

## Frozen Shoulder: Classification and Clinical Guidelines.

Frozen shoulder also known as adhesive capsulitis is a condition that is characterized by painful and limited range of motion. It occurs most commonly between the ages of 40 and 65 years, slightly more often in females and affects approximately 2-5% of the population. It does occur in 10-38% of those with diabetes or thyroid disease.

**Etiology:** This remains unclear. Recently there has been evidence that increases in serum cytokines may be involved in the sustained inflammation and fibrosis. It has also been postulated that fibroblasts, responding to minor insult, release excessive type 1 and 3 collagen, then cause contraction of that new tissue. Quite clear is the contracture of the Rotator Cuff Interval (RCI). This is the triangular shaped tissue between the anterior edge of the supraspinatus tendon and the upper border of subscapularis. This also includes the superior glenohumeral and coracohumeral ligaments. Shortening of the RCI dramatically limits external rotation with the arm at the side and limits the inferior translation required for arm elevation. Also quite clear is the loss of synovial fluid volume. This reduces the lubrication between the surfaces further exacerbating the problem.

### Classification by irritability

High	Moderate	Low
pain >7/10	pain 4-6/10	pain <3/10
Consistent rest/night pain	intermittent rest/night pain	Ørest/night pain
high disability	mod. disability	low disability
pain limit ROM	pain at end range	little or Ø pain at end range
Active less than passive d/t pain	Active similar to passive ROM	Active same as Passive ROM

**Differential Dx:** Frozen shoulder is characterized by significant loss (50% or >30°) of passive external rotation with the arm at the side and some loss in passive ROM in other planes. Other pathologies resulting in significant external rotation loss include proximal humeral fracture, severe OA, acute calcification/ tendonitis or a locked posterior dislocation. In the early stage it is extremely difficult to differentiate between frozen shoulder and tendonitis as they present similarly or occur

concurrently. Clients who present with minor loss of external ROM and near full ROM in other planes should be educated and re-evaluated if pain or stiffness worsens. Passive motion should be assessed supine to isolate the glenohumeral joint from the scapulothoracic and allow the end feel to be appreciated. Many special tests are not helpful in diagnosis as most positions are painful toward end range.

**Stages of Frozen Shoulder:** Stage 1 occurs from 0-3 months. It is characterized by pain with active and passive ROM. Limitation of flexion, abduction, internal and external rotation, but ROM is normal if anesthetized. Stage 2(Freezing) from 3-9 months shows further loss of ROM. Stage 3(Frozen) from 9-15 months is painful at the end of range with significant limitation and rigid end feel. Stage 4(Thawing) from 15-24 months is minimally painful and shows progressive increased ROM.

### Rx based on irritability

	High	Moderate	Low
Modalities	pain control	pain control	-
Activity modification	Yes	Yes	No
ROM/Stretch	1-5s passive	1-5s AAROM	end range, sustained
Manual	low grade mobilization	Low→high grade	high grade + sustained
Strengthen	-	-	Yes
Functional activities	minimal	basic	high demand
Pt education	+++	+++	+++
Other	Intra-articular steroid injection*	-	-

**Medical intervention:** Corticosteroid injections have shown benefit in many studies. The long-term outcome is often similar but the initial relief of patient symptoms during the early stages seems to be the primary benefit.

Manipulation/translational mobilization under anesthesia or Arthroscopic capsular release all show dramatic increases in ROM. These options are reserved for those patients with disabling frozen shoulder who are unresponsive to at least 6 months of conservative treatment.

#### Reference:

Kelly, M. McClure, P. Leggin, B. Frozen Shoulder: Evidence and Proposed Model Guiding Rehabilitation. J of Ortho and Sports Phys Ther. 39(2)Feb 2009. Pg 135-148.