world. He can be reached at *info@ringtraining.com.*

Crunch and row

Elevated ring row

Key points on the ring row

1. *Straight, tight body*
2. *Don't leave your hips behind (piking)*
3. *Don't lead with your hips (arching)*
4. *Pull is slow and smooth*
5. *Never short the range of motion ("All the way down; all the way up.")*
6. *Pull from core to extremity: back, then shoulders, then arms*
7. *This is not a curl!*

Straight, tight body. No arch.

Fitness de Classe Internationale en 100 Mots

Eat meat and vegetables, nuts and seeds, some fruit, little starch, and no sugar. Keep intake to levels that will support exercise but not body fat.

Practice and train major lifts: deadlift, clean, squat, presses, C&J, and snatch. Similarly, master the basics of gymnastics: pull-ups, dips, rope climb, push-ups, sit-ups, presses to handstand, pirouettes, flips, splits, and holds. Bike, run, swim, row, etc., hard and fast.

Five or six days per week, mix these elements in as many combinations and patterns as creativity will allow. Routine is the enemy. Keep workouts short and intense. Regularly learn and play new sports.

by Greg Glassman

Mangez de la viande et des légumes, noix et graines, fruits, peu d'amidon, et pas de sucre. Mangez pour maintenir votre niveau d'exercice mais pas pour engraisser.

Pratiquez et entraînez-vous pour les levés de poids Olympiques. Maîtrisez les bases de la gymnastique: grimpez à la corde, faites des pompes, des redressements-assis, des grands-écarts, des équilibres, des pirouettes, des altos, des tractions des bras. Pédalez, courez, ramez, nagez, etc., vite et intensivement.

Créez des arrangements différentes avec ces éléments, cinq à six fois semaines. Soyez créatif; la routine, c'est l'ennemi. Vos entraînements doivent rester courts et intenses. Pratiquez régulièrement de nouveaux sports.

Translated by Matthieu Dubreucq and Sylvie Hamon

Training for the Aged

Mark Rippetoe

I am very old. At this writing I'm 51, and in the grand scheme of things that's not very old, I know. But yesterday I did a relatively intense deadlift workout, and I feel more like 71 just sitting here typing, and about 81 when I stand up to get coffee. This is in stark contrast to my previous existence as a young man, one who could have done the workout I did last night as back-off sets after the actual training. This is because I have accumulated lots of injuries, I don't sleep well, and—since I don't sleep well, or possibly as a cause of not sleeping well—I don't recover very fast. This affects my training schedule, my "progress," and my very purpose for training.

In short, I am a masters lifter, and maybe you are too. Or maybe you will be, if you're as boneheaded, tenacious, and afraid as I am.

Masters lifters are obviously different from their younger hard-training counterparts. We have accumulated injuries that have to be considered when training is programmed. And more importantly, our response to training is blunted by our age: the stress/adaptation relationship is a function of the hormonal milieu, and old guys have an old-guys milieu.

I am literally afraid to quit training. It is tempting sometimes, like right now, to settle in to a routine that doesn't make me hurt one way or another most of the time. But I have had some limited experience with layoffs, and I don't do well without training, physically or psychologically. After even a couple of weeks my back starts to hurt in the absence of some type of work; it has apparently adapted to the abuse, as a heroin addict has to the drug. My knees feel better when I squat: I actually think they keep the bone spurs ground down. I have grown fond of high-volume chin-ups, and I'm pretty sure that they are helping me stave off rotator cuff surgery.

I don't like the way I feel without the work, and I don't think I'd like the way I would feel about myself without the work. Most guys my age—the ones at my class reunion a couple of years ago, for instance—are just physical piles of crap, looking many years older than even me. I am still just vain enough that this is motivational. I am scared enough of looking like this , and feeling like this, that I did a deadlift workout last night that hurts me today, beyond the normal soreness that a younger, less-beat-up guy would experience.

So I suppose I'll continue to train until some horrible accident prevents me from be able to. I suspect that there are many others like me, because I know at least a couple personally.

