

A guide for patients and guardians

Introduction of Common Shoulder Diseases

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01

What is Adhesive Capsulitis?



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01 What is Adhesive capsulitis?

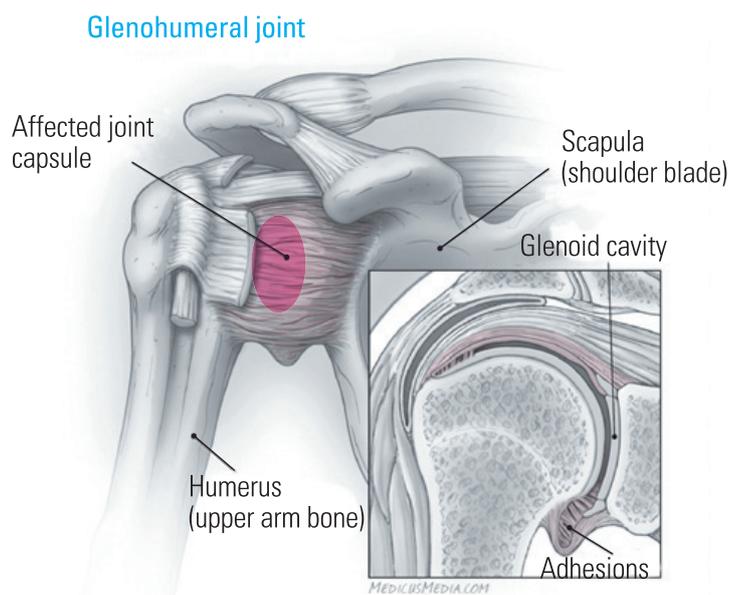
Adhesive capsulitis, also known as frozen shoulder, is a condition characterized by stiffness and pain in the shoulder joint. It commonly affects people between the ages of 40 to 60 years old, and occurs in women more often than men. In addition, people with diabetes are at an increased risk for developing a frozen shoulder. Usually, it gets better on its own, but full recovery can take two to three years or longer.

1) Overview

The shoulder joint is formed where the humerus (upper arm bone) fits into the scapula (shoulder blade), like a ball and socket. It is one of the most mobile joints in the human body.

In frozen shoulder, the lining of the shoulder joint becomes inflamed and can lead the tissues that surround the shoulder joint to contract. This makes the shoulder joint to become stiff and movement to become painful.

It can also cause joint contracture if the secondary fibrosis occurs in the articular capsule. In positron emission tomography (PET) imaging, the inflammation in the joint synovial membrane in the interval of the rotator cuff and axillary folds in frozen shoulder patients is shown as a red dot indicated with an arrow in the picture. This is because the consumption of nuclear medicine substances is increased in the area in which the inflammatory response has increased metabolism.



2) Symptoms

Adhesive capsulitis has three stages, each of which has different symptoms.

(1) Freezing stage or painful stage

At first, the shoulder is painful, but range of motion is still good. As the condition progresses, shoulder loses its normal range of motion in all directions. This usually lasts from 3 to 9 months.

(2) Frozen stage or adhesive stage

Pain may decrease, but shoulder remains stiff. This stage can commonly lasts from 9 to 15 months.

(3) Thawing phase or recovery stage

Movement gets easier and may eventually return to normal. This can take from 15 to 24 months.

3) Causes

The causes of adhesive capsulitis are not fully understood, but probably involves an underlying inflammatory process. It can occur spontaneously without any specific trauma or inciting event. However, there are certain risk factors which can increase an individual's chances of developing the condition. Many cases of adhesive capsulitis occur following a period of prolonged immobilization of the joint, usually after surgery or injury, such as an arm fracture, when the arm is kept immobilized. Rotator cuff injury and stroke can also result in immobilization of the arm, which can in turn cause adhesive capsulitis to occur. In addition, it is associated with other specific underlying diseases, including thyroid disease, Parkinson's disease, and diabetes.

4) Diagnosis

Adhesive capsulitis is usually diagnosed by a doctor following a detailed physical examination. The patient will be asked to perform a series of specific motions, such as raising arms, or reaching across to touch the opposite shoulder. During the examination, the doctor will be evaluating both pain and range of motion. Structural problems can be identified with the help of imaging tests, such as an X-ray, MRI or PET.

5) Treatments

The focus of treatment for adhesive capsulitis is to control pain and restore motion and strength.

(1) Injection treatment

Intra-articular corticosteroid injections are often used to manage inflammation as it is understood that inflammation is a key factor in the adhesive capsulitis. These can help relieve pain and improve the movement in your shoulder. Injections are usually given once or twice a month, depending on the symptom relief and improvement in range of motion.

