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## **Go Light: Weight, Velocity, & Volume in Medicine Ball Training**

— Jim Cawley —

I have noticed a tendency among members of the CrossFit community to select heavy medicine balls for various exercises. We do this, I think, because we equate weight with strength and assume that if a 6-pound ball is good for an exercise, then an 18-pound one must be three times as good. However, the primary benefit of medicine ball work is not strength per se but *multijoint power through the summation of ballistic body segment forces*—of which strength is only one part.

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# Go Light: Weight, Velocity, & Volume in Medicine Ball Training

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Agility, coordination, speed, dynamic flexibility, balance, and accuracy are equally in play when measuring the total horsepower generated in any ballistic assignment pulled from the CrossFit hopper of varied physical challenges one might need to perform.

## More drill, less instruction

A good coach knows that a specific athletic skill is learned (discovered) and not taught. The coach's time and attention is spent on directing sufficient drill and repetition activity that allows the athlete to discover the aspects of the skill experientially. The coach may from time to time point out glaring errors in movement, but for all practical purposes the fine balance, agility, reflex transition points, and coordination—the important changes in the nervous system that constitute learning and skill—are discovered and incorporated through directed repetitive activity. The right lightweight medicine ball is a perfect tool for such drills. Keep it light and the drills are about practice *and* training. Go heavy and it becomes training only.

## Weight, velocity, and volume

We must always be aware of two basic kinesiological principles. First, maximum horsepower is generated at one third of maximum torque. This principle applies to single- and multiple-joint movements, and it tells us that more is not always better when the training intent is to develop power. The second law of kinesiology to bear in my mind is that the overload principle of exercise can be met either with velocity of movement or with weight—or with a combination of the two. All three overload mechanisms can be used to summon the desired number of motor units to perform a given task, with each mechanism having a different intent.

With medicine ball training, velocity or a combination of velocity and weight should always be the overload mechanism of choice. This is the mechanism of the Olympic lifts and their variations. Olympic weightlifting's generation of horsepower through the bilateral summation of forces from ankle, knee, hip, posterior spine,



shoulder, and elbow is unmatched, as all of the joints are working ballistically in the proper sequence at precisely the proper time. Medicine ball work can also provide excellent horsepower training, using many more combinations of force summation, as long as the load is not too great. When this is the intent, lighter balls should always be used. Where pure strength through less complicated movement is the only intent, heavier balls can be used as a strength-training implement.

Coaches, trainers, and physical educators are often baffled when an individual's performance at a physical task does not correspond to expectations based on the measured strength levels of the body segments involved in the task. Failing to recognize the reason for the discrepancy, they continue along the same path of trying to develop greater strength. Though psychological and other complicated physical factors may partially account for the performance shortfall, the primary cause is often the insufficient generation of power through the summation of the forces involved.

The ability of an individual to capture the full potential power of all the joints involved by using them in the proper sequence at precisely the proper time is related to his or her command of the other general

physical skills described in CrossFit's [definition of fitness](#). The more ways an individual can use and train these general physical skills, the easier it becomes to transfer them to new tasks. Good summation explains why a welterweight boxer who can bench only his body weight can deliver a knockout punch, or why a pitcher who can do only five bodyweight pull-ups can throw a 100mph fast ball. Poor summation explains why a 450-pound bench presser can throw the shot put only 45 feet. When these discrepancies are discovered, the first two examples should go into the weight room and begin a strength-training cycle that includes medicine ball assignments that incorporate the new strength as it develops. The bench presser, on the other hand, should curtail his strength training immediately and begin incorporating ("practicing") multi-joint high-velocity medicine ball assignments to learn to apply his strength functionally. The weight of the ball needs to be heavy enough to visibly slow the intended motion but not so heavy that it distorts it or diminishes the prescribed volume of repetition.

## The super wheel

We have developed a movement complex called the five-stroke super wheel that illustrates quite clearly the relationship between weight, velocity, and volume of work. The super wheel is a series of high-velocity core and shoulder girdle movements, where the movement changes every five strokes. (See [super wheel video](#).) This medley of movements is designed to work the anterior trunk and shoulder girdle at all angles at high velocity and with quick transition time between movements. The weight used in the video is an 8-pound Dynamax ball, although a 4- or 6-pound ball is ideal. A larger, stronger trainee will move the ball at a higher velocity, reaping the same benefits, through the velocity/weight overload mechanism, as a weaker trainee moving it at a lower velocity. A heavy ball—say, 16 to 20 pounds—would diminish both velocity and volume and distort the intended motions. The super wheel can be done in 3, 5, or 8 strokes, depending on the dosage the trainee can handle without distorting.



## Go Light

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### Distortion

When I refer to distortion, I mean degradation in the structure, rhythm, direction, and intensity—the *kinematics*—of portions or the whole of a movement or repetitive cycles of movement. To a large extent, *kinematics* is as individual as fingerprints, but there are fundamental parameters of effective movement that we look for. Even when weight is added to a cycle of repeated movements, the last repetition should look substantially the same as the first.

### Summary

With any assignment utilizing the medicine ball as weight and joint and stroke velocity as the mechanism of overload, the weight selected should be light enough so that the assigned volume can be completed at the highest stroke velocity without substantially altering the kinematics of the assigned motion. If you err on the side of light weight, velocity increase will ensure that you benefit from both the practice and training effects. If you err on the side of heavy weight and then fail in velocity, volume, and/or integrity of the movement, you are left with only a strength-training set. Train smart, and choose the right weight—not just the most “impressive” one—for the physical skills you need to develop.



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⇒ cofounder of *Dynamax Inc.*, the maker of CrossFit's favorite medicine balls.

# Fit to Eat

## Autumn Dinner

Benjamin Sims

### AUTUMN DINNER

Spicy Albacore Polpettes with Tomato Sauce, Olives, and Capers

Arugula Salad

**Four 4-block servings**

Although the change in season is only starting to show small signs of happening where I live, the world of food is starting to change rapidly. Late summer crops that have been soaking up the sun in the past few months are producing faster than we

can keep up. The most noteworthy is the tomato. Only two weeks ago, tomatoes were two dollars a pound; now, farmers are literally knocking on the back door of the restaurant with over a hundred pounds a day for dirt cheap prices for the best, most flavorful tomatoes of the year. Time for tomato sauce! The season for one of the best local fish, albacore tuna, is also beginning right now. So, here is a surefire recipe from the south of Italy via northern California that combines those two ingredients. I made this dish for the first time eight years ago at Chez Panisse in Berkeley, and I bring it back every autumn to the delight of my friends and, now, my customers at Avanti in Santa Cruz.



### Spicy Albacore Polpettes with Tomato Sauce, Olives, & Capers

1 lb. fresh albacore  
1 medium onion, diced small  
1 tsp. fresh jalapeño, diced fine  
1 Tbsp. chopped fresh oregano  
1 Tbsp. olive oil  
2 Tbsp. toasted pine nuts, chopped  
2 Tbsp. currants  
1/2 cup fresh breadcrumbs  
1/4 cup milk  
Salt and black pepper  
Flour for coating  
Olive oil for frying

Boil one cup of water and add currants to soften for about 10 minutes; then drain and cool. Soak the breadcrumbs in the milk; stir every few minutes so the bread soaks up all the milk. Over medium heat, sauté the onions, jalapeño, and oregano in the olive oil until soft but not browned; season with salt and pepper. Once cooked, put the onion mixture into a large mixing bowl and chill. Dice the Albacore as finely as you can. This is easiest when it's cold: first slice it thinly, cut the slices into strips, and then mince (dice into the smallest pieces you can make). By the time you are done cutting the fish, the onions and

## Autumn Dinner

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### Spicy Albacore Polpette with Tomato Sauce, Olives, and Capers ... continued

currants should be cool enough to mix together. Put the albacore and chopped pine nuts in the mixing bowl with the onion mixture, season again with salt and pepper, and mix. Add the breadcrumbs and mix vigorously to form a sort of emulsified dough. This can all be done in advance and put in the refrigerator.

