

# InfoSheet – Rotator Cuff Problems

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What is Acromioplasty?

Description

Acromioplasty is a surgical procedure performed to reshape the acromion in your shoulder. In general, a portion of the acromion is shaved away to make more room for shoulder motion.

Anatomy

Your shoulder is a complex joint composed of bones, muscles, tendons, ligaments, nerves, and blood vessels. The acromion is an important bony structure at the top of your shoulder blade. The connection of the acromion and the clavicle (collarbone) form the joint that serves as the roof of the shoulder. The acromion also serves as the attachment site for arm and chest muscles. When you move your shoulder, the muscles, tendons, and bursa (fluid-filled sac) should glide smoothly under the acromion. Problems in the shoulder, such as shoulder impingement, bursitis, and tendonitis, prevent normal movement. Acromioplasty is completed to relieve symptoms associated with these conditions and restore shoulder range of motion.

Before the Surgery

Tests needed prior to the procedure may include:

- X-rays
- Arthrograms
- Ultrasound
- CT (computerized tomography) scan
- MRI (magnetic resonance imaging)

Talk with your doctor about your expected recovery time. You may need to arrange for some help at home while your shoulder heals.

Your doctor may prescribe antibiotics for you to take to before the surgery to prevent infection.

The Day of Your Surgery

Wash your shoulder thoroughly. You should not have any skin irritations or infections at the surgery site.

Arrive at the hospital or outpatient center at least one hour before the scheduled time for your surgery. The nurse will insert an IV (intravenous) line to give you medications and fluids during the surgery.

When you are in the operating room, you will be given medicines to make you relax. Anesthesia may be given to numb the nerves of your shoulder and arm, and you may also "sleep" during the surgery.

During Surgery

Your surgeon may choose one of two techniques for your acromioplasty:

- Arthroscopy involves the use of an arthroscope, which is a small, thin instrument with a lens on the end. This device allows your surgeon to view the inside of your shoulder on a video monitor. A small opening (portal) is made over the area of the acromium and the arthroscope is inserted. The repairs are completed with small surgical instruments, which are also entered through the portals.
- Open repair is completed with the acromion exposed through a cut in the skin for the surgeon to see inside the shoulder.

With each procedure, a portion of the acromion will be removed and the remaining bone will be reshaped. Any repairs to surrounding tissues are also completed. Next, the shoulder is closed with stitches or staples and a dressing is applied. Your arm will be placed in a sling to immobilize the shoulder.

After Surgery

You may have some swelling and small bruises on your shoulder, but this should disappear within a few days. Most patients have some pain, but this can be relieved with rest, pain medications, and ice (3 times per day for 20 minutes at a time). For several weeks after your surgery, you will wear the sling to support the shoulder.

Recovery

Typically, physical therapy begins the week following surgery. Your therapist will teach you how to gently stretch your shoulder, regain muscle strength, and how to prevent the problem from coming back.

Full recovery may take 6 months to a year.

Generally, the open procedure requires longer to heal than the arthroscopic technique. Your recovery depends largely on your health before the surgery and how well you follow your rehabilitation program. It is very important to complete your therapy program and follow your surgeon's recommendations. This will speed your recovery and decrease your risk of re-injuring your shoulder.

Complications

As with all surgical procedures, there are risks related to acromioplasty. Most patients report good results. Some of the risks include infection, excessive bleeding, poor skin healing, joint stiffness, nerve injury, and blood vessel injury.

ROTATOR CUFF REPAIR

### Anatomy and Symptoms

The shoulder joint is a ball and socket type joint. The rotator cuff is the group of 4 muscles that helps stabilize the ball in the socket as the joint moves through a wide range of motion. Falling onto the shoulder or onto the outstretched hand may tear the rotator cuff. Repeated overhead activity, such as throwing or swimming, may also tear the rotator cuff.

A torn rotator cuff commonly causes weakness and pain in the shoulder, although many patients with known tears of the rotator cuff have surprisingly few symptoms. Sometimes tears in the rotator cuff need to be surgically repaired. Surgery will usually be recommended if the tear is large, if the patient is young and very active or if the tear causes continued weakness or pain.

