

FootCareMD[®]

A step in the right direction

High Ankle Sprain

What is it?

The high ankle ligaments are located above the ankle, as opposed to the more commonly injured ligaments on the outside of the ankle. These high ankle ligaments connect the tibia to the fibula. It is important to have stability between the tibia and fibula at this level because walking and running place a tremendous amount of force at this junction.

A high ankle sprain occurs when there is tearing and damage to the high ankle ligaments. These injuries are much less common than a traditional ankle sprain.

Symptoms and Clinical Presentation

A high ankle sprain occurs from a twisting or rotational injury. The high ankle sprain also can occur in the setting of an ankle fracture, which means the bones of the ankle are broken. In some cases, the ligament on the inside of the ankle, the deltoid, will be torn. In this event, the energy of the injury passes from the deltoid, through the high ankle ligaments, or syndesmosis, and up the leg through the fibula. This causes the fibula to be broken at a very high level. This type of fracture is called a Maisonneuve fracture. Patients with a high ankle sprain without fracture may be able to bear weight, but will have pain over the junction between the tibia and fibula just above the level of the ankle. This is higher than the more traditional sprains.

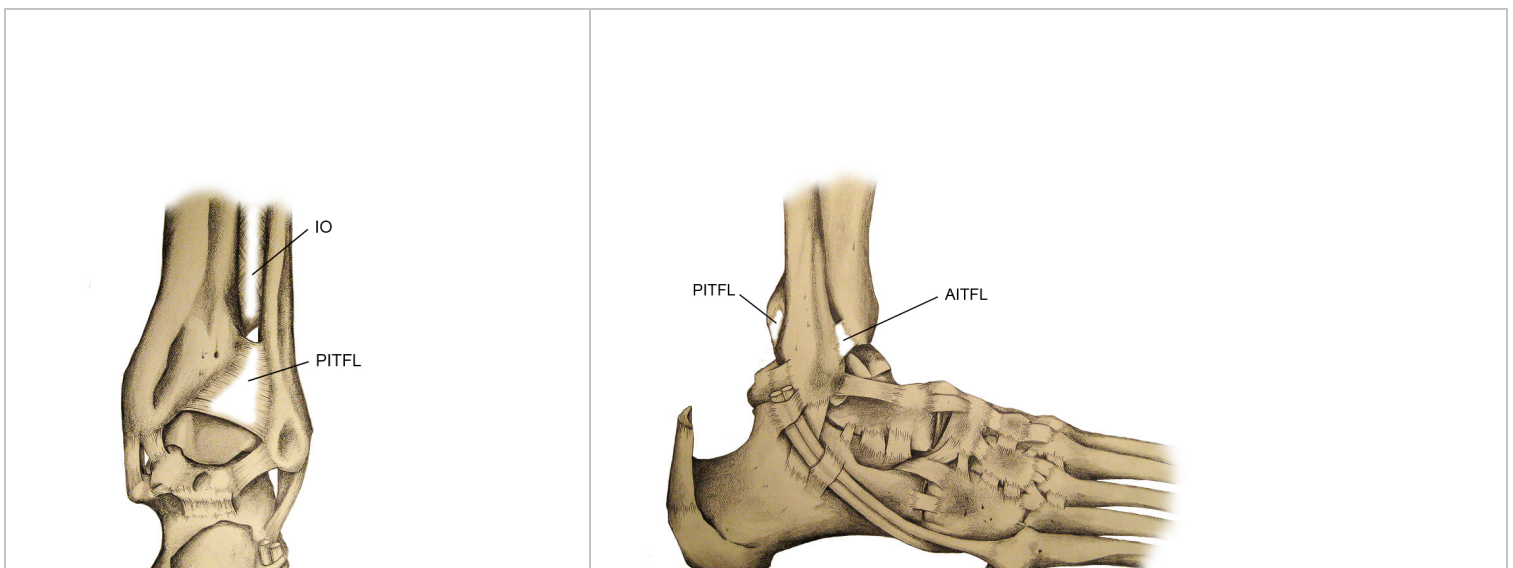
Cause (including risk factors)

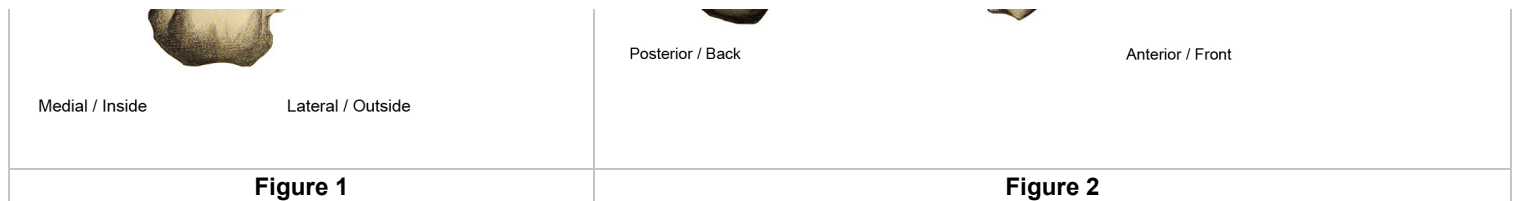
High ankle sprains occur from rotational injuries, much like ankle fractures. They are common in sports, especially impact sports. An external rotation, when the foot is turned towards the outside with respect to the leg, most commonly causes these tears.

