



The Exercise Technique Column provides detailed explanations of proper exercise technique to optimize performance and safety.

COLUMN EDITOR: Jay Dawes, PhD, CSCS*D, NSCA-CPT*D, FNCSA

The Jump Shrug: A Progressive Exercise Into Weightlifting Derivatives

Timothy J. Suchomel, MS, CSCS, USAW,¹ Brad H. DeWeese, EdD, CSCS, NSCA-CPT,¹ George K. Beckham, MA, CSCS,¹ Ambrose J. Serrano, MA, CSCS, HFS,² and Christopher J. Sole, MS, CSCS, USAW, USATF-1¹

¹Center of Excellence for Sport Science and Coach Education, Department of Exercise and Sport Sciences, East Tennessee State University, Johnson City, Tennessee; and ²United States Olympic Training Center, Lake Placid, New York

ABSTRACT

THE JUMP SHRUG IS A WEIGHT-LIFTING MOVEMENT DERIVATIVE THAT CAN BE USED TO TEACH THE CLEAN AND SNATCH EXERCISES OR AS A STAND-ALONE TRAINING EXERCISE. THE BALLISTIC NATURE OF THIS EXERCISE ALLOWS ATHLETES TO PRODUCE HIGH AMOUNTS OF LOWER EXTREMITY POWER, AN ESSENTIAL COMPONENT TO ATHLETIC PERFORMANCE.

TYPE OF EXERCISE

The jump shrug (JS) is an explosive lower-body exercise that can be used to enhance lower-body muscular power. In addition, this exercise can be used as part of the teaching progression of the clean and snatch, while emphasizing the second pull and complete extension of the hip, knee, and

ankle joints. This exercise can be performed from a static starting position or with a countermovement, at varying starting positions, from the mid-thigh and above/below the knee (16).

MUSCLES INVOLVED

The muscles involved in this movement are similar to those described in previous articles regarding related weightlifting derivatives (3–6):

- Static stability in starting position and throughout eccentric/concentric phases before the second pull (torso and upper extremity musculature): erector spinae group (iliocostalis, longissimus, and spinalis), deep spinal muscles (rotators, interspinales, multifidus, and intertransversarii), rectus abdominis, transverse abdominis, external obliques, internal obliques, quadratus lumborum, triceps brachii (long head), deltoid, subscapularis, latissimus dorsi, flexor

and extensor masses of forearm, brachioradialis, trapezius, splenius capitis, splenius cervicis, levator scapulae, infraspinatus, serratus posterior inferior, rhomboid major, rhomboid minor, and the supraspinatus.

- Descending phase of the countermovement (lower extremity): hamstrings group (biceps femoris, semimembranosus, and semitendinosus), gluteus maximus, quadriceps group (rectus femoris, vastus lateralis, vastus medialis, and vastus intermedius), gastrocnemius, soleus, tibialis posterior, flexor hallucis longus, flexor digitorum, peroneus longus, and the peroneus brevis.
- Ascending phase from the lowest bar position and propulsive phase from the mid-thigh position (second pull; full body): trapezius, splenius capitis, splenius cervicis, levator scapulae, rhomboid minor, rhomboid major,

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serratus posterior superior, posterior deltoid, teres minor, teres major, erector spinae group (iliocostalis, longissimus, and spinalis), deep spinal muscles (rotators, interspinales, multifidus, and intertransversarii), rectus abdominis, transverse abdominis, external obliques, internal obliques, quadriceps group (rectus femoris, vastus lateralis, vastus medialis, and vastus intermedius), gluteus maximus, hamstrings group (biceps femoris, semimembranosus, semitendinosus), gastrocnemius, soleus, tibialis posterior, flexor hallucis longus, flexor digitorum, peroneus longus, and the peroneus brevis.

BENEFITS OF THE EXERCISE

The JS is an exercise that has the potential to enhance lower extremity power (15,18). Furthermore, the JS can serve as a teaching tool to improve the technical aspects of the second pull phase of weightlifting movements. Previous research suggests that the JS may produce greater force (18), velocity (18), and power (17,18) as compared with the hang power clean and hang high pull at the same absolute loads. Thus, this exercise should be considered as a primary exercise to train lower-body power and complement other exercises used within the strength and conditioning program. Because of its ability to produce high levels of force, velocity, and power, this exercise may be implemented in various phases throughout the training year.

