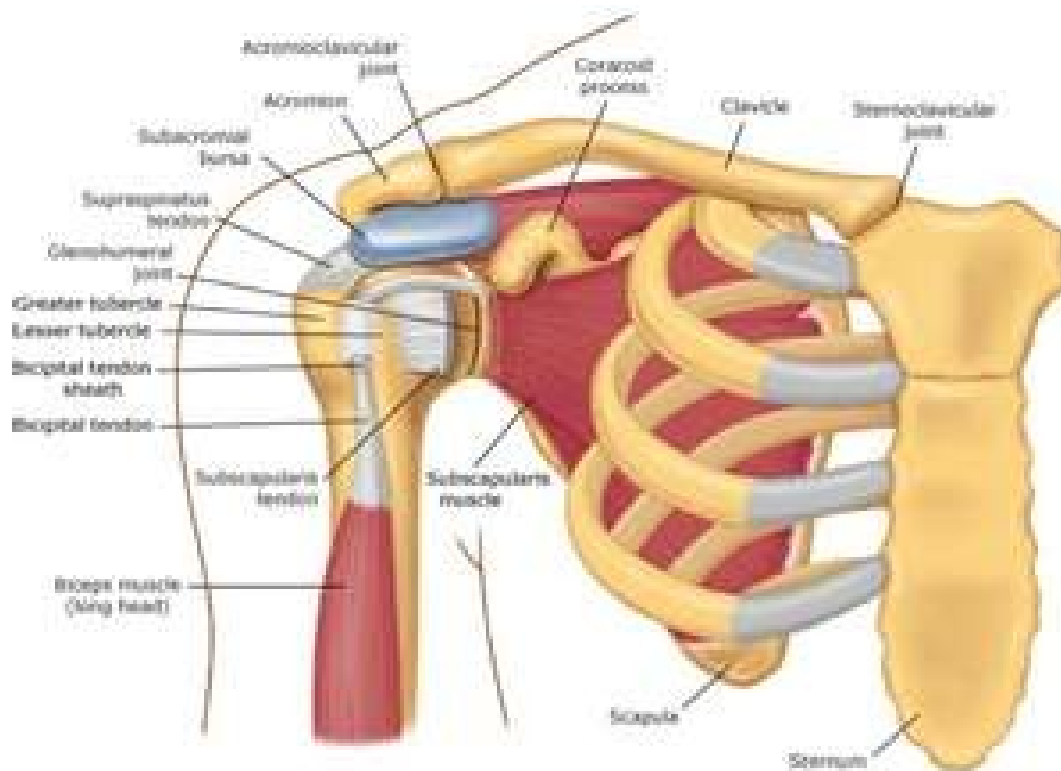


Temple Physical Therapy

A General Overview of Common Shoulder Injuries



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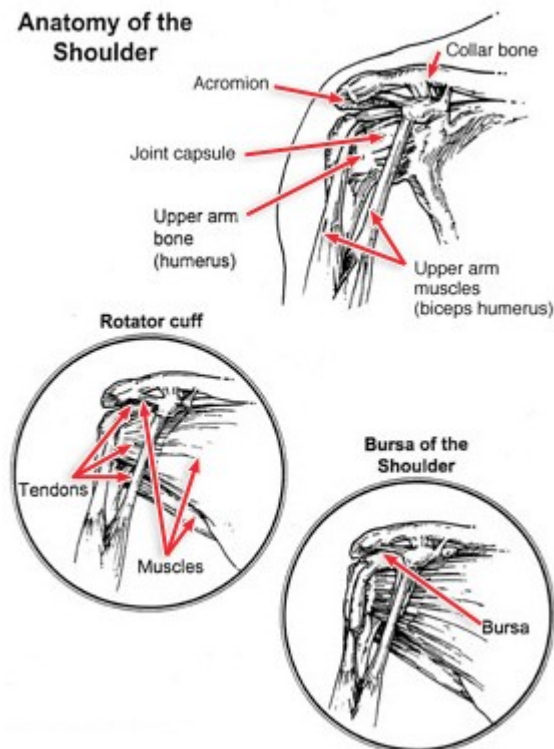


Common Shoulder Injuries

In 2006, approximately 7.5 million people went to the doctor's office for a shoulder problem, including shoulder and upper arm sprains and strains. More than 4.1 million of these visits were for rotator cuff problems.

Shoulder injuries are frequently caused by athletic activities that involve excessive, repetitive, overhead motion, such as swimming, tennis, pitching, and weightlifting. Injuries can also occur during everyday activities such as washing walls, hanging curtains, and gardening.

Warning Signs of a Shoulder Injury



If you are experiencing pain in your shoulder, ask yourself these questions:

- Is your shoulder stiff? Can you rotate your arm in all the normal positions?
- Does it feel like your shoulder could pop out or slide out of the socket?
- Do you lack the strength in your shoulder to carry out your daily activities?

