DR DARREN WATERS
BMBS FRACS (ORTHO)

Western Hospital
168 Cudmore Terrace
Henley Beach SA 5022
P 08 8267 8299 **F** 08 8102 0575
Provider Number 015787YH

Patient Information

SHOULDER INJURIES & SURGERY

This information booklet has been designed to give you a basic understanding of how your shoulder joint works, common shoulder injuries and common surgical procedures. Please keep in mind that this reference is a guide only and you may progress at a different rate to that which is outlined.

The shoulder is a complex joint that allows us a great range of movement and flexibility. It is susceptible to injury due to the delicate construction and balance of bones, ligaments, tendons and muscles that make up the joint.

The shoulder consists of three bones; the collarbone (clavicle), the arm bone (humerus) and the shoulder blade (scapula). Muscles and tendons help keep these bones in place and provide strength and stability to the joint.

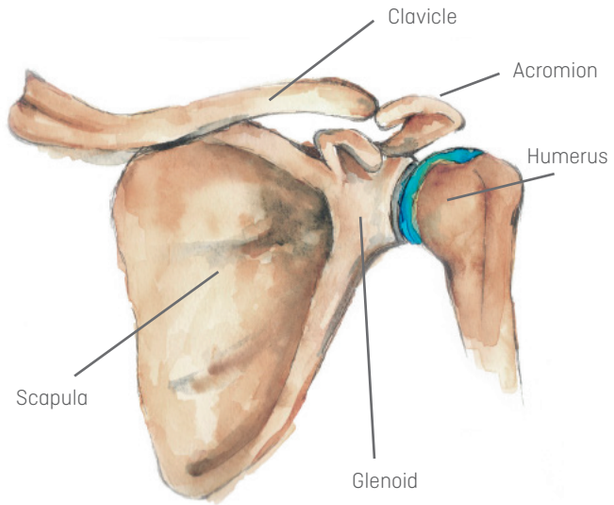
The shoulder is made up of two joints, the acromioclavicular joint (or AC joint) and the glenohumeral joint (or GH joint). The AC joint is located between the clavicle and the bony prominence of the upper edge of the scapula called the acromion. The GH joint is a ball and socket type joint, which permits a great range of movement in the shoulder.

The rotator cuff plays a significant role in the stability and flexibility of the shoulder. Consisting of four tendons, the rotator cuff connects the muscles of the shoulder blade to the upper end of the humerus, holding the shoulder joint in place.

Bursae are small fluid filled sacs that cushion and lubricate the areas between bones, muscles and tendons. In the shoulder joint, a large bursa is found between the rotator cuff and the upper edge of the shoulder blade. Bursae assist smooth shoulder movement when you raise your arm.

The shoulder joint is this complex structure of ligaments, muscles and tendons, which are often at the core of most common shoulder problems. Some of these problems will be discussed in the next few pages of this booklet.

Many shoulder conditions can be treated, but often a cure, back to 100% normal, is not probable.



Shoulder impingement

The term "shoulder impingement" is commonly used to describe a number of shoulder conditions that can often occur simultaneously. Bursitis, tendonitis and rotator cuff tears are commonly associated with shoulder impingement and are the result of either mechanical compression and/or wear of the rotator cuff tendons.

Rotator cuff tendons usually glide smoothly between the acromion (upper edge of the shoulder blade) and the upper end of the humerus. When this action is compromised, (either due to degenerative changes, injury or overuse), the tendons become inflamed causing shoulder pain. Tendonitis is common in people who have jobs where repetitive overhead work is required (such as painting or plastering). Similarly, tennis players and swimmers are also at risk of developing tendonitis due to the continuous demand put on the shoulder joint.

Overuse can also irritate the bursa found between the rotator cuff and the acromion bone. These fluid filled sacs usually provide a cushioning effect between the bones and tendons; but can easily become inflamed in the shoulder that is being overworked.

Rotator cuff tears can result from overuse, direct injury (such as a fall) or age related changes, where a bony spur grows from the acromion and rubs directly on the rotator cuff tendon. A tear may be partial, involving only a few of the tendon fibres, through to a full thickness tear. A full thickness tear can progress to a complete rupture where the tendon tears away from the bone.



Symptoms

- Patients often describe pain on raising their arm and sometimes a grinding sensation.
- Pain can be quite significant particularly at night, preventing sleep for many people.
- A rotator cuff tear may be suspected if a patient has difficulty raising the arm.

Diagnosis

A provisional diagnosis can often be made after a thorough physical examination. X-rays, MRI scan or ultrasound arranged if a rotator cuff tear is suspected.

Treatment

In the acute stage, treatment will initially be aimed at reducing pain and inflammation. This is often achieved by resting the shoulder joint in combination with non-steroidal anti-inflammatory medication. Icing the joint 3-4 times per day has also proven to assist with pain and swelling.

An exercise and strengthening program aimed at promoting shoulder mobility and rotator cuff strength may be arranged through a physiotherapist.

