

Montefiore Pediatric Orthopedic and Scoliosis Center

Children's Hospital at Montefiore

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CLAVICLE FRACTURE (Shaft)

■ ■ ■ Description

A shaft clavicular fracture is a complete or incomplete break (fracture) in the middle third of the collarbone (clavicle) in the shaft. This is the most common location of clavicle fracture.

■ ■ ■ Common Signs and Symptoms

- Pain, tenderness, and swelling at the fracture
- Deformity or bump if the fracture is complete and the bone fragments separate enough to distort the normal appearance of the top of the shoulder
- Bruising at the site of injury (usually within 48 hours)
- Loss of strength or pain when attempting to use the affected arm
- Occasionally, numbness or coldness in the shoulder and arm on the affected side if the blood supply is impaired
- Uncommonly, shortness of breath or difficulty breathing

■ ■ ■ Causes

- Usually, impact or falling on the tip of the shoulder or a direct blow to the shoulder
- Less commonly, an indirect stress, such as falling on an outstretched hand or on the tip of the elbow

■ ■ ■ Risk Increases With

- Sports that require contact or collision, such as football, soccer, hockey, and rugby
- Sports with high risk of falling on shoulder, such as rodeo riding, mountain bike riding, or cycling
- Previous shoulder sprain or dislocation
- Inadequate protective equipment
- History of bone or joint disease, especially osteoporosis

■ ■ ■ Preventive Measures

- Maintain appropriate conditioning, particularly neck, shoulder, and arm muscle strength, endurance, and flexibility.
- Ensure proper protective equipment fit (such as shoulder pads).
- Use proper technique and have a coach correct improper technique (including falling and landing).

■ ■ ■ Expected Outcome

This condition is curable with appropriate treatment. It is important to allow adequate healing time before resuming activity.

■ ■ ■ Possible Complications

- Pressure on or injury to nearby nerves, ligaments, tendons, muscles, blood vessels, or other tissues
- Weakness and fatigue of the arm or shoulder (uncommon)
- Delayed healing of the fracture; may be due to the naturally poor blood supply to the clavicle

- Nonunion of the fracture (uncommon)
- Prolonged healing time if usual activities are resumed too early and susceptibility to recurrent injury (fracture)
- Excessive bone and scar tissue at the fracture site, causing compression of nerves and blood vessels in the neck or arm pit; may lead to pain, numbness, and tingling in the neck, shoulder, arms, and hands
- Infection in open fractures (when the bone breaks through the skin) or at the incision if surgery was performed
- Shortening of the injured bones
- Persistent bump or prominence at the fracture site
- Proneness to repeated collarbone injury

■ ■ ■ General Treatment Considerations

Initial treatment consists of ice, compressive dressing, and medication to relieve pain and reduce swelling. An arm sling, shoulder immobilizer, or figure-of-eight brace is usually recommended. Refrain from sporting activities until the fracture is healed, usually 6 or more weeks. Pain will subside after 2 to 4 weeks, and you will be able to begin to use the arm more comfortably. By 6 to 8 weeks after the injury, the pain should be significantly reduced.

Rarely, surgery is recommended. Surgery can help reduce the deformity (bump or prominence), although there will be a scar on the skin. Surgery is often reserved for situations when the broken bone pokes through the skin or if there is involvement of nearby nerves or blood vessels. However, surgery increases the risk of the bone not healing by further disrupting the blood supply to the fracture. Surgery consists of repositioning the fracture fragments and holding them in place with plates, screws, wires, sutures, or pins. After

fracture healing, these fixation devices may need to be removed before moving the arm.

Exercises to regain shoulder motion and strength lost as a result of injury, surgery, and lack of arm use while healing are necessary before returning to sports. These exercises may be done on your own, or you may be referred to a physical therapist or athletic trainer for further evaluation and treatment. Return to sports requires healing of the bone and usually takes 2 to 6 months.

■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Pain relievers may be prescribed as necessary by your physician. Use only as directed.

■ ■ ■ Cold Therapy

Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain. Use ice packs or an ice massage.

