

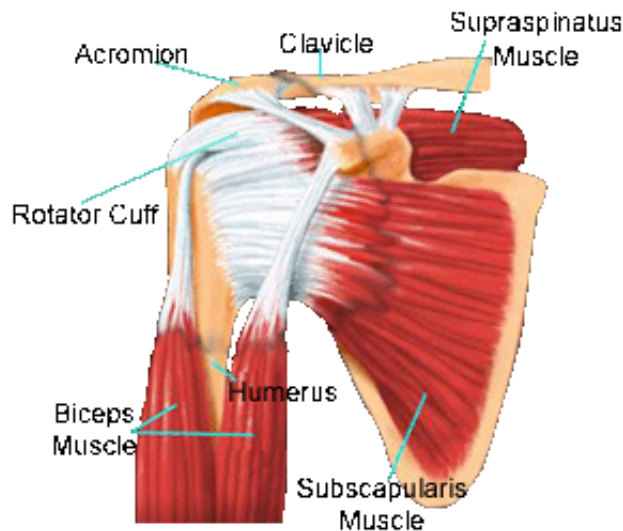
# Impingement Syndrome / Bursitis

## Introduction

The shoulder is a very complex piece of machinery. Its elegant design gives us the ability to do many things. This design gives the shoulder joint great range of motion but not much stability. As long as the parts of this elegant machine are in good working order, the shoulder can move freely and painlessly. An injury to the shoulder, or wear and tear in the parts of the shoulder, can lead to pain with movement or stiffness in the shoulder. Many people are probably familiar with the term bursitis. Any pain in the shoulder is sometimes mistakenly referred to as bursitis. The term bursitis really only means that the part of the shoulder called the bursa is inflamed. In reality, there are many different problems that can lead to symptoms from inflammation of the bursa, or bursitis. Impingement is one of those things that can cause bursitis. Let's see how this machine called the shoulder is put together and what might cause a breakdown.

## Anatomy

The shoulder is made up of three bones: the scapula (shoulder blade), the humerus (upper arm bone) and the clavicle (collarbone). The tendons of four muscles form the rotator cuff. The muscles are called the supraspinatus, infraspinatus, teres minor, and subscapularis. Tendons attach muscles to bones. Muscles are able to move bones by pulling on these tendons. This large tendon called the rotator cuff connects the humerus with the scapula (shoulder blade) and helps raise and rotate the arm. As the arm is raised, the rotator cuff also keeps the humerus tightly in the socket (glenoid) of the scapula. The part of the scapula that makes up the roof of the shoulder is called the acromion. Between the acromion and the rotator cuff tendons there is a bursa. There are many bursae all over the body where tissues must move against one another. The bursa is a lubricated sac of tissue that protects the muscles and tendons as they move against one another. The bursa simply allows the moving parts to slide against one another without too much friction.



Causes Usually, there is enough room between the acromion and the rotator cuff so that the tendons slide easily underneath the acromion as the arm is raised. But each time the arm is raised, there is a bit of rubbing on the tendons and the bursa between the tendons and the acromion. This rubbing, or pinching action, is called impingement. Impingement occurs to some degree in everyone's shoulder, caused by day to day activities that we do using the arm above

shoulder level. But continuously working with the arms raised overhead , repeated throwing activities, or other repetitive actions of the arm can cause impingement to become a problem. Raising the arm tends to force the humerus against the edge of the acromion. With overuse this can cause irritation and swelling of the bursa.

If any condition decreases the amount of space between the acromion and the rotator cuff tendons, the impingement process may get worse. Bone spurs can further reduce the space available for the bursa and tendons to move under the acromion. Wear and tear of the joint between the collarbone and the scapula, the acromioclavicular (AC) joint, is a fairly common cause of bone spurs around this joint. This joint sits right above the bursa and rotator cuff tendons and if bone spurs develop underneath the joint, this can make impingement worse.

## **Symptoms**

Early symptoms of Impingement Syndrome include generalized aching of the shoulder, pain when raising the arm out from the side or in front of the body. Most patients complain of difficulty sleeping due to pain, especially when they roll over on the affected shoulder. A very reliable sign of impingement is a sharp pain when trying to reach into your back pocket. As the process continues, discomfort increases and the joint may become stiffer. Sometimes a "catching" sensation is felt when the arm is lowered. Weakness and inability to raise the arm may indicate that the rotator cuff tendons are actually torn.

## **Diagnosis**

The diagnosis of impingement and bursitis is usually made on the basis of the history and physical examination. Your doctor will be interested in your activities and your job, because this condition is frequently related to continuous overhead activities. Some people have an odd anatomy of the acromion, where the bone tilts too far down and reduces the space between the acromion and the rotator cuff. X-rays may be ordered to look for this abnormal type of acromion, or bone spurs from the acromioclavicular (AC) joint. The MRI scan, or arthrogram, may be performed if there is also a suspected tear of the rotator cuff tendons. An MRI scan is a special radiological test where magnetic waves are used to create pictures that look like slices of the shoulder. The MRI scan shows more than the bones of the shoulder.

It can show the tendons as well, and whether there has been a tear in those tendons. The MRI scan is painless, and requires no needles or dye to be injected. The arthrogram is an older test. This test is done by injecting dye into the shoulder joint and taking several X-rays. If the dye leaks out of the shoulder joint where it was placed, it suggests that there is a tear in the rotator cuff tendons where the dye leaked out. Both tests are still widely used.

In some cases, there is a question whether or not the pain is coming from the neck or the shoulder. An injection of a local anesthetic (like novocaine) into the bursa can be used to make sure that the pain is in fact coming from the shoulder, and not coming from a problem in the neck. If the pain goes away immediately after the bursa is injected with novocaine, then most likely the pain is coming from there. Pain from a pinched nerve in the neck would not normally be removed by injecting the shoulder.

## **Treatment**

*Rest:* Your physician or therapist may prescribe a sling to provide adequate rest to the shoulder. It is crucial that the sling be removed several times daily while you perform your home exercises. This is paramount in order to prevent a stiff or "frozen" shoulder.

*Ice:* Ice decreases the size of blood vessels in the sore area, halting inflammation and relieving pain. Choices of application include cold packs, ice bags, or ice massage. Ice massage is an easy and effective way to provide first aid. Simply freeze water in a paper cup. When needed, tear off the top inch, exposing the ice. Rub three to five minutes around the sore area until it feels numb.

*Medications:* Anti-inflammatory medications may be prescribed by your physician. These include aspirin and ibuprofen. If these measures fail to improve your pain, an injection of cortisone into the bursa may reduce the inflammation and control the pain. Cortisone is a very strong anti-inflammatory medication and can reduce the inflammation in the bursa and tendons of the rotator cuff.

*Physical Therapy:* It is very important to maintain the strength in the muscles of the Rotator Cuff. These muscles help control the stability of the shoulder joint and strengthening these muscles can actually decrease the impingement of the acromion on the rotator cuff tendons and bursa. Long term management of this problem should also address worksite alterations to reduce the need for overhead activity. A posterior capsular stretching program and rotator cuff strengthening program may be started by your physical therapist. These programs are simply a set of exercise that will help keep the shoulder strong and flexible and help reduce the irritation from impingement. Your therapist will make sure you understand the exercises and are doing them correctly before turning you loose on your own.