Not every masters lifter is like me. The great Olympic weightlifter Fred Lowe continues to train pretty heavy and compete at the national level in open competition. Fred is smarter and better designed than I am. In powerlifting, Jim Lem squatted 600 pounds in the 181-pound weight class in the 60-64 age group in 1989

(before the modern era of squat suits that added 300 pounds to the lift). This qualifies as legitimate. Right here in Texas there are several magnificent specimens of older manhood still lifting well; Gary Deal and Bob Ward come to our meets every year, and the masters division is usually fairly busy. And all over the world there are examples of 50-year-old-plus masters athletes who compete at or close to the open division level.

But lots of masters lifters—maybe most of us—train hurt. It's either that or not train at all, so we train hurt. Wichita Falls Athletic Club's very own Phil Anderson is having both his knees replaced in six weeks and swears he's going to squat 405 this week, and I promise you the silly bastard will do it. This kind of thing is why he's having his knees replaced, and probably most of

Training for the Aged

...continued

us think like him: so what if it hurts? We've been training so long that the idea of not training is worse than the reality of hurting. No, this is not especially intelligent, but it is the way we think.

This attitude does not lend itself well to sympathy for people who claim that "pain" prevents them from exercising. I have Phil's knee x-ray and my lumbar MRI up on the wall here; they are ugly. I'll bet you that the vast majority of people who claim a diagnosis of "fibromyalgia" (which is really a description of symptoms, not a diagnosis) are not retired powerlifters who still train.

Accumulating injuries are the price we pay for the thrill of not having sat around on our asses. It is common knowledge that training prevents injuries, arthritis, loss of bone density, and a bunch of that other fun stuff that often happens as people age. That's not what I mean here. Training hard for competitive athletics and living hard for whatever reason has the potential to hurt you, and it usually does. For me, motorcycle wrecks, horse wrecks, barbell wrecks, and overuse injuries have produced changes that alter the way I train (and live), and that must be figured in to any training plans I make. If I wrote them all down here, it would sound like I was whining, and we can't have that. Everybody my age that's been active and had any fun will have their own story. Injuries to knees, backs, elbows, wrists, and necks can all produce program-altering changes in the ability to perform key elements of barbell-based training, and often they restrict the progress possible because of the resulting mechanical inability to squat, press, or pull from the floor.

Accumulating injuries are the price we pay for the thrill of not having sat around on our asses.

Knees take a beating from most activities that involve rapid changes in direction. Most sports available to recreational athletes—softball, volleyball, and most commonly and worst of all, soccer, the most dangerous sport in the world—carry a high risk of knee injury. Neck and back injuries are often work-related, and are avoidable only through the constant mindfulness of load handling skills; they affect a huge percentage of the population. Wrist and elbow injuries are less common, especially for non-athletes, and often of an overuse nature, and some are actually preventable with exercise, like carpal tunnel syndrome. Some are not; tennis elbow is thought by some to be a permanent condition once it is established, correctable only be surgery. Car wrecks are a common feature of modern existence, and can radically alter the function of the body and the course of a life. The lasting effects of such accidents must be dealt with, and training with them is perhaps the single best way.

Chronic injuries also tend to screw up the hormonal milieu by causing the production of excessive levels of cortisol. Injuries always involve inflammation, because healing involves the repair of injured tissue and inflammation is a part of that process. Cortisol is a hormone secreted by the adrenal cortex, perched on top of the kidneys. Among its other functions, it acts as a *catabolic,* or "tearing-down" (as opposed to *anabolic*, or "building-up") hormone. Its catabolic function is—at the right point in the process— to tear down inflamed tissue to help it heal, and in this way it acts as an anti-inflammatory. But large amounts of inflammation, as might be experienced with continually aggravated chronic injuries and new acute injuries, can cause larger-than-normal amounts of cortisol to be released, causing problems with its other functions—insulin antagonism, immune system regulation, electrolyte balance, and the regulation of various other hormones and neurotransmitters—as well as turning loose its catabolic capacity on healthy tissue. Injuries must be managed carefully for this reason, but training hard enough to force progress and light enough to keep injuries at bay is a tough juggle.

But progress is possible, and the amount of progress that can be made is a function of where you are in your training progression. There are many, many examples of fine competitive athletes who started their careers later in life. And if you start lifting when you're 55, you're still a novice, just like the kid who starts when he's 18.