When you are ready to eat, heat about half an inch of oil in a sauté pan over medium heat. Form the albacore mixture into balls, about as big around as a silver dollar, or a little bit more than one ounce each. You should have 16 balls (polpettes). Roll the polpettes in a little bit of flour to coat them evenly and then drop them into the hot oil. You want a nice golden color, so make sure the oil does not get too hot. Roll the polpettes around to brown all sides, about 4 minutes. Remove them from the oil using tongs or a slotted spoon and place on a paper towel to absorb excess oil.

Serve hot on a plate of tomato sauce.

### Roasted Tomato Sauce

*There is no sense in making a small batch of tomato sauce, as it takes hours and freezes well; I roast a 20-pound case of tomatoes at a time at the restaurant and about half that at home.*

10 lbs. ripe or, even better, overripe tomatoes (I like the "Early Girl" variety)  
4 sliced red onions  
2 bulbs sliced fennel  
1 bunch basil  
1 bay leaf  
1 Tbsp. crushed red pepper  
Handful of salt  
1 cup olive oil  
2 cups white wine  
2 Tbsp. capers  
2 Tbsp. pitted olives, torn into quarters  
1 Tbsp. chopped parsley

Preheat oven to 350 degrees. Core the tomatoes and cut in half, put them in a roasting pan, season with salt, add bay leaf and basil, stem and all. Scatter with sliced onions and fennel, add crushed red pepper, season again with salt, drizzle with olive

oil, and put in oven. Check every half hour and shake the pan to settle the juices. After two hours or so, the onions and fennel should be nice and caramelized; at that point, stir the pan and add the wine. Continue roasting for another hour to concentrate the flavors a bit. Once I feel satisfied with the sweet roasted flavor of the tomato and caramelization of the vegetables, I take them out of the oven. My favorite way to puree the sauce is in a food mill, but a blender or electric food processor is fine. Then pass the sauce through a fine strainer to remove all the seeds and skins, pressing all the juices through using the bottom of a ladle. Discard the skins and seeds, taste for seasoning, and your sauce is ready. Refrigerate or freeze what you want to save for later.

For the polpettes, heat about a cup and a half of the tomato sauce and add the capers and olives. Divide the hot tomato sauce onto four plates, put four polpettes on each plate, sprinkle with chopped parsley, and serve hot.

### Arugula Salad

1 lb. arugula, washed and dried  
2 Tbsp. extra virgin olive oil  
Salt and pepper

In Italy, this type of very simple preparation is typical for a side salad. It cleanses the palate, and the slight bitterness of the arugula contrasts nicely with the sweetness of the tomato and the richness of the albacore. Right before eating, simply toss the arugula with the olive oil, sprinkle with salt and pepper, and serve in the center of the table. In place of bread you can use forkfuls of greens to mop up the tomato sauce from your plate.



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# Bike Control Basics

## Part 1: Static Skills

— Scott Hagnas —



My riding background is primarily in BMX, though I have competed in trials riding and done some mountain biking as well. My specialty has always been BMX flatland or ground riding. It is possibly the least functional of all the riding disciplines, but it does allow you to develop a very high level of balance and bike control. Here is a video of a recent session, to give you an idea of what flatland riding looks like.

forward as needed by giving a quick forward pump with the pedals and then quickly backpedaling to the pedals-level position.

Practice this up inclines, on flat ground, and in tight circles in both directions.

### Trackstands



The first several parts of this series on functional bike maneuvers will be directed toward anyone looking to improve their technical riding and will not be discipline-specific. Later installments will present strategies for improving riding performance for those already skilled on a bicycle.

In this series we will be looking at functional skills drawn from primarily from mountain biking, bicycle trials, and BMX freestyle. For our purposes, we'll consider only the skills that help you navigate your environment smoothly and efficiently or that allow you to ride terrain that you otherwise couldn't. Hopping over a log or jumping down a set of stairs would be considered functional; doing a 360-degree spin in the process wouldn't. (This doesn't discount the value of learning skills such as a 360, as pushing your level of technical skill development will only improve your overall ability as a cyclist. However, the 360 is not needed to clear the stairs, so it would be outside the scope of these articles.) Since this series won't be riding-style specific, we'll be looking at functional skills that can be done on almost any kind of bike. Moves that require BMX bikes with axle pegs or trials bikes with bashguards won't be considered here. Basically, we will be borrowing the useful skills from across a range of biking styles.

### Flatland Riding

[Online Video Link](#)

In this first installment, we will look at some of the static and slow-speed skills from trials riding. Future installments will progress to faster and more dynamic skills.

Be sure to check out the accompanying video clips, as the movements in these skills are so subtle that still photos do not do them justice.

### Rolling ratchet

#### Rolling Ratchet

[Online Video Link](#)

The rolling ratchet helps develop balance and control that will be useful in the static skills to come. What you do is simply ride forward very slowly, pumping the pedals in a back-and-forth ratcheting motion.

Ride slowly forward up a slight incline. Keep your pedals level, with your power pedal forward. If you are not sure which is your power pedal, it should be the same foot as your front foot when doing a split jerk. Now, try to ride as slowly as you can, barely creeping forward. Propel yourself

### Trackstands

[Online Video Link](#)

In a classic trackstand, you balance in place by just barely rolling the bike forward and backward while the front wheel is turned to the side. This skill is very useful for several reasons. For one, mastering it will improve your moving bike control. It can also be useful to pause in a trackstand to check out a line before you commit to it, or, for riders who use clip-in pedals, a way to balance at a stoplight without de-clipping. Of all the stationary skills, this is the most energy-efficient method of balancing.

Start by riding slowly up a slight incline, with your pedals level and your power pedal forward. You should be standing, with your weight over the front wheel. As you come to a stop, turn your front wheel approximately 45 degrees away from your front foot. This makes for a better biomechanical position and eliminates torque in the lower back. Now, you will try to balance in place. If you turned your front wheel to the left, and you start to lose your balance to the left, use a slight ratchet to move slightly forward. This should move the bike back underneath your center of mass. If you lose your balance to the right side, let the bike

## Bike Control Basics

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backpedal slightly down the incline to bring it back underneath. Reverse these directions if you turn your wheel to the right. As you get better at trackstands, you'll need less back and forth movement to stay balanced. Try to stay as relaxed as possible.

Once you master the uphill version, try the trackstand on flat ground. The forward ratchet motion is the same here, but you won't have the benefit of the hill to roll the bike back underneath you when you need to correct to the opposite side. There are two ways to handle this. For the simpler version, briefly lock your brakes as you create a bit of momentum by moving your shoulders and hips backward. Let off the brakes, and this momentum will roll the bike backward. Stop the backward roll with forward pressure on the front pedal when you are balanced again. Once you have the feel for this, you can do the more difficult but much smoother version by not using your brakes. Everything is the same, but without brakes you must shift your weight very smoothly.

Some more advanced trackstand variations you can work on include doing a trackstand with both brakes locked and balancing only with body English, or doing trackstands down an incline, on narrow objects, or with one or both hands off of the bars.

### Hopping trackstands

The hopping trackstand is a very useful skill in trials riding, and one that will get



Hopping Trackstands  
Online Video Link

you over some terrain that would be impossible to roll through. With it, you keep your balance by hopping in place instead of rolling back and forth.