If you answered "yes" to any one of these questions, you should consult an orthopaedic surgeon for help in determining the severity of the problem.

Common Shoulder Injuries

Most problems in the shoulder involve the muscles, ligaments, and tendons, rather than the bones. Athletes are especially susceptible to shoulder problems. In athletes, shoulder problems can develop slowly through repetitive, intensive training routines.

Some people will have a tendency to ignore the pain and "play through" a shoulder injury, which only aggravates the condition, and may possibly cause more problems. People also may underestimate the extent of their injury because steady pain, weakness in the arm, or limitation of joint motion will become almost second nature to them.

Orthopaedic surgeons group shoulder problems into the following categories.

Instability

Sometimes, one of the shoulder joints moves or is forced out of its normal position. This condition is called instability, and can result in a dislocation of one of the joints in the shoulder. Individuals suffering from an instability problem will experience pain when raising their arm. They also may feel as if their shoulder is slipping out of place.

Impingement

Impingement is caused by excessive rubbing of the shoulder muscles against the top part of the shoulder blade, called the acromion.

Impingement problems can occur during activities that require excessive overhead arm motion. Medical care should be sought immediately for inflammation in the shoulder because it could eventually lead to a more serious injury.

Rotator Cuff Injuries

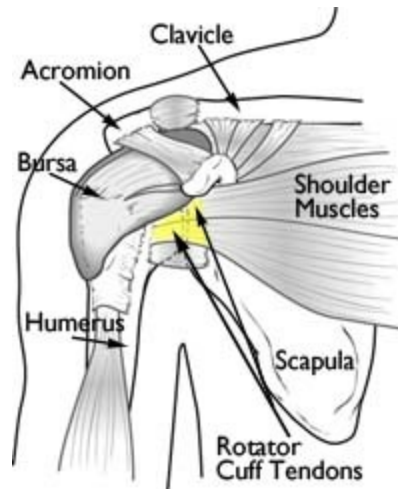
The rotator cuff is one of the most important components of the shoulder. It is comprised of a group of muscles and tendons that hold the bones of the shoulder joint together. The rotator cuff muscles provide individuals with the ability to lift their arm and reach overhead. When the rotator cuff is injured, people sometimes do not recover the full shoulder function needed to properly participate in an athletic activity.

Rotator Cuff Tears

A rotator cuff tear is a common cause of pain and disability among adults. In 2008, close to 2 million people in the United States went to their doctors because of a rotator cuff problem.

A torn rotator cuff will weaken your shoulder. This means that many daily activities, like combing your hair or getting dressed, may become painful and difficult to do.

Anatomy

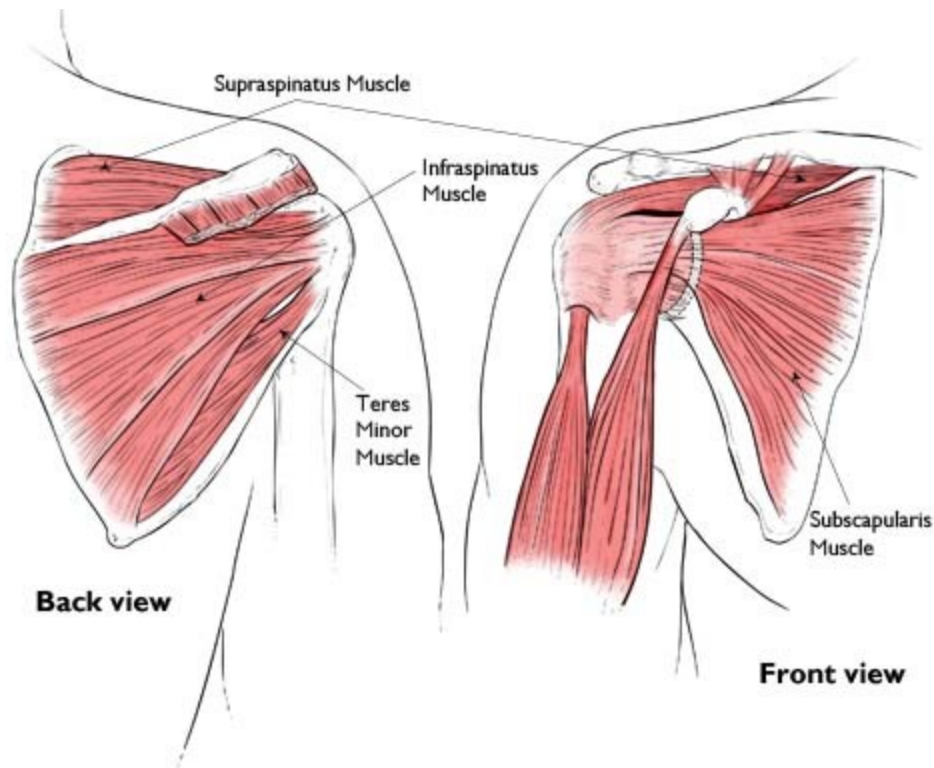


Normal anatomy of the shoulder.

