

## Shoulder Arthroscopy

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Arthroscopy is a procedure that orthopaedic surgeons use to inspect, diagnose, and repair problems inside a joint.

The word arthroscopy comes from two Greek words, "arthro" (joint) and "skopein" (to look). The term literally means "to look within the joint." During shoulder arthroscopy, your surgeon inserts a small camera, called an arthroscope, into your shoulder joint. The camera displays pictures on a television screen, and your surgeon uses these images to guide miniature surgical instruments.

Because the arthroscope and surgical instruments are thin, your surgeon can use very small incisions (cuts), rather than the larger incision needed for standard, open surgery. This results in less pain for patients, and shortens the time it takes to recover and return to favorite activities.

Shoulder arthroscopy has been performed since the 1970s. It has made diagnosis, treatment, and recovery from surgery easier and faster than was once thought possible. Improvements to shoulder arthroscopy occur every year as new instruments and techniques are developed.

### Anatomy

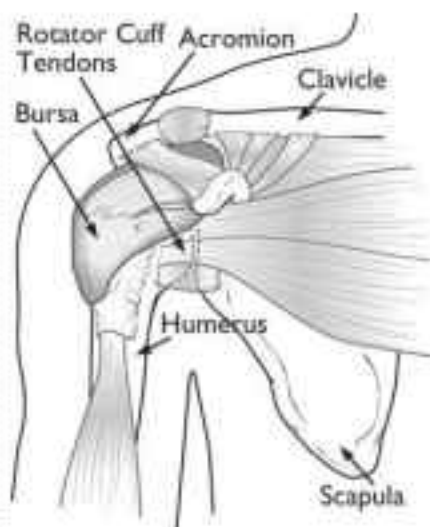
Your shoulder is a complex joint that is capable of more motion than any other joint in your body. It is made up of three bones: your upper arm bone (humerus), your shoulder blade (scapula), and your collarbone (clavicle).

**Ball and socket.** The head of your upper arm bone fits into a rounded socket in your shoulder blade. This socket is called the glenoid. A slippery tissue called articular cartilage covers the surface of the ball and the socket. It creates a smooth, frictionless surface that helps the bones glide easily across each other.

The glenoid is ringed by strong fibrous cartilage called the labrum. The labrum forms a gasket around the socket, adds stability, and cushions the joint.

**Shoulder capsule.** The joint is surrounded by bands of tissue called ligaments. They form a capsule that holds the joint together. The undersurface of the capsule is lined by a thin membrane called the synovium. It produces synovial fluid that lubricates the shoulder joint.

**Rotator cuff.** Four tendons surround the shoulder capsule and help keep your arm bone centered in your shoulder socket. This thick tendon material is called the rotator cuff. The cuff covers the head of the humerus and attaches it to your shoulder blade.



Normal anatomy of the shoulder.

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

### When Shoulder Arthroscopy Is Recommended

Your doctor may recommend shoulder arthroscopy if you have a painful condition that does not respond to nonsurgical treatment. Nonsurgical treatment includes rest, physical therapy, and medications or injections that can reduce inflammation. Inflammation is one of your body's normal reactions to injury or disease. In an injured or diseased shoulder joint, inflammation causes swelling, pain, and stiffness.

Injury, overuse, and age-related wear and tear are responsible for most shoulder problems. Shoulder arthroscopy may relieve painful symptoms of many problems that damage the rotator cuff tendons, labrum, articular cartilage, and other soft tissues surrounding the joint.

Common arthroscopic procedures include:

- Rotator cuff repair
- Bone spur removal
- Removal or repair of the labrum
- Repair of ligaments
- Removal of inflamed tissue or loose cartilage
- Repair for recurrent shoulder dislocation

Less common procedures such as nerve release, fracture repair, and cyst excision can also be performed using an arthroscope. Some surgical procedures, such as shoulder replacement, still require open surgery with more extensive incisions.

### Planning for Surgery

Your orthopaedic surgeon may ask you to see your primary doctor to make sure that you do not have any medical problems that need to be addressed before your surgery. Blood tests, an electrocardiogram, or chest x-ray may be needed to safely perform your surgery.

If you have certain health risks, a more extensive evaluation may be necessary before your surgery. Be sure to inform your orthopaedic surgeon of any medications or supplements that you take. You may need to stop taking some of these prior to surgery.



These photos taken through an arthroscope show a normal shoulder joint lining (**left**) and an inflamed joint lining damaged by frozen shoulder.

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If you are generally healthy, your arthroscopy will most likely be performed as an outpatient. This means you will not need to stay overnight at the hospital.

The hospital or surgery center will contact you ahead of time to provide specific details about your procedure. Make sure to follow the instructions on when to arrive and especially on when to stop eating or drinking prior to your surgery.

