



Shoulder Pain

This information is at <http://www.niams.nih.gov/hi/topics/shoulderprobs/shoulderqa.htm> and is provided by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), of the National Institutes of Health of the US Government.

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To answer a free questionnaire that may help to identify the cause of your shoulder pain, go to <https://www.masterdocs.com/shoulderpain/start.php>.

This booklet first answers general questions about the shoulder and shoulder problems. It then answers questions about specific shoulder problems (dislocation, separation, tendinitis, bursitis, impingement syndrome, torn rotator cuff, frozen shoulder, and fracture) as well as shoulder pain caused by arthritis of the shoulder.

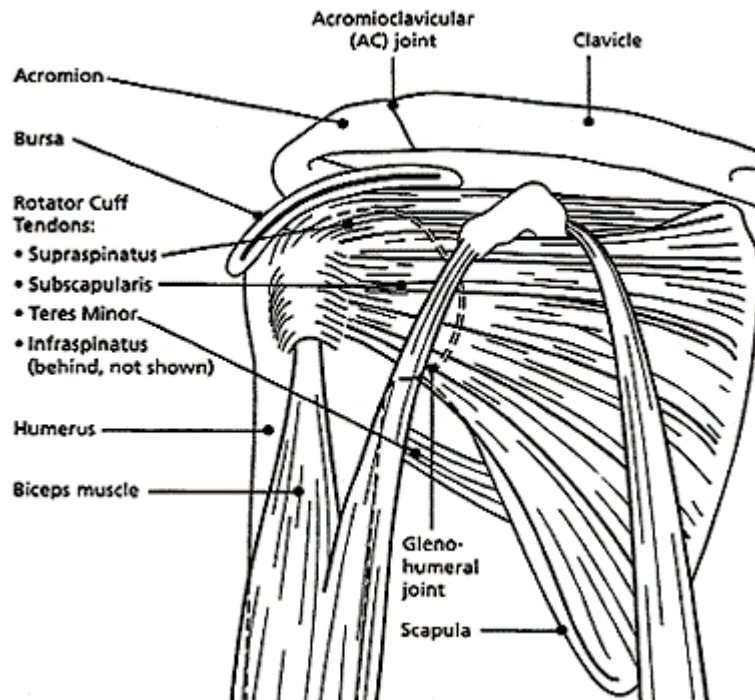
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How Common Are Shoulder Problems?

According to the American Academy of Orthopaedic Surgeons, about 4 million people in the United States seek medical care each year for shoulder sprain, strain, dislocation, or other problems. Each year, shoulder problems account for about 1.5 million visits to orthopaedic surgeons--doctors who treat disorders of the bones, muscles, and related structures.

What Are the Structures of the Shoulder and How Does the Shoulder Function?

The shoulder joint is composed of three bones: the clavicle (collarbone), the scapula (shoulder blade), and the humerus (upper arm bone) (see diagram). Two joints facilitate shoulder movement. The acromioclavicular (AC) joint is located between the acromion (part of the scapula that forms the highest point of the shoulder) and the clavicle. The glenohumeral joint, commonly called the shoulder joint, is a ball-and-socket type joint that helps move the shoulder forward and backward and allows the arm to rotate in a circular fashion or hinge out and up away from the body. (The "ball" is the top, rounded portion of the upper arm bone or humerus; the "socket," or glenoid, is a dish-shaped part of the outer edge of the scapula into which the ball fits.) The capsule is a soft tissue envelope that encircles the glenohumeral joint. It is lined by a thin, smooth synovial membrane.



The bones of the shoulder are held in place by muscles, tendons, and ligaments. Tendons are tough cords of tissue that attach the shoulder muscles to bone and assist the muscles in moving the shoulder. Ligaments attach shoulder bones to each other, providing stability. For example, the front of the joint capsule is anchored by three glenohumeral ligaments.

The rotator cuff is a structure composed of tendons that, with associated muscles, holds the ball at the top of the humerus in the glenoid socket and provides mobility and strength to the shoulder joint.