Your shoulder is made up of three bones: your upper arm bone (humerus), your shoulder blade (scapula), and your collarbone (clavicle). The shoulder is a ball-and-socket joint: The ball, or head, of your upper arm bone fits into a shallow socket in your shoulder blade.

Your arm is kept in your shoulder socket by your rotator cuff. The rotator cuff is a network of four muscles that come together as tendons to form a covering around the head of the humerus. The rotator cuff attaches the humerus to the shoulder blade and helps to lift and rotate your arm.

There is a lubricating sac called a bursa between the rotator cuff and the bone on top of your shoulder (acromion). The bursa allows the rotator cuff tendons to glide freely when you move your arm. When the rotator cuff tendons are injured or damaged, this bursa can also become inflamed and painful.



This illustration more clearly shows the four muscles and their tendons that form the rotator cuff and stabilize the shoulder joint.

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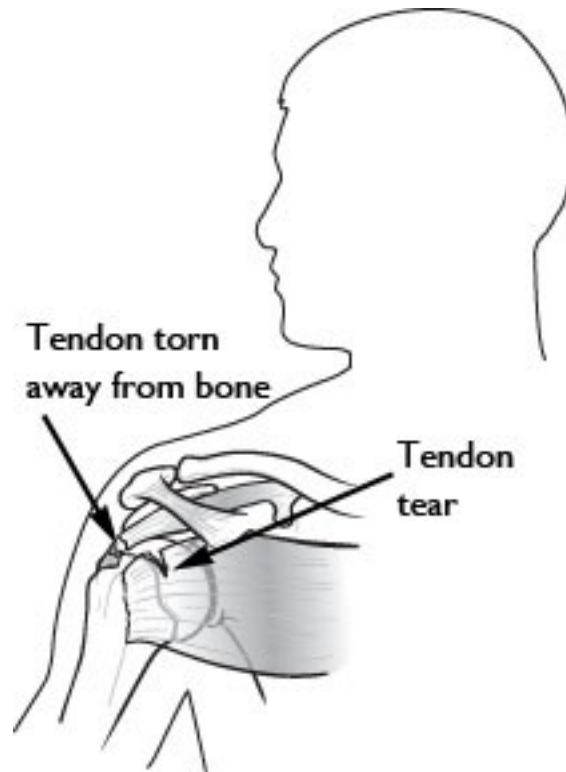
Description

When one or more of the rotator cuff tendons is torn, the tendon no longer fully attaches to the head of the humerus. Most tears occur in the supraspinatus muscle and tendon, but other parts of the rotator cuff may also be involved.

In many cases, torn tendons begin by fraying. As the damage progresses, the tendon can completely tear, sometimes with lifting a heavy object.

There are different types of tears.

- **Partial Tear.** This type of tear damages the soft tissue, but does not completely sever it.
- **Full-Thickness Tear.** This type of tear is also called a complete tear. It splits the soft tissue into two pieces. In many cases, tendons tear off where they attach to the head of the humerus. With a full-thickness tear, there is basically a hole in the tendon.



A rotator cuff tear most often occurs within the tendon.

Cause

There are two main causes of rotator cuff tears: injury and degeneration.

Acute Tear

If you fall down on your outstretched arm or lift something too heavy with a jerking motion, you can tear your rotator cuff. This type of tear can occur with other shoulder injuries, such as a broken collarbone or dislocated shoulder.

Degenerative Tear

Most tears are the result of a wearing down of the tendon that occurs slowly over time. This degeneration naturally occurs as we age. Rotator cuff tears are more common in the dominant arm. If you have a degenerative tear in one shoulder, there is a greater risk for a rotator cuff tear in the opposite shoulder -- even if you have no pain in that shoulder.

Several factors contribute to degenerative, or chronic, rotator cuff tears.

- **Repetitive stress.** Repeating the same shoulder motions again and again can stress your rotator cuff muscles and tendons. Baseball, tennis, rowing, and weightlifting are examples of sports activities that can put you at risk for overuse tears. Many jobs and routine chores can cause overuse tears, as well.
- **Lack of blood supply.** As we get older, the blood supply in our rotator cuff tendons lessens. Without a good blood supply, the body's natural ability to repair tendon damage is impaired. This can ultimately lead to a tendon tear.

- **Bone spurs.** As we age, bone spurs (bone overgrowth) often develop on the underside of the acromion bone. When we lift our arms, the spurs rub on the rotator cuff tendon. This condition is called shoulder impingement, and over time will weaken the tendon and make it more likely to tear.

Risk Factors

Because most rotator cuff tears are largely caused by the normal wear and tear that goes along with aging, people over 40 are at greater risk.