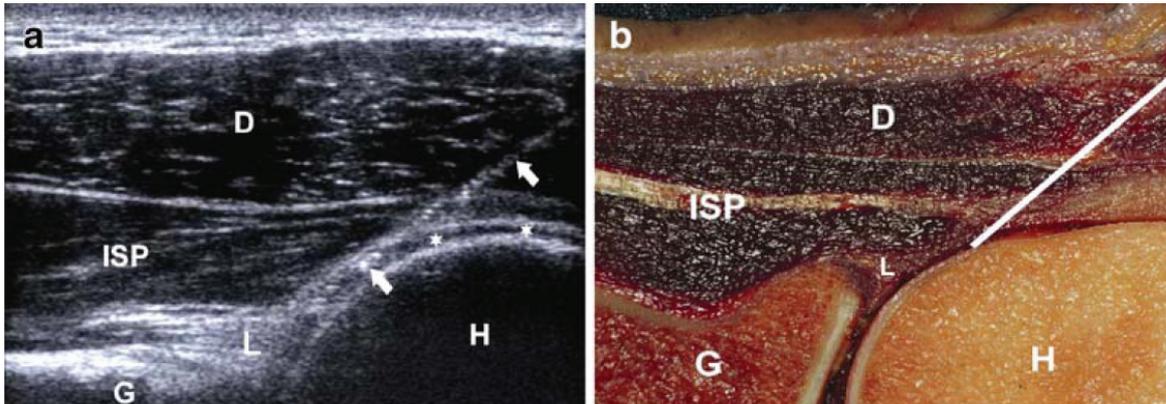


Figure 1. Steroid injection into the shoulder joint cavity (ultrasound guidance)

(2) Exercise

The cornerstone of treatment is physical therapy, concentrating on exercises that stretch and strengthen the shoulder joint. These may be done under the supervision of a physical therapist or via a home program. Most frozen shoulders can be managed successfully by a simple exercise program. If you don't see steady improvement or you reach a plateau, go back to your clinician or consult a shoulder expert.

6) Stretching exercises for Adhesive Capsulitis

Always warm up your shoulder before performing exercises. The best way to do that is to take a warm shower or bath for 10 to 15 minutes. You can also use a moist heating pad or damp towel heated in the microwave. In performing the following exercises, stretch to the point of tension but not pain.

(1) Pendulum stretching

Stand and lean over slightly, allowing the affected arm to hang down. Swing the arm in a small circle about 30cm in diameter. Perform 10 revolutions in each direction, once a day. As your symptoms improve, increase the diameter of your swing, but never force it. When you're ready for more, increase the stretch by holding a light weight (1.5~2kg) in the swinging arm.



(2) Towel stretching

Hold one end of a 90cm towel behind your back and grab the opposite end with your other hand. Hold the towel in a horizontal position. Use your good arm to pull the affected arm upward to stretch it. You can also do an advanced version of this exercise with the towel draped over your good shoulder. Hold the bottom of the towel with the affected arm and pull it toward the lower back with the unaffected arm. Do this 10 to 20 times a day.



(3) Exercise of climbing the wall with fingers

Face a wall three-quarters of an arm's length away. Reach out and touch the wall with the fingertips of the affected arm. With your elbow slightly bent, slowly walk your fingers up the wall. Your fingers should be doing the work, not your shoulder muscles. Slowly lower the arm (with the help of the good arm, if necessary) and repeat. Perform this exercise 10 to 20 times a day. Also, if necessary, you may lift up your



injured arm with the aid of your healthy arm. Now, you can climb down the wall carefully. Do this stretching exercise 10-20 times per day.

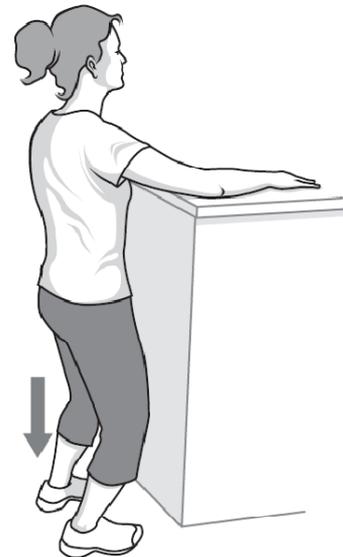
(4) Cross body stretching

Sit or stand. Use your good arm to lift your affected arm at the elbow, and bring it up and across your body, exerting gentle pressure to stretch the shoulder. Hold the stretch for 15 to 20 seconds. Do this 10 to 20 times per day.



(5) Armpit stretching

Using your good arm, lift the affected arm onto a shelf about breast-high. Gently bend your knees, opening up the armpit. Deepen your knee bend slightly, gently stretching the armpit, and then straighten. With each knee bend, stretch a little further, but don't force it. Do this 10 to 20 times each day.



Elbow flares

Put your hands behind your head. Slowly lower your arms until your elbows touch the floor.



Doorway stretch

Stand in a doorway and bend your affected arm 90 degrees to reach the doorjamb. Keep your hand in place and try to push your body forwards.



