ANKLE FRACTURE

Description

An ankle fracture is a complete or incomplete break of one or both of the bones of the ankle, the tibia (inner side) and the fibula (outer side). These fractures are very common. A temporary dislocation and rupture of ligaments of the ankle joint may also accompany this injury. The full extent of injury may not be recognized immediately.

Common Signs and Symptoms

- Severe pain in the ankle at the time of injury and when trying to move the ankle
- Feeling of popping or tearing in the inner or outer part of the ankle, sometimes as if ankle joint was temporarily dislocated and popped back into place
- Cracking or other sound may be heard at the time of fracture
- Severe tenderness in the ankle
- Swelling in the ankle and foot; occasionally blisters
- Bleeding and bruising in the ankle and foot
- Inability to stand or bear weight on the injured extremity
- Visible deformity if the fracture is complete and the bone fragments separate enough to distort normal leg contours
- Numbness and coldness in the foot if the blood supply is impaired

Causes

- Injury causing a force greater than the bone can withstand, usually due to a direct blow, fall, or stress imposed from either side of the joint
- Indirect stress caused by twisting, pivoting, or violent muscle contraction

Risk Increases With

- Sports that require quick changes in direction, such as football, soccer, and skiing
- Sports that require jumping, such as basketball, volleyball, distance jumping, and high jumping (participants often accidentally land on the side of the foot or on someone else's foot or someone lands on their foot)
- Walking or running on uneven or rough surfaces, such as roads or grass fields with potholes
- Shoes with inadequate support to prevent the foot and ankle from rolling over when stress occurs
- Bony abnormalities (including osteoporosis), tumors of the bone
- Metabolic disorders, hormone problems, and nutritional deficiencies and disorders
- Poor physical conditioning (strength and flexibility)
- Previous ankle injury

Preventive Measures

- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
  - Leg and ankle strength
  - Flexibility and endurance
  - Cardiovascular fitness
- Wear proper protective equipment (high-top shoes when appropriate and ankle bracing, taping, or splinting), especially for the first 12 months after ankle injury.

Expected Outcome

This injury is usually curable with appropriate treatment.

Possible Complications

- Failure to heal (nonunion)
- Healing in poor position (malunion)
- Arrest of normal bone growth in children
- Prolonged healing time if activity is resumed too quickly
- Proneness to repeated ankle injury
- Stiff ankle
- Unstable or arthritic ankle
- Infected skin blisters
- Risks of surgery, including infection, bleeding, injury to nerves (numbness, weakness, paralysis), and need for further surgery

General Treatment Considerations

Initial treatment consists of medications, elevation of the leg, and ice to relieve pain and reduce swelling. Treatment

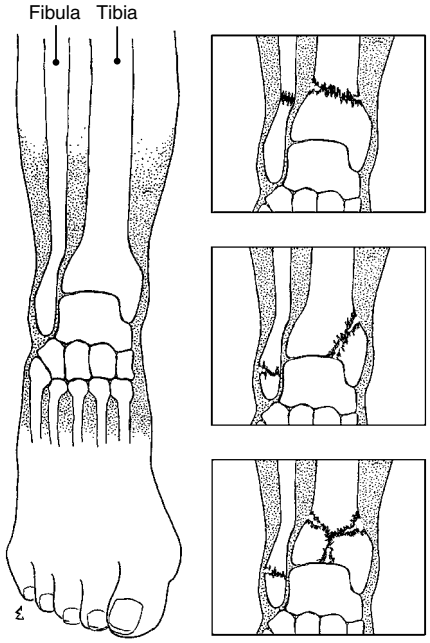


Figure 1
From Economou SG, Economou TS: Instructions for Surgery Patients. Philadelphia, WB Saunders, 1998, p. 39.

requires cast or brace immobilization or surgery to place pins, rods, plates, or screws to fix the fracture. The decision to operate is based on the type of fracture, the bone involved, whether the bone is out of position, and the age and general condition of the patient. Surgery is performed to help reposition or hold the bone in the proper position. After surgery, casting or bracing is usually needed. Keeping off the leg with the broken ankle and elevating the leg for the first few weeks after the injury or surgery will help reduce pain and swelling. Bone stimulators, which provide electrical currents to the bone, may be used, but this is uncommon. After immobilization (with or without surgery), stretching and strengthening of the injured and weakened joint and surrounding muscles (due to the injury and the immobilization) is necessary. This may be done with or without the assistance of a physical therapist or athletic trainer. The plate or screws usually do not need to be removed.

Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), are used to reduce inflammation. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur. Other minor pain relievers, such as acetaminophen, may also be used.
- Narcotic pain relievers may be prescribed by your physician for severe pain. Use only as directed.

