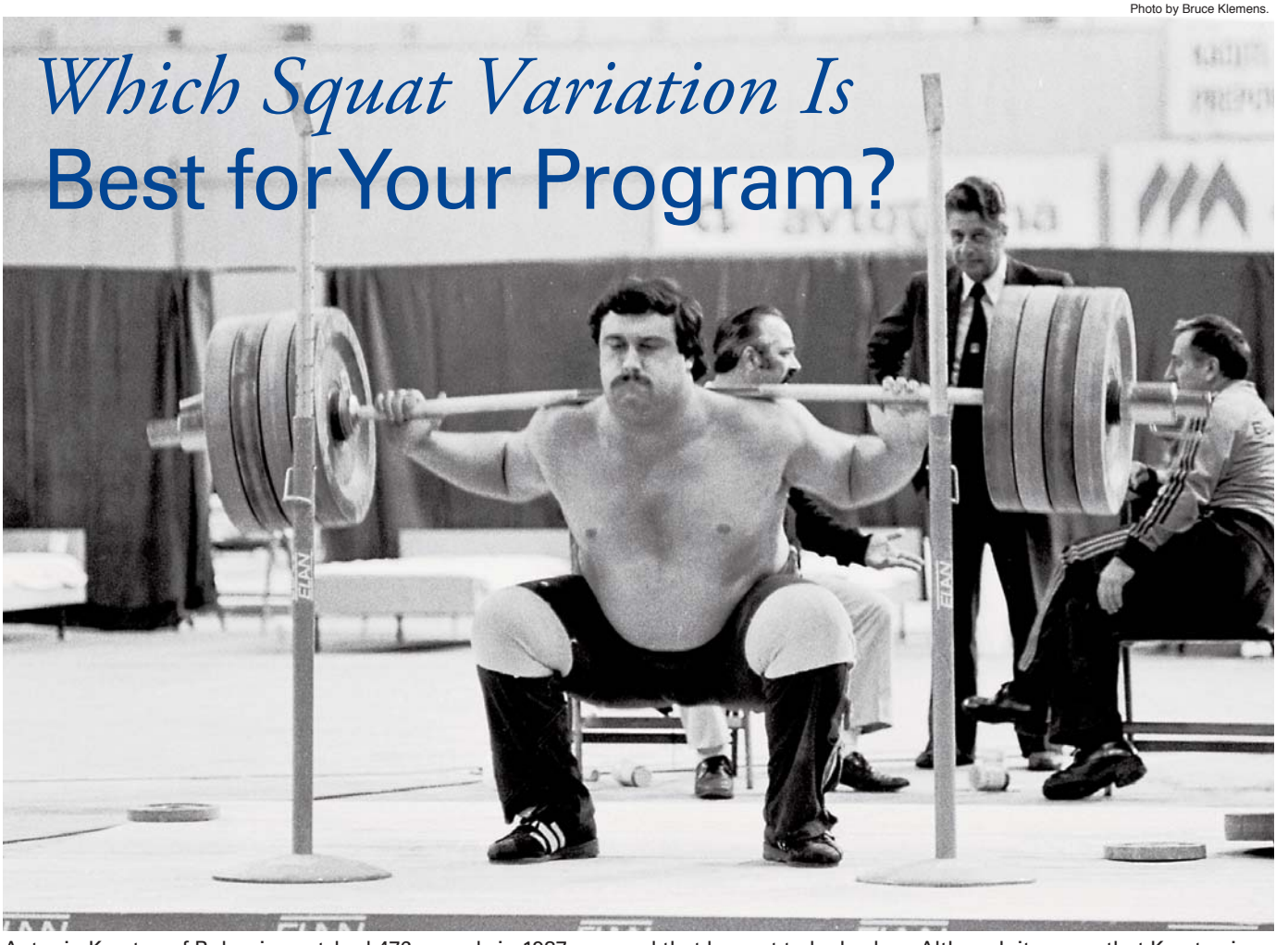
Photo by Bruce Klemens.

Which Squat Variation Is Best for Your Program?