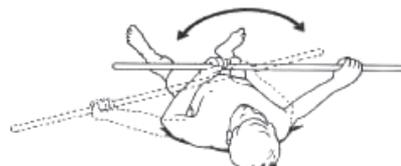
Table stretch

While sitting, rest your forearm on a table and lean forward until a stretch is felt.



Stick stretch #1

Lie on your back and hold a stick with both hands, palm up on the affected arm side and palm down on the unaffected arm side. Using your good arm, push the stick to make the affected arm out away from your body.



Stick stretch #2

Stand upright and hold a stick with both hands. Using your good arm, push the affected arm out to the side and up as high as possible.



Stick stretch #3

Stand upright and hold a stick with both hands. Stretch your arms by lifting them over your head and return to the starting position.



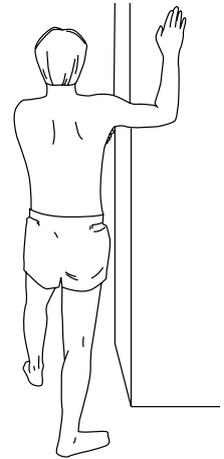
Towel stretch

Hold a towel in your good hand and drape it over your shoulder so it hangs down your back. Grab the bottom of the towel with your affected arm. Slowly pull the towel up with your good arm so your affected arm glides up your back.



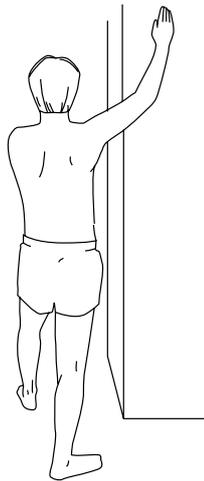
Wall press #1

Bend your elbow at a 90-degree angle and support the forearm against a doorframe as shown in the picture. Lean your body forward until a stretch is felt along the front of your shoulder.



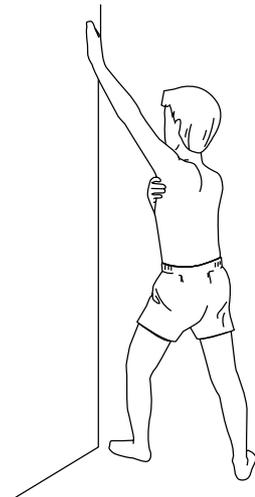
Wall press #2

place your arm straight up on a doorframe as shown in the picture and lean your body forward.



Wall press #3

Face the wall and place your palms against the wall. Slowly slide your hand upwards on the wall.



Wall press #4

Stand with your shoulder side on to the wall as shown in the picture. Slowly raise your arm as far as you can while maintaining contact to the wall with your outside of wrist.

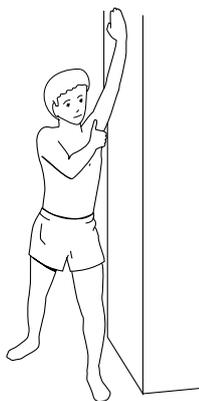
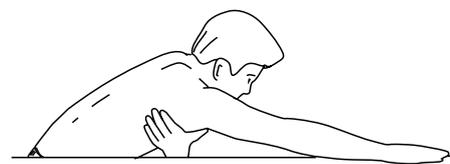


Table slide

Sitting in a chair, rest your affected arm on a table. Bend forward at the waist allowing the hand and arm to slide forward.

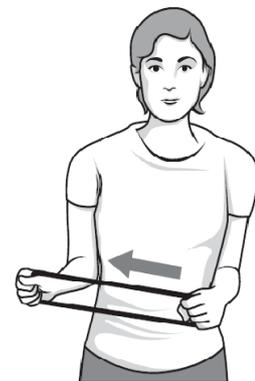


7) Strengthening exercises for Adhesive Capsulitis

Once the joint movement range improves, you may do exercises that improve the strength of the rotator cuff. However, you must do muscle-strengthening exercises after doing enough stretching exercises and raising your shoulder temperature using warm water, hot compress, etc.

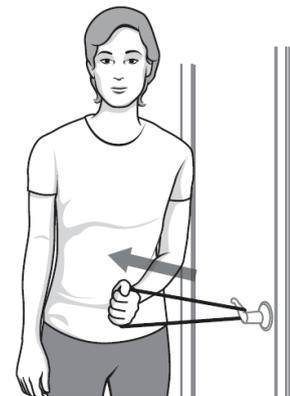
(1) Armpit stretching

Hold a resistance band between your hands with your elbows at a 90-degree angle close to your sides. Rotate the lower part of the affected arm outward 5-8cm and hold for 5 seconds. Repeat 10 to 15 times, once a day.



(2) Armpit stretching

Stand next to a closed door, and hook one end of a resistance band around the doorknob. Hold the other end with the hand of the affected arm, holding your elbow at a 90-degree angle. Pull the band toward your body 5-8cm and hold for 5 seconds. Repeat 10 to 15 times, once a day.



02

What is the Rotator Cuff Syndrome?



