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More Pop at the Top—Part 2

Bill Starr describes additional drills to help you finish the pull and clean big weight.

By Bill Starr

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Editor's note: Bill Starr completed this article before he passed away April 7, 2015, in Maryland.

In September 2009, the CrossFit Journal published my article “More Pop at the Top,” which described how to do high pulls, shrugs, isometric contractions and throws to improve the numbers on any type of pulling movement. In this

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piece, I'll describe a somewhat different approach to a very basic exercise and explain how to do a few others that are rather unique.

Having a strong finish is critical to moving heavy weights in the full clean. Without a powerful finish, the lifter does not have adequate time to move under the bar and rack it securely, no matter how quick he might be. Plus, the velocity of the bar must be increasing at the top of the pull. I've watched many a lifter pull a weight almost up to the neck yet fail to rack it because it had come to a standstill.

Then there is the factor of timing. In order to make a personal record in the clean, the lifter must pull the weight high enough with an explosive punch at the finish, and he must also know exactly when to move under the bar. A nanosecond too soon or too late and the lift is lost. I've included a couple of exercises that not only enhance the top pull but also greatly improve timing.

I'm going to begin with the power clean, an exercise familiar to every CrossFit athlete or anyone using the Big Three (bench press, squat and power clean) from my book "The Strongest Shall Survive." Power cleans will help the athlete learn the correct line of action when pulling a bar from the floor to his shoulders, and they will also help him strengthen all the muscles and attachments involved in the lift.

Done correctly, power cleans will improve shoulder flexibility, timing, quickness and coordination, and these improvements carry over to any and all athletic endeavors. Power cleans also do an excellent job of strengthening the major muscle groups of the body in a proportionate manner. That's why they're called "the athlete's exercise."

Feet on the Floor

Nearly every coach I know who is training an athlete to be an Olympic lifter teaches him to skip his feet to the side at the finish of the power clean. The coaches think doing so will help the athletes learn to drive down into the bottom position faster in order to rack the clean. I take a different approach. I want my aspiring Olympic lifters to do power cleans without moving their feet at the finish.

"But that will not allow them to move faster under the bar," you might be thinking. "And that's an important phase of the lift."



Shaun Cleary/CrossFit Journal

With heavy loads, perfect timing is everything at the finish.

Bear with me. I want the lifters to keep their feet planted firmly when power cleaning because this forces them to pull harder at the top. Whenever an athlete's feet leave the floor, he no longer has a base from which to pull the bar higher. He depends completely on momentum generated before his feet left the floor.

All the Olympic lifters from the '40s, '50s and '60s power-cleaned without moving their feet. They were doing power cleans mostly for their presses, and by planting their feet, they were able to rack the weight and get set for the press instantly. If they moved their feet, which happened sometimes because their pull was off line or wasn't quite strong enough, they had to take valuable time resetting their feet on a line before pressing the weight. That extra move usually ended up causing the lift to be a failure.

I learned the Olympic lifts by looking at photos in magazines and did power cleans for my overhead presses. If my feet moved at all, it had a very adverse effect on my press. And when I began learning how to do full cleans, I had no problem moving to the bottom position quickly.



Ruby Wolff/CrossFit Journal

Bars pulled to shoulder height can still result in a missed lift if athletes lack a strong finish and savage aggression.

At the Dallas Y where I trained while I was going through Southern Methodist University in Texas, Sid Henry was in charge of coaching the Olympic lifters, and he had a rule that if a lifter moved his feet even a tiny bit, that power clean didn't count and he had to do the set again. He was extra strict if the lifter was trying to set a gym record.

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two different lifts. What skipping the feet does is prevent him from leaning into the climbing weight nearly as much as if he had planted his feet, and that extra 1 or 2 inches of height can be the difference between success and failure.

This change from planting the feet and moving them at the finish of the power clean came about when the press was dropped from Olympic lifting in 1972. Because it no longer mattered whether the feet were set for the press, it made logical sense to start skipping them to the side while power cleaning. The assumption was that if the feet moved faster on the power clean, they would move faster on the full clean. But the cold, hard truth is this: No matter how fast a lifter moves his feet on a full clean, if the bar has not been pulled high enough and provided with a final, powerful shrug, he will not have enough time to get under the bar.

