

Low Back Pain: Soft Tissue Diagnosis [Part 2 - Quadratus Lumborum]

Dr. Todd Turnbull, DC, CCSP

Diagnosing soft tissue function related to low back pain includes evaluating the muscles of the lumbar spine and pelvis including the latissimus dorsi [lats], spinal erectors, quadratus lumborum [QL], psoas and the abdominal muscles.

The quadratus lumborum are small but critical muscles attaching into the lumbar transverse processes from L1 to L4 and along the lateral border of the iliac crests. The muscle fibers run obliquely into the transverse processes creating a christmas-tree shape.[pic 1] With shortened, tense QL muscles the vertebrae will be pulled posterior, laterally and inferiorly which can cause joint locking, ipsilateral pain, loss of contralateral flexion and/or iliac elevation. Joint fixation can occur at the sacro-iliac joint and at the facet joints in the lumbar.

Diagnosis

With QL dysfunction, lumbo-pelvic range of motion may be affected in all directions. Pelvic elevation is usually hampered and more difficult for the patient to perform and is the key indicator of QL involvement. It is best evaluated with the patient standing and facing a mirror while elevating the ilium.

Strength testing of the QLs can be performed several ways but is difficult to isolate and test compared to other low back muscles. Eccentric break testing is my preferred protocol for muscle testing. Have the prone patient lift their leg and hip off of the table and rotate the pelvis slightly. The doctor stabilizes the opposite rib cage with one hand while slowly, but forcefully rotating the pelvis back into the table with the other hand.[pic 2]

When force is applied to a healthy muscle, it has the ability to lock and hold with enough force to remain locked without failing for up to three seconds. Grade the weakness and document findings prior to treatment.

Since the QLs are thin and ribbonlike, palpating the origin and muscle belly is best done by approaching from lateral to medial until contact is made at the transverse processes of the lumbar. Palpate along the insertion where the tendons insert into the iliac crest looking for tenderness.

Treatment

Soft tissue techniques that can be used to correct dysfunctional QL muscles include manual thrust, compression techniques and adjusting instruments can be applied to both belly and bony attachments. Manual thrusts can be performed at the lumbar transverse processes in a P-A, L-M, and I-S direction. The Iliac crest can be adjusted S-I and M-L using manual thrusts or impulse type adjusting instruments.[pic 3] Compression techniques include rolling a golf ball in small motions into the muscle belly or rolling a massage stick across the fibers.

Retest motion and strength to document changes. It is possible to have both QLs dysfunctional. After correction of the lats and QLs, the abdominals are the next muscles to evaluate for dysfunction related to low back pain.