### During Surgery

Your surgeon may or may not decide to look inside your shoulder with an arthroscope before doing the actual cuff repair. Arthroscopy sometimes helps evaluate the inside of the joint and can occasionally be used to clean out loose debris that may be present. Sometimes arthroscopy is not needed and the surgeon may proceed directly with the repair.

Rotator cuff tears are usually fixed by making an incision (approximately 1½-2 inches) over the outside of the shoulder. The tears in the cuff are then identified, and the torn edges are sutured together or reattached to bone. This may require the placement of drill holes, small screws or other anchors into the bone. These anchors may be made of metal or a type of material that will dissolve over time. Sometimes the tear is so large or the tissue so damaged that it is impossible to completely fix. Bone from the acromion at the tip of the shoulder and the underside of the clavicle (collar bone) is often shaved and removed to help reduce the pain after surgery.

Some cuff tears can be fixed arthroscopically and do not require an open incision. Your surgeon will determine this.

The surgery can often be done without a stay at the hospital and will take about 2 hours.

### After Surgery

The incision from the surgery will be closed with stitches and covered by a sterile bandage. You may have some swelling and small bruises on your shoulder, but this should disappear within a few days. For several weeks after your surgery, your arm will be placed into a sling or harness that will immobilize the affected arm against the body. Sometimes it is necessary to place a

pillow or brace under the arm for added support for several weeks. It will take about 12 weeks for the tendon to heal completely. The early recovery phase lasts approximately 6 weeks. During the first 4 - 6 weeks you can and should use your hand, wrist, and elbow, but you should not lift the shoulder with its own muscle until instructed to do so by your doctor or therapist. Using the rotator cuff muscles too soon may cause the repair to fail. Using the shoulder muscles for activities such as elevating the arm usually starts at about 4 - 6 weeks after surgery. A couple of weeks after your surgery, your doctor will have you return to have your stitches removed. At that time, your doctor may have you begin an assisted physical therapy program to help you regain your strength and range of motion. Full recovery from your surgery will take 6 - 8 months.

### What is shoulder impingement?

Shoulder impingement is the pinching of a tendon or bursa between two bones in the shoulder. This can be caused by:

- Anatomy - The actual shape of the bones in your shoulder or the presence of a bone spur in the shoulder may cause an impingement
- Weak Muscles - The muscles in your shoulder (called the rotator cuff) and in your mid-back (called the scapular stabilizers) can cause improper movement of the shoulder and produce pinching of tendons or bursae.
- Shoulder Instability - Instability at the shoulder joint may also cause shoulder impingement symptoms.

### What is bursitis?

Bursitis is the inflammation of a bursa. A bursa is a fluid-filled sac or fold in a membrane in your joint. Bursae are found throughout the joints in your body and help to reduce friction between two bones or between a bone and tendon. Bursitis can be caused by shoulder impingement.

### What are the signs and symptoms of shoulder impingement and bursitis?

Shoulder impingement or bursitis may cause a sharp pain in the front or top of the shoulder when performing certain overhead movements. Simple activities such as reaching into a cupboard, reaching for a seat belt, and washing hair can become very painful. It is often painful

to sleep on the shoulder or even on the opposite side.

Are there any risk factors?

Risk factors include repetitive movements of the shoulder, which may cause the muscles of the rotator cuff and shoulder become fatigued. This leads to improper functioning of the shoulder muscles and thus impingement. Poor posture can also increase the likelihood of shoulder impingement.

How is it diagnosed?

Your doctor may ask you to move your shoulders in all directions and note where you experience pain during the range of motion. Your doctor may also put your arm in certain positions, in an attempt to reproduce the impingement and note the position of your pain. Diagnostic tests such as X-rays and ultrasounds are rarely ordered to diagnose shoulder impingement, however they may be ordered to rule out other problems, such as a rotator cuff or labral tear.

What is the treatment of shoulder impingement/ bursitis?

Initially, rest and anti-inflammatory medication is commonly necessary. Your doctor may refer you to physical therapy for education and exercise.

