

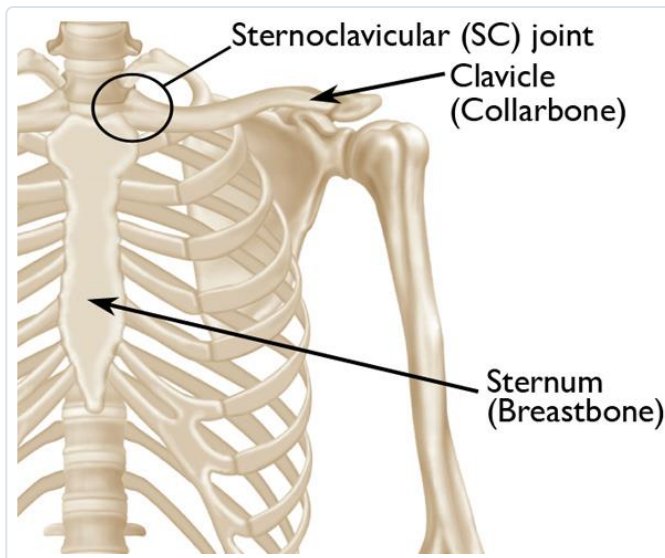
## DISEASES &amp; CONDITIONS

## Sternoclavicular (SC) Joint Disorders

The sternoclavicular (SC) joint is one of the four joints that complete the shoulder. The joint is located in the spot where the clavicle (collarbone) meets the sternum (breastbone) at the base of the neck. Although not common, problems with the SC joint can arise from injury and other disorders.

Injuries to the SC joint typically result from motor vehicle accidents or participation in collision sports like football. While these injuries can be painful, most are relatively minor and will heal well without surgery. Very rarely, a hard blow to the SC joint can damage the vital organs and tissues that lie nearby. When this occurs, it is a serious injury that requires immediate medical attention.

The SC joint can also be damaged over time, as the protective tissue that covers the ends of the bones gradually wears away. This type of degenerative change in the joint can lead to pain, stiffness, and reduced motion in the shoulder and arm.



The SC joint is located where the clavicle and sternum meet.

*Reproduced and adapted from JF Sarwak, ed: Essentials of Musculoskeletal Care, ed. 4. Rosemont, IL, American Academy of Orthopaedic Surgeons, 2010.*

## Anatomy

The sternoclavicular (SC) joint is the linkage between the clavicle (collarbone) and the sternum (breastbone). The SC joint supports the shoulder and is the only joint that connects the arm to the body.

Like the other joints in the body, the SC joint is covered with a smooth, slippery substance called articular cartilage. This cartilage helps the bones glide easily along each other as you move your arm and shoulder. Tough bands of connective tissue called ligaments surround the SC joint, giving it strength and stability.

Immediately behind the SC joint lie several important nerves and blood vessels, as well as other vital structures like the trachea (windpipe) and esophagus (which connects the throat to the stomach).

## Description

Injuries and osteoarthritis are the most common disorders associated with the SC joint.

## Injuries

Injuries to the SC joint can range from a mild sprain, in which the surrounding ligaments are stretched (the most commonly seen injury), to a fracture of the clavicle (collarbone) itself.

In rare cases, a strong blow to the shoulder can cause an injury in which the joint dislocates completely from its normal position. Joint dislocations are classified as either "anterior" or "posterior," depending on the direction in which the collarbone is pushed during the injury:

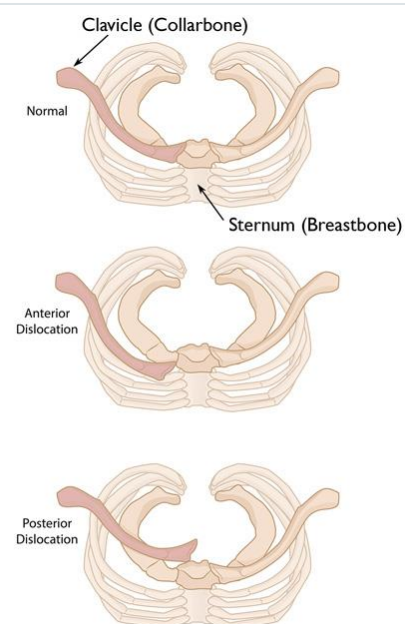
- Anterior—the end of the clavicle is pushed forward, in front of the sternum (breastbone)
- Posterior—the end of the clavicle is pushed backward, behind the sternum and deep into the upper chest

Although both kinds of dislocations are serious injuries, a posterior dislocation requires more urgent medical attention. In a posterior dislocation, the vital structures behind the SC joint can be compressed, leading to life-threatening problems with breathing or blood flow.

