

The Overhead Squat

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The overhead squat exercise is used within strength and conditioning programs and proponents of the exercise claim that it is effective for developing a number of areas, including 'core stability', 'functional strength', 'shoulder flexibility' and 'balance'. It is beyond the scope of this article to define these areas, therefore, it will not be possible to either support or debate these claims. The intention is to consider some key coaching areas, to explore the correct execution of the exercises and to consider an aspect of the exercise that is rarely discussed and which is potentially the most significant benefits of the exercise – the effect on upper back strengthening and shoulder function.

Exercise Overview

The overhead squat is performed by starting with a wide grip, the arms above the head and the elbows locked out. The hips and knees are then flexed to descend into a squat. After reaching the lowest position of the squat the knees and hips are then fully extended. The bar should remain directly above the head throughout the entire movement.

Coaching Considerations

By simply carrying out the movement as described above, and ignoring some key points the effectiveness of the exercise will be reduced.

1. Pre requirements

The following points should be adhered to before an individual attempts to perform an overhead squat

- The individual should be able to squat properly, especially with regard to maintaining a normal lordotic lumbar spine, knees aligned over the feet and feet remaining flat on the floor.
- If the individual has a shoulder injury the exercise should only be performed after medical clearance has been received.

2. Start position (Figure 1)

The following should be used as a guide to help an individual experiment with positions to find what is most suitable for them.

- The hand spacing can be approximately the distance between the elbows when the upper arms are parallel to the floor.
- Alternatively, position the hands wide enough apart so that the individual can freely squat up and down while the bar remains above the head.
- The feet should be placed between hip and shoulder width and the toes turned out slightly as in a normal squat.

3. The descent

The descent is the most important and challenging part of the movement, and as such the majority of any training effect will most likely be achieved during this phase. Consequently, it is imperative that it is executed with the correct technique. If the descent is carried out correctly and with control the ascent will be a formality.

- During the descent due to the forward lean of the torso and the requirement of keeping the bar directly above the head the glenohumeral joint will internally rotate. This movement is identified by observing the elbows rotating backwards. The amount of internal rotation is dependant on a number of factors, including postural alignment, ankle flexibility, shoulder function and thoracic mobility. One of the major errors when performing the overhead squat is to freely allow too much internal rotation of the glenohumeral joint (Figure 2). Too much internal rotation will place the shoulder in an unstable position and means that musculature of the upper back and shoulders are not being used. Consequently, effort should be directed to resist internal rotation (Figure 3).

- Squatting depth should not compromise the upper body posture. The depth of the squat should be limited so that the correct upper body posture is maintained (*Figure 4*). *Figures 5a & 5b* show the errors of squatting too low. They include flexion of lumbar spine and too much internal rotation of glenohumeral joint.

- If there is difficulty resisting internal glenohumeral joint rotation due to lack of awareness then the following should be attempted:

a) Perform the overhead squat as normal but pause half way during the descent.

b) In this partial squat position the individual should attempt to externally rotate their humerus. The elbows should rotate forwards from an anterior facing position

c) Once the individual is aware of which area of the upper back is used to stabilise the shoulder/upper back region, subsequent repetitions should be easier to master.

4. Progression

There are a few ways to ensure that progression is achieved using this exercise

a. Once the movement is perfected with a particular width grip gradually reduce the hand spacing.

b. Initially, the load used should be light. If necessary this should be the weight of an empty bar. Increase the load once the movement is perfected on a given weight

Importance of correct execution

If performed correctly, the overhead squat can strengthen the appropriate shoulder joint musculatures that are essential for optimal shoulder function.

Scapular instability is found in 68% and 100% of individuals with rotator cuff problems and in glenohumeral instability problems respectively.¹ Additionally, optimal shoulder function results from the scapula functioning as a stable platform for the humeral head. To ensure optimal shoulder function efforts are required to develop the periscapular muscles which are vital for this stability.²

During descent of the overhead squat, resisting the natural tendency to internally rotate the glenohumeral joint will ensure that the external rotators infraspinatus, teres minor and the periscapular muscles rhomboid, lower and middle trapezius are being used. Consequently, these muscles will be strengthened, thus contributions will be made toward improving shoulder function. Additionally, for individuals with kyphotic thoracic posture (forward rounded shoulders and upper back) performing the descent during correctly will force the thoracic spine towards extension and challenge the periscapular muscles in an improved postural position.

In conclusion, any athlete requiring to improve their posture or their shoulder function will benefit from developing their ability to overhead squat properly. Time should be taken to perfect the upper body posture, especially during the descent of this exercise in order to maximise the training effect on the upper back and shoulder girdle.

References

1. Voight, M., and B. Thompson. The role of the scapula in the rehabilitation of shoulder injuries J Athletic Train 2000 35(3):364–372.
2. Ronal, P. Exercise Modifications and Strategies to Enhance Shoulder Function. I Stren & Cond Journal 2005 Aug 36–45.



Figure 1. The start position



Figure 2. Too much internal rotation of the glenohumeral joint in the descent



Figure 3. Resisting internal rotation in the descent



Figure 4. Limiting depth to maintain correct upper body posture in the descent



Figure 5a. Error of squatting too low - flexion of lumbar spine



Figure 5b. Error of squatting too low - too much internal rotation of glenohumeral joint