Two filmy sac-like structures called bursae permit smooth gliding between bone, muscle, and tendon. They cushion and protect the rotator cuff from the bony arch of the acromion.

What Are the Origin and Causes of Shoulder Problems?

The shoulder is the most movable joint in the body. However, it is an unstable joint because of the range of motion allowed. It is easily subject to injury because the ball of the upper arm is larger than the shoulder socket that holds it. To remain stable, the shoulder must be anchored by its muscles, tendons, and ligaments. Some shoulder problems arise from the disruption of these soft tissues as a result of injury or from overuse or underuse of the shoulder. Other problems arise from a degenerative process in which tissues break down and no longer function well.

Shoulder pain may be localized or may be referred to areas around the shoulder or down the arm. Disease within the body (such as gallbladder, liver, or heart disease, or disease of the cervical spine of the neck) also may generate pain that travels along nerves to the shoulder.

How Are Shoulder Problems Diagnosed?

Following are some of the ways doctors diagnose shoulder problems:

Medical history (the patient tells the doctor about an injury or other condition that might be causing the pain).

Physical examination to feel for injury and discover the limits of movement, location of pain, and extent of joint instability.

Tests to confirm the diagnosis of certain conditions. Some of these tests include:

- x ray
- arthrogram--Diagnostic record that can be seen on an x ray after injection of a contrast fluid into the shoulder joint to outline structures such as the rotator cuff. In disease or injury, this contrast fluid may either leak into an area where it does not belong, indicating a tear or opening, or be blocked from entering an area where there normally is an opening.
- MRI (magnetic resonance imaging)--A non-invasive procedure in which a machine produces a series of cross-sectional images of the shoulder.
- Other diagnostic tests, such as injection of an anesthetic into and around the shoulder joint, are discussed in specific sections of this booklet.

Dislocation

What Is a Shoulder Dislocation?

The shoulder joint is the most frequently dislocated major joint of the body. In a typical case of a dislocated shoulder, a strong force that pulls the shoulder outward (abduction) or extreme rotation of the joint pops the ball of the humerus out of the shoulder socket. Dislocation commonly occurs when there is a backward pull on the arm that either catches the muscles unprepared to resist or overwhelms the muscles. When a shoulder dislocates frequently, the condition is referred to as shoulder instability. A partial dislocation where the upper arm bone is partially in and partially out of the socket is called a subluxation.

What Are the Signs of a Dislocation and How Is It Diagnosed?

The shoulder can dislocate either forward, backward, or downward. Not only does the arm appear out of position when the shoulder dislocates, but the dislocation also produces pain. Muscle spasms may increase the intensity of pain. Swelling, numbness, weakness, and bruising are likely to develop. Problems seen with a dislocated shoulder are tearing of the ligaments or tendons reinforcing the joint capsule and, less commonly, nerve damage. Doctors usually diagnose a dislocation by a physical examination, and x rays may be taken to confirm the diagnosis and to rule out a related fracture.

How Is a Dislocated Shoulder Treated?

Doctors treat a dislocation by putting the ball of the humerus back into the joint socket--a procedure called a reduction. The arm is then immobilized in a sling or a device called a shoulder immobilizer for several weeks. Usually the doctor recommends resting the shoulder and applying ice three or four times a day. After pain and swelling have been controlled, the patient enters a rehabilitation program that includes exercises to restore the range of motion of the shoulder and strengthen the muscles to prevent future dislocations. These exercises may progress from simple motion to the use of weights.

After treatment and recovery, a previously dislocated shoulder may remain more susceptible to reinjury, especially in young, active individuals. Ligaments may have been stretched or torn, and the shoulder may tend to dislocate again. A shoulder that dislocates severely or often, injuring surrounding tissues or nerves, usually requires surgical repair to tighten stretched ligaments or reattach torn ones.