**(Top)** Normal shoulder anatomy.

**(Center)** In an anterior dislocation, the end of the clavicle is pushed forward, in front of the sternum.

**(Bottom)** In a posterior dislocation, the end of the clavicle is pushed behind the sternum, toward several of the body's vital structures.



**Causes of injury.** The ligaments surrounding the SC joint are some of the strongest in the body, so it takes a great deal of force to cause an injury. Typically, injuries to the joint are caused by some type of high-impact event, such as a:

- Collision or hard fall during a contact sport like football or rugby
- Motor vehicle accident

Because of the significant force needed to cause an injury, patients may also have additional injuries to the chest, airways, and extremities. In some cases, injury to the SC joint is overlooked at first because these other injuries require urgent attention.

## ***Osteoarthritis***

Osteoarthritis is a degenerative "wear and tear" type of arthritis that occurs most often in people 50 years of age or older, though it may occur in younger people, too.

In osteoarthritis, the smooth articular cartilage that covers the SC joint gradually wears away. As the cartilage wears away, it becomes frayed and rough, and the protective space between the bones decreases. This can result in painful bone rubbing on bone and can also lead to a bony prominence around the joint.

Osteoarthritis develops slowly and the pain and stiffness it causes worsens over time.

## ***Other Disorders***

Other disorders associated with the SC joint include:

- Inflammatory conditions, such as rheumatoid arthritis
- Infection

In addition, some patients may experience slight movement or popping of the bone out of place even without some type of trauma. This condition is called "subluxation" and seems to be limited to those people who are considered "loose jointed."

## **Symptoms**

The most common symptom of an SC joint disorder is pain in the area where the clavicle meets the sternum. This pain will be present with a sprain but will be much sharper in the case of a fracture or dislocation—especially when you attempt to move your arm.

Other signs and symptoms may include:

- Swelling, bruising, or tenderness over the joint

- A crunching or grinding sound when you try to move your arm
- Limited range of motion in the arm
- With an inflammatory condition, such as rheumatoid arthritis, you may have simultaneous pain in other joints in your body
- With a joint infection, there may be redness over the joint and you may have fever, chills, or night sweats. If you experience any of the symptoms of a joint infection, it is important to seek medical attention right away.

## Doctor Examination

### *Physical Examination*

Your doctor will talk with you about your medical history and general health and ask about your symptoms. He or she will want to know when your pain began and whether there is a history of injury or accident.

Your doctor will look for visible signs of deformity or a bump over the joint. He or she will then perform a careful examination of your shoulder area. During the exam, your doctor will:

- Look for swelling, bruising, or redness over the joint
- Assess range of motion in your arm
- Check your pulse at the wrist and elbow to ensure there is good blood flow to your hand and fingers



In an anterior dislocation, the patient may have a hard bump in the middle of the chest where the end of the clavicle juts out near the sternum.

*Reproduced and adapted from Wirth MA, Rockwood CA: Acute and chronic traumatic injuries of the sternoclavicular joint. J Am Acad Orthop Surg 1996; 4:268-278.*

### *Imaging Studies*

**X-rays.** X-rays provide images of dense structures, such as bone. Your doctor will order x-rays of your chest and shoulder from a number of different angles to help confirm the diagnosis and rule out other underlying shoulder conditions.

