

SHOULDER INSTABILITY / DISLOCATION

The shoulder has the greatest range of motion of any joint in your body. It's role is to allow you to position your hand in space. The down side of having extreme movability is the reduced stability.

The shoulder can be overtly unstable and dislocate as a single episode or repeatedly. Less obvious is shoulder subluxation where the ball is loose within the socket but does not actually dislocate.

Once the shoulder has dislocated for the first time it is vulnerable to further episodes of dislocation. If it has dislocated on more than one occasion we call this chronic instability.

ANATOMY

The shoulder is one of the most complex joints in the human body. It is complex because it allows a range of motion greater than any other joint. The shoulder is made up of the shoulder socket (called the glenoid, which is part of the scapular or shoulder blade) and the humerus which is the upper bone of the arm. The collarbone or clavicle also contributes to the shoulder joint.

Movement of the shoulder occurs at two sites. Firstly, the shoulder ball "humeral head" moves within the socket (glenoid). Secondly, the entire shoulder blade or scapular moves over the chest wall or ribcage.

(a) Ball and Socket

There are numerous ball and socket joints within the human body. The shoulder joint is remarkable because relatively speaking it has the largest ball in the smallest socket. This is necessary to allow its wide range of motion. It is analogous to a golf ball sitting on a tee. The disadvantage of this arrangement is that it increases the risk of dislocation. That is to say that it is not hard to knock the golf ball off the tee. The hip joint is an example of a ball and socket joint where there is a very large socket which strongly resists any dislocation of the ball out of the socket.

Like most joints in the human body, a smooth surface coating not unlike Teflon, covers the ball and the socket. This is called the articular cartilage. It allows for easy movement of the two surfaces over one another with minimal friction. It is lubricated by joint fluid.

Because the shoulder socket is relatively small it has a rim of strong cartilage tissue around it called the labrum. The labrum affectively increases the size of the socket, adds stability and improves cushioning.

(b) Shoulder capsule

There is a capsule around the shoulder joint which extends from the edges of the socket to the margins of the ball. The capsule is thickened and strengthened in places by ligaments referred to as the glenohumeral ligaments which pass from the socket to the ball. The inner surface of the capsule is lined by synovium which produces the fluid which lubricates the joint. All fluid containing joints have a synovium.

(c) Rotator cuff

The next layer outside of the capsule is the rotator cuff. This is a convergence of four major tendons. These tendons help hold the ball centered in the socket and also assist in movement of the shoulder joint. Each of these tendons arises from a muscle. The muscles that form the rotator cuff are the muscles surrounding the shoulder blade. The four muscles of the rotator cuff are:

1. Supraspinatus

This muscle sits at the top of the shoulder blade and the tendon of supraspinatus runs over the top of the ball. It is the tendon which is most commonly inflamed or torn.

2. Subscapularis

This muscle sits at the front of the shoulder blade (thus it is between the shoulder blade and the ribcage). It then passes to the front of the ball and helps turn the arm inwards.

3. Infraspinatus

This sits at the back of the shoulder blade below the spine of the scapular and passes to the back of the ball of the shoulder joint. It helps turn the arm outwards.

4. Terres minor

Sits below infraspinatus. It is the smallest of the muscles of the rotator cuff. It also assists in rotating the arm outwards.

(d) Bursa

The subacromial bursa is a lubricating sac which sits between the rotator cuff tendons and the bone above them. This bone is called the acromion and is part of the shoulder blade or scapular. The bursa helps tendons glide smoothly when they come in contact with bone or at prominent areas on your body. For example we have a bursa at the elbow and also at the knee and the back of your heel.

TYPES OF INSTABILITY

(a) Traumatic dislocation

The majority of shoulder dislocations occur initially as a single high energy accident, often off and on the sporting field. This type of dislocation can also occur as a result of epileptic seizures.