People who do repetitive lifting or overhead activities are also at risk for rotator cuff tears. Athletes are especially vulnerable to overuse tears, particularly tennis players and baseball pitchers. Painters, carpenters, and others who do overhead work also have a greater chance for tears.

Although overuse tears caused by sports activity or overhead work also occur in younger people, most tears in young adults are caused by a traumatic injury, like a fall.

Symptoms

The most common symptoms of a rotator cuff tear include:

- Pain at rest and at night, particularly if lying on the affected shoulder
- Pain when lifting and lowering your arm or with specific movements
- Weakness when lifting or rotating your arm
- Crepitus or crackling sensation when moving your shoulder in certain positions

Tears that happen suddenly, such as from a fall, usually cause intense pain. There may be a snapping sensation and immediate weakness in your upper arm.



A rotator cuff injury can make it painful to lift your arm out to the side.

Tears that develop slowly due to overuse also cause pain and arm weakness. You may have pain in the shoulder when you lift your arm to the side, or pain that moves down your arm. At first, the pain may be mild and only present when lifting your arm over your head, such as reaching into a cupboard. Over-the-counter medication, such as aspirin or ibuprofen, may relieve the pain at first.

Over time, the pain may become more noticeable at rest, and no longer goes away with medications. You may have pain when you lie on the painful side at night. The pain and weakness in the shoulder may make routine activities such as combing your hair or reaching behind your back more difficult.

Doctor Examination

Medical History and Physical Examination



Your doctor will test your range of motion by having you move your arm in different directions.

After discussing your symptoms and medical history, your doctor will examine your shoulder. He or she will check to see whether it is tender in any area or whether there is a deformity. To measure the range of motion of your shoulder, your doctor will have you move your arm in several different directions. He or she will also test your arm strength.

Your doctor will check for other problems with your shoulder joint. He or she may also examine your neck to make sure that the pain is not coming from a "pinched nerve," and to rule out other conditions, such as arthritis.

Imaging Tests

Other tests which may help your doctor confirm your diagnosis include:

- **X-rays.** The first imaging tests performed are usually x-rays. Because x-rays do not show the soft tissues of your shoulder like the rotator cuff, plain x-rays of a shoulder with rotator cuff pain are usually normal or may show a small bone spur.
- **Magnetic resonance imaging (MRI) or ultrasound.** These studies can better show soft tissues like the rotator cuff tendons. They can show the rotator cuff tear, as well as where the tear is located within the tendon and the size of the tear. An MRI can also give your doctor a better idea of how "old" or "new" a tear is because it can show the quality of the rotator cuff muscles.

Treatment

If you have a rotator cuff tear and you keep using it despite increasing pain, you may cause further damage. A rotator cuff tear can get larger over time.

Chronic shoulder and arm pain are good reasons to see your doctor. Early treatment can prevent your symptoms from getting worse. It will also get you back to your normal routine that much quicker.

The goal of any treatment is to reduce pain and restore function. There are several treatment options for a rotator cuff tear, and the best option is different for every person. In planning your treatment, your doctor will consider your age, activity level, general health, and the type of tear you have.

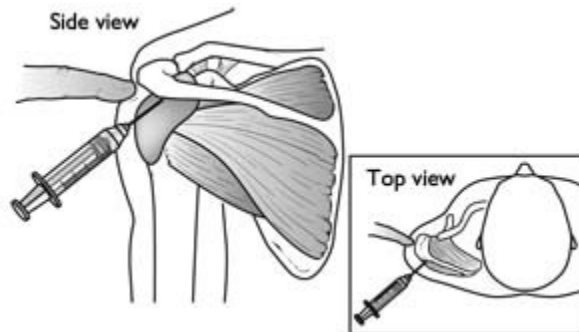
There is no evidence of better results from surgery performed near the time of injury versus later on. For this reason, many doctors first recommend nonsurgical management of rotator cuff tears.

Nonsurgical Treatment

In about 50% of patients, nonsurgical treatment relieves pain and improves function in the shoulder. Shoulder strength, however, does not usually improve without surgery.

Nonsurgical treatment options may include:

- **Rest.** Your doctor may suggest rest and limiting overhead activities. He or she may also prescribe a sling to help protect your shoulder and keep it still.
- **Activity modification.** Avoid activities that cause shoulder pain.
- **Non-steroidal anti-inflammatory medication.** Drugs like ibuprofen and naproxen reduce pain and swelling.
- **Strengthening exercises and physical therapy.** Specific exercises will restore movement and strengthen your shoulder. Your exercise program will include stretches to improve flexibility and range of motion. Strengthening the muscles that support your shoulder can relieve pain and prevent further injury.
- **Steroid injection.** If rest, medications, and physical therapy do not relieve your pain, an injection of a local anesthetic and a cortisone preparation may be helpful. Cortisone is a very effective anti-inflammatory medicine.



A cortisone injection may relieve painful symptoms.