Sometimes the doctor performs surgery through a tiny incision into which a small scope (arthroscope) is inserted to observe the inside of the joint. After this procedure, called arthroscopic surgery, the shoulder is generally immobilized for about 6 weeks and full recovery takes several months. Arthroscopic techniques involving the shoulder are relatively new and many surgeons prefer to repair a recurrent dislocating shoulder by the time-tested open surgery under direct vision. There are usually fewer repeat dislocations and improved movement following open surgery, but it may take a little longer to regain motion.

Separation

What Is a Shoulder Separation?

A shoulder separation occurs where the collarbone (clavicle) meets the shoulder blade (scapula). When ligaments that hold the joint together are partially or completely torn, the outer end of the clavicle may slip out of place, preventing it from properly meeting the scapula. Most often the injury is caused by a blow to the shoulder or by falling on an outstretched hand.

What Are the Signs of a Shoulder Separation and How Is It Diagnosed?

Shoulder pain or tenderness and, occasionally, a bump in the middle of the top of the shoulder (over the AC joint) are signs that a separation may have occurred. Sometimes the severity of a separation can be detected by taking x-rays while the patient holds a light weight that pulls on the muscles, making a separation more pronounced.

How Is a Shoulder Separation Treated?

A shoulder separation is usually treated conservatively by rest and wearing a sling. Soon after injury, an ice bag may be applied to relieve pain and swelling. After a period of rest, a therapist helps the patient perform exercises that put the shoulder through its range of motion. Most shoulder separations heal within 2 or 3 months without further intervention. However, if ligaments are severely torn, surgical repair may be required to hold the clavicle in place. A doctor may wait to see if conservative treatment works before deciding whether surgery is required.

Tendinitis, Bursitis, and Impingement Syndrome

What Are Tendinitis, Bursitis, and Impingement Syndrome of the Shoulder?

These conditions are closely related and may occur alone or in combination. If the rotator cuff and bursa are irritated, inflamed, and swollen, they may become squeezed between the head of the humerus and the acromion. Repeated motion involving the arms, or the aging process involving shoulder motion over many years, may also irritate and wear down the tendons, muscles, and surrounding structures.

Tendinitis is inflammation (redness, soreness, and swelling) of a tendon. In tendinitis of the shoulder, the rotator cuff and/or biceps tendon become inflamed, usually as a result of being pinched by surrounding structures. The injury may vary from mild inflammation to involvement of most of the rotator cuff. When the rotator cuff tendon becomes inflamed and thickened, it may get trapped under the acromion. Squeezing of the rotator cuff is called impingement syndrome.

Tendinitis and impingement syndrome are often accompanied by inflammation of the bursa sacs that protect the shoulder. An inflamed bursa is called bursitis. Inflammation caused by a disease such as rheumatoid arthritis may cause rotator cuff tendinitis and

bursitis. Sports involving overuse of the shoulder and occupations requiring frequent overhead reaching are other potential causes of irritation to the rotator cuff or bursa and may lead to inflammation and impingement.

What Are the Signs of Tendinitis and Bursitis?

Signs of these conditions include the slow onset of discomfort and pain in the upper shoulder or upper third of the arm and/or difficulty sleeping on the shoulder. Tendinitis and bursitis also cause pain when the arm is lifted away from the body or overhead. If tendinitis involves the biceps tendon (the tendon located in front of the shoulder that helps bend the elbow and turn the forearm), pain will occur in the front or side of the shoulder and may travel down to the elbow and forearm. Pain may also occur when the arm is forcefully pushed upward overhead.

How Are These Conditions Diagnosed?

Diagnosis of tendinitis and bursitis begins with a medical history and physical examination. X rays do not show tendons or the bursae but may be helpful in ruling out bony abnormalities or arthritis. The doctor may remove and test fluid from the inflamed area to rule out infection. Impingement syndrome may be confirmed when injection of a small amount of anesthetic (lidocaine hydrochloride) into the space under the acromion relieves pain.

How Are Tendinitis, Bursitis, and Impingement Syndrome Treated?

