

the **CrossFit** JOURNAL

September 2006



Skill-Based Warm-Ups for Groups

— Tony Budding —

Training groups has several challenges, not the least of which is the disparity in experience, skills, and capacities among clients. Skill-based warm-ups can help bridge that gap while setting standards for technique and range of motion and developing coordination. Relatively new clients can learn the movements and sequences well enough to complete a related workout, and experienced clients can refine their skills or at least get a thorough warm-up.

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The key here is to generate enough momentum on the medicine ball from the extension of the hips and shrugging of the traps (not bending of arms!) that it floats briefly.

Having the group do skill transfer exercises for the Olympic lifts (à la the Burgener warm-up) with a length of PVC pipe or dowel is a frequently the basis of warm-up sequences at CrossFit Santa Cruz. Another favorite is a medicine ball clean and jerk warm-up using the standard 14-inch Dynamax medicine balls (smaller diameter balls are difficult to jerk overhead properly).

After some mild monostructural movement (run, bike, row) and some dynamic stretching, clients select their medicine balls. We have a wide variety of weights (from 4 to 28 pounds), and most clients know what weight they need (in some cases, they might warm up with a lighter ball than they'll use in the workout). We put the best-moving client in the middle and the others circle around.

We start with the deadlift. Everyone holds the starting position, chest up, heels and butt down, arms straight, eyes forward. The trainer walks around the group making adjustments as needed. When everyone is set, the client leads the group through ten deadlifts, with everyone staying together for each rep (or starting over!). This keeps everyone focused on the group and concentrating on the movement.

Next, we teach the triple extension: hips and knees fully extended and open, shoulders shrugged, arms straight). There is some disagreement about going up onto the toes in the triple extension. Some trainers believe it emphasizes coming all the way up and reaching full extension, while others believe it encourages athletes to come forward on the toes prematurely, losing power. Either way, clients should



experience being in the open-hips, shrugged-shoulders position, with the arms straight.

When the static triple extension is accomplished by all, we work on dip-shrugs. The key here is to generate enough momentum on the medicine ball from the extension of the hips and shrugging of the traps (not bending of arms!) that it floats briefly. When the balls are light, clients tend to flick them with their fingers (you can tell by the height and movement of the ball). When the balls are heavier, clients tend to throw the ball with their arms. Both of these errors should be corrected before moving on. One technique is for them to hold the ball with the palms of their hands only, with the fingers straight and away.

When everyone is dip-shrugging satisfactorily, the center client leads the group in ten deadlift-shrugs while the trainer makes corrections as needed. Again, the primary goal of this movement is the sensation of generating enough momentum on the ball from the hips and shoulders that it floats without help from the arms.

Front squats follow. Depending on the experience and skills of the group, it might be necessary to have everyone hold the bottom of the front squat while the trainer checks for proper alignment (heels down, good lumbar curve/support, chest up, eyes and head level). It also might be worth doing ten standard front squats. Either way, I like to end with ten drops into the bottom of the front squat. This dynamic movement mimics the catch of the clean and preempts a number of common faults. The key is to land in the bottom of the squat, not land part-way down and lower into the bottom. The brakes are on hard, so the feet make a sound when they connect. This is very different from a stomp or donkey kick, which many do.

Then they put it together and do ten hang squat cleans (dip-shrug with straight arms and land in the front squat position). We often have them keep the laces on

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the MB facing out. If the ball is curled with the arms, the laces will move. Many clients will not come up to full extension (watch the top of their head against the background to see it). This is a great time to correct most of the major flaws of the clean. When everyone is good enough, end with ten full squat cleans (starting with the deadlift portion).

For the jerk portion, we start with the medicine ball overhead, making sure everyone has good alignment and the ball is directly over the ears, not out in front of the head. Then we do ten presses (no hip involved), followed by ten push presses (with the dip-and-drive of the hip).

The landing for the jerk as the same as the landing for the clean. Have the trainees hold the ball overhead, with straight arms and active shoulders, and lower into a partial squat. Make sure they pull the ball back so it stays over their head. Have them feel that position. Then, they do ten drops into the partial squat with the ball overhead. When everyone is good with that, you can put it all together and do the full push jerk.

This warm-up sequence can be done not only with medicine balls but also with PVC or wood dowels, very light barbells, or light dumbbells. Mixing it up teaches people to focus on the movement and mechanics rather than the implement. (The sequence can also be done with heavier balls, dumbbells, or barbells as a workout in itself.)

This entire sequence usually takes between 10 and 20 minutes. Everyone will be fully warm, and you will have taught and/or refined the deadlift, squat, clean, press, push press, push jerk, and to some extent the overhead squat. Not too shabby.



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Plyo Box with Slanted Sides

— Lincoln Brigham —

Plyo boxes are very popular in CrossFit gyms. They're great for all kinds of workouts—or for just sitting on after a good workout with your head cradled in your hands waiting for the room to stop spinning. However, commercial plyo boxes can cost as much as \$100 to \$200 each, plus shipping. Homebuilt equipment—a favorite CrossFit brand—can be constructed with quality at least equal to that of the best commercial designs and at significantly lower cost. Square boxes and open-sided boxes take a bigger toll on the shins from missed jumps, and slant-sided boxes are stackable, so they require less floor space for storage. So this month's journal brings you the do-it-yourself CrossFit custom plyo box with slanted sides. Your friends, relations, workout buddies, and clients will be sore impressed! Or just plain sore after a hard workout on one of these babies. Total cost for this project should be in the neighborhood of \$40-60 per box or less, depending on the size and your bargain-shopping abilities

serves as good practice for measuring and assembly before cutting into expensive plywood. As carpenters always say, "Measure twice, cut once."

Materials

- 5 sheets of 24" x 20" cardboard
- Packing tape
- 4' x 8' x 3/4" maple, oak, or birch plywood,
- 1.5 sheets per two large 20" boxes
(Skimping with cheap or thinner plywood is not worth the savings. And don't even think about using particle board.)
- 18" x 18" rubber mats, one per plyo box
(try the local feed & grain supply store)
- 1-1/4" drywall screws, 40 per plyo box
- Wood glue
- Contact cement, 1 pint
- Base paint (primer paint for use on wood)
- Semi-gloss colored paint
- Semi-gloss polyurethane varnish
- Bumper sticker from CafePress.com

Equipment

- 24" straight-edge ruler
- Table saw or circular saw
- Variable-speed drill with screwdriver bit
- Jig saw
- Utility knife, carpet knife, or box cutters
- Sander with both coarse-grit sandpaper and extra-fine-grit sandpaper
- Safety goggles



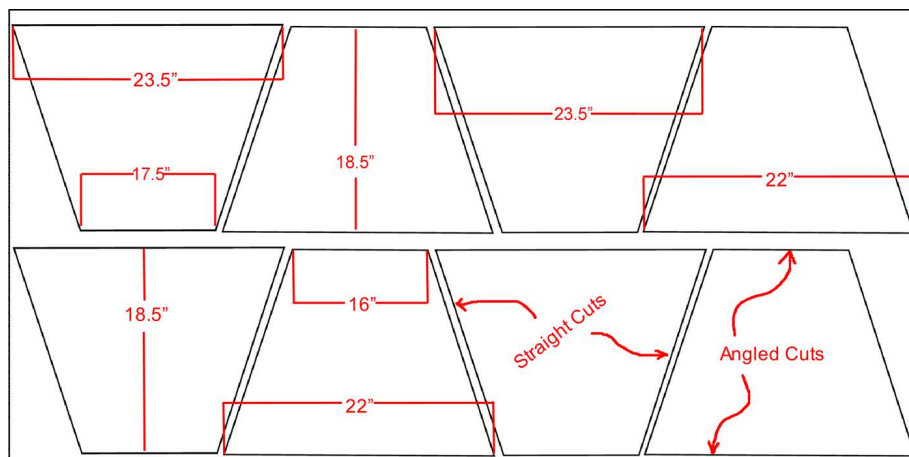
Cardboard mock-up

The first step is to use the instructions below to build a mock-up of the plyo box with the cardboard and packing tape. Really. Trust me on this. It's worth the time. With a cardboard mock-up, these plans can easily be adapted to any size plyo box desired. Additionally, building the cardboard mock-up saves a lot of tedious measurement calculations and head scratching, and it



Plyo Box with Slanted Sides

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Instructions

These instructions are specifically for making a pair of boxes that are approximately 20" high, 23.5" square base and 17.5" square top, but you can scale them to whatever size boxes you want. You can also make the angle of the slope as steep as you like, bearing in mind that assembly and cutting gets trickier, and stability decreases, as the angle increases. This project uses approximately a 10-degree slope. If you are not comfortable with woodworking and cutting wood at an angle, you can make the box with straight sides.

