

The Jerk

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INTRODUCTION

The Jerk is a highly explosive classical weightlifting exercise incorporated by many athletes into their training programmes. It is a technical exercise that every Strength and Conditioning coach should be familiar & comfortable with teaching.

Although rarely seen in mainstream gyms; use of the jerk amongst performance athletes is prevalent. What follows is a description of the correct and safe techniques to be used during the execution of the lift. Some common faults and solutions will be highlighted and finally the practical application and benefits of successful Jerking will be discussed.

MUSCLES USED

The Jerk is primarily a knee and hip extensor exercise.

The list below highlights the key muscles that are used in the correct execution of the Jerk and the muscle action.

- >> Gluteus maximus - hip extension
- >> Quadriceps femoris - knee extension
- >> Gastrocnemius - plantar flexion
- >> Deltoid & Latissimus Dorsi - shoulder abduction/flexion
- >> Trapezius & Serratus - Scapula & Clavicle upward rotation
- >> Triceps - Elbow Extension
- >> Gluteus medius (posterior fibres) - hip extension and lateral hip rotation.
- >> Hamstrings-hip extension
- >> Erector spinae-spinal and pelvic stabilization
- >> Adductors (magnus, longus, brevis, minimus) - assist with hip extension and stabilization.

>> Abdominals - spinal and pelvic stabilization.

SAFETY

The nature of the jerk movement means that heavy loads can be dropped quickly. The lift must be performed on a clean platform free from any loose weights. Spotters can be used (as a pair on either end of the bar) but they must be highly experienced and used to working together. Any attempt to recover missed lifts should not be made. The lifter should endeavour to move safely out of the path of the falling bar by moving forward or back; not to the side. If lifting from racks leave adequate space for forward movement (~1 metre) and in all cases leave adequate space for the back leg in the split.

TECHNIQUE

Start Position (Figure 1)

Start from either racks; from a clean or from jerk blocks. Using a closed pronated grip slightly wider than shoulder width, take a barbell across shoulders. Retract the head back. Elbows should be kept high in front of bar; the bar should be supported with a loose grip on the deltoids and clavicles close to the windpipe. The torso should be rigid and upright. Feet should be shoulder width apart, toes pointing slightly outward; weight should be evenly distributed between heel and forefoot.

Dip & Drive

Breathe in deeply before commencing the dip. Dip around 10% of body height by flexing hips and knees, keep elbows high. The hips should shift backward to maintain overall centre of gravity over the feet. Feet should remain flat on the platform (see Figure 2). The depth of



Figure 1: Start Position

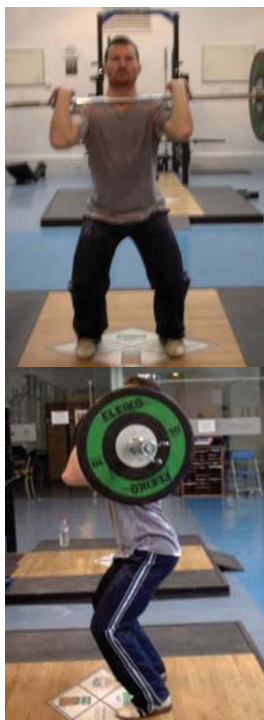


Figure 2: Start Dip

the dip varies according to the height of the lifter and the weight of the barbell and is instinctive in nature (similar to how athlete selects the depth of the dip for a vertical jump). After dipping; the athlete immediately and violently straightens the legs and hips, driving the bar off the shoulders in a vertical orientation (see Figure 3). While dipping & driving; elbows and chest should be kept high to prevent the barbell from dropping forward. The head should remain straight with eyes looking forward. The rate of change from descent (the dip) to rapid ascent (the drive) is the key element of effective jerk technique. This switch from bending to straightening utilizes the stretch reflex; the faster the switch from bending to straightening the legs, the more power is produced⁽¹⁾.

Split (Figure 4)

At the end of the drive the barbell leaves the shoulders and the feet leave the platform. During this stage the athlete must rapidly perform various tasks

- >> Legs must split fore and aft. The front foot should land whole with the shin vertical or knee slightly overhanging the foot. The back leg should be planted on the ball of the foot. The back leg should be slightly bent. Both feet should point forward.
- >> The arms are utilized to push the body away from the barbell during the descent into the split. The split is complete when the arms lock out the weight overhead in a stable split position. The bar should be caught directly above hips, shoulders, and elbows. Keep torso rigid and upright.