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The chief advantage of nonsurgical treatment is that it avoids the major risks of surgery, such as:

- Infection
- Permanent stiffness
- Anesthesia complications

- Sometimes lengthy recovery time

The disadvantages of nonsurgical treatment are:

- No improvements in strength
- Size of tear may increase over time
- Activities may need to be limited

Surgical Treatment

Your doctor may recommend surgery if your pain does not improve with nonsurgical methods. Continued pain is the main indication for surgery. If you are very active and use your arms for overhead work or sports, your doctor may also suggest surgery.

Other signs that surgery may be a good option for you include:

- Your symptoms have lasted 6 to 12 months
- You have a large tear (more than 3 cm)
- You have significant weakness and loss of function in your shoulder
- Your tear was caused by a recent, acute injury

Surgery to repair a torn rotator cuff most often involves re-attaching the tendon to the head of humerus (upper arm bone). There are a few options for repairing rotator cuff tears. Your orthopaedic surgeon will discuss with you the best procedure to meet your individual health needs.

Shoulder Impingement/Rotator Cuff Tendinitis

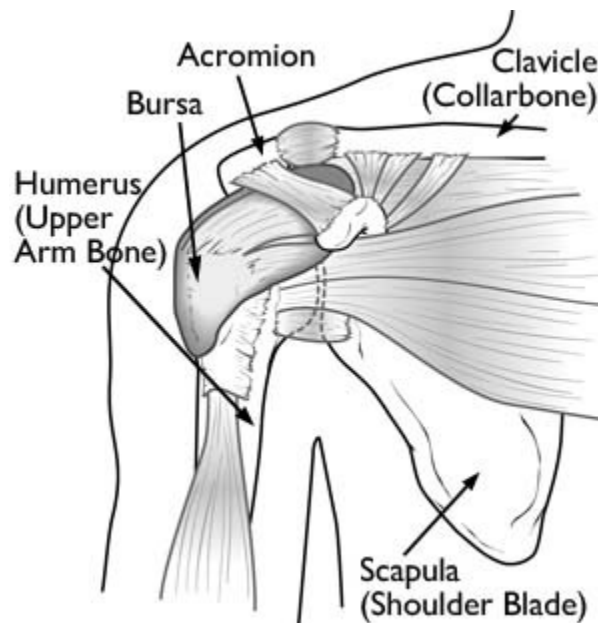
One of the most common physical complaints is shoulder pain. Your shoulder is made up of several joints combined with tendons and muscles that allow a great range of motion in your arm. Because so many different structures make up the shoulder, it is vulnerable to many different problems. The rotator cuff is a frequent source of pain in the shoulder.

Anatomy

Your shoulder is made up of three bones: your upper arm bone (humerus), your shoulder blade (scapula), and your collarbone (clavicle).

Your arm is kept in your shoulder socket by your rotator cuff. These muscles and tendons form a covering around the head of your upper arm bone and attach it to your shoulder blade.

There is a lubricating sac called a bursa between the rotator cuff and the bone on top of your shoulder (acromion). The bursa allows the rotator cuff tendons to glide freely when you move your arm.

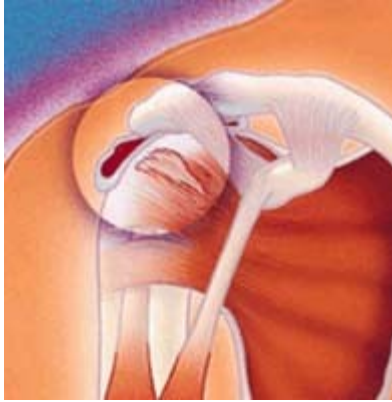


Normal anatomy of the shoulder.

Description

The rotator cuff is a common source of pain in the shoulder. Pain can be the result of:

- **Tendinitis.** The rotator cuff tendons can be irritated or damaged.
- **Bursitis.** The bursa can become inflamed and swell with more fluid causing pain.
- **Impingement.** When you raise your arm to shoulder height, the space between the acromion and rotator cuff narrows. The acromion can rub against (or "impinge" on) the tendon and the bursa, causing irritation and pain.



The acromion "impinges" on the rotator cuff and bursa.

Cause

Rotator cuff pain is common in both young athletes and middle-aged people. Young athletes who use their arms overhead for swimming, baseball, and tennis are particularly vulnerable. Those who do repetitive lifting or overhead activities using the arm, such as paper hanging, construction, or painting are also susceptible.

Pain may also develop as the result of a minor injury. Sometimes, it occurs with no apparent cause.

Symptoms

Rotator cuff pain commonly causes local swelling and tenderness in the front of the shoulder. You may have pain and stiffness when you lift your arm. There may also be pain when the arm is lowered from an elevated position.