I have watched lifters skip their feet to the side before they have given the bar that final punch upward. That wasn't a problem as long as the weights were relatively light, but when they attempted to clean taxing poundages, they were unable to rack the weight no matter how fast they moved.



Brett Smith/CrossFit Journal

The kneeling clean. Note that the elbows should drive up and out at the finish (upper right) before the athlete swiftly and smoothly racks the bar.

Power cleaning without moving your feet makes you pull longer. Pulling longer helps you move the bar a bit higher, and that translates to more time to drive to the bottom position and rack the weight.

If this seems a bit off base, consider this: When you do high pulls or shrugs, your feet stay firmly planted at the top end of the movement. Why? Because that allows you to pull the bar higher. Any attempt to move your feet and the bar comes to a dead stop.

However, some lifters don't really want to change the way they have been power cleaning. Skipping their feet feels more natural than planting them. In those cases, I provide them with a rather unique exercise that will help them learn how to pull the bar higher and longer. Only a few know of this exercise because I have only taught it to my more advanced Olympic lifters. I came up with the idea when I was coaching Steve Dussia at the University of Hawaii. I already had him doing hang cleans, but I felt he

needed something extra in order to move his clean higher. The great thing about working with "Big Steve" was that he was game for any crazy idea I came up with.

I called the exercise "kneeling cleans." These can be done with minimum equipment and space. A standard bar works even better than an Olympic bar because it forces the lifter to turn the bar over at the end of the pull. Very little weight is needed, and the starting position can be varied by using metal 5s, 10s, 25s, 35s and 45s on the bar. I started Dussia with 10s on an Olympic bar—65 lb. Make sure you use some type of firm cushioning to protect your knees.

Tuck the bar in tight to your thighs and make sure your frontal deltoids are out in front of the bar. In one fluid movement, bring the bar up and rack it on your shoulders. If you allow your torso to rotate back too soon, the finish will be much more difficult. At the finish, your elbows must be up and out, not up and back. Once you turn your elbows back, you are no longer able to extend the bar upward.

And because it's difficult to create any momentum in this short-range movement, you must maintain pressure on the bar until you have it racked. There is no floating time.

I asked Dussia to provide some comment on kneeling cleans because he did the exercise more than any other lifter I ever trained.

He wrote: "I always considered kneeling cleans one of my most productive accessory exercises for three reasons. First, it forces you to start with your shoulders well ahead of the bar when the bar is above knee height. Otherwise, you can't generate any pull to speak of. Also, it helps to develop a perfect head position to allow for maximum trap contraction. Lastly, it requires rapid elbow movement to rack the weight. All of these things converted nicely to full cleans."

He added: "It's crucial not to implement any kind of reverse curl movement to finish the lift. This exercise is not meant to be a substitute for power cleans, but they are useful as warm-ups for that lift. It is also a nice complement to hang cleans and high pulls in a rack."

Before Dussia did kneeling cleans, he was cleaning 340 as a 181-pounder who never took any form of strength-enhancing drug. After he went through a routine that included kneeling cleans, heavy hang cleans and shrugs, he cleaned 380. This was in 1975, when only a handful of light heavyweights in the country were handling that much weight in the clean. And many of those who were lifting that amount were not clean.

The most he used in the kneeling cleans was 165 x 5 and 190 for a single. He usually did the cleans in sets of 5s, but every so often I would have him do some singles. Those single reps forced him to concentrate even more.

Hangings With Barski

I think one of the reasons kneeling cleans helped Dussia improve his full clean by 40 lb. was because he also did hang cleans at the same time. Hang cleans are my favorite for improving the full movement, and I often call them "Barski" cleans because Bob Bednarski was the first person I ever saw doing them in the York Gym. He had



Thomas Campitelli/CrossFit Journal

A well-timed finish prepares the athlete to dive under the bar and receive it in a rock-solid position.

been taught how to do them by his coach, Joe Mills. As soon as I tried them, I was sold on their value. I could feel how they forced me to pull longer and provide more snap to the finish. Otherwise, I didn't have a prayer of racking the weight.

If you start using the hook grip every time you do power cleans, power snatches, full cleans and full snatches, hooking will become as natural as breathing.

