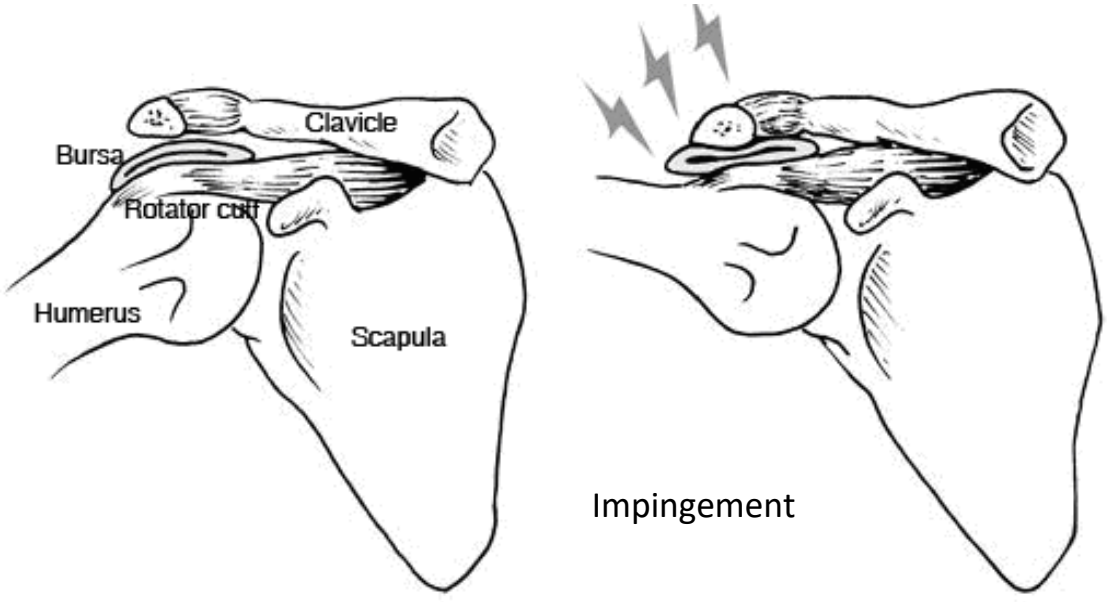
STEVEN CHUDIK MD
SHOULDER, KNEE & SPORTS MEDICINE

Impingement Syndrome

Rotator Cuff Tendonitis, Bursitis

Impingement syndrome is characterized by pain in the shoulder due to irritation or inflammation of the rotator cuff tendons or the subacromial bursa sitting between the rotator cuff and the bony roof of the shoulder (coracoacromial arch).



Impingement

The rotator cuff is a series of four muscles, supraspinatus, subscapularis, infraspinatus, and teres minor, which run along the shoulder blade (scapula) and around the shoulder socket (glenoid) surrounding and attaching to the ball of the shoulder (humeral head) by their tendons. The muscles of the rotator cuff work to keep the humeral head centered in the socket (glenoid) as the arm moves. As a result of injury, overuse, or relative weakness of the rotator cuff or scapular muscles, the humeral head may not stay well centered when the arm is raised. This movement of the humeral head can result in contact with the overlying coracoacromial arch (bony ligamentous roof), subacromial bursa and the rotator cuff muscles in-between. This contact can cause subsequent pain and inflammation which results in further rotator cuff weakness and poor shoulder muscular control and creates a cycle of pain with repeated use. This repetitive contact, over time, can result in a rotator cuff tear.