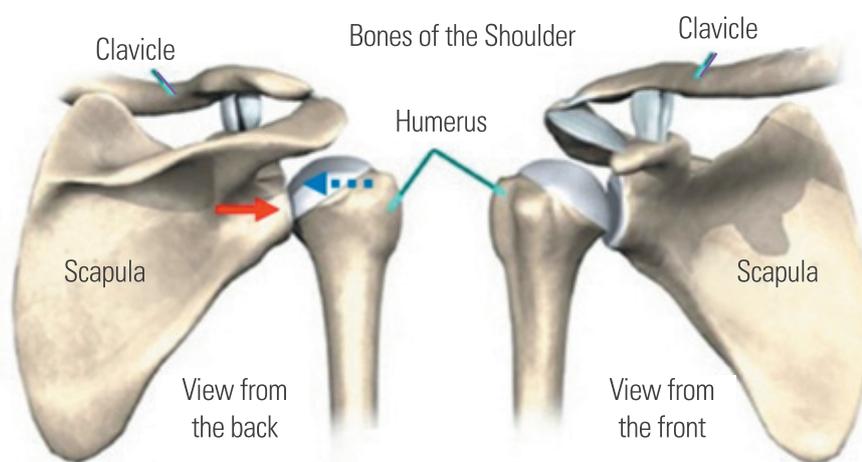
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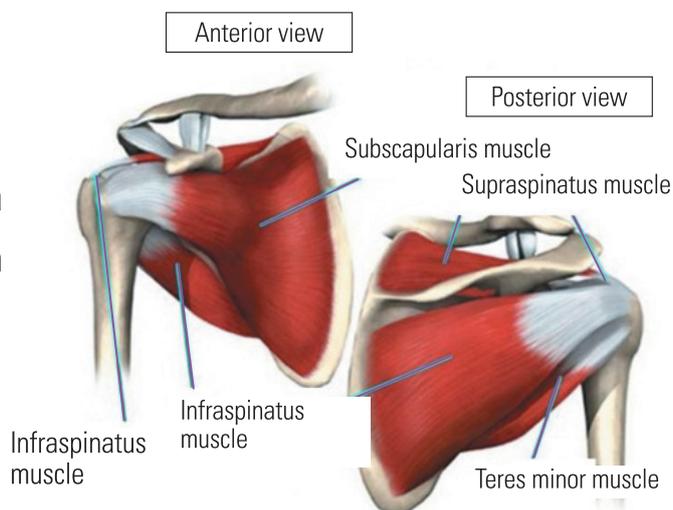
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1) Overview

The shoulder is a ball-and-socket joint that enables you to move your arm in almost any direction. It is formed where the humerus (upper arm bone) fits into the scapula as shown in the picture. The head of the humerus is the ball, and a circular concavity in the scapula is the socket. The shoulder joint is inherently an unstable joint given the fact that the ball is significantly larger than its socket.



What makes this joint stable is the muscles of the rotator cuff. In addition to stabilizing the shoulder joint, the rotator cuff muscles also perform a variety of upper extremity movements, including abduction, internal rotation, and external rotation of the shoulder. The rotator cuff is made up of four different muscles: supraspinatus, infraspinatus, subscapularis and teres minor. All those muscles start at the scapula and attach to the humerus. Rotator cuff syndrome constitutes a spectrum of disease across a wide range of pathologies associated with injury or degenerative conditions affecting the rotator cuff.



2) Causes

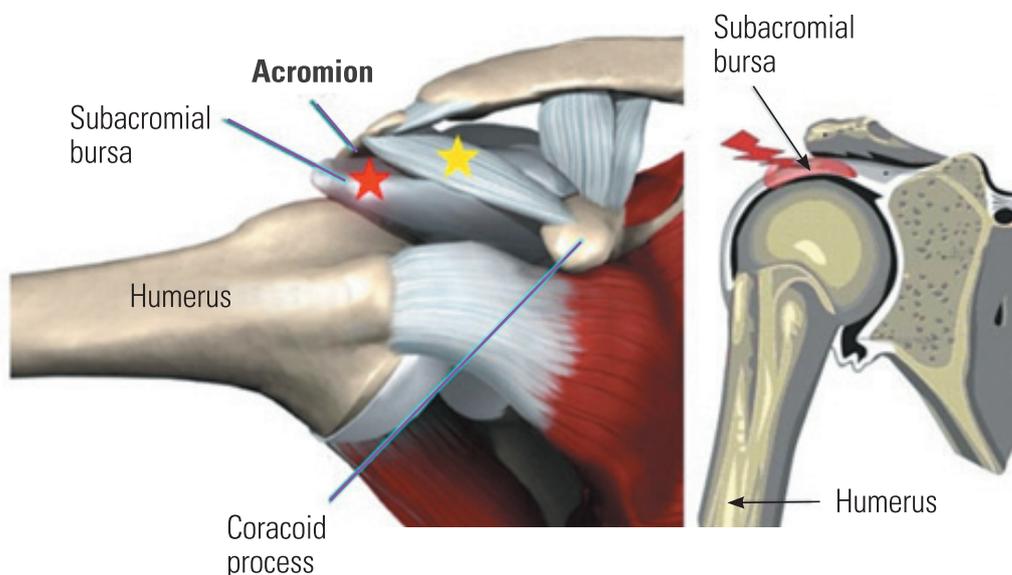
The etiology of rotator cuff syndrome is multi-factorial, and has been attributed to both extrinsic and intrinsic mechanisms.

