

More Pop at the Top

Finishing the pull is the only way to succeed in Olympic lifting once the plates start adding up.

Bill Starr



Courtesy of CrossFit Davis

This article is for any athlete who's trying to improve numbers on any type of dynamic pulling exercise—power cleans and snatches, clean- and snatch-grip high pulls, shrugs and, of course, the Olympic lifts. Every serious strength athlete should include at least one of these exercises in his routine.

Moving a weighted barbell through a range of motion in an explosive fashion builds strength in the muscles and attachments in an entirely different manner than when an exercise is done more deliberately. Whenever muscles, tendons and ligaments are exercised dynamically, the benefits derived from that work are more readily converted to other athletic endeavors. In other words, someone who can power-clean or full-clean a heavy weight is going to be able to better utilize that strength in sports.

Learning to Finish Strong

The exercises I mentioned are extremely beneficial in building a strong back because they work all parts—lower, middle and upper. They work them equally, so this helps to maintain a healthy balance between the three segments. I realize that the three parts of the back are not distinctly divided and that they overlap one another, but it's important to understand that there are differences in the muscular makeup of this important body part. Gaining significant strength in the back is critical to being able to handle more weight on the front and back squat and all the shoulder-girdle exercises. In order to overhead press or jerk a heavier poundage, the athlete absolutely must have a strong back to provide a solid base of support.

There is yet another reason why time must be spent making and keeping the back strong. Those are the muscles that support the spine. Countless lives and serious injuries have been spared because of strong backs—a fact that really needs to be considered by anyone of any age.

Every exercise is made up of a start, middle and finish. While all parts must be done correctly for that exercise to be productive and in order to handle heavy weights, the finish is usually the reason the maximum attempts are either made or missed. In previous articles in the *CrossFit Journal*, I've covered the start and middle. This one is about the finish.

Athletes do not have a strong finish for two main reasons: a lack of strength and improper form. The first usually applies to youngsters and beginners who have not done enough training on the groups responsible for that final, snappy surge at the very end of a lift. The traps play a key role in any dynamic pulling movement, and the longer the pull, the more the traps are involved. That means powerful traps are needed for power-snatching and full-snatching big numbers. Those who use sloppy form often end up in the same boat as beginners. Because they never fully extend, their traps are not called into play nearly as much.

Therefore, their traps are not worked as diligently and fall behind, strength-wise.

In many cases, the athlete's form isn't really that bad, but she doesn't fully extend when she's snatching or cleaning because she's lightning fast going under the bar. Due to exceptional foot speed, she's able to slip under a snatch or clean even when it's not pulled very high. While this may seem like a huge plus, it's often just the opposite. Eventually the weight will become too heavy to rack or lock out overhead if the lifter cuts the pull. This is inevitable, and if she wants to continue to improve on the quick lifts, she has to make some changes. In many cases, it means going back and starting from scratch. This is not an easy thing to do, but the step must be taken.

The bottom line: technique is paramount.

Not fully extending on the dynamic movements often happens to those who train alone or do not have anyone to scrutinize their technique. Or the coach doesn't know what to look for. Before moving to York to work and train at the York Barbell Company, I was in charge of the weight room at the Marion YMCA in Indiana. Because I was the authority on Olympic-style lifting, no one ever thought of criticizing my technique. I honestly thought I was extending fully on my cleans and snatches. Turns out I wasn't. The first week I trained in the York Gym, Tommy Suggs and Bob Bednarski picked up on my form flaw.

I had been competing for eight years, and my keys on the various lifts were deeply ingrained in my mind. What I had do if I wanted to compete on a national level—and I did—was alter that final key on my cleans and snatches. I had to learn to wait just a tad longer before moving under the bar. It took a great deal of practice, and it helped to have such experts as Bednarski and Suggs watch me and provide me with feedback. I finally got the feel of what I needed to do. Once I was able to pull higher, my lifts improved right away. It had nothing to do with my trap strength. The strength was there. I just wasn't using it effectively. The bottom line: technique is paramount.

The High Pull

Whenever I see an athlete cutting his pull on power snatches, power cleans, and full snatches and cleans, I have him set those exercises aside for a while and replace them with high pulls. I make sure he does both clean- and snatch-grip high pulls because each version of the exercise works the many muscles in the back somewhat differently.

The reason I like high pulls is that they allow the lifter to focus his full attention on pulling the bar higher and higher without having to be concerned with racking the weight or locking it out overhead. The high pulls also help to identify the perfect line of pull on the various lifts. As a bonus, they strengthen the muscles and attachments that are directly responsible for lifting heavy weights.

