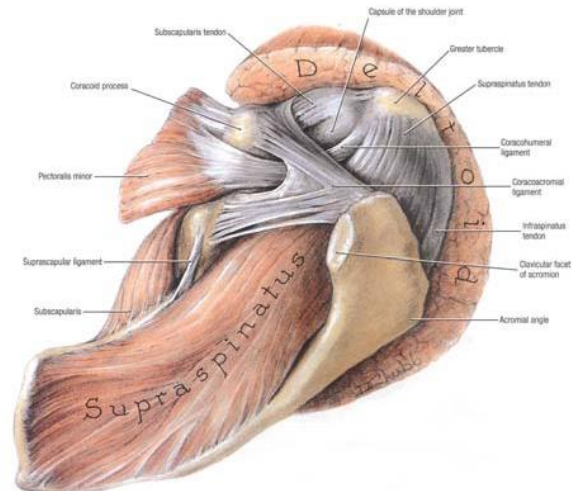


ROTATOR CUFF TENDONITIS

The shoulder is a ball and socket joint that enables you to raise, twist, bend and move your arms forward, to the sides and behind you. The head of the upper arm bone (humerus) is the ball and a circular depression (glenoid) in the shoulder bone (scapula) is the socket. A soft tissue rim (labrum) surrounds and deepens the socket. The head of the upper arm bone is coated with a smooth, durable, covering (articular cartilage) and the joint has a thin, inner lining (synovium) for smooth movement. The surrounding muscles and tendons provide stability and support.

The shoulder is moved and also stabilized by the muscles of the rotator cuff. The rotator cuff is comprised of four muscles and their tendons that attach from the scapula to the humerus. The rotator cuff tendons (subscapularis, supraspinatus, infraspinatus and teres minor) are just outside the shoulder joint and capsule. These muscles help stabilize the shoulder and enable you to lift and rotate your arm as well as reach overhead and take part in activities such as swimming, throwing and tennis. The tendons (the part of the muscle the connects to the bone) move back and forth through a very tight archway of bone and ligament called the coracoacromial arch. When the arm is raised, the archway becomes smaller and compresses the tendons and bursa (friction reducing membrane). Repetitive use of the arm makes the tendons prone to injury and inflammation.



The pain from this irritation, usually felt at the tip of the shoulder and radiated down the arm, occurs when the arm is lifted overhead or twisted. In extreme cases, pain will be present all of the time and it may even wake you from a deep sleep. Bursitis occurs when the bursa becomes inflamed and painful due to compression inside the coracoacromial arch. Tendonitis occurs when the rotator cuff tendon becomes inflamed, swollen and tender. Symptoms of tendonitis and bursitis usually last for only a few days but may recur or become chronic.

Stages of Tendonitis:

- Overuse tendonitis. Shoulder motions used during activities like golfing, throwing or overhead lifting may cause repetitive stress within the rotator cuff, leading to irritation, bruising or fraying of the tendon. This can cause shoulder pain or weakness in the joint.
- Calcific tendonitis. Inflammation over a long period of time can sometimes result in a build up of calcium deposits within the rotator cuff tendons. This leads to pain and loss of shoulder strength and motion.
- Impingement tendonitis. When the space is narrowed between the rotator cuff and the coracoacromial arch, the humerus can “pinch” the rotator cuff tendon into the arch. This can happen when the cuff is weak, the bursa is swollen or if there is a bone spur present. Tendonitis caused by impingement can occur with repetitive shoulder activities such as sports or jobs involving overhead reaching.
- Rotator cuff tear. Severe tendonitis from long term impingement, degeneration, or sudden injuries like falling can cause partial or complete tearing of the rotator cuff tendons. This can result in more severe shoulder pain, weakness, and loss of normal movement and function.

Contributing factors:

- Overuse. Repetitive overhead motions are the most common cause of the problem.
- Weak muscles. When the muscles are weak, more force is exerted on the tendons and bursa, causing inflammation and pain.
- Improper swimming or throwing techniques
- Strenuous training. One hard throw, weight lift, or workout may start the problem.
- Previous injuries to the shoulder
- Loose shoulder joint.

Principles of Treatment:

- Rest. Avoid things that hurt or make the pain worse the next day. Avoid the activity that started the problem.
- Ice. Apply an ice bag, or bag of frozen vegetables (such as corn or peas, as these are easily molded to your shoulder) at least twice a day for 20 minutes.
- Apply ice after any activity that aggravates your shoulder. Be sure to have a towel between your skin and the ice to prevent burning the skin.
- Medication. You may benefit from an anti-inflammatory medication such as Ibuprofen or Naprosyn (Motrin or Aleve, for example). You should check with your primary care doctor to make sure these are appropriate for you if you have any health problems or are taking any other medication.

- **Injection.** An injection of novacaine with cortisone (a steroid) may also be recommended. After receiving an injection do not attempt any vigorous activities with your arm for at least one week. Apply ice the night after the injection.
- **Physical therapy.** A therapist can show you exercises and stretches to help your shoulder. They may also use other modalities of treatment such as ultrasound or iontophoresis (a way of getting cortisone to your shoulder using electricity). These treatments may help to prevent a recurrence of your condition.
- **Surgery.** If conservative measures fail, surgery may be discussed as a means of treating your bursitis or tendonitis.