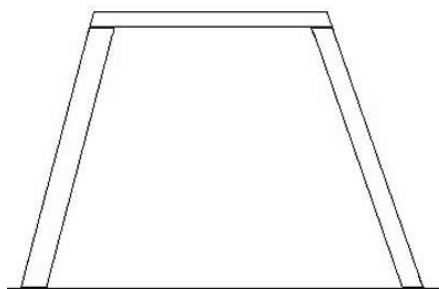
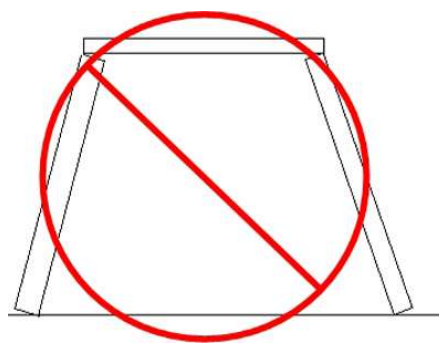
Each side of this box will be 23.5" wide at the bottom and 17.5" at the top. Always remember that the plywood is 3/4" thick. This means that two of the sides will have these dimensions and two will be cut 1.5" narrower: 22" at the base and 16" at the top. Draw a 3/4" edge on the cardboard mock-up to get a good visual on this.

Use the cardboard mock-up and the ruler to lay out the patterns to be cut on the plywood. The sides for two boxes can be cut using just one sheet of plywood if the base of the box is 23.5" or less. Be sure to leave about 1/4" between cuts to allow for the width of the saw blade!

Now begin the cutting. The top and bottom edges will be cut at an angle so that the top sits flat on the sides and the whole thing sits flat on the ground. Set the saw blade angle by eye using the cardboard mock-up as a visual guide. The angle is not super critical, just be sure that you cut the

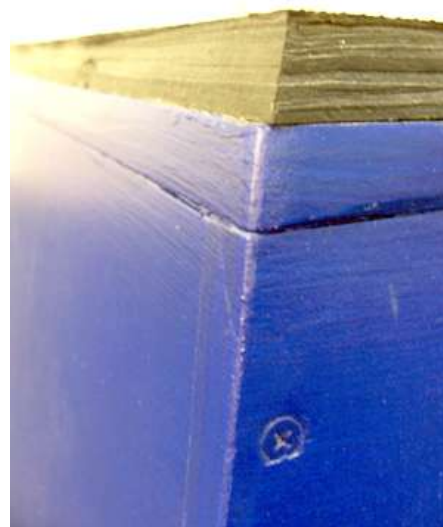
top and bottom edges at angles parallel to each other. If idea of parallel angles sends you back to horrible memories of ninth-grade geometry, simply make sure that you start the long cuts from the same end of the plywood each time. Using the layout picture, make the four rip cuts (i.e., the long way) with the blade set at an angle. Then set the saw blade back to 90 degrees to finish the rest of the cuts.

Do not try to cheat by using square cuts for the top and bottom edges. This will result in a box that is difficult to assemble and finish as well as significantly weaker. Again, if you are not comfortable with angled cuts, build a box with straight sides. You may scrape more skin off your shins with straight sides, but at least you won't tear your hair out trying to screw the box



together, and the box won't collapse when Trainee Ted the Tort Attorney jumps on it.

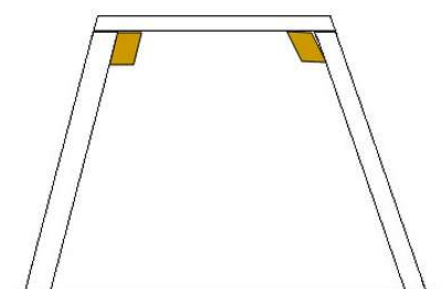
Pre-drill holes for the screws 3/8" from the sides of the two wider pieces. Glue and screw the box together, using the packing tape or a helpful friend to hold the box together while you screw down the pieces. Don't use nails instead of screws; that's just asking for trouble.



Glue & screw = strength and durability

Turn the box upside down onto the remaining plywood. Use the assembled box as a guide for the measurements for the top. Cut the top so the edges are at the same angle as the sides, pre-drill screw holes at a slight angle 3/8" from all four edges of the top, and glue and screw the top into place.

If the joints are nice and tight, no further bracing should be necessary. If you are nervous about your carpentry skills,



Plyo Box with Slanted Sides

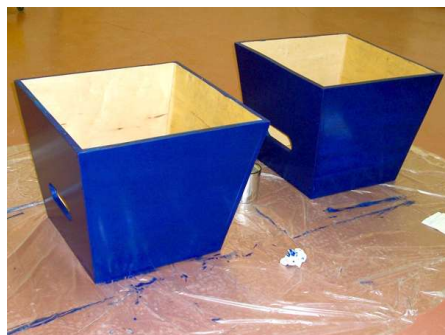
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additional internal bracing in the corners may be helpful.

Next, draw outlines of handle holes on two opposite sides of each box. Drill a starter hole for the jig saw in the middle of the handle area. Make the hole big enough for the saw blade. Cut the hole for the handle slowly, being careful to rein in your great CrossFit strength to avoid twisting, tilting, or snapping the saw blade.



Sand the edges and joints smooth with coarse sandpaper, especially the edges of the handle holes. Use wood putty if necessary to hide any gaps. Paint the sides—but not the top—of the box with a base coat. (Warning: if you don't use a base coat, you'll need at least 4 coats of color.) Let dry according to directions on the paint can, then finish painting with a coat of semi-gloss color of your choice. After the paint has dried, apply 2-3 coats of polyurethane with fine sanding in



between coats. Do not paint the top!

Sand the top of the box to remove any stray paint. (You didn't paint the top, did you? If you did, sand it off! Contact cement won't hold on paint.) Cut the rubber mat to size with a utility knife. Again, angled cuts that continue the slope of the sides will look more professional. Apply one coat of contact cement to the bottom of the mat and one coat to the top of the box. Let dry for 15 minutes before assembling. Contact cement is strong as heck but tricky to work with—you'll get only one shot at assembly and then it's stuck for good, so align the mat with the box carefully before actually setting it on. Be sure to let the contact cement dry until tacky before applying the mat. Use a hammer on the mat to ensure full contact. If done correctly, the contact cement will be stronger than the plywood.

If you plan on stacking the boxes, glue a 4" x 4" piece of leftover rubber mat or plywood to the underside of the top. This will keep the boxes from sticking together.

For a slick custom look, you can create a custom bumper sticker online to use as a label for the box. It's only \$3 plus shipping. If the logo has a distinct border, a nice visual touch would be to carefully cut along the border with a sharp knife before removing the backing. This will make the logo look less like a bumper sticker and more like a custom logo



This would be a cool bumper sticker.



