Ankle Sprain and Instability

Introduction

Physical Therapy in Newburgh and Orange County New York for Ankle

Welcome to Peak Physical Therapy's patient resource about ankle sprain and instability.

An ankle sprain is a common injury and usually results when the ankle is twisted, or turned in (inverted). The term sprain signifies injury to the soft tissues, usually the ligaments, of the ankle.

This guide will help you understand:

- how an ankle sprain occurs
- how the condition is diagnosed
- what can be done to treat a sprain

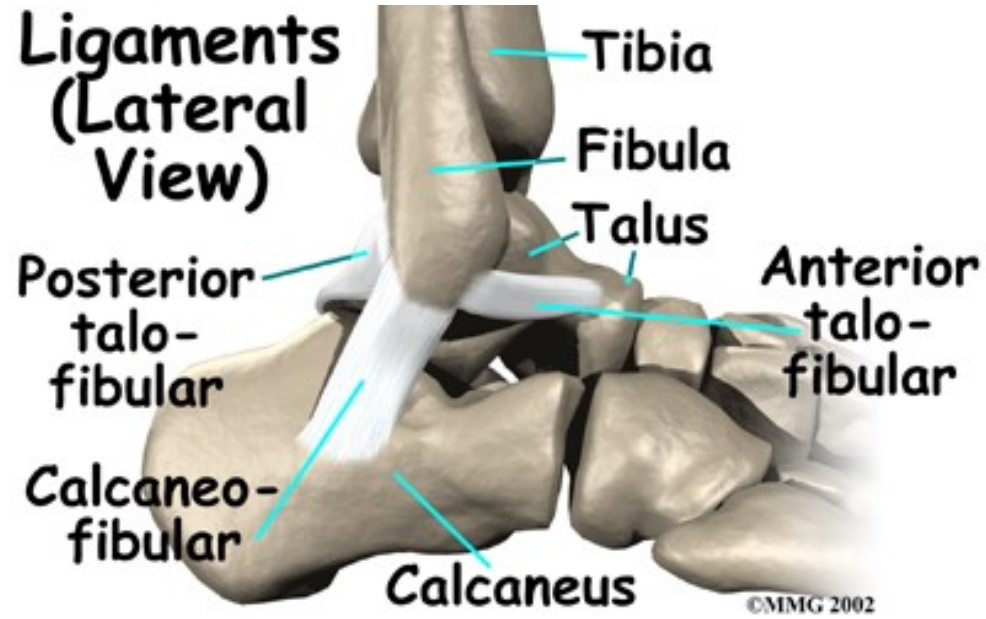
Anatomy

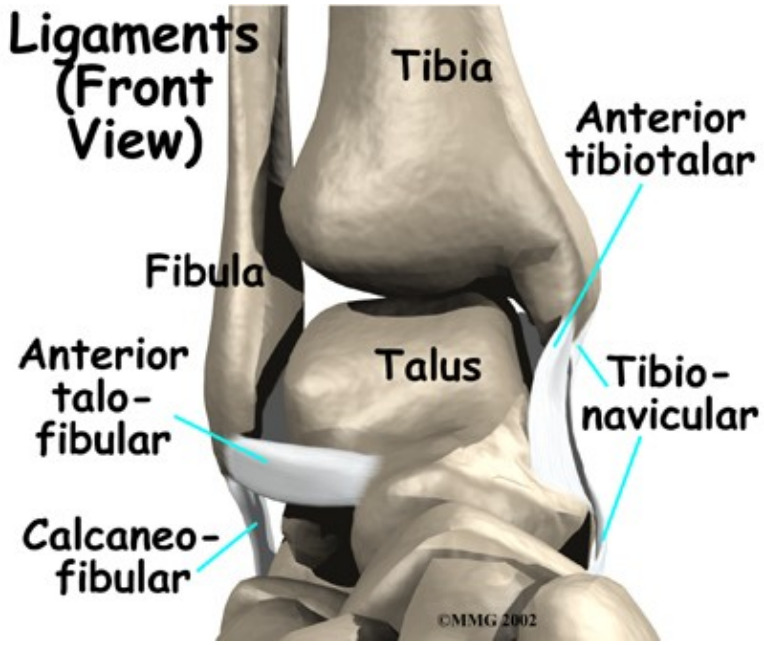
What part of the ankle is involved?