The faster the feet are rearranged in the split position and returned to the platform, the more force is applied to the barbell since less barbell speed is lost during the switching of positions⁽²⁾.

Recovery (Figure 5)

From the split position; once the lifter is stable and in control of the bar; recovery should commence. The athlete should push back by driving off the front foot to a position part way back (~40-60%), then drive off the back foot to bring the feet in line. Feet should be shoulder width apart, toes pointing slightly outward; weight should be evenly distributed between heel and forefoot. The bar should be directly above feet, knees, hips, shoulders, and elbows.

Lowering the bar

With light weights the bar can safely be lowered to shoulders in a controlled fashion using the legs to cushion the weight. However, when developed very large weights can be lifted in the jerk. Lowering the weight to the shoulders in a controlled fashion can become both dangerous and difficult. Spotters may be used to assist lowering, however it is vitally important that they work in unison with the athlete and release the bar together. Jerk blocks are ideal but rarely present in gyms. If the athlete is in any doubt; the best option is to drop the bar to the platform. The athlete takes a small step back as they release elbow lockout on the weight. Maintain a light grip on the bar and guide it until past waist level. As stated, the platform must be clear; if a falling bar strikes an object it can quickly change course.



Figure 3: Drive



Figure 4: Split

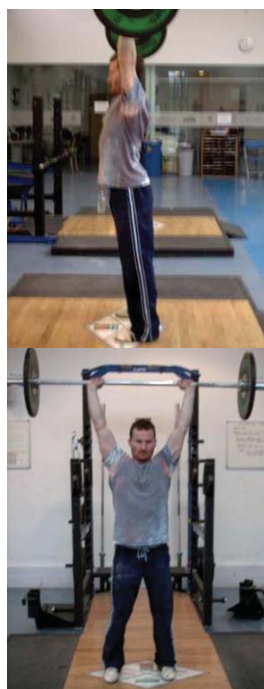


Figure 5: Final Position

References

1. Frolov V I and Levshunov N P. "The Phasic Structure of the Jerk" Tyazhelaya Atletika, 1979: 25–28. Translated by Andrew Charniga, Jr.
2. Ivanov A T and Roman R A. "Components of the Jerk from the Chest", Tyazhelaya Atletika 1975: 23–26. Translated by Andrew Charniga, Jr.
3. Komi P V. Strength & Power in Sport; Volume III of the Encyclopedia of Sports Medicine. Cambridge, MA: Blackwell Science, 1994.

COMMON FAULTS & CORRECTIONS APPLICATION

PROBLEM	SOLUTION
Wrist problems/ poor wrist/elbow flexibility	Work on flexibility; Behind Neck Jerk
Curved thoracic spine in starting position	Breathe in, raise elbows, tighten abs.
Bar not resting on shoulders	Loosen grip, raise elbows higher; work on wrist elbow flexibility
Elbows drop as dip/drive performed, bar falls forward.	Maintain high elbows, let hips go back while dipping; weight too heavy?
Jerking in front i.e. lifts go to arms length but lost in front of athlete.	Drive bar in vertical direction; did head rise to look at bar? Keep head level. Are hips behind bar in the split; drive bar overhead and get hips under bar.
Back foot lands flat or twisted.	Drill movement pattern; work with light weight/empty bar. Practice correct footwork.
Feet are not straight; front foot turning in;	Drill movement pattern; work with light weight/empty bar. Practice correct footwork.

APPLICATION

The jerk is rarely included in programmes during the off season or hypertrophy phases. Its extremely explosive nature (major muscular forces are applied to the barbell within 0.2s)⁽³⁾ makes it a prime candidate for the power and tapering phases of training cycles. An athlete from any sport where fast powerful hip and leg movement is involved will benefit from performing the Jerk. Basic building exercises such as shoulder press, push press, lunges and squats (all forms) prepare a basic jerk foundation for. As the season progresses Jerks will gradually be introduced (usual progression Push Press→Power Jerk→Jerk). When initially included; jerks should be drilled with high reps/light weight so the skilled fast foot movements can become ingrained.

Weeks to Comp	20	14	8	6	4	2
Exercise	Push Press	Push Press	Power Jerk	Jerk	Jerk	Jerk
Sets x Reps	3 x 8	3 x 6	3 x 5	4 x 4	3 x 3	2s singles

Paul was a competitive weightlifter, competing for Scotland at the Commonwealth Games in 1998. With a wide range of strength and conditioning coaching experience he is currently working with athletes from swimming, athletics, hockey, sailing and badminton.