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Down and Dirty Bombproof Low Plyo Boxes/Pulling Blocks

Lincoln Brigham

Materials

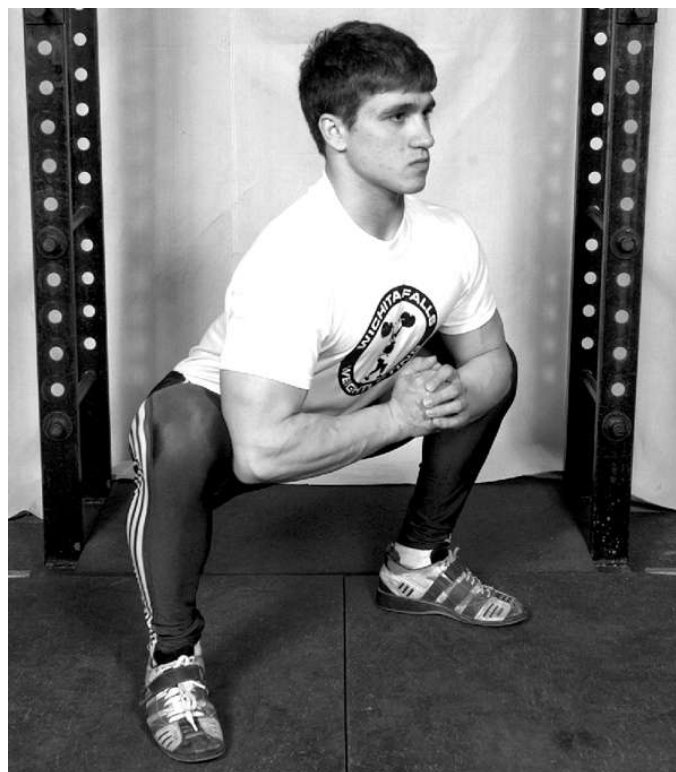
18 feet of 2" x 10" lumber
(actual board dimensions 1.5" x 9-3/4")
60 long drywall screws
Wood glue

Equipment

Saw
Screwdriver (variable speed drill
would be very helpful)

Instructions

Cut the lumber into 1-foot lengths. Glue and screw nine pieces together to form one 12" x 13.5" x 9-1/4" block. Make two for use as pulling blocks, used to develop and strengthen the second pull in the Olympic lifts.



The squat referred to here is the full, below-parallel squat, the style that is—at least theoretically—performed at a powerlifting meet, where the top of the patella and the iliac fold (the crease in the shorts that defines the position of the hip joint) form a plane below which the hips must drop. In a correct full squat, the femurs will be in line with the feet, the heels will be about shoulder-width apart and the toes pointed about 30 degrees out from straight ahead, so there is no twisting on the knee. The knee will be just

Anyone who says that full squats are “bad for the knees” has, with that statement, demonstrated conclusively that they are not entitled to an opinion about the matter. People who know nothing about a topic, especially a very technical one that requires specific training, knowledge, and experience, are not due an opinion about that topic and are better served by being quiet when it is asked about or discussed. For example, when brain surgery, or string theory, or the NFL draft, or women’s dress sizes, or white wine is being discussed, I remain quiet, odd though that may seem. But seldom is this the case when orthopedic surgeons, athletic trainers, physical therapists, or nurses are asked about full squats. Most such people have absolutely no idea what a full squat even is, and they certainly have no concept of how it affects the knees, unless they have had additional training beyond their specialties, which for the professions mentioned does not include full squats. Because if these people knew anything about squatting, and the difference between a full squat and any other kind of squat and what they do to the knees, they would know that “full squats are bad for the knees” is wrong and thus would not be making such a ridiculous statement.

a little in front of the toes, no more than an inch or two, and the weight will be distributed evenly on the feet, with heels most definitely down. With the back tight and flat, the torso will lean forward enough that when the bar is on the shoulders, a line dropped plumb from the end of the bar to the ground would go through the middle of the foot; this usually puts the back at about a 45-degree angle with the floor.

Now, this is not to say that doctors, PTs, and nurses haven’t been exposed to knee anatomy. They have, but they have not, as a rule, been exposed to correct squatting, and thus they have no idea how the movement is related to knee anatomy. The fact is that the knee and hip anatomy actually *dictate* correct squatting technique. Smart as these people are, you’d think that they could figure this out, and thus derive correct technique, the way we ignorant, uneducated lifters have. But I guess you’d be wrong if you thought that.

What generally happens is that when one of these professionals explains why you will die if you do squats, he will demonstrate with squat technique so incorrect that

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Going Deep

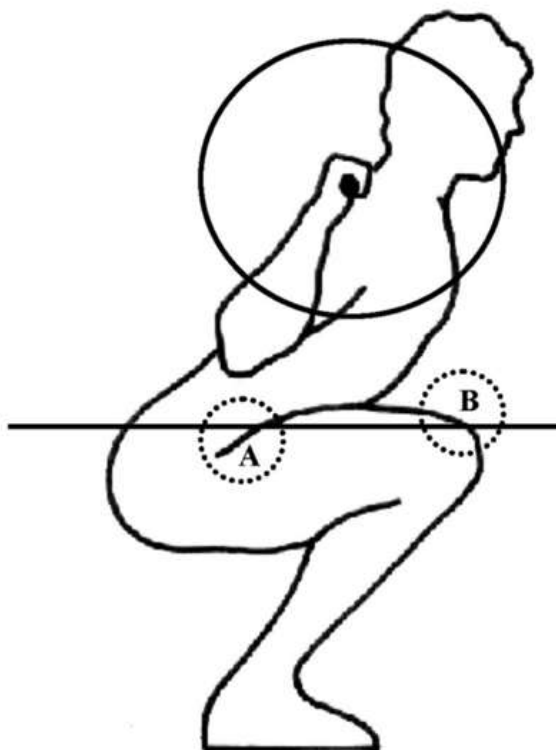
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even unweighted it hurts to watch, and then he'll say *See There, Squats Are Bad For Your Knees*. This is like saying that if you burn the beans, they stink up the house, so you shouldn't eat beans. You don't get to define the argument in terms that prove you right, and then charge money because you won the argument. You just don't, as Bill O'Reilly always says.

The problem is that, as is so often the case, one profession does not recognize that the other has something to offer. Or more correctly, as in this case, that the other is even a profession, with a body of professional knowledge and experience that is particular to it. Chiropractors, optometrists, and pharmacists often dislike doctors for this reason. Granted, a chiropractor who claims to be able to treat cancer might be causing his own problems, but it would be better if doctors recognized that chiropractors have a legitimate, useful place in the health care professions. And that strength and conditioning professionals, with decades of experience in getting people strong, might know more about squatting than people whose training has been in the treatment of injuries and disease.

Maybe it would be useful if I didn't alienate all the orthopods and PTs in the world with a blanket indictment of their perspicacity. But hey, tit for tat—they have indicted the single best, most valuable exercise in the weight room, the one more athletes have used to get strong and advance their careers than any other, and I can be petty at times. Anyway, what are *they* going to do about it? Make me squat?

I had a conversation with an athletic trainer at a recent coach's convention. He explained that he didn't like his coaches teaching the squat because they were bad for the you-know-whats. I showed him how I coach the squat—femurs and feet parallel, hips back and deep, heels down, as described above. He said, "Well, if you do them like that

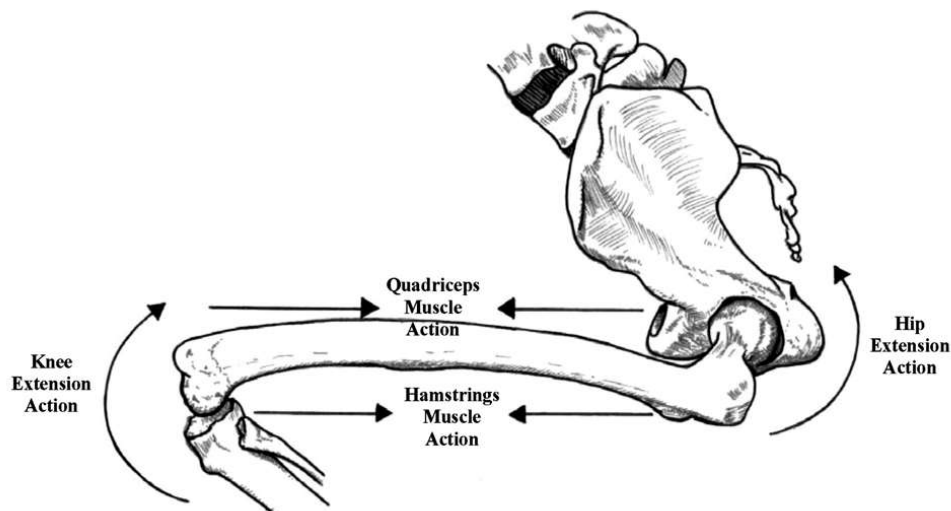


they're okay. But these guys can't teach this to the kids." I asked why not, and he said "It's too hard to teach!" I said, "I just showed you. Did that seem hard?" His first problem was that he didn't know what constituted a correct squat. His second problem was that he didn't know how to teach the coaches how to do it, much less how to teach them how to teach it. When he realized that he had just learned how to teach them, his problem became the

fact that he had clearly painted himself into a corner with his previous position. The kids are the ones who lose in such a situation.

