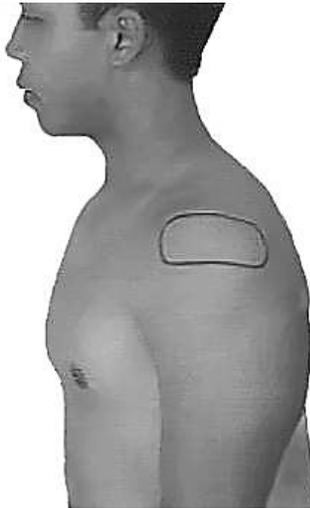


FROZEN SHOULDER SYNDROME

The *Frozen Shoulder Syndrome* (*periarthritis* or *adhesive capsulitis*) is characterized by severe limitation of shoulder motion resulting from degenerative changes involving the musculotendinous cuff, synovial membrane, articular cartilage, bicipital tendon and its sheath, glenohumeral joint, or acromioclavicular joint. Round cell infiltration, which would indicate a low-grade inflammatory process, may usually be demonstrated histologically, with attendant edema and developing fibrosis. The periarticular tissue will progressively lose their elasticity as they become progressively shortened and fibrotic. These changes firmly fix the humeral head within the glenoid cavity. This greatly reduces the range of motion and eventually results in atrophy of the affected musculature. Contracture of the coracohumeral ligament and the subscapularis tendon will additionally limit the range of motion as the head of the humerus progressively loses its ability to externally rotate. The general range of motion loss may be so severe that there may be a complete loss of scapulohumeral motion.

Onset of the *Frozen Shoulder Syndrome* may be insidious and follow on the heels of a direct or indirect local trauma to the shoulder structures and tissues, or as a sequel to injuries sustained by structures and tissues of the elbow, wrist, or hand. It may also arise indirectly from post cerebrovascular accident (CVA) paralysis, from reduced shoulder motion provoked by referred pain from the structures associated with the chest or pressure on a cervical nerve root, or from referred pain caused by trigger point formations. The *Frozen Shoulder Syndrome* may also arise as a direct consequence of subacromial bursitis, calcific tendonitis, or tenosynovitis of the long head of the biceps muscle.



The high skin resistance pattern associated with capsulitis of the shoulder (especially in the acute phase). The DSR survey should be performed with the shoulder abducted to 45°.

Pain associated with the *Frozen Shoulder Syndrome* may be brought on or exacerbated by scapulohumeral abduction, external rotation, and extension of the shoulder. Pain has also been reported to radiate from the soft tissues surrounding the shoulder joint into the anterolateral aspect of the shoulder, the biceps muscle belly, the flexor surface of the forearm, and the inferior angle of the scapula. Palpation tenderness of the intertubercular sulcus and the biceps tendon may be evident. The pain itself may contribute to the *Frozen Shoulder Syndrome* as the voluntary range of motion becomes limited by the intensity of pain caused by attempts to move the shoulder. Characteristically, the pain is reported to be worse at night, even when no attempts have been made to move the shoulder that day.

Individuals over the age of forty are most susceptible since they are generally subject to degenerative changes in the rotator cuff and long head of the biceps. Any painful afflictions of the upper extremity that cause an adducted, internally rotated shoulder may trigger pathologic changes that could lead to the *Frozen Shoulder Syndrome*.

Treatment

Treatment of the frozen shoulder amounts to relieving the soft tissue inflammatory process, if present, eliminating any adhesions present in the joint and surrounding tissues, and regaining the shoulder joint ranges of motion.

Application:

- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.8 W/cm². Ultrasound the inflamed zone, with the shoulder at a 45° angle, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes.
- Place a negative electrode over the shoulder capsule and a positive electrode over the deltoid muscles. Preset the electrical stimulator to deliver a medium frequency current with a 10-second on, 10-second off duty cycle. Adjust the amplitude to produce contractions that approach tetany. Stimulate for 15 minutes.
- Manipulate the shoulder capsule and surrounding tissues to eliminate any existent adhesions.
- Institute a program of shoulder joint mobilization and stretching. Heavy weight lifting may be useful for fostering increases in the joint ranges of motion, especially those exercises that utilize overhead pulleys.

Instruct the patient in non-gravity range of motion exercises for the shoulder, as well as shoulder muscle isometric exercises, for use at home. The treatment course may require many sessions, spaced over many weeks, to regain lost ranges of motion.

Trigger Points

The following trigger point formations may, singly or in combination, refer pain into the shoulder area (and may add to the pain associated with the frozen shoulder): Posterior cervical group, Levator scapulae, Scalenus, Scalenus (minimus), Infraspinatus, Infraspinatus (abnormal), Medial teres major, Lateral teres major, Teres minor, Coracobrachialis, Lower splenius cervicis, Upper trapezius [B], Middle trapezius [A], Middle trapezius [B], Middle trapezius [C], Lower trapezius [A], Lower trapezius [B], Cervical multifidus (C4-C5), Supraspinatus (muscle), Supraspinatus (tendon), Latissimus dorsi (upper portion), Serratus posterior superior, Subclavius, Subscapularis, Posterior deltoid, Anterior deltoid, Pectoralis major, Pectoralis major (clavicular fibers), Pectoralis major (sternal portion), Pectoralis minor, Sternalis, Rhomboids, Triceps, Biceps brachii, Brachialis, Multifidus (T4-T5), and Iliocostalis thoracis (T6).