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Warm-Ups, Flexibility and the Olympic Lifter

If your pre-workout prep consists of a cup of coffee and a few squats, Bill Starr has some advice for you.

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All pics: Dave Re/CrossFit Journal

As every Olympic lifter fully understands, doing full snatches and clean and jerks requires a high degree of flexibility in every part of the body. All the major muscle groups and corresponding attachments are involved in the two competitive lifts: shoulder girdle, back, and hips and legs. A lack of flexibility in the shoulders will prevent the lifter from locking out snatches and jerks. It may also keep him from racking a weight on his shoulders while cleaning. Tightness in the hips will have an adverse affect on getting into a low position for snatches and cleans.

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Because every part of the body is activated during the execution of the two Olympic lifts, every joint and muscle group needs to be given some attention before doing any heavy lifting. And this is where there is confusion between the two disciplines needed to enhance flexibility: warming up and stretching. While closely related, they are not the same. Merely stretching a muscle or joint isn't sufficient preparation for a heavy session in the weight room that will be filled with complicated athletic movements. Stretching your quads and calves may be enough prior to a run, but much more has to be done to get ready for an Olympic-lifting workout.

In this article, I will explain why warming up and stretching are both vital disciplines for all Olympic lifters. Warm-up exercises come first and should do just what the name implies: elevate the body's core temperature. When the body temperature is raised, the arteries, veins and capillaries are able to deliver more oxygen to all the muscles. Hemoglobin is responsible for providing oxygen to the working muscles, and it does that more effectively when the muscle fibers are warm. In addition, a slightly higher body temperature creates a positive pressure between

the muscles and the bloodstream, which enables more oxygen and nutrients to be pumped into the muscles and attachments, allowing them to function at a higher level.

And equally important to a lifter who is about to attack the quick lifts, a higher core temperature facilitates the transfer of nerve impulses while doing these high-skill exercises. Yet another plus is a well-functioning nervous system, which helps the lifter concentrate on the many form points of snatches and clean and jerks. When the nervous system is clicking on all cylinders, it's easier to prepare for the psychological demands of going after a personal best on a lift or learning how to do a new, complicated lift such as the drop snatch or hang clean.

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Bill Starr recommends focusing on the core during a general warm-up designed to raise the body's temperature.

There's more: warmer muscles help a lifter perform at a higher level by releasing those enzymes responsible for the multitude of chemical reactions that occur during exercise. The body's energy system depends on these enzymes, and anyone who starts in on his routine without a sufficient warm-up will be more sluggish than the athletes who take the time to warm up properly. Everyone knows a warm muscle is more elastic and reacts better to movement than a cold one. And it's only common sense to know supple muscles are less prone to injury than tight ones.

Oil the Machine

An Olympic lifter needs to set aside 20 minutes for warming up. This was the guideline set by the Russians in the '70s, and it still holds up. There are two stages to the warming-up process. The goal of the first stage is to increase the pulse rate, respiratory rate and body temperature and improve the mobility of the joints. Any exercise—or series of exercises—that make an athlete huff and puff and break into a light sweat will fill the bill.

There is an extensive list of exercises you can do. Skipping rope was the choice of many of the York lifters. Riding a stationary bike, walking on a treadmill or simple calisthenics also work. When I trained in a bare-bones weight room, I would just do jumping jacks until I was blowing and sweating.

Next, do something specific to warm up the trunk—or “core,” which is an overused term but fits in this case. When the abs and lumbar get flushed with blood, the rest of the body responds much faster. That's because the midsection is involved in every physical activity. I have my Olympic lifters do sit-ups, crunches or leg extensions, then a set of back hyperextensions or reverse back hypers—high reps in the 75-100 range.

Finally, I have them hold a stick over their heads and do side-to-side bends. Then, without pausing, I have them lower the stick behind their neck and do twists. One hundred of each will bring the obliques and transverse abdominis into the game.

Stretching is an integral part of the second phase of warming up. The reason why lifters need to wait until they have completed the first part of the warm-up procedure before stretching is simply because warm muscles and attachments respond more favorably than cold ones.

Editor's note: The author is not talking about lengthy periods of static stretching but rather specific work to help the athlete achieve more ideal positioning.



Side-to-side bends are a great way to get the obliques firing during warm-up.