Do not use straps when doing hang cleans. Never. It's just too risky. You must be able to dump the weight when you're unable to rack it correctly. Kenny Moore had relocated to York from Lenoir, North Carolina, and lifted along with me as often as he could. He joined me in sessions of hang cleans but had difficulty maintaining his grip once the weights got heavy, so he resorted to using straps. I did my best to get him to stop using them, but he was hardheaded and insisted he could dump the bar if he had to.

He did just that a few times, but at one workout the bar crashed down on him. It was out front, and he was unable to release the bar. The full force of the weight drove down into his hands, which were extended upward to rack the bar. I don't recall just how much weight he was using, but it was over 300 lb. His left hand took the brunt of the downward force and split open between his thumb and forefinger. Many stitches, lots of pain and a long healing process followed.

Hang cleans need to be done using a hook grip. The hook grip will allow you to lock onto very heavy weights. I used it for my deadlifts and could move as much weight hooking the bar as I could using straps. Simply hook your thumb under the bar and lock it in place by placing your forefinger and middle finger over it. And squeeze it tight. Because this is a new and different sort of pressure on the fingers of some athletes, it will hurt until they have been using the hook grip for some time. To alleviate some of the

pressure and pain, wrap strips of tape around the joint in your thumb—but only two wraps. More tape will tend to bunch up and create problems.

If you start using the hook grip every time you do power cleans, power snatches, full cleans and full snatches, hooking will become as natural as breathing.

Form points for the hang clean: Assume the same starting position you use for cleaning. Grip the bar just like you do for power cleaning as well. Stand up with the bar and take a moment to tighten every muscle in your body from your feet to your neck. Lower the bar to just above your knees. Don't lower it too far. That will cause your back to round, and you don't want that.

As soon as you lower the bar to the correct spot, drive your hips forward, pull your elbows up and out and extend high on your toes. The power provided by the traps and calves will make the bar leap upward. At that moment, explode to the bottom position, all the while controlling the bar. You don't want the bar to crash down on you. You want



Brian Sullivan/CrossFit Journal

"Layback" is a key part of an aggressive finish and helps ensure the bar does not swing away from the lifter.



Shaun Cleary/CrossFit Journal

Bill Starr advises that using hang cleans in training will give lifters a great deal of confidence when the bars must come from the floor in competitions.

to actually guide it onto your shoulders. Once the bar is racked firmly, stand up. Take a moment to make sure your feet are exactly where you want them, then do another rep. Then one more. The third rep is the money rep. That's the one that will help you clean more weight.

The third is the hardest rep by far. You're tired from the first reps, so you have to concentrate even harder on the small form points in order to be successful with that final rep. When you're able to keep the bar snug to your body, put 100 percent effort in your shrug, climb high on your toes and then erupt to the bottom position with the bar fully under your control, you will reap the benefits of the exercise right away.

That third rep will feel exactly like your second and third attempts in a contest. One of the most important aspects of this exercise is it builds a huge amount of confidence in the clean. You know without any doubt that you are in charge of a lift if you have pulled the bar off the floor in the correct line and have it just above the knees with more speed than you could generate in a hang clean.

While you're learning hang cleans, stay with poundages you can handle with a bit of room to spare. But once you get the feel of the exercise, you need to load up the bar: They only work if you push them to the limit. Should you start missing more reps than you make, back the weight down and figure out why you're missing. More than likely, it's because you aren't providing a strong enough finish. The tendency of all beginners is to cut the pull. They're anxious to get to that bottom position. But you must wait and wait some more before driving into the hole. Learn how to stay with the pull longer and you will soon be moving weight 8, 10 and 12 inches higher than before, which gives you a lot more time to guide the bar into a perfect rack.

About 6 sets of 3 are enough for hang cleans. When you get really weary, you're not going to be able to do them perfectly, and they need to be done perfectly or you'll build in some bad form habits.

To give you some idea of what to shoot for, when Dussia moved his clean from 340 to 380, he was able to hang-clean 350 for a double.

After I spent a good bit of time learning how to do hang cleans correctly, I was able to triple 360 as a 198-pounder, and I moved my clean from 405 to 446 over the course of a couple of years.