The ball of the shoulder joint can dislocate out the front of the socket (anterior dislocation) or out the back (posterior dislocation). A dislocation towards the front is by far the more common method. This usually occurs when the arm is forced up and out in to a stop sign position.

After the first dislocation it is relatively easy to dislocate on subsequent occasions. The first dislocation usually tears the ligament at the front of the shoulder joint and if these ligaments do not heal back properly the shoulder remains unstable. The dislocations can gradually increase in frequency and eventually the shoulder starts dislocating in your sleep. Repeated dislocations result in further damage to the labrum of the socket and to the bone of the socket as well.

(b) Multi-directional instability

In some patients the shoulder becomes unstable without a significant injury. The shoulder may just feel loose. If it is loose but not completely dislocating, we call it “subluxation”. Or it may actually dislocate in both directions. This is referred to as multi directional instability. It is often associated with generally loose ligaments. These people are sometimes referred to as being “double jointed”.

SYMPTOMS

- Recurrent shoulder dislocations.
- A sensation of the shoulder “giving out”.
- A sensation of the shoulder feeling loose or slipping in and out of the joint – called subluxation.
- A concern that the shoulder may dislocate when the arm is lifted in to the stop sign position, causing people to avoid this position.
- Pain associated with shoulder movement.

PHYSICAL EXAMINATION

Examination tests the shoulder for stability at the front and back. The examining doctor can usually get an appreciation for whether the ball is slipping forward or back. Furthermore the patient may demonstrate apprehension when the arm is moved in to the stop sign position (positive apprehension test) and that apprehension may be relieved when the ball of the shoulder joint is pushed backwards by the doctor (positive relocation test). The examination also usually includes an assessment for generalised looseness of the ligaments. This includes such things as being able to hold your thumb down against your forearm or to put your whole hand on the floor when you touch your toes.

INVESTIGATION

a) X-ray

X-rays's are performed firstly to confirm that the shoulder dislocation has been reduced and that the ball is back sitting in the correct position in the socket. The x-ray may also show any fractures associated with the dislocation. The front of the socket can be chipped (called a Bankart Fracture). The back of the ball can also sustain an indentation fracture called a Hill-Sachs Lesion.

b) MRI scan

MRI's are used to identify damage to the non-bone tissues and specifically the labrum. Sometimes the MRI scan is performed with an injection of dye into the shoulder (called contrast) to better outline the damage to the labrum. Newer MRI scanning machines with greater sensitivity do not necessarily require dye injection to be performed.

TREATMENT

Non-surgical treatment

For patients with multi directional instability where there is no history of a single severe injury, non surgical treatment is almost advocated initially.

Where there has been a severe injury resulting in a complete dislocation of the shoulder, again non surgical treatment may be considered in the first instance. We are more likely to take this approach the older the patient is.

Non surgical treatment initially involves wearing a sling for a short period of time followed by a shoulder strengthening program supervised by a physiotherapist.

Surgical treatment

There are several surgical procedures for shoulder instability depending upon the underlying damage.

- (a) Arthroscopic Labral Repair – in a young patient who has sustained a single severe dislocation or multiple dislocations we can repair the damage to the labrum with key hole surgery.
- (b) Arthroscopic Capsular Plication – for the patient with multi directional instability where the capsule of the shoulder is loose and redundant we can tighten the capsule around its entire circumference using key hole surgery.
- (c) Latarjet Procedure (open shoulder stabilisation) – there is a natural tendency to consider open surgery the old fashion way of doing things. However there are some injuries where open surgery is clearly preferable. In patients who have had multiple dislocations with associated damage to the bone of the shoulder socket, or where they have had arthroscopic surgery which has failed or redislocated, open surgery is preferable. Open shoulder reconstruction may also be preferred in the athlete involved in high demand contact sport where there is a high risk of reinjury.

Almost all surgery for shoulder instability usually requires a period of six weeks in a sling followed by physiotherapy extended over a protracted period. A return to competitive sport is likely to be in the order of four to six months depending on the nature of the surgery.

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