Are You Squatting Correctly

The squat is a well-established exercise in many athletes training programmes. It is an exercise that is commonly seen in gyms and its use amongst strength and conditioning coaches and physiotherapists as part of rehabilitation programmes is becoming more prevalent.

Squats are important for:
-Stimulation of overall strength increases
-Increased ligament and tendon strength
-Increased bone density
-Development of strength in the movements involving the trunk, lower back, hip and knee
-Improved neuromuscular efficiency that aids performance in biomechanically similar movements



There is often debate as to the correct implementation of the technique. In this blog the correct and safe technique will be discussed as well as some issues and solutions to squatting problems will be highlighted.

Technique:
Two issues that have caused much debate are the depth to which squats should be performed and the extent to which the knees go beyond the toes. Generally speaking, if you have hip or knee pathology it is advised that you don't go beyond thighs parallel with floor. Secondly it is acceptable for the knees to move beyond the toes, providing the rest of the squat alignment is correct.

Positioning:
Feet shoulder width apart (inside border of heels level with outer border of shoulders) and slightly turned out (10 minutes to 2 or 5 minutes to 1).

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Neutral lumbar spine posture
Shoulder blades gently drawn back and down, with ‘chest out and head up’.



Back squat
Place bar / stick behind the head, resting at just below base of neck with hands positioned wide enough on bar.

Front Squat
Place bar / stick resting just beneath the collar bone and in the groove of the muscle at the front of the shoulders.
Adopt a grip that is wide enough to allow the hands to just be free from being caught beneath the bar. Maintain a closed grip throughout. Elbows as close to level with the bar as possible.

Overhead Squat
Bar / stick grasped so that hands are 1.5 times shoulder width apart or wide enough to allow the bar to remain above the crown of the head throughout the exercise
Descend as normal making sure that the shoulders do not fall into internal rotation (to prevent this pull your hands apart whilst maintaining your grip). Keep the bar above the crown of the head and in line with your heels as you descend.

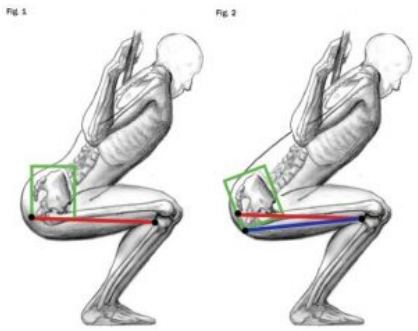
Movement:
Take a deep breath in whilst activating the core to maintain neural spine
Bend at the hips and knees simultaneously; allowing the trunk to move forward slightly and the hips to move behind the knees as you bend, ensuring the knees bend forward in line with the second toe throughout the movement.
Lower as far as comfortable, aiming for your thighs to break parallel with the floor, keeping the feet flat on the floor at all times.
Maintain the shoulder blades back, ‘head up, chest out’ and neutral lumbar spine posture throughout. Without pausing, forcefully push through the feet, straightening the hips and knees so that the hips and the bar rise at the same rate.
Breathe out at any point from ½ way up.

Common issues:

Back Pain
Poor pelvic control resulting in posterior rotation of the pelvis (tucking in of the tailbone) leads to a loss of ‘neutral spine’

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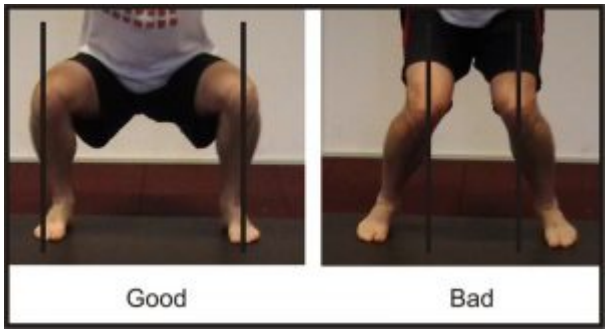
resulting in flexion of the lumbar and thoracic spine. This flexion coupled with load is a potential for back pain.



Cause:
-Shortened hip flexors (iliopsoas, rectus femoris and tensor facia lata)
-Shortened ankle dorsiflexors (soleus and gastrocnemius)
-Weak hip extensors (gluteus max and hamstrings)
Solution – squat to the depth you can control neutral spine and address short and weak muscles through specific stretching and strengthening of the same

Knee pain

Poor hip control resulting in adduction and internal rotation (coming in towards midline) of the hip results in an increase in rotary forces at the knee and thus a potential for meniscal pathology and patella-femoral joint pain.



Cause:
Weak hip abductors and external rotators (gluteus medius and gluteus maximus)
Solution – squat to the depth where you can maintain knee alignment with 2nd toe and address weak muscles though specific strengthening exercises.

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