

Surgical Treatment of a Rotator Cuff Tear

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The rotator cuff is a group of four tendons and muscles in your shoulder that keeps your shoulder stable and allows you to raise and twist your arm.

Rotator cuff injuries are common and increase with age. These may occur earlier in people who have jobs that require repeatedly performing overhead motions.

A torn rotator cuff will weaken your shoulder. This means that many daily activities, like combing your hair or getting dressed, may become painful and difficult to do.

There are two kinds of rotator cuff tears. A partial tear and a complete tear. Tears can occur in tendons weakened by age, inflammation, disease, trauma, daily wear-and-tear, and repetitive strain injury.

Rotator cuff tears can occur in younger people, especially following sudden, major trauma. Tears most commonly occur at the "insertion", where the tendon joins the muscle to the bone.

If the tendons completely rupture, the person is unable to move the arm normally. A complete tear will not heal by itself. In these cases, surgery is the only means of repairing a tear.

Surgery to repair a torn rotator cuff most often involves re-attaching the tendon to the head of humerus (upper arm bone). A partial tear, however, may need only a trimming or smoothing procedure called a debridement. A complete tear is repaired by stitching the tendon back to its original site on the humerus.

Shoulder surgery involves arthroscopy, a procedure that uses keyhole surgery to help examine and repair the cartilage, bones, tendons and ligaments inside or around the shoulder joint. Arthroscopic Surgery is also used to treat various other shoulder problems, including: shoulder instability and dislocation; a bone spur or inflammation around the rotator cuff, a condition known as **impingement** or **Subacromial Bursitis**.

Patients who may require surgery to repair a torn rotator cuff include:

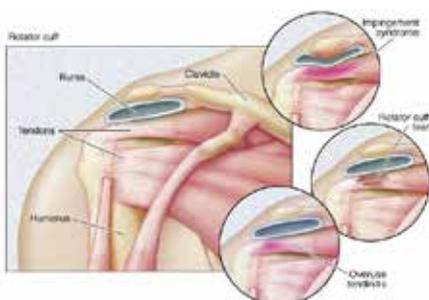
- Persons whose symptoms do not improve with appropriate physical therapy or rehabilitation
- High-demand athletes after an acute injury
- Overhead workers or laborers
- Persons who have changes on X-ray or MRI that suggest that irrecoverable damage to the shoulder may occur if the shoulder mechanics are affected by the cuff tear
- Patients with a full thickness rotator cuff tear

Surgical Assessment

Your surgeon will conduct a physical examination to test the range of movement in the shoulder as well as test the strength of the muscles around your shoulder and in your arms. You may also need to have the following:

1. an X-ray examination
2. an arthrogram; in this test, dye is injected into the shoulder before the X-ray examination
3. MRI scan, a radiological examination that shows tendons and other structures
4. an ultrasound examination
5. Blood tests

Surgery to repair a rotator cuff tear is usually done under general anaesthesia. A very small number of patients have problems with anaesthesia. These problems can be reactions to the drugs used, problems related to other medical complications, and problems due to the anaesthesia. Be sure to discuss the risks and your concerns with your anaesthetist.



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The Surgical Procedure

Surgery to repair a rotator cuff tear is usually done under a general anaesthetic. Your anaesthetist may also discuss doing a nerve block (interscalene nerve block) which will greatly aid in reducing the postoperative pain in the first 12 to 24 hours after surgery. Rotator cuff surgery takes 1 to 2 hours.

The Surgical technique used depends on the size and depth of the tear and it's location.