Another aspect of the JS that may result in greater overload is the fact that it does not require the athlete to elevate the bar past their hips. Therefore, an athlete may have the ability to use more weight than he/she would typically use during a clean, snatch, or other weightlifting variation that requires the bar to be elevated. As a result, this will allow the athlete to overload a ballistic exercise that may ultimately contribute to greater rate of force development.

STARTING POSITION

- Before achieving the starting position, the athlete should place their hands on the bar using an overhand grip at

a distance that is preferred for either the clean or snatch variation (5,7). In addition, the athletes should consider using the hook grip or lifting straps to prevent losing control of the bar when heavier loads are used (7).

- After the athlete has properly placed their hands on the bar, the athlete should remove the bar from the rack or boxes and stand with their feet in a position that is similar to what is used during partial pulling movements and/or jumping movements. The athlete's feet should be approximately hip width apart with their toes slightly open if preferred.
- The athlete should start in the power position (1,9,13). Their knees should be slightly bent and they should maintain isometric contractions with posterior musculature to retain an erect and upright posture. Specifically, the shoulders should be retracted and depressed while maintaining a "tight back" and "big chest."
- The bar should be in the power position (1,9,13) that is located below the hip fold on the upper part of the thighs (Figure 1). Specifically, the hips, knees, and ankles should be within the ranges of 140–150°, 120–130°, and 60–70°, respectively (4). When changing grips between the clean and snatch, it should be noted that small differences



Figure 1. Starting position for the jump shrug.

will exist in the starting position of the bar. Specifically, the starting position bar height will be slightly higher when using a snatch grip because of the wider hand spacing (5,7).

- At this point, regardless of if the athlete is performing a quick countermovement or holding the lowest position, the athlete should be cued to rotate their elbows out and flex their wrists to keep the bar close to their body during the lift.
- Finally, it should be verbalized to the athlete that they should drive through their heels before the propulsive phase of the exercise to ensure proper muscle activation.

DESCENDING PHASE OF THE COUNTERMOVEMENT

- As the athlete descends during the countermovement, he/she should maintain a "big chest" and tight back by contracting posterior musculature isometrically. The athlete should also continue to drive through their heels (3).
- The athlete should fold forward at the hip while keeping their knees in a slightly bent position and pushing their hips backward.
- The athlete should keep their eyes up and continue to look forward while they maintain proper posture and keep the bar close while lowering it down their thighs.
- To reach the lowered countermovement position (Figure 2), the bar should be lowered to a position just above knee level (12) before starting the ascending and propulsive phases.
- To achieve the greatest stretch-shortening cycle benefits during the countermovement variation, this phase of the JS should not be performed slowly. However, the descending phase of the countermovement should be performed in a controlled manner while maintaining proper posture throughout the movement.
- For the static-start variation, the bar should be held in the lowest position for 2–3 seconds to allow the effects of the stretch-shortening cycle to dissipate.



Figure 2. Barbell position above the knee between the countermovement and propulsive phases of the jump shrug.

ASCENDING PHASE OF THE COUNTERMOVEMENT

- From the lowered countermovement position, the athlete should begin to return to the mid-thigh (power) position by driving through their heels, keeping the bar close to their body, and maintaining proper posture.
- The athlete's knees should re-bend and their torso should return to an upright position.
- The hips of the athlete should begin to move back to their original position as the athlete guides the bar back up their thighs to the power position.
- The ascending phase ends when the athlete returns from the lowered countermovement position back to the original starting position previously mentioned.
- This phase of the JS is a transition to the following propulsive phase and should be performed in a controlled manner. The intensity of the movement will build up to the mid-thigh (power) position before the propulsive phase.

PROPULSIVE PHASE

- The final phase of the JS begins when the athlete returns to the mid-thigh (power) position from lower on the

thigh. As the athlete returns to the original starting position, they should use the momentum created by the countermovement to build up the intensity into an explosive jump.

- At this point, the athlete should explosively extend their hips, knees, and ankles to perform an explosive jump and leave the platform or lifting surface. In addition, the athlete should simultaneously shrug their shoulders (8,10,11,18) (Figure 3).
- The athlete should be instructed to jump as high as possible while keeping the bar close to their body.
- Finally, the athlete should land in an athletic position and control the position of the bar.

COMMON MISTAKES OF THE JUMP SHRUG

- The athlete may begin the second pull movement too early when transitioning to the power position. Specifically, the athlete may begin to pull and jump before the bar reaches the power position. This will prevent the



Figure 3. Finish of the propulsive phase and triple extension for the jump shrug.

proper vertical force generation during the triple extension movement.

