

A **sprained ankle** occurs following a sudden sideways or twisting movement of the foot. An ankle sprain can occur during athletic events or during everyday activities. All it takes is an awkward step or an uneven surface to cause an ankle sprain--that is why sprained ankles are among the most common orthopedic injuries. Orthopedic doctors see patients for ankle sprains very often, and it is the most common foot and ankle injury.

How does an ankle sprain occur?

A sprained ankle usually occurs when a person lands from jumping or running on to an uneven surface. For example, sprained ankles are often seen when basketball players come down from a jump and land on another player's foot. Ankle sprains also occur with more routine daily activities such as stepping off a curb or slipping on ice.

What happens inside the ankle when it is sprained?

An ankle sprain is an injury to the ligament in the ankle. The ligaments are structures that control excessive movement of the joint. When an ankle sprain happens, the ligament is stretched too far, and is either partially or completely torn.



There are two broad categories of ankle sprain:

- **Inversion Ankle Sprains**

The most common type of ankle sprain occurs when the foot is inverted, falling inward. When this type of ankle sprain happens, the outer, or lateral, ligaments are stretched too far. There are three ligaments that attach to the outer side of the ankle. About 90% of ankle sprains are inversion injuries. Pain is always on the outside of the ankle, and there is usually no pain on the inside of the ankle joint.

- **Eversion Ankle Sprains**

The other type of sprained ankle is called an eversion injury, where the foot is twisted outwards. When this occurs, the inner ligament, called the deltoid ligament, is stretched too far. Patients will have pain on the inner side of the ankle.

What are the symptoms of an ankle sprain?

Common symptoms associated with an ankle sprain are pain with swelling and bruising. The degree of symptoms tends to correlate well with the extent of the damage to these ligaments.

- **Grade I Ankle Sprain:**

Grade I ankle sprains cause stretching of the ligament. The symptoms tend to be limited to pain and swelling. Most patients can walk without crutches, but may not be able to jog or jump.

- **Grade II Ankle Sprain:**

A grade II ankle sprain is more severe partial tearing of the ligament. There is usually more significant swelling and bruising caused by bleeding under the skin. Patients usually have pain with walking, but can take a few steps.

- **Grade III Ankle Sprain:**

Grade III ankle sprains are complete tears of the ligaments. The ankle is usually quite painful, and walking can be difficult. Patients may complain of instability, or a giving-way sensation in the ankle joint.

As said before, pain and swelling are the most common symptoms of an ankle sprain. Patients often notice bruising over the area of injury. This bruising will move down the foot towards the toes in the days after the ankle sprain--the reason for this is gravity pulling the blood downwards in the foot.

Do I need to see the doctor if I have an ankle sprain?

If you do have significant symptoms following a sprained ankle, you should seek medical attention. Signs that should raise concern include:

- Inability to walk on the ankle
- Significant swelling
- Symptoms that do not improve quickly or persist beyond a few days
- Pain in the foot or above the ankle

Differentiating between a sprained ankle and an ankle fracture can be difficult, and sometimes an x-ray is needed. While moderate pain and swelling are common symptoms following a simple sprained ankle, symptoms such as

inability to place weight on the leg, numbness of the toes, or pain that is difficult to manage should raise concern. If you think you may have done more than sustained a sprained ankle, you should seek medical attention.

What is a 'high ankle sprain'?

A high ankle sprain is a particular type of injury to the ligaments around the ankle. In a high ankle sprain, the ligaments above the joint are also injured. These ligaments, called the syndesmosis ligaments, can also be injured, and may necessitate a longer course of rehabilitation.

What is the treatment of a sprained ankle?

Treatment of sprained ankles is important because returning to normal activities in a timely manner is important for most patients.