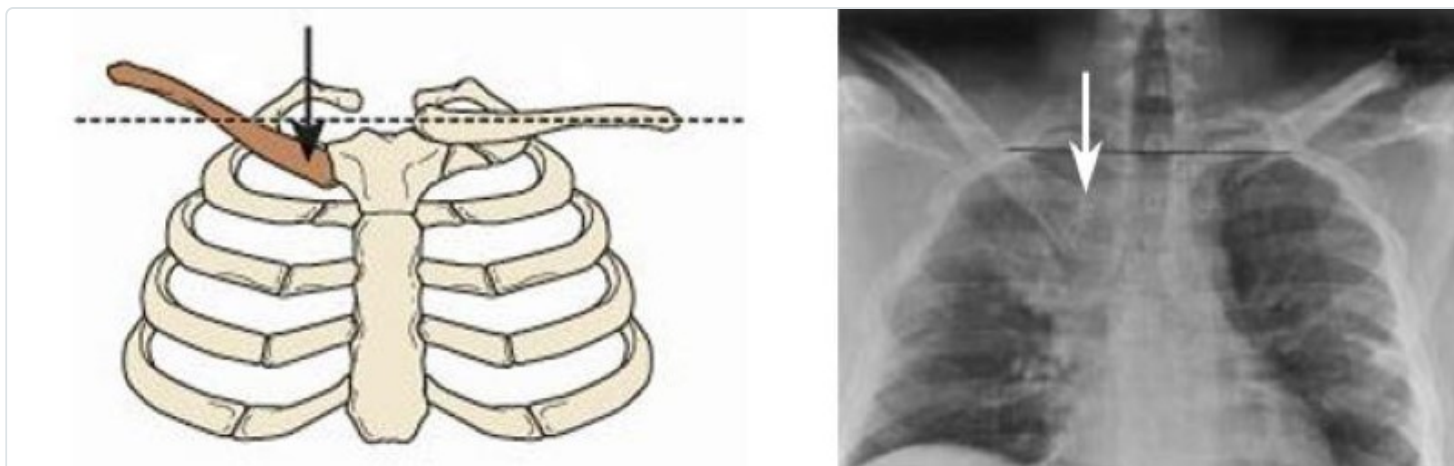


Illustration and x-ray show a posterior dislocation of the SC joint (arrows). The straight line indicates the normal alignment of the top border of the clavicle.

*(Left) Reproduced and adapted from The Sports Medicine Field Manual. Rosemont, IL. American Academy of Orthopaedic Surgeons, 2015.*

*(Right) Reproduced from Wirth MA, Rockwood CA: Acute and chronic traumatic injuries of the sternoclavicular joint. J Am Acad Orthop Surg 1996; 4:268-278.*

**Computerized tomography (CT) scan.** This imaging study is more detailed than a plain x-ray. Your doctor may order a CT scan to better evaluate your injury and to help differentiate a sprain from a dislocation or a fracture.

**Other imaging studies.** Depending on your specific problem, your doctor may order additional imaging studies, such as a magnetic resonance imaging (MRI) scan or bone scan.

## Treatment

### ***Nonsurgical Treatment***

In most cases, disorders of the SC joint can be treated without surgery. Nonsurgical treatment may include:

**Medications.** Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and naproxen, can help reduce pain and swelling in the joint.

If you have osteoarthritis or an inflammatory condition, your doctor may also recommend strong anti-inflammatory agents called corticosteroids, which are injected directly into the joint. Corticosteroids can provide temporary relief of pain and swelling.

**Immobilization.** If you have an injury, your doctor may recommend that you wear a shoulder sling to restrict arm movement and allow for healing. The length of time you will need to wear the sling depends upon the severity of your injury.

**Activity modification.** The doctor may recommend that patients with SC joint osteoarthritis avoid the activities that bring on painful symptoms.

For patients who experience nontraumatic dislocation of the joint (subluxation), the doctor may also recommend avoiding the activities that make the joint "pop."

**Closed reduction.** If you have a joint dislocation, your doctor may try to manipulate the clavicle back into place without making an incision in the skin. This procedure is called a closed reduction. A closed reduction is usually performed in the operating room. You may be given either general anesthesia or a muscle relaxant.



In this photo of a closed reduction, the doctor is manipulating the patient's arm and shoulder in order to move the clavicle back into position.

*Reproduced from Groh GI, Wirth MA: Management of traumatic sternoclavicular joint disorders. J Am Acad Orthop Surg 2011; 19:1-7.*

Some anterior dislocations can "pop" back out after closed reduction. If this is not recognized until several days or even months after the injury, the anterior dislocation is left alone and most patients report no pain and normal shoulder function—although there may be a deformity or bump over the joint.

Because a posterior dislocation can compress the vital structures behind the joint, it usually requires urgent reduction. Getting the joint back into the proper position is important. During closed reduction for a posterior dislocation, a thoracic surgeon may be on hand to address potential complications involving the structures in the chest.

## ***Surgical Treatment***

**Open reduction.** In some cases, closed reduction for a posterior dislocation is not successful. In this situation, your doctor may need to perform an open reduction of the SC joint. To do this, he or she will make an incision and put the joint back in place under direct vision. In rare cases, the SC joint may dislocate repeatedly after reduction. These patients may require reconstructive surgery to stabilize the joint.

**Other procedures.** For patients with an infection in the SC joint, an immediate operation is usually required to open the joint and drain the infection. This will be followed by a course of antibiotics.

Surgery for osteoarthritis can also be performed, although it is rarely required. If your pain and stiffness cannot be managed with nonsurgical treatment, however, your doctor may perform a procedure to remove bone from the arthritic and painful end of the clavicle. This will allow more space for movement.

## Recovery

After a fracture or dislocation of the SC joint, your arm may be immobilized in a sling for up to 6 weeks or more. Even when the sling is removed, you will still have restrictions on lifting. For example, you may be restricted from lift anything more than a glass of water for up to several months. These restrictions hold true following surgery as well. Immobilizing and not using your arm allows the healing process to take place.

During your recovery, specific exercises will help restore movement and strengthen your shoulder. Your doctor may provide you with a home therapy plan or recommend that you work with a physical therapist.

### Last Reviewed

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