



The parallel squat is one of the most effective exercises that can be performed in a strength and conditioning program, but it is also one of the most controversial. Many of the concerns about the safety of the squat can be attributed to misinformation. This paper will discuss the benefits and risks of the squat so that coaches can make an informed decision about whether or not they should include it in their strength and conditioning programs.

The parallel squat is considered the king of all exercises because no other exercise works as many major muscle groups as effectively as the squat. It also stimulates the cardiovascular system positively and burns more calories in the same time period than any other exercise, and as such also can be a useful exercise for general physical conditioning. Consequently, at BFS we believe that if athletes did nothing but parallel squats, they would have a good weight-training program – not great, but good. Conversely, if they leave out the squats, minimize them, or perform them incorrectly, athletes may not be able to fulfill their athletic potential – especially in sports that have a high strength component, such as football or wrestling.

We believe that the parallel squat builds the foundation for great speed, regardless of the size of the athlete. A six-foot-four, 265-pound football player who has good athletic ability might be able to run a 40-yard dash in 4.6 seconds if he practices the squat. If that athlete does some other type of free-weight exercise or substitutes an exercise machine for the squat, such as a leg extension, it is unlikely that he will achieve such results. Further, there are some machines and ap-

paratus used for squatting that may do more harm than good. One example is the Smith machine.

One problem with squatting using a Smith machine is that although it may reduce the stress on the lower back because the athlete can lean backwards while maintaining balance, it places significantly higher shearing forces (i.e., forces that work to pry the joint apart) on the knees because the hamstrings are not as active during the exercise. Further, squatting with a barbell on a guided vertical (or slightly angled) path does not allow for natural compensations in the movement of the spine, a restriction that can place unnatural shearing forces on the spine.

It also should be mentioned that in four lawsuits in which sports-liability consultant Dr. Marc Rabinoff served as an expert witness, four individuals became paralyzed using Smith machines because they didn't know how to properly use the safety apparatus on these machines. That being said, it's not that machine exercises have no place in an athlete's training, as they are especially valuable in rehabilitation, but that we believe free-weight exercises such as squats should form the core of an athlete's training.

One myth about squats that has led many athletes and those interested in improving their appearance to avoid them is that they will widen the hips and cause the body to develop a "blocky" appearance. This idea was promoted by the famous late bodybuilding trainer Vince Gironda¹. Gironda was called the "Trainer to the Stars" because his clients included Hollywood celebrities such as Clint Eastwood, Cher and Denzel Washington. He also trained professional bodybuilder Larry

Scott, who in 1965 won the first Mr. Olympia title, and Mohamed Makkawy, who twice placed second in the Olympia. Anatomically, the idea that squats widen the hips is not valid because the insertion of the gluteus maximus muscle, one of the prime movers in the squat, is not on the hips.

Although most high school weight-training programs for athletes include squats, many coaches allow their athletes to squat way too high, use poor biomechanics (such as by leaning forward excessively or allowing the knees to buckle) and spot improperly. These problems increase the risk of injury and decrease the effectiveness of the strength and conditioning program.

KNEES AND SQUATS

Are squats bad for the knees? Despite credible, peer-reviewed evidence to the contrary, this question is constantly raised, even by those who have no connection to athletics or physical education.

Much of the controversy originated from the belief that squats were harmful to the knees, an idea that was introduced by college professor Karl K. Klein and medical doctor Fred L. Allman, Jr. In 1961 Klein published a study in 1961 that contained some questionable research methods and suggested that squats could decrease knee stability and thereby increase the risk of knee injury. He later detailed his findings in a book he wrote with Dr. Allman, *The Knee in Sports* (Penn State Press, 1971).²

In the years that followed it was shown that there were flaws in the study, and the



Figure 2: Allowing the knees to buckle is a common error in squatting that must be corrected to prevent injury.