Surgery is usually discussed when other treatment methods have not been successful in reducing symptoms over time.

The aim of surgery is to open up the area between the acromion and rotator cuff to prevent further tendon irritation. The under surface of the bone is smoothed and any obvious bone spurs are removed. Removal of the sub-acromial bursa is performed at the same time.

This surgery can be performed via arthroscopy or a small open incision in the shoulder.

Rotator cuff repairs are also performed via arthroscopy or an open incision (depending on the size of the tear and other surgical considerations).

Most often, tears are situated where the tendon inserts into the humerus bone. Surgical repair aims to reattach the rotator cuff tendon back to the humerus bone using a suture and an anchor made of plastic or metal.

Recovery usually requires a graduated exercise program to help regain strength and mobility in the shoulder.

Frozen Shoulder

Frozen shoulder or adhesive capsulitis can occur as an isolated event or following a fracture, dislocation or other trauma where there may be reduced shoulder motion over a period of time.

Mobility in the shoulder is dependent on the correct alignment of the surrounding supporting ligaments. In adhesive capsulitis the ligaments can become inflamed causing scar tissue to form. This in turn severely reduces (or freezes) the shoulder range of movement and causes significant joint pain. As the pain continues, the less the shoulder is moved thus contributing to the 'frozen' status of the joint.

While research has indicated that some medical conditions such as diabetes, heart disease and arthritis can be associated with frozen shoulder the condition can occur spontaneously where there may appear to be no obvious cause.

Symptoms

- People with frozen shoulder will report increased shoulder pain associated with reduced joint movement. This is the first of three phases during which the shoulder 'freezes'.
- Joint pain may become more localised during the 'frozen' stage as the inflammation subsides.
- Patients often report poor sleep patterns due to increased pain at night.
- The third phase occurs as the condition begins to resolve and scar tissue produced during the initial stage beings to loosen.
- It may take considerable time for the condition to enter the 'resolution' (thawing) phase, so treatment is aimed at speeding up the process as much as possible.

Diagnosis

Diagnosis is usually made during a physical examination where shoulder pain, together with reduced flexion and rotation is observed. If required, other investigations such as x-rays or ultrasound may be arranged to assist the diagnosis.

Treatment

Treatment can include anti-inflammatory medication, steroid injection, physiotherapy and a home exercise program to encourage gentle motion in the joint and to prevent the formation of further scar tissue.

If the condition is severe and unresponsive to conservative treatment, your doctor may elect for a hydrodilitation under ultra sound guidance or a shoulder manipulation under general anaesthesia, to help stretch the scar tissue and encourage movement back into the joint.

Arthroscopic surgery to remove scar tissue and adhesions can be done in extreme cases.

Shoulder instability

Shoulder instability can result from direct or forceful injury, which stretches the ligament capsule around the shoulder joint. This capsule is responsible for keeping the joint in alignment and functioning normally.

Shoulder instability can also occur in people who naturally have relaxed or loose shoulder joints. These people are often referred to as 'double jointed'.

Whether as a result of injury or natural joint laxity, the supporting ligaments become stretched to the point where dislocation of the joint can occur. When dislocation occurs, the ball joint comes out of the socket causing considerable pain.

If the shoulder slips only partially out of joint and returns, it is referred to as 'subluxation'. The joint is said to be 'unstable' when dislocation (total) recurs or if subluxation (partial) is an on-going problem.

When dislocation occurs as a result of injury the shoulder most commonly dislocates in one direction towards the front. In those with naturally looser ligaments, the shoulder may sublux in more than one direction. This condition is referred to as 'multi-directional instability'.

Symptoms

- Dislocation, where the ball of the shoulder joint comes completely out of the socket, is a painful experience. The shoulder appears to be out of shape and does not move normally.
- With subluxation, the ball comes only partially out of the socket before returning and is usually less painful. The joint feels as if it is slipping in and out of the socket.

Diagnosis

Diagnosis will aim to establish the cause and direction of the instability. The shoulder joint will be put through a physical examination and if significant injury is suspected, x-rays, a MRI scan or CT arthrogram will be arranged to check for tears of the capsule or ligaments.

Treatment

Dislocated shoulders are usually treated in the doctors room or hospital emergency room. The reduction of a dislocated shoulder is an uncomfortable procedure. Medication to relieve pain and relax the muscles is given prior to the procedure.

Once the shoulder has been put back in place, x-rays may be taken to check the alignment. The associated pain and swelling may be eased with anti-inflammatory medication. The joint must be rested prior to commencing any rehabilitation or physical therapy.

Therapy is aimed at preventing the shoulder from dislocating again by improving the strength of the surrounding rotator cuff muscles. A physiotherapist will help coordinate a program designed to regain motion and stability in the shoulder.

If significant stretching or tearing of the ligaments and capsule has occurred during dislocation or subluxation, surgical repair may be considered.

There are a number of surgical options available depending on the type and severity of the shoulder instability. Repair of the shoulder capsule/ labrum/ ligaments may be performed arthroscopically (key-hole) or by open surgery. Loose or torn ligaments may need to be reattached or anchored back onto the bone to give the shoulder stability.