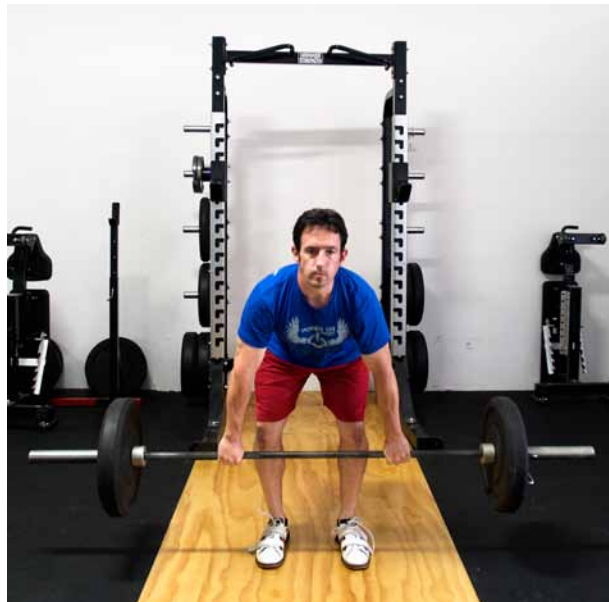
Use straps. Initially, you may not need them, but eventually you will be handling 50 or more pounds over what you can use on the dynamic lifts, so it's a smart idea to get used to them from the onset. Even if the athlete has done high pulls before, I have him approach them as if they're a new movement. It's a relearning process, so he starts with the basics. While the exercise is indeed explosive when done correctly, at this stage the start and middle are done rather deliberately and only the finish is done with a pop. This helps to establish a perfect line and body positioning as the bar climbs higher.

Strap onto the bar, flatten your back, make sure your frontal deltoids are slightly out in front of the bar, tighten every muscle in your body, then move the bar off the floor in a smooth fashion. The bar starts against your shins and stays close to your body as it moves upward. Your arms are straight. As the bar reaches mid-thigh, drive your hips forward violently and shrug your traps. Only after the traps have been activated do you allow your elbows to bend. Drive your arms up and out, not back. Keep in mind that once your elbows turn backward you're no longer able to utilize your traps, which are needed when the weights get demanding.

At the end of the pull, you should be high on your toes with your elbows up and out, and your body needs to be perfectly vertical. The move from the floor to the finish has to be done in a smooth fashion—no hitching or hesitation at all. The bar leaves the floor slowly, picks up speed through the middle and becomes a blur at the top.

During the high pulls, your back has to remain flat. If it rounds, even slightly, the bar will move out of the proper line and this will adversely affect the finish. To help maintain a very flat back, lock your shoulder blades together.

Courtesy of CrossFit Davis



High pulls allow a lifter to learn what full extension feels like without having to quickly pop underneath the bar. Ideally, the elbows will stay high and outside as long as possible to utilize the traps to their full extent.

Initially, the high pulls are used to teach the correct line of pull, the exact sequence between the traps and arms, how to drive the elbows upward and how to get full extension of your body. Doing them as an overloading exercise comes later. For now, think of them as a drill to teach you how to pull longer and provide some pop at the end. Without that final pop, you're not going to be able to handle heavy poundages. That final snap will cause the bar to jump and allows you time to move under the bar.

Until you have the movement down pat, stay with relatively light poundages, such as 225. That will be heavy enough to force you to pay close attention to the various form points yet not so demanding that you cannot get the feel of what you're after. Start with 135, move to 185, then on to 225. From your very first rep, it's critical that you pull the bar just as high as you can. When you do this, you establish a pattern, and as the weights get heavier, you're still able to elevate it higher because the pattern is fixed in your mind.

The reason I like high pulls is that they allow the lifter to focus his full attention on pulling the bar higher and higher without having to be concerned with racking the weight or locking it out overhead.

On the first few sets, the bar may climb up over your head. Excellent. That's exactly what you want to do for both snatch and clean pulls. Once an athlete shows that he's got it figured out, I have him add a bit more weight and provide him with a tangible goal to aim for. I hold out a stick at the height I want him to pull the bar to. When he hits the stick easily, I raise it a few inches. It's surprising how well this works. I've had athletes swear they were pulling just as hard as they could, but when I used the stick, they ended up pulling it another 6 inches higher. Tapping that stick has a Pavlovian effect and motivates the lifter to extend higher and do her best to put a charge in the last few inches of the pull.

Over the years, I've watched countless Olympic lifters who were able to pull the bar plenty high enough for them to get under it and rack it or lock it out overhead, yet they failed on the attempt simply because the bar never picked up any speed on its upward flight and had no pop at the top. As a result, the weight crashed downward like an angry guillotine and the lift was a failure.

When the athlete knows what he is trying to accomplish, he can also use high pulls to overload his back. Eventually, you should be handling 75 more pounds in the clean high pull than you are using in the full clean, and 50 more pounds in the snatch high pull than you can snatch. However, these overloading sets have to be done with perfect mechanics or the benefits will not carry over to the quick lifts: concentrate on using good form on every rep. If you find you're breaking form, as in dragging the bar through the middle or rounding your back, use less weight. Remember, practice makes perfect only if you're practicing correctly.

