

Daniel Biggs
Orthopaedic Surgery and Sports Injuries

Telephone: (02) 9679 7088

IMPINGEMENT SYNDROME AND TEARS OF THE ROTATOR CUFF

Impingement syndrome is the **commonest** problem that affects the shoulder. The **rotator cuff** is composed of four tendons that blend together to help stabilise and move the shoulder. It lies below the '**acromion**' which is the outer bony prominence of the shoulder. The rotator cuff tendons pass **below** the acromion whenever the arm is raised. If the acromion protrudes down into the 'sub acromial space' (the space between the acromion above and the rotator cuff tendon below), the rotator cuff tendons rub and '**impinge**' against the acromion. Impingement causes difficulties with activities such as **driving, changing gears, hanging clothes, brushing one's hair and lying on the affected shoulder at night.**

How does impingement start?

The rotator cuff tendons can be injured by a single traumatic event. Often, however, the tendons are injured by repetitive overuse, such as from long distance swimming, tennis, jobs that involve having the arms raised for prolonged periods of time (painting ceilings, plastering), or repetitive lifting of heavy objects.

Once the rotator cuff tendons have been damaged they become inflamed and swollen, and thus lessen the area in the sub acromial space. This causes the painful cuff tendons to **impinge** against the acromion more and more. This continued rubbing (i.e. impinging) may eventually cause a tear in the rotator cuff tendon, which can cause further **pain and weakness** of the shoulder. **Strong** rotator cuff tendon requires a **major** force to tear it. **Weakened** degenerative cuff, can be **torn easily**, even while carrying out activities of daily living.

Treatment:

Treatment initially involves a temporary **rest** from the pain provoking activities, be it sport or work. A modification of technique may be necessary for athletes.

The **strength** of the shoulder depends upon the **co-ordinated** working of the muscles around the shoulder including the rotator cuff muscles, the muscles that move the shoulder blade and the deltoid and pectoral muscles. An exercise program is required to strengthen and re-balance these muscles. A **stretching program** is also important to regain any lost shoulder movement.

An **injection** of cortisone and local anaesthetic also often helps to decrease the inflammation. Anti-inflammatory **tablets** may also be prescribed.

Patients who do **not** get better with the above regime, or who have long standing impingement or symptomatic rotator cuff tears, will require **operative treatment**.

Surgery:

The surgery for impingement is called subacromial decompression (or acromioplasty). The protruding undersurface of the acromion is removed so as to increase the area of the subacromial space (as shown in the diagram). This is done by arthroscopy through two or three small incisions. Usually only 24 hours is needed in hospital and the motion of the shoulder is regained early. Most shoulders improve significantly in the first two to three months, and continue to improve for up to 12 months. It is thought that the delay in recovery is because the tendons have to recover even after the impingement has been relieved.

The surgery is successful in relieving pain and in improving the shoulder's ability to perform activities of daily living, light work and recreation in 90%-95% of cases. An exercise program that lasts for 3-4 months is begun immediately after the surgery and is shown to you by the physiotherapist in hospital. Clerical work can be recommenced 1 week after the operation. Heavy work must be avoided for at least 6 weeks.

If a **tear of the rotator cuff tendons** is diagnosed, either before or at surgery, an attempt is made to **repair** this. The decompression is always done as well to ensure sufficient space for the repair. The goal of the surgical repair is to re-establish the connection between the torn tendon and the arm bone (humerus). If sufficient quality and quantity of tendon is present, the tendon is implanted into a groove in the humerus and held in position with sutures (as shown in the attached diagram).

Healing of the repaired tendon is slow and the loads applied to the tendon are large. Thus **protection of the repair is required for 2-3 months** following the repair. The shoulder is moved during this time but only **passively** ie the good arm is used to move the shoulder to prevent stiffness and to help the repair process.