Arthroscopic rotator cuff repair:

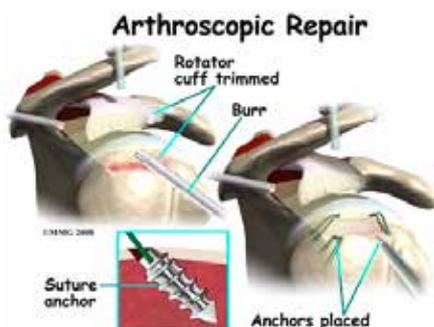
Most rotator cuff tears can be repaired arthroscopically (Keyhole surgery). During the procedure, the Arthroscope (Camera) is inserted through a small incision at the back of the shoulder. The scope is connected to a video monitor. This allows the surgeon to view the inside of the shoulder. One to three additional small stab incisions (working portals) are made to allow other instruments to be inserted. The primary advantage of all-arthroscopic repair is that it allows a surgeon "global" access to the rotator cuff and tear for adequate cuff evaluation, repair and fixation to bone. It also allows patients a quicker recovery.

Open surgery

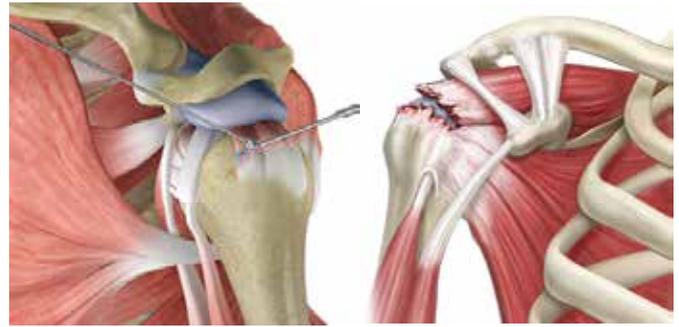
In rare cases open surgery is necessary, a surgical incision is made and a large muscle (the deltoid) is gently moved out of the way to do the surgery. Open repair is done for large or more complex tears.

To repair the rotator cuff, small rivets (called suture anchors) are often used to help attach the tendon to the bone. The suture anchors can be made of metal or material that dissolves over time, and do not need to be removed. Sutures (stitches) are attached to the anchors, which tie the tendon back to the bone.

At the end of the surgery, the incisions are closed, and a dressing is applied.



During arthroscopy, small surgical instruments are used to repair the rotator cuff.



Effectiveness of rotator cuff surgery

In persons who continue to have symptoms despite an adequate trial of physical therapy, surgical repair of the rotator cuff is the most effective method to restore strength and eliminate pain.

Arthroscopic rotator cuff repair can be very effective in eliminating pain and restoring strength and function to the shoulder of a well-motivated patient. The greatest benefits are often the ability to perform the usual activities of daily living, overhead activities, and sports without discomfort, and to sleep without a chronic ache in the shoulder. As long as the shoulder is cared for properly and subsequent traumatic injuries are avoided, the benefits of repair should be permanent.

Recovery After Rotator Cuff Surgery

After the surgery, Patients usually spend 1 to 2 hours in the recovery room.

Patients who undergo arthroscopic Rotator cuff procedures almost always are comfortable enough to be discharged home the same day or within 24 hours after the procedure.

After the procedure, you will be placed in a shoulder immobiliser (Sling). It is very important to keep wearing the sling at all times until instructed by your surgeon.



Possible complications of Rotator Cuff Surgery

All surgical procedures are associated with a degree of risk. Your surgical team will do everything possible to minimise the risks and complications. Below is a list of some risks and complications associated with Rotator cuff surgery

Some of the complications of Rotator Cuff Surgery include:

