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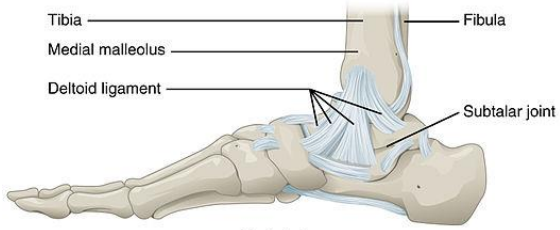
## Ankle Sprains and Instability

Ankle sprains are one of the most common orthopaedic injuries. There are 25,000 ankle sprains every day in the United States and make up over 1,000,000 ER visits per year!

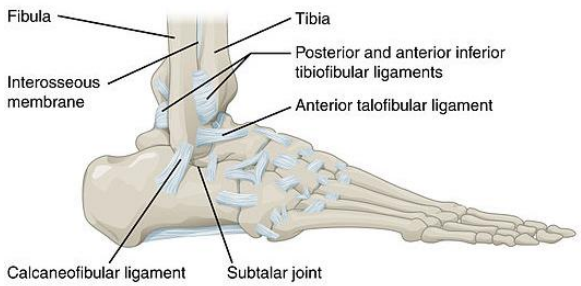
These are so common that many people never seek medical attention, or only see a primary care physician. For this reason, there are many misconceptions about the treatment and effective methods to alleviate pain. It is important to see a specialist to rule out other causes of pain after an inversion or twisting injury of the ankle.

Bones are held together by strong, fibrous structures called **ligaments**. A sprain is a tear in a ligament. The most commonly injured ligament in the ankle is the ATFL (anterior talofibular ligament), followed by the CFL (calcaneofibular ligament), and the deltoid ligament.



Medial view

These ligaments are often injured at the same time with an inversion injury. Combined these make up 90% of ankle sprains. If there is pain in areas outside of these acute locations, an MRI will usually be ordered as injuries to other ligaments or structures may indicate a more severe injury.



Lateral view

The syndesmosis is a collection of ligaments that hold the bones of the leg together (tibia and fibula). An injury to this area is commonly called a "high ankle sprain" and is a more severe injury, sometimes requiring surgery. Even when nonoperative treatment is possible, this takes about twice as long to heal as a standard ankle sprain.

### Diagnosis

A set of high-quality weight-bearing (standing) x-rays are required for diagnosis to rule out fracture and to assess the structure of the foot and ankle, as well as a thorough physical examination. An MRI may be necessary if there is concern for an atypical sprain.

### Possible Related Injuries

Ankle sprains should be seen by a specialist to rule out:

- Lisfranc Fracture-Dislocation (Midfoot Sprain/Fracture)
- Ankle Fractures
- Osteochondral Lesion of the Talus
- High Ankle Sprain
- Structural Abnormalities Predisposing to Sprains
- Calcaneus or Talus Fracture
- Peroneal Retinacular Injury

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## Treatment

### Immobilization and Rest

The use of a tall CAM boot will be recommended while the pain is severe. Ace bandages and lace-up braces are usually inadequate to truly rest a severe sprain. If you are limping or using crutches, walking in a boot will be a better treatment option. The CAM boot may be used for up to six weeks in a standard ankle sprain or twelve in a high ankle sprain.

### Ice and Anti-Inflammatories

The use of NSAIDs and Ice can help to decrease the pain. Ice should be placed with a tea towel protecting the skin for no more than 20 minutes per hour. Ice is NOT advised in patients with neuropathy or any numbness in the feet. Speak to your doctor if there is concerns or contraindications to anti-inflammatories such as Naproxen or Ibuprofen.

### Physical Therapy

Physical therapy will be recommended to strengthen the muscles that are weak and improve balance. Spraining the ankle results in tearing of nerve fibers that are responsible for proprioception, which is our brain's ability to know where the foot is in space. Physical therapy has been shown to regenerate and retrain the nerves which is critical to prevent reinjury.

## Surgery

Surgical intervention my be necessary when the sprains are recurrent, and all other nonoperative treatments fail.

## Return to Play

To prevent further injury or reinjury, it is best to wait until your balance has been regained and improved. This will require specific balance training as well as core strengthening. Home exercises can accelerate this process through use of a BOSU ball. This is best utilized under the supervision or approval of your physical therapist or physician.

## References


"How to strengthen your ankle after a sprain" http://legacy.aofas.org/footcaremd/how-to/foot-injury/Pages/How-to-Ankle-Sprain-Strengthening-Exercises.aspx

"The epidemiology of ankle sprains in the United States" https://www.ncbi.nlm.nih.gov/pubmed/20926721