The fundamental misunderstanding here is about what we're trying to accomplish when we squat. The quadriceps are not the only muscles that are supposed to be involved in the exercise. The hamstring muscles on the back of the thigh attach at the front of the tibia, at the bottom of the knee, wrap around the knee on both sides and pull back on it from below as they get tight. The adductors connect the groin area of the pelvis to the medial (inside) aspect of the femur, and these muscles also pull back on the knee when they tighten, but from above the knee and toward the inside. Both of these muscle groups tighten from behind the knee as the torso leans forward, the knees travel out to stay parallel to the feet, and the hips reach back

for correct depth, thus balancing the forward-pulling stress from the quadriceps and the patellar tendon around the front of the knee. But they only exert this balancing pull *when they are stretched*, in the full squat position. At the bottom of the squat, where the hamstrings and adductors are fully stretched, there is as much pull on the knee from the posterior as from the anterior. In this position, the quadriceps' knee extension force is



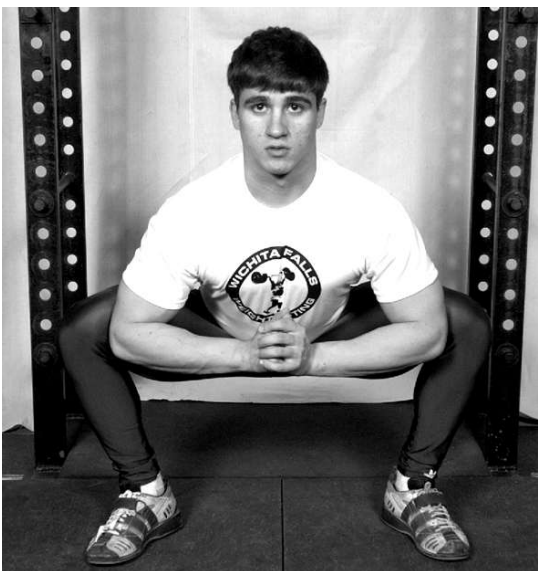
Going Deep

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balanced by the hamstrings' knee flexion force. At the same time, the adductors (in the inner thigh) have stretched too, and if the knees stay parallel to the feet, as they should, the adductors will get tight and pull on the femurs. This knee-out position anchors the femur so that adductor contraction and hamstring contraction produce hip extension—a little hard to visualize, but apparent enough when sore adductors show up the day after a heavy squat workout.

Because the hamstrings (two of them anyway) attach to the pelvis at the ischial tuberosity, any forward tilting of the top of the pelvis will stretch the hamstrings away from their insertion points at the knee. When the pelvis and the back are properly locked in a flat rigid unit by the back muscles, the forward angle of the torso and pelvis tightens up the hamstrings. At the same time, if the knees are shoved out to the sides at the bottom of the squat, not forward over—or, god forbid, inside—the toes, the adductors are tightened as well. (Sorry this is so complicated.) If this is done correctly, there is a slight “bounce” or muscular “rebound” at the bottom of the squat, which initiates the upward drive out of the hole. This hip extension (the standing up out of the squat) is accomplished much more efficiently and much, much more safely for the knee when it occurs from this correct position—a position that cannot be achieved unless the squat is deep.

The below-parallel position accomplishes more than just knee safety and lifting efficiency. It allows the squat to be quantified. If every rep is below parallel, then every rep represents the same distance traveled with the load. If the load increases, and the distance the load moves is the same, then moving it requires more work. But if the load increases while the squat depth decreases, the work performed is not necessarily greater, and may in fact be less. Without knowing how far the weight travels, it is impossible to say how much work is done and, consequently, whether any improvement has taken place since the last workout. If every squat is below parallel, then every squat is safe, efficient, and comparable with every other squat a person does. All the hip and leg



muscles can be trained, joints can be protected, progress can be made and judged, programs can be evaluated, and contests can be held without fistfights breaking out.

The part that puzzles me is: what do *they* think happens during a half squat? Good things? The only muscles under any stress are the quads, since the hamstrings, glutes, and adductors are not involved due to the limited range of motion. The spine is invariably loaded too heavily, since it is incredibly easy to “squat” big weights if you have to move them only a few inches. The knees are disproportionately subjected to anterior stress, since the lack of depth does not engage the hamstrings and activate their posterior balancing effect. The lower back muscles, used in the full squat to maintain spinal alignment and the back and pelvis angle, get little work in the half squat because it is not deep enough to ever put the low back at much of an angle. So, if half squats are dangerous for the spine and the knees, and fail to train most of the muscles of the hips, legs, and lower back, why do they always tell you to do them? Because they just sound like a better idea? And where did *they* get the idea that squats were bad in the first place?

I can answer that last one. It was Dr. Karl Klein's study at the University of Texas in 1961, a poorly designed and badly conducted mess that has never been replicated and has been successfully rebutted many times. Klein concluded that

below-parallel squats produced “loose” knees, although no other training protocol was evaluated for comparison, no other tester administered the measurements, and all the data was biased by pre-test questioning of the subjects. To me, the interesting question is why the findings appealed to so many people, and why they made an impression that has persisted for fifty years.

I think I can answer that one too. Half squats are easier than full squats. They are not as much work, in both the physical and moral sense. People are lazy. So, half squats are appealing. Even people who claim they are squatting deep are often not, since depth is sometimes hard to self-assess and since it is easier to squat high. This is deep psychology here, brain stem—deep. Full squats run contrary to human nature. But—and this is a very fundamental question—who is in charge? You, or your brain stem?

Are you willing to let medical professionals make excuses for your lack of willingness to do the hardest, most productive exercise in the weight room, an exercise that has been proven safe by decades of use by millions of very strong people? I don't think you are. Please prove me right.



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 experience 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 Periodization*.

Swing 2 : The Other Swings

— Roger Harrell —

In last month's swing article, I discussed the basic principles behind the swing and detailed the mechanics of three different swings. This article will examine several other swings. But, first, let's review the four fundamental factors involved in generating and maximizing swing:

- Maximizing momentum in the downward phase of the swing
- Maintaining momentum throughout the swing
- Maximizing the application of force against gravity on the upward phase of the swing
- Minimizing loss of speed in the upward phase of the swing

The basket swing

A basket swing is any swing in which your shoulders and body are piked so that your center of gravity lies between your shoulders and the anchor point of the swing. This swing is difficult to develop. It has a very short swing cycle, and a small deficiency in the mechanics can have a dramatic dampening effect on the swing. This swing can be performed either straddled or piked, but will be discussed primarily as piked in this article.

Start the swing by hanging in an inverted pike under either a single bar or parallel bars. (You will be hanging with straight arms, chest facing the ceiling, completely folded at the hips, with your knees in front of your face.) In the case of the parallel bars, your hands should be on the inside of the bars, turned out (pronated), thumbs pointing forward. This grip will allow the swing to travel above the bars. Initiate the swing from your shoulders. Push the bar(s) forward and backward as hard as you can without bending your arms or allowing your legs to drop either forward or backward. Initially maintain as tight a pike as you possibly can and try to keep your legs parallel with the ground. Try to feel the period of the swing and add pressure to increase the swing as you are able.

Once you have a feel for the timing of the swing, you can begin to incorporate a pump. To maximize momentum, you will want to be as compressed as possible during the downward phase of the swing. This entails pushing away from the bar(s) and bringing your legs as close to your

body as possible. As the swing passes vertical, open your hips to shorten the radius of swing to gain height, but be prepared to compress again quickly once the swing peaks to build into the next swing. This compress/open cycle must occur on both the forward and rearward swing to be effective and requires significant practice to learn.