■ ■ ■ Notify Our Office If

- Pain, swelling, or bruising worsens despite treatment
- You experience pain, numbness, or coldness in the arm or hand
- Blue, gray, or dusky color appears in the hand or fingernails
- You develop a fever of greater than 100.5°F
- You develop shortness of breath
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

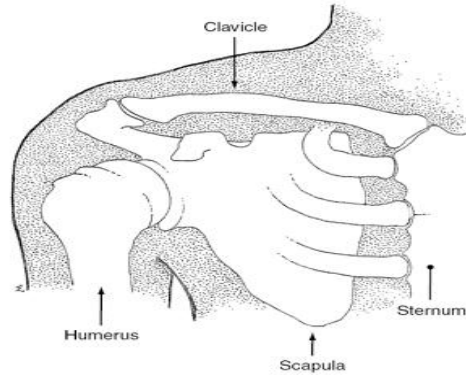


Figure 1

From Economou SG, Economou TS: Instructions for Surgery Patients. Philadelphia, WB Saunders, 1998, p. 155.

➤ RANGE OF MOTION AND STRETCHING EXERCISES • Clavicle Fracture (Shaft)

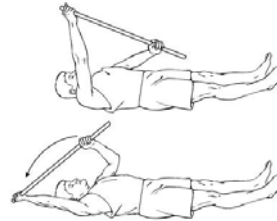
These are some of the *initial* exercises you may start your rehabilitation program with after your physician/surgeon states that you may start moving your shoulder. Continue these until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it during activities.
- Each stretch should be held for 20 to 30 seconds.
- A *gentle* stretching sensation should be felt.



SHOULDER • Pendulum

1. Lean forward at the waist, letting your _____ arm hang freely. Support yourself by placing the opposite hand on a chair, table, or counter as shown.
2. Sway your *whole body* slowly forward and back. This will cause your arm to move. Let your arm hang freely. Do not tense it up.
3. Repeat the above swaying side to side and moving in circular patterns, clockwise and counterclockwise.
4. Do **2** repetitions in each direction.
5. Repeat exercise **2** times, **2** times per day.



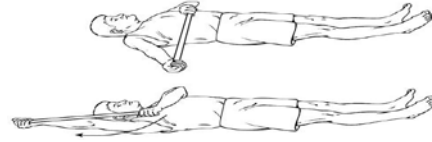
SHOULDER • Flexion

1. Lie on your back. Grasp the bottom of a stick, handle of an umbrella, or blade of a golf club in your _____ hand as shown.
2. Using the stick, raise your arm overhead as shown until you feel a gentle stretch. Lead with the thumb in a “thumbs-up” position.
3. Repeat exercise **2** times, **2** times per day. Hold each repetition **30** seconds.



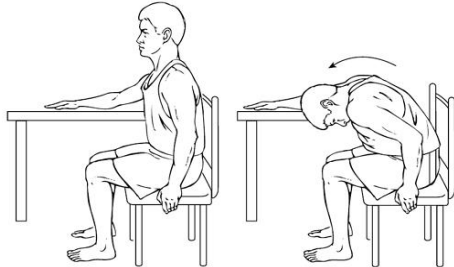
SHOULDER • Flexion

1. Lie on your back holding a stick in both hands, keeping your hands shoulder-width apart.
2. Raise both hands over your head until you feel a gentle stretch.
3. Repeat exercise 2 times, 2 times per day. Hold each repetition 5 to 10 seconds.



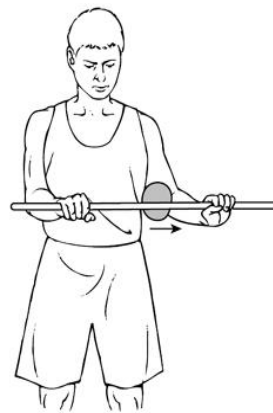
SHOULDER • Abduction

1. Lie on your back holding a stick, umbrella handle, or golf club in your hand as shown. The hand should be in the “thumbs-up” position.
2. Using the stick, slowly push your arm away from your side and as far overhead as you can without pain. Push until you feel a gentle stretch.
3. Repeat exercise 2 times, 2 times per day. Hold each repetition 30 seconds.