Your physical therapist will help determine the cause of your shoulder impingement and educate you on how to avoid the painful activity.

The physical therapist may also teach you exercises to improve posture and increase the strength of the muscles in your shoulder and shoulder blade. The use of ice, electrical stimulation, or ultrasound may be helpful in decreasing pain and encouraging healing.

When will I be able to return to full activity?

How long it takes to improve your condition will depend on how long you have had pain. You will be able to return to full activity when you can discontinue the use of anti-inflammatory medication without a return of pain and you have demonstrated an improvement in strength. Your physical therapist will work with you to gradually introduce normally performed activities into your rehabilitation program, controlling the intensity and duration of the activity.

How can I prevent this injury from recurring?

Do not work through sharp pain when performing exercise or activities of daily living. If you are experiencing sharp pain with an exercise or activity, you should stop and inform your doctor or physical therapist. They will both help educate you to prevent this injury from recurring.

## Rotator Cuff Tears

The shoulder is a very elegant and complex piece of machinery. The design of the shoulder gives us the ability to do many useful things by allowing the shoulder to help us reach and use our hands in many different positions. 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. The rotator cuff tendons are one of the key reasons that the shoulder is so useful. The tendons can be subject to a considerable amount of wear and tear, or degeneration, as we use our arms, especially overhead activities. This wear and tear can lead to weakening of the rotator cuff tendons, through a condition known as [impingement](#) [<impinge.html>](#). The rotator cuff tendons are also subject to degeneration as we age. An injury to these tendons can result in a weak painful, shoulder - due to tearing of the rotator cuff tendons. Let's look at how this can occur.

## 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](#) [<graphics/rotcuf.jpg>](#). 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 <graphics/upndwn.avi>](#) and rotate the arm. As the arm is raised, the rotator cuff also keeps the [humerus <graphics/upndwn1.avi>](#) 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

Many studies have shown that the rotator cuff tendons have areas where there is a very poor blood supply. In the human body, the better the blood supply a tissue has, the better and faster that tissue can repair and maintain itself from day to day wear and tear. These areas of poor blood supply in the tendon make the rotator cuff tendons especially vulnerable to degeneration with aging. This

simple condition of aging may help explain why the rotator cuff tear is such a fairly common injury in later life. Rotator cuff tears usually occur through areas of the tendon that were not normal to begin with and have been weakened by degeneration and impingement.

The weakened rotator cuff tendons can be injured, and [torn <graphics/cufftea2.jpg>](#), by an excessive force, such as trying to catch a falling heavy object, or lifting an extremely heavy object with the arm extended. This can occur even in a young person. Typically a rotator cuff tear occurs in a late middle-aged person who has been having problems with the shoulder for some time before the acute event. That person starts a lifting activity which exceeds the strength of the tendons, and the tendon tears acutely, leaving an inability to raise the arm. There may, or may not, be pain associated with the event.

## Symptoms

Rotator cuff tears cause two main problems - pain and weakness. In some cases, a rotator cuff may be only a partial tear of the tendons, and you may have pain but can continue to move the arm in a normal range of motion. In other cases, a complete rupture of the tendons occurs, and you are unable to move the arm in a normal range of motion. A complete rotator cuff tear usually results in an inability to raise the arm away from the side under your own power.

Most rotator cuff tears cause a [vague pain <graphics/pain.jpg>](#) in the shoulder area, and may result in a "catching" sensation when the arm is moved. The larger the tear in the tendon, the more weakness there is when trying to move the arm. Most people report an inability to sleep on the affected side, due to pain.

## Diagnosis

The physical examination can be very suggestive of a rotator cuff tear. A complete tear is usually very obvious. If your doctor can move the arm in a normal range of motion, but you are unable to move the arm using your own strength, there is a high likelihood of a tear in the tendons.

X-rays may give clues as that there is a rotator cuff tear, but a test called an [arthrogram <graphics/agram.jpg>](#) is usually required. 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.

The [MRI Scan <graphics/mri2.jpg>](#) can also be used to actually look at the rotator cuff tendons and determine whether or not they are torn. 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. Both tests are still widely used.