Rehabilitation will depend on the underlying cause of instability and the type of surgical repair performed by your surgeon. Physical therapy will be an important part of the recovery phase and is aimed at allowing you to return to your normal activities as soon as possible.

Osteoarthritis

The shoulder is made up of two joints, the acromioclavicular (AC) joint, where the collarbone (clavicle) and shoulder blade (scapula) meet; and the glenohumeral (GH) joint, where the upper end of the humerus and scapula form a ball and socket joint. Both can be affected by arthritis.

The types of arthritis that can affect the shoulder joint can be grouped into three categories:

Osteoarthritis – wear and tear (or age related) arthritis, which progressively destroys the smooth outer covering (articular cartilage) of the shoulder bones. The normally smooth joint surfaces become rough and irregular. This is more commonly seen in people aged over 50 years.

Post traumatic arthritis – a form of osteoarthritis, which typically develops following an injury to the shoulder such as a fracture, repeated dislocation or rotator cuff tears.

Rheumatoid arthritis – an inflammatory disease affecting the joint lining leading to progressive destruction of the surface of joints not only in the shoulder but knees, hips, elbows, hands and feet. This disabling disease can affect people of any age.

Symptoms

- Joint pain is the most common symptom of arthritis.
- Most people describe a gradual reduction in the range of shoulder mobility as the disease progresses.
- Activities such as lifting the arm above the head becomes most uncomfortable and may be accompanied by creaking or clicking in the joint.
- Many people experience night pain and the inability to sleep as arthritic changes advance.
- Arthritis in the GH joint will produce pain that is centralised towards the back of the shoulder.
- If the AC joint is affected, pain is more commonly found towards the front of the shoulder.
- Those with rheumatoid arthritis may have generalised pain affecting one or more joints in the body.

Diagnosis

A physical examination is the first stage of diagnosing arthritis in the shoulder joints. X-rays will be taken routinely to examine joint space and reveal if bony spurs or osteophytes have formed at the ends of the bones as a result of arthritic changes.

Treatment

Conservative measures such as rest and avoiding

activities that cause pain are usually the first steps in treating arthritis of the shoulder.

Non-steroidal anti-inflammatory medications are often used to reduce inflammation in the joint.

Icing the joint 3-4 times per day has also proven to assist with pain and swelling.

Surgical treatment for the shoulder arthritis is usually discussed when conservative management does not relieve pain.

Your doctor will discuss with you the surgical options available. They will also discuss the likely outcome and any related risks and complications, so you can make a balanced decision.

The type of surgery recommended depends on which part of your shoulder joint is affected by arthritis. Where the glenohumeral (GH) joint is affected, a total shoulder arthroplasty, replaces both the humeral head (ball) and the socket joint or glenoid with artificial metallic and plastic components.

A metal component is used to replace the head of the humerus. This metal alloy ball is on a stem that fits down into the arm bone. The glenoid component replaces the socket part of the joint and is most commonly made of plastic. Some components are cemented in place using special bone cement while others have a rough, porous surface into which the bone grows to lock the implant in place.

Your surgeon will discuss with you the type of components that will be best for your surgery. A physical therapy/ exercise program designed to restore joint function, strength and mobility always accompanies shoulder replacement surgery.

Arthritis of the acromioclavicular (AC) joint can be treated by resecting the joint – called resection arthroplasty. Arthroscopic removal of the tip of the clavicle removes the pain caused by the rubbing together of the rough ends of the clavicle and the acromion. Scar tissue forms in place of the removed bone and the function of the joint is restored.

Another form of arthritis can develop in a shoulder that has lost its rotator cuff tendons, called 'cuff arthropathy'. Treatment with a replacement can help with pain and improve range of motion and function.

Shoulder arthroscopy surgery (minimally-invasive, key-hole)

A shoulder arthroscopy (key-hole) allows your surgeon to look inside your shoulder joint and perform a number of procedures using small instruments guided through tiny incisions made in the skin.



A small camera is inserted, which relays pictures inside your joint back to a television in the operating theatre. Your surgeon is able to use specialised instruments to smooth rough surfaces, remove damaged tissue, cartilage or bone.

The small incisions allow surgery to be performed inside the joint with less trauma to the surrounding tissue. The small incisions are closed with sutures or small band aids and covered with a dressing and bandage. Shoulder arthroscopy takes approximately 1 hour and is most often a day procedure.

Many surgical procedures can be performed arthroscopically. Please discuss with your doctor whether your shoulder problem can be managed through key-hole surgery, or whether open surgery is best.

Further enquiries: PHONE (08) 8267 8299
FAX (08) 8102 0575
EMAIL admin@drdarrenwaters.com.au

DR DARREN WATERS
BMBS FRACS (ORTHO)

This material has been produced as a reference guide only and should not be used in place of a consultation with a qualified medical practitioner. This information sheet is not intended for medicolegal purposes.