The first step in treating these conditions is to reduce pain and inflammation with rest, ice, and anti-inflammatory medicines such as aspirin, naproxen (Naprosyn*), ibuprofen (Advil, Motrin, or Nuprin), or cox-2 inhibitors (Celebrex, Vioxx, or Nobic). In some cases the doctor or therapist will use ultrasound (gentle sound-wave vibrations) to warm deep tissues and improve blood flow. Gentle stretching and strengthening exercises are added gradually. These may be preceded or followed by use of an ice pack. If there is no improvement, the doctor may inject a corticosteroid medicine into the space under the acromion. While steroid injections are a common treatment, they must be used with caution because they may lead to tendon rupture. If there is still no improvement after 6 to 12 months, the doctor may perform either arthroscopic or open surgery to repair damage and relieve pressure on the tendons and bursae.

* Brand names included in this booklet are provided as examples only, and their inclusion does not mean that these products are endorsed by the National Institutes of Health or any other Government agency. Also, if a particular brand name is not mentioned, this does not mean or imply that the product is unsatisfactory.

Torn Rotator Cuff

What Is a Torn Rotator Cuff?

One or more rotator cuff tendons may become inflamed from overuse, aging, a fall on an outstretched hand, or a collision. Sports requiring repeated overhead arm motion or

occupations requiring heavy lifting also place a strain on rotator cuff tendons and muscles. Normally, tendons are strong, but a longstanding wearing down process may lead to a tear.

What Are the Signs of a Torn Rotator Cuff?

Typically, a person with a rotator cuff injury feels pain over the deltoid muscle at the top and outer side of the shoulder, especially when the arm is raised or extended out from the side of the body. Motions like those involved in getting dressed can be painful. The shoulder may feel weak, especially when trying to lift the arm into a horizontal position. A person may also feel or hear a click or pop when the shoulder is moved.

How Is a Torn Rotator Cuff Diagnosed?

Pain or weakness on outward or inward rotation of the arm may indicate a tear in a rotator cuff tendon. The patient also feels pain when lowering the arm to the side after the shoulder is moved backward and the arm is raised. A doctor may detect weakness but may not be able to determine from a physical examination where the tear is located. X rays, if taken, may appear normal. An MRI can help detect a full tendon tear, but does not detect partial tears. If the pain disappears after the doctor injects a small amount of anesthetic into the area, impingement is likely to be present. If there is no response to treatment, the doctor may use an arthrogram, rather than an MRI, to inspect the injured area and confirm the diagnosis.

How Is a Torn Rotator Cuff Treated?

Doctors usually recommend that patients with a rotator cuff injury rest the shoulder, apply heat or cold to the sore area, and take medicine to relieve pain and inflammation. Other treatments might be added, such as electrical stimulation of muscles and nerves, ultrasound, or a cortisone injection near the inflamed area of the rotator cuff. The patient may need to wear a sling for a few days. If surgery is not an immediate consideration, exercises are added to the treatment program to build flexibility and strength and restore the shoulder's function. If there is no improvement with these conservative treatments and functional impairment persists, the doctor may perform arthroscopic or open surgical repair of the torn rotator cuff.

Frozen Shoulder (Adhesive Capsulitis)

What Is a Frozen Shoulder?

As the name implies, movement of the shoulder is severely restricted in people with a "frozen shoulder." This condition, which doctors call adhesive capsulitis, is frequently caused by injury that leads to lack of use due to pain. Rheumatic disease progression and recent shoulder surgery can also cause frozen shoulder. Intermittent periods of use may cause inflammation. Adhesions (abnormal bands of tissue) grow between the joint surfaces, restricting motion. There is also a lack of synovial fluid, which normally lubricates the gap between the arm bone and socket to help the shoulder joint move. It is this restricted space between the capsule and ball of the humerus that distinguishes adhesive capsulitis from a less complicated painful, stiff shoulder. People with diabetes,

stroke, lung disease, rheumatoid arthritis, and heart disease, or who have been in an accident, are at a higher risk for frozen shoulder. The condition rarely appears in people under 40 years old.