In addition, you can also drive the swing by shifting your center of gravity off the centripetal line of force. Shifting the center of gravity behind the centripetal line of force will drive the swing forward. In the rearward swing (in which your head is leading), push your arms closer to your feet. Start with just a small shift as it will have a significant impact on the mechanics of the swing. In the forward swing, push your arms closer to your hips. If these pushes are well timed, and the other mechanics of the swing are maintained, this pumping action will dramatically increase the force of the swing.

Optimally this swing can be taken up to a support in both the forward or rearward swings, though in the forward swing on parallel bars the bars must be released as the swing transitions above the bar.

Upper-arm swing

This swing could also be called "the dreaded upper arm-swing." At first this swing can be quite uncomfortable, but the discomfort diminishes with time. On parallel bars, rest the insides of your upper arms on the bars. Grab the bars so that there is about a 90 degree bend in your elbows. Your hands should be a good distance away from your shoulders. From your shoulders, press the bars downward. If you relax your shoulders you will drop down between the bars. This makes the swing significantly more painful and results in loss of momentum through the bottom of the swing.

An upper-arm swing can have a tap (or small upward kick of the feet) like that in the tap swing on a bar (see last month's "Swing" article). The timing is the same, but the tap is less pronounced. For the rearward swing, extend as much as possible in the front to a slight arch, hollow through the bottom then drive your heels toward



The basket swing

Online Video Link



Swing 2

...continued from page 9



Upper-arm swing

[Online Video Link](#)

the ceiling. For the forward swing, extend to a slight hollow arch through the bottom then kick your toes toward the ceiling.

Glide swing

A glide swing is used to set up for a kip to support. By performing a glide swing you can set up a near vertical line of travel in the rearward swing, which will eventually give you an easy way to get on top of the bar(s). The main purpose of a glide swing is for the forward swing to stretch forward rather than upward, as is usually the goal. This creates a momentary pause in the front with pressure back on the bar that allows the mechanics of a kip to support to function properly.

Start with a bar that is at about chin height. Place both hands on the bar and stick your butt out so your shoulders are completely open. Keep your arms by your ears. Jump back and lift your toes slightly. On the jump do not close your shoulder angle at all. Instead push away from the bar to help generate swing. As you swing through to the front, allow your feet to glide just off of the floor (hence the name). Extend in the front as much as possible by pressing the bar back. This is similar to the push forward at the bottom of a kipping pull up, but you do not arch in the front—just press the bar back to open your shoulders as much as possible. As the swing reverses into a rearward swing, pike at your hips and bring your toes to the bar. Be sure to bring your toes to the bar by piking at your hips, not by closing your shoulder angle. Keep pressure back on the bar as long as possible.

Swinging from a rope or other equipment

The principles discussed through the various gymnastics swings can be applied to swings in which your body is not the primary anchor line, such as swinging on a rope. Swinging from ropes and other objects can be done just for fun and for body awareness and strength development, but it is also a skill that could prove to be invaluable. Depending on your occupation and lifestyle, or just random events, you could find yourself hanging at the end of a rope where your best option is to swing to a solid object, rather than climbing to



Glide swing

[Online Video Link](#)

Swing 2

...continued from page 10

the top of the rope. Being able to generate swing quickly and efficiently will save time and energy.

For this discussion I will assume you are holding onto the rope with your feet anchored either by standing on a knot in the rope or using one of the various rope climbing techniques to create a good foothold. On the downward phase of the swing you will want to maximize the generation of momentum. To move your center of gravity away from the anchor point of the swing, squat down on the rope, then as the swing passes through vertical, stand up to move your center of gravity toward the anchor point.

In addition, the swing can be pumped by shifting your weight off of the centripetal line. Lean away from the rope opposite the direction of swing, then as the swing peaks, shift your weight to the other side of the rope.

The typical pump that is used on playground swings is not as effective as it could be. The primary factor in the pump that drives the swing is the shifting of weight off of the centripetal line. The way most people swing, with their legs and torso in opposition, does not shift weight as much as it could. In the forward swing you should lean back, as is normal, but also bend your legs back under the swing rather than sticking them straight in front of you. This position causes a greater shifting of weight, which will generate more swing. To do the same in the rearward swing, lean forward, but also keep your legs straight so you are in a pike rather than having your feet tucked under the swing.

These concepts can be applied to any swing. Whenever you encounter swinging, look at the mechanics and see if any of the four maximization factors can be improved. Slight modifications in technique can often have dramatic impact on the

Roger Harrell is a former competitive gymnast with twenty years of experience in the sport. He has continued to train in the sport well beyond his competitive years. He has run several competitive gymnastics training programs and currently focuses on coaching adults and bringing the benefits of gymnastics to those outside the usual community. He is the developer, designer, and webmaster of www.DrillsAndSkills.com.

Three Levels of Dumbbell Squat

Michael Rutherford

For those of you who I have not had the privilege of meeting or speaking with in the past, I'm known around the CrossFit community as the dumbbell coach. My friend Greg Glassman has referred to me as the King of the Dumbbells, a title I carry with pride. I am excited to bring you additional insight to dumbbell training here and in future issues of the CrossFit Journal.

I find the dumbbell a most important tool in my own practice and I believe that you too can learn to use the dumbbell as an athlete and a coach, even more—and in more ways—than you probably do already. This unique tool has limitless application.

Advantages of dumbbells

Let's review some of the practical advantages of dumbbells as training tools

- Coach friendly - You can work small to large groups of individuals with dumbbells. My record is 60 participants for a workout. I'm simply more relaxed when my athletes are working with dumbbells
- Athlete/client friendly - Working with dumbbells is far less intimidating than wielding a barbell.
- Cost effective - No need to purchase weight trees, bar clamps, bars, or platforms—or mortgage the house to purchase the popular yet overrated kettlebell.
- Universal application - I can train the entire range of clients with a set of varied-weight dumbbells. I can challenge the Olympian, college grappler, and the soccer mom all at once. Also, because dumbbells are found in almost any gym-type environment and are friendly home-workout tools (low-cost, varied weight, require little space, affordable, and portable), clients can apply what they learn with me in other environments.
- Sport transfer - Case after case has demonstrated that athletes are performing better on the field, court, or

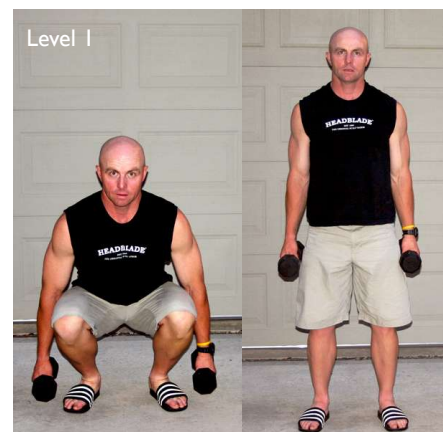
combat situation after using my dumbbell moves, complexes, and workouts.

Scaling the dumbbell squat

Let's take a deeper look at how we can use dumbbells to scale a fundamental movement, the squat, to the abilities of a varied population. If you are not squatting, you must be very new to CrossFit. This ground-based movement is essential to developing the power zone (i.e., posterior chain and "core").

Using dumbbells for loading, we can increase the intensity of the squat for beginner to advanced athletes by simply shifting the center of gravity (COG) by changing how the dumbbells are carried. As we move the dumbbell load higher on the athlete the COG moves higher, increasing the demand. (Please do not ask me to perform Twardokens calculus to give exactness. You just have to trust me. The COG, and therefore the difficulty, moves up with the combined load of the athlete and the dumbbell load)

The entry-level position (Level 1) is the low carry position. After establishing perfect squatting form without loading, you can place one or two dumbbells in the hands held beside the hips, with arms hanging straight from the shoulders. Now squat. While it may appear very elementary to some of you, this is also useful as a rehabilitation movement for athletes with injuries limiting shoulder-girdle ROM.



Three Levels of Dumbbell Squat

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Level 2



Level 2 is accomplished by racking the dumbbells on the shoulders. This requires additional stabilization and therefore increases the demand on the athlete. This is the most common and widely applied version of the dumbbell squat.