The early treatment of a ankle sprain is the "**RICE**" method of treatment. If you are unsure of the severity of your ankle sprain, talk to your doctor before beginning any treatment or rehab. The following is an explanation of the **RICE** method of treatment for ankle sprains:

- **Rest:**
The first 24-48 hours after the injury is considered a critical treatment period and activities need to be curtailed. Gradually put as much weight on the involved ankle as tolerated and discontinue crutch use when you can walk with a normal gait (with minimal to no pain or limp).
- **Ice:**
For the first 48 hours post-injury, ice pack and elevate the ankle sprain 20 minutes at a time every 3-4 hours. The ice pack can be a bag of frozen vegetables (peas or corn), allowing you to be able to re-use the bag. Another popular treatment method is to fill paper cups with water then freeze the cup. Use the frozen cube like an ice cream cone, peeling away paper as the ice melts. Do NOT ice a ankle sprain for more than 20 minutes at a time!! You will not be helping heal the ankle sprain any faster, and you can cause damage to the tissues!
- **Compression:**
Use compression when elevating the ankle sprain in early treatment. Using an Ace bandage, wrap the ankle from the toes all the way up to the top of the calf muscle, overlapping the elastic wrap by one-half of the width of the wrap. The wrap should be snug, but not cutting off circulation to the foot and ankle. So, if your foot becomes cold, blue, or falls asleep, re-wrap!
- **Elevate:**
Keep your ankle sprain higher than your heart as often as possible. Elevate at night by placing books under the foot of your mattresses--just stand up slowly in the morning.

More severe ankle sprain injuries, including complete tears of the ligaments and fractures of the bone may need different treatment and rehab than a simple ankle sprain. It is important that you see your doctor before beginning treatment or if your symptoms do not steadily improve over time.

Many patients find out they have an ankle sprain injury, they see their doctor, they have no broken bones, but the symptoms of the ankle sprain seem to persist. If you sustained an ankle sprain, and continue to have symptoms, performing some simple exercises and stretches can help you improve.

- *It is important that before beginning any rehab program, you have a firm understanding of your diagnosis. Patients who have persistent symptoms after an ankle sprain should be evaluated by their doctor to ensure there is no more serious injury, such as a fracture or high ankle sprain, that could be causing these problems.*

How to get back from an ankle sprain

• Limit Immobilization

Immobilization can cause significant problems after ankle sprains. Patients will feel better if placed in cast or a walking boot, but this can lead to a stiff ankle, delay rehab, and make their ankle prone to re-injury, if the immobilization is carried on for too long.

Injured ankle ligaments will form scar tissue while healing. This scar tissue is tighter, and less organized when patients have their joint completely immobilized. The ligaments heal with tissue that is the appropriate length and of better quality when ankle movement is initiated earlier. When the ligaments scar excessively, normal movements can become painful, and the ankle can be prone to re-injury.

Even if walking is painful out of a boot, patients should remove the boot several times a day to work on mobility exercises. These simple exercises and stretches can help the ligaments heal properly.

- **Range of Motion Exercises**

Some simple exercises can help maintain ankle motion, and stretch the injured ligaments in the ankle joint.

- **Achilles stretches**

Stretching the Achilles tendon can easily be started soon after sustaining an ankle sprain. While seated or lying down, take a towel and loop it around your toes. Pull the ends of the towel, pulling your toes upwards, and feel the stretch in the back of the ankle. Perform this 3-4 times a day for several minutes.

- **Alphabet writing**

While seated or lying down, write the alphabet in the air with your toes. Make the letters as big as possible. Get creative by trying all uppercase, then lower case, then cursive, etc...

- **Strength Exercises**

The next step in recovery from ankle sprains is strengthening the muscles that surround the ankle joint. By strengthening these muscles, you can help support the ankle joint, and help prevent further injury. Some exercises to perform after an ankle sprain include:

- **Toe raises**

Stand on a stair or ledge with your heel over the edge. Stand up on your tip toes, then in a controlled manner, let the heel rest down. Repeat 10-20 times (each foot), 4 times a day.