Anatomy

As noted above, the syndesmosis or high ankle ligaments connect the tibia and fibula and allow some rotation. There are three major components of this ligament complex (Figures 1 and 2). Ligaments connect bone-to-bone, whereas tendons connect muscle-to-bone, allowing them to move parts of the body.

1. The first ligament is called the anterior inferior tibiofibular ligament, or AITFL, which runs in front of the two bones.
2. The second is called the posterior inferior tibiofibular ligament, or PITFL, which runs in the back.
3. The interosseous (IO) membrane runs down the middle of these and provides a major support between the two bones.





Diagnosis

Patients who have a high ankle ligament tear usually will have pain just above the level of the ankle. They may also have tenderness over the deltoid ligament if they have a Maisonneuve injury, as noted above. It is important to touch the area to assess whether pain is just around the lateral ankle ligaments or higher.

Two important tests also include the “squeeze test” and the “external rotation test.” The squeeze test is performed by squeezing the leg just below the knee to see if pain radiates to the high ankle ligament area, which would suggest a high ankle sprain. With the external rotation test, the knee is bent and the ankle is placed in neutral or 90 degrees with the foot in relation to the leg, and the foot is turned to the outside. If there is pain at the syndesmosis or the high ankle ligament area, then this indicates injury.

X-rays are very important. A broken bone must be assessed and ruled out. Three views of the ankle including the whole leg are needed. A fracture on the back portion of the tibia may indicate an injury to the high ankle ligaments given that this is where the PITFL attaches. It is also important to look for increased space between the tibia and the fibula because this may also indicate an injury to the high ankle ligaments. MRI is becoming very helpful in diagnosing these injuries. A CT scan can also help to assess the relationship of the tibia with the fibula.

Treatment Options

The goals of treatment are to have the tibia and fibula located in the correct position with respect to each other and to heal in that position. It is very important to note that these injuries can take a lot longer than typical ankle sprains to heal. If you have a sprain but do not have a broken bone, the treatment immediately following the injury is to rest the leg, ice for 20 minutes every two to three hours, gently compress the leg with an ACE wrap, and elevate the leg with the toes higher than the nose. You may have enough tenderness to require a removable walking boot. Aggressive therapy when weight bearing is possible is very important. This includes strengthening those tendons on the outside of the ankle called the peroneals.

It usually takes six weeks or more to return to play, but can sometimes take even longer. One good indication that you are ready to go back to sports is if you can hop on the foot 15 times. This hopping test is acceptable if there is no obvious widening between the tibia and the fibula on X-rays. If there is widening, which is called diastasis, or if there is a broken bone, surgery is often needed. There is debate as to how to properly fix these injuries, but the idea is to put the fibula and tibia back together and hold them with either screws or new devices that contain a suture, which is the same type of material used to close wounds.

Recovery

As mentioned above, the recovery for high ankle sprains can take considerably longer than typical ankle sprains. In fact, it can take six to seven weeks before athletes return to play. In those cases in which a separation of the tibia and fibula or fracture has occurred and surgery is necessary, patients will likely need to be nonweightbearing in a cast followed by a walking boot for about 12 weeks. It is important to do early range of motion passively, meaning with the help of a therapist that moves the ankle, so help avoid stiffness. The screws are commonly taken out in a second, small surgery before full weightbearing is allowed so they will not break.

Outcome

Outcomes are generally good if the injury is recognized and treated appropriately. It is more likely, however, to have some stiffness of the ankle after a high ankle sprain as compared to a standard ankle sprain. This is especially true if a fracture has occurred.

Complications

Stiffness can occur in the ankle. If surgery is performed, one can have an infection or damage to one of the nerves that provides sensation to the top of the foot called the superficial peroneal nerve. This is because that nerve runs very close to the outside of the leg where the incision is commonly made. Arthritis can also develop from a very severe sprain if the cartilage of the ankle is damaged at the time of the original injury.

Frequently Asked Questions

Should I be concerned if I have sprained my ankle and it is not better after six weeks?

Yes. Most ligaments will heal after six weeks. It is probably worth seeing your doctor to assess if any other injuries have occurred. Sometimes high ankle sprains can take that long or longer to heal, but it is wise to make sure that another injury has not occurred.

Can I tear both the high ankle ligaments and the low ankle ligaments?

It is rare to have such an injury since the force is generally dissipated through one area or the other. However, there are unique cases where both are torn.

Additional Resources[Ankle Sprain](#)

The American Orthopaedic Foot & Ankle Society (AOFAS) offers information on this site as an educational service. The content of FootCareMD, including text, images and graphics, is for informational purposes only. The content is not intended to substitute for professional medical advice, diagnoses or treatments. If you need medical advice, use the "Find an Orthopaedic Foot & Ankle Surgeon" tool at the top of this page or contact your primary doctor.

American Orthopaedic Foot & Ankle Society® Outreach & Education Fund 6300 N. River Road, Suite 510, Rosemont, IL 60018 800-235-4855 or 847-698-4654 (outside US)
Copyright ©2013 All Rights Reserved