

# 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.

## 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 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.

## Can it be treated?

We recommend using the RICE approach for the initial treatment of mild to moderate ankle 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 the first 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, Motrin,) or naprosyn (Aleve) which may help reduce pain and swelling. Another alternative for pain relief is acetaminophen (Tylenol, Datril, Panadol, Excedrin) even though this medication isn't an anti-inflammatory.

Crutches are useful for moderate to severely painful injuries if you can't walk. In this case, no weight bearing is recommended until ambulation is mostly 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 stirrup-type ankle support or a lace-up semi-rigid brace. Once pain is gone, rehabilitative exercises are started, both for range of motion and strength.

Casting, 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 after a sprain?

Ankle sprains cause loss of motion, loss of strength and loss of position sense. Simply resting your ankle will not help it get strong again. Your ankle needs gentle exercise and activity to help it heal. If you were given a brace, be sure to use it as you were instructed. Most ankle sprains take 4-6 weeks to feel better. If your ankle is still hurting after 6 weeks of treatment you should follow up with your doctor.

The following 3 step program will help you recover full use of your ankle.

### Step 1: Improving Range of Motion – Toe Alphabet

While sitting in a chair, “write” each letter of the alphabet from A to Z on the floor with your toes. Move only your ankle. Try not to move your knee and hip. The letters will start out large and sloppy, but will get smaller and neater as your ankle improves. You can start these exercises immediately after being diagnosed with an ankle sprain.

### Step 2: Regaining strength – Towel Drag Exercises

Towel drag exercises are decidedly low-tech but very effective for strengthening ankle and foot muscles. Start these exercises as soon as you can move your ankle from side to side with only minor discomfort.

1. Start with a towel spread to maximum length, but folded to 4-6” wide.
2. Place towel along the inside of your bare foot on wood, tile or other smooth surface horizontally.
3. Keeping your heel on the ground, using your toes drag towel from inside toward outside until entire towel is bunched outside of the foot.
4. Re-fold towel and place outside of foot.
5. Keeping heel on the ground, using your toes drag towel from outside to inside until entire towel is bunched inside of the foot.
6. Re-fold towel and place in front of foot.
7. Lift heel off the ground and use toes to curl towel back towards the heel, until entire towel is bunched under arch of foot.
8. Perform same 3 towel drags with opposite foot.
9. Repeat each set of drags 10 times with each foot once or twice daily.
10. A can of soup can be placed on top of the towel and dragged with the towel for added resistance.
11. Continue exercises until you can do 3 sets of 10 with 1 or 2 soup cans.

### Step 3: Re-training balance – Single Leg Balance

When your ankle is injured, it loses the ability to sense its position in space. Regaining this sense of

position is essential to preventing re-injury. Begin these exercises as soon as you can stand on the injured leg with minimal discomfort.

1. Practice standing on one leg, barefoot on a hard floor. Do several repetitions at least twice per day on each foot. Some people find they can do this while they are brushing their teeth.

2. After you can stand on one foot and feel somewhat balanced, try standing on one foot with your eyes closed. Make sure you have something or someone to grab on to. It’s harder than it looks!

3. When you can stand for 20 seconds on your injured ankle with your eyes closed, make the task harder. Try brushing your teeth while standing on one foot, eyes closed. Stand on a pillow instead of the hard ground. Stand on one leg and play catch with someone.

4. Continue the balancing exercises until you can play catch while standing on your injured ankle.

## How do I 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 tennis shoe with the laces tied snugly and a lace-up or semi rigid ankle brace within the shoe for 8-12 months. Balance training like the single leg balance also has been shown to be very effective and should be continued long term.

## Are there complications?

This depends on 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.

### In summary

- The ankle is the most commonly injured joint.
- The RICE initial treatment approach is usually adequate for most mild to moderate sprains.
- Ankle exercises can help improve range of motion, strengthen the joint, and prevent reinjury.

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