SHOULDER • Flexion

1. Sit in a chair with your _____ arm on a table as shown.
2. Lean forward, sliding your arm forward on the table until you feel a gentle stretch.
3. Return to the starting position.
4. Repeat exercise 2 times, 2 times per day. Hold each repetition 30 seconds.



SHOULDER • Flexion

1. While standing near a wall as shown, slowly “walk” your fingers up the wall until you feel a gentle stretch.
2. Repeat exercise 2 times, 2 times per day. Hold each repetition 30 seconds.

SHOULDER • External Rotation

1. Lie on your back or stand with your _____ arm at your side and your elbow bent to 90 degrees. Hold a stick, umbrella handle, or golf club in your hands as shown.
2. Using the stick turn/rotate your hand and forearm away from your body as shown.
3. ***Make sure you keep your upper arm and elbow next to your side.***
4. Repeat exercise 2 times, 2 times per day. Hold each repetition 30 seconds.

➤ STRENGTHENING EXERCISES • Clavicle Fracture (Shaft)

These are some of the *initial* exercises you may start your rehabilitation program with after your physician/ surgeon states that you may start moving your shoulder. Continue these until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise, gradually increasing the number of repetitions and weight

used under their guidance.

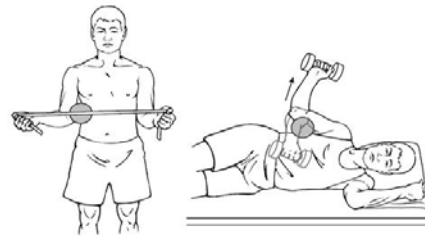
STRENGTH • Shoulder Abduction, Isometric

1. While standing, raise the _____ arm slightly away from the body as shown.
2. Place the other hand on top of your arm and push down. Do not allow your arm to move. Push as hard as you can without having any pain or moving the arm.
3. Hold this position for **30** seconds and then *slowly* return to the starting position.
4. Repeat exercise **2** times, **2** times per day.



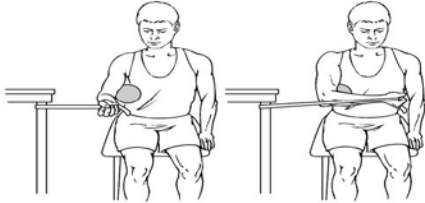
STRENGTH • Shoulder Flexion, Isometric

1. While standing, raise your _____ arm straight in front of your body as shown.
2. Place the other hand on top of your arm and push down. Do not allow your arm to move. Push as hard as you can without having any pain or moving the arm.
3. Hold this position for **30** seconds and then *slowly* return to the starting position.
4. Repeat exercise **2** times, **2** times per day.



STRENGTH • Shoulder External Rotation

1. Lie on your side with your _____ arm up and the elbow bent to 90 degrees, or stand with your arms at your side and the elbows bent to 90 degrees as shown. Place a small rubber ball (4 to 6 inches in diameter) or rolled-up towel between your elbow and your side as shown.
2. Hold a _____ pound weight in your hand and turn the arm up toward the ceiling, keeping the elbow bent as shown. If using rubber band/tubing, turn the arm(s) out from your side while keeping the elbows bent.
3. Do this slowly and in control through your *pain free* range of motion only. If this is painful, stop and discuss this with your physician, physical therapist, or athletic trainer.
4. Hold this position for _____ seconds and then *slowly* return to the starting position.
5. Repeat exercise _____ times, _____ times per day.



SHOULDER • Internal Rotation

1. Anchor the rubber band/tubing to a heavy/solid object as shown.
2. Place a small ball or towel between your elbow and body as shown in the drawing and bend your elbow to 90 degrees. Squeeze the ball gently to the side of your chest with your elbow.
3. Turn/rotate your arm in toward your body (across your chest/stomach). Do not let the ball move/fall away from the side of your chest.
4. Hold this position for **30** seconds and then *slowly* return to the starting position.
5. Repeat exercise **2** times, **2** times per day.