What Are the Signs of a Frozen Shoulder and How Is It Diagnosed?

With a frozen shoulder, the joint becomes so tight and stiff that it is nearly impossible to carry out simple movements, such as raising the arm. People complain that the stiffness and discomfort worsen at night. A doctor may suspect the patient has a frozen shoulder if a physical examination reveals limited shoulder movement. An arthrogram may confirm the diagnosis.

How Is a Frozen Shoulder Treated?

Treatment of this disorder focuses on restoring joint movement and reducing shoulder pain. Usually, treatment begins with nonsteroidal anti-inflammatory drugs and the application of heat, followed by gentle stretching exercises. These stretching exercises, which may be performed in the home with the help of a therapist, are the treatment of choice. In some cases, transcutaneous electrical nerve stimulation (TENS) with a small battery-operated unit may be used to reduce pain by blocking nerve impulses. If these measures are unsuccessful, the doctor may recommend manipulation of the shoulder under general anesthesia. Surgery to cut the adhesions is only necessary in some cases.

Fracture

What Happens When the Shoulder Is Fractured?

A fracture involves a partial or total crack through a bone. The break in a bone usually occurs as a result of an impact injury, such as a fall or blow to the shoulder. A fracture usually involves the clavicle or the neck (area below the ball) of the humerus.

What Are the Signs of a Shoulder Fracture and How Is It Diagnosed?

A shoulder fracture that occurs after a major injury is usually accompanied by severe pain. Within a short time, there may be redness and bruising around the area. Sometimes a fracture is obvious because the bones appear out of position. Both diagnosis and severity can be confirmed by x rays.

How Is a Shoulder Fracture Treated?

When a fracture occurs, the doctor tries to bring the bones into a position that will promote healing and restore arm movement. If the clavicle is fractured, the patient must at first wear a strap and sling around the chest to keep the clavicle in place. After removing the strap and sling, the doctor will prescribe exercises to strengthen the shoulder and restore movement. Surgery is occasionally needed for certain clavicle fractures.

Fracture of the neck of the humerus is usually treated with a sling or shoulder immobilizer. If the bones are out of position, surgery may be necessary to reset them. Exercises are also part of restoring shoulder strength and motion.

Arthritis of the Shoulder

What Is Arthritis of the Shoulder?

Arthritis is a degenerative disease caused by either wear and tear of the cartilage (osteoarthritis) or an inflammation (rheumatoid arthritis) of one or more joints. Arthritis not only affects joints; it may also affect supporting structures such as muscles, tendons, and ligaments.

What Are the Signs of Shoulder Arthritis and How Is It Diagnosed?

The usual signs of arthritis of the shoulder are pain, particularly over the AC joint, and a decrease in shoulder motion. A doctor may suspect the patient has arthritis when there is both pain and swelling in the joint. The diagnosis may be confirmed by a physical examination and x rays. Blood tests may be helpful for diagnosing rheumatoid arthritis, but other tests may be needed as well. Analysis of synovial fluid from the shoulder joint may be helpful in diagnosing some kinds of arthritis. Although arthroscopy permits direct visualization of damage to cartilage, tendons, and ligaments, and may confirm a diagnosis, it is usually done only if a repair procedure is to be performed.

How Is Arthritis of the Shoulder Treated?

Most often osteoarthritis of the shoulder is treated with nonsteroidal anti-inflammatory drugs, such as aspirin, ibuprofen, or cox-2 inhibitors. (Rheumatoid arthritis of the shoulder may require physical therapy and additional medicine, such as corticosteroids.) When non-operative treatment of arthritis of the shoulder fails to relieve pain or improve function, or when there is severe wear and tear of the joint causing parts to loosen and move out of place, shoulder joint replacement (arthroplasty) may provide better results. In this operation, a surgeon replaces the shoulder joint with an artificial ball for the top of the humerus and a cap (glenoid) for the scapula. Passive shoulder exercises (where someone else moves the arm to rotate the shoulder joint) are started soon after surgery. Patients begin exercising on their own about 3 to 6 weeks after surgery. Eventually, stretching and strengthening exercises become a major part of the rehabilitation program. The success of the operation often depends on the condition of rotator cuff muscles prior to surgery and the degree to which the patient follows the exercise program.