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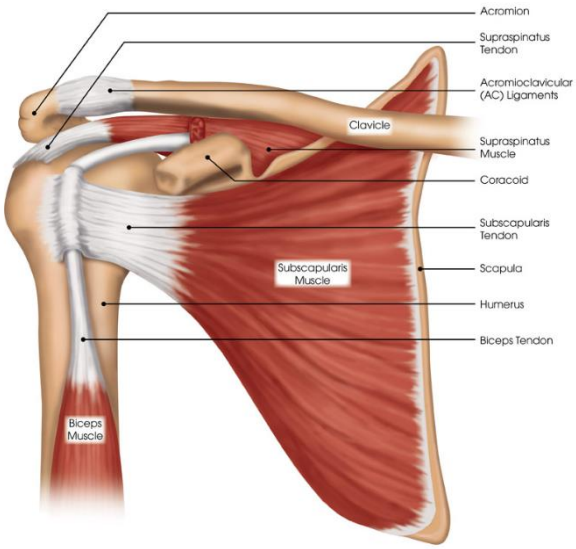
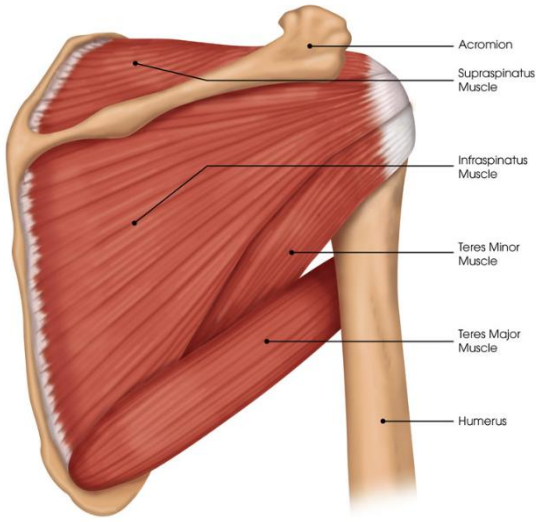


Front view of the shoulder



Back view of the shoulder

Frequent Signs and Symptoms

- Pain around the shoulder, often along the front and side of the upper arm
- Pain that is worse with shoulder reaching out from the body or overhead
- Occasionally, aching when not using the arm
- Often, pain that awakens you at night
- Occasionally, loss of strength or difficulty raising the arm
- Occasionally, crepitation (a crackling sound) when moving the arm
- Biceps pain and inflammation (in the front of the upper arm)

Etiology (Causes)

- Dramatic changes in shoulder activity
- Inactivity and rotator cuff or scapular muscle weakness
- Repetitive use, such as swimming, painting, throwing, weight lifting etc.
- Age-related narrowing of the space between the roof of the shoulder (coracoacromial arch) and the rotator cuff

Risk Factors

- Overhead sports, such as baseball, tennis, swimming or volleyball
- Weightlifting and bodybuilding to focus on only certain muscles group, which creates muscle imbalances
- Repetitive overhead labor/work
- Previous injury to rotator cuff, including impingement
- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up or pre-season conditioning before practice or play
- Increasing age
- Age-related narrowing of the space between the roof of the shoulder (coracoacromial arch) and the rotator cuff

Prevention

- Appropriately warm up and stretch before practice or competition
- Allow time for adequate rest and recovery between practices and competition
- Proper preseason conditioning that is task specific (overhead throwing or hitting, etc.)
- Maintain appropriate conditioning:
  - Cardiovascular fitness
  - Shoulder flexibility
  - Muscle strength and endurance, particularly of the rotator cuff and scapular muscles
- Use proper technique

Outcomes

The prognosis for impingement is usually excellent. A full recovery can be expected usually within six to eight weeks by eliminating the aggravating activities and performing therapeutic exercises for the rotator cuff and scapular muscles. Supervision by an experienced physical therapist or athletic trainer is strongly recommended because it is easy to perform the exercises incorrectly and make the condition worse.