Start this one on flat ground. Roll forward slowly, pedals level, power pedal forward. Lock your brakes as you come to a stop, and then hop the bike off of the ground. Do this by compressing evenly, bending both your arms and legs, then springing up and pulling the whole bike up with you. Stay light and buoyant, exhaling slightly on the effort phase of each hop. As you pull up on the bike, use a slight forward twist on the grips to make the pedals stick to your feet. To stay balanced, hop to whichever side you are falling to. Try to make your hops only as big as needed, and try for a minimum of hops to conserve energy.

Once you can stay in place, try to travel in all directions. Then, move into rougher ground. Try hopping up hills or stairs. You will soon notice that hopping up hills can have a crushing metabolic effect. Slip this into a WOD and enjoy!

### Rocking trackstands



For a rocking trackstand, you rock back and forth from the front wheel to the back to keep your balance. This is more energy-efficient than hopping, and when mastered can be taken to uneven terrain.

Set up the same as for hopping trackstands. As you come to where you want to balance, apply your front brake and immediately shift your weight forward. Visualize that you are trying to make your feet light on the pedals. Push the bars straight forward. This should endo you up onto your front wheel just a few inches. When your back wheel comes down, have your back brake locked and shift your hips back while pulling the front wheel up. Repeat this movement, rocking back and forth. As you do, swing your elevated wheel toward whichever direction you are leaning.

Once you get this mastered, learn to rock higher, and then try pivoting 90 degrees or so each time you rock. Work both directions. Learn to rock traveling to either side, then finally up hills or stairs.

Rocking Trackstands  
Online Video Link



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# Personal Equipment

## The Good, the Bad, and the Silly

— Mark Rippetoe —

There is actually very little personal equipment that is absolutely necessary to take to the gym. But it is surprising how much stuff some people carry with them. As a general rule, some equipment is useful, some equipment is most definitely not useful—and in fact is a bad idea—and some is just absurd.

In order of most useful to most silly in the gym bag we have squat shoes, chalk, a lifting belt, lifting straps, knee wraps or knee sleeves, wrist wraps, elbow wraps or sleeves, gloves, devices such as a “Manta Ray” or a “Sting Ray” that hold the bar for you, and anything you intend to use to shave anything but your face.

I had a member named Lonnie a while back. Nice guy, lovely wife (whom he met there in the gym), and strong under the bar, but with a few annoying habits. One day I walked out of the office and saw him doing incline leg raises on the incline sit-up board, holding on to the bar behind his head with his hands *strapped* to the bar. I, of course, approached him to question this behavior. He said that he was using straps so he could concentrate on his abs better, which is, of course, very important in an ab exercise. I made fun of him for several weeks while he was there to train, putting a strap on when I turned a doorknob, strapping on to the bar for a bench press, coming out of the bathroom with one strap on my right hand, sweaty and breathing hard, going out to the truck and strapping on to my steering wheel, until I got tired of it. Lonnie never seemed to think it was as funny as I did, but he quit using straps for things that don't require straps.

Straps are a good example of equipment you need for some things but shouldn't use for others. Straps are good for heavy shrugs, the kind that are done in the rack with a hundred pounds more than your max deadlift; very heavy shrugs are not possible without straps. They are good for



Types of weightlifting shoes, all with non-compressible heels.

deadlift assistance stuff, like rack pulls from below the knees to lockout that can be done with weights too heavy to hold for a set of five. They are not good for your max deadlift, because at some point you actually have to make your grip strong enough to do one. And there is absolutely no excuse for doing your pull-ups with straps. If your grip strength is the limiting factor in your pull-ups, your deadlifts will fix that soon enough. If you see anybody strap onto a dumbbell for any reason, you know you are watching a person who thinks in terms of muscle groups and does not think about performance.

Performance-based training depends on all the components of the systems involved

to carry their share of the load. The best way to train all these systems is in the context of the tasks they are expected to perform. One of the worst ways to train them—possibly worse than not training them at all—is to separate them out and train them individually. There is more involved in performance than the strengths of the individual components of a movement. The effective, efficient integration of these components—*a.k.a. skill*—is the most important aspect of their cumulative action, more important even than strength, because skilled people are better at sports than people who are merely strong. Almost invariably, the unnecessary use of equipment interferes with the development of this integration of systems because of the imbalance in strength it causes, which in turn directly interferes with the expression of skill.

Straps illustrate this concept well. The terminal end of the kinetic chain in most sports is the hand. No sport that I am aware of allows the use of straps, and they would actively interfere with many. Straps replace grasping strength. If this function is prevented from being developed while doing the movement in which it is used, well, you can see the problem.

A heavy shrug in the power rack is a useful exercise for a powerlifter working on the finish of the deadlift. In this case, the straps aid in an assistance exercise that is not possible to do without them. Straps might be useful in the case of a hand injury, a cut or a finger injury that renders a necessary exercise undoable otherwise. Olympic lifters like to use straps at times, especially for snatches, which tend to destroy hand skin when done several times a week. Any assistance movement that *can* be done without them should be, and certainly any core exercise like deadlifts should be done, at least most of the time, without an aid that would leave an important component undeveloped.

Since it's been mentioned, competitive

## Personal Equipment

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powerlifting uses a lot of equipment. My comments here are not directed at that, but rather at the adoption of an equipment dependency by people not going to a three-lift meet where equipment—for better or worse—is a part of the sport. Since non-competitors don't usually invest in a \$300 bench shirt, we'll assume you haven't. Squat shoes are the single most useful piece of personal equipment you can own, and the only one that is really, honestly necessary. It only takes one set of five in a pair of squat shoes to demonstrate this convincingly to anybody who has done more than one squat workout. Squat shoes form a stable position from which to drive, because they are built on a non-compressible wedge of wood or leather, and in my opinion are absolutely essential for all squats and all pulls from the floor, as well as presses. Running shoes are designed to squish, so as to absorb the shock of impact during thousands of repeated bodyweight footfalls, and wearing them to squat is nearly equivalent to squatting on your bed. Cross-trainers are very little better, and those horrible "shocks" things are the very worst in existence. Training barefoot is preferable to these kinds of shoes, and barefoot is not good.

Any shoe with a compressible heel will not be a stable platform for any barbell movement with a ground-reaction component, since the first part of the force applied to the ground is absorbed in the shoe. What's worse, they absorb an unpredictable amount of the force in an unpredictable direction each time, depending on your exact position over the center of gravity of the system, making you pay a dear price for very tiny differences in form each rep. Squats are hard enough anyway without making each rep a completely different experience because of your shoes.

Hell, dress shoes are better than running shoes, and many records have been set in work boots. The problem with boots is that the tops restrict ankle movement, and while that's not a huge factor in the squat, a pair of low-quarter squat shoes allows you to squat *and* do all the Olympic lifts that require more ankle mobility. Most squat shoes have metatarsal straps to

increase lateral stability and suck the foot back into the shoe to reduce intra-shoe movement.

The only problem with squat shoes is that they are never available at the shoe store in the mall and can be obtained only from weightlifting equipment suppliers. But they are not that expensive, especially when compared to new name-brand basketball shoes, they last for years if you don't act like a dork and wear them anytime other than when you're training, and they make the most important lifts in your program safer and more efficient. Get some.

Chalk should be provided by your gym. It makes your grip more positive and less likely to slide on the bar, and therefore safer and more efficient. It reduces callus formation, making it easier to manage your calluses so that they don't tear. If your gym doesn't provide it, ask them why. If they don't allow you to bring it, training is not their priority and maybe you should be somewhere else. I don't train without my shoes or chalk. Really.

Now the controversy begins. A belt is one of those things that some people say is always a crutch, a bad unnecessary thing that keeps your abs from getting strong. Does its use prevent something from strengthening? I don't see how, and I personally am one of those old guys who is still able to squat and pull because the belt allows me to stabilize my torso enough to do so, despite numerous back injuries. If I don't belt, I can't squat more than about 185. So, you want me to quit training because I'm old and beat up?