## Treatment

Initial treatment for a suspected rotator cuff tear is rest and anti-inflammatory medication, mainly to control pain. While a true rotator cuff tear will not heal, some partial tears will become very tolerable and may not require a surgical repair. As soon as pain tolerance permits, physical therapy to regain motion is begun.

A [cortisone injection <graphics/inject1.jpg>](#) may be suggested if you are still having pain after several weeks of conservative care. After a reasonable time, if the pain is not tolerable or the motion of the arm is not acceptable, an arthrogram or MRI scan may be suggested to plan for surgery.

Surgery to repair a tear in the rotator cuff tendons is usually necessary if there is a complete tear in the tendons resulting in an inability to raise the arm. Surgery may also be necessary for a partial tear of the tendons - if the tear results in more discomfort and weakness than you are willing to tolerate. The timing of surgery is variable. In a *complete* tear of the rotator cuff, there is evidence to suggest that repairing the tendons within 3 months of the injury results in a better outcome.

### [Repairing the tendons](#)

[<graphics/rcuftear.avi>](#) can be difficult. The surgery is usually done through a 4-5 inch incision on the side of the shoulder. In the most cases, repairing the tendons involves first removing any degenerative rotator cuff tissue that does not appear healthy. Then, an area of the humerus (the upper arm bone) where the tendon was torn from is prepared for reattachment of the tendon. The soft tissue is removed on an area of the humerus to form a raw bony area for attachment of the torn tendon. Drill holes are made in the humerus to allow sutures to be placed through the bone to attach the tendon. The tear in the tendon is then sewn together. Other sutures are used to attach the tendons to the bone of the the humerus by looping the sutures through the drill holes. The tendon heals to the bone over time and reattaches itself. Following surgery, you may spend one or two nights in the hospital. There is a trend towards smaller incisions for repair of the rotator cuff tendons, and in some cases repair with the aid of the arthroscope. If you are a candidate for this type of repair, you may go home the same day. Expect to begin physical therapy fairly soon after surgery. The repair must be protected, mainly to keep the sutures from pulling free, but early range of motion exercises will lead to a quicker recovery. During the period three to six weeks following surgery, the therapist will begin more

active exercises to begin regaining the strength in the rotator cuff muscles. Recovery from shoulder surgery can be a slow process. Getting the shoulder moving as fast as possible is important, but this must be balanced with the need to protect the healing muscles and tissues. You can expect the process of recovery to take several months.

As mentioned earlier, a rotator cuff tear does not usually occur in a normal shoulder. Most shoulders which have suffered a rotator cuff tear have other problems as well. The same problems that caused the rotator cuff tear have most likely affected the rest of the shoulder. These can include [acromioclavicular \(AC\) joint arthrosis <acarth.html>](#) and [impingement syndrome <impinge.html>](#). When surgery is suggested, the surgical procedure may have to address these conditions as well.

Finally, not all rotator cuff tears are repairable. Sometimes, the tendon has been torn for too long a period of time. This can lead to the tendon and muscle **contracting**. The muscle and tendon cannot be stretched enough to be attached back to where it was torn from. In other cases, the tendon tissue has simply worn away, and what tendon remains is not strong enough to hold the stitches necessary to attach the tendon to bone. In these circumstances, simply removing all the torn tissue and fixing any other problems in the shoulder (such

as acromioclavicular (AC) joint arthrosis and impingement syndrome) may reduce your pain. It will probably **not** increase the strength or motion of the shoulder. It may actually decrease the motion.

If all of these attempts to improve your shoulder fail to give you a useable shoulder, there are other more complex and involved procedures that include tendon grafts and muscle transfers.

**These are rarely necessary** but will be discussed with you by your doctor if necessary.

#### Impingement Syndrome

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](#) [<shouldr4.gif>](#).

## 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](#) [<rotcuf.jpg>](#). 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](#) [<upndwn.avi>](#) and rotate the arm. As the arm is raised, the rotator cuff also keeps the [humerus](#) [<upndwn1.avi>](#) 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 <xstnfade.avi>](#), 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 <collage.gif>](#) 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 <xscsfade.avi>](#) 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 <imp2.avi>](#) develop underneath the joint, this can make impingement worse.

