Overhead Squat Test

The Complete Guide

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The overhead squat test is one of the most commonly used assessments to determine a person's degree of mobility and overall muscle control. It's one of the main tools used in the Functional Movement Screen, designed by physical therapist and strength coach Gray Cook, and is used as a way to determine muscular imbalances, lack of mobility, degree of flexibility and joint dysfunction. This test is applicable to anyone from world class athletes to recreational exercisers.

Movement: overhead squat

This movement involves a triple flexion including the ankles, knees and hips. In addition, the arms are stretched overhead and held there during the flexion movement(full squat). This part of the movement informs us about the stability of the spine and pelvis. We also will observe the mobility of the upper back and shoulders.

Stand with your feet shoulder-width apart, and your arms raised above your head completely straight, holding either a very light barbell, a dowel rod or a rolled up towel. Squat down in a controlled fashion, as low as you can go, then return to the starting position. Perform three repetitions per view point(front and side).

Front View

f1. The red lines are reference points to analyze during the movement. Notice the small variance in the right foot placement.

Side View

f2. Stand tall in a vertical position.

Front View

f3. Two reference points

1. knees
2. feet

Red line indicates a good position. Knees should be positioned over the heels. Notice the small outward rotation of the right foot.

Side View

f4. Four reference points

1. arms
2. torso
3. hips
4. heels

Notice the low hip position and similar angle of the shins and back. The placement of the arms can be slightly more vertical, mostly likely due to tight pectoral muscles.

Common Compensations

The two most common lower body imbalances seen during the test are pronation of the feet, rolling of the ankles and buckling of the knees. If your feet roll inwards, and your ankles are unstable, this indicates that you have tightness in your calves. This is also the case if your heels rise off the floor. Knees buckling is a sign of weak glute muscles and tight adductor muscles on the inside of your thighs.

Front View

f5. Inward knee position

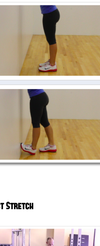
Side View

f6. Heels raising off groud

Back and Hips

When performing the overhead squat aim to keep a neutral spine(back remains flat). If there is excessive arch in the back, it's likely due to tight hip flexors. If the back rounds, it's likely due to the core muscles being weak. When assessing the hips, look for any weight shifting to one side or the other. This will highlight any imbalances between the two sides of the body.

Front View



f7. Foward lean of the uper body. Notice the arms, chest and head drop.

Side View

f8. Notice the forward movement of the arms and lack of hip mobility.

Arms

The vast majority of people who perform the overhead squat assessment find that their arms fall forward to some degree. This is caused by excessive tightness in the chest and shoulders and weakness through the upper back, which has direct correlation to the time we spend sitting and working in front of a computer.

Fixing the Trouble Areas

Fix these muscle imbalances by actively stretching the over active tight muscles and strengthening the weaker under active muscles.

Example; arms drop forward. Probably due to tight pectoral muscles and a weaker upper back. Stretch the chest as often as possible while reducing the volume of heavy chest exercises. For the back focus on rhomboids and lats, and perform strength building exercises including cable rows, face pulls and Y raises.

Stretches

Here are a few stretches to fix the most common muscle imbalances. Hold each stretch for about 20-30 seconds. Foam rolling is also a very effective way to treat over and under active muscles. Access your MBS account for a more complete list of stretches and exercises.

Piriformis(hip) Stretch

Quad/Hip Stretch

Calf Stretch

Chest Stretch