Look at it this way: a belt stabilizes the spine by adding to the intra-abdominal pressure provided by the abs, so a belt is like extra abs. Extra abs allow more weight to be squatted and pulled, thus placing extra stress on the prime movers and on the spine, and thus requiring that more work be done by all of those systems. If they all do more work because of the heavier weight, they all get stronger, even under the belt. It is always smart to do as many warmups as possible without the belt, but if you are squatting heavy and are going to use a belt, put it on for the last warmup as well as the work sets, because it changes the movement pattern a little.

And if you can squat heavy without one do it, but be aware that you can always squat more with a belt, and there may come a time when this is important. If you need a belt, wear one; if you want a belt, use it when appropriate and be aware of how it works.

An oft-overlooked function of the belt is the proprioceptive feedback it provides, telling the body about tightness and position because of its pattern of contact with the skin. Even when worn loosely it performs this function. Knee wraps function the same way when worn loosely. Wraps are commonly found in many gym bags. Both knee and wrist wraps may have a place in that bag, depending on how and when they're used. Knee wraps are most usually three inches wide and six feet long, and the kind made for powerlifting are very thick and strongly elastic. These are designed specifically to resist knee flexion, and are thus aids to extension (a squat suit works the same way, by resisting hip flexion). But they have other uses, as in my situation where I have no ACL in my right knee and have had some work done on my left patellar tendon. I use them below the patella, loosely wrapped to keep things a little tighter, and provide some feedback about position. They are on loosely enough that I can leave them on the whole workout with no discomfort or venous occlusion (nothing south of the wrap changes color). Used in this way, they add support and a feeling of tightness that actually helps with position, but no assistance with the weight itself. In fact, they are quite helpful to me in managing my patellar tendinitis since the wrap absorbs some of the stress and keeps things warm, and I'd recommend them to other old guys if you've had as much knee trouble as I have but still want to train relatively hard.

Knee sleeves are stretchy little rubberized cloth jobs that work like loose wraps. But man, you'd better keep them washed between workouts if you're prone to skin problems. It took me exactly 45 minutes to develop a rash under them one day, a cute little situation that lasted about a week.

The wrong way to use wraps would be to put them on tight enough that they need



## Personal Equipment

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loosening between sets. This level of support is quite different from the loose way. My loose wraps allow me to squat without further injury; tight wraps allow a lifter to squat more weight. They add greatly to the rebound out of the bottom normally provided by the hamstring/adductor stretch reflex. This is different from the function of a belt, in that a belt makes no direct contribution to actually getting the weight back up. If you are not going to a power meet, you are fooling yourself about how much you squat if you use wraps this way. Fooling oneself, of course, is not good.

Wrist wraps are useful too, since wrists are commonly injured joints. A wrist injury really screws up a clean or a snatch, and can hurt on a squat if the bar is held incorrectly. In these situations, a wrist wrap is necessary and good. But as a fashion accessory, not so much. An uninjured wrist does not need supporting. I don't know that they keep anything from getting strong, but there is just something offensive about wearing unnecessary gear that is designed for use by somebody that is not you. If you're not an injured Olympic lifter, or you derive no benefit from wearing a wrist wrap, leave it in the bag until you are or do.

Elbow wraps are a little less commonly seen, since no powerlifting federation allows them for the bench press, but the same thing holds true for them as for knee and wrist wraps: good if used appropriately, bad if relied on for pounds on the bar, silly if worn because you think they look cool. One of the problems with elbow wraps is that when the elbow is in full flexion, the bulk of the wrap between the bicep and the forearm tends to "jack" the joint apart and produce a shearing force on the ligaments. This is uncomfortable in the bench press, press, back squat, front squat, and when racking a clean, and most people try them a couple of times and quit using them for this reason, even though they can be helpful on rather rare occasions when no acute elbow flexion is to be done.

Gloves are used by serious lifters only in the event of a skin injury to the palm of the hand that a glove would allow to be

trained around. Under no other circumstances do I want to see a glove on anybody, not even a maxillofacial surgeon or a church organist. Not even a lawyer. Gloves add a layer of unstable material between the bar and the hand, destabilize the grip, prevent necessary callus formation, and actually make gripping harder due to the effective increase in diameter of the bar being held. Fat bars are used for this reason to work the grip, but gloves are not. Gloves are annoying. Inexperienced, non-serious people think they are supposed to wear them because they see them in the fitness magazines. Cindy Crawford wears them. Richard Simmons wears them. I'm sorry, I just can't talk about this anymore.

And those "Ray" devices that hold the bar on your back or your shoulders for you, well I can't stand to talk about them either. Except to say that anyone who uses them should be beaten with a hammer, in the parking lot.

Look, get some squat shoes and use them. Get some chalk if your gym doesn't have it, or get another gym. Get a belt; use it when you need to. Get some wraps if you need them, but not if you don't. And if you just *have* to shave anything but your face, do it at home, okay? Unless you're Cindy Crawford.

**Mark Rippetoe** is the owner of [Wichita Falls Athletic Club](#) and [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 book [Starting Strength: A Simple and Practical Guide for Coaching Beginners](#) and the forthcoming *Practical Programming for Strength Training*.

## Three Variations of Dumbbell Lunges

Michael Rutherford

In last month's dumbbell article, we explored the effects of different loading positions for the bilateral squat. As I mentioned there, squats are a must for anyone seeking functional fitness. While squats are a heavily practiced movement for my clients, we also incorporate unilateral and contralateral single-leg support movements in the form of variation on the weighted lunge. This set of exercises serves a couple purposes.

First, it is rare that an athlete comes to me with a perfect balance of bilateral strength. Lunges address that difference with a functional, gait-oriented movement. Second, the lunge involves the kind of single-leg support, bilateral transfer of force, and trunk stabilization that are required for most sport, so it has broad carryover.

In coaching a naked lunge I ask the athlete to step as far forward as possible while maintaining an erect torso. The knees, toes, and eyes track forward at all times. Next I ask them to sink the hips. Many will have tight hips and the trailing leg will be perpendicular to the deck. I now start to work the hips lower and move the trailing leg back farther. It is okay to have them touch the trailing knee on the deck. This assists in getting the hips down but making them work that leg back. I coach to have the leading leg with the knee above the ankle and the weight distributed primarily in the heel. This seems to assist in having them sink the hips more than lunge forward.

For my money, the typical forward and backward lunges are terrific, but I also want to incorporate other variables to challenge my athletes in as many ways as possible.

## Three Variations of Dumbbell Lunges

...continued from page 9



**Front Hammer Lunge**

[Online Video Link](#)



**Side Hammer Lunge**

[Online Video Link](#)



**Overhead Hammer Lunge**

[Online Video Link](#)

The first set of variations draws on one of the principles I discussed here last month: varying the position of the weight to alter the stimulus and adaptation. The three basic carry positions for the dumbbell(s) are low, middle (rack), and overhead.

Following mastery of the lunge without loading, I move to the low carry position. The low carry is easy to visualize: simply perform a lunge while holding the dumbbells at your sides, arms hanging straight from the shoulders. Once a trainee has that down, you can then integrate single-dumbbell lunges to vary the loading pattern. This usually gets trainees' attention.

The asymmetrical environment of single-dumbbell loading is without question one of the biggest advantages of using dumbbells, and it is my coaching preference.

Keeping the single-dumbbell theme, I move them next to the front hammer lunge. In my opinion, this is an underused movement in most fitness training. The dumbbell is anterior to the midline, creating additional loading on the shoulder girdle and core. Please note that it does not take much more than a 5- or 10-pound dumbbell if

you are insisting on full shoulder extension and letter-perfect lunges (which you are, of course).