Level 3—the most demanding—is the dumbbell overhead squat. The overhead squat places a premium on shoulder girdle strength and mobility and demands hardcore midline stabilization. I have found that only the most established athletes can overhead squat more than a single dumbbell at a time. On a couple of occasions, I've encountered strong guys who tell me, before trying it, that it's easier to overhead squat dumbbells than it is a loaded barbell. They generally turn tail after failing with a pair of forty-fives, a mere 90 pounds

For loading purposes, I've observed that beginners generally squat with dumbbells

totaling somewhere in the range of 10 percent of body weight, and more advanced athletes may use 50 percent or more. In programming for my athletes, I often drop in numbers of 25-45 percent of body weight, depending on the training objective for that day.

No matter what the application, I believe you will find these three versions of the dumbbell squat useful in your development or practice. Scaled for individual abilities, they can be both challenging, functional components of an elite athlete's program and also an excellent entry point into resistance movements, as they are a foundation for other movements that I will explore in future articles.



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. 1.

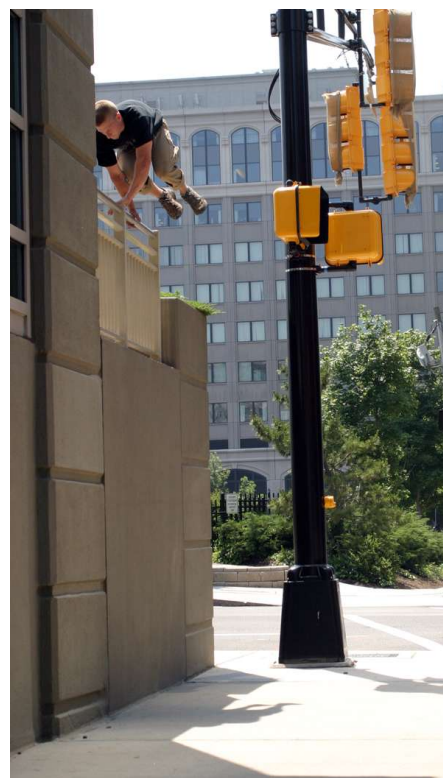
Level 3



Parkour Basics

Part 5: Turn Vault & Cat Leap

Jesse Woody



My last article described some of the techniques you can use to move up and over vertical objects you might encounter during a run. Now it's time to learn ways to make the most of these obstacles by incorporating objects at height into your run. The turn vault and cat leap are two climbing-based movements that use (and thus develop) the absorptive strength and explosive power of your upper body.

There are two very distinct situations where the ability to smoothly incorporate the turn vault is absolutely essential: when you are approaching a vault without knowing what might lie on the opposite side and you require a transition before the drop, and a situation where you know what lies on the other side but the drop is larger than you wish to take all at once. In the latter example, you can break up the total momentum and put your center of mass closer to the ground before dropping to decrease the total impact, a

Parkour Basics

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skill that is useful if you wish to extend your Parkour experience beyond the first few months of motivated, if not totally misdirected, training.

Turn Vault

The turn vault essentially starts as a regular two-handed vault (see *CrossFit Journal* issue 45). Jump while elevating your hips and legs with the power of your arms and core, tucking your knees toward your chest to minimize leverage at the point of contact with the surface. Where the turn vault departs from the regular two-handed vault is the point where your hips pass the plane of the obstacle. Rather than release the wall or railing with your inside hand to remain square in relation to your path of travel, as you would for a two-handed vault, for the turn vault, release this hand and place it on the opposite side of your outside hand. Facilitate this by pulling the wall or rail toward your hips with this inside hand as you jump, which will set you up for the rotational movement required to put you in a ready position.

From here, focus on the point of contact where you will place your feet on the opposite side of the object. The concept of landing in control, with only your arms to steady you, is a common source of

trouble for a lot of new trainees as they learn this movement. As they begin the jump, they will attempt to propel themselves only halfway, thinking that this will make the landing with their feet somehow easier. It is quickly learned that not clearing the obstacle and landing on your shins is definitely not easier than just working up the required commitment to put yourself over the wall or railing with full confidence in your ability.

As you spot the point of contact for your feet, you will follow all the steps of a good landing, unwinding from your tucked position to extend your feet toward this point on the object. Absolute focus is essential, as you will have to trust your grip and hone in on the point where you intend to land. As you do so, you will sink your hips down and back, bending at the knees and allowing your slightly bent arms to absorb the shock. The balance of this position will occur between the grip that you have on the top with your hands, and the point of friction at your feet. If you are holding a railing and have your feet on a small ledge, you won't have to think about it all that much. However, if you have your hands on the edge of a thick brick wall and your feet smeared on the vertical surface, you'll have to strike a precise balance before you will be able to confidently avoid falling backward onto

whatever—probably hard—surface waits below.

Once you reach the hang position, the end of the movement is as simple as looking over the shoulder you wish to move toward, spotting your landing and taking into account any features of the landing surface that might be pertinent. Once you assure the safety of the area, you will push against the wall and turn toward your lead shoulder to rotate 180 degrees relative to the wall. As you push away from your position, you will create horizontal momentum that can be carried on into a roll if appropriate.

One great way to create a progression with this technique is to find a rail or small wall at ground level with a soft and forgiving surface, such as grass or mulch. From here you can tweak the movement pattern required for the vault—rotate, extend, and absorb—with little risk of injury. After drilling this pattern repeatedly and from various angles, you can slowly move upward until you are comfortable on a variety of different obstacles and heights.

A movement that incorporates many of the essentials of the turn vault is the cat leap. In this technique, you will leap up toward a wall or other appropriate obstacle, and land in the hang-position,



Parkour Basics

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absorbing shock with your arms and legs, pull yourself up and then press up and over the top to continue on your way. This movement is essential in situations where you face a gap that you can't expect to clear and land on your feet, such as when the landing surface is taller than the take-off. It works absorptive capacity in your arms, back, and forearms as well as enhancing coordination and concentration through a relatively complicated movement pattern.

Cat Leap

The cat leap is essentially a technique performed at height, but it can easily be trained from ground level on a wall that's about body height. Stand a comfortable distance from the base of the wall, assuming the jumping position. Follow the steps for a good jump (see *CrossFit Journal* issue 47), swinging your arms behind you as you bend into a partial squat, then projecting your arms toward the wall as you perform a broad jump. You will tuck your knees, then extend them toward a point on the wall, all while focusing on the surface that will receive your hands at landing. Your feet will contact a split second before your hands, and you will land with slightly bent knees and slightly bent arms. Once both your feet and hands are in contact with the wall, your arms will absorb the momentum by straightening while you sink your hips back and down and bend your knees. This will put you in essentially the same hang position as the turn vault. Once you are comfortable with the coordination involved in this portion of the movement, it will be time to work the top-out, which, as you might assume, is the most difficult part to master. The technique will be similar to a muscle-up, where you will pull your elbows down and back, then

press from a low support into a straight-armed support on top of the wall.

There are two aspects of the move that will greatly aid this transition: the balance between leaning back to gain some semblance of footing on the wall and yet retaining your grip with your hands, and the "reverse kip" with your free foot that I discussed in the wall-run article (issue 48). In this instance, a combination of the ballistic loading of the shoulder girdle in the landing, a quick transition into your pull, the reverse kip, and just enough strength for the transition will all come together to get you up on top of the wall smoothly and with relatively little effort. The trick is to time the boost with your supporting foot against the wall with the initial pull out of the bottom, then coordinate the kipping motion of your free leg with the beginning of the transition. At this point, think of shooting your elbows back behind you while pulling the wall or railing toward your chest, and you will find yourself in a low dip position. From there, press up to support, perhaps kipping your free leg once more, and vault to the other side to continue on your way.

The transition is a technique that takes practice to perfect, and every new obstacle and surface will require continued diligence to master of the movement. Once you reach a semblance of comfort with it, you can perform the cat leap on a variety of objects at different heights and distances. From the starting point of having the landing surface at a higher level, you can eventually progress to having both the take-off and landing surfaces be at the same level (essentially forcing you to jump down into the technique and absorb exponentially more force). Always, though, it is important to be aware of your grasp

of the technique and to attempt to keep the overall impact on your body to a minimum. If you start to get sore elbow tendons or banged-up knees, it might be time to rest a bit and rethink your training plan.

