Dynamic Chiropractic

SOFT TISSUE / TRIGGER POINTS

Clinical Review of Infraspinatus/Teres Minor

Warren Hammer, MS, DC, DABCO

In this and future articles, I will attempt to review some important information about the shoulder muscles to aid in our soft tissue approach to this most mobile joint of the body.

I. Function

A. Act as external rotators along with the posterior deltoid.

1. Both muscles are also important in horizontal extension.

2. They also are important in the deceleration of the throwing movement (acceleration and follow through) by eccentric contraction.

3. During shoulder abduction, from 120° to 150°, the infraspinatus is more active than the supraspinatus.[1] A reason this muscle is involved in prolonged overhead activities.

4. During coronal abduction EMG activity between the supraspinatus and infraspinatus does not show a significant difference.[1] This indicates that pain on muscle testing for abduction may also indicate a painful infraspinatus.

B. Dynamic stabilizers

1. Depresses and compresses the glenohumeral joint acting as a fulcrum for the deltoid during elevation.

2. Limits both anterior and posterior shoulder translation.

   a. Helps prevent posterior translation due to its posterior position,[2] aiding in posterior shoulder stability especially in the mid-range (45° to 75°) of abduction.

   b. Helps prevent anterior instability especially in extreme external rotation and abduction at 90° by displacing the humeral head posteriorly in the glenoid. This reduces strain on the static anterior shoulder structures (anterior-inferior glenohumeral ligaments).[3]

c. Therefore the infraspinatus and teres minor muscles must be strengthened in both anterior and posterior instability.

II. Differential Muscle Testing between Infraspinatus and Teres Minor

A. These muscles are usually tested with the arm at the side with the elbow flexed 90° or with the arm abducted 90° and elbow flexed 90°. EMG studies do not agree on whether either position favors the infraspinatus or teres minor.[4]

B. Since the teres minor is also a weak adductor, pain or weakness on resisted adduction after the above testing might indicate that the principal problem is located in the teres minor.[5]

III. Clinical Findings

A. Pain is usually located at the posterior shoulder but due to its insertion at the greater tuberosity may be responsible for anterior shoulder pain.[6]

B. A reason for posterior tenderness when examining passive lateral rotation with abduction at 90° may be due to overuse irritation of these muscles (tendinitis) or muscle fibrosis. Another reason for pain during this passive test may be due to pain from the posterior capsule. Capsular pain can be differentiated by pain on palpation of the posterior capsule and pain on posterior stability testing. If the capsule is not painful on passive testing and the external rotators are painful on resistive testing, then the muscles should be considered the primary pain. If the capsule is acutely inflamed, then resistive testing may also cause pain in a capsular problem.

C. Postural evaluation may exhibit the hands in a pronated position which may indicate a weak infraspinatus/teres minor.

D. Inability to raise the hand superiorly with the arm behind the back may be due to a tight infraspinatus.

E. Atrophy of the infraspinatus is usually apparent by a hollowness in the infraspinatus fossa due to disuse or suprascapular neuritis.

F. Areas where friction massage is useful is located at the body of the tendon of the infraspinatus or at the insertion at the greater tuberosity. The teres minor is rarely involved.

G. Leahy's Active Release technique is very useful for muscular adhesions in the body of the infraspinatus. These adhesions are stripped longitudinally along the belly of the muscle. The doctor holds a contact just before the adhesion while the prone patient brings his arm straight overhead and internally rotates the shoulder, causing the adhesion to be stripped under the doctor's finger.[7]

IV. Exercises

A. External rotation with the arm at the side, or prone with the arm horizontally abducting with external rotation. There is more activity of the muscle in the prone position.[4]

B. The teres minor can be isolated with the patient prone and extending the externally rotated arm.[4]

C. Weights under five pounds and high repetitions are recommended along with tubing exercises for eccentric activity.

References

1. Kronberg M, Nemeth G. Muscle activity and coordination in the normal shoulder: An electromyographic study. Clin Orth Related Res 1990;257: 76-85.

2. Oveson J, Nielson S. Posterior instability of the shoulder: A cadaver study. Acta Orthop Scand 1986;57: 436-439.

3. Howell SM, Galinat BJ, Renzi AJ, Marone PJ. Normal and abnormal mechanics of the glenohumeral joint in the horizontal plane. J Bone Joint Surg. 1988; 70A:227-232

4. Souza TA. Sports Injuries of the Shoulder: Conservative Management, New York. Churchill Livingstone, 1994.

5. Hammer WI. Functional Soft Tissue Examination & Treatment by Manual Methods: The Extremities. Gaithersburg, Maryland: Aspen, 1991.

6. Leahy M. personal communication, 1994.

7. Leahy. Active Release Seminars, Colorado Springs, CO.

Warren Hammer, MS, DC, DABCO
Norwalk, Connecticut

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