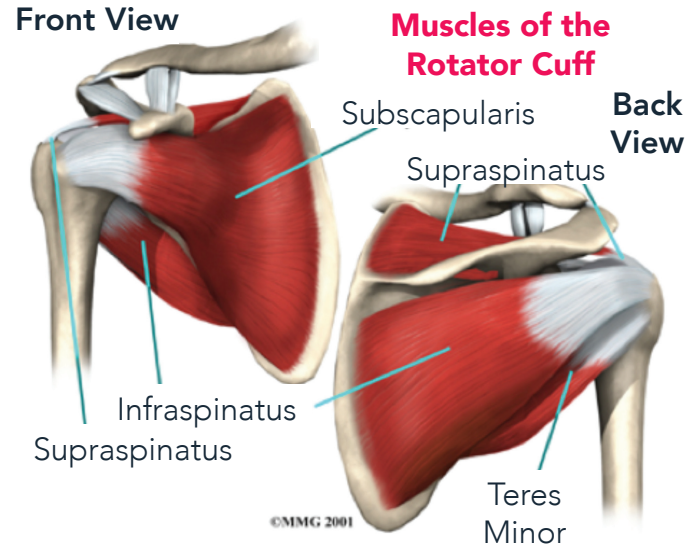


Rotator Cuff Injuries

Shoulder Anatomy

The tendons of four muscles in the upper arm form the rotator cuff, blending together to help stabilize the shoulder. Tendons attach muscles to bone and are the mechanisms that enable muscles to move bones. It is because of the rotator cuff tendons, which connect the long bone of the arm (the humerus) to the scapula (the shoulder blade) that we can raise and rotate our arms. The rotator cuff also keeps the humerus tightly in the socket (glenoid) when the arm is raised. The tough fibers of the rotator cuff bend as the shoulder changes position.



What are Rotator Cuff Injuries?

For normal shoulder function, each muscle must be healthy, securely attached, coordinated and conditioned. When there are full or partial tears to the rotator cuff tendons, movement of the arm up or away from the body is impaired, making it difficult or impossible to rotate the arm in its ball-and-socket joint.

Causes of Rotator Cuff Injuries

Injuries to the rotator cuff tendons of the shoulder can happen to anyone over time. Rotator cuff tendons can be injured or torn by excessive force, such as pitching, lifting a very heavy object with the arm extended or trying to catch a heavy object as it falls. Occasionally, these accidents happen to young people, but typically a rotator cuff tear occurs to a person who is middle-aged or older who has experienced problems with the shoulder for some time before the injuring event. That person may try to lift something or participate in an activity that exceeds the strength of the tendons, and the rotator cuff tears acutely, resulting in an inability to raise the arm. **The triggering event may or may not be particularly painful.**

The flexible, elegant design of the shoulder gives it great range of motion but limited stability. It is prone to injury as we age. As long as the parts of the most mobile joint in the body are in good working order, the shoulder moves painlessly and easily. When injury or conditions such as arthritis, tendonitis or bursitis affect the shoulder joint, pain and loss of mobility can result.

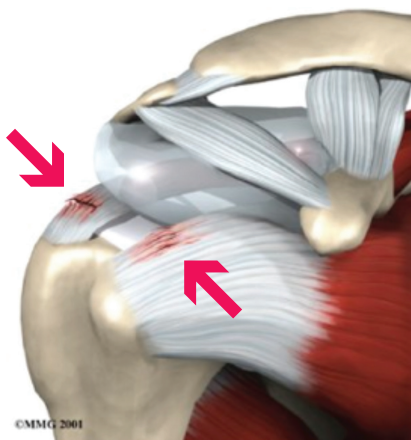
As we age, rotator cuff tendons can be subject to a great deal of wear and tear, resulting in the gradual degeneration of the tissue. Activities requiring overhead reaching put particular pressure on the rotator cuff tendons, and any form of repetitive movement, chronic misuse or recurring stress may result in a condition known as impingement (see shoulder impingement handout).