You won't have the same progress trajectory as the kid; you have just as far to go to reach your genetic potential, but you won't get there as fast—if you have the time, the dedication, and the desire to get there at all. Both of you have to pay the same attention to programming variables and lifestyle choices (nutrition, sleep, recovery, etc.), and both of you will go through the same stages of advancement as those variables are controlled to produce an adaptation to the stress of training. But masters lifters have a blunted response to physical stress due to the sad, rotten, unfortunate, and irritating fact that we have far lower levels of the anabolic hormones that aid in recovery and adaptation. And this, as much as your list of injuries, has the potential to limit your progress.

As we age, men rapidly lose the advantage we have over women when we are younger. Testosterone levels peak in our mid-twenties, hold relatively steady for another decade, and then begin to fall like women's clothes at the kinds of parties we don't get invited to any more. By the time we're in our late forties, lots of guys are quite literally running on hormonal fumes. This is not good because, if you think about it, we are really not designed to *be* in our late forties; when human physiology was developing a couple of million years ago, nobody lived to be any older than about 25, and the unforeseen consequences of the artificially-enhanced longevity provided by society had no way to get planned for, what with hyenas eating everybody so careless as to get to 26. These same friendly hyenas rendered Cave Guy free of concern for Alzheimer's, melanoma, prostate cancer, and the need for reading glasses.

Training for the Aged

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Growth hormone drops off the same way, and it is less sexist about it. As we age, both men and women lose the ability to produce GH in response to stimuli that would normally cause an increase in its level in a younger organism. Growth hormone aids in recovery by stimulating the secretion of insulin-like growth factor I (IGF-I), the stuff that actually causes repair and recovery to occur. GH secretion declines with advancing age, and there is a linear relationship between GH and IGF-I levels, and therefore a linear relationship between age and the ability to recover from heavy work. Since they are always blessed with low testosterone levels, women primarily rely on GH for their endocrine response to training, which leads us to the rather inescapable conclusion that the older men get, the more like older women we become, hormonally speaking.

The reduction in level with age of both of these hormones is, of course, totally and completely a function of the histology of the tissues secreting the hormone, since 1) humans did not live long enough to develop a physiology adapted to low levels of anabolic hormones, 2) significant aging always takes place after reproduction and therefore has no bearing on human evolution, and, even if it did, 3) there is no adaptive advantage to be obtained from losing the ability to recover efficiently from heavy work. The human body does not intentionally lose the ability to secrete the hormones it needs to recover; it's just one o' them rotten deals, the effects of an aging endocrine system.

Weight training helps in that it keeps the hormone stimulus/response system functioning much better—and deteriorating much less slowly—than that of an aging sedentary person. Both testosterone and growth hormone secretion are pulsitile and diurnal, meaning that they vary in amount and level during the course of the day. They also vary in response to stress; a manageable, beneficial stress event like a workout causes a short-term increase in good hormone levels. Training maintains higher total average hormone levels, greater sensitivity to those levels, and the continued ability to produce an increase in response to stress.

But it's still not the rosy scenario we'd like it to be. Many things can contribute to a less-than-perfect anabolic response to training in the masters division. The main problem is that we generally don't sleep as well at 50 as we did at 18. This is because 18-year-old kids don't know what a mortgage is, have never really worried about their hemorrhoids, haven't been in a significant argument with a taxing authority, have never unwillingly slept on the couch, do not react that badly to isolated instances of excessive alcohol consumption, have not gotten subpoenas, never sunburn their bald spots, do not refer to ibuprofen as "Vitamin I," and very seldom wake up twice in the middle of the night to pee and then have trouble falling back asleep because they are worrying about remembering to change the oil in the car. Between those stressors themselves and the sleep disruptions they induce, we're in for a double shot of cortisol cocktail.

Sleep is critical to recovery. Nighttime sleep is the period during which hormone levels peak. Theoretically, at least. If the cycle is repeatedly interrupted, if it never achieves the level of depth that supports good levels of hormone production, or if it takes place during the daylight hours, the hormone response is less than optimal. A younger person is making enough testosterone and GH that their infrequent sleep abnormalities are not terribly significant, but for an older lifter bad sleep is like a shingles outbreak on a broken leg. We're not making enough anyway, and bad sleep disrupts the production of the tiny little bit we have left.

