**DISEASES & CONDITIONS**

Arthritis of the Shoulder

Each year, millions of people worldwide are diagnosed with some form of arthritis. Simply defined, arthritis is inflammation of one or more of your joints. Ultimately, the inflammation leads to loss of cartilage, which is the soft lining of our joints that allows smooth and full range of motion.

In the shoulder, arthritis causes pain and stiffness that can make it difficult to lift your arm, brush your hair, reach up to a high shelf, or perform other tasks.

Although there is no predictable way to regrow cartilage – and, thus, no cure for arthritis of the shoulder – there are many treatment options available. Using these, most people with arthritis are able to manage pain and stay active.

Anatomy

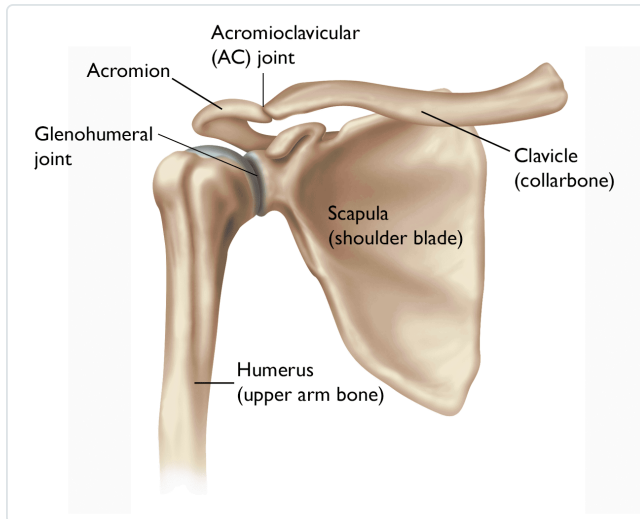
The shoulder is a ball-and-socket joint made up of three bones:

- The humerus (upper arm bone)
- The scapula (shoulder blade)
- The clavicle (collarbone)

The ball portion of the upper arm bone (humeral head) fits into a rounded socket in the shoulder blade. This socket is called the glenoid. A combination of muscles and tendons keeps your arm bone centered in your shoulder socket. These tissues are called the rotator cuff.

There are two joints in the shoulder, and both may be affected by arthritis:

- One joint is located on the top of the shoulder, where the clavicle meets the tip of the shoulder blade (acromion). This is called the acromioclavicular (AC) joint.
- The second is where the head of the humerus fits into the scapula and is called the glenohumeral joint.



The bones and joints of the shoulder.

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To provide you with effective treatment, your doctor will need to determine which joint is affected and which type of arthritis you have.

Description

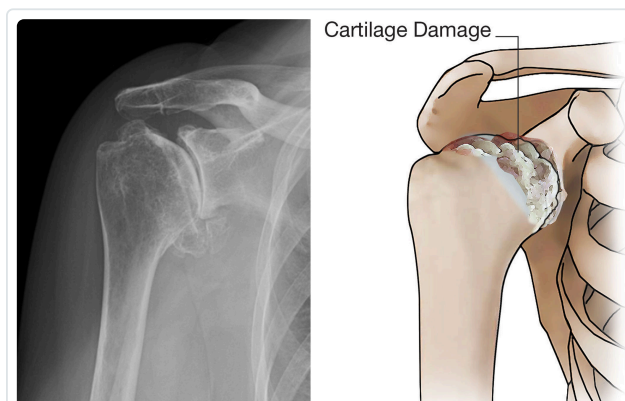
Five major types of arthritis typically affect the shoulder.

Osteoarthritis

Also known as "wear-and-tear" arthritis, [osteoarthritis](#) is a condition that destroys the smooth outer covering (articular cartilage) of bone. As the articular cartilage wears away, it becomes frayed and rough, and the protective space between the bones decreases. During movement, the bones of the joint rub against each other, causing pain; this is often referred to as "bone on bone" arthritis.

Osteoarthritis usually affects people over the age of 50 and is more common in the acromioclavicular joint than in the glenohumeral shoulder joint.

- While osteoarthritis of the AC joint can be seen on X-rays, it typically causes few to no symptoms.
- Glenohumeral osteoarthritis causes symptoms more often than not.



An X-ray and illustration showing damaged cartilage in the glenohumeral joint.