## Symptoms

Early symptoms of Impingement Syndrome include [generalized aching <should10.gif>](#) 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 <shouldr8.gif>](#) when trying to reach into your back pocket. As the process continues, discomfort increases and the joint may become stiffer. Sometimes a ["catching" sensation <shouldr9.gif>](#) is felt when the arm is lowered. Weakness and inability to raise the arm may indicate that the rotator cuff tendons are actually [torn <tear1.gif>](#).

## Diagnosis

The diagnosis of impingement and bursitis is usually made on the basis of the history and [physical examination <exam1a.gif>](#). 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 <mri.gif>](#), 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 <should11.gif>](#) 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.

## Prevention/Treatments

**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 <inj2.avi>](#) 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.

## Surgery

Surgery to relieve the constant rubbing of impingement is not uncommon. When surgery becomes necessary, the major goal of the surgery is to increase the space between the acromion and the rotator cuff tendons. The first thing that must be done is to [remove any bone spurs <impsurg.avi>](#) under the acromion that are rubbing on the rotator cuff tendons and the bursa. Usually a small part of the acromion may be removed as well to give the tendons even more space and allow them to move without rubbing on the underside of the acromion. In patients who have an abnormal tilt to the acromion, more of the bone may need to be removed. Impingement may not be the only problem in a shoulder that has begun to show wear and tear due to aging and overuse. It is very common to see degenerative (wear and tear) arthritis in the acromioclavicular (AC) joint in addition to impingement. If there is reason to believe that the acromioclavicular (AC) joint is arthritic, the [end of the clavicle may be removed <should04.gif>](#)

as well. This procedure is called a **resection arthroplasty**. After removal of about one inch of the clavicle, scar tissue fills the space left between the clavicle and the acromion to form a *false joint*.

This stops the arthritic pain in the acromioclavicular (AC) joint caused by bone rubbing against bone. The scar tissue that forms creates a stable, flexible connection between the clavicle and the scapula.

In some cases this can be using the arthroscope. The arthroscope is a small TV camera that can be inserted into a joint through a small incision. Through other small incisions around the joint the surgeon can insert special instruments to cut and burr away bone while he watches what he is doing on a TV screen. If your surgery is done with the arthroscope you may be able to go home the same day.

In other cases, an open incision is made to allow removal of the bone. Usually an incision about 3 or 4 inches is made over the top of the shoulder. Any bone spurs are removed and a part of the acromion is removed and smoothed by the surgeon. If necessary, the end of the clavicle is removed to perform the resection arthroplasty of the acromioclavicular (AC) joint. If your surgery is done in this way, you may have to [stay <inpat.gif>](#) a night or two in the hospital. Recovery from shoulder surgery can be a slow process. Physical therapy will probably be needed for several weeks after your surgery. Getting the shoulder

moving as fast as possible is important, but this must be balanced with the need to protect the healing muscles and tissues. You can expect the process of recovery to take several months.

What is a rotator cuff tear?

Your shoulder is a ball-and-socket joint with a wide range of motion. Because of this mobility, the shoulder can also be very unstable. The "rotator cuff" is actually a group of four muscles that help stabilize the shoulder joint. These muscles hold the ball-shaped top of the humerus (upper arm bone) in the socket-like area known as the glenoid. A rotator cuff injury occurs when the muscles and tendons (tissue connecting muscle to bone) become overstretched or torn.

What can cause a rotator cuff injury?

The muscles and tendons of the rotator cuff can tear by a fall onto the shoulder or onto an outstretched hand, or by slow wearing from repeated overhead arm movements, such as throwing a ball or swimming. Heavy lifting in the home or work environment can also overstress the shoulder joint.

What are the symptoms?

A torn rotator cuff commonly causes weakness and pain in the shoulder. Arm movement may be uncomfortable and limited. Surprisingly, many patients with known rotator cuff injuries have few symptoms.

How is a rotator cuff injury diagnosed?