(1) Extrinsic mechanism

It damages the tendon by applying external pressure and shearing force to the rotator cuff repeatedly.

e.g.) Extrinsic impingement syndrome

The supraspinatus muscle, one of the muscles of the rotator cuff, runs through the subacromial space and below the coracoacromial ligament and attaches to the humerus. This space becomes smaller and continuous pressure and damage occur in the supraspinatus muscle tendon so that it is called the extrinsic impingement syndrome.



Causes that make the subacromial space small are: first, there are anatomical factors such as sprouting of a bone in the subacromial space or acromioclavicular joint, protrusion of the acromion downwards, etc. Second, there are biomechanical factors

making the subacromial space smaller caused by movement of the head of the humerus upwards because of mismatch between surrounding muscles and reduction of the posterior slope and rotation of the scapula caused by the abnormal scapular movement.

(2) Intrinsic mechanism

Abnormality occurs by the rotator cuff itself, not by external force or shearing force. The most important cause is “degenerative change of the tendon because of aging.” This theory states that if the degenerative change of the tendon occurs, the tendon becomes vulnerable to repetitive minor damages so that Rotator Cuff Syndrome occurs. Also, it is the basis for the fact that the Rotator Cuff Syndrome occurs more frequently as one ages. Other than degenerative changes, some suggest abnormal blood supply, change of tendon constituents, etc. as causes.

3) Symptoms

Symptoms of a rotator cuff disorder include pain and weakness in the shoulder. Most often, the pain is on the side and front of the upper arm and shoulder. It may hurt or be impossible to do everyday things, such as comb your hair, tuck in your shirt, or reach for something. You may have pain during the night and trouble sleeping.

4) Diagnosis

To diagnose a rotator cuff disorder, a doctor will take a medical history and perform a series of physical examinations. Testing of the range of motion and strength of the shoulder, along with special directed tests, can help the doctor learn about the condition of the rotator cuff. Your doctor will then order certain tests to confirm the diagnosis. These could include shoulder X-rays, MRI, or an ultrasound.

5) Treatments

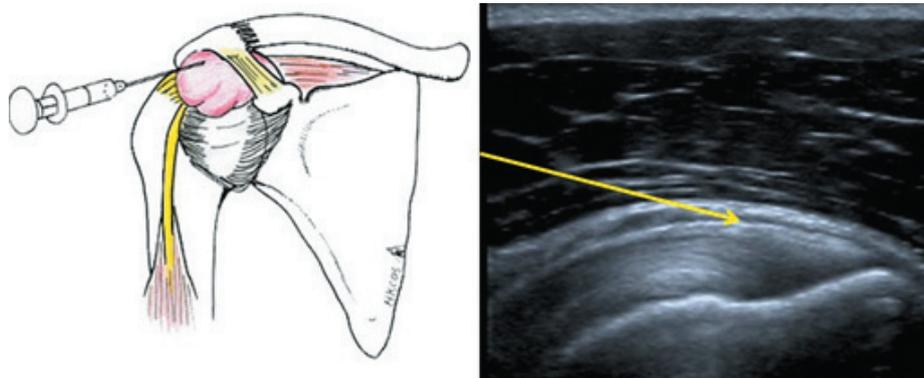
The goal of any treatment is to reduce pain and restore function. One of the first priorities for treatment is to avoid activities that aggravate the pain, like overhead reaching or reaching behind the back. If pain becomes more severe, oral anti-inflammatory drugs (NSAIDs), such as aspirin, naproxen, or ibuprofen may provide benefit. In addition, specific exercises will restore movement and strengthen your shoulder. If rest, medications, and physical therapy do not relieve your pain, an injection of a local anesthetic and a corticosteroid preparation may be helpful.

(1) Pharmacotherapy

Usually, nonsteroidal anti-inflammatory drugs, commonly referred to as NSAIDs, are prescribed to reduce pain and inflammation.

(2) Injection therapy

If your symptoms are not being managed by more conservative treatments, your doctor may recommend a steroid injection. This is an injection into the area around your shoulder joint, which can help to reduce pain and inflammation.



