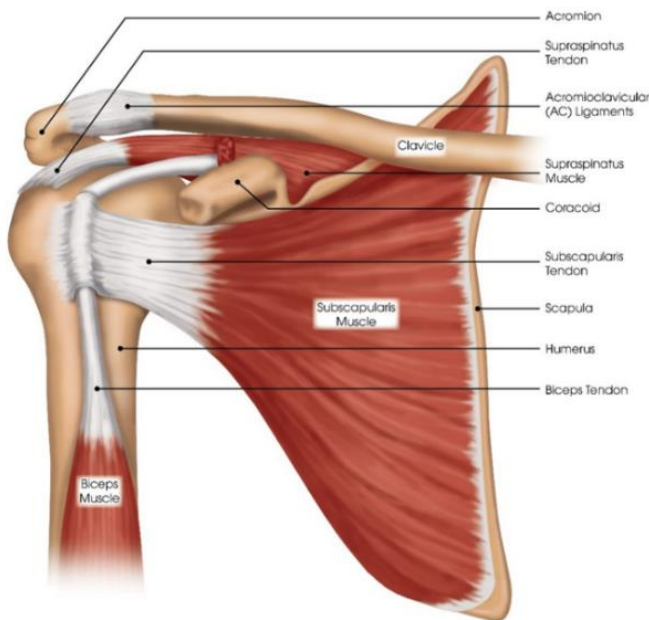


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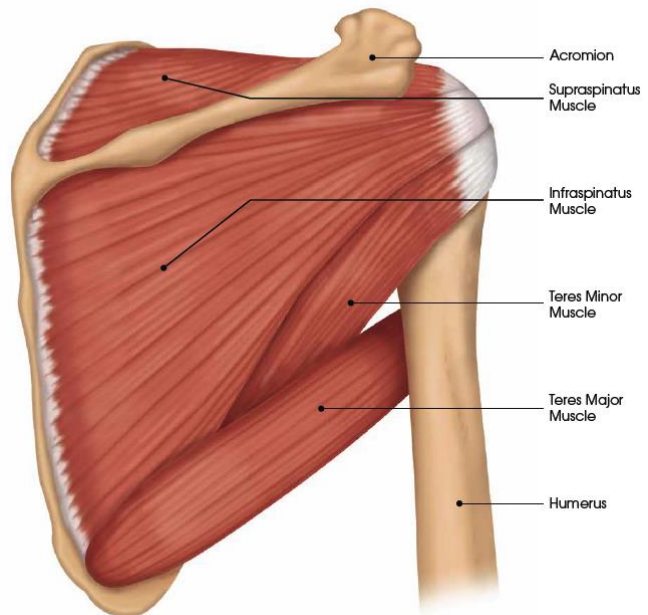
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Irreparable Rotator Cuff Tear

The rotator cuff is a series of four muscles that run from the scapula (shoulder blade) around the shoulder glenoid (socket) and attach to the humeral head (ball of the shoulder) by their tendons. The muscles of the rotator cuff work to keep the humeral head centered in the glenoid (socket) as the arm moves. Injury or degeneration (wear and tear) can result in a tear of the rotator cuff tendon. Rotator cuff tears affect the ability to keep the humeral head (ball of the shoulder) centered on the glenoid (socket), subsequently causing weakness and pain. Untreated rotator cuff tears retract, get larger, the muscle atrophies (turns into scar tissue and fat) with disuse, and can eventually become irreparable.



Front view of rotator cuff muscles



Back view of deep rotator cuff muscles

Frequent Signs and Symptoms

- Pain along the upper arm between the shoulder and elbow
- Pain that is increased when reaching out and overhead, or when lifting objects
- Aching pain at rest or at night while trying to sleep
- Loss of strength
- Limited motion of the shoulder, especially reaching overhead
- Crepitation (a crackling sound) when moving the shoulder