- **Pain**, which happens with every operation. The healthcare team will try to reduce your pain. They will give you medication to control the pain and it is important that you take it as prescribed. Complex Regional Pain Syndrome (CPRS) is an extremely rare complication of shoulder surgery and associated with long term disabling pain that can be difficult to treat, however this is uncommon.
- **Stiffness**, after shoulder surgery is not uncommon and can occur in approximately 10% of people. It is known as a 'Post-operative Frozen Shoulder'. It is more common after rotator cuff repairs and in older people. In most cases it improves with physiotherapy, but sometimes a steroid injection. Rarely, surgery (MUA or capsular release) is required. Almost all stiffness is gone by one year after surgery.
- **Infection** of the surgical site (wound)($<1\%$). This is rare, especially with arthroscopic surgery. Generally, many procedures are undertaken during your surgery to minimise the infection risk such as special clean air theatres, sterile environments, prophylactic antibiotics, etc. After your operation, you should let your surgeon know if you get a temperature, notice increasing pain, redness or discharge from your wound. An infection is usually successfully treated with antibiotics but occasionally the wound needs to be drained or you may need another operation.
- **Bleeding** during or after surgery ($<1\%$). It is unusual to need a blood transfusion.
- **Unightly scarring** of the skin ($<1\%$). Most surgical scars have disappeared to a thin pale line by one year after surgery. Before then they can look a bit red. If you are concerned about your scar you must discuss it with your surgeon, as there are many treatments to improve scar healing (such as Bio-oils, Silicone gels, massage, etc). Arthroscopy scars are usually very small and neat.
- **Neurological complications:** Nerve injuries after arthroscopic rotator cuff surgery are rare ($<0.5\%$). Most nerve injuries are temporary neuropraxias which often completely resolve, but permanent nerve injuries (eg axillary nerve) can occur
- **Blood clots** (0.2%) - the risk of getting a blood clot in your leg (DVT) or lung (PE) are rare and more common after surgery on your leg. The overall published rate for shoulder surgery is 0.2%. Most surgeons use calf compression pumps during your operation to reduce the risk. The risk is higher in people who are overweight, of older age, hormone therapy (eg. HRT and contraceptive pill) and smoking. The risk is also higher if surgery lasts more than 150 minutes. In high risk patients we usually use an anticoagulant to try reduce the risk of clots.
- **Rotator Cuff tendon re-tear** - Recurrence of the tear or failed healing of the tendon occurs in approximately 10-20 % of cases. The risk of recurrent tear varies by patient population (Patient age, tear size, muscle fatty infiltration and atrophy on preoperative MRI scans) as well as patient compliance after the surgery.
- **Anaesthesia Complications:** Most surgical procedures require that some type of anaesthesia be done before surgery. A very small number of patients have problems with anaesthesia. These problems can be reactions to the drugs used, problems related to other medical complications, and problems due to the anaesthesia. or the nerver block. Be sure to discuss the risks and your concerns with your anaesthetist.



Rehabilitation after Arthroscopic Rotator Cuff Repair

Post Op

- 0-6 Weeks** **Goal:** To protect the repaired tendon, relieve swelling and manage postoperative pain
1. Cryocuff/ice: day 1-2 as much as possible and after activities during the first week
 2. Modalities as prescribed on discharge for pain or inflammation, No NSAID's
 3. Sling/shoulder immobiliser to stay on at all times, except for showers and elbow/wrist exercise
 4. Physical duties are not permitted with the operated arm
 5. Elbow and wrist AROM 3 times / day
- 6-12 Weeks** **Goal:** Restore functional shoulder ROM by 12 weeks
1. Start **passive range of movement** exercises, increasing limit gradually
 2. Use the sling for comfort only and wean over the next 2 weeks
 3. Patients can begin light waist level activities
 4. Gentle soft tissue mobilisation and joint mobilisation
 5. Progress to **active assisted ROM**, including wand and pulleys at 8 weeks
 6. Joint mobilisation to restore scapulothoracic and glenohumeral mobility
 7. Start gentle strengthening exercises of scapula stabilisers
 8. Progress to **active range of motion** exercises at week 10
 9. Patient can return to office/clerical, duties
 10. No lifting anything heavier than a cup of water
 11. Driving can commence when comfortable forward elevation to 90 degrees is achieved
- 12-18 Weeks** **Goal:** Initiate rotator cuff strengthening/Return to full functional activity
1. Commence Theraband strengthening program (Start with high reps and low resistance)
 2. Progress strengthening with Theraband with increasing resistance
 3. No heavy lifting of objects (no heavier than 2Kg)/No uncontrolled or jerking movements
 4. Progress towards a gym or home-base exercise program at 18 weeks
 5. Aim to return to strenuous work activities and sports at 20 to 24 weeks after surgery
 6. Full recovery from surgery can take up to 18 months