Illustration reproduced and modified with permission from JF Sarwark, ed: Essentials of Musculoskeletal Care, ed 4. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2010.

Rheumatoid Arthritis

[Rheumatoid arthritis \(RA\)](#) is a chronic disease that attacks multiple joints throughout the body. It is symmetrical, meaning it usually affects the same joint on both sides of the body.

The joints of your body are covered with a lining – called synovium – that lubricates the joint and makes it easier to move. Rheumatoid arthritis causes the lining to swell, which causes pain and stiffness in the joint.

Rheumatoid arthritis is an autoimmune disease. This means that the immune system attacks its own tissues. In RA, the defenses that protect the body from infection instead damage normal tissue (such as cartilage and ligaments) and soften bone.

Rheumatoid arthritis is equally common in both joints of the shoulder (AC joint and glenohumeral joint).

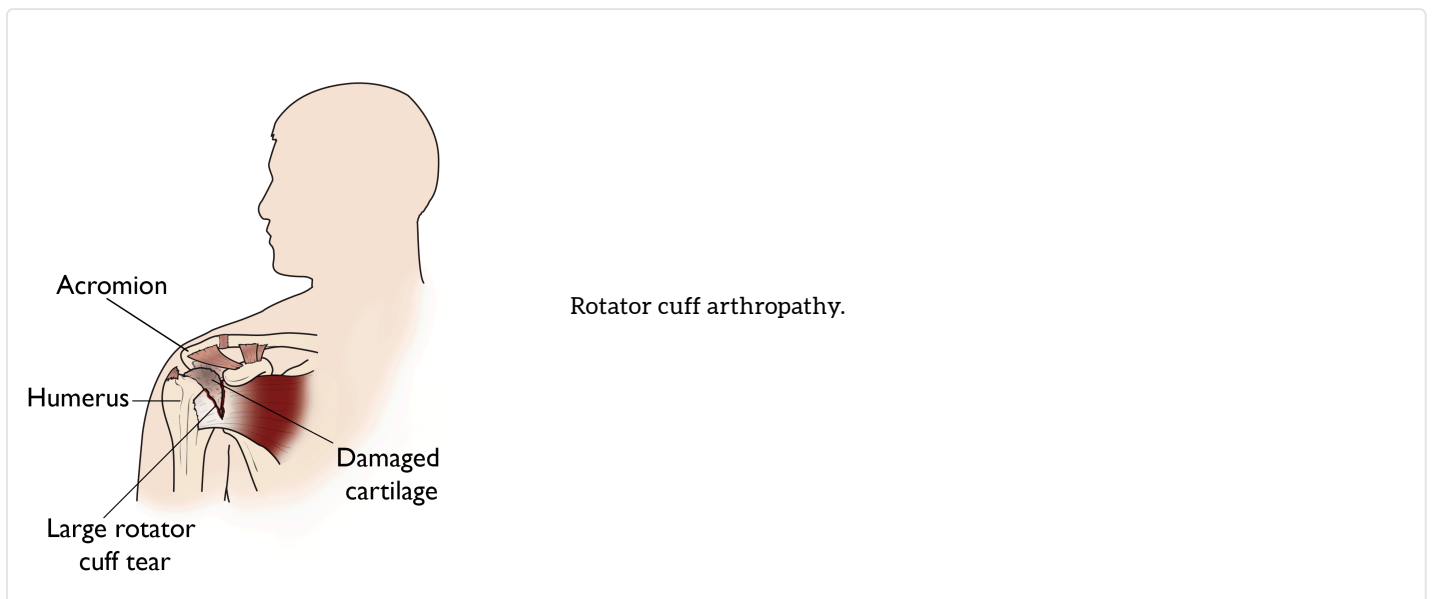
Posttraumatic Arthritis

Posttraumatic arthritis is a form of osteoarthritis that develops after an injury, such as a fracture or [dislocation](#) of the shoulder. It can affect both the AC and glenohumeral joints.

Rotator Cuff Tear Arthropathy

Arthritis can also develop after a large, long-standing [rotator cuff tendon tear](#). The torn rotator cuff can no longer hold the head of the humerus in the glenoid socket, and the humerus can move upward and rub against the acromion. This can damage the surfaces of the bones, causing arthritis to develop.