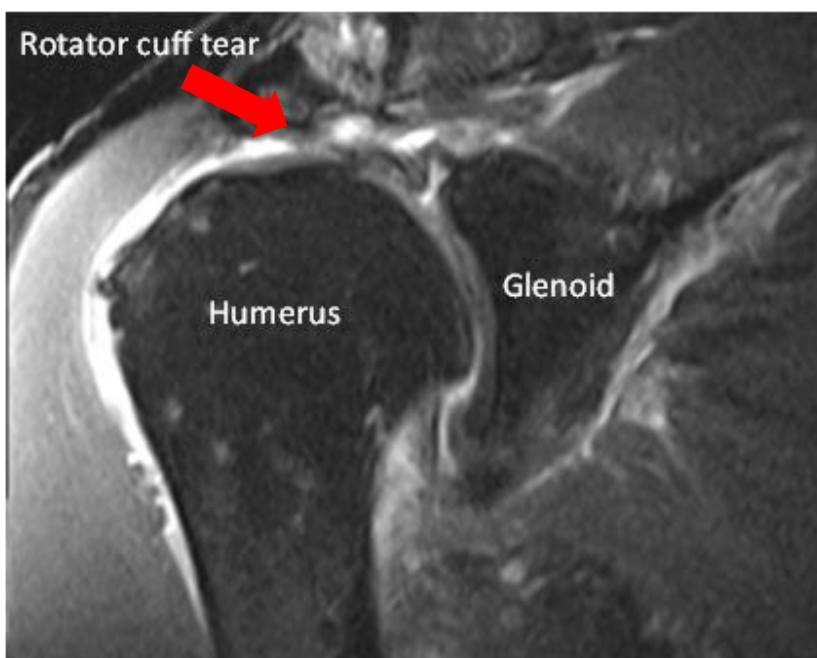


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Etiology (Causes)

- Direct injury to the shoulder such as falling on an outstretched arm
- Aging or degeneration (wear and tear) of the tendon with use
- Shoulder dislocation (typically in patients over age 40)
- Impingement (subacromial) of the rotator cuff on coracoacromial arch (bony-ligamentous roof of the shoulder), causing fraying and wear of the tendon
- Impingement (internal) of the rotator cuff on the posterosuperior glenoid (socket)
- Neglect and avoid proper evaluation and treatment, i.e. “living with it”



MRI of irreparable rotator cuff tear

Risk Factors

- Contact sports or throwing sports
- Weightlifting and bodybuilding
- Heavy or repetitive overhead labor
- Previous injury to rotator cuff, including impingement, falls, etc.
- Poor physical conditioning (strength and flexibility)
- Increasing age
- Degenerative changes of the acromion (bony roof of the shoulder) and acromioclavicular joint
- Repeated cortisone injections may contribute
- Smoking, diabetes, and injury



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Prevention

- Appropriately warm up and stretch before activity
- Allow time for adequate rest and recovery between activity
- Maintain appropriate conditioning:
 - Cardiovascular fitness
 - Shoulder flexibility
 - Strength and endurance of the rotator cuff muscles and muscles of the scapula (shoulder blade)
- Use proper technique when lifting and working overhead
- Avoid repetitive reaching/overhead work
- Seek timely evaluation by a healthcare professional following injury or persistent shoulder pain

Outcomes

Symptoms may resolve by avoiding/limiting aggravating activities and performing physical therapy exercises to strengthen the remaining intact rotator cuff muscles to compensate for the irreparable portion of the rotator cuff. Conservative treatment includes injections and physical therapy. If the symptoms persist, there are other options such as partial repair, reverse total shoulder arthroplasty, capsular reconstruction, and muscle transfer.