Next we explore the side hammer lunge. Like the front hammer lunge, this movement adds focused shoulder work to the full-body work provided by the basic lunge and alters the loading on the midline and other stabilizers. I am especially fond of using this for athletes with balance issues or those whose sport performance requires especially good balance. I've been known to have golfers who set up on varied terrain do side hammer lunges on a slope. This creates a real balance test. (Initially the trainee faces upslope. Once they demonstrate solid performance at that, they can move to decline lunges. This is much more challenging and is usually the point in the program where technique is compromised if you are not careful. Eventually we move on side inclines.)

Finally, and possibly the lunge I prescribe most, is the overhead hammer lunge. I see this movement in college training programs everywhere. I like the overhead carry position for the shoulder girdle loading and the core integration it requires, and for its training carryover to the

overhead squat, the jerk, and other overhead movements. I coach the athlete to really lock out the arm, pressing up through the palm with an active shoulder.

If you are looking for a complete, leg-focused movement to improve your strength, balance, and agility, incorporate these unilateral and contralateral movements into your program. You will no doubt find yourself with more balanced athletic power. ◇

**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. Coach 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. He is also the current national Masters Champion in weightlifting at 94 kg.

You can learn more dumbbell moves from his recent DVD [Dumbbell Moves, Vol. I](#)



# Parkour Basics

## Part 6: Underbar and Gate Vault

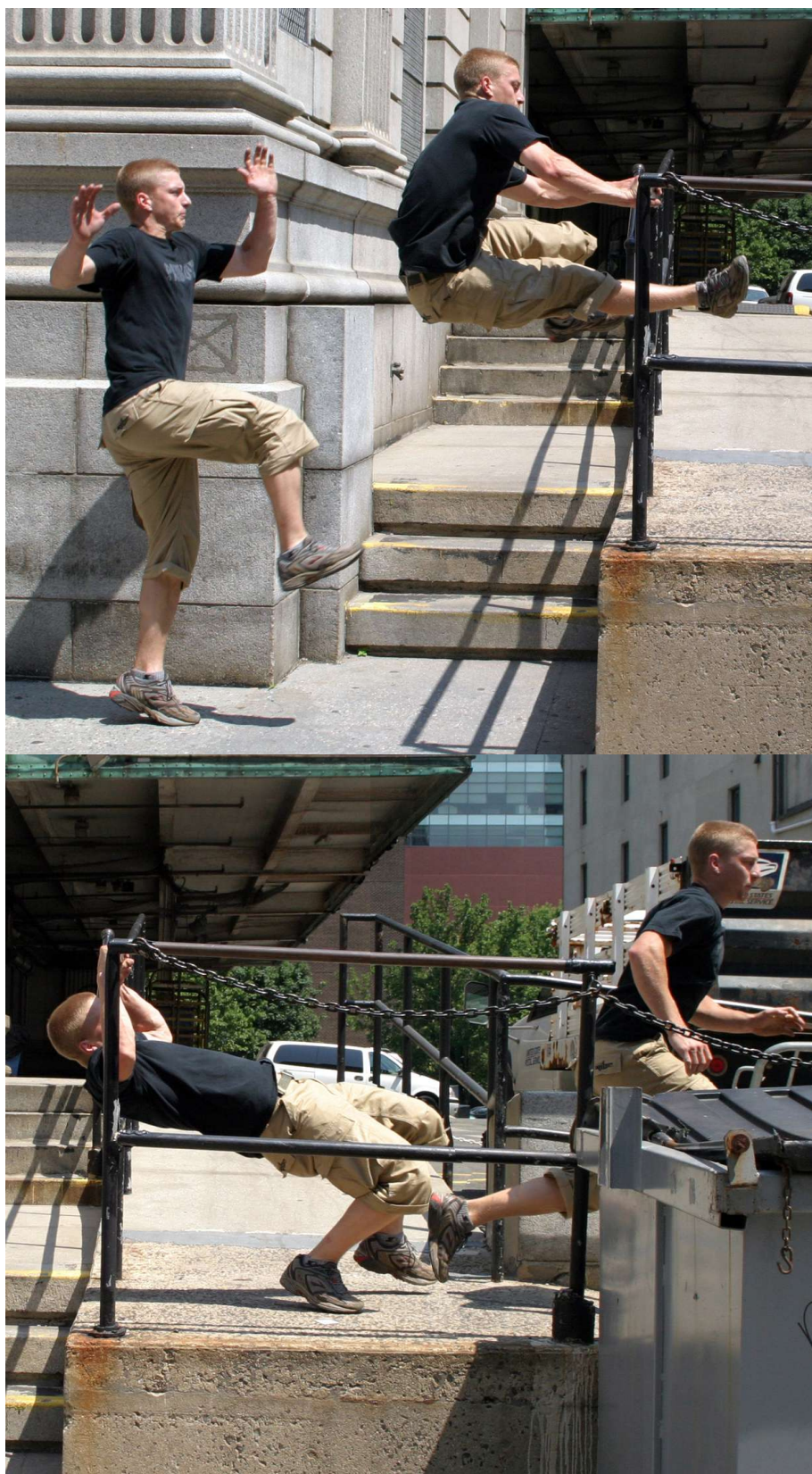
— Jesse Woody —

With these last two moves, my series of articles on parkour basics is in its final stretch. From this point out, I will focus on showing some manageable progressions for scaling these movements for the general population and showing how to incorporate many of these principles in your everyday training. While I've tried to group the previous movements into some semblance of order by similarity, these last two features are the leftovers, differing from each other in all but the fact that they are performed by the same human body. That being said, they can be two of the most fun and useful movements that you can learn. So without further ado, I present to you the underbar and gate vault.

### Underbar

The underbar is quite simply an extension of a simple swing. Where this movement differs from the general swing that you might perform on a high bar is the fact that you will use your core strength and the speed of your approach to focus this swinging movement horizontally through a restricted area. This can be useful in situations such as quickly navigating the space between two railings or when you take to moving through the trees, monkey style.

For training purposes, you'll want to choose a round metal railing that is high enough to afford you a decent jump into the technique while not being too tall for comfort. Once you've chosen your object for training, approach it at a steady run with even strides. Once you get within 3 to 5 feet of the obstacle, jump and begin to tuck your knees up toward your chest. At the same time, lean backward slightly, putting your torso at an angle and allowing your feet to travel in front of your body. As you reach the gap you wish to swing through, extend your legs through the space, allowing your legs to travel through in a horizontal trajectory. The point at which you grab the railing can vary a bit, but it's easiest to think of it happening around the time your hips pass the plane of the object. As you grab the bar or



## Parkour Basics

*...continued from page 11*

branch, pull your shoulder blades together and apply tension to keep your arms from straightening out as your hips begin to unpike. At the same time, forcefully extend your hips, which will work against the eccentric tension of your arms to create an arcing trajectory for your legs and allow you to swing up and out away from the object. Once your hips and lower back have cleared the bottom rail, you will allow your arms to straighten out and let your swing carry you the rest of the way through the object to land on the other side in a crouch or roll.

Besides the obvious benefits of increased upper-body strength and the ability to escape where very few bad guys could ever think to follow, this movement develops a useful amount of confidence. If you can approach the obstacle with a powerful stride and commit to a jump that will put your feet in front of your torso, you will be amazed at the obstacles you can make your way through. If, on the other hand, you allow your mind to override what your body is capable of, you will be wishing that your shins hadn't been the first thing to contact that railing. In this instance, the difference between absolute commitment and that twinge of hesitation is obvious, and a more objective measure of ability in parkour cannot be found. If you find yourself on the other side of a small gap between railings, landing smoothly and continuing on your way, then you've grasped the technique for that obstacle. Otherwise, you are banging your knees, head, butt, or all of the above on your way through, only to wish that you'd stuck with the original game plan of absolute confidence.