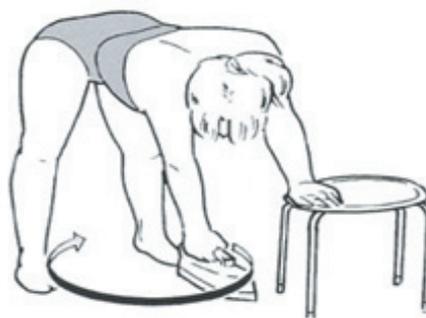
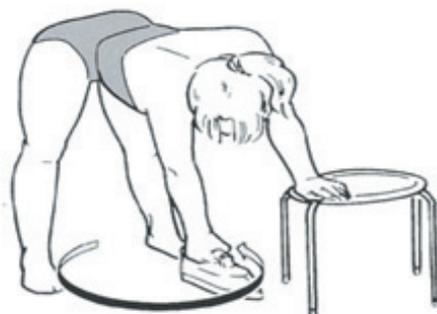
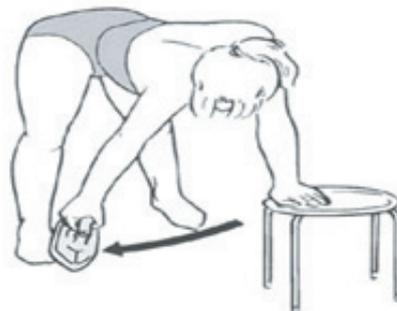
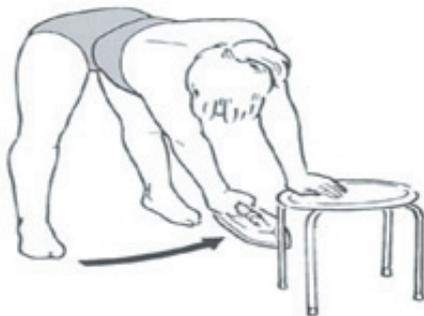
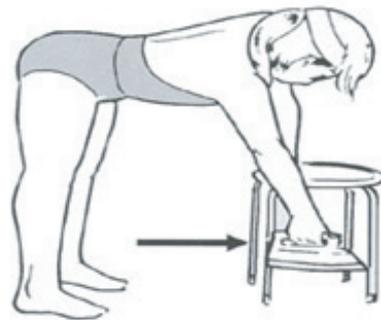
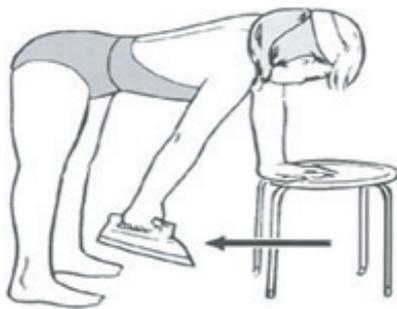
(3) Physical therapy

Physical therapy will initially consist of stretching and other passive exercises to help restore range of motion and ease pain. Once the pain is under control, your physical therapist will teach you exercises to help regain strength in your arm and shoulder. After you learn the exercises, you can do them at home. Stretching exercises should be performed daily, and muscle strengthening exercises should be done every other day. Always warm up your shoulder before performing exercises. The best way to do that is to take a warm shower or bath for 10 to 15 minutes. You can also use a moist heating pad or damp towel heated in the microwave. All exercises should be performed in a pain free manner.

■ Range of motion and stretching exercises

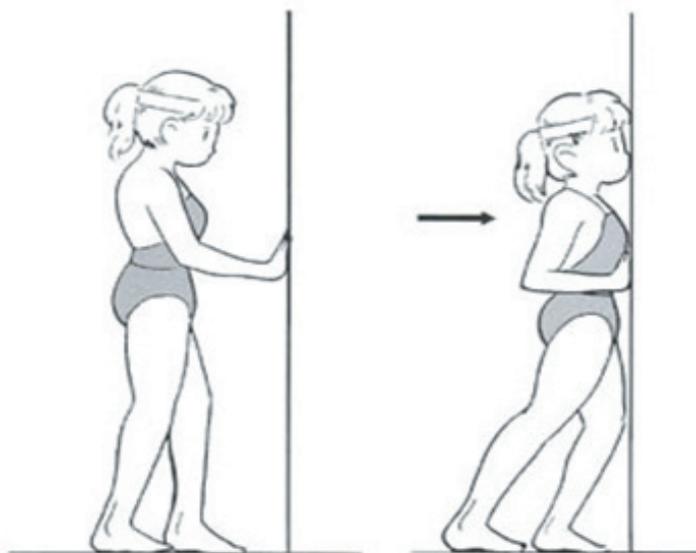
Pendulum exercise

Lean forward and place one hand on a table for support. Let your other arm hang freely at your side. Gently swing your arm forward to back, then side to side, and then in small circles in each direction. A light weight (small water bottle) may be used to provide gentle traction.

