

Ankle Sprain

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What is it?

The injury that occurs when your foot “rolls” or turns in on itself is called a *sprain*. A sprain is a stretched or torn *ligament*. Ligaments connect one bone to another bone at a joint and help keep the bones from moving out of place. The most common site of sprains is the ankle. Ligaments of the ankle joint are shown below.

Who gets it?

Because of its role in bearing the weight of the body, the ankle is the most commonly injured joint among athletes and a frequent injury in the general population. Approximately 1 million ankle injuries occur every year in the US. Of these injuries, 85% are sprains, and 85% of sprains are *inversion* injuries (rolling onto the outer edge of the foot). The sports most frequently associated with ankle sprains are basketball, volleyball, football and cross-country running.

What are the symptoms?

Depending on the severity of injury, symptoms include pain, swelling, bruising, and trouble moving the

ankle or walking on the ankle after injury. Ankle sprains are classified from grade I to grade III.

A grade I sprain is usually indicated by minimal pain, minimal swelling and the ability to bear near full weight immediately after the injury. The ligaments remain intact. This is, by far, the most common injury.

Grade II sprains tend to produce some impairment, moderate pain, swelling and bruising, and more difficulty bearing weight. The ligament, although still intact, has a partial tear.

Complete rupture of the ligament is the definition of a grade III sprain. There is severe loss of function, severe pain, widespread and often impressive swelling and bruising with inability to bear weight on the joint.

How do you prevent it?

Flexibility, strength and good balance can help prevent ankle sprains from happening. Stretch before and after you exercise. Do ankle exercises to strengthen the muscles around your ankle. If needed, do exercises to improve your balance. If you have had ankle problems before, consider wearing an ankle brace when you exercise.

Can it be treated?

We recommend using the RICE treatment for mild to moderate sprains.

- **R = Rest.** Rest is needed for repair. Stay off your feet most of the time until you can walk without significant pain. This also helps prevent further injury. You might have to use crutches if walking is too painful.

- **I = Ice.** Ice helps keep the swelling down. It also helps to reduce pain. Put an ice pack on the ankle for 15 minutes. An elastic bandage can be wrapped around the ice pack to hold it in place. Take the ice off for 10 minutes. Put ice back on for 10 minutes. Then use ice for 15 minutes at a time three times a day for two days after the injury. Be careful not to leave the ice on too long. When your skin feels numb, it's time to remove the ice. If you don't have ice cubes, try 1-2 pound packages of frozen corn or peas. They make excellent ice packs.

- **C = Compression.** Compression (wrapping the ankle with a strip of elastic cloth) will help decrease swelling and bruising. You can use an elastic wrap or an air splint from the drugstore. Be careful not to wrap the ankle too tightly. That would slow the blood flow to your foot. Use the elastic bandage for 1 to 2 days.

- **E = Elevation.** Keeping your foot raised helps decrease pain and swelling. When you elevate your ankle, try to keep it above the level of your heart. Lying on a couch with pillows under your foot is better than sitting in a chair with your foot on a footstool. Try to keep your foot elevated for 2 to 3 hours a day.

Usually it is also helpful to take an anti-inflammatory medicine such as ibuprofen (Advil, Medipren, Motrin, Nuprin), naprosyn (Aleve) or ketoprofen (Orudis, Actron) which may help reduce pain and swelling. Another alternative for pain relief is acetaminophen (Tylenol, Datriol, Panadol, Excedrin) although this medication isn't an anti-inflammatory.

Crutches are useful for moderate to severely painful injuries. In this case, no weight bearing is recommended until ambulation is pain free, then stop using the crutches. Pivoting and twisting movements should be avoided for an additional 2-3 weeks.

Grade II sprains usually require a rigid ankle support, such as an air cast or stirrup-type ankle support. Once pain is gone, rehabilitative exercises are started, both for range of motion and strength.

Castings, aggressive physical therapy and even surgery are occasionally necessary for severe grade II and III sprains, especially in competitive athletes and those less than 40 years of age.

What exercises can strengthen my ankle?

It's important for you to strengthen your ankle after a sprain. This helps prevent another injury. Use elastic tubing (available at drug stores and most sporting goods stores) and follow a few basic exercises described below. Do 10 repetitions of each exercise (called a "set"); do three sets of each exercise, twice a day.

- Sit on a firm chair, or stand up. Loop one end of the tubing around the ball of the foot with the injured ankle. Hold the other end of the tubing in your hand. Put your heel on the floor. Stretch the tubing by pushing down with your foot, like the gas pedal of a car.

- Sit on a firm chair, or stand up. Loop one end of the tubing around the leg of a sturdy table. Loop the other end of the tubing around the foot with the injured ankle. Stretch the tubing by pulling up with your foot (lifting up your foot), using you ankle, as if you were trying to pull the table toward you. (This motion is the opposite of trying to "step on the gas".)

- Sit on a firm chair, or stand up. Loop one end of the tubing around the leg of a sturdy table. Loop the other end of the tubing around the foot with the injured

ankle. Stretch the tubing by moving your foot out to the side, away from the leg of the table. Then stretch the tubing by moving your foot in to the middle, toward your good ankle.

How do you avoid reinjury?

It may take weeks of even months for the ligaments to heal completely. After the pain is gone and the strength has been restored, a few simple steps may help prevent further injury.

Wear flat shoes instead of high heels for everyday activity whenever possible. When taking part in a sporting activity wear a high top tennis shoe with the laces tied snugly. For added protection, wear a lace-up or semi rigid ankle brace within the shoe. Elastic slip-on supports are also sometimes used, but are not as protective because the elastic gives too much around the joint. In addition, you can continue doing ankle exercises several times a week to keep your ankles strong.

Are there complications?

This depends of the severity of the ankle injury. The vast majority of grade I and II sprains heal without disability. However, once an ankle sprain has occurred, the joint is usually never as strong as it was before the injury. Some people have recurrent ankle sprains or a sprain that "won't go away". Usually this is a weakened ligament from a previous injury which was not completely rehabilitated and then not adequately protected from further injury.

Grade III sprains can result in significant disability, especially in competitive athletes. Of course, sometimes an ankle injury involves a broken bone. You may be asked to have an x-ray taken to confirm this.

In summary

- The ankle is the most commonly injured joint.
- The RICE treatment approach is usually adequate for most mild to moderate sprains.
- Ankle exercises can help strengthen the joint and prevent reinjury.
- Contact your doctor if you have any questions about your injury or if it isn't getting better as expected. For more information go to familydoctor.org.