Both of these movements will develop strength and power throughout your entire upper body in proportion to your ability to commit to them. Without this connection between ability and action, the physical skills that you might otherwise attain are of little use in everyday life. To apply them effectively, you need both the physical ability and the mental focus, commitment, and discipline.



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.



Improving Running Mechanics

— Karl Geissler & John Baumann —



We also emphasize the importance of full-footed contacts. Too much loading on either the heels or toes will cause damage to the shins and/or lower extremities.

The photo sequence above illustrates the key points in good high-velocity running posture.

In Photo 1, the athlete is beginning a running stride. He is planting his right foot squarely on the ground. Notice the upper body posture. He is staying square to the finish line. Weak or overfatigued athletes tend to rotate too much from side to side.

Photo 2 shows the lead foot moving into position to serve as a pivot point for force application. The foot is also planted almost directly beneath the athlete's center of gravity. Momentum will be optimized as the athlete exerts force to maintain velocity toward the finish.

In Photo 3, the athlete's center of gravity has moved past the planted foot. The right knee is coming up forcefully to continue the running cycle, and the triple extension of the left ankle, knee, and hip is visible. The arms are positioned to fight excess side-to-side rotation.

Photo 4 shows the full expression of the running stride. The athlete's application of force against the ground has sent him briefly airborne, and he is at maximal stride length. The lead leg is being prepared for touchdown and the stride cycle will be repeated again.

Practice and training

This level of detailed analysis is useful for studying the components of the complex act of sprinting, but the coaching cues that will help produce good form in your athletes are simpler. Encourage your athletes to drive forcefully into the ground. This will help improve their ability to cycle through the running stride and prepare them for the next contact with the ground. We also want to emphasize "relaxed" arm swings through the center of the body. Arms should be bent at approximately 90 degrees when in front of the body, and opened more as they swing behind. Solid mechanics will reward the athlete with the highest possible velocities with the

We have outlined a model of acceleration mechanics that emphasizes the importance of training the body to handle explosive single-support applications of force (as described in issue 44 of the *CrossFit Journal*). Moving the body from zero to 20 mph (11.25 seconds per 100 meters) is a seemingly simple yet highly complex task for the athlete to perform. It requires specific strength applied in a purposeful, concerted manner. When performed properly, it can be a real thing of beauty. When the athlete is untrained or improperly taught, however, it can be devastating to the body. Fortunately, high-velocity running is a skill that can be improved in every athlete, by improving either stride length or stride frequency, or both.

Many athletes spend a great deal of time training for specific contests or tasks, oftentimes neglecting basic physical components necessary for successful athletic performance. Biomechanics teaches us that human movement can be traced along three planes: the sagittal/longitudinal (splitting the body from side to side); the frontal/lateral (splitting the body from front to back); and the transverse (splitting the body horizontally, as to account for rotation.) Most people think of high-velocity running as occurring in just one plane—only as moving the body forward in the shortest amount of time. But running is much more than that. We cycle the arms and legs through the front and back, we move our bodies from right and left, and we fight rotation in our trunk to keep our momentum going forward. The purpose of this article is to outline a protocol for improving running mechanics and to give non-specialist instructors a means of developing this skill in their athletes.

Review of running mechanics

American society in general has taken two perspectives when thinking of running mechanics: either overly simplistic or overly complicated. The simplistic approach views running as analogous to breathing—we just do it. There is some truth to that idea, in the sense that running is a natural expression of our mobility, but that notion has also fueled a lucrative industry of podiatry, orthotic shoe inserts, knee replacements, and other more and less drastic medical interventions.

The other view is that speed mechanics are highly complicated. The cottage industry of speed enhancement devices, clinics, "methods," and personal coaches benefits from keeping the mystery alive. The wise instructor of human performance enhancement will recognize the simple biomechanical crossovers to successful high-velocity running. Many of the principles and terms used in training sprinting apply as well to the teaching of gymnastics or Olympic lifting movements. We are looking for forceful interactions with the ground while maintaining body positions that enhance this movement and prevent the likelihood of injury.

Good posture must always be emphasized when working with an athlete. There is not a lot of room for compromise here. It can be destructive to allow sloppiness even at lower speeds, because those flaws will be radically magnified when the velocity is increased. Our goal is to have forceful foot contacts with the ground directly under the center of gravity. Striking with the foot too far forward causes an unnatural loading on the shin and lower leg and decreases momentum by briefly interrupting the body's forward movement.

Improving Running Mechanics

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least amount of effort.

Most clients we train are not concerned with setting a record for the 100-meter dash, nor are they likely to attempt a sub-2:10 marathon. However, teaching good mechanics will improve their ability to run successfully from point A to point B in the shortest time. Adding running technique work to even a generalist athlete's program can improve both stride length and stride frequency, and strengthening and improving the flexibility of the hip flexors can lengthen the running stride further. It does not require a great deal of extracurricular work to develop these skills, just a measured plan of development.

Rehearsal of running skills will improve running economy and energy management. Running economy can be thought of as the effort required to complete a particular running stride. As in gymnastics, fighting, or weightlifting, rehearsal creates neuromuscular connections that produce efficiency. A more efficient running stride in turn leads to better energy-system management, since each step covers more ground. Rehearsal of proper running mechanics should emphasize good foot placement, knee lift, and arm swing in the stride cycle. This learning process can be emphasized and developed by practicing varying movement patterns - i.e., by doing drills.

The following section lays out a progression of drills suitable for non-specialist CrossFitters and CrossFit trainers.

Drills progression

The still-growing boom in specific performance-enhancement running programs draws on adapted track and field drills and workouts. Many of these programs are grounded in teaching drills, or specific movement activities. One of the most popular was developed by legendary track coach Gerard Mach, who spent most of his career working around weather conditions that were not conducive to outdoor work (mostly in Poland and Canada). Drills had been around, but Mach came up with a sequence that allowed him to logically teach the skills related to sprinting and hurdling in close quarters. By utilizing differing patterns of marches, skips, and runs in all three

planes, Mach was able to help athletes improve knee lift, strengthen their hamstrings, and improve hip flexion, even when the athletes were unable to run race-related distances. His drills emphasize posture and form and require the athlete to focus on uniform arm and leg movement.

Now, drills in themselves are not going to improve technique. Doing a lot of drills is not the "magic bullet" for speed development, but they do develop specific strength and flexibility in the muscle groups associated with sprinting. They are also highly portable, and can be taught to clients who can then repeat them on their own at any time.

For CrossFit, we contend, the emphasis should be on simple movements only. In track and field, extensive drill work may help lead to success in the 100-meter dash, but most people we work with are not trying to cover the greatest amount of distance in less than 10 seconds. Listed below, and shown in the attached video, is a series of drills that can be taught to any athlete. We have ordered them in a sequence that progresses from simpler (and less strenuous) movements to more complicated and demanding ones. All drills should be performed with emphasis on full hip and knee extension and full foot contacts with the ground.

1. Low skips - Low swing with feet; emphasize fluid motion; skip forward and backward.
2. Side shuffles - Swing arms overhead; posture should be upright and fluid.
3. Low cariocas - (Also known as "grapevine.") Focus on sideways movement; feet alternate crossing over forward and backward; arms stay loose.
4. High cariocas - Same sideways movement as low carioca but with a high knee lift on the front crossover.
5. Crossovers - Sideways movement but with no back crossover; the front leg will more than likely need to be straight.
6. Geek walk - Swing feet outward each step; step forward and backward.
7. High skips - A.k.a. "power skips"; drive the leading knee upward with each stride; the trailing foot may or may not leave the ground.
8. Backward running - Emphasize reaching

the foot out behind the buttocks when stepping; this is not a backward shuffle.

9. Fast arms/fast feet - Pump arms and feet up as fast as possible while moving slowly forward.
10. Mach "A" march - Shoulders must be in line with the hips; drive the knee toward the ground in front of the body, with no back swing. Arms drive forward and bend to approximately 90 degrees; backward swings should have the arms open a little bit. Feet are in a dorsiflexed position. Coaching cues can be "knee up," "toe up," "step over the knee."
11. Mach "A" skip - Same points as for the Mach march but performed rhythmically and with a back swing; knee drives should cause the heel to strike the buttocks.
12. Mach "A" run - Same points as for the Mach skip; sequence performed again, but at the highest manageable velocity; you should see high heel recovery and swing through each stride.
13. Straight-leg march - Maintain the same erect posture as before; keep legs straight and emphasize driving the feet into the ground forcefully; coaching cue can be "pull through with the hamstring."
14. Straight-leg bound - Same as the straight-leg march but at a much higher velocity. To test progress, count the number of steps to cover a set distance or attempt to cover the ground in the shortest possible time.