Your doctor will ask questions about your symptoms and the history of the condition, and will do a physical examination of the shoulder and upper arm. X-rays may be obtained to view the joint and rule out the possibility of broken bones. An MRI (magnetic resonance imaging) and arthrogram may be used to take a more in-depth look at your shoulder and surrounding soft tissues.

What are my treatment options?

Conservative treatment usually includes a period of rest and immobilization for the affected shoulder. Anti-inflammatory medications may be recommended to decrease swelling and pain. Ice packs may be applied to the area 3 to 4 times per day for 15 to 20 minutes until swelling disappears. Your doctor may also have you participate in a rehabilitation program guided by a physical and/or occupational therapist. The goal of rehabilitation is to restore function in your

shoulder and help you return to your regular activities.

Sometimes rotator cuff tears need to be surgically repaired. Surgery may be recommended if the tear is large, if the patient is young and very active, or if the tear causes continued weakness or pain. This procedure allows your doctor to repair the damaged tissues and restore stability to the shoulder joint. As with conservative treatment, a period of rest and rehabilitation will follow the surgery.

How long will it take for my shoulder to heal?

Your recovery will depend on your age, overall health, the extent of the injury, and the treatment recommended by your doctor. Mild conditions may require a few weeks to regain strength and flexibility. Patients who undergo surgery usually need approximately 6 to 8 months for complete recovery. It is important to follow your rehabilitation program as closely as possible to promote healing and prevent re-injury to your shoulder.

## **WHAT DO YOU FEEL?**

### **WHAT IS THE ROTATOR CUFF?**

The rotator cuff is a series of four muscles and their tendons that surround the head of the humerus (see diagram). The shoulder is a ball and socket joint similar to the hip, although in the shoulder, the socket is very shallow and has an appearance similar to that of a golf ball on a golf tee. In order to gain stability the shoulder has a series of muscles, the rotator cuff muscles, that keep the ball centered on the socket. Without function of the rotator cuff the humeral head may move upwards and rub against the acromion, the bony process at the top of the shoulder that forms the origin of the deltoid muscle.

### **WHAT IS A ROTATOR CUFF TENDINITIS ?**

Irritation of the rotator cuff tendons comes in a wide spectrum and has many names. All of these names refer to degrees of the disease process, but are not necessarily separate items. For example the terms "shoulder bursitis, rotator cuff tendinitis, and impingement syndrome" all refer to the same thing which is an irritation of the rotator cuff tendons, or the lining of the rotator cuff tendons. The next step in the disease process would be a partial thickness rotator cuff tear. The final step in the disease process would be a full thickness rotator cuff tear.

### **WHO GETS ROTATOR CUFF PROBLEMS ?**

Rotator cuff tendinitis can be either a wear and tear process that starts gradually without any evidence of trauma or injury or it can follow an acute event such as an injury when lifting and twisting in an usual position. While it is most common between the ages

of 40 and 60 it may start as early as ones 20s or present as late as ones 70s or 80s. It can happen in both men and women. Rotator cuff tears can also be either of gradual onset or can occur because of an injury. The most common type of rotator cuff tear, a chronic tear, is what is known as an attritional process. Over time the rotator cuff rubs back and forth against the underside of the acromion process which gradually tears fibers of the rotator cuff. Eventually a full thickness tear is present and may cause pain not only with activity, but also at rest. The other type of rotator cuff tear is a traumatic tear that may occur following a fall, a dislocation, or other high energy injury to the arm.

#### **DO ROTATOR CUFF TEARS HEAL THEMSELVES ?**

Full thickness rotator cuff tears generally do not heal or repair themselves. Many people, however, have pain that goes away following a rotator cuff tear. This is not because of healing, but because of compensation by the rotator cuff muscles that are not torn taking over the function of the muscle that is torn. For this reason, not all people need to have rotator cuff tears fixed.