⇒ But there is a better way! When American Parkour created our [website](#), we put a Colorado traceur who goes by the Internet pseudonym "Demon" in charge of writing a monthly training tip. We knew that this kid had skill in action, but developing innovative training ideas is another thing entirely, so we weren't quite sure what to expect. Luckily, his first installment was a perfect blend of sound advice and "why didn't I think of that" logic. The method he created for training underbars he called "Underduct," and it utilizes two common objects in the modern American landscape:

unused playground pull-up bars and duct tape. Once you find a suitable group of pull-up bars (monkey bars work well too) you will attach a piece of duct-tape from one upright to the other, as a kinder, gentler substitute for the lower bar in an ordinary railing, at a height that allows you to train whichever width underbar might be troubling you without any risk of impact if you come up short.

As scary as the build-up to a good underbar can be, it's a very fun movement with a good bit of functional carryover to other sports and movements. It requires considerable strength and power both in your upper body during the catch and in your core and hips for retaining position while horizontally extending the hip to maximize distance in the follow-through of the swing. There are also many of variations on the technique that will keep you excited about the possibilities of movement for years. Just keep your eyes open for the potential underbars in various random obstacles, from tree branches to railings to car windows.

### Gate vault

The gate vault is part of the parkour repertoire almost entirely because of its use on tallish chainlink fences, which can be difficult to overcome quickly in any other manner. The strength of this technique is that it doesn't necessarily rely on the purchase of your feet on the vertical face of the object; rather, you use the placement and powerful extension of your hips to propel you over the obstacle and safely to the other side.

The best object to start training the gate vault on is a railing around waist high, where the ground is level on both sides. Stand facing the railing with your hands on top, then bend at the waist, retaining your grip on the top of the railing with one hand while planting the other on the ground at the base. Determining which hand is which is as easy as performing a couple of cartwheels; the hand you feel most comfortable leading with in the cartwheel will most likely be the hand you reach below and plant with. Once you plant your lower hand, you can proceed

in one of two ways. The first option is to extend your hips forcefully, raising your legs overhead, and as you do so, begin to rotate around the planted hand to face the obstacle on the way down. This prevents the movement from becoming a weird front handspring at height, which always seems extremely sketchy to me, as it puts you in quite a disadvantaged position. That said, quite a few people make good use of this front handspring movement, where you extend your hips but avoid the rotation, thus landing facing forward after the movement. Training both techniques can increase your special awareness, which is always worthwhile. Once you find the variation that works best for you, stick to it and drill it to perfection.

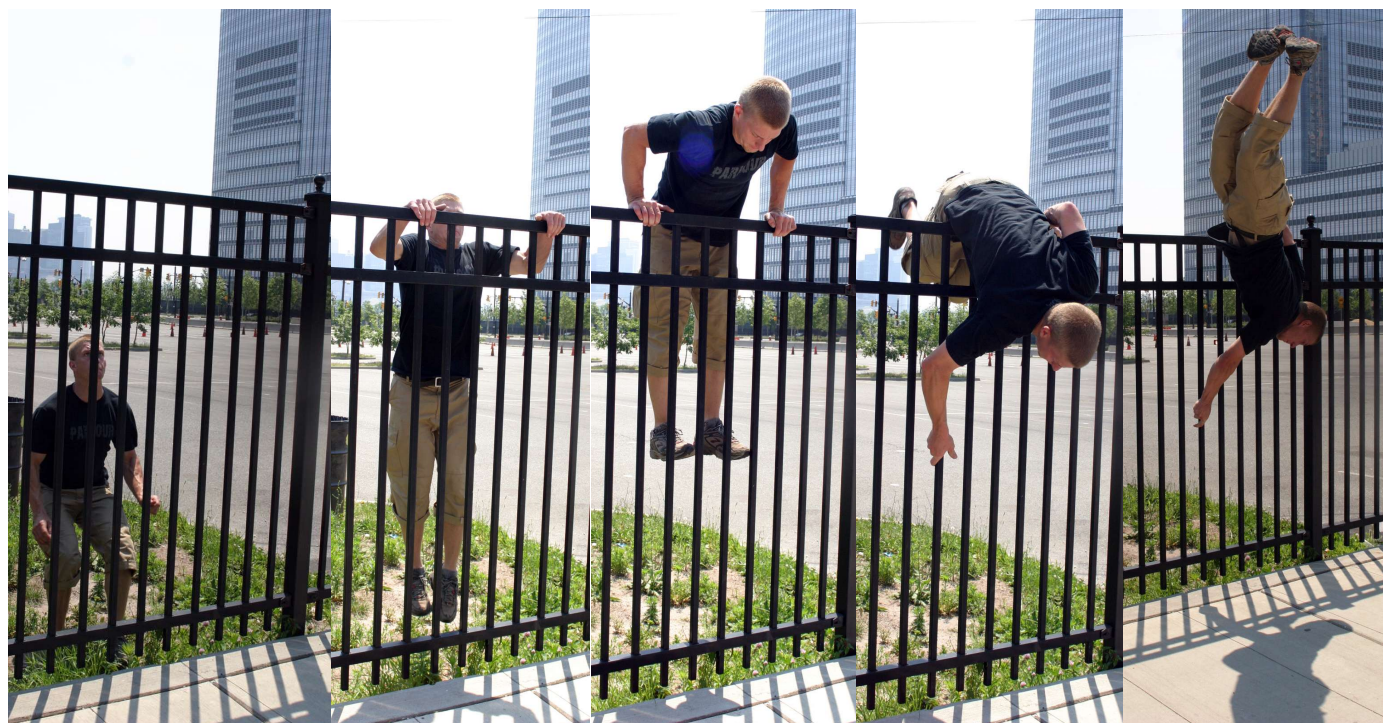
Once you get comfortable performing the movement on level ground, you can begin to look for obstacles with the railing still at waist height but a small drop on the opposite side. This will allow you to gradually dial in the technique so you can control the rotation appropriately to land securely on your feet. Once this becomes second nature, it's time to move to the intended obstacle for this movement, which would be a taller object with slightly unstable vertical surfaces that reduce the efficacy of a wall run (discussed in an earlier article [issue 48]).

To work up to that, find an appropriate object around head height. The top surface should be narrow and without any protruding edges that will injure your hips when you fold over the top. To begin, stand an appropriate distance from the object and grab the top with your hands. Bend at the knees and hips, and then jump while pulling down and toward your hips. Once the top of the object reaches hip level, you will bend at the waist, retaining your grip on the top of the obstacle with one hand while reaching down, below head level for purchase with the other hand, on the opposite side. On a chain-link fence, this lower hand will grab into the links, whereas other obstacles might take some practice to find a secure purchase. Once your hands are in their appropriate positions you will extend at the hips, straightening your legs up over the object while pivoting on the lower hand. Once you reach vertical, you will begin to rotate

