

The Research Confirms It – The Hex Bar Rules!

A new peer-reviewed study of deadlifts compares the hex bar to the straight bar

Well, it took a while for the sport scientists to catch up to what we at BFS already knew, but the data is in: The hex bar deadlift is superior in just about every

way to the straight bar deadlift.

In the July 2011 issue of the *Journal of Strength and Conditioning Research* an article entitled “A Biomechanical Analysis of Straight and

Photo: Karim Ghonem

Hexagonal Barbell Deadlifts Using Submaximal Loads” discusses a study that compares the training effects of a straight barbell to a hex bar. Among the biomechanical values studied were peak



The hex bar deadlift vs. the straight bar deadlift: both great exercises, but which one is better?

force, peak velocity, peak power, joint angle, peak net joint movement, relative time of acceleration, and resistance movement-arm magnitude. These values were selected because they look at how the exercises can affect an athlete's power, which is essentially the ability to produce force rapidly.

The Evolution of Deadlifting

The straight bar deadlift is one of the three competitive lifts in powerlifting (joining the squat and bench press), and what's more, it has been a key exercise used in the strength and conditioning programs of athletes and the general population. Even bodybuilders have used the exercise to help with their development. Franco Columbu, who won the prestigious IFBB Mr. Olympia title in 1976 and 1981, could deadlift 780 pounds at a bodyweight of 185 pounds; this lift exceeded the amateur world record and has been surpassed by only a few powerlifters to this date. And eight-time IFBB Mr. Olympia Ronnie Coleman has deadlifted 800 pounds for 2 reps.

When BFS was founded by Dr. Greg Shepard more than 35 years ago, the straight bar deadlift was one of the core exercises in the BFS Total Program. Although technically a simple exercise to perform, it's essential that the lower back be "locked in" to protect the spine. If not, the stress will be diverted from the muscles to the connective tissues and disks, and this can cause injury. For this reason, Coach Shepard taught his trainees to use a "spotted deadlift" when using record poundages. This technique involved having a spotter place one hand on the trainee's lower back and the other across their chest, applying pressure in both directions to prevent the back from rounding. However, about 15 years ago we learned about the development of a



The design of the hex bar enables the weight of the barbell to be aligned with the center of the hips, as opposed to the straight bar, which shifts the weight forward and increases the compressive forces on the lower back.

new type of barbell that would enable deadlifts to be safely performed without a spotter. It was called a hex bar.

The hex bar is a hexagonal-shaped barbell that enables the user to perform deadlifts while standing inside the bar; the handgrips are placed near the inside collars of the bar. One of the benefits of this type of bar is that the center of the barbell is in line with the hips – what we at BFS like to call the “power line.” In contrast, with a straight bar deadlift the legs get in the way, and thus the resistance is applied farther from the individual's center of mass. We've said all along that the technique that must be used with the straight bar requires the lower back muscles called the erector spinae to work harder and tends to round the lower back. And this new research provides validation for our opinion.

In this study, the authors cite evidence showing that world-class powerlifters produced “lumbar disk compression forces as large as 36,400 N....” Although powerlifters must endure such potentially harmful forces in one of their competitive lifts, it is questionable that non-powerlifters should expose themselves to such forces. As such, most strength coaches have chosen to eliminate the deadlift from their strength training programs, relying primarily on the Olympic lifts and back

extension exercises to develop lower back strength.

Another concern of strength coaches is that the deadlift does not produce significant improvements in power for an athlete, especially when compared to Olympic lifting exercises and plyometrics. This was confirmed in a study published in 1980 by Dr. John Garhammer and Dr. Tom McLaughlin. These respected sport scientists found that the average amount of power produced in the straight bar deadlift is as little as one third of the amount developed in the clean or the snatch.

According to the authors of the 2011 study, one reason the straight bar deadlift produced such relatively low velocity and power levels in research, compared to the Olympic lifting movements, is that these studies used only maximal loads. This limitation helped form an interesting idea among the authors: “Because the deadlift enables large forces to be developed and power is the product of force and velocity, it is possible that submaximal loads similar to those used in previous studies can produce large power outputs. Information regarding power production of the deadlift across submaximal loads will assist coaches and athletes in their exercise and load selection for training programs aimed at developing muscular power.”