#### **HOW IS TENDINITIS OR “ ROTATOR CUFF SYNDROME” TREATED ?**

Rotator cuff syndrome is extremely common and often responds to conservative measures. Alternatives for treatment include anti-inflammatory medications by mouth or injected Cortisone or synthetic variants of Cortisone into the space above the rotator cuff. Of extreme importance, however, in treating rotator cuff syndrome is physical therapy and home exercise programs to specifically strengthen the rotator cuff muscles. These exercises are not the type of exercises one ordinarily does at a gym or with regular weight equipment, but are specific to strengthening the rotator cuff without causing further irritation. The reason that these exercises are important is because strengthening of the rotator cuff will enable it to function correctly and thus keep the humeral head up against the glenoid, or the socket of the shoulder joint. Keeping the humeral head in its proper position will limit the rubbing that occurs between the rotator cuff and the acromion above and thus prevent further irritation. As such doing these exercises and strengthening the rotator cuff can “ break the cycle” that is causing the tendinitis pain. Other things that are often helpful in treating rotator cuff tendinitis involve the use of hot or cold packs, which ever feels better. If a person has a limited range of motion with their shoulder stretching exercises are also important as are the strengthening exercises described for the rotator cuff. If rotator cuff tendinitis pain does not improve with these conservative measures, surgical

treatment may be indicated. The surgical treatment for a tendinitis is known as an acromioplasty or a subacromial decompression. This can be either done as an open procedure or as an arthroscopic procedure. During the surgery the bone spur that forms on the underside of the acromion (see diagram) is removed and the acromion is smoothed, giving more space for the rotator cuff when the shoulder is elevated. **HOW ARE ROTATOR CUFF TEARS TREATED ?** Rotator cuff tears as mentioned can be either secondary to a trauma or acute episode, or chronic. Traumatic tears generally do better when surgically repaired rather than with a trial of therapy first. Chronic tears generally are best treated with a trial of therapy to see if the pain will resolve. If not they are often candidates for operative repair. Some chronic tears are not good candidates for repair usually because the tear is too large or the rotator cuff muscles have already wasted away, ( atrophied). For those who do not get better with physical therapy and medications or injections for rotator cuff tears repair of the rotator cuff may be carried out either using an arthroscope or using an open procedure. A subacromial decompression as described above is also performed with rotator cuff repair. The rotator cuff itself may be repaired back to the humeral head using either sutures placed through bone or using suture anchors.

#### **HOW IS PAIN CONTROLLED FOLLOWING SURGERY FOR THE ROTATOR CUFF?**

For both subacromial decompressions as well as repairs of the rotator cuff there may be several different elements to pain control. One of these is an injection in the nerves that go to the shoulder. This injection is known as a Scalene block and produces numbness of the arm and the shoulder that may last several hours. This is done immediately prior to or during the time of surgery and will result in a “ numb arm” following the surgery, during which the patient feels no pain.

Another way to help the pain following rotator cuff surgery is through the placement of a “ pain pump”. A pain pump is a large syringe containing a numbing medicine such as Marcaine that is then injected slowly and continuously into the shoulder via a large spring. The pain pump will provide numbing medicine that will help, but not completely eliminate the pain from the surgery lasting up to 48 hours. It is extremely important that the catheter for the pain pump be removed when the medication is exhausted. A third way to help with pain following rotator cuff surgery is via medications by mouth. Most of these are narcotics such as Codeine or a synthetic variant of Codeine like Percocet. There is also the possibility to use anti-inflammatory medicines to help control the pain or to use long lasting medications such as

OxyContin. These three approaches help control the pain following rotator cuff surgery.