The combination of a large rotator cuff tear and advanced arthritis can lead to severe pain and weakness, and the patient may not be able to lift their arm away from the side.



Avascular Necrosis

Avascular necrosis (AVN) of the shoulder is a painful condition that occurs when the blood supply to the head of the humerus is disrupted. Because bone cells die without a blood supply, AVN can ultimately lead to destruction of the shoulder joint and arthritis.

Avascular necrosis develops in stages. As it progresses, the dead bone gradually collapses, which damages the articular cartilage covering the bone and leads to arthritis. At first, AVN affects only the head of the humerus, but as AVN progresses, the collapsed head of the humerus can damage the glenoid socket as well.

Causes of AVN include:

- High dose steroid use
- Heavy alcohol consumption
- Sickle cell disease
- Traumatic injury, such as fractures of the shoulder

In some cases, no cause can be identified; this is referred to as idiopathic AVN.

Symptoms

Pain. The most common symptom of arthritis of the shoulder is pain. This pain is aggravated by activity and progressively gets worse over time. The location of the pain will vary, depending on which shoulder joint is affected:

- If the glenohumeral joint is affected, the pain is centered in the side or back of the shoulder and may intensify with changes in the weather. Patients complain of an ache deep in the joint.
- The pain of arthritis in the AC joint is focused on the top of the shoulder.
- Someone with rheumatoid arthritis may have pain throughout the shoulder if both the glenohumeral and AC joints are affected.

As the arthritis progresses (worsens), any movement of the shoulder causes pain. Night pain is common, and sleeping may be difficult.

Other symptoms may include:

Limited range of motion. This is a common symptom. It may become more difficult to lift your arm to brush your hair or reach up to a shelf.

Crepitus. You may hear a grinding, clicking, or snapping sound (crepitus) as you move your shoulder. Crepitus is sometimes painful and can be loud enough for other people to hear.

Doctor Examination

Medical History and Physical Examination

After discussing your symptoms and medical history, your doctor will examine your shoulder.

During the physical examination, your doctor will look for:

- Weakness (atrophy) in the muscles
- Tenderness to touch
- Extent of passive (assisted) and active (self-directed) range of motion
- Any signs of injury to the muscles, tendons, and ligaments surrounding the joint
- Signs of previous injuries or surgeries
- Involvement of other joints (an indication of rheumatoid arthritis)
- Crepitus (a grinding sensation inside the joint) with movement

- Pain when pressure is placed on the joint

X-Rays

X-rays are imaging tests that create detailed pictures of dense structures, like bone. They can help distinguish among various forms of arthritis.

X-rays of an arthritic shoulder will show:

- A narrowing of the joint space
- Changes in the bone
- The formation of bone spurs (osteophytes)

This X-ray shows severe osteoarthritis of the glenohumeral joint.

Reproduced with permission from Crosby LA (ed): Total Shoulder Arthroplasty. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2000, p 18.



Some patients may have arthritis on an X-ray but few symptoms related directly to the arthritis. For instance, soreness in the surrounding muscles – and not the arthritis – could be causing the symptoms.

To confirm the diagnosis, your doctor may inject a local anesthetic (with or without cortisone) into the joint.

- If it temporarily relieves the pain, even temporarily, it is reasonable to assume that the symptoms are related to arthritis and treating the arthritis will relieve the pain.
- If the injection gives no pain relief at all, then other explanations for the pain should be considered.

Treatment

Nonsurgical Treatment

As with other arthritic conditions, initial treatment of arthritis of the shoulder is nonsurgical. Your doctor may recommend the following:

- Rest or change in activities. You may need to change the way you move your arm to avoid provoking pain.

