

The Shoulder Girdle

The anatomy of the shoulder girdle consists of several bony joints, or “articulations”, which connect the upper limbs to the rest of the skeleton and provide a large range of movement. You may also see this referred to as the “pectoral girdle” in some textbooks.

The three bones which form the shoulder girdle are the **clavicle**, the **scapula** and the **humerus**. The most important aspect of the shoulder is the large range of movement that it permits, which is central to many activities of daily living.

- There are three main joints in the shoulder girdle, these are:
 - Glenohumeral Joint (GHJ)
 - Acromioclavicular Joint (ACJ)
 - Sternoclavicular Joint (SCJ)

It is also important to consider another “joint” which is important in shoulder movement:

- Scapulothoracic Joint

The Scapula (or shoulder blade)

This bone is quite complex and is an attachment site for numerous muscles which support movement and stabilisation of the shoulder. It overlies the 2nd – 7th ribs, is tilted forwards by an angle of 30°, and is encased by 17 muscles which provide control and stabilisation against the thoracic wall (the ribcage). This is sometimes referred to as the “Scapulothoracic Joint” although it is not technically an actual joint.

The Clavicle (or collar bone)

The clavicle is an S-shaped bone and is the main connection between the upper arm and the rest of the axial skeleton. The clavicle is also an important site for muscle attachments including:

- Pectoralis Major
- Trapezius
- Sternocleidomastoid
- Sternohyoid

- Subclavius

The Glenohumeral Joint (shoulder ball and socket joint)

Ask someone to point at the shoulder joint, and the chances are they will point at the Glenohumeral Joint (GHJ). The Glenohumeral Joint is a ball and socket joint which provides a large proportion of the movement at the shoulder girdle.

The head of the humerus articulates (moves) with the glenoid fossa of the scapula – hence the name. The head of the humerus is, however, quite large in comparison to the fossa, resulting in only one third to one half of the head being in contact with the fossa at any one time. The humerus is further supported by the glenoid labrum – a ring of fibrous cartilage which extends the fossa slightly making it wider and deeper (almost like if you have a deeper bowl, you can fit more in it!).

Both articulating surfaces are covered with articular cartilage which is a hard, shiny cartilage which protects the bone underneath.

The Acromioclavicular Joint

The Acromioclavicular Joint (ACJ) is formed by the lateral end of the clavicle articulating with the medial aspect of the anterior acromium.

The ACJ is important in transmitting forces through the upper limb and shoulder to the axial skeleton. The ACJ has minimal mobility due to its supporting ligaments:

- Acromioclavicular Ligament which is composed of strong superior (top) and inferior (bottom) ligaments, and weak anterior (front) and posterior (back) ligaments restricting anterior-posterior (forwards and backwards) movement of the clavicle on the acromion
- Coracoclavicular Ligament is composed of the Conoid and Trapezoid ligaments. It forms a strong heavy band to prevent vertical movement.

The Sternoclavicular Joint

The Sternoclavicular Joint occurs at the sternal end of the clavicle, the cartilage of the first rib, and the upper and lateral parts of the manubrium sterni (the upper part of the sternum, or breastbone).

It is the only joint that truly links the upper extremity to the axial skeleton, via the clavicles. The Sternoclavicular Joint functions in all movements of the upper limbs, and is particularly important in throwing and thrusting movements.

The Scapulothoracic Joint

This joint relies entirely on the surrounding musculature for its control. The main muscles which control this joint are:

- Serratus Anterior which holds the medial (inside) angle of the scapula against the chest wall.
- Trapezius which rotates and elevates the scapula with elevation (lifting up) of the upper arm.

Note that during elevation the Glenohumeral Joint rotates 2° for every 1° of scapulothoracic rotation (most of us dont need to worry about this fact but it can be handy for clinicians to know).

Shoulder Injuries

Shoulder Pain: Common conditions and treatment information

Shoulder pain is an extremely common complaint, and there are many common causes of this problem. It is important to make an accurate diagnosis of the cause of your symptoms so that appropriate treatment can be directed at the cause. If you have shoulder pain, some common causes include:

Bursitis | Rotator Cuff Tendonitis

The most common diagnosis in injured workers with shoulder pain is bursitis or tendonitis of the rotator cuff. Bursitis is inflammation of a bursa. Bursae are small sacs located between two adjoining structures, usually muscles, tendons and bones. Rotator cuff tendonitis is inflammation or swelling of the three main tendons in the shoulder.