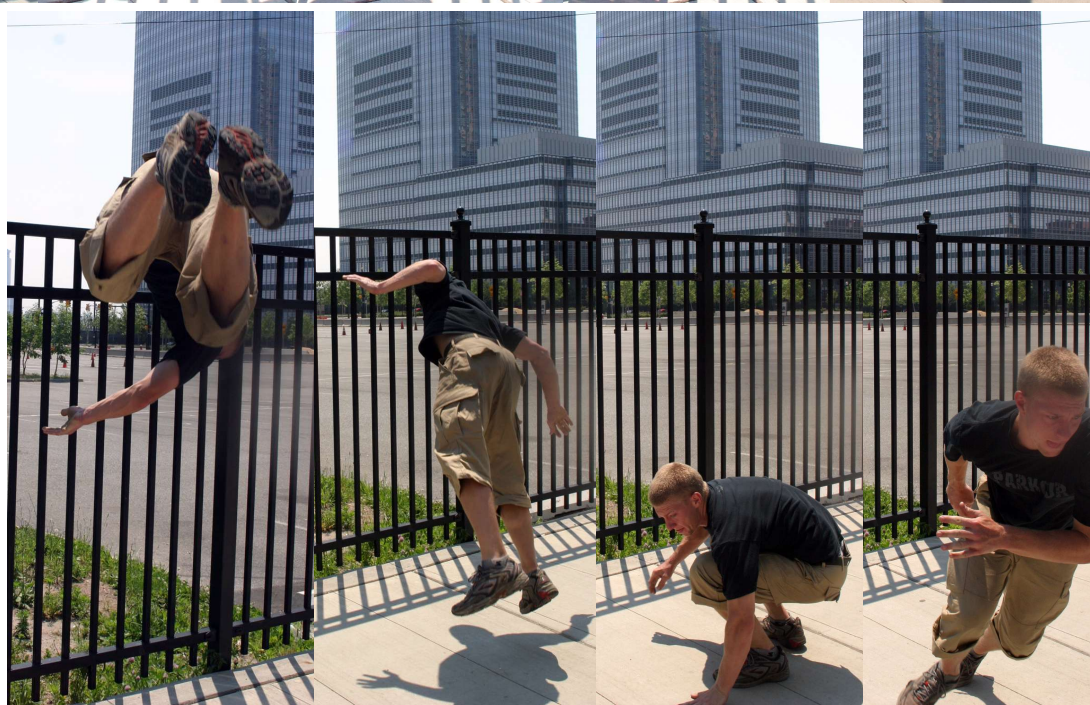


## Parkour Basics

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at the hips and let go of your top handhold. Spot your landing, extend your legs toward the ground while retaining your grip with the remaining hand, and then absorb the landing impact and continue on your way. With these last two basics in your repertoire, you will have a good foundation for efficient, functional movement through your environment. As I mentioned in my first CFJ article (issue 43), the articles in this series on basic parkour moves is not an exhaustive list but rather a group of foundational techniques on which to build your own set of most useful favorite movements. With that in mind, now go train to build that foundation. Good luck, be safe, and have fun!



**Jesse Woody**, age 26, father of two, has about eight years experience in fitness and nutrition (though a lot of that was time wasted on bodybuilding). He works in various capacities for the Woodberry Forest School in Virginia, including working with the outdoor education department and, currently, transitioning to head strength and conditioning coach. He's been practicing parkour for three years (and CrossFit for a little over one), though he's acted like a monkey his entire life. He is an administrator and frequent content contributor for the [American Parkour website](#). ←



# Rowing Technique

## Passing the Human Polygraph

Angela Hart

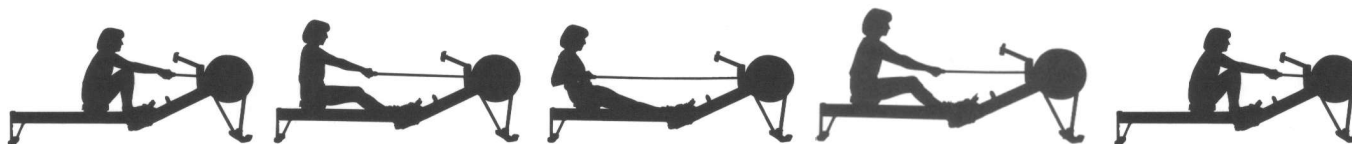
What makes rowing popular with elite athletes and CrossFitters is exactly what many in the general fitness population dislike about it: your weaknesses cannot be hidden on the rowing machine. It is a human polygraph of physical and mental performance. Stroke for stroke, you are provided with feedback that both reveals any weak spots and very visibly demonstrates the relationship between performance and proper technique. If you want faster times, better scores, and superior performance, work to improve your rowing technique so you can harness your full potential.

Rowing engages all the major muscles of the body and works multiple joints through a large range of motion in a natural, powerful sequence in a no-impact manner.

Be sure to watch the position of the knees at the catch (the “front” of the stroke, just as you are about to apply drive power). Many new rowers will attempt to open the legs, i.e., flare the knees outward, to try to achieve deeper compression at the beginning of each stroke, but this action will bring the knees out of alignment with the ankles and can cause injury with application of force or repetition. As you reach forward for the catch, your shins should be essentially vertical and aligned with your feet.

Mass (i.e., body weight) is an advantage on the rowing machine, and one key to optimal performance is learning to use your body mass to your advantage by suspending your body weight between the handle and the feet. This is achieved with a powerful,

dampener simply adjusts how quickly the force is applied to the machine. As you put in more effort, you will go faster, generate more power (watts), and use more energy (calories). Most people prefer a dampener setting of 3 to 5 for all types of workouts. A higher dampener setting results in a slower stroke rating (fewer strokes per minute) and is often preferred by endurance athletes who are accustomed to a slower leg turnover and increased time spent in a state of muscular contraction. A lower dampener setting results in a faster stroke rating, which is often appealing to sprinters and competitive cyclists who are accustomed to a faster leg turn over and quick, explosive muscular work. (Not surprisingly, many CrossFitters—particularly the bigger, heavier ones—seem to prefer somewhat higher settings, going



However, proper rowing technique is not an innate skill; mastering it requires instruction. The rowing stroke is very similar to a deadlift. In the drive (work) phase, the legs initiate the power, and arms remain straight. Then the hip flexors and torso muscles maintain the power through the leg and hip drive. Finally, the arms finish the stroke with an accelerating pull toward the torso that completes the smooth handoff of power from lower body to torso to upper body.

The handle and seat must move together during the drive. A common error is to pull with the back early, which is evidenced as the handle moving first. Just as the bar and hips must move together during a deadlift, so the handle and seat should move together during the work phase of the rowing stroke. On the recovery (rest) phase of each stroke, the handle leads the body forward. The arms extend first and then forward flexion occurs at the hips. You should feel your body weight shift from the back to the front of the seat as forward body angle is achieved, before the knees begin to rise and the legs compress for the next stroke.

explosive leg drive right off the catch when the shins are vertical, the body is angled forward at roughly thirty degrees, and the arms are straight. Quickly snap open the knee, using just a powerful push with the legs to initiate the drive. When the legs have propelled the seat halfway back, the knee angle continues to open powerfully as the hip opens, using the strength of the core to maintain the suspension of body mass. As the shoulders begin to cross over the hip joint on the way to a thirty-degree layback, the arms continue the suspension by pulling toward the torso with accelerating force. Scoop the handle fluidly down and away from the body at the end of the pull to create a smooth transition from the work to the rest phase of the stroke, eliminating any pause in the handle movement.

Many people are confused about the purpose and significance of the dampener setting on the flywheel. This is not a resistance setting. You create greater resistance when you apply greater force, and the rowing machine adapts to every stroke. A high-intensity, powerful stroke will be met with much higher resistance than a low-intensity, weak stroke. The

for both hard *and* fast.) Experiment for yourself to determine the setting that gives you the best performances and allows you to work at the highest intensity. Too high and you'll have to back off the speed of your stroke; too low and you won't be able to generate maximum power.

In summary, the rowing stroke is a continuous, fluid movement in which the handle is perpetually in motion. Although we can break it down into its constituent parts for training and analysis, as in the following steps, it should not actually look or feel like a series of separate movements.