Caption: It is a myth that squats will make the hips wider and create a “blocky” appearance because the gluteus maximus muscle does not insert on the hips. Shown are Jesse Butterfield (top) and Chloe Van Tussenbroek (btm), multi-sport athletes who have competed in the School Age National Weightlifting Championships. Jesse went on to become a professional model.

results could not be reproduced. Further, other studies showed exactly opposite results; namely, that weightlifters and powerlifters tended to possess tighter knee joints than control groups and were less susceptible to knee injuries. What is interesting is that Klein and Allman did not disapprove of parallel squats, which are recommended by BFS, but full squats as performed by Olympic lifters. However, few people have actually read Klein and Allman’s book, which says that parallel squats are fine and have benefits to athletic performance.

In the years that followed, weightlifters, powerlifters and sport scientists were eventually able to convince the medical community and lay public that squats were not harmful to the knees and that competitive weightlifters and powerlifters did not have greater levels of knee instability than other athletes or the untrained population^{3,4}. Further, we at BFS contend that performing squats by descending under complete control to achieve a parallel position results in many positive changes, such as the following:

- The lower-body muscles become stronger and bigger, especially the quadriceps and hamstrings.
- The tendons become thicker and stronger.
- The knee ligaments become thicker and stronger.
- The entire articular capsule of the knee becomes thicker.
- The bones of the legs become stronger and slightly bigger because of increased capillarization.
- The cartilage of the knee becomes more resistant to injury.

These positive effects explain why athletes who do squats correctly have far fewer knee injuries than those who do not squat at all. Including squats in their program and performing them properly is especially important for female athletes, because they are up to five times more likely to suffer knee injuries than men are in sports such as basketball and volleyball. According to the American Orthopedic Society for Sports Medicine, each year approximately 20,000 high school girls suffer serious knee injuries, most involving the anterior cruciate ligament, which helps stabilize the knee.

Proper squatting technique offers athletes the best defense against knee injuries. That being said, deep squats can present some danger to the knee joint, especially if the lifter comes down fast, is out of control or bounces at the bottom position. Common sense tells us that a football player who does

deep squats with, say, 400 pounds is asking for problems if he comes down hard and bounces at the deep bottom position. But if an athlete lifting the same weight comes down under control to the parallel-squat position and then comes up, the knee joint should be in no danger whatsoever.

SQUAT DEPTH

Understanding the importance of depth in squats is imperative. We base our standards on a parallel depth or slightly below it. The high school All American standard is 500 pounds for males with heavy builds and 325 pounds for females with heavy builds. The all-state standard is 400 pounds for males and 235 pounds (think two plates and a collar) for females. BFS set those standards to help athletes and coaches understand when an athlete achieves something remarkable. Only an exceptional athlete with special understanding of how to do squats can reach those standards. If an athlete squats a foot high, or three inches high with 500 pounds, it is meaningless. Not a whole lot is really happening, and the athlete will miss out on great benefits.

The guiding principle in squatting is that it’s necessary to squat so that the tops of the upper thighs are at least horizontal to the floor so that the hamstrings and gluteal muscles are strongly activated. If you don’t squat low enough, you only activate the quadriceps (front thigh muscles). It is our understanding that if an athlete does not squat low enough, this reduced muscle recruitment will not improve knee stability and may even decrease knee stability by creating muscle imbalances. And it should be noted that peer-reviewed research suggests that squatting to parallel does not increase the stress on the patellofemoral joint compared to squatting above parallel.⁵ 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.⁶

At BFS, we offer a simple test to help athletes and coaches determine the proper depth. It’s called the marble test (Figure 1). If an athlete were to place an imaginary marble (or dowel) on the middle of the top of the thighs 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



Figure 3: Examples of great spotting by high school athletes

than judging the position of the bottom of the thigh, as athletes with large legs would be required to squat considerably lower (Figure 2).