Antonio Krastev of Bulgaria snatched 476 pounds in 1987, a record that has yet to be broken. Although it seems that Krastev is squatting high, this is deceiving because his legs are so large. However, you'll note that his hamstrings are below parallel, so this is a great squat by BFS standards.

A closer look at back squats, box squats and front squats

Ever since Dr. Greg Shepard founded BFS in 1976, he has been promoting the squat as the foundation of any athletic fitness program. Coach Shepard's efforts have succeeded in debunking the myths promoted by misinformed sport coaches and medical professionals who insisted that squats damage the knees, stunt growth and make athletes slow. Now in his 70s, Coach Shepard can enjoy his retirement knowing he helped create a paradigm shift in how athletes should train to achieve physical superiority.

Coach Shepard's opinion, which is well supported empirically and in research, is that no other single exercise works as many major muscle groups as effectively as the squat and no other exercise is as effective in preventing knee injuries. He also believes that the parallel squat builds the foundation for great speed, regardless of the size of the athlete. In fact, Coach Shepard believes that if the only lift athletes did was the parallel squat, they would have a good weight training program – not great, but good. Conversely, if athletes leave out the squats, they may not be able to fulfill their athletic potential, especially in sports that have a high strength component, such as football or wrestling.

Having made our case, let's take a closer look at some squat variations that are especially valuable for athletes.

Parallel Back Squat and Full Squat

The guiding principle in squatting is that it's necessary to lower yourself to a point at which the tops of your upper thighs are at least horizontal to the floor so that you strongly activate

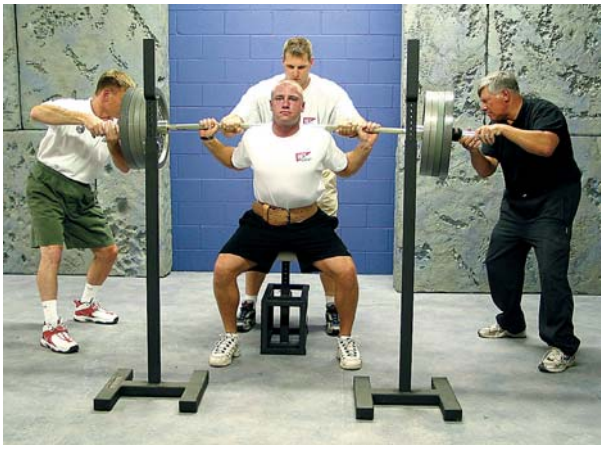
your hamstrings and gluteal muscles. If you don't squat low enough, you only activate the quadriceps (front thigh muscles); the insufficient muscle recruitment will not improve knee stability and may even decrease knee stability by creating muscle imbalances.

Peer-reviewed research suggests that squatting to parallel (compared to squatting above parallel) does not increase the stress on the patellofemoral joint. Finally, squatting to parallel is necessary to allow for a natural movement of the sacroiliac (SI) joint. Improper function of the SI joint is associated with many types of lower back pain.

At BFS, we offer a simple test to help athletes and coaches determine the proper depth for squats. It's called the marble test. If an athlete were to place an imaginary marble (or dowel) on the top of the thighs (in the middle) during their deepest squat position, which way would the marble roll? If the marble would roll towards the knees, the athlete is not squatting low enough. If the marble would stay stationary or roll towards the lifter's hips, the depth is fine. What you'll find by using this standard is that the bottom of the thighs has to be *below* parallel at the bottom of the squat. The marble test is better than judging the position of the bottom of the thigh, as athletes with large legs would be required to squat considerably lower.

BFS has no objection to an athlete squatting lower than parallel. All we are saying is that an athlete must squat to at least parallel to effectively work the glutes and hamstrings. Having said that, unless an athlete has exceptional flexibility and proper supervision, what often happens when an athlete squats all the way down is that their lower back will round. Rounding places extreme stress on the lower vertebrae of the back (L3, L4 and L5). Unless an athlete has exceptional flexibility and one-on-one coaching from a qualified Olympic lifting coach, it would be better to just squat parallel.