- **Heel and Toe Walking**

Walk on your toes for one minute, then on your heels for one minute. Alternate walking on your heel and toes, and work up in time to a total of 10 minutes, repeating 4 times each day.

- **[Proprioceptive Training](#)**

Proprioception is the ability of your body to provide feedback to the brain. After an ankle sprain, the proprioception of the joint can be damaged, leading to problems controlling ankle movements.

The best way to simulate proprioceptive retraining, as well as work on range of motion and strength, is with a [wobble board](#). Read on for information about [how a wobble board can help](#) with your rehab from an ankle sprain.

- **Activity-Specific Training**

Activity specific exercises may include simply walking or jogging, or may be more intense for athletes who participate in basketball, soccer, or other sports. The key, no matter what level recreational or competitive athlete you may be, is to progress slowly. Begin at very low intensity, and very low duration of activity, and slowly work up--never suddenly increase either the intensity or duration of your activity.

Here is a sample progression for a soccer player

- **Jogging**

Begin at 50% intensity. Jog 100 yards, walk 100 yards. Repeat 4 times. Increase intensity and duration over 2-3 weeks

- **Figure of Eights**

Jog in a figure-of-8 pattern around cones. Begin with the cones near each other. Each day, spread out the cones and increase the speed.

- **Box Runs**

Make a box of cones. Jog forward the first side, side shuttle to the right, run backwards, then side shuttle to the left. Again, increase the size of the box and the speed of the running each day.

Once these activities can be done at full speed with no pain, patients can resume their sport. More sport specific exercises can be given to you by a coach or trainer if needed.

What if the pain continues?

The most common cause of persistent pain following an ankle sprain is known as incomplete rehabilitation. This means that patients either don't complete the right type of rehabilitation, or they don't progress properly (i.e. too fast or too slow). If you feel that your progress is not going along properly, ensure you seek advice. Talk to your doctor, work with a physical therapist, seek proper advice!

Surgery is only very rarely part of the acute treatment of an ankle sprain. Rather, patients who require surgery usually have recurrent ankle sprain injuries, and persistent ankle pain. These patients have ligaments that were torn and have not healed properly, leaving the ankle joint too loose.

What surgery is performed for the treatment of chronic ankle sprains?

Patients who have chronic, recurring ankle sprains usually have loose ligaments that need to be tightened. The

most commonly performed surgery to repair these ligaments is called a Brostrom repair. In this surgery, the ligaments on the outside of the ankle, are tightened, and the thick tissue around these ligaments, called the retinaculum, is advanced. This procedure tightens the loose tissue, preventing the ankle from being unstable.

How do I know if my ankle is unstable?

Instability of an ankle joint can be detected both by careful physical examination as well as special x-rays tests.

- **Examination**
On physical examination, your doctor can stress the ligaments that were injured to feel how tightly they have healed. By comparing to your opposite ankle, your doctor can get an idea of how loose the injured ankle is compared to the normal ankle.
- **X-ray Tests**
A x-ray test can also be performed to assess the stability of the ankle. By placing a stress on the ligaments, and taking an x-ray, your doctor can see if the bones are held together tightly enough.

What other problems could be causing these symptoms of chronic ankle pain?

There are a number of causes of chronic ankle pain, and it is important to ensure the cause of yours before embarking on a treatment plan. Causes of chronic pain following ankle sprains include:

- Incomplete rehabilitation
- Injury to other ligaments
 - Subtalar ligament injuries
 - [Syndesmosis ligament injuries](#)
- Cartilage injury (OCD)
- Nerve damage
- Reflex sympathetic dystrophy
- Peroneal tendon dysfunction

This is not a comprehensive list, just a few of the potential causes of chronic ankle pain. Therefore, if you have persistent pain after an ankle sprain, a careful examination is necessary to ensure you have the proper diagnosis. Only then can treatment focused on the problem can begin.