Does BFS have any problem with an athlete squatting lower than parallel? Certainly not. All we are saying is that an athlete must squat to at least parallel to effectively work the hamstrings. As for the sport of powerlifting, the extraordinarily high poundages lifted by many of today's powerlifters suggest that there has been considerable leniency among some organizations as to what parallel is, along with the supportive gear that can often add hundreds of pounds to a powerlifter's best result in this exercise. Further, the hyper-wide stance used by many powerlifters, which reduces the forward movement of the knees and minimizes the involvement of the quadriceps, is not the athletic stance that BFS believes would have 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.

Because Olympic weightlifters squat all the way down, and in competition actually bounce out of the bottom position, why doesn't BFS recommend this style? After all, knee injuries to competitive weightlifters are rare, especially compared to knee injuries in other sports. What is wrong with going all the way down?

If an athlete has a qualified Olympic lifting coach to work with them on this squatting method and the coach believes this form of squatting is superior, fine. The problem is when an athlete squats all the way down and relaxes, the knee joint opens up slightly, subjecting the connective tissues to stress levels higher than their tensile strength. In the case of weightlifters, who perform snatches and

cleans bouncing out of the bottom position, the stress does not become excessive because they perform these lifts while keeping the muscles under tension.

Nevertheless, the reality is that a coach in high school may have 50 kids to work with at the same time, and it is difficult for any strength coach to give the one-on-one attention this type of squatting deserves, particularly in light of the fact that there are relatively few qualified Olympic lifting coaches in this country. Further, it's not so much that squatting deep injures the knees but that it places the lower back at a higher risk of injury.

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 high, unnatural stresses on the lower vertebrae of the back (L3, L4 and L5). Further, this stress is compounded by the compression forces on the spine, which are estimated to be six times greater at the bottom of a full squat than at the top (so that an athlete squatting 200 pounds would have 1,200 pounds of compression forces at the bottom).

Likewise, using a flat or tail-under back posture (as is often taught in fitness classes to supposedly increase the involvement of the glutes) places excessive strain on the supportive tissues of the lower back. In his book *Facts and Fallacies of Fitness*⁷, the late Mel Siff warned against this technique: "Keeping the back 'flat' is common advice in the gymnasium training environment, yet its validity is rarely questioned. Actually, a flat back devoid of any curvature is not only virtually impossible for a normal person to achieve, but it also reduces the ability of the spine to absorb or distribute shock and stress effectively. The healthy spine is meant to have several different curvatures, whereas the

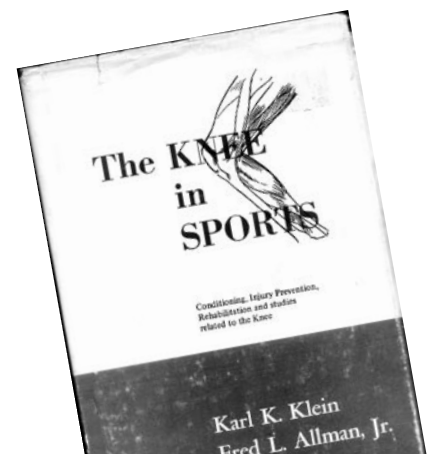


Figure 4: The publication of *The Knee in Sports* in 1961, written Karl K. Klein and medical doctor Fred L. Allman, led to many misconceptions about the safety of the squat exercise.

straight spine suggests the presence of a specific type of pathology." Again, if an athlete has exceptional flexibility and one-on-one coaching from a qualified Olympic lifting coach, it would be better to go with a parallel squat, or slightly below.

Next, there is the mistaken belief that squats invite adverse effects on the cardiovascular system because they cause a rise in blood pressure. It is true that blood pressure rises, but the effect is only temporary and the heart adapts positively to this stress by hypertrophying the left ventricle. It should also be noted that leg presses performed on a 45-degree angle increase the blood pressure significantly more than squats do. Of course, if an athlete has any cardiovascular issues, they must consult with their private health care practitioner about the effects that squats will have on their condition.