If a lifter is going to lead off with snatches, he needs to make sure his shoulders are loose. Most Olympic lifters have a stick they use for stretching their shoulders and for shadow lifting. This can be a handle from a broom, a mop or a length of bamboo. The shoulders can also be stretched out with a towel, a rolled-up T-shirt or a length of clothesline. Many of the York lifters preferred the clothesline because it was easy to carry in their gym bags. Dr. John Gourgott was so flexible in his shoulders that he could rotate a stick from straight overhead down to his lower back while holding it closer than shoulder width.

It takes time to obtain that degree of flexibility, and he spent hours working with a stick at night after he had finished his workouts. Lock the stick overhead and do overhead squats. Sit at the bottom and rotate the stick around until you feel the muscles in your back and shoulders relax a bit. Then do some shadow snatches until you have the groove down perfectly. Now you're ready to begin your snatch workout.



Working with a band, clothesline or piece of PVC will help increase range of motion at the shoulder joint.

If cleans are first in that day's session, take ample time to make sure your wrists, elbows and shoulders are flexible enough for you to rack the bar across your frontal deltoids without any discomfort. The best way to do this is to lock a bar in a power rack at shoulder height. Start with one arm at a time. Grip the bar, and while keeping your torso straight, elevate your elbow as high as you can and hold it there for a six or seven count. Then do the same for your other arm.

For the next step, you will need help. Grip the bar tightly with both hands and have a training mate slowly but steadily push up against your triceps (see photo on Page 1). This needs to be done gently, and again your upper body must remain straight. If you allow your hips to ease forward to relieve the pressure on your shoulders, elbows and wrists, the stretching will not be nearly as effective. When your elbows are as high as you can bear, signal your training mate not to push anymore, but continue to hold your arms at that height for six or seven seconds. Take a short break, then do it again. If your shoulders are still tight after a couple of sets, do another.

There's no sense in trying to do full cleans if your shoulders are not flexible enough to rack the weight properly. In the event there's no one else in the weight room to assist you, try this: Load up a bar with more weight than you can move and do this form of stretching on your own. It takes some grit to force yourself to elevate your elbows higher and higher when they're screaming for relief, but that's exactly what it takes to increase flexibility in the shoulder girdle. The good news is that once you have achieved that level of flexibility, it's rather easy to maintain.

These stretches should also be done if you're planning on starting off with front squats. While this makes sense, those who open with back squats seldom take any time preparing their shoulders for the upcoming workout. Powerlifters are notoriously guilty of going right to the squat rack without the least bit of concern for their shoulders. Their thinking is the shoulders don't play a role in the full squat, so why waste time warming them up? Many do take the time to ensure that their backs and legs are flushed with blood by doing light warm-up sets on machines: leg curls, leg extensions, adductor work and a few good mornings. But nothing for the shoulders and arms.

However, the truth of the matter is the shoulders are very much a part of a back squat, especially when the lifter uses the style where the bar is placed very low on the back.



Shoulder mobility is important in the squat, especially if the lifter uses the low-bar back squat.

When the bar is locked low on the back, a tremendous amount of stress is placed on the elbows and shoulders. Squatting with cold shoulders is the same as doing an isometric contraction on cold muscles and repeating it over and over.

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One year, I trained at Doug Patterson's Metro Athletic Club in Grand Prairie, Texas. It was primarily a powerlifting gym, and none of the lifters bothered doing any warm-ups before they squatted. A few complained about aching shoulders when it was warm, but when cold weather settled in, there was an epidemic of dinged shoulders and elbows. The lifters were using muscle rub by the gallon and wraps from their elbows to their shoulders. Some even resorted to getting cortisone shots for their aching shoulders.

Eventually, a few of the lifters came to me for advice about their ever-growing problem. I explained my concept about the stress being placed on their elbows and shoulders during the squats and suggested they start warming them up thoroughly before doing any squats. I had them stretch their shoulders just like an Olympic lifter, then do a set of lateral and frontal raises with light dumbbells to get some blood in their shoulders.

And I told them to stretch out their shoulders in between every set and also later on, either at the end of the workout or at night. As could be expected, they were skeptical—but not for very long. After the first workout on the squat where they thoroughly warmed up their shoulders, elbows and wrists, they experienced much less pain than usual. Within a week, they were pain-free. Or, I should say, most of them were pain-free. A few had abused their elbows and shoulders so severely they had to take a layoff to allow the irritated areas to heal.