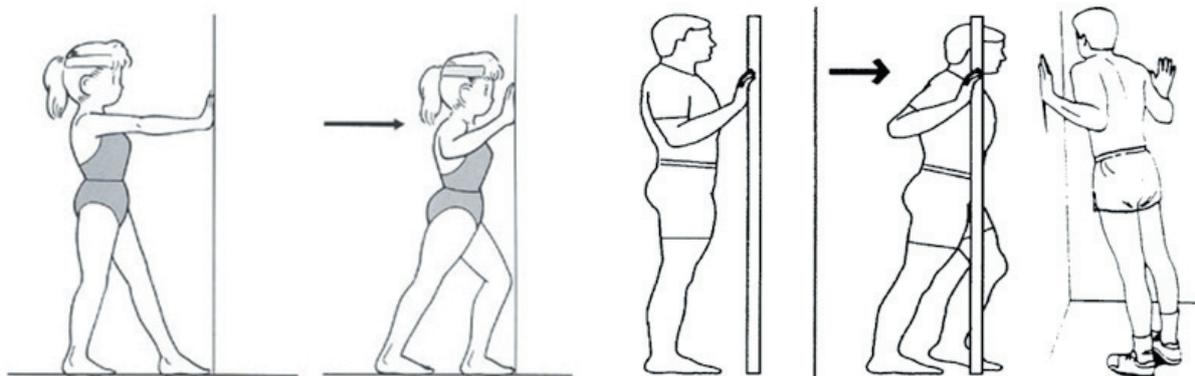


Stretching exercises

Stand in front of a wall and place both hands against it. Bend your elbows and lean forward for 10-15 seconds.

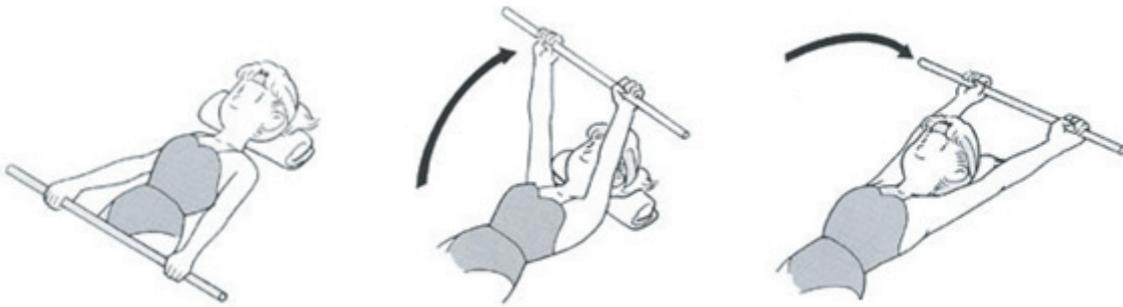


You may do these exercises in the same way in a doorway, or in a corner of a room.

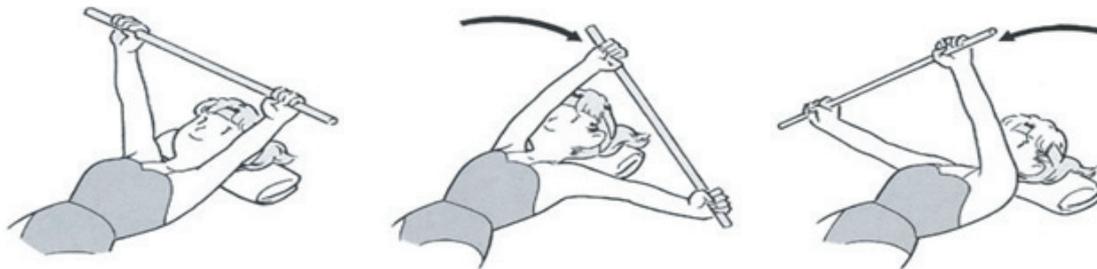


Range of motion exercises

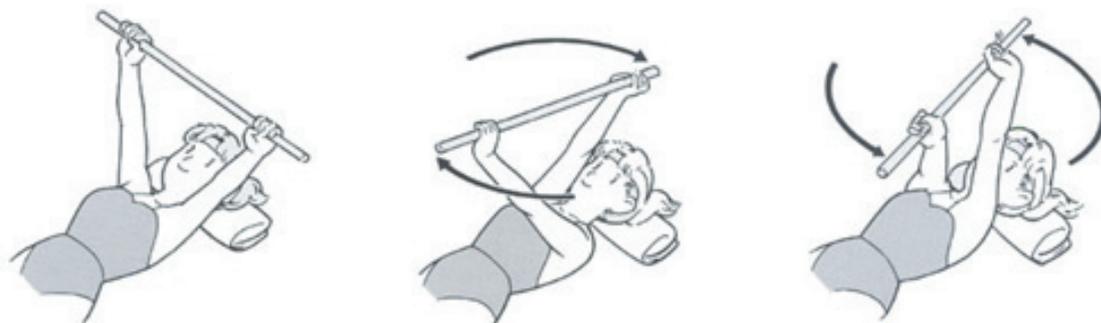
Lying on your back and hold a stick in your hands. Lift the stick up and gently take overhead. Return to the starting position and repeat it.



Lying on your back and hold a stick in your hands. Lift the stick up and move the stick sideways.