Courtesy of CrossFit Davis



By learning to recognize full extension of hips, knees and ankles, athletes will know exactly when they should start to pull themselves under the bar.

The “Throw”

I came up with the next exercise at the '68 Olympics in Mexico City. I was working with Ernie Pickett in the training hall, and he was having difficulty with the finish on his snatches. I stripped the bar down to one big plate on each side. They were in kilos, so it was 132. I told him what I wanted him to do and he was hesitant. It was a tad bizarre, but the platforms were extra stout and could handle it. Plus, I told him with a grin that he would be sure to attract a great deal of attention from the other competitors and coaches.

Because Ernie was always up for anything that would stun those around him, he did what I suggested—throwing the load just as high as he possibly could, then stepping out of the way of the descending bar. Well, he certainly did get everyone's full interest. The first few times he did what I call “throws,” the bar barely got higher than his head. I kept giving him form keys and reminded him that he wanted to actually throw the bar upward. This meant he had to pull longer than normal, extend on his toes more, extend his body more erect and think about hurling the puny weight to the ceiling.

Soon, he was throwing 220 a good three feet over his head, and the crashing bar made a tremendous racket. Ernie was thoroughly enjoying himself, and so was I. When we finished and were leaving the training hall, we heard several other loud crashes and laughed. A few coaches were using the throws on their lifters. It should be noted that this was before rubber bumper plates came on the scene, so the dropped weights sounded like bombs going off.

I've taught this exercise to nearly all my Olympic lifters. Having bumps makes it much easier, although I've used metal plates on occasion. When I do, I take the lifter outside to do throws on grass. Also, I use an old bar or one that may be defective. I realize that doing throws is no more harmful to a bar than dropping a heavy jerk, but there's no sense taking a chance with an expensive bar when a less-than-perfect one works just as well. Also, if they're done in a gym, the ceiling has to be high enough so that the weights don't crash into it.



Courtesy of CrossFit Davis

A “throw” teaches a lifter to pull longer than normal, which will translate into full extension during cleans and snatches. Simply grip the bar and attempt to throw it as high as possible—then get out of the way.

While a throw is a simple movement, it takes some practice before an athlete can get the hang of what he's trying to accomplish. In addition, it takes a bit more courage because that bar is flying directly overhead. Sometimes I have the lifter just use the bar until he figures out how to really put some power in that final move to send the bar soaring. Invariably, the first few attempts don't climb very high. The athlete is more concerned for his safety than the height of the throw. Once he learns to stand in and pull the bar correctly, it starts to go higher. As his confidence grows and he can step out from under the bar rather easily, he then begins to incorporate all the pulling keys. This enables him to put a jolt into the final move.

This exercise is so beneficial because it carries over directly to pulling a heavy weight. I start athletes on snatch-grip throws and then let them do some clean throws if they want. In truth, the throws have more value to the snatch than the clean because it's a much longer pulling motion. The very next time an athlete does full snatches after a session with throws, his extension is remarkably improved. Only do singles, for obvious reasons, and don't use straps, again for obvious reasons.



Courtesy of CrossFit Davis



Bill Starr started using throws with athletes at the 1968 Olympics in Mexico City. Of course, having an Olympian throw 200 lb. of iron three feet overhead was a lot noisier than a CrossFitter training with bumpers.

Clean- and Snatch-Grip Shrugs

The next exercise requires straps: clean- and snatch-grip shrugs. These are the very best exercises to strengthen the traps: the primary source of power for the finish of the clean and snatch. They are the best because so much more weight can be used on the shrug than any other exercise. While high pulls are great, athletes who are capable of high-pulling 350 can handle close to 600 in the shrug.

I realize some coaches teach their athletes to shrug with their elbows locked. I don't think this is nearly as effective as using the same motion as when the bar is being cleaned or snatched. That means bending the arms. Also, when the arms are bent during a shrug, many more groups become involved and therefore get stronger, such as the all-important prime movers of the upper arms: the brachialis, brachioradialis and the rear deltoids.

Think extension. The higher your pull the weight, the more benefits you will derive from the movement.

Shrugs can be done inside or outside a power rack, but I recommend staying inside until form is perfect. Set the pins so the bar is at mid-thigh. It's best to learn clean shrugs before trying them with a wider grip. Make sure your body mechanics are right: bar tucked in snug against your thighs, back flat and tight, with your frontal deltoids out in front of the bar. Press your feet down into the floor and tense all your muscles. Use your hips and legs to set the bar in motion, then quickly follow through by shrugging your traps and bending your arms.