- The athlete may position the hips too far forward instead of focusing on driving vertically through the heels. This may cause a looping of the barbell away from the athlete's body.
- The athlete may not finish the full triple extension of the hip, knee, and ankle joints. This will prevent the ability to produce maximum force.
- The athlete may not aggressively shrug during the jump portion of the exercise. The lack of this movement may limit the specific transfer to other weightlifting derivatives.
- The athlete may not land in an athletic position while controlling the movement of the bar.

DISCUSSION

The JS is a clean and snatch variation that can be used in the teaching progression for each exercise. Previous research indicates that the JS can produce high amounts of force, velocity, and power (18). As a result, the JS may be implemented as a primary exercise to enhance lower-body muscular power because of its emphasis on the second pull phase of traditional weightlifting movements. The ballistic nature of the JS requires an athlete to perform full extension of the hip, knee, and ankle joints during the second pull phase to leave the platform or lifting surface. Newton et al. (14) indicates that athletes should perform exercises that allow them to accelerate against a resistance throughout the entire movement. By implementing the JS into an athlete's strength and conditioning regimen, the strength and conditioning practitioner will be providing a less technical exercise that will allow their athletes to effectively train lower-body muscular power.

PRACTICAL APPLICATIONS

The JS is a weightlifting movement derivative that can be implemented in most blocks of training. The goal of the training block will determine the volume of sets and repetitions that should be prescribed. Although the loading recommendations for the JS within the current literature are somewhat limited, the

existing studies provide some guidance for loads that optimize peak force, velocity, and power (15,17,18).

During a strength-endurance block, a strength and conditioning practitioner may implement the JS using light to moderate loads (0–65% of hang power clean maximum) while prescribing a higher repetition range (3 sets of 10 repetitions). The emphasis during this training phase should be on the athlete's technique so that he/she can progress to heavier loads during future training blocks. A higher repetition scheme may also allow the athlete to develop their power-endurance abilities. The strength and conditioning practitioner should consider the athlete's ability to perform the exercise with proper technique during a high volume phase because proper exercise technique may be affected by fatigue.

The JS may also be prescribed during maximal strength and strength-power training blocks. Here, the practitioner should reduce the volume of JS repetitions (3 × 5–3 × 3) while increasing the load. Although JS research has only examined external loads as high as 80% of maximal hang clean (15,18), it is likely that an athlete will be able to perform the JS with loads in excess of their maximal hang clean ability (>100% 1RM [1 repetition maximum]). Comfort et al. (2) demonstrated that loads in excess of 100% 1RM (120–140%) of an athlete's power clean can increase an athlete's rate of force development during another weightlifting derivative (mid-high pull). By implementing the JS during this point during the training year, practitioners can provide the athlete with the opportunity to further stabilize their technique leading into future training blocks where the complete weightlifting movements (clean or snatch) may be prescribed. Furthermore, by using the JS in a maximal strength or strength-power training block, the athlete will have the opportunity to overcome loads that are greater than what they can successfully clean or snatch.

Finally, the JS may be implemented in an explosive speed or maintenance

block in which the main goal is to enhance peak power development. For this training block, practitioners should reduce volumes and loads (3 × 3, 3 × 2, and 2 × 2). Previous research (15,17,18) has indicated that loads ranging 30–45% of the athlete's 1RM hang clean should be used for peak power production. It should be emphasized that load selection should be based on the athlete's technical proficiency and strength. For example, weaker or less technically proficient athletes should have loads prescribed on the lower end of the recommended peak power range (i.e., 30% maximum hang clean). In contrast, stronger, more technically proficient athletes should be prescribed loads on the upper end of the peak power range (i.e., 45% maximum hang clean).

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Timothy J. Suchomel is a doctoral student in the Department of Exercise and Sport Sciences at East Tennessee State University.

Brad H. DeWeese is an assistant professor in the Department of Exercise and Sport Sciences at East Tennessee State University.

George K. Beckham is a doctoral student in the Department of Exercise and Sport Sciences at East Tennessee State University.

Ambrose J. Serrano is the head strength and conditioning coach at the United States Olympic Training Center at Lake Placid.

Christopher J. Sole is a doctoral student in the Department of Exercise and Sport Sciences at East Tennessee State University.

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