Finally, there is the argument that squatting all the way down doesn't work the quads and hamstrings throughout the full range of motion. That's true, but that's why BFS has

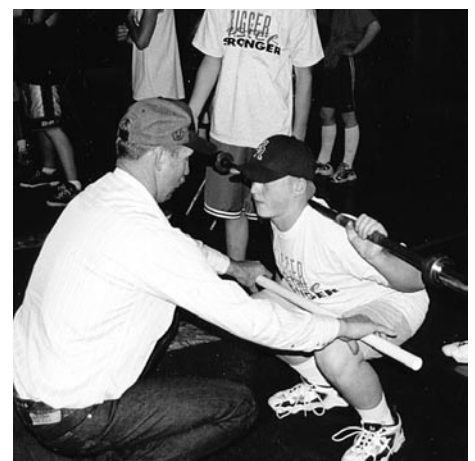


Figure 5: A dowel can be used to help determine the proper depth of a squat.

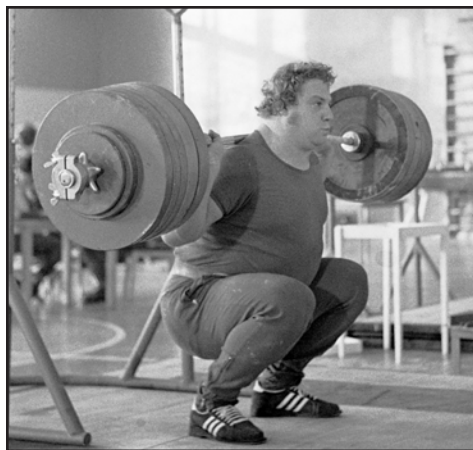


Figure 6: Lifters with large thighs will have difficulty reaching parallel if the bottom of the thighs were used to determine parallel.

made glute-ham raises and lunges high-priority auxiliary exercises. Both of these exercises put minimal stresses on the lower back while working the quads, especially the vastus medialis (an inner thigh muscle that crosses the knee joint and is therefore key to maintaining knee stability) and all four heads of the hamstrings.

PRESQUAT TECHNIQUE

Before squatting, you must be certain to have the proper equipment. It's best to squat inside a power rack, with safety pins adjusted to the proper height. However, the safety pins should be thought of as more "depth control," that is, a last-resort method of ensuring the safety of the athlete, as dropping any barbell on these pins from more than a few inches can easily damage the barbell. Also, it's better to use Olympic barbells that have center knurling, to more properly secure the weight on the shoulders, and a stiffer barbell. The more flexible (and more expensive) Olympic bars are great for power cleans, but that same flexibility makes it difficult to control the barbell during a squat.

When you are ready to squat, you must make several important technique preparations – getting a secure grip, properly positioning the bar on the shoulders, and removing the barbell from the rack.

GRIP. Two technique guidelines will help you establish a proper grip on the squat. First is thumb position. Should you have your thumb around the bar or behind the bar? About 60 percent of power lifters have the thumb in back, and 40 percent prefer their thumbs around the bar. Obviously, both styles are acceptable, but larger athletes or those with flexibility issues usually prefer that my athletes lift with their thumbs behind the bar as this grip makes it easier to push the elbows forward and lock in the lower back.

The second grip guideline to consider is

the width of the grip. At clinics our coaches ask those attending to pretend that they have a bar on their shoulders and to get a "very narrow grip." Then, we ask them to sit tall, spread their chests, and lock in their lower backs. Next, we tell them to change to a wide grip and lock in their lower backs. When we ask them what grip makes it easier to lock in the lower back, unanimously they always respond that it's the wide grip.

Make certain to use the lines grooved into most Olympic bars about four inches from the inside collars. Use these lines as reference points. For example, you might put your first finger on each line with your thumbs behind the bar. Now you are properly balanced with a wide grip and have some assurance that the bar will remain secure on your shoulders. You are now ready to place the bar on your shoulders. Figure 00 illustrates the proper way to grip.