Beginning symptoms may be mild. Patients frequently do not seek treatment at an early stage. These symptoms may include:

- Minor pain that is present both with activity and at rest
- Pain radiating from the front of the shoulder to the side of the arm
- Sudden pain with lifting and reaching movements
- Athletes in overhead sports may have pain when throwing or serving a tennis ball

As the problem progresses, the symptoms increase:

- Pain at night
- Loss of strength and motion
- Difficulty doing activities that place the arm behind the back, such as buttoning or zippering

If the pain comes on suddenly, the shoulder may be severely tender. All movement may be limited and painful.

Doctor Examination

Medical History and Physical Examination



Your doctor will test your range of motion by having you move your arm in different directions.

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After discussing your symptoms and medical history, your doctor will examine your shoulder. He or she will check to see whether it is tender in any area or whether there is a deformity. To measure the range of motion of your shoulder, your doctor will have you move your arm in several different directions. He or she will also test your arm strength.

Your doctor will check for other problems with your shoulder joint. He or she may also examine your neck to make sure that the pain is not coming from a "pinched nerve," and to rule out other conditions, such as arthritis.

Imaging Tests

Other tests which may help your doctor confirm your diagnosis include:

X-rays. Because x-rays do not show the soft tissues of your shoulder like the rotator cuff, plain x-rays of a shoulder with rotator cuff pain are usually normal or may show a small bone spur. A special x-ray view, called an "outlet view," sometimes will show a small bone spur on the front edge of the acromion.



(Left) Normal outlet view x-ray. **(Right)** Abnormal outlet view showing a large bone spur causing impingement on the rotator cuff.

Magnetic resonance imaging (MRI) and ultrasound. These studies can create better images of soft tissues like the rotator cuff tendons. They can show fluid or inflammation in the bursa and rotator cuff. In some cases, partial tearing of the rotator cuff will be seen.

Treatment

The goal of treatment is to reduce pain and restore function. In planning your treatment, your doctor will consider your age, activity level, and general health.

Nonsurgical Treatment

In most cases, initial treatment is nonsurgical. Although nonsurgical treatment may take several weeks to months, many patients experience a gradual improvement and return to function.

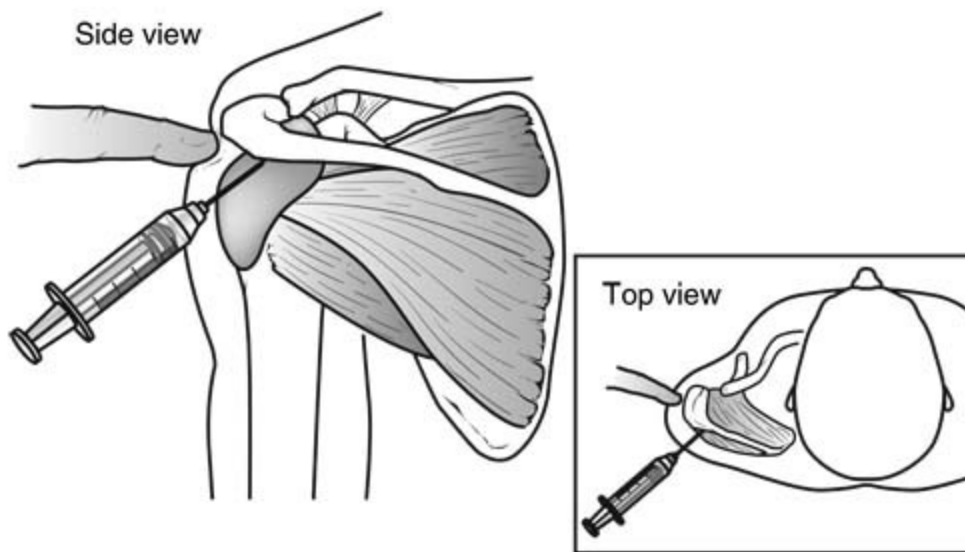
Rest. Your doctor may suggest rest and activity modification, such as avoiding overhead activities.

Non-steroidal anti-inflammatory medicines. Drugs like ibuprofen and naproxen reduce pain and swelling.

Physical therapy. A physical therapist will initially focus on restoring normal motion to your shoulder. Stretching exercises to improve range of motion are very helpful. If you have difficulty reaching behind your back, you may have developed tightness of the posterior capsule of the shoulder (capsule refers to the inner lining of the shoulder and posterior refers to the back of the shoulder). Specific stretching of the posterior capsule can be very effective in relieving pain in the shoulder.

Once your pain is improving, your therapist can start you on a strengthening program for the rotator cuff muscles.

Steroid injection. If rest, medications, and physical therapy do not relieve your pain, an injection of a local anesthetic and a cortisone preparation may be helpful. Cortisone is a very effective anti-inflammatory medicine. Injecting it into the bursa beneath the acromion can relieve pain.



A cortisone injection may relieve painful symptoms.

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Surgical Treatment

When nonsurgical treatment does not relieve pain, your doctor may recommend surgery.