- Physical therapy exercises may improve the range of motion, strength, and function in your shoulder.
- [Nonsteroidal anti-inflammatory drugs \(NSAIDs\)](#), such as aspirin, ibuprofen, or naproxen, may reduce inflammation and pain. These medications can irritate the stomach lining and cause internal bleeding. They should be taken with food. Consult with your doctor before taking over-the-counter NSAIDs if you have a history of ulcers or are taking blood thinning medication.
- [Corticosteroid injections](#) in the shoulder can dramatically reduce the inflammation and pain. However, the effect is often temporary.
- Moist heat may provide temporary relief.
- Icing your shoulder for 20 to 30 minutes 2 or 3 times a day can help to reduce inflammation and ease pain. Do not apply ice directly to your skin.
- If you have rheumatoid arthritis, your doctor (typically a rheumatologist) may prescribe a disease-modifying drug, such as methotrexate.
- Dietary supplements, such as [glucosamine and chondroitin sulfate](#) may help relieve pain. (Note: There is little scientific evidence to support the use of glucosamine and chondroitin sulfate to treat arthritis. In addition, the U.S. Food and Drug Administration does not test dietary supplements. These compounds may cause negative interactions with other medications. Always consult your doctor before taking dietary supplements.)
- Joint lubricants, which are currently being used for treatment of knee arthritis, have not been shown to be effective in shoulder arthritis and are not currently recommended.

Surgical Treatment

Your doctor may consider surgery if your pain causes disability and is not relieved with nonsurgical treatment.

Arthroscopy. Cases of mild glenohumeral arthritis may be treated with [arthroscopy](#). During arthroscopy, the doctor inserts a small camera, called an arthroscope, into the shoulder joint. The camera displays pictures on a video monitor, and the doctor uses these images to guide miniature surgical instruments.

Because the arthroscope and surgical instruments are thin, the surgeon can use very small incisions rather than the larger incision needed for standard, open surgery.

During the procedure, your doctor can debride (clean out) the inside of the joint by doing one or more of the following:

- Removing any loose pieces of cartilage
- Cleaning up the inflammation
- Shaving bone spurs that are causing pain

Pain relief from this type of procedure is often temporary and it is not typically recommended for advanced arthritis. If the arthritis progresses, you may need further surgery in the future.

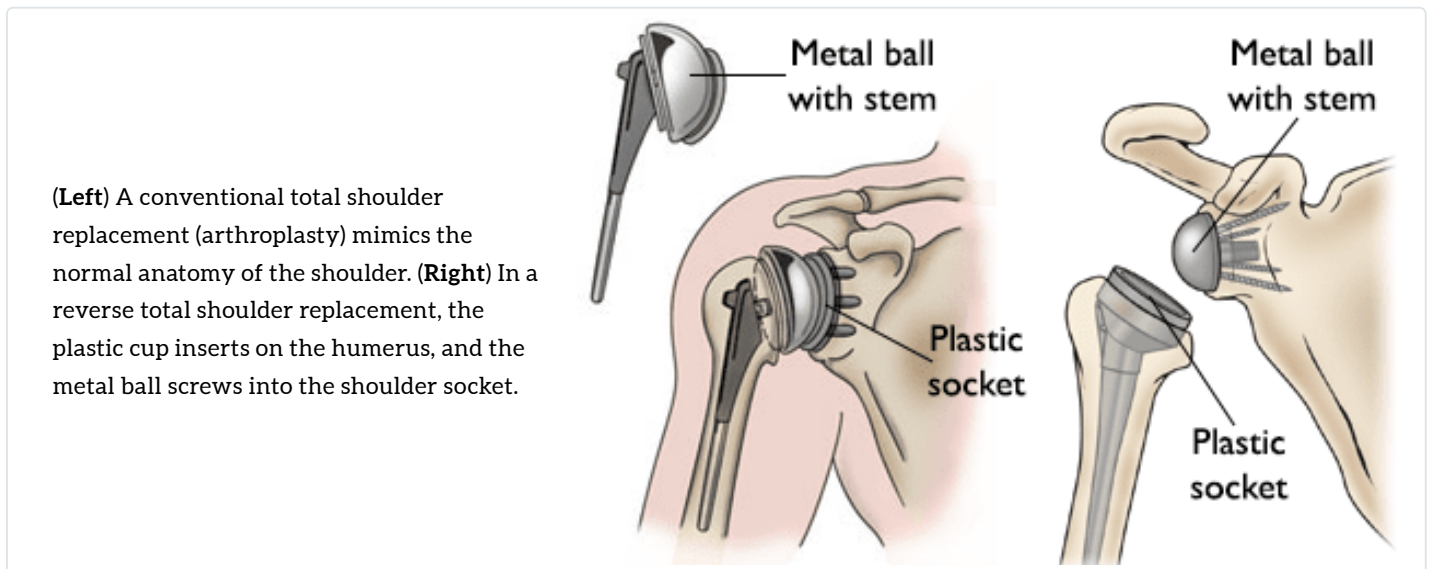
Shoulder joint replacement (arthroplasty). Advanced arthritis of the glenohumeral joint can be treated with shoulder replacement surgery. In this procedure, damaged parts of the shoulder are removed and replaced with artificial components, called a prosthesis.