Another reason rotator cuff tendons tend to weaken over time is that they contain areas where there is a very poor blood supply. Parts of the human body that have good blood supply are better able to repair and maintain themselves. The areas of poor blood supply in the rotator cuff tendons make them especially vulnerable to degeneration with aging. This may help explain why the rotator cuff tear is such a common injury in later life, as well as explain why **nicotine (smoking), which constricts small blood vessels, is detrimental to rotator cuff healing (see smoking handout)**. The part of the rotator cuff that tears is usually one that has been weakened by degeneration and impingement.

Symptoms of Rotator Cuff Injuries

If you have torn a tendon in the rotator cuff, there will probably be tenderness and soreness in the shoulder, especially after any strenuous movement. A fully ruptured tendon may make it impossible to raise the arm or even move it away from the side of the body. You may have the sensation of a chronic, vague discomfort or more intense, acute pain. Many people with rotator cuff injuries complain of not being able to sleep on the injured side, as there is pain with any pressure on the shoulder.

Rupture of the rotator cuff tendons does not usually occur in a shoulder that is perfectly healthy. Most shoulders with rotator cuff tears have a history of other problems. Diagnosis and treatment involves addressing these related conditions (such as bursitis, tendonitis and acromioclavicular [AC] joint arthrosis). The conditions may overlap and share common symptoms, such as a “catching” sensation when you try to move the arm, stiffness, chronic soreness and the presence of bone spurs. On some occasions, rotator cuff tears are gradual and progressive, producing no apparent symptoms but an increasing weakness in the shoulder joint. There may be tears affecting both shoulders.



Diagnosis of a Rotator Cuff Injury

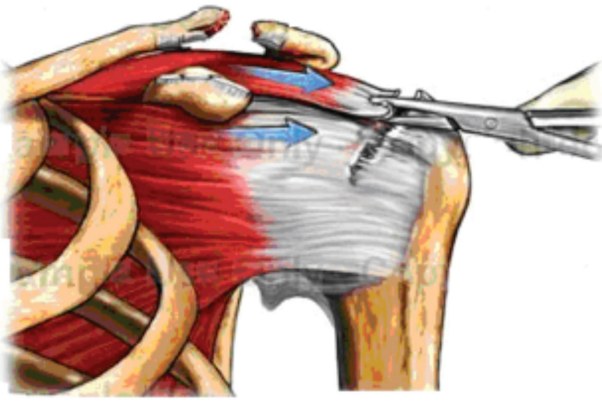
Rotator cuff tears can usually be identified fairly easily in a physical examination. Signs of a complete tear are often quite obvious. If Dr. Gudeman can assist you in moving the arm through a range of motion, yet you are unable to complete the same movements using your own strength, a tear in the tendons is very likely.

The MRI scan is a radiographic test that is frequently used to examine the rotator cuff tendons and determine whether or not they are torn. With an MRI scan, magnetic waves are used to create pictures that look like slices of the shoulder. Unlike X-rays, which show only the bones of the shoulder, the MRI scan shows tendons and any damage to them. The MRI scan is

widely used to confirm a diagnosis of rotator cuff tear. The MRI is not perfect in diagnosing a rotator cuff tear. Therefore, its result must be correlated with a patient's history and physical exam.

Non-Surgical Treatment of Rotator Cuff Injuries

If the rotator cuff tear is not complete, Dr. Gudeman may recommend conservative treatment methods to control pain and promote healing in the shoulder. The treatment regimen known as RICE (rest, ice, compression and elevation) can be very effective in some cases. It is important to rest the injury, as well as to initiate therapeutic exercises as soon as any acute pain has subsided. Anti-inflammatory medication, such as non-steroid anti-inflammatory drugs (NSAIDs) are often prescribed for pain relief. If the recommendations of a physical therapist or athletic trainer are followed on an ongoing basis, many partial tears will become very manageable with this treatment. Sometimes cortisone injections are given to patients who are still experiencing pain after several weeks of conservative care.