Ligaments are tough bands of tissue that help connect bones together. Three ligaments make up the lateral

ligament complex on the side of the ankle farthest from the other ankle. They are the anterior talofibular ligament (ATFL), the calcaneofibular ligament (CFL), and the posterior talofibular ligament (PTFL). The common inversion injury to the ankle usually involves Two ligaments, the ATFL and CFL. Normally, the ATFL keeps the ankle from sliding forward, and the CFL keeps the ankle from rolling inward on its side.

Ankle Ligaments





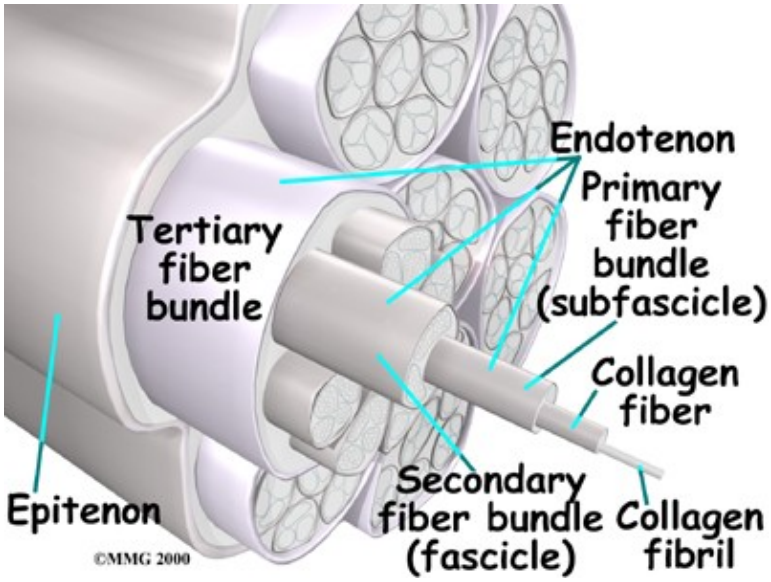
Related Document: Peak Physical Therapy's Guide to Ankle Anatomy

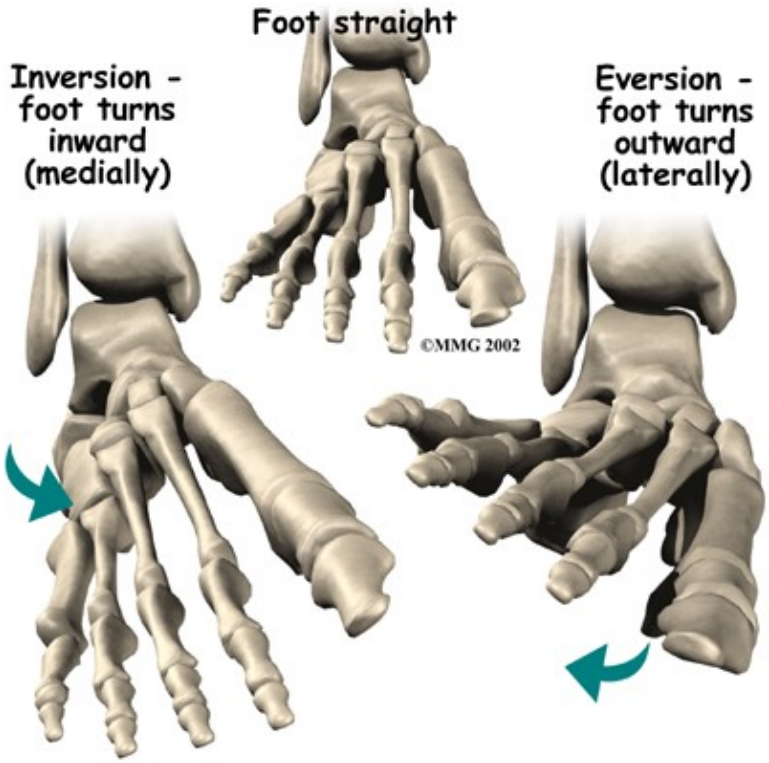
Causes

Why do I have this problem?

A ligament is made up of multiple strands of connective tissue, similar to a nylon rope. A sprain results in stretching or tearing of the ligaments. Minor sprains only stretch the ligament. A tear may be either a complete tear of all the strands of the ligament or a partial tear of only some of the strands. The ligament is weakened by the injury; how much it is weakened depends on the degree of the sprain.

Connective Tissue