The last step of the second stage of warming up is simply common sense, but as all of us understand, common sense isn't that common. It's an extension of using the stick and doing shadow lifting: Start an exercise with light weight and slowly add more and more resistance. This allows you to focus more fully on your form so you're using perfect technique when you get to the working sets. By making each set a bit more difficult than the last, you're forcing your body to work harder, and that's exactly how you get stronger on any exercise.



Even the strongest lifters will benefit by setting excellent movement patterns with PVC, empty bars or very light weight.

Keep in mind the basic rule in strength training: You can never start with a weight that's too light, but you can start too heavy. One of the best lifters I ever trained with used to use an empty bar for 2 warm-up sets before he began piling on the plates.

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Keep that stick or piece of clothesline handy and put it to use in between sets of snatches and jerks. It helps keep the shoulders loose and set the pattern of the movements.

Post-Workout Work

The real key to improving flexibility is taking the time to stretch after the workout is over. This is called the "warm-down" phase and is very important to any lifter who is serious about making improvement on the two lifts. Stretching the shoulders, back and legs after a session aids in removing waste products that build up during exercise and relaxing fatigued muscles by releasing congested blood.

A reminder that there are three types of stretching: passive, ballistic and static. Passive is when someone assists you with your stretching exercises, such as having a training mate elevate your elbows to improve flexibility for racking a clean or a front squat.

Ballistic stretching should never be done by anyone, athlete or not. It is a rhythmic, bouncing motion and is potentially risky, especially when the muscles and attachments are fatigued.

Static stretching is the best for most body parts. It consists of stretching some muscle group and holding the stretch for a certain length of time. Many experts recommend only holding a stretch for 20 seconds; I believe longer is better—45 seconds or a full minute. I found that when I hold for that longer count, I can feel the tight muscles slowly relaxing as I approach 45 seconds and relax even more at a full 60 seconds.



Flexibility training and thorough warm-ups will help athletes achieve the positions that will help them succeed in Olympic weightlifting.

If you experience a sharp pain during a stretch, that's the stretch reflex telling you to back off. Static stretching is done gently. It is never forced. When the stretch is forced, the stretch reflex is activated. This is a built-in safeguard to keep you from harming your muscles and attachments by overstretching them. If you experience a sharp pain during a stretch, that's the stretch reflex telling you to back off. Ease up a bit and allow the muscles to relax a tad, then continue to hold in that more comfortable position for the desired count.

Stretching should never be painful. Rather, it should be soothing. Many times, lifters are short on time and do not bother to stretch after a workout. I've been in that boat numerous times myself. I found that if I stretch right after a shower, the muscles are more accommodating. I used this idea at contests, as well. After weighing in, I would take a long, hot shower until my skin tingled. Then I would get dressed and grab my stick and start stretching and shadow

lifting. It made my warm-ups a great deal easier, and I always lifted better in the meets when I followed that plan.

At one Philly Open that started at 4 p.m. and finished at 2 a.m., I showered before all three lifts. It was impossible to stay warm the whole time, so I relaxed after each competitive lift, then showered and began my warm-ups 20 minutes prior to my first attempts. And once I got going, I was constantly stretching my shoulders with my stick and shadow lifting.

Even when I'm rushed, I make sure I stretch after my training. I find it relaxing to stretch out my worked muscles later on at night. By that time, the fatigued groups begin to reveal themselves, and I can do specific stretches to loosen them. And when I stretch late, I find that I am more relaxed and can get to sleep faster than when I don't spend any time making my body more supple.

Warm, Limber and Ready

Every Olympic lifter is unique, so he will have certain areas that need to be stretched out more than others.

And don't overdo stretching before a workout. Let the lifts themselves help you improve your flexibility. Several studies have shown that excessive stretching before a training session can lower your performance level and result in muscle damage.

Warming up and stretching are vital to long-term progress in strength training, and especially so in the two Olympic lifts because they require such a high degree of athleticism. Flexibility is a key factor for success in the sport, so you absolutely must spend time working on that attribute by making stretching a part of every training session.



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 TheAsgaardCompanyBookstore.com.