Training maintains higher total average hormone levels, greater sensitivity to those levels, and the continued ability to produce an increase in response to stress.

So when an older person starts a training program, their ability to progress is affected by these factors, and a different set of expectations should be anticipated. Take for example the case of a 50-year-old soccer player who decides he's had enough of running around in silly-looking shorts and hurting his knees and now wants to train for strength and *be somebody*. This guy will make rapid initial progress just like a younger guy, but not as much, not as fast, and not for as long a period before he slows down. On a graph the curve of his novice period of linear increase will have the same general shape as that of the younger athlete, but it will flatten out faster and at a lower position on the graph. His progress will be linear in that he can add weight to every workout, but the increases will have to be smaller if he is not to get stuck quickly. And his injuries may prevent the use of important exercises: if his knee cartilage is too screwed up to squat, this will have a profound effect on his progress since he will be unable to use the best exercise in existence for producing quantifiable, controllable, useful stress and adaptation. He will have to use more complicated, complex training programming much sooner than a younger lifter would, because he will exhaust his ability to rapidly adapt to linear increases in stress much more quickly than a kid with a more cooperative endocrine system and no chronic injuries.

A 40-year-old mother of two active teenage girls who decides she's had enough of merely wanting to look and feel like she did when she was 25 might choose to start a program with competitive overtones, like CrossFit. She will immediately look, feel, and perform better, but not at the same rapid pace her kids would experience, assuming they had a decent coach. Under expert guidance and with grim determination, she can actually obtain the same fitness level as her kids, but in a year rather than six months. And with a couple more decades of the kind of experience provided only by life, she has the benefit of actually appreciating what she accomplishes.

Training for the Aged

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It is likely that most people who start training later in life do it more for personal reasons than for the possibility of a professional sports career or a college scholarship. For this reason, most masters lifters will never need programming any more complex than that used by intermediate-level athletes. Some of us, like me and Phil, have long since left behind any possibility of lifting the weights we did twenty years ago. Personal records are reserved for brand-new exercises we either have never done before or have just invented. We are training to stave off death and further decrepitude, not to win competitions. As such, we are way out on the far right-side of the curve, the area of the graph that approaches the x-axis again. It's not as much fun as placing well in a meet you've trained hard for, but it is more fun that using a walker.

Masters lifters should follow a few common-sense rules, if they can stand it:

- Know where you are in your training progression, and try to act like it is important to you. If you are just starting out, aim for steady, constant progress every workout. If you are a retired competitor, resist the temptation to try to do things you think you "ought" to be able to do. Be realistic about this and things will go better.
- If you're an older novice, you're not going to grow as fast as a younger person, and if you are a retired competitor, you sure as hell aren't going to grow as fast as you used to. Don't eat like you are. This is how people who are actually in pretty good shape get to look like they're not.
- Don't be afraid to take a day, a week, or a month off if you think you need to. It won't kill you, but not doing so just might.
- Approach new exercises with respect. When adding a new movement to your program, don't *ever* go as heavy as you can the first time. Aim for about half of what you think you can do, and the second time go about 75 percent, saving the heavy effort for the third time or beyond. This may be the best advice in this whole sorry article. Please heed it.
- Listen to your body. That is cliché, but things get to be clichés for a reason. If your elbow is pissed off, don't blame it—blame you, and don't just go ahead and press heavy anyway. This will be the most ignored advice in this article.
- Training is supposed to be fun, at least most of the time. If it stops being fun, maybe you are doing something wrong. This is also not training's fault, it's yours. Take a short layoff and then change something.

Older athletes are some of our better people. They are responsible, structured, brave individuals with a strong work ethic and great intelligence, determination, and character, and we need more of them. Yes, more people like me and Phil. Save your Advil coupons for us.

Mark Rippetoe is the somewhat aged and entirely curmudgeonly owner of *Wichita Falls Athletic Club/CrossFit Wichita Falls*. He has 28 years experience in the fitness industry and 10 years as a competitive powerlifter. He has been certified as an NSCA Certified Strength and Conditioning Specialist since 1985 and is a USA Weightlifting Level III Coach and Senior Coach, as well as a USA Track and Field Level I Coach. He has published articles in the *Strength and Conditioning Journal*, is a regular contributor to the *CrossFit Journal*, and is the author of the books *Starting Strength: A Simple and Practical Guide for Coaching Beginners* and *Practical Programming for Strength Training*.