BAR POSITION. A common mistake for athletes who squat is placing the bar too high on the shoulders. In fact, many athletes place the bar right on the neck. That hurts, so they'll use a barbell pad. Most athletes can squat with more weight, greater effectiveness, and more comfort by placing the bar lower on the shoulders. Structural differences in bone length and tendon-muscle attachments may allow some athletes to squat more effectively with high bar placement.

Some power lifters place the bar extremely low on the shoulders, perhaps as much as four inches from the top of the shoulders. This method may give a slight anatomical advantage, or the advantage may result from using a heavy, tight lifting suit or even from a lack of flexibility. Whatever the reason, squatting using extremely low bar placement detracts from overall leg development, which is obviously not helpful to the athlete.

Most athletes will be able to find a natural groove on the shoulders when they come under the bar in a proper position. If an athlete is experiencing neck or upper back pain from squats, it may be because the barbell is improperly positioned on the shoulders or they are performing the exercise improperly. We tell them, "Don't put the bar on your neck; put it on your shoulders. Find a groove." In almost every case, if a coach voices these technique cues, athletes will achieve excellent bar placement during their squats.

If an athlete does not rapidly adjust to squatting with a barbell on their back, they should consider attaching a Manta Ray device to the barbell. The Manta Ray spreads the pressure of the barbell over a wider area, a change that makes performing

the exercise more comfortable. There is only one size Manta Ray available, but the only individuals who might have a problem using it are those with exceptionally large trapezius development.

REMOVING THE BAR FROM THE RACK. We've seen high school athletes get all psyched up to squat and then position their shoulders two to three inches under the bar. Next, with an explosive movement, they jam their shoulders against the bar. Well, jamming their shoulders against a steel bar from that distance causes bruises on the necks or shoulders. Besides feeling pain, these athletes often place the bar on their shoulders incorrectly. We've also seen athletes whip a bar off the rack. Many times these athletes are not in solid squatting position as they back up to a ready stance. For those reasons, the few injuries that take place during squatting most often occur while the athlete is taking the bar off the rack or replacing it on the rack, not during the squat exercise itself.

A far superior way to handle the bar is to come under it in a solid power position, making sure that everything is correct. To accomplish this, get the bar in the groove on your shoulders. Look straight ahead and spread the chest. The next technique point is critical. Get into your athletic stance directly under the bar. Many athletes stand a foot back and lean forward. Taking that position can cause lower-back trouble, especially with heavy weight. Now you're ready. Put some pressure on the bar and make sure that everything feels right. If it does, blast off! This explosive movement will not bruise your shoulders because you've already put some pressure on the bar. Because of your explosive movement from the correct position, the bar feels light. You are confident.

The bar is now off the rack, and you are firmly under the weight. At this point, take a short step back with each foot and resume an athletic stance. You are ready to squat. With some squat racks, you may have to take several steps backward to clear yourself to squat. Some step-squat racks and peg-squat racks may require many long steps for clearance. Some squat racks have a spotting tier that is too high for parallel squats, thus requiring a long walk back to reach the correct position. Obviously, you are at a disadvantage if you have to do anything more than take a short step back with each foot.

Regarding foot stance, having the feet pointed slightly outward enables the quadriceps to contract more forcefully and increases the involvement of the adductors.

Ideal foot position varies with an individual's anatomy, but whatever position the athlete uses he or she must make certain that the knees are aligned with the feet.

SQUAT TECHNIQUE

The parallel squat can be a tricky lift. Technique and correct position mean everything. You must execute every technique guideline to perfection when attempting a new max. You must be psyched, but it must be a controlled psych. Now, on to the squat.

The squat has four main phases: the start, the descent, the bottom position, and the upward drive. You must concentrate on perfect technique during all parts of the squat to achieve maximum results.