Rotator Cuff Tear

Rotator cuff tears occur when the tendons of the rotator cuff separate from the bone. Surgery is sometimes necessary for this condition.

Frozen Shoulder

Also called 'adhesive capsulitis,' this is a common condition that leads to stiffness of the joint. Physical therapy and stretching are extremely important aspects of treatment.

Calcific Tendonitis

Calcific tendonitis is a condition of calcium deposits within a tendon; most commonly within the rotator cuff tendons. Treatment of calcific tendonitis depends on the extent of symptoms.

Shoulder Instability

Instability is a problem that causes a loose joint. Instability can be caused by a traumatic injury (dislocation), or may be a developed condition.

Shoulder Dislocation

A dislocation is an injury that occurs when the top of the arm bone becomes disconnected from the scapula.

Shoulder Separation

Also called an AC separation, these injuries are the result of a disruption of the acromioclavicular joint. This is a very different injury from a dislocation!

Labral Tear

A Bankart lesion is a type of labral tear most commonly due to dislocation of the joint. Bankart lesions cause problems of persistent instability.

SLAP Lesion

The SLAP lesion is also a type of labral tear. The most common cause is a fall onto an outstretched hand.

Arthritis

Shoulder arthritis is less common than knee and hip arthritis, but when severe may require a joint replacement surgery.

Biceps Tendon Rupture

A proximal biceps tendon rupture occurs when the tendon of the biceps muscle ruptures near the joint.

When do you need to see your doctor about your shoulder pain?

If you are unsure of the cause of your shoulder pain, or if you do not know the specific treatment recommendations for your condition, you should seek medical attention. Treatment of these conditions must be directed at the specific cause of your problem. Some signs that you should be seen by a doctor include:

- Inability to carry objects or use the arm
- Injury that causes deformity of the joint
- Shoulder pain that occurs at night or while resting
- Shoulder pain that persists beyond a few days
- Inability to raise the arm
- Swelling or significant bruising around the joint or arm
- Signs of an infection, including fever, redness, warmth
- Any other unusual symptoms

Treatments for shoulder pain?

Treatment depends entirely on the cause of the problem. Therefore, it is of utmost importance

that you understand the cause of your symptoms before embarking on a treatment program and should seek medical advice before beginning any treatment plan.

Some common treatments for shoulder pain are listed here. Not all of these treatments are appropriate for every condition, but they may be applied in your situation.

Rest

The first treatment for many common conditions that cause shoulder pain is to rest the joint, and allow the acute inflammation to subside. It is important, however, to use caution when resting the joint, because prolonged immobilization can cause a frozen shoulder.

Ice and Heat Application

Ice packs and heat pads are among the most commonly used treatments for shoulder pain. So which one is the right one to use, ice or heat? And how long should the ice or heat treatments last? Read on for more information about ice and heat treatment.

Stretching

Stretching the muscles and tendons that surround the joint can help with some causes of shoulder pain. A good routine should be established, and following some specific suggestions will help you on your way.

Physiotherapy

Physical therapy is an important aspect of treatment of almost all orthopedic conditions. Physical therapists use different modalities to increase strength, regain mobility, and help return injured workers to their pre-injury level of activity. Some specific exercises may help you strengthen the muscles around the joint and relieve some of the pain associated with many conditions.

Anti-Inflammatory Medication

Non steroidal anti-inflammatory pain medications, commonly referred to as NSAIDs, are some of the most commonly prescribed medications, especially for injured workers with shoulder pain caused by problems such as arthritis, bursitis, and tendonitis.

Cortisone injections

Cortisone is a powerful medication that treats inflammation, and inflammation is a common problem in injured workers with shoulder pain. Discuss with your doctor the possible benefits of a cortisone injection for your shoulder pain condition.

Vocational Rehabilitation

This should begin as soon as possible after the injury. The Rehabilitation Provider will assist to identify suitable duties with the employer and in consultation with the treating medical provider, the injured worker, their supervisor and any other key person. The Rehabilitation Provider will prepare a return to work plan of action with the aim being a gradual and safe return to normal work duties. This plan will always include considerations directed by the Medical Provider and may include identifying any other requirements or services needed.