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The Grinder

CrossFit FRAGO #11, "LEGER"

CFHQ
Santa Cruz, CA
USA

01 June 07

OPS 12
FRAGO 11 TO OPORD 01 — OP GRINDER

Ref: A. OPORD 01 01 Jul 06

Task Organization: Annex A

1. SITUATION. No change.

2. MISSION
"Leger": 400-meter run
21 thrusters
30 pull-ups
800-meter run
30 pull-ups
21 thrusters
400m run

3. EXECUTION
a. Concept of Operations.
(1) Intent. Complete the exercises in order, as quickly as possible, in a safe manner. This is a six-person-team "task-specific" workout. The purpose of this workout is to develop cohesion and combat fitness under fatigue conditions through shared hardship, challenges, and competition.

(2) Scheme of maneuver. The platoon will be divided into as many teams of six as possible. Each team will require two .25mm ammo cans for thrusters and two pull-up bars or two sets of rings for pull-ups. All teams will start at the same time. Once each soldier has completed the first 400-meter run, he will begin the thrusters. After completing the required reps of thrusters, he will transition to pull-ups. Each exercise must be completed before moving on the next one—i.e., you must finish all 21 thrusters before starting the 30 pull-ups. However, each exercise may be broken up into sets as desired—e.g., three sets of 7 thrusters to complete the required 21, or two sets of 15 for the 30 pull-ups. If a soldier is unable to complete 30 pull-ups on his own, spotting will be permitted. However, spotting will be executed by supporting the back of the soldier doing pull-ups,

not by supporting his feet, and only by a team member who is also conducting pull-ups. If a soldier is in the midst of his own set of thrusters, he is not permitted to spot another team member doing pull-ups.

(3) Main Effort. The safety of all personnel, and the development of unit cohesion and combat fitness through shared challenge and hardship.

(4) End State. The safe and successful completion of all exercises.

b. Coordinating Instructions.

(1) Team Organization. Squad leaders can organize their soldiers however they wish. It is a leadership decision on how best to deploy each soldier to accomplish the mission.

(2) Scaling. The workout can be conducted in PT gear or full battle gear to include vests with plates, depending on the fitness levels of your soldiers. The number of reps can be increased or decreased based on the skill level and capacity of your troops.

(3) Scoring. The individual finish times for each soldier are added together to determine the total finish time for the team. For example, if the finish times for the six soldiers on a team are: 18:10, 18:20, 18:30, 19:00, 19:15, and 20:00, when the individual soldiers' times are added together, the team's score is 113:15. The team that has the lowest combined time comes in first. Also, each individual soldier's time can be ranked.

(4) 25mm Ammo-Can Thrusters. For safety reasons, it is imperative that the 25mm ammo can be lifted from the ground by the proper technique. The ammo can must be placed on the ground upside down (so that the lid of the ammo can is on the ground). With his back held in the proper dead-lift position, the lifter dead-lifts the ammo can to the hang position, where it remains inverted, with the lid facing the ground. From the hang position, he cleans the ammo can to the rack position (the thruster start position). It is during this transition, from the hang to the racked position, that the ammo can rotates 180 degrees (to end with the lid facing up). This is the start position for the thrusters.

(5) Safety. Ensure that all equipment is checked and serviceable before conducting the workout, and that all soldiers are proficient in the required exercises. Safety is every member's responsibility.

(6) Follow-on Tasks. The next workout will require a sash-cord or skipping rope, a 20-pound medicine ball, a 25mm ammo can, a .50 Cal ammo can, a 24-inch ply -box or two Stryker tires per five-man team.

3. SERVICE SUPPORT

a. Equipment Weights

Ammo Can Nomenclature	Quantity / Size	Type	Weight	Contents
Cart 25mm APFSDS-T	30 rds	PA125	70 lbs	Sand
Nylon webbing, plain weave, tubular (austere rings)	NA	8305-21-111-5411	NA	NA
Snap Link, Mountain Piton (austere rings)	12mm	8465-21-896-8280	NA	Claw snap and screwgate
PVC pipe 1 ½ inch (austere rings)	8 inch x 2 per rings	Standard	NA	NA

b. Equipment Requirements. Each six-man team will require 2 x 25mm ammo cans and two sets of pull-up bars or two sets of rings (austere or regular).

c. Time and Repetition Recording. One stopwatch for all teams and a method of recording each team's rounds.