Returning to sports

In severe cases all sports using the arm should be avoided. When you do return to your sport it is important to go back slowly. Warm up well and do flexibility exercises before starting. Avoid the overhead position and do not play for long periods of time. Gradually increase the intensity and duration of your activity. In throwing sports, an underhand or side arm throw will be easier than overhand throwing. In swimming, breast or sidestroke will be easier than crawl or butterfly strokes.

A Word on Therapy Exercises:

These exercises should not hurt. Do not force painful motion – no pain no gain definitely does not apply in this situation. It is best to avoid using the arm above the level of the shoulder and using the elbows away from your body while waiting for the pain to subside.

Your therapist will demonstrate the following exercises for you and give you a program for home. It is important to stick to your rehab program as this gives you the best chance for continued success.

REHABILITATION PROGRAM FOR RC TENDONITIS

Phase I: Maximal Protection – Acute Phase

Goals:

1. Relieve pain and inflammation
2. Normalize range of motion
3. Re-establish muscular balance
4. Patient education and improve posture

Exercises:

- Range of Motion:
 - L-Bar
 - Flexion
 - Elevation in scapular plane
 - External and Internal rotation in scapular plane at 45° abduction
 - Progress to 90° abduction
 - Horizontal abduction/adduction
 - Pendulum exercises
 - AAROM – Limited symptom free available range of motion
 - Rope and pulley
 - Flexion
- Joint Mobilizations:
 - Emphasize
 - Inferior and posterior glides in scapular plane
 - Goal is to establish balance in the glenohumeral joint capsular
- Modalities (at therapists discretion):
 - Cryotherapy
 - Iontophoresis
- Strengthening Exercises (start when pain free):
 - Rhythmic stabilization exercises for ER/IR
 - Rhythmic stabilization drills Flex/Ext
 - External rotation strengthening
 - Isometrics (ER, IR, Abd)
 - Scapular strengthening
 - Retractors
 - Depressors
 - Protractors

- Patient Education:
 - Educate patient regarding activity level, activities
 - Pathology and avoidance of overhead activity, reaching, and lifting activity
 - Correct seating posture (consider lumbar roll)
 - Seated posture with shoulder retraction

Phase II: Intermediate Phase

Criteria to progress to Phase II:

1. Decreased pain and/or symptoms
2. Normal ROM
3. Elimination of painful arc of motion
4. Muscular balance

Goals:

1. Re-establish non-painful ROM
2. Normalize kinematics of shoulder complex
3. Normalize muscular strength
4. Maintain reduced inflammation and pain

Exercises:

- **Range of Motion:**
 - L-Bar
 - Flexion
 - External rotation at 90° of abduction
 - Internal rotation at 90° of abduction
 - Horizontal abduction/adduction at 90°
 - Rope and pulley
 - Flexion
 - Abduction (symptom free motion)
- **Joint Mobilization:**
 - Continue joint mobilization techniques to the tight aspect of the shoulder (esp. inferior)
 - Initiate self-capsular stretching
 - Grade II/III/IV
 - Inferior, anterior and posterior glides
 - Combined glides as required
- **Modalities: (as needed)**
 - Cryotherapy
 - Ultrasound/phonophoresis
 - Iontophoresis

- **Strengthening Exercises:**
 - Progress to complete shoulder exercise program
 - Emphasize rotator cuff and scapular muscular training
 - ER tubing
 - Sidelying ER
 - Full can
 - Shoulder abduction
 - Prone horizontal abduction
 - Prone rowing
 - Prone horizontal abduction ER
 - Biceps/triceps
 - Standing lower trapezius muscular strengthening

- **Functional Activities:**
 - Gradually allow an increase in functional activities
 - No prolonged overhead activities
 - No lifting activities overhead

Phase III: Advanced Strengthening Phase

Goals:

1. Improve muscular strength and endurance
2. Maintain flexibility and ROM
3. Gradual increase in functional activity level

Exercises:

- Flexibility and Stretching:
 - Continue all stretching and ROM exercises
 - L-Bar ER/IR at 90° abduction
 - Continue capsular stretch
 - Maintain/increase posterior/inferior flexibility
- Strengthening Exercises:
 - Establish patient on the fundamental shoulder exercises (see attached sheet)
 - Tubing ER/IR
 - Lateral raises to 90o dumbbell
 - Full can dumbbell
 - Sidelying ER
 - Prone horizontal abduction
 - Prone extension
 - Push-ups
 - Biceps/triceps

Phase IV: Return to Activity Phase

Criteria for Progression to Phase IV:

1. Full non-painful ROM
2. No pain or tenderness
3. Strength test fulfills criteria
4. Satisfactory clinical examination

Goals:

1. Unrestricted symptom free activity

Maintenance Exercise Program:

- Flexibility Exercises
 - L-Bar:
 - Flexion
 - External rotation and internal rotation at 90° abduction
 - Self-capsular stretches
- Isotonic Exercises
 - Fundamental shoulder exercises
 - Perform 3 times a week