Notify Our Office If

- Symptoms get worse or do not improve in 2 weeks despite treatment
- The following occur after immobilization or surgery:
  - Swelling above or below the fracture site
  - Severe, persistent pain
  - Blue or gray skin below the fracture site, especially under the nails, or numbness or loss of feeling below the fracture site

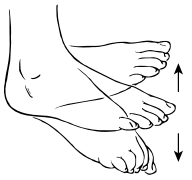
  Report any of these signs immediately.
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

EXERCISES

➢ **RANGE OF MOTION AND STRETCHING EXERCISES** · Ankle Fracture

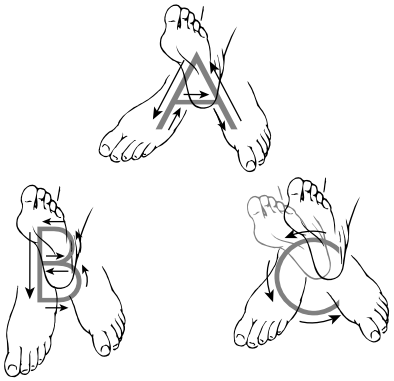
These are some of the ***initial*** exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.



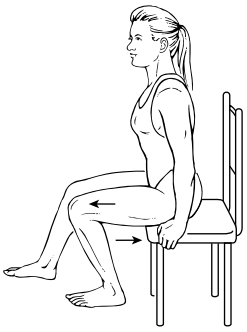
RANGE OF MOTION · Active Dorsi/Plantar Flexion

1. Pull your toes and foot toward your body as far as possible, then point the foot and toes away from body as far as possible.
2. Perform this exercise with the knee straight and then with the knee bent.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



RANGE OF MOTION · Ankle Alphabet

1. Write all the capital letters of the alphabet with your foot and ankle. The motion should come from your foot and ankle, not your hip or knee.
2. Move the foot and ankle slowly, writing the letters as large as possible/comfortable for you.
3. Repeat exercise _____ times, _____ times per day.

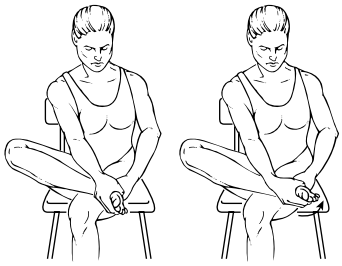


RANGE OF MOTION · Ankle Dorsiflexion

1. Sit on the edge of a chair as shown.
2. Place your _____ foot closest to the chair
3. Keep your foot flat on the floor and move your knee forward over the foot.
4. Hold this position for _____ seconds.
5. Repeat exercise _____ times, _____ times per day.

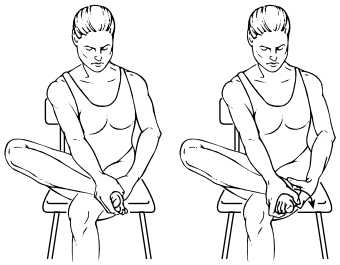
RANGE OF MOTION · Ankle Plantar Flexion

1. Sit in the position shown.
2. Using your hand, pull your toes and ankle down as shown so that you feel a gentle stretch.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



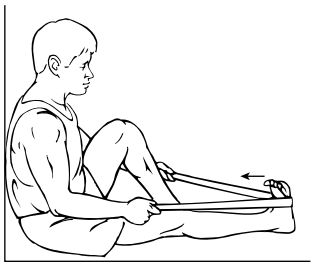
RANGE OF MOTION · Ankle Inversion

1. Sit with your _____ leg crossed over the other.
2. Grip the foot with your hands as shown and turn the sole of your foot upward and in so that you feel a stretch on the outside of the ankle.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



RANGE OF MOTION · Ankle Eversion

1. Sit with your _____ leg crossed over the other.
2. Grip the foot with your hands as shown and turn the sole of your foot upward and out so that you feel a stretch on the inside of the ankle.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.



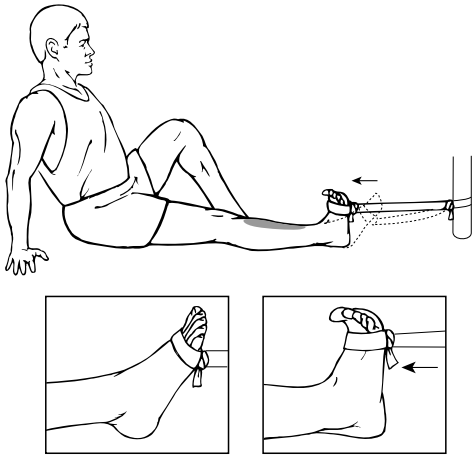
STRETCH · Gastrocsoleus

1. Sit with your leg straight out in front of you and loop a towel around the ball of your foot as shown in the diagram.
2. Pull your foot and ankle toward you using the towel.
3. Keep your knee straight while doing this. Do not let your knee bend.
4. Hold this position for _____ seconds.
5. Repeat exercise _____ times, _____ times per day.