The New Science of Deadlifting

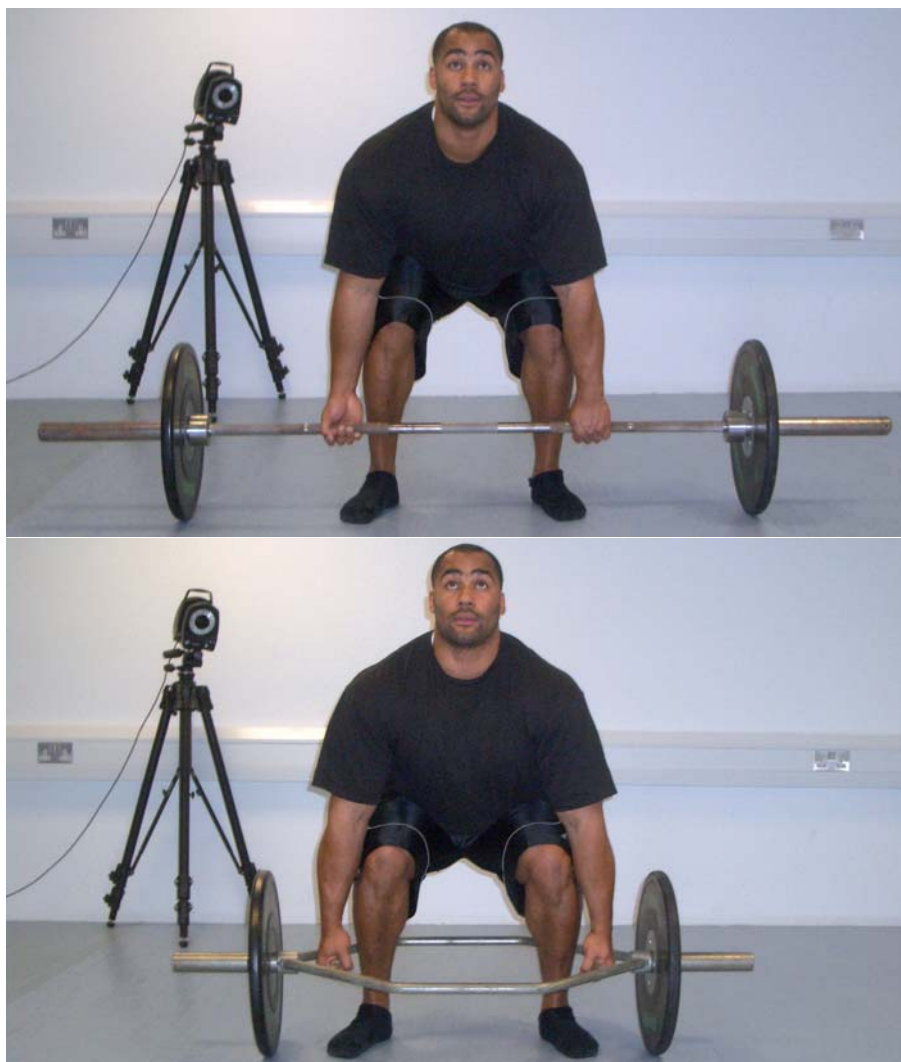
As opposed to many weight training studies that use beginners, this study involved 19 high-level male powerlifters with an average of 13.7 years of experience. The subjects were required to perform two training sessions. The first session was designed to determine each athlete's current best performance in the straight leg deadlift and the hex bar deadlift. For this testing, based upon

predicted results, the lifters warmed up and then performed up to five maximal lifts in each exercise; they were given two to four minutes of rest between attempts. The lifts were performed with a conventional shoulder-width stance, had to be performed in one smooth motion, and were considered successfully completed when “the body posture was erect, the knees were straightened and the shoulders retracted.”

For the second session, conducted one week later, the subjects used submaximal weights. After a warm-up, they performed sets of 2 reps each with the following percentages of their 1RM for each lift: 10, 20, 30, 40, 50, 60, 70 and 80. The repetition of each set that produced the greatest peak power was the one used for biomechanical analysis.

During the first session, it was found that the athletes could lift more in the hex bar deadlift than in the straight bar deadlift, with an average of 584 pounds (265 kilos) compared to 539 pounds (244.5 kilos). The authors noted that hex bar deadlifts “significantly increased the peak movement at the knee and significantly decreased the peak movement at the lumbar spine and hip compared to the deadlifts performed with the straight barbell.” In other words, the hex bar deadlift placed comparatively less stress on the muscles that straighten the spine and more on the muscles that straighten the knee.

What’s also interesting about this study is that the submaximal loads produced higher power levels than maximal loads did. For the hex bar deadlift the maximal power output was



The equipment used during the action research study.

achieved at 40 percent of the 1RM, and for the SBD it was 30 percent of the 1RM. In this study, peak power values for the SBD and HBD reached as high as 6,049W and 6,145W. Note the authors, “Studies quantifying power during Olympic weightlifting exercises have reported maximum peak power values similar to those obtained here.”

The takeaway points from this study are that the hex bar deadlift places

less stress on the lumbar spine when compared to the straight bar deadlift and that it has a much higher transfer to power development than previously thought. As this new research confirms and as Coach Shepard has always said from the first time he used a hex bar more than 15 years ago, the hex bar is a superior exercise and should be a part of any athlete’s program. **BFS**



There are many types of hex bars available, from the Youth Hex bar for young athletes to the Mega Hex bar for the super strong.

GET FAST NOW!



BY ISOLATING THE POWERFUL GLUTE AND HAMSTRING MUSCLES, THE GLUTE HAM DEVELOPER IS THE

NUMBER 1 SPEED ENHANCING TOOL!

HEAVY-DUTY SUPER GLUTE

Accommodates the largest athletes



NOW ONLY
\$895

GLUTE HAM DEVELOPER

Our most popular glute ham developer



NOW ONLY
\$575

BEGINNER GLUTE/HAM DEVELOPER



Great for beginners: Knee pad ensures perfect form
Rotating thigh pads reduce friction on upper thighs



NOW ONLY
\$775

BIGGER FASTER STRONGER

BFS

DEDICATED TO HELPING ATHLETES SUCCEED SINCE 1976

FOR CUSTOM OPTIONS 1-800-628-9737

online at www.biggerfasterstronger.com • email us at info@bfsmail.com

843 West 2400 South, Salt Lake City, UT 84119 • Fax (801) 975-1159