Before the operation, a member of the anesthesia staff will talk with you about anesthesia options. Shoulder arthroscopy is most commonly performed using regional nerve blocks which numb your shoulder and arm. This numbing medicine is injected in the base of your neck or high on your shoulder. This is where the nerves that control feeling in your shoulder and arm are located. In addition to its use as an anesthetic during surgery, a nerve block will help control pain for a few hours after the surgery is completed. Many surgeons combine nerve blocks with sedation or a light general anesthetic because patients can become uncomfortable staying in one position for the length of time needed to complete the surgery.

Most arthroscopic procedures take less than an hour, however, the length of your surgery will depend on what your surgeon finds and what repairs are required.

## Surgical Procedure

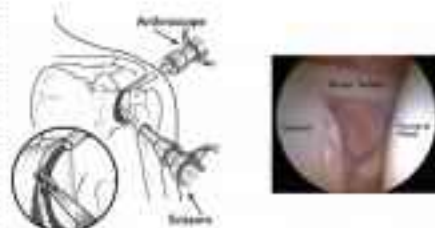
### Positioning and Preparation

Once in the operating room, you will be positioned so that your surgeon can easily adjust the arthroscope to have a clear view of the inside of your shoulder. The two most common patient positions for arthroscopic shoulder surgery are:

- **Beach chair position.** This is a semi-seated position similar to sitting in a reclining chair.
- **Lateral decubitus position.** In this position the patient lies on his or her side on an operating table.

Each position has some slight advantages. Surgeons select positions based on the procedure being performed, as well as their individual training.

Once you are positioned, the surgical team will remove hair, if needed, and then spread an antiseptic solution over your shoulder to clean the skin. They will cover your shoulder and arm with sterile drapes, and will most likely place your forearm in a holding device to ensure your arm stays still.



**(Left)** During arthroscopy, your surgeon inserts the arthroscope and small instruments into your shoulder joint. **(Right)** An arthroscopic view of the inside of the shoulder joint.



**(Left)** An arthroscopic view of a healthy shoulder joint. **(Center)** In this image of a rotator cuff tear, a large gap can be seen between the edge of the rotator cuff tendon and the humeral head. **(Right)** The tendon has been re-attached to the humeral head with sutures.

**Procedure**

Your surgeon will first inject fluid into the shoulder to inflate the joint. This makes it easier to see all the structures of your shoulder through the arthroscope. Then your surgeon will make a small puncture in your shoulder (about the size of a buttonhole) for the arthroscope. Fluid flows through the arthroscope to keep the view clear and control any bleeding. Images from the arthroscope are projected on the video screen showing your surgeon the inside of your shoulder and any damage.

Once the problem is clearly identified, your surgeon will insert other small instruments through separate incisions to repair it. Specialized instruments are used for tasks like shaving, cutting, grasping, suture passing, and knot tying. In many cases, special devices are used to anchor stitches into bone.

Your surgeon may close your incisions with stitches or steri-strips (small Band-Aids) and cover them with a large, soft bandage.

**Recovery****Postoperative**

After surgery, you will stay in the recovery room for 1 to 2 hours before being discharged home. Nurses will monitor your responsiveness and provide pain medication, if needed. You will need someone to drive you home and stay with you for at least the first night.

**At Home**

Although recovery from arthroscopy is often faster than recovery from open surgery, it may still take weeks for your shoulder joint to completely recover.

You can expect some pain and discomfort for at least a week after surgery. If you have had a more extensive surgery, however, it may take several weeks before your pain subsides. Ice will help relieve pain and swelling. Your doctor may prescribe pain medicine, if needed.

Although it does not affect how your shoulder heals, lying flat may pull on your shoulder and cause discomfort. Some patients are more comfortable sleeping in a reclining chair or propped up in bed during the first days after surgery.

A few days after surgery, you should be able to replace your large bandage with simple Band-Aids. You may shower once your wounds are no longer draining, but try not to soak or scrub your incisions.

You will most likely need a sling or special immobilizer to protect your shoulder. Your surgeon will discuss with you how long the sling will be needed.

## Rehabilitation

Rehabilitation plays an important role in getting you back to your daily activities. An exercise program will help you regain shoulder strength and motion. Your surgeon will develop a rehabilitation plan based on the surgical procedures you required.

If you have had a more complicated surgical repair, your surgeon may recommend a physical therapist to supervise your exercise program.

It is important that you make a strong effort at rehabilitation in order for your surgery to succeed.

## Complications

Most patients do not experience complications from shoulder arthroscopy. As with any surgery, however, there are some risks. These are usually minor and treatable. Potential problems with arthroscopy include infection, excessive bleeding, blood clots, and damage to blood vessels or nerves.

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

## Long-Term Outcomes

Because patients have varied health conditions, complete recovery time is different for everyone.

If you have had a minor repair, you may not need a sling and your strength may return after a short period of rehabilitation. You may be able to return to work or school within a few days of your procedure.

It takes longer to recover from more complicated procedures. Although the incisions are small in arthroscopy, extensive damage within the joint can be repaired with the procedure. Full recovery may take several months. Although it can be a slow process, following your surgeon's guidelines and rehabilitation plan is vital to a successful outcome.

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