➢ **STRENGTHENING EXERCISES** · Ankle Fracture

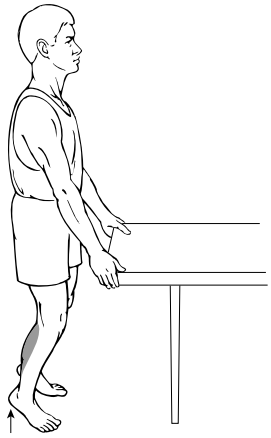
These are some of the ***initial*** exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- 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.



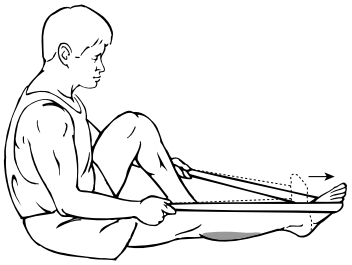
STRENGTH · Dorsiflexors

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot as shown.
2. Slowly pull the foot toward you. Hold this position for _____ seconds. Slowly return to starting position.
3. Repeat exercise _____ times, _____ times per day.



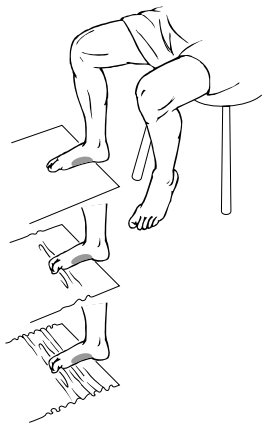
STRENGTH · Plantarflexors

1. Stand with feet shoulder-width apart. Hold on to counter or chair if necessary for balance.
2. Rise up on your toes as far as you can. Hold this position for _____ seconds.
3. Complete this exercise using only one leg if it is too easy using both legs.
4. Repeat exercise _____ times, _____ times per day.



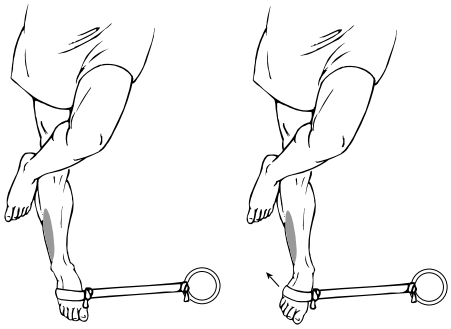
STRENGTH · Plantarflexors

1. Loop elastic band around foot as shown. Pull the band toward you with your hands.
2. Push your toes away from you slowly. Hold this position for _____ seconds. Slowly return to starting position.
3. Repeat exercise _____ times, _____ times per day.



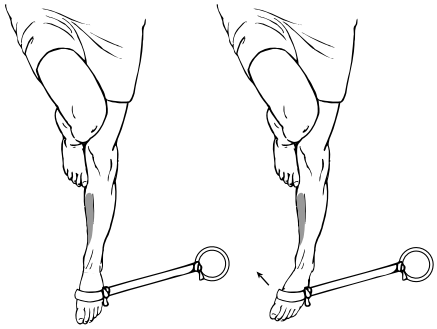
STRENGTH · Towel Curls

1. Sit in a chair and place a towel on a noncarpeted floor. Place your foot/toes on towel as shown. (You may also stand to do this exercise rather than sit.)
2. Curl/pull towel toward you with your toes while keeping your heel on the floor. Move towel with toes only. Do not move your knee or ankle.
3. If this is too easy, place a light weight (book, hand weight, etc.) at the far end of the towel.
4. Repeat exercise _____ times, _____ times per day.



STRENGTH · Ankle Eversion

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot.
2. Turn your toes/foot outward as far as possible, attempting to pull your little toe up and outward. Hold this position for _____ seconds.
3. Slowly return to starting position.
4. Repeat exercise _____ times, _____ times per day.



STRENGTH · Ankle Inversion

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot.
2. Turn your toes/foot inward as far as possible, attempting to push your little toe down and in. Hold this position for _____ seconds.
3. Slowly return to starting position.
4. Repeat exercise _____ times, _____ times per day.

Notes: (Up to 4400 characters only)

Notes and suggestions