### **WHAT TYPE OF THERAPY FOLLOWS ROTATOR CUFF SURGERY ?**

For patients that have subacromial decompressions without repair to the rotator cuff, the main reason for therapy is to restore the motion of the shoulder and strengthen the muscles of the shoulder. People who have had this operation have no restrictions placed on them as motion of the shoulder cannot damage anything that was done during the operation. As soon as their pain gets better, they find themselves more able to perform regular daily activities and have better motion of their shoulder. For most people that have subacromial decompressions the pain from surgery is almost gone by week three or four and thereafter the patient will generally have less pain than they had before surgery. The patients that have rotator cuff repairs, the physical therapy regimen is more restrictive. Because there is a repair of the rotator cuff to protect the patient is not allowed to move their shoulder using their own muscles for the first several weeks. A rehab protocol will be outlined to the patient following surgery. The patient needs to be in a sling when not doing therapy for the first 6 weeks and no driving is permitted for the first 6 weeks. Starting at 6 weeks the patient can gradually start to raise their arm using their own muscles. Before this they need to be assisted by somebody else or with the aid of devices such as an overhead pulley or a cane. Strengthening of the rotator cuff muscles following a rotator cuff repair does not start until at least 12 weeks after surgery. Full recovery from a rotator cuff repair may be anywhere from 6-12 months following the surgery, although full recovery for function of the shoulder may come 6-12 months after a rotator cuff repair, while pain relief is often noticed within a few weeks after the surgery.

### **CAN ALL ROTATOR CUFF SURGERY BE DONE ARTHROSCOPICALLY?**

Arthroscopic surgery has improved rotator cuff treatment by providing a less painful form of surgery for the patient where one is able to usually go home the same day. Some rotator cuff repairs can be repaired arthroscopically. Other rotator cuff repairs are better performed via a normal open surgery. The restrictions in use of the shoulder following surgery are generally not different with an arthroscopic or an open approach, because the reason for the restrictions is to protect the repair and which does not vary depending upon how the surgery was performed.

### **DO ROTATOR CUFF TEARS REOCCUR ?**

While most people get good relief from repair of a rotator cuff tear studies show that approximately one out of three tears will reoccur. Fortunately most of these people that have recurrent tears do not have

pain associated with the recurrent tear. Because of this repeat surgery is not usually needed. In some cases, however, a re-tear becomes very painful and may benefit from further surgical repair. Following a rerepair the therapy protocol will be even more restricted and take a longer period of time. **WHAT CAUSES THE PROBLEM?**

Fingers bend and straighten by the action of muscles in the forearm pulling on cords, or tendons, that travel through the hand and down along the bones of the fingers. The tendons are held close against the bones by fibrous bands, or tunnels, called "pulleys" (see figure 1). For unknown reasons, irritation of the tendon can produce a swelling or nodule between the A1 and A2 pulleys. This nodule then resists passing under the A1 pulley as the finger is flexed. When the force is great enough, it slides under the pulley, causing the "snap" sensation. The same "hanging up" of the nodule happens with extension, causing a similar "snap". The process tends to be self-irritating, like a vicious cycle, where the "snapping" causes more inflammation and swelling.

### **WHO GETS TRIGGER FINGERS?**

Triggering can happen at all ages, from less than 5 years of age to greater than 80. Sometimes triggering can follow a recent change in activities or work habits. Othertimes, it may follow an injury or surgery in the arm or hand. In the vast majority of cases, there is, however, no clear reason for it to start.

### **IS TRIGGERING MORE COMMON WITH SOME DISEASES?**

Triggering is more common with diabetes, rheumatoid arthritis, gout, and in people that have other tendon or connective tissue problems like carpal tunnel syndrome, rotator cuff tendinitis, or tennis elbow.

## **HOW ARE TRIGGER FINGERS TREATED?**

The goal is to interrupt the cycle of swelling and inflammation. Treatment options include medications by mouth, splinting, injections of cortisone, and surgical release.

Medications by mouth tend to not be helpful with the triggering, though they can help with the pain. Splinting keeps the finger straight (which is awkward and itself weakens the grip of the hand), and can eliminate the triggering in about 30% of people, given six weeks of wear.

Injections of steroid (such as cortisone or a synthetic variant) around the pulley can stop the triggering in about 75% of people. Movement is not restricted with its use. If an injection is partially helpful, a second injection is tried.

For those that do not get relief from injections, surgical release is the next step. Through an incision in the palm, often done with a local anesthesia, the pulley is split. This will allow the nodule to pass through without “catching” (see figure 2). The pulley then re-heals in its larger position. This procedure is done as an outpatient surgery. After surgery, the patient can move the fingers immediately, as no splinting is used. The stitches come out in 7 to 10 days. The skin is usually well-healed in 2 weeks, but some residual swelling and soreness can last 2-4 months.