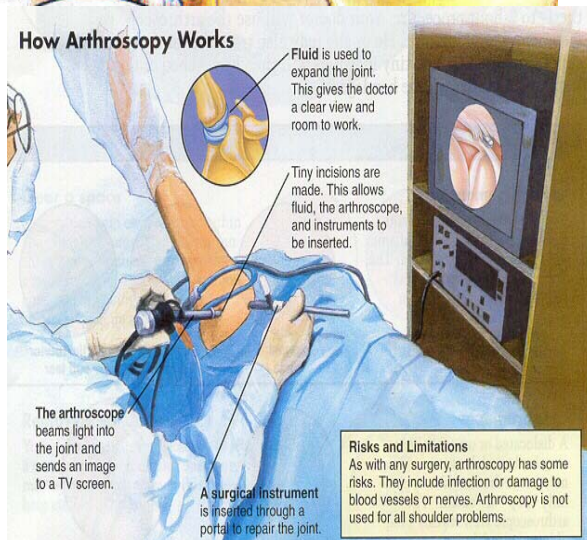
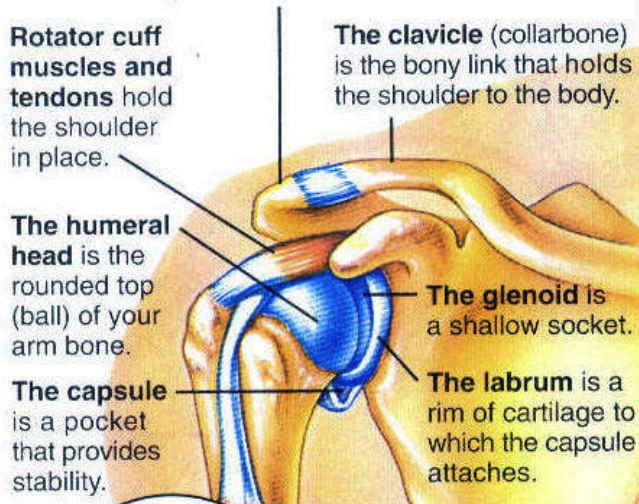
It is best to have a week off work following the surgery. You may then use the hand for activities such as typing and writing as long as the elbow is kept at the side. During this time you should not drive. Strengthening exercises are begun after 2-3 months and continue for 6 months. Most of the exercises can be done at home.

Sometimes the tendon is too frayed and retracted to be repaired. Under these circumstances the tendon is 'cleaned up' and the decompression is performed.

The return of power to the shoulder is dependant upon the size of the tear and the strength of the tendon at the time of the surgery. Pain relief is achieved in 90%-95% of cases.

The potential complications of this surgery includes infection, nerve injury, shoulder stiffness and inability to obtain a durable repair. Measures are taken to minimise the likelihood of these occurring. The results of surgery are satisfactory in 90%-95% of cases.

Surgery cont'd.



The rotator cuff tendons pass below the acromion and insert into the humeral head.

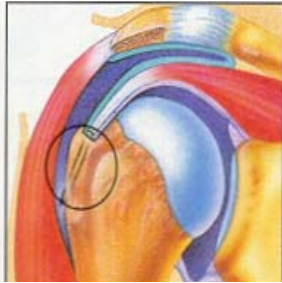
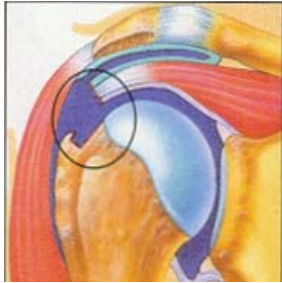
The arthroscope is used to visualize the inside of the shoulder.



2.

3.

4.



The undersurface of the acromion is removed (diagram 1) so as to increase the space of the rotator cuff tendons i.e. (subacromial decompression)

The rotator cuff tendon tear is identified arthroscopically (diagram 2) and repaired back to the humerus or arm bone (diagram 3). The repair can often be performed “arthroscopically”, thereby avoiding large incisions. Suture anchors (diagram 4) with sutures attached are used to facilitate the repair.