Besides enhancing confidence, hang cleans are extremely valuable in improving timing for full cleans. By drilling the hang cleans, you learn exactly when to make that move to the bottom. The difference between moving too soon to the bottom and moving too late is no more than the blinking of an eye. To be able to pinpoint the exact moment to make the move to the bottom is worth 30 or 40 lb.

Once a week is enough for hang cleans. This piece is about improving the clean, but snatches can also be done from the hang.

From the Vault

There's one more exercise I want to present, although I'm not sure it's one many lifters should try. I include it because the only lifter I ever saw do it was also the athlete I consider the smoothest cleaner in the history of Olympic lifting: Clyde Emrich.



Brett Smith/CrossFit Journal

“Hopper pulls” might help athletes improve their timing, but the possibility of equipment damage and injury makes the movement quite risky.

Emrich trained at the Irving Park Y in Chicago, Illinois. When I was attending graduate school at George Williams College in Wisconsin and working at the Park Ridge Y, I would try to get to Irving Park as often as possible so I could train with Emrich, Fred Schultz, Chuck Nootens, Jon Ranklin and Steve Sakoulas. They were all terrific lifters and great guys. Emrich was one of the lifters I had admired when I first got involved in Olympic lifting. He had placed third at the '54 Worlds in Vienna and won the silver medal in '55 at Munich, along with numerous national titles.

I called the exercise he did “hopper pulls,” although I’m not sure what he called them. He would place a loaded barbell on the very end of a flat bench, then clean it. Then he stood up with the weight and lowered it back to the end of the bench. But he wouldn’t lower it carefully to the bench. Rather, he drove the bar into the bench so it rebounded upward rather forcefully. He would do 4 or 5 reps in this manner, then add more weight. He often worked up to close to 400 lb. His pull had to be very exact for him to be

able to rack the bar and ride it down to the deep bottom position because his legs were almost touching the bench. Every rep was done perfectly, and I never saw him miss a single one.

Back at my Park Ridge Y weight room, I tried doing some hoppers. I decided their greatest benefit was to help with my timing whenever I pulled a weight much higher than I needed to in order to rack it, such as in the warm-up attempts for my clean and jerks.

I didn’t do this movement very often for two reasons: I felt hang cleans were more useful, and I was fearful of damaging a bar by rebounding it off the bench. But if I happened to be in a gym that had some slightly bent bars, I would do a few sets of hoppers.

Editor’s note: As the author has indicated, this is a very rare movement which carries a significant risk of damaging equipment and/or personal injury due to the use of barbells and benches in a manner outside the scope of intended

use. Due to the risks involved, athletes should consider this movement only as an interesting part of weightlifting history as opposed to incorporating it into a training regimen.

I can't say hoppers helped my cleans very much, but they certainly had a positive influence on Emrich's cleaning. During the 1963 lifting season, from January to April, there was a meet held every Sunday at one of the YMCAs in Chicago. I lifted in all of them, and Emrich seldom missed a contest. At that time, the world record in the clean and jerk for the 198-lb. class was 418 and change. At the meets, Emrich would open with a ridiculously easy 380 or 390 and go right to 420 to break the record. He would clean that poundage as smooth as silk two and sometimes three times—when he chose to take an extra attempt—only to miss the jerk every time. He never failed to clean that weight, which would have earned him a world record. Why he didn't spend more time improving his jerk, I do not know, but in my estimation, he was capable of cleaning 440 lb.



Shaun Cleary

Finish!

Finish the Pull!

If the finish of the clean is your weak point, give these exercises a try. Power cleans without moving your feet, kneeling cleans and hang cleans will help you to make your finish stronger, and when that happens, your clean improves significantly.

Blend these exercises into your strength program and continue to do heavy high pulls, shrugs and isotonic-isometric contractions so the start and middle of your cleans stay strong. Make improvement on all of these lifts and your full cleans will move up right away. Having confidence in those final attempts in a contest gives you an edge against your opponents, and that's a very satisfying feeling.



About the Author

Bill Starr coached at the 1968 Olympics in Mexico City, the 1970 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 [The Aasgaard Company Bookstore](#). Starr died April 7, 2015, in Maryland.