Adhesive capsulitis (aka frozen shoulder) is a syndrome defined in its purest sense as idiopathic painful restriction of shoulder movement that results in global restriction of the glenohumeral joint. It is not associated with a specific underlying medical condition. The American Academy of Orthopedic Surgeons define the condition as one: “of varying severity characterized by the gradual development of global limitation of active and passive shoulder motion where radiographic findings other than osteopenia are absent.” To avoid confusion, the term “adhesive capsulitis” should be used to refer to the primary idiopathic condition and the term “secondary adhesive capsulitis” should be applied to the condition that is associated with, or results from, other pathologic states. Both types involve moderate to severe shoulder pain. The prevalence of frozen shoulder is estimated to be between 2 - 5 percent of the general population, with a peak age of mid-50s and more often affecting women.¹

Despite over 100 years of treating this condition the definition, diagnosis, pathology and most efficacious treatment are still largely unclear.² It is suspected that inflammation occurs initially, followed by the development of adhesions and fibrosis of the synovial lining, which leads to thickening and contraction of the glenohumeral joint capsule and surrounding tissue.

**Subjective Findings and History**
- Insidious onset without specific or triggering event, may be predisposed with diabetes, thyroid disease, COPD, MI, stroke, autoimmune disease, protease inhibitor treatment, or secondary to other shoulder injuries.³
- Usually over 40 years of age, more often women, may be related to thoracic kyphosis
- Pain worse at night, difficulty with ADLs, pain worse with reaching behind and overhead
- Stages of development:
  - **Acute stage (freezing)** - moderate to severe pain limiting all shoulder movement, pain interferes with sleep
  - **Middle stage (frozen)** - past history of acute phase 1-3 months previously, now much less pain but marked stiffness and loss of motion; anterior or lateral

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brachial pain, constant dull ache becoming pain with movement into restricted range; most patients present in middle phase
  o **Final stage (thawing)**-very slow increase in ROM with significant residual stiffness.

**Objective Findings**
- Unilateral, can develop to bilateral
- Active and passive ROM loss, usually abduction and external rotation is diminished
- Loss of abduction usually substituted by shoulder shrugging or trunk leaning
- Improved motion following mild reciprocal isometric contractions
- Full strength of shoulder muscles but may have pain on resisted muscle testing

**Assessment**
- A complete shoulder exam may be limited by patient pain or stiffness. Pain and ROM (active and passive) should be measured. Glenohumeral joint accessory motion should be assessed to determine translational glide loss.
- Differentiate from “hot” bicipital tendinitis, rotator cuff tear, impingement, posterior dislocation, subacromial conditions, osteoarthritis
- If symptoms persist after a local anesthetic is injected into the subacrominal space, diagnosis is likely frozen shoulder
- Diagnostic imaging (plain radiographs, MRI, ultrasound) can be used to rule out other conditions.

**Plan**
Treatment planning is determined by the stage of the disorder. Studies of common conservative and surgical treatments for adhesive capsulitis are limited by small sample size and/or poor methodological quality.\(^5\)\(^6\)\(^7\)

**Acute Stage: Acute Pain**

*Passive care:*
- Focus on pain relief, avoid aggressive mobilization or adjustive techniques
- NSAIDS, topical salicylic acid, other topical analgesic cream
- Most patients need more than physiotherapy for pain control; chiropractic care most effective in middle and late stages
- Corticosteroid injections especially in this stage.\(^8\)

*Active care:*
- Sleep on unaffected side with affected side supported to avoid excessive internal rotation

**Middle Stage: “Frozen” Stage**

*Passive care:*
- Iontophoresis, phonophoresis, ultrasound and massage may reduce the likelihood of favorable outcome when emphasized over other treatment options such as joint
mobilization and mobility, i.e. mobilization and activities the patient performs to improve joint mobility.\(^9\)

- There is evidence that laser with exercise is more effective than placebo\(^{10}\)
- In a small sample, the addition of high velocity, low amplitude chiropractic manipulative therapy (HVLA CMT) to home exercise improved outcomes\(^{11}\)
- Soft tissue mobilization techniques such as Trigger Point manipulation or proprioceptive neuromuscular facilitation (PNF)
- Active assisted protraction, retraction, elevation, depression, and rotation to foster glenohumeral proprioceptive isolation
- Passive stretching with axial traction in flexion, external rotation, and perhaps adduction; avoid abduction as may cause impingement symptoms
- Rhythmic stabilization and hold-relax techniques to increase ROM
- Mobilization is strongly recommended for decreasing pain, increasing ROM and function\(^8\), however forceful adjusting of the shoulder is apt to cause inflammatory exacerbation.

**Active care:**
- Therapeutic exercises are strongly recommended for decreasing pain, increasing ROM and function.\(^8\)
- Codman’s exercises and mild isometrics to relax associated muscle spasm
- Self-assisted ROM

**Late Stage: “Thawing” Stage**

**Passive care:**
- Mobilization is strongly recommended for decreasing pain, increasing ROM and function\(^8\)
- Active Release\(^\circ\), Graston Technique\(^\circ\) or prolonged fascial release without creating pain helps to release the anterior capsule in the second and third stages.
- These techniques must not be used if they are creating more than an ache.
- The use of prolonged, low-intensity stretching at elevated tissue temperature, followed by cooling of the tissue, is beneficial.

**Active care:**
- Therapeutic exercises are strongly recommended for decreasing pain, increasing ROM and function.\(^8\)
- Codman’s and wall-walking exercises
- Further stretching with self-mobilization with emphasis on inferior glide
- Work on postural habits to avoid kyphosis and scapular protraction
- Pulley, broomstick, or “giant” ball exercises for later stages
- As pain free movement returns gradually introduce strengthening exercises.

**All Stages: Consider the Following**
- Intra-articular steroid injections\(^{12,13}\) when combined with shoulder mobility and stretching exercises have been shown to be more effective than stretching alone,\(^{14,15}\)
- Therapeutic ultrasound\(^{16}\) for pain relief but not for improving ROM or function.\(^8\)
• Manual and manipulative therapy
• Patient education
• Nutritional supplementation (Vitamin C, manganese, magnesium, calcium, glucosamine sulfate, chondroitin, methylsulfonylmethane, bromelain and essential fatty acids
• Botanical supplementation to reduce inflammation (Curcuma longa (turmeric), Capsicum annuum (cayenne), Arnica montana (arnica), Ruta graveolens (rue), Hypericum perforatum (St. John’s wort), and Gaultheria procumbens (wintergreen)
• Topical treatments (e.g. comfrey poultice, hypericum, arnica, wintergreen)
• Hydrotherapy
• Homeopathy
• Acupuncture especially with therapeutic exercise for pain relief, improved ROM and function.
• Deep heat for pain relief and improved ROM.
• Electrotherapy for short term pain relief.
• Low Level Laser therapy for pain relief and improved function but not ROM.
• Continuous Passive Motion for short term pain relief but not function or ROM.

Length of Treatment
• May require up to 2-4 months with decreasing frequency and increasing emphasis on home care as ROM improves. Improvement is characterized by spurts and plateaus
• Maintain home exercise program for several months after in-office care ends.

Referral Criteria
Failure to respond after 6 weeks, consider referral for corticosteroid injection to potentiate mobilization. Persistent or disabling pain.

Resources for Clinicians

The Evidence


Hegedus EJ, Goode AP, Cook CE. Which physical examination tests provide clinicians with the most value when examining the shoulder? Update of a systematic review with meta-analysis of individual tests. *Br J Sports Med.* 2012 Nov; 46(14): 964 - 78.


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