START. You should be looking straight ahead at a target. Your mind should be clear and intense, thinking about technique: spreading the chest, locking in the lower back, and performing your descent pattern. You must take a huge breath and hold it just before the descent. For a one-rep max, take two breaths—first, a huge breath you hold to let the air settle deep within the rib cavity, and second, a quick breath as you begin the descent to expand the chest even further.

DESCENT. You should descend in an even, controlled pattern. Some athletes descend inch by inch and take forever, which is a mistake. Some athletes rapidly crash down out of control, which is dangerous. By using an even, controlled pattern, your technique will likely be better. Throughout the descent, you should hold your breath. Always spread the chest, lock in the lower back, look at your target, and sit tall (figure 3).

BOTTOM POSITION. You should squat to the parallel position or slightly below it. Keep in mind that many athletes squat high, a common flaw that will detract from their performance. By adhering strictly to the parallel position, you will have an advantage in competition. If you squat high, only minimal hamstring or glute development will take place, which will limit your improvement in speed and jumping. Hitting a correct parallel position is critical for personal and team success. It is one of the great secrets in this book.

Some football and strength coaches want their athletes to break parallel. We have no objection to this whatsoever. The bottom line is that to get proper leg development, athletes must go at least to parallel. Some coaches use the bottom of the thigh, not the top of the thigh, as their parallel-squatting reference point. This method creates problems

because many athletes with large thighs end up squatting two or three inches higher than they would if they used the top of the thigh as the parallel point. These athletes will forgo hamstring and glute development; in addition, standards become meaningless.

UPWARD DRIVE. You should continue holding your breath when beginning the upward drive from the parallel position. You should picture your hips attached to a giant rubber band. As you go down to parallel, you stretch the rubber band to the limit. The instant your hips hit parallel, you release the rubber band. Your hips pop upward while you maintain perfect technique.

About halfway up, you pass through the sticking point, the position at which the squat becomes easier. When you reach the sticking point, you should breathe out. Athletes performing a heavy squat will sometimes let out a yell as they expel the air in their lungs. This is perfectly acceptable and probably helps with the overall psych of the lift.

Your eyes should remain fixed on the same point throughout the entire upward drive. When you complete the set, take short, controlled steps back to the rack. Always remain in a solid position as you rack the bar.

SOLVING SQUATTING PROBLEMS

Three common mistakes in squatting include knees in and knees forward, and lifting your hips too early. The knees-in problem is more difficult to correct and puts unwanted pressure on the medial collateral ligament. This problem is quite common among female athletes and boys of junior high age. When squatting, the knees-in problem will surface on the way up. The knees are usually all right on the way down when squatting. The first step is for the coach to yell, "Knees!" to the athlete who is squatting. This is a signal for the athlete to force the knees out over the toes.

This signal may not work the first time. If it doesn't, a second correction technique is to tap the inside of the athlete's knee lightly. This gives the athlete a kinesthetic feel of the problem. The cure usually happens after only a few light taps. If the problem persists, coaches should videotape their athletes performing squats so that they can see themselves. This usually does the trick in those few extreme cases.

The knees-forward problem often occurs with beginners who lift their heels off the ground during the descent. This error puts harmful stress on the patella area, besides causing the lift to be horribly ineffective.

Coaches can correct the knees-forward problem by letting the athlete hold on to a partner's hands for balance, which we call the squat balance test (Figure 4). The athlete should sit tall, spread the chest, and keep the elbows and shoulders back. The athlete will then be able to balance with the heels on the ground from a parallel-squat position. The partner should let go after a while to let the athlete have a chance to regain balance from that difficult position.

Surprisingly, most high school athletes can balance themselves after they get the feel of the parallel position with their heels on the ground. Many bodybuilders squat with the knees forward and the bar positioned high on the neck. They usually lift with a lighter weight and higher reps, along with substituting other exercises for squats such as the leg press, and therefore may never have a problem. Athletes, however, usually bring the bar back more on the shoulders and want to lift a lot more weight. If the knees continue to come forward with heavier weights, this can be a potentially dangerous situation. The athlete must attempt to sit back more on the hips, with the lower leg being more vertical.

