

# Broken Ankle

## What is a broken ankle?

A broken ankle is a break in one or both of the bones that make up the ankle joint. These bones are the tibia and the fibula.

## How does it occur?

Ankle breaks, or fractures, can occur in many ways: for example, by falls, contact sports and exercise injuries, and force from a blow.

There are many types of fractures, which determine the severity of the injury and its treatment:

- ▶ nondisplaced fracture: the broken pieces of bone remain properly aligned
- ▶ displaced fracture: the broken pieces of bone are not properly aligned
- ▶ comminuted fracture: there are more than two pieces of bone at the fracture.
- ▶ compound (open) fracture: one end of the broken bone has broken through the skin.
- ▶ closed fracture: neither end of the broken bone has pierced the skin.
- ▶ impacted fracture: the ends of the broken bone are driven into each other.
- ▶ avulsion fracture: the muscle or ligament has pulled a portion of the bone away from where it was originally attached.
- ▶ pathological fracture: the bone has been weakened or destroyed by disease (such as osteoporosis) so that the bone breaks easily.

## What are the symptoms?

Symptoms of an ankle fracture include:

- ▶ a snapping or popping sound at the time of the injury
- ▶ loss of function (hurts to move the ankle)
- ▶ pain
- ▶ tenderness
- ▶ swelling
- ▶ deformity (sometimes)

- ▶ discolored skin, or bruising, which appears hours to days after the injury.

Rarely, you may have an open wound with an ankle fracture.

## How is it diagnosed?

To diagnose an ankle fracture, the health care provider will review your symptoms, ask about how the injury occurred, and examine you. He or she will also order x-rays. Several different views of the bone may be taken to pinpoint the fracture.

## How is it treated?

The immediate emergency treatment for a fractured ankle is immobilization (keeping it from moving), elevation, compression (wrapping it with an elastic or Ace bandage), and the application of ice packs.

The health care provider may need to set your ankle bone back into its proper place and put you in a cast for 6 to 8 weeks. If the fracture is not too severe, you may be able to walk in the cast after a short period.

If the ankle bone cannot be aligned perfectly before it is ready for a cast, surgery will be necessary.

In the first 2 to 3 weeks after the injury, be sure to keep your ankle elevated on pillows and place ice packs on top of the cast for 20 to 30 minutes every 3 to 4 hours to help reduce swelling.

You should also:

- ▶ Make sure the cast does not get wet. Cover the cast with plastic when you bathe.
- ▶ Use crutches or a cane, as directed by your health care provider. He or she will tell you how much weight you can put on your leg, if any.
- ▶ Not scratch the skin around the cast or poke things down the cast.

## How can I take care of myself?

To help take care of yourself, follow the full course of treatment your health care provider prescribes. Also, follow these guidelines:

- ▶ Eat a variety of nutritious foods.
- ▶ Get plenty of rest.
- ▶ Elevate the leg when possible to reduce any swelling.
- ▶ Call your health care provider immediately if:
  - ▶ You have swelling above or below the fracture.
  - ▶ Your toenails or feet turn grey or blue and stay grey or blue even when your leg is elevated.
  - ▶ You have numbness or complete loss of feeling in the skin below the fracture.
  - ▶ You have lingering pain at the site of the fracture under the cast, or increasing pain not helped by elevation or pain medication.
- ▶ You have burning pain under the cast.

### ***When can I return to my sport or activity?***

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your ankle recovers, not by how many days or weeks it has been since your injury occurred. Some people return within a few days after the cast is removed, some in several weeks. Your ankle will be healing while you are doing your rehabilitation exercises. These exercises will help improve your ankle strength and range of motion.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- ▶ You have full range of motion in the injured leg compared to the uninjured leg.
- ▶ You have full strength of the injured leg compared to the uninjured leg.
- ▶ You can jog straight ahead without pain or limping.
- ▶ You can sprint straight ahead without pain or limping.
- ▶ You can do 45-degree cuts, first at half-speed, then at full-speed.
- ▶ You can do 20-yard figures-of-eight, first at half-speed, then at full-speed.
- ▶ You can do 90-degree cuts, first at half-speed, then at full-speed.
- ▶ You can do 10-yard figures-of-eight, first at half-speed, then at full-speed.
- ▶ You can jump on both legs without pain and you can jump on the injured leg without pain.

### ***How can I help prevent an ankle fracture?***

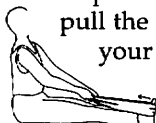
To help prevent an ankle fracture, follow these guidelines:

- ▶ Wear proper shoes that fit correctly when you exercise.
- ▶ Gently stretch before and after physical activities such as aerobics, running, and sports.
- ▶ Avoid playing recreational sports when you are fatigued.
- ▶ Think about safety.

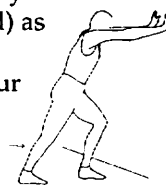
## **Broken Ankle Rehabilitation Exercises**

As soon as you can tolerate pressure on the ball of your foot, begin stretching your ankle using the towel stretch. When this stretch is too easy, try the standing calf stretch and soleus stretch.