The goal of surgery is to create more space for the rotator cuff. To do this, your doctor will remove the inflamed portion of the bursa. He or she may also perform an anterior acromioplasty, in which part of the acromion is removed. This is also known as a subacromial decompression. These procedures can be performed using either an arthroscopic or open technique.

Arthroscopic technique. In arthroscopy, thin surgical instruments are inserted into two or three small puncture wounds around your shoulder. Your doctor examines your shoulder through a fiberoptic scope connected to a television camera. He or she guides the small instruments using a video monitor, and removes bone and soft tissue. In most cases, the front edge of the acromion is removed along with some of the bursal tissue.

Your surgeon may also treat other conditions present in the shoulder at the time of surgery. These can include arthritis between the clavicle (collarbone) and the acromion (acromioclavicular arthritis), inflammation of the biceps tendon (biceps tendonitis), or a partial rotator cuff tear.

Open surgical technique. In open surgery, your doctor will make a small incision in the front of your shoulder. This allows your doctor to see the acromion and rotator cuff directly.



Anterior acromioplasty techniques. (Left) Arthroscopic repair. (Right) Open surgical procedure.

Rehabilitation. After surgery, your arm may be placed in a sling for a short period of time. This allows for early healing. As soon as your comfort allows, your doctor will remove the sling to begin exercise and use of the arm.

Your doctor will provide a rehabilitation program based on your needs and the findings at surgery. This will include exercises to regain range of motion of the shoulder and strength of the arm. It typically takes 2 to 4 months to achieve complete relief of pain, but it may take up to a year.

Frozen Shoulder

Frozen shoulder, also called adhesive capsulitis, causes pain and stiffness in the shoulder. Over time, the shoulder becomes very hard to move.

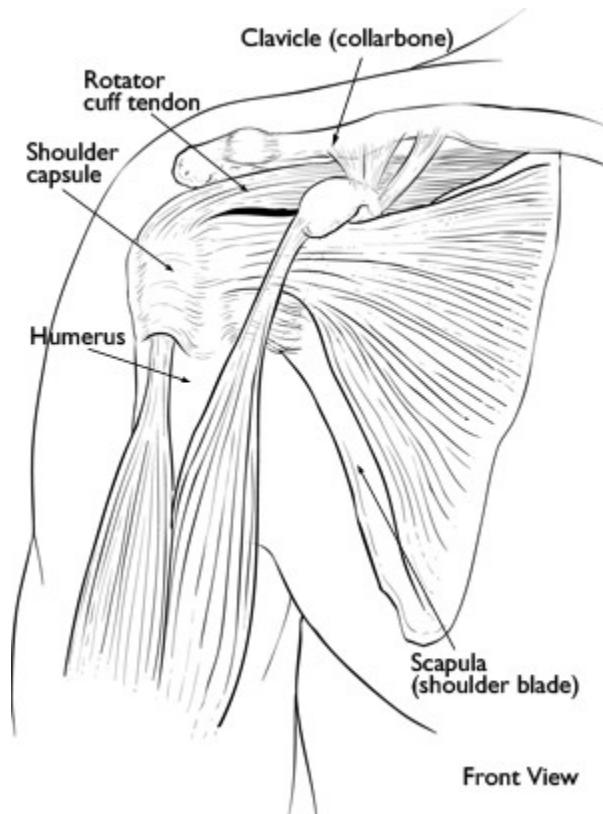
Frozen shoulder occurs in about 2% of the general population. It most commonly affects people between the ages of 40 and 60, and occurs in women more often than men.

Anatomy

Your shoulder is a ball-and-socket joint made up of three bones: your upper arm bone (humerus), your shoulder blade (scapula), and your collarbone (clavicle).

The head of the upper arm bone fits into a shallow socket in your shoulder blade. Strong connective tissue, called the shoulder capsule, surrounds the joint.

To help your shoulder move more easily, synovial fluid lubricates the shoulder capsule and the joint.



The shoulder capsule surrounds the shoulder joint and rotator cuff tendons.

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Description

In frozen shoulder, the shoulder capsule thickens and becomes tight. Stiff bands of tissue — called adhesions — develop. In many cases, there is less synovial fluid in the joint.

The hallmark sign of this condition is being unable to move your shoulder - either on your own or with the help of someone else. It develops in three stages:

Freezing

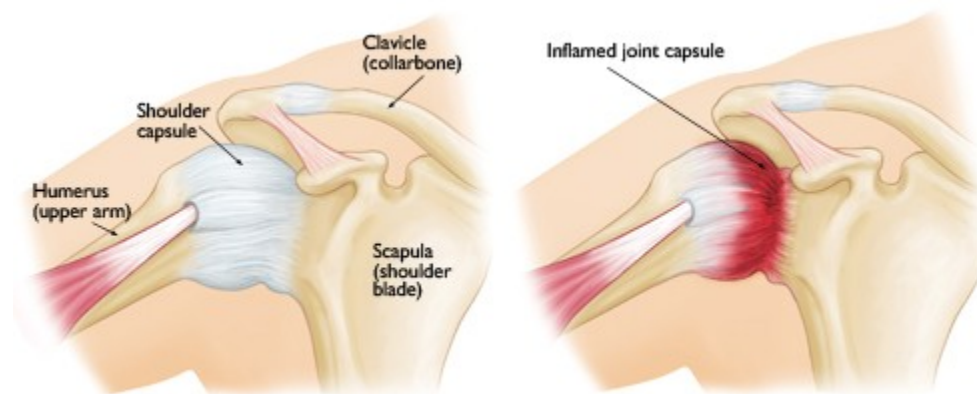
In the "freezing" stage, you slowly have more and more pain. As the pain worsens, your shoulder loses range of motion. Freezing typically lasts from 6 weeks to 9 months.

Frozen

Painful symptoms may actually improve during this stage, but the stiffness remains. During the 4 to 6 months of the "frozen" stage, daily activities may be very difficult.

Thawing

Shoulder motion slowly improves during the "thawing" stage. Complete return to normal or close to normal strength and motion typically takes from 6 months to 2 years.



In frozen shoulder, the smooth tissues of the shoulder capsule become thick, stiff, and inflamed.

Cause

The causes of frozen shoulder are not fully understood. There is no clear connection to arm dominance or occupation. A few factors may put you more at risk for developing frozen shoulder.

Diabetes. Frozen shoulder occurs much more often in people with diabetes, affecting 10% to 20% of these individuals. The reason for this is not known.

Other diseases. Some additional medical problems associated with frozen shoulder include hypothyroidism, hyperthyroidism, Parkinson's disease, and cardiac disease.

Immobilization. Frozen shoulder can develop after a shoulder has been immobilized for a period of time due to surgery, a fracture, or other injury. Having patients move their

shoulders soon after injury or surgery is one measure prescribed to prevent frozen shoulder.

Symptoms

Pain from frozen shoulder is usually dull or aching. It is typically worse early in the course of the disease and when you move your arm. The pain is usually located over the outer shoulder area and sometimes the upper arm.

Doctor Examination

Physical Examination



Your doctor will test the range of motion in your shoulder.

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After discussing your symptoms and medical history, your doctor will examine your shoulder. Your doctor will move your shoulder carefully in all directions to see if movement is limited and if pain occurs with the motion. The range of motion when someone else moves your shoulder is called "passive range of motion." Your doctor will compare this to the range of motion you display when you move your shoulder on your own ("active range of motion"). People with frozen shoulder have limited range of motion both actively and passively.

Imaging Tests

Other tests that may help your doctor rule out other causes of stiffness and pain include:

X-rays. Dense structures, such as bone, show up clearly on x-rays. X-rays may show other problems in your shoulder, such as arthritis.

Magnetic resonance imaging (MRI) and ultrasound. These studies can create better images of problems with soft tissues, such as a torn rotator cuff.

Dislocated Shoulder

The shoulder joint is the body's most mobile joint. It can turn in many directions. But, this advantage also makes the shoulder an easy joint to dislocate.



Shoulder instability

A partial dislocation (subluxation) means the head of the upper arm bone (humerus) is partially out of the socket (glenoid). A complete dislocation means it is all the way out of the socket. Both partial and complete dislocation cause pain and unsteadiness in the shoulder.

Symptoms

Symptoms to look for include:

- Swelling
- Numbness
- Weakness
- Bruising

Sometimes dislocation may tear ligaments or tendons in the shoulder or damage nerves.

The shoulder joint can dislocate forward, backward, or downward. A common type of shoulder dislocation is when the shoulder slips forward (anterior instability). This means the upper arm bone moved forward and down out of its joint. It may happen when the arm is put in a throwing position.

Diagnosis

The muscles may have spasms from the disruption, and this can make it hurt more. When the shoulder dislocates time and again, there is shoulder instability.

The doctor will examine the shoulder and may order an X-ray. It is important that the doctor know how the dislocation happened and whether the shoulder had ever been dislocated before.

Treatment

The doctor will place the ball of the upper arm bone (humerus) back into the joint socket. This process is called closed reduction. Severe pain stops almost immediately once the shoulder joint is back in place.

Rehabilitation

Your doctor may immobilize the shoulder in a sling or other device for several weeks following treatment. Plenty of rest is needed. The sore area can be iced 3 to 4 times a day.

After the pain and swelling go down, the doctor will prescribe rehabilitation exercises for you. These help restore the shoulder's range of motion and strengthen the muscles. Rehabilitation may also help prevent dislocating the shoulder again in the future. Rehabilitation will begin with gentle muscle toning exercises. Later, weight training can be added.

If shoulder dislocation becomes a chronic condition, a brace can sometimes help. However, if therapy and bracing fail, surgery may be needed to repair or tighten the torn or stretched ligaments that help hold the joint in place, particularly in young athletes.