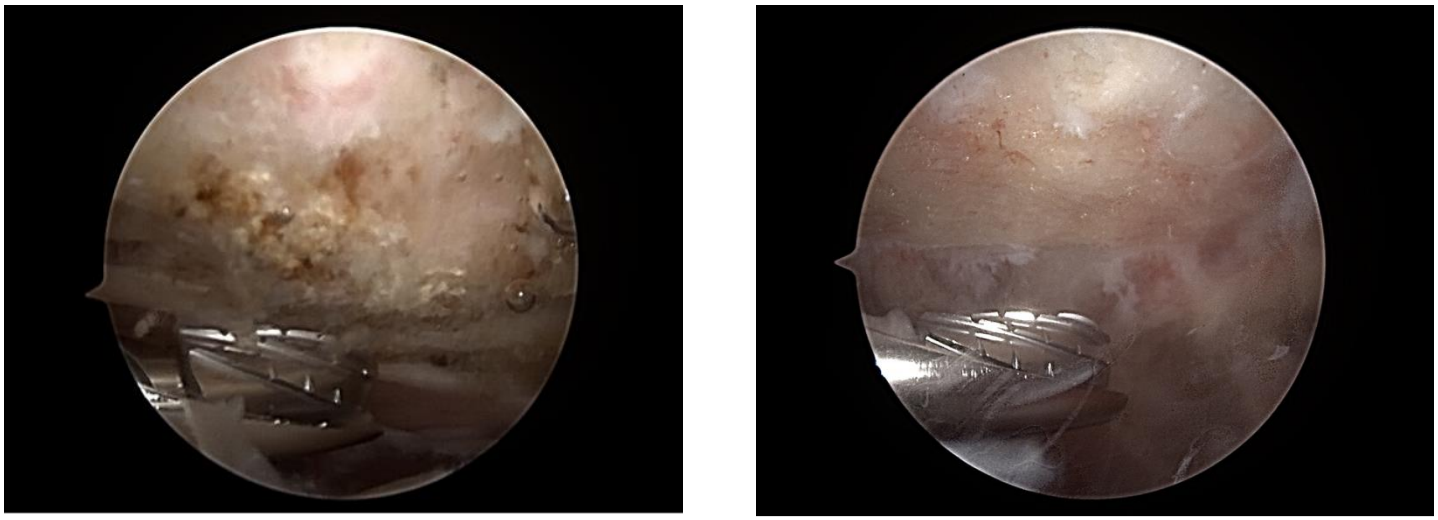
Potential Complications

- Prolonged recovery time if not appropriately treated or if a gradual return (intensity and frequency) to activity is not followed
- Chronically inflamed tendon, causing persistent pain with activity that may progress to constant pain (with or without activity)
- Shoulder stiffness, frozen shoulder, or loss of motion
- Rotator cuff tendon tear may also be present
- Recurrence of symptoms, especially if activity is resumed too soon or incompletely treated

Treatment Considerations

Initial treatment consists of therapeutic exercises to restore rotator cuff and scapular muscle strength, endurance, and mechanics to allow proper non-painful motion of the shoulder. Avoiding activities that aggravate the symptoms will also help to relieve the inflammation and pain. Supervision by an experienced therapist is strongly recommended. A steroid injection to the inflamed area around the tendon (within the bursa) is sometimes recommended for patients who are extremely limited by pain.

If a proper course of conservative treatment does not relieve the symptoms, a MRI may be ordered to rule out a rotator cuff tear. MRI is limited and sometimes may miss smaller or partial thickness tears. If the patient has failed therapy or has a negative MRI but a history suspicious for a tear (injury or older age), arthroscopic surgery may be recommended to potentially discover and address a rotator cuff tear or perform a subacromial decompression to open the space between the rotator cuff and roof of the shoulder (coracoacromial arch) and alleviate the impingement contact and pain. Return to full activity is usually possible in six weeks following therapy alone but may be anywhere from three to six months if surgery is performed.



Arthroscopic pictures of coracoacromial arch (roof) over rotator cuff and shoulder joint, before and after bone and soft tissue subacromial decompression

Possible Medications

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (**DO NOT** take within 10 days before surgery), or other minor pain relievers, such as acetaminophen, are infrequently recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Pain relievers are usually not prescribed for this condition.
- Steroid injections reduce inflammation can be helpful in certain cases but should be used with proper discretion.

Modalities

Cold is used to relieve pain and reduce inflammation. Cold should be applied for 15 to 20 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage with a cloth between the ice and your skin to prevent burning /freezing your skin.

Notify My Office If Symptoms Worse

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