Potential Complications

- Persistent pain that may progress to constant pain as the tear progresses
- Shoulder stiffness, frozen shoulder, or loss of motion
- Persistent weakness
- Recurrence of symptoms, especially if treated without surgery
- Inability to return to same level of function even with surgery
- Arthritis/rotator cuff arthropathy
- Risks of surgery, including infection, bleeding, injury to nerves, shoulder stiffness, weakness, re-tearing of the rotator cuff tendon, loosening and instability of the shoulder replacement, and persistent pain



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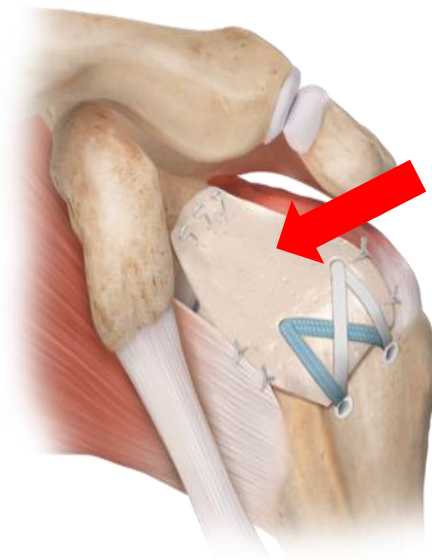
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Treatment Considerations

Treatment depends on the patient's symptoms, medical health, demands (activity level), the presence of arthritis, and the reparability of the tear. For large, possibly irreparable tears, with or without arthritis, elderly patients with low demands, or poor surgical candidates because of other health conditions, initial conservative treatment includes restricting activity to prevent symptoms combined with physical therapy and sometimes injections to optimize the function of the remaining intact (not torn) rotator cuff muscles. For irreparable tears with shoulder arthritis (rotator cuff arthropathy) that fail conservative treatment, reverse shoulder replacement may be warranted. For irreparable tears without signs of arthritis that have failed, the initial activity restriction and therapy, arthroscopic surgery to debride (clean up) the rotator cuff and shoulder joint, release or use the damaged biceps tendon to partially repair the rotator cuff, remove the inflamed bursa or decompress the bony space between the humeral head (ball of the shoulder) and the acromion (bony roof of the shoulder) may be helpful to relieve symptoms. There are other options including superior capsular reconstruction, muscle transfer, and experimental options such as inflatable balloon insertion to help keep the humeral head (ball) centered and moving in the glenoid (socket).



Post-operative MRI showing successful SCR graft intact and in anatomic position

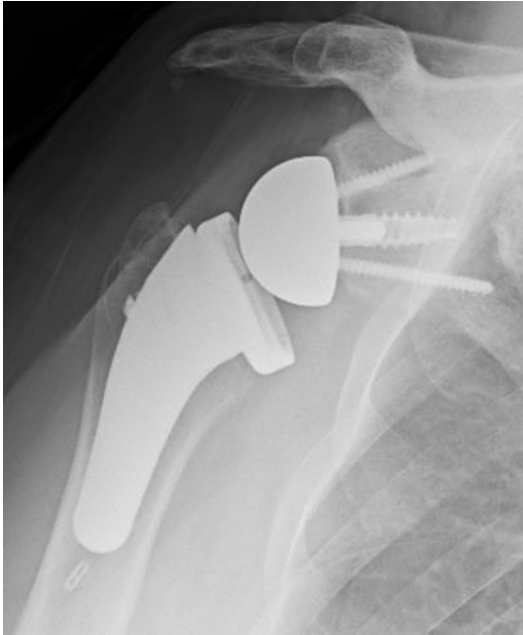


Superior capsular graft fixed in place to resist upward motion of the humerus and better maintain the central fulcrum of the shoulder joint when the arm is raised



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X-ray following reverse total shoulder arthroplasty (replacement)

Possible Medications

- Nonsteroidal, anti-inflammatory medications, such as aspirin, ibuprofen, Advil®, Motrin®, or Naprosyn®, Aleve®, or other minor over-the-counter pain relievers, such as acetaminophen, or Tylenol®, may be helpful. Do not take nonsteroidal anti-inflammatory medications within 10-14 days of surgery or following surgery. Stop these medications if they cause any bleeding or upset stomach.
- Pain relievers are not prescribed after this type of injury but may be prescribed after surgery as necessary. Use only as directed.
- Steroid injections reduce inflammation and can be helpful in certain cases but should be used with proper discretion. They can negatively affect the biomechanical properties of the tendon and should not be used when surgery is planned.

Modalities (Heat and Cold)

- 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.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

Notify My Office if Symptoms Worsen