4. COMMAND AND SIGNAL

a. Timer/Score Recorder. Only one timekeeper is required for all teams. All six-man teams begin the workout at the same time. It is recommended that at least one person per team start his stopwatch to act as a backup in case the primary timekeeper's stopwatch fails. A method of recording each soldier's time is also required.

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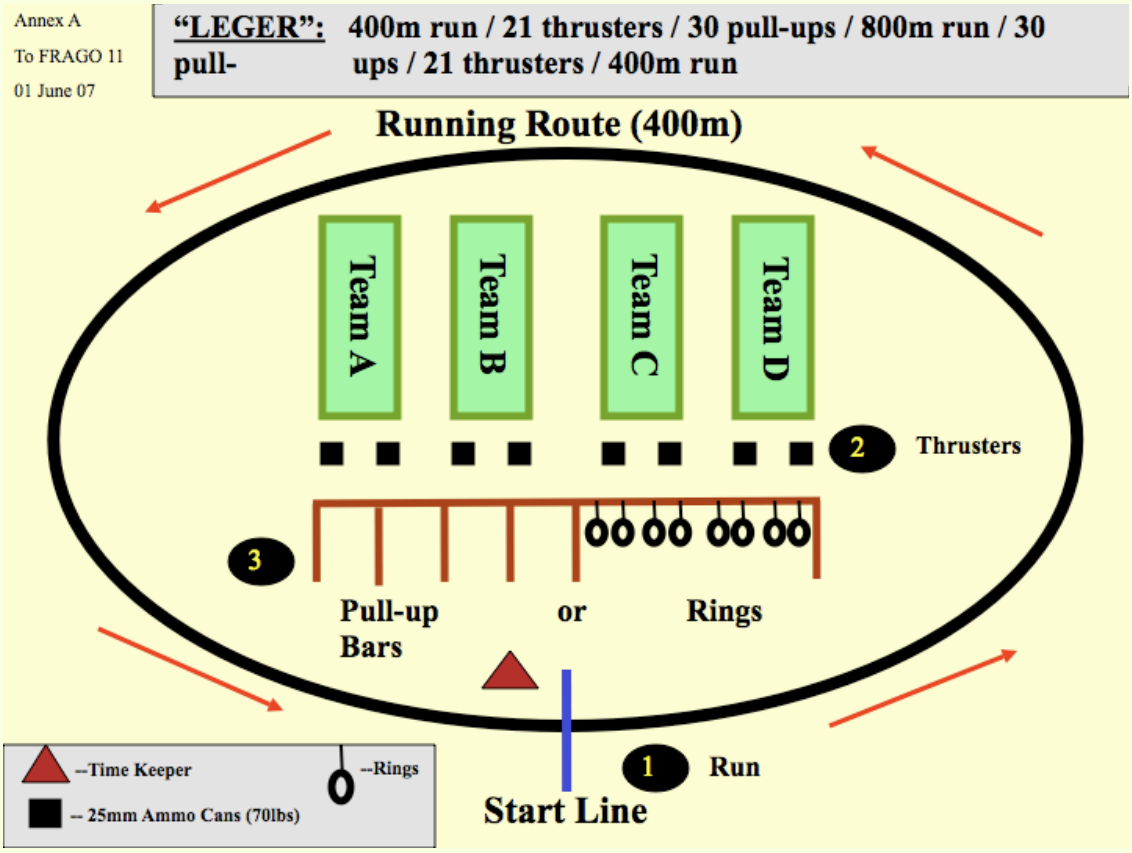
b. Instructor/Coach. To ensure proper conduct of the workout, use of correct exercise form, and safety of execution, a designated member of the platoon can fill this billet.

Annexes:
Annex A Workout Diagram (AOO)
Annex B Equipment
Annex C Exercises

Annex A Workout Diagram (AOO)



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Annex B Equipment

Annex C Exercises