Sometimes, especially with a heavy weight, your hips may come up all right but you will lean over. To correct this position, you can try two techniques. First, scoot your hips forward and try to get them underneath the bar. Obviously, you should reexamine our previous technique guidelines for the chest and lower back. The second technique that works extremely well with many athletes is to think "elbows forward." When you press your elbows forward during a squat, you will tend to have an upright torso with a big chest and a locked-in lower back. The hips will follow the elbows.

SPOTTING

Correct spotting technique is critical to proper execution of the squat. Coaches have the responsibility to teach correct spotting techniques. Three spotters, a back spotter and two side spotters, should be used to ensure success in squatting. The functions of the spotters are threefold. First, the spotters should act as coaches and give correct technique cues. Second, they should act as judges on depth and technique problems. Third, they should be enthusiastic teammates and offer constant encouragement. Spotters should pull the best from their training partners.

Figure 00 shows correct spotting positions for the parallel squat. The side spotters are in the correct position for their dual role as



Figure 7: Weightlifters squat all the way down, but this depth is not necessary for most athletes and should only be used under the guidance of a qualified weightlifting instructor.

coaches and judges. Notice the position of the side spotters. One spotter has his head behind the bar, and the other has his head in front. Spotters must get into these positions to judge the parallel squat. The side spotters should be in squat position on the sides with their hands underneath the bar. If something happens, it usually happens quickly, and the spotters need to be ready. Spotters cannot stand on the sides with their arms crossed. After the lifter completes the set, the side spotters grasp the bar and help the lifter back to the rack.

Spotters need to be vocal in letting their teammate know how he or she is doing. No lifter can see or hear a nod of the head. Spot-

ters should encourage their teammate during and immediately after the set by offering comments such as “Looking good,” “Great job,” “Awesome set,” “One more rep,” or “You can do it.”

The back spotter should place his or her hands firmly on the bar at all times, from the moment the lifter gets under the bar to back out to when he or she puts the bar back on the rack after squatting. The back spotter places his or her hands on the bar for two reasons. First, the spotter can easily correct technique, especially when the lifter leans forward. The back spotter just pulls back slightly but firmly to correct the poor position. In addition, the back spotter should talk and encourage the lifter through the lift and set. Sometimes power lifters spot from behind with the arms going under the lifter’s armpits to the chest, but this assumes that technique problems are absent.

In addition to proper technique, there is the issue of safety in performing the lift. Because relatively heavy weights can be used in the squat, it’s essential that proper spotting be used. Although it’s possible to squat safely with one spotter (standing behind the lifter), we prefer that three spotters be used (two at the side and one behind). In addition to spotting, the side spotters can judge spotting depth and technique and can encourage the athlete to break personal records. The instructional video that is now available on our website will demonstrate proper spotting technique.

Finally, proper equipment should be used. It’s best to squat inside a power rack, with safety pins adjusted to the proper height. However, the safety pins should be thought of as more “death control,” that is, a last-resort method of ensuring the safety of the athlete, as dropping any barbell on these pins from more than a few inches can easily damage the barbell. Also, it’s better to use Olympic barbells that have center knurling, to more properly secure the weight on the shoulders, and a stiffer barbell. The more flexible (and more expensive) Olympic bars are great for power cleans, but that same flexibility makes it difficult to control the barbell during a squat.

Those are the basics of productive squatting. If you follow the guidelines closely, you’ll develop unbelievably strong quads, glutes, and hamstrings, a combination that translates into reduced susceptibility to injury, improved power, and greater athletic performance.

When BFS started 32 years ago, one of the most controversial aspects of our program was our promotion of the squat. Most of the controversies were a result of misinformation, which we can now 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.