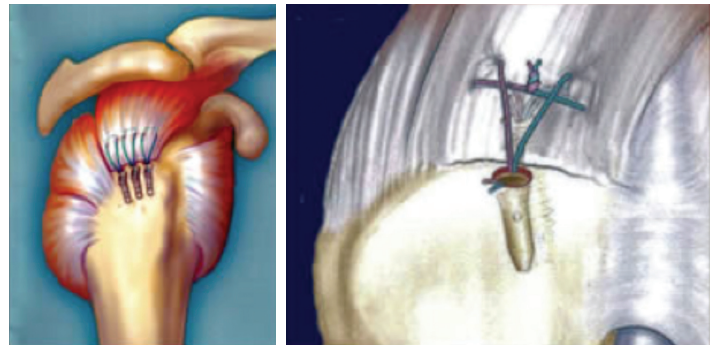
Surgical Treatment of Rotator Cuff Injuries

Surgery is normally recommended if a rotator cuff tear makes it impossible for you to raise your arm on your own. The timing of surgery also depends on the extent of the damage to the rotator cuff, as evidence suggests that repairing complete tears of the tendons within three months of injury may result in a better outcome.

Surgery for rotator cuff injuries usually includes an arthroscope. First, Dr. Gudeman removes any tissue that has degenerated or does not appear healthy. Then, a section

of the humerus (the upper arm bone) from which the tendon tore away is prepared for tendon reattachment. The soft tissue on a portion of the humerus is removed to create a raw bony area for positioning of the torn tendon. Holes are made in the humerus for suture anchors which are used in the reattachment process. The tendon tear is then sewn together and suture anchors are used to attach the repaired tendon to the bone. As time passes, the tendon heals to the humerus, reattaching itself in a more permanent fashion.

If the rotator cuff tear cannot be repaired arthroscopically, a small, open repair may be done. Remember that all surgical procedures are tailored to meet individual needs, and that recovery depends not on surgery alone but also on your general state of health and commitment to the rehabilitation process.



Post-op Expectations

After surgery, your shoulder is usually protected by a special sling for at least one month; physical therapy or therapeutic exercises are begun almost immediately, first using passive exercises, and then moving the arm through a more active range of motion. You will be given an individualized program of rehabilitation, designed to address the particular condition of your injury.

Dr. Gudeman, a physical therapist or certified athletic trainer will explain the necessity of limiting sudden and stressful movements to the arm for several weeks or longer. Activities that involve pushing, pulling and lifting will not be possible, as even the best surgical repair can be damaged if submitted to strain. During the first six weeks after surgery, the shoulder may require support from the other arm or from a pulley during movement.

In many cases, the tendons and muscles of the shoulder have been weakened from prolonged misuse or degeneration; strengthening them will require a gentle, steady process of changing habitual ways of moving your arm. It may be many months before maximal results are achieved.

If initial surgical attempts to treat rotator cuff injuries fail to give you a useable shoulder, there are other more complex procedures that include tendon grafts and muscle transfers.

These are rare cases, but will be discussed with you by Dr. Gudeman if they appear to be necessary. Under certain circumstances a complete shoulder replacement may be advised.

Possible Complications of Surgery for Rotator Cuff Injuries

Although surgery for rotator cuff injuries is usually without any significant problems, there may occasionally be unforeseen complications associated with anesthesia, including respiratory or cardiac malfunction. The surgery itself may be complicated by infection, injury to nerves and blood vessels, fracture, weakness, stiffness or instability of the joint, pain, inability to return to full duties or the need for additional surgeries.

Informative Websites

www.orthoinfo.org

www.sportsmed.org

www.aana.org

Helping you achieve the optimal activity level
for your lifestyle is my first priority.

- Scott Gudeman, MD



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