

## BFS POSITION PAPER

*Straight-Leg Deadlift*

The BFS perspective on a valuable stretching exercise

**A**long with the box squat, one of the most controversial exercises in the BFS program is the straight-leg deadlift. And as with the box squat, the opposition to the straight-leg deadlift is not based upon facts but upon a misunderstanding of the purpose of the exercise and its execution. This paper will clear up some of these misunderstandings.

One of the most important variables in designing strength and conditioning workouts for athletes is exercise selection. There are barbell exercises, dumbbell exercises, medicine ball exercises, plyometric jumping exercises and...well, you get the idea. In the high school environment, where there is often limited equipment and large classes, it's more practical from an administrative standpoint to keep the exercise choices to a minimum.

At BFS we've tried to keep the matter of exercise selection simple. We describe core exercises, such as squats, that are used year-round to develop strength. And then we have auxiliary exercises, such as glute-ham raises, that are used at specific times during the year depending on what sport an athlete participates in. These auxiliary lifts simulate specific movements in sports or are performed as "prehab" exercises to work frequently injured muscles. Under the BFS system, a hex bar deadlift, which is a multi-joint exercise that uses a lot of muscle mass, would be considered a core exercise. This is in contrast to an





isolation exercise, such as the leg curl, which would be considered an auxiliary exercise. The controversy surrounding the straight-leg deadlift arises when it is treated as a core exercise rather than as an auxiliary.

With a deadlift a tremendous amount of weight can be lifted (several powerlifters have hoisted more than 1,000 pounds in this exercise), and as such, it is considered a strength exercise to develop the lower back, hamstrings, thighs, torso and trapezius. Usually it is performed for lower reps so that the heaviest weights can be used.

Because the barbell is positioned in front of the body's center of mass, often there is a temptation to round the back as the lift is performed. This practice places adverse stress on the spine and can easily result in injury. Although it is advantageous to have a training partner spot the lifter by placing one hand on the lifter's lower back and the other across the chest to ensure the back doesn't round, this takes considerable skill and some athletes may feel uncomfortable with this practice. As a solution, BFS decided to replace the deadlift with the hex bar deadlift, an exercise performed with a hexagonal barbell that weighs 45 pounds. The hexagonal shape allows the lifter to perform exercises from inside the encompassing bar. Handgrips strategically placed on the two ends of the bar enable the weight on the bar to be in perfect alignment with the athlete's center of mass, and there is less tendency to round the lower back.

Another aspect to consider with deadlifting is the power line. The power line is an imaginary line that runs straight through the lifter's center mass. Executing the deadlift movement through the power line enables the athlete to develop maximum power and reduces risk of injury. The farther the weight diverges from the power line, the



The photo on the left shows how a deadlift should look, with the athlete "spreading the chest" and "locking in the lower back." However, because the barbell is in front of the center of mass, often the athlete will round the back as shown in the photo on the right.

more power the lifter loses. For example, how long can you hold a 45-pound bar with your arms straight down and the bar resting against your thighs? Probably for a long time. Now try holding the bar about a foot out from your thighs. Doing that is much harder. The farther away the bar gets from center mass, the harder it is to hold and the more power is lost. In addition, because using the hex bar makes correct technique easy, a spotter is not necessary.

Although the deadlift can still be used in the BFS program as a core lift, we've found the hex bar deadlift to be a superior exercise. Because the torso is more upright than it is with the regular deadlift, compression forces on the spine and stress on the lower back are reduced. This difference makes it possible for athletes to work the lower back hard every week, whereas such frequency of training with the regular deadlift often causes overtraining. The hex bar also lends itself to performing shrugs in a superior way because the bar does not contact the thighs.

With the straight-leg deadlift, a straight bar is used and the bar remains in front of the body. Thus, potential power is reduced and the exercise lends itself to rounding the spine. As such, it should not be used as a strengthening exercise by being performed with heavy weights. Instead, it should be thought of as a stretching exercise.

## Stretching the Truth

One of the standard measurements used in physical education is the sit-and-reach test. In a stretching program, as in weight training, measuring progress and setting records will help keep an athlete's motivation high. We recommend that athletes take the sit-and-reach test at least once a month.

The sit-and-reach test measures flexibility in the back of the legs (hamstrings) and in the lower back. To perform the test, sit on the floor with your legs together (putting your legs against a box will help keep you from moving). Reach as far as possible and hold for three seconds. If you are not





The design of the hex bar makes it easier for athletes to perform the deadlift safely.,

using a BFS 3-in-1 bench, which has a built-in measuring stick, place a yardstick with the six-inch mark at your heels and the one-inch mark closest to your body. Reach as far as possible and check results against the BFS standards for the sit-and-reach test, Figure 1.