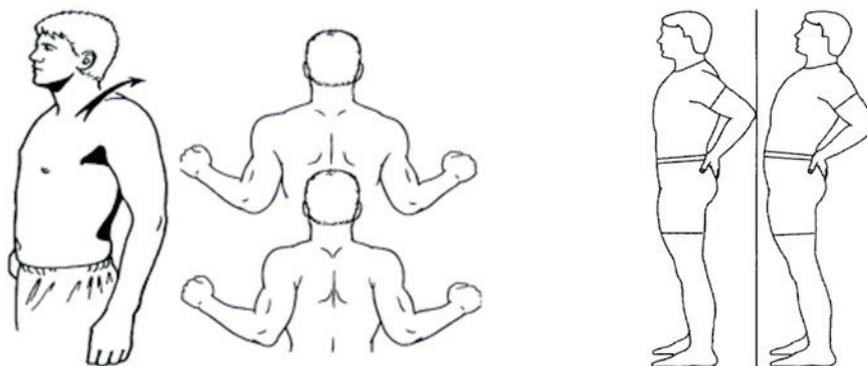
Lying on your back and hold a stick in your hands. Push the end of the stick up on the side of your one shoulder. Return to the starting position and repeat on the other side.



■ Scapula stabilization and rotator cuff muscle-strengthening exercise

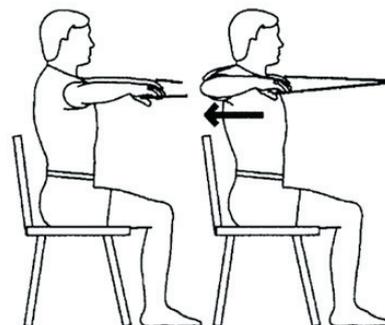
Shoulder scapula squeeze

Pull your shoulders back and squeeze your shoulder blades together. Repeat 10 times with 3 sets.



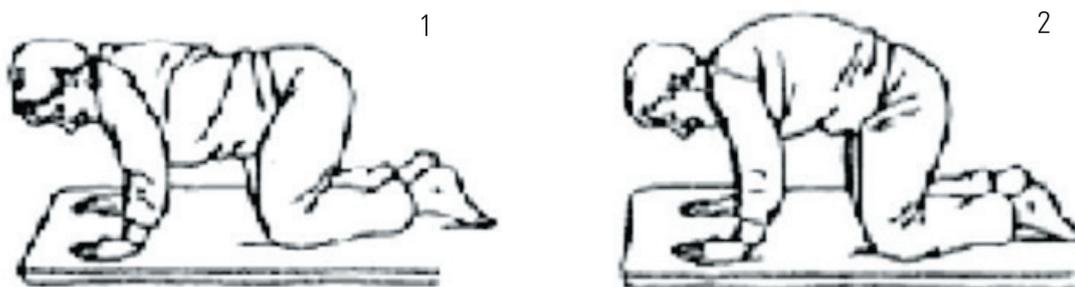
Shoulder row

Anchor a resistance band in your hands. Pull your arms back while squeezing your shoulder blades together. Hold for a few seconds and return to the starting position. Do not lean back and repeat 10 times with 3 sets.



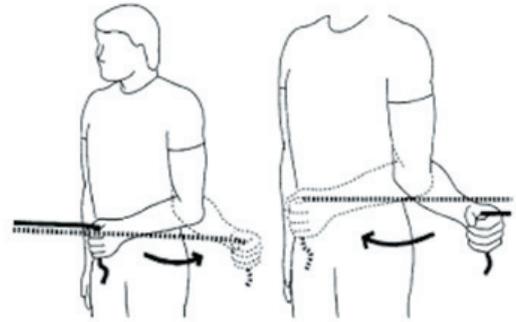
Modified push-up

Prepare a push-up posture as shown in the picture. Round your back toward the sky and hold for 10 seconds. Relax and repeat.

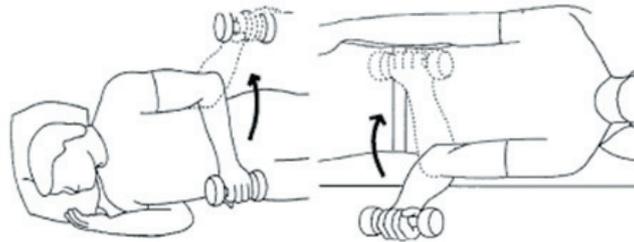


External rotation and internal rotation

Hold a resistance band with your hand as shown in the picture. Slowly rotate your shoulder toward your body (or away from your body) while keeping the arm close to your side, parallel to the floor. Hold for 10 seconds and repeat 10 times with 3 sets.



Lie on your side as shown in the picture. Using a light weight and keeping your elbow fixed at a 90 degree angle, slowly rotate your arm from next to your body up toward the ceiling then lower back toward your body. Repeat 10 times with 3 sets.



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Introduction of Common Shoulder Diseases

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