1. Begin rowing from the catch position, with shins vertical, torso angled forward from the hip to create subtle forward spinal flexion, arms fully extended with fingers curved around the handle, abdominal muscles engaged and the navel pulling back away from the thighs, and shoulders relaxed down (not hunched up), with slight scapular retraction.
2. Initiate the drive with the legs, giving a quick, powerful push (kick) off the catch while maintaining the forward body angle for the first half of the drive



## Rowing Technique

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(roughly ten to fourteen inches of the slide, but variable depending on the length of the legs). Continue pushing with the legs while opening the body angle with the strength and explosiveness of the legs and core body strength, resulting in suspension. Let your mass work to your advantage, allowing the weight of the body to combine with muscular strength and endurance to produce maximum power output.

3. As your legs reach extension, finish the stroke with a powerful arm pull, accelerating the handle as you pull it away from the flywheel and back to your upper abdomen. At the end of the drive, your legs will be straight with a bit of plantar flexion at the ankle (i.e., slightly up on the balls of your feet) to prevent hyperextension of the knee joints; your body will be angled back about thirty degrees from vertical with activated trunk muscles; and your arms will be bent with the elbows behind the torso and the handle almost touching your abs).

4. Return to the catch by extending the arms and allowing the handle to pull the body into forward flexion. Flex forward at the hips, aligning the chest over the thighs, and then slide the seat up toward the feet with slow control. Overall, the recovery phase should take about twice as long as the drive phase.

Think explosive power as you row, as if you are placing your feet on the back of a competitor and pushing away with every stroke.

Angela Hart is the director of the [Indoor Rowing Training and Certification Institute](#) and a Master Rowing Trainer for Concept2. A competitive rower since 1982, she has coached rowing at the scholastic, collegiate, and master levels. In 1999, she coached a junior national women's team, and she was a rowing sports specialist during the 1996 Olympic Games. She conducts training and certification workshops on the rowing machine and teaches group rowing classes in the Washington DC area. In addition to having completed the basic CrossFit instructor training, she is an ACE certified personal trainer and rowing educator, an AFAA certified group fitness instructor, a US Rowing level 3 coach, and a 200-hour registered yoga teacher with the Yoga Alliance. She can be contacted at [angela.irtci@verizon.net](mailto:angela.irtci@verizon.net) or 703-490-1276.

# The Grinder

## CrossFit FRAGO #3, "VICTORIA"

CFHQ  
Santa Cruz, CA  
USA

01 Oct 06

OPS 04

FRAGO 03 to OPOrd 01 – OP GRINDER

Ref: A. OPOrd 01 01 Jul 06

Task Organization: Annex A

1. SITUATION. No Change.

2. MISSION

"VICTORIA": 5 rounds for time: 10 squat cleans, 20 push-ups, rest

3. EXECUTION

a. Concept of Operations.

(1) Intent. Complete five rounds of the exercises as quickly as possible in a safe manner. This is a three-person, team, "task-specific" workout. The team's time ends when the last member of the team completes the 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 three as possible. Each team will require a 50, 55, or 60-pound rock or sand bag. All the teams will start at the same time. Each team member has a specific exercise to perform. A soldier will be doing either squat cleans or push-ups, or resting. Once all three team members have completed their required reps of the exercise, the team will rotate together: the soldier who was doing squat cleans will move to push-ups; the one who was doing push-ups will move to the rest station; and the one who was resting will move to squat cleans (Ann A). This rotation will continue until each soldier has successfully competed five rounds of each exercise, for an individual total of 50 squat cleans and 100 push-ups. The first round will end when each soldier returns to the station he began at. Rounds 2, 3, 4, and 5 are executed in the exact same order. Each exercise must be completed before the team can rotate—i.e., once Soldier "A" finishes his squat-cleans, he cannot start doing push-ups until Soldier "B" has finished and the team is ready to rotate together. Spotting is not permitted at any time.

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

## CrossFit FRAGO #3, “VICTORIA”

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- (4) End State. The safe and successful completion of all exercises by each individual in the platoon.

b. Coordinating Instructions.

- (1) Team Organization. Platoon leaders can organize each team however they want. It is a leadership decision on how best to deploy each team 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 equipment listed—sand bags or rocks—is for austere conditions. If you have the resources, you can use two 30- or 35-pound dumbbells or a 65-pound Olympic bar and weights. The weight of the equipment or number of reps can be increased or decreased based on the skill level of your troops.
- (3) Scoring. The finish time for each three-person team is recorded. If possible, the combined times of each squad's three-person teams can be added together to obtain the squad's total time. The team or squad that has the lowest total time comes in first. For example, if Team A of the first squad finishes in 09:18 and Team B of the first squad finishes in 12:00, the total time for the squad is 21:18.
- (4) Safety. Ensure that all equipment is checked and serviceable before conducting the workout and that all soldiers are proficient on squat-cleans. Safety is every member's responsibility. All participants must be competent in the exercises before doing the workout.
- (5) Follow-on Tasks. The next workout will require a skipping rope, a 25mm ammo can, rings, a 40-pound rock, and two .50-cal ammo cans per five-person team; however, if this is not possible, substitute two 35-pound dumbbells for the 25mm ammo can, two 20-pound dumbbells for the 40-pound rock, and two 50-pound dumbbells for the .50-cal ammo cans per five-person team.

3. SERVICE SUPPORT

a. Equipment Weights

Item	Weight	Contents
Sand bag (or rock)	50, 55, or 60 lbs.	Sand

- b. Equipment Requirements. Each three-person team will require either a sand bag or a rock.

- c. Time Recording. One stopwatch and writing material to record each team's time.

4. COMMAND AND SIGNAL

- a. Timer/Score Recorder. Only one timekeeper is required for all squads and fire teams. This soldier will record the finish times of each team. He is positioned in a central location for command and control purposes. All three-person teams begin the workout on his command. When a team completes all the exercises, they inform the timekeeper, who records all times. It is recommended that at least one person per team keep a stopwatch to act as a backup in case the primary timekeeper's stopwatch fails.



## CrossFit FRAGO #3, “VICTORIA”

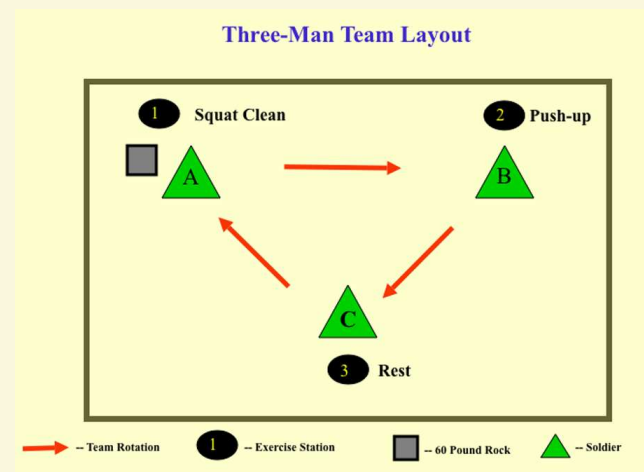
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- b. Instructor/Coach. To ensure proper conduct of the workout, use of correct exercise form, and safety of execution, a designated member of the platoon can fill this billet. An injured soldier who cannot participate in the PT can perform this duty. Although not preferred, the platoon leader or platoon sergeant can also serve in this key position, especially if the target training audience is the individual squads. The command team can conduct the workout themselves before platoon PT or at another time throughout the day. Once they have completed it, they can post their times against the rest of the platoon.

### Annexes:

Annex A      Workout diagram (A00)  
 Annex B      Equipment  
 Annex C      Exercises

### Annex A      Workout Diagram



### Annex B      Equipment



# CrossFit FRAGO #3, "VICTORIA"

...continued from page 17

## Annex C Exercises



fin.

## the CrossFit<sup>®</sup> JOURNAL

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