As in the high pulls, you want to pull the bar as high as possible on every rep. This will send the first couple of sets up over your head. Think extension. The higher your pull the weight, the more benefits you will derive from the movement. As the poundages start to add up, your stroke will be much shorter, yet if you continue to think extension you will strengthen those groups providing the finish to the clean much more so than if you cut your pull. You will gain more strength for every inch higher that you pull the bar.

Five sets of five works well, and the final set should be so heavy that the bar only moves a few inches. But if you're conscious of giving it a punch at the very end, you're going to have traps that look like small hills on your shoulders.

Some racks are too narrow to do snatch shrugs inside them. When this is the case, I have athletes do Hawaiian-style shrugs. For the first two years that I coached at the University of Hawaii, there was no power rack. Athletes did shrugs by taking the weight off two pins on the back of the squat rack. This version is more difficult since much more control of the bar is required and the line of pull is more precise, which is a good reason to do Hawaiian shrugs every so often. Less weight is used and everyone quickly figures out not to move too far from the rack. Putting 500-plus lb. back on the pins after having shrugged it five times is no walk in the park. You only have to move back a few inches because the line of pull is straight up.



Staff/CrossFit Journal

A snatch-grip isometric hold burns the feeling of full extension into the muscles and strengthens them at this critical point. One work set of eight or 12 seconds will be enough.

Isometric Holds

The final two exercises also require a power rack. For the clean, an isotonic-isometric hold at the very top of the pull, set the lower pins at belly button height and the top pins a few inches higher. Extend the bar up to the higher pins, lock it in place, then hold an isometric contraction for 8-12 seconds. Until you get the feel, you might need to do a couple of lighter warm-up sets. If so, do three reps. You will just tap the top pins three times and not try to hold it for a count. Then on your work set, tap the top pins once or twice, then lock it in for an iso contraction.



Staff/CrossFit Journal

For isometric holds, you'll need to find a way to stop the bar from moving upward while you pull against the pins. A power cage or some old-fashioned ingenuity is usually required.

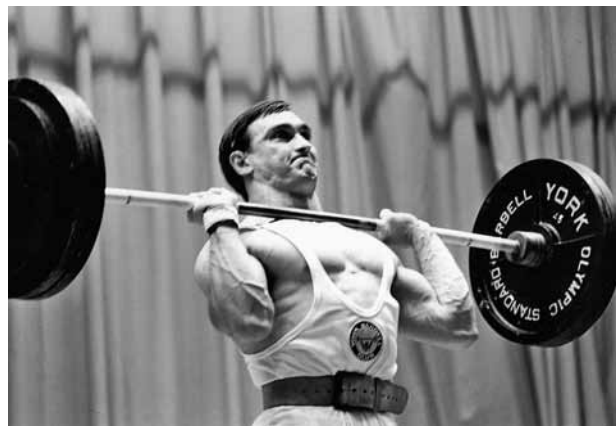
It's imperative that your body mechanics are absolutely impeccable. One of the main things to remember is the time you hold the isometric contraction is more important than how much weight is on the bar. If you can't sustain the contraction for at least eight seconds, use less weight. When you get to a 12 count and still have some gas left in the tank, increase the poundage. One work set per session is sufficient. Isotonic-isometrics are very concentrated work.

The same move can be done with a snatch grip if you have a power rack that's wide enough. If not, place the bar at a height where your breastbone ends. You're not going to be able to use very much weight on these so don't get overly ambitious. Most are tested with 100 pounds less than they can snatch. Strap onto the bar and move it up off the pins and hold it off them for a count of 8 or 12.

As always, you have to maintain an erect position. Stay high on your toes with your elbows up and out. They're going to want to turn backward as you tire, but you must fight that and hold steady. If a set is easy, use more weight. Conversely, lower the weight if you aren't able to hold the bar off the pins for a count of eight.

This is perhaps the single best exercise to strengthen the rear deltoids. They're extremely difficult to hit directly, and it's even harder to overload them. These do both and will convert to power and full snatches right away.

Try these exercises, and once you learn the technique, lean on them and make them considerably stronger. When you do that, you'll be pleasantly surprised how much more pop you have at the top of your pulls.



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About the Author

*Bill Starr coached at the 1968 Olympics in Mexico City, the 1970 World Olympic Weightlifting World Championship in Columbus, Ohio, and the 1975 World Powerlifting Championships in Birmingham, England. He was selected as head coach of the 1969 team that competed in the Tournament of Americas in Mayaguez, Puerto Rico, where the United States won the team title, making him the first active lifter to be head coach of an international Olympic weightlifting team. Starr is the author of the books **The Strongest Shall Survive: Strength Training for Football and Defying Gravity**, which can be found at [TheAsgard Company Bookstore](http://TheAsgardCompanyBookstore.com).*