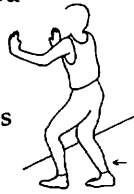
- 1. TOWEL STRETCH:** Sit on a hard surface with your injured leg stretched out in front of you. Loop a towel around the ball of your foot and pull the towel toward your body keeping your knee straight. Hold this position for 15 to 30 seconds then relax. Repeat 3 times.



- 2. STANDING CALF STRETCH:** Facing a wall, put your hands against the wall at about eye level. Keep the injured leg back, the uninjured leg forward, and the heel of your injured leg on the floor. Turn your injured foot slightly inward (as if you were pigeon-toed) as you slowly lean into the wall until you feel a stretch in the back of your calf. Hold for 15 to 30 seconds. Repeat 3 times. Do this exercise several times each day.



**3. STANDING SOLEUS STRETCH:** Stand facing a wall with your hands at about chest level. With both knees slightly bent and the injured foot back, gently lean into the wall until you feel a stretch in your lower calf. Once again, angle the toes of your injured foot slightly inward and keep your heel down on the floor. Hold this for 15 to 30 seconds. Return to the starting position. Repeat 3 times.

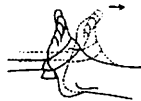


You can do the next 5 exercises when your ankle swelling has stopped increasing.

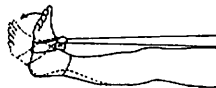
**4. ANKLE RANGE OF MOTION:** Sitting or lying down with your legs straight and your knee toward the ceiling, move your ankle up and down, in and out, and in circles. Only move your ankle. Don't move your leg. Repeat 10 times in each direction. Push hard in all directions.



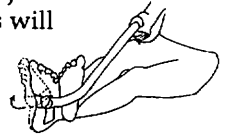
**5. RESISTED DORSIFLEXION:** Sit with your injured leg out straight and your foot facing a doorway. Tie a loop in one end of the tubing. Put your foot through the loop so that the tubing goes around the arch of your foot. Tie a knot in the other end of the tubing and shut the knot in the door. Move backward until there is tension in the tubing. Keeping your knee straight, pull your foot toward your body, stretching the tubing. Slowly return to the starting position. Do 3 sets of 10.



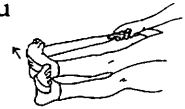
**6. RESISTED PLANTAR FLEXION:** Sit with your leg outstretched and loop the middle section of the tubing around the ball of your foot. Hold the ends of the tubing in both hands. Gently press the ball of your foot down and point your toes, stretching the tubing. Return to the starting position. Do 3 sets of 10.



**7. RESISTED INVERSION:** Sit with your legs out straight and cross your uninjured leg over your injured ankle. Wrap the tubing around the ball of your injured foot and then loop it around your uninjured foot so that the tubing is anchored there at one end. Hold the other end of the tubing in your hand. Turn your injured foot inward and upward. This will stretch the tubing. Return to the starting position. Do 3 sets of 10.



**8. RESISTED EVERSION:** Sit with both legs stretched out in front of you, with your feet about a shoulder's width apart. Tie a loop in one end of the tubing. Put your injured foot through the loop so that the tubing goes around the arch of that foot and wraps around the outside of the uninjured foot. Hold onto the other end of the tubing with your hand to provide tension. Turn your injured foot up and out. Make sure you keep your uninjured foot still so that it will allow the tubing to stretch as you move your injured foot. Return to the starting position. Do 3 sets of 10.



You may do the rest of the exercises when you can stand on your injured ankle without pain.

**9. HEEL RAISES:** Balance yourself while standing behind a chair or counter. Raise your body up onto your toes and hold it for 5 seconds, then slowly lower yourself down. Repeat 10 times. Do 3 sets of 10.



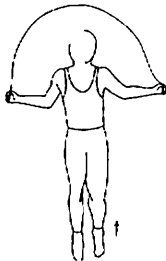
**10. STEP-UP:** Stand with the foot of your injured leg on a support (like a block of wood) 3 to 5 inches high. Keep your other foot flat on the floor. Shift your weight onto the injured leg and straighten the knee as the uninjured leg comes off the floor. Lower your uninjured leg to the floor slowly. Do 3 sets of 10.



**11. SINGLE-LEG BALANCE:** Stand without any support and attempt to balance on your injured leg. Begin with your eyes open and then try to perform the exercise with your eyes closed. Hold the single-leg position for 30 seconds. Repeat 3 times. When you have mastered this, try doing this exercise standing on a pillow.



**12. JUMP ROPE:** Jump rope landing on both legs for 5 minutes, then on only the injured leg for 5 minutes.



### 13. STATIC AND DYNAMIC BALANCE EXERCISES

- A. Place a chair next to your non-injured leg and stand upright. (This will provide you with balance if needed.) Stand on your injured foot. Try to raise the arch of your foot while keeping your toes on the floor. Try to maintain this position and balance on your injured side for 30 seconds. This exercise can be made more difficult by doing it on a piece of foam or a pillow, or with your eyes closed.
- B. Stand in the same position as above. Keep your foot in this position and reach forward in front of you with your injured side's hand, allowing your knee to bend. Repeat this 10 times while maintaining the arch height. This exercise can be made more difficult by reaching farther in front of you. Do 2 sets.
- C. Stand in the same position as above. While maintaining your arch height, reach the injured side's hand across your body toward the chair. The farther you reach, the more challenging the exercise. Do 2 sets of 10.