Some of the information for this article comes from the writings of Vern Gambetta. For information on Gambetta's work, see his blog.

Karl Geissler is a USA Track and Field Level II coach (sprints/hurdles/jumps) and a lead instructor in the Level I program. He holds a Masters degree in kinesiology and is a former collegiate track and field competitor and current coach. He is also a marketing representative for Gill Athletics.

John Baumann is a USA Track and Field Level II coach (sprints/hurdles/jumps) and a lead instructor in the Level I program. He is the former head strength and conditioning coach for George Mason University and currently a track and field coach at Oklahoma State University.

Online Video Link

The Grinder

CrossFit FRAGO #2, "CARLA"

CFHQ
Santa Cruz, CA
USA

01 Sep 06

OPS 03

FRAGO 02 to OPOrd 01 — OP GRINDER

Ref: A. OPOrd 01 01 Jul 06

Task Organization: Annex A

1. SITUATION. No Change.

2. MISSION

"CARLA": 5 Rounds for time: Run 400m / 30 deadlifts / 30 sit-ups

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 four-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. Each squad will be divided into two teams of four or five. Each team will have two .50-cal ammo cans (50 pounds each) per soldier. This is the preferred equipment ratio. However, the minimum requirement would be four .50-cal ammo cans per four-person team. All the teams will start at the same time from the same location. Individuals will run 400m, returning to the start point. Upon completion of the run, they will conduct 30 deadlifts with the .50-cal ammo cans; once the 30 deadlifts are complete, they will execute 30 full-range sit-ups. The first round will end after the 30 sit-ups are completed. Rounds 2, 3, 4, and 5 are executed in the exact same order. Each exercise must be completed before moving on the next one—i.e., you must finish all 30 deadlifts before starting the 30 sit-ups. However, each exercise may be broken up into sets as desired. Spotting will be permitted only during the sit-ups. However, only a team member who is also in the sit-up phase of the workout may provide assistance. As soon as the spotter completes his 30th sit-up and transitions to the run, or when he is returning from the run and starting the deadlifts, he is not permitted to provide assistance.
- (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 by each individual in the squad.

b. Coordinating Instructions.

- (1) Team Organization. Squad leaders can organize each team however they want. It is a leadership decision on how best to deploy each team to accomplish the mission. If the squads cannot be grouped into fire teams of four, add a fifth soldier to the team. The finish times of each of the squad's four-person teams are added together to obtain

CrossFit FRAGO #2, “CARLA”

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the squad’s total time. The squad that has the lowest combined total time comes in first.

- (2) Scaling. The workout can be conducted in PT gear or in full battle gear, to include vests with plates, depending on the fitness levels of your soldiers. The one type of equipment required—.50-cal ammo cans (or any other 50-pound objects that can be gripped in one hand)—is for austere conditions. If you have the resources, you can use two 50-pound dumbbells or a 105-pound barbell 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 times of each of the squad’s four-person teams are added together to obtain the squad’s total time. For example, if Team A of the first squad finishes in 20:30 and Team B of the first squad finishes in 20:00, the total time for the squad is 40:30. The squad that has the lowest combined total time comes in first.
- (4) Safety. Ensure that all equipment is checked and serviceable before conducting the workout and that all soldiers are proficient on deadlifts. 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 one 40- or 50-pound rock per three soldiers; however, if this is not possible, two 25- or 30-pound dumbbells for every three soldiers can be substituted.

3. SERVICE SUPPORT

a. Equipment Weights

Ammo Can Nomenclature	Quantity / Size	Type	Weight	Contents
Cart Cal .50 4B/1T	100 rds	M2A1	50 lbs	Sand

- b. Equipment Requirements. Each four-person fire team will require eight .50-cal ammo cans.
- 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 where the deadlifts and sit-ups will be done (the start/stop line for the run) for command and control purposes. All fire teams begin the workout on his command. When teams complete all the exercises, they inform the timekeeper, who records all times. It is recommended that at least one person per fire team start his stopwatch to act as a backup in case the primary timekeeper’s stopwatch fails.
- 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 or another member of the company can also 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 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.

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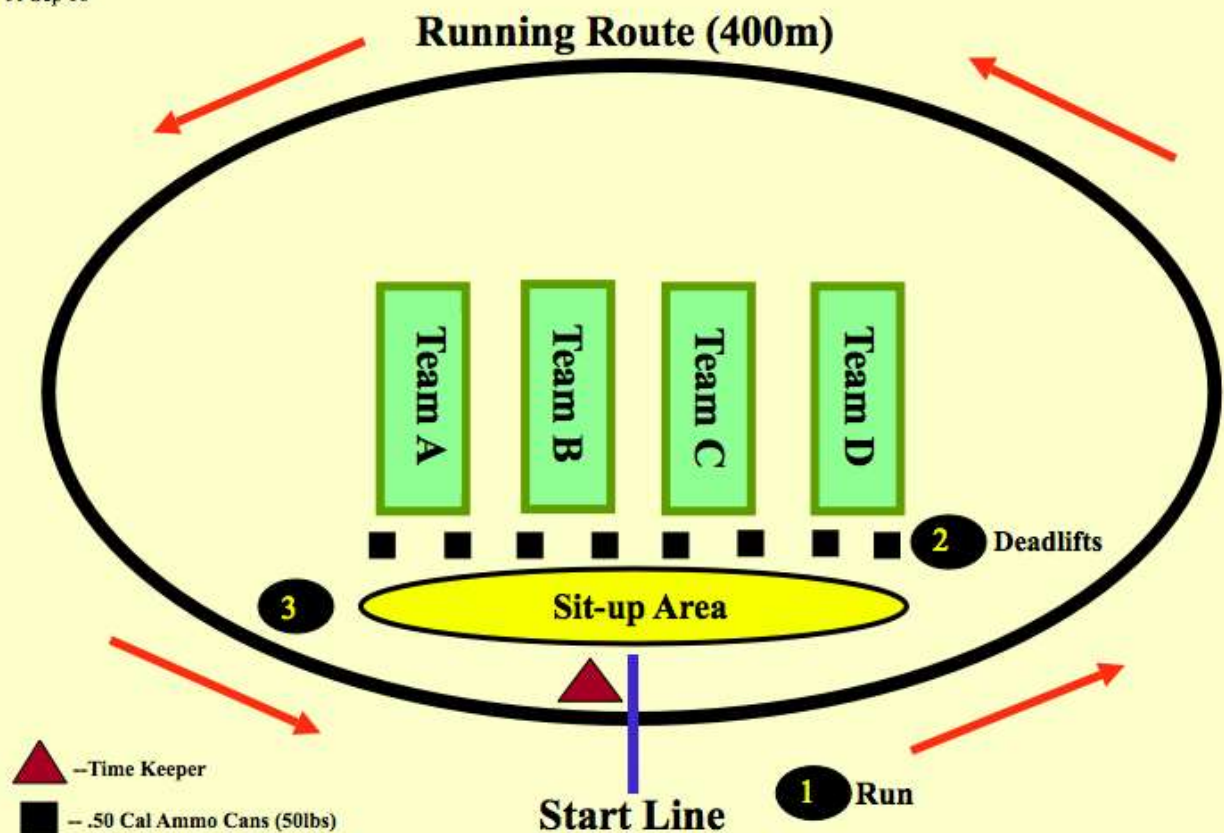
Annexes:

Annex A	Workout diagram
Annex B	Equipment
Annex C	Exercises

Annex A Workout Diagram

Annex A
To FRAGO 02
01 Sep 06

CARLA: 5 Rounds for time of: 400m Run, 30 Deadlifts, 30 Sit-ups



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Annex B Equipment



Annex C Exercises



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Annex C Exercises



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