If you receive a shoulder injury, here's what you can do:

RICE = Rest, Ice, Compression, and Elevation

Rest--Reduce or stop using the injured area for 48 hours.

Ice--Put an ice pack on the injured area for 20 minutes at a time, 4 to 8 times per day. Use a cold pack, ice bag, or a plastic bag filled with crushed ice that has been wrapped in a towel.

Compression--Compression may help reduce the swelling. Compress the area with bandages, such as an elastic wrap, to help stabilize the shoulder.

Elevation--Keep the injured area elevated above the level of the heart. Use a pillow to help elevate the injury.

If pain and stiffness persist, see a doctor.

Where Can People Get Additional Information About Shoulder Problems?

National Institute of Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse

National Institutes of Health

1 AMS Circle

Bethesda, MD 20892-3675

Phone: 301-495-4484 or

877-22-NIAMS (226-4267) (free of charge)

TTY: 301-565-2966

Fax: 301-718-6366

<http://www.niams.nih.gov/>

The clearinghouse provides information about various forms of arthritis and rheumatic disease and bone, muscle, and skin diseases. It distributes patient and professional education materials and refers people to other sources of information. Additional information and updates can also be found on the NIAMS Web site.

American Academy of Orthopaedic Surgeons

P.O. Box 2058

Des Plaines, IL 60017

Phone: 800-824-BONE (2663) (free of charge)

www.aaos.org

The academy provides education and practice management services for orthopaedic surgeons and allied health professionals. It also serves as an advocate for improved patient care and informs the public about the science of orthopaedics. The orthopaedist's scope of practice includes disorders of the body's bones, joints, ligaments, muscles, and tendons. For a single copy of an AAOS brochure, send a self-addressed stamped envelope to the address above or visit the AAOS Web site.

American College of Rheumatology

1800 Century Place, Suite 250

Atlanta, GA 30345
Phone: 404-633-3777
Fax: 404-633-1870
www.rheumatology.org

This national professional organization can provide referrals to rheumatologists and allied health specialists, such as physical therapists. One-page fact sheets are also available on various forms of arthritis. Lists of specialists by geographic area and fact sheets are also available on their Web site.

American Physical Therapy Association

1111 North Fairfax Street
Alexandria, VA 22314-1488
Phone: 703-684-2782 or
800-999-2782, ext. 3395 (free of charge)
www.apta.org

This national professional organization represents physical therapists, allied personnel, and students. Its objectives are to improve research, public understanding, and education in the physical therapies. A free brochure titled "Taking Care of Your Shoulder: A Physical Therapist's Perspective" is available on the association's Web site or by sending a business-size, stamped, self-addressed envelope to the address above.

Arthritis Foundation

1330 West Peachtree Street
Atlanta, GA 30309
Phone: 404-872-7100 or 800-283-7800 (free of charge)
or call your local chapter (listed in the telephone directory)
www.arthritis.org

This is the major voluntary organization devoted to arthritis. The foundation publishes pamphlets on arthritis, such as "Arthritis Answers," that may be obtained by calling the toll-free telephone number. The foundation also can provide physician and clinic referrals. Local chapters also provide information and organize exercise programs for people who have arthritis.

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The mission of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), a part of the National Institutes of Health (NIH), is to support research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases, the training of basic and clinical scientists to carry out this research, and the dissemination of

information on research progress in these diseases. The National Institute of Arthritis and Musculoskeletal and Skin Diseases Information Clearinghouse is a public service sponsored by the NIAMS that provides health information and information sources. Additional information can be found on the NIAMS Web site at <http://www.niams.nih.gov/>.

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