Lift-Off Test

The lift-off test was originally described by Gerber and Krushell (1991) and is sometimes referred to as 'Gerber's Test'.

Test

The patient is examined in standing and is asked to place their hand behind their back with the dorsum of the hand resting in the region of the mid-lumbar spine. The dorsum of the hand is raised off the back by maintaining or increasing internal rotation of the humerus and extension at the shoulder. To perform this test the patient must have full passive internal rotation so that it is physically possible to place the arm in the desired position and pain cannot be a limiting factor during the manoeuvre.

Positive

The ability to actively lift the dorsum of the hand off the back constitutes a normal lift-off test. Inability to move the dorsum off the back constitutes an abnormal lift-off test and indicates subscapularis rupture or dysfunction.

Research

Greis et al (1996) used EMG analysis to determine the muscle activity of the shoulder muscles during the lift-off test and during resisted internal rotation. The activity in the subscapularis in the upper and lower fibres during a lift-off test from the region of the mid-lumbar spine was approximately 70% of maximum voluntary contraction. The level was significantly (p<0.05) higher than all the other muscles tested. The lift-off test with the hand placed in the region of the mid-lumbar spine resulted in one third more EMG activity in the subscapularis than when the test was modified and performed with the hand at the buttock region.

Gerber and Krushell reviewed 100 patients using the lift-off test.

27 patients with full thickness rotator cuff tears not involving subscapularis had a normal test
17 patients with recurrent expert tips dislocation and no RC involvement had a normal test

8 out of 9 patients with full thickness rotator cuff tears involving subscapularis had a positive or abnormal test.
12 out of 16 patients with isolated subscapularis ruptures had an abnormal or positive test.

They concluded that if a patient has a full range of passive internal rotation and if active internal rotation is not limited by pain then an abnormal lift-off test reliably diagnoses subscapularis dysfunction.