What about the hyper-wide stance used by many powerlifters? This style of stance reduces the forward movement of the knees and minimizes the involvement of the quadriceps, but it is not the athletic stance that BFS believes has the best carryover to athletics. Another way to think about this is to say that powerlifters are trying to lift the heaviest weight possible over the shortest distance possible, whereas at BFS we are trying to lift in such a manner as to have the best carryover to athletics.



The box squat is an extremely valuable exercise but should only be performed if well-trained, alert spotters are available.

Having made our case that the back squat is the king of all exercises, consider that there are many other valuable variations of this exercise that can help take an athletic training program to the next level. Let's explore three of them.

Box Squat

The box squat is the most controversial lift in the BFS program. Within the weight training community as a whole, coaches tend to either love the box squat or hate it.

We believe the box squat is unparalleled for overcoming plateaus, building hip strength and hip tendon strength, improving lower body explosiveness, and developing the confidence to handle heavier weights and thereby continuously break personal records. One of the reasons an athlete can use more weight in the box squat compared to a regular squat is that touching the box dissipates the kinetic energy created during the descent, energy that the athlete must normally overcome to change directions and begin the accent. But one of the main reasons we like the exercise is it is useful for helping to maintain strength in-season.

Although you use more weight in a box squat than in a regular squat, the reduced range of motion of the box squat allows you to recover quickly from the exercise. Just how quickly? Based upon the feedback of coaches who have won countless championships using the BFS program, an athlete can box squat heavy the day before an athletic competition without a decrease in performance. In fact, we've found that athletes usually perform better!

Regarding claims that the box squat is dangerous, you should have no concerns about safety or liability if you follow our recommendations, which include focusing on perfect technique (rather than on using the heaviest weights possible) and using three attentive spotters. Further, if an athlete is able to use more than 100 pounds in a box squat compared to a parallel squat, that athlete needs to use a lower box. When an athlete uses more than

100 pounds over their best parallel squat, then it is possible they are using a weight that their trunk muscles cannot safely handle to protect their spine.

Powerlifters have embraced the box squat as part of their training, but many use an excessively wide foot stance and a technique of sitting back so the shins are parallel to the floor. This is not a natural position, because for the body to move forward, the shins must incline forward. For the sport of powerlifting this technique may have merit, but for an athlete it conflicts with the law of specificity. This law says that the best exercises for a sport are those that most closely approximate the movements that occur in that specific sport.

We want to emphasize that the box squat does not replace the parallel squat. Because of the reduced range of motion in box squats, performing them exclusively would cause chronic tightness in the piriformis, a gluteal muscle. Tightness in this muscle can affect an athlete's ability to move laterally.

Nikki Gnozzio, squatting; Brittanie Mastricola, spotting.

Squatting inside a power rack with properly adjusted crossbars is the safest way to squat. Shown here are the front squat and the back squat. The front squat can be performed without a spotter because the weight can be easily dumped forward, but we always recommend at least one spotter for the back squat.

Front Squat

Many strength coaches believe that the front squat is a better leg exercise for athletes than the back squat. One reason is that since the barbell is positioned on the front of the shoulders rather than on the back of the shoulders, the quads work harder. At the very least, the front squat should be considered a key auxiliary exercise for any athlete. In fact, in one survey of top European coaches who were asked to name the three best weight training exercises for sports, the consensus was the power snatch, the incline press and the front squat.

One drawback to the front squat is that because holding the weight on the shoulders compresses the chest and makes breathing more labored, it's difficult to perform higher repetitions in this exercise. Further, holding the bar in this manner can cause pain in the wrists and elbows if you have relatively long forearms or tightness in the wrists or – the primary problem – tightness in the upper back or shoulders. Possible solutions include working on upper body flexibility, holding the bar on your fingertips (with elbows high), crossing your arms in front of you (which has the disadvantage of being difficult to balance), and tying lifting straps around the bar and holding the ends (see "Pain-Free Front Squats," published in our Nov/Dec 2006 issue, for details on how to use straps in this manner).

When Coach Shepard founded BFS 37 years ago, one of the most controversial aspects of the program was our promotion of the squat. The source of that early bias against squats was misinformation, which we now can resolve with scientific research. Our original claim was that the parallel squat is one of the best exercises for athletes, and we continue to stand by it 100 percent! BFS

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