If the sit-and-reach test is considered a standard measurement, then what could be controversial about

using an exercise that simulates this movement to improve these results? (Figure 2) We believe there is no good reason for any controversy, as long as the exercise is not performed quickly or with heavy weights. Using heavy weights would create extremely high lumbar intradiscal pressure, especially in L2-L3 – such stress could cause lower back pain.

Our recommended technique for the straight-leg deadlift is to use a very light weight and perform every rep slowly, controlled and deep. Junior high boys and girls should use 45

pounds or less – that’s 45 pounds total, not 45 pounds on each side of the barbell. Most high school female athletes should use between 45 and 65 pounds, and very strong, mature female high school athletes could use up to a maximum of 95 pounds. Very strong, mature male high school athletes could use up to a maximum of 135 pounds. The absolute max anyone should use is 40 percent of their parallel squat. Perform two sets of ten repetitions, twice per week, and do not try to do a little more each week – keep the poundage the same.

Begin the straight-leg deadlift with a very slow and controlled movement. Keep your legs straight with the knees locked (not hyperextended) at all times. When you do a hamstring stretch, you can’t bend the knee at all – same thing with the BFS straight-leg deadlift. You can pause at the bottom before coming back up. To get a deeper stretch, perform the lift while standing on a low platform.

As you can see, the straight-leg deadlift is not a strength- and muscle-mass-building exercise. Instead, it is primarily a stretching exercise that is similar to popular stretches and is used as a national standard in physical education testing. For these reasons, BFS considers the straight-leg deadlift a valuable exercise for any athlete. **BFS**

**FIGURE 1**

GRADE	MALES	FEMALES
Excellent	6 in. past heels	8 in. past heels
Good	2 in. past heels	4 in. past heels
Fair	2 in. short of heels	0 in. at heels
Poor	6 in. short of heels	4 in. short of heels



FIGURE 2. The sit-and-reach test is a standard test used in physical education, and toe touch exercises are often used to develop flexibility. The straight-leg deadlift places the back and legs in the same position, as shown in these photos of common toe touch exercises and the sit-and-reach test.



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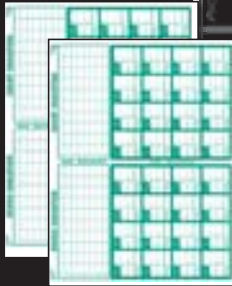
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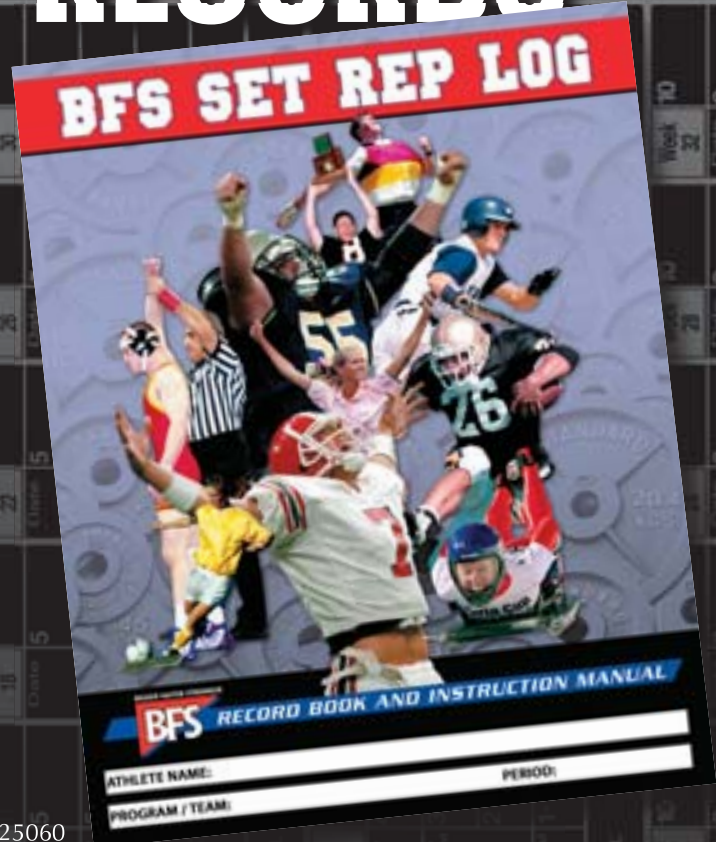
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