Replacement surgery options include:

- **Hemiarthroplasty.** Just the head of the humerus is replaced with an artificial component.

- **Total shoulder arthroplasty.** Both the head of the humerus and the glenoid are replaced. A plastic cup is fitted into the glenoid, and a metal ball is attached to the top of the humerus.
- **Reverse total shoulder arthroplasty.** In a reverse total shoulder replacement, the socket and metal ball are opposite a conventional total shoulder arthroplasty: The metal ball is fixed to the glenoid, and the plastic cup is fixed to the upper end of the humerus. A reverse total shoulder replacement works better for people with cuff tear arthropathy because it relies on different muscles – not the rotator cuff – to move the arm. Specifically, movement relies on the large deltoid muscle on the outside of the shoulder.

Discuss with your surgeon which option is best for you.



Distal Clavicle Resection/Excision. This is most common surgical procedure used to treat arthritis of the AC joint. Depending on your specific situation, your surgery may be performed either arthroscopically or as a traditional open procedure.

In this procedure, the doctor removes a small amount of bone from the end of the collarbone, leaving a space that gradually fills in with scar tissue.

Recovery. Surgical treatment of arthritis of the shoulder is generally very effective in reducing pain and restoring motion.

- Recovery time and rehabilitation plans depend on the type of surgery performed.
- Other factors can also affect outcomes after surgery, including:
 - Other medical conditions you have (high blood pressure, diabetes, etc.)
 - [Smoking](#)
 - Depression

Pain management. After surgery, you will feel some pain. This is a natural part of the healing process. Your doctor and nurses will work to reduce your pain, which can help you recover from surgery faster.

Medications are often prescribed for short-term pain relief after surgery. Many types of medicines are available to help manage pain, including opioids, non-steroidal anti-inflammatory drugs (NSAIDs), and local anesthetics. Your doctor may use a combination of these medications to improve pain relief, as well as minimize the need for opioids.

Be aware that although opioids help relieve pain after surgery, they are narcotics and can be addictive. Opioid dependency and overdose have become critical public health issues in the U.S. It is important to use opioids only as directed by your doctor and to stop taking them as soon as your pain begins to improve. Talk to your doctor if your pain has not begun to improve within a few days of your surgery.

Complications. As with all surgeries, there are some risks and possible complications. Potential problems after shoulder surgery include:

- [Infection](#)
- Excessive bleeding
- [Blood clots](#)
- Damage to blood vessels or nerves

Your doctor will discuss the possible complications with you before your operation.

Future Developments

Research is being conducted on shoulder arthritis and its treatment.

- In many cases, it is not known why some people develop arthritis and others do not. Research is being done to uncover some of the causes of arthritis of the shoulder.
- New medications to treat rheumatoid arthritis are being investigated.
- Much research is being done on shoulder joint replacement surgery, including the development of different joint prosthesis designs.
- Researchers are studying the use of [biologic materials](#) to resurface an arthritic shoulder. Biologic materials are tissue grafts that promote growth of new tissue in the body and foster healing.

SOURCE: Department of Research & Scientific Affairs, American Academy of Orthopaedic Surgeons. Rosemont, IL: AAOS; January 2013. Based on data from the National Health Interview Survey, 2008-2011; U.S. Department of Health and Human Services; Centers for Disease Control and Prevention; National Center for Health Statistics.

To assist doctors in the management of glenohumeral joint osteoarthritis, the American Academy of Orthopaedic Surgeons has conducted research to provide some useful guidelines. These are recommendations only and may not apply to every case. For more information: [Plain Language Summary - Clinical Practice Guideline - Glenohumeral Joint Osteoarthritis - AAOS](#)



Reviewed by members of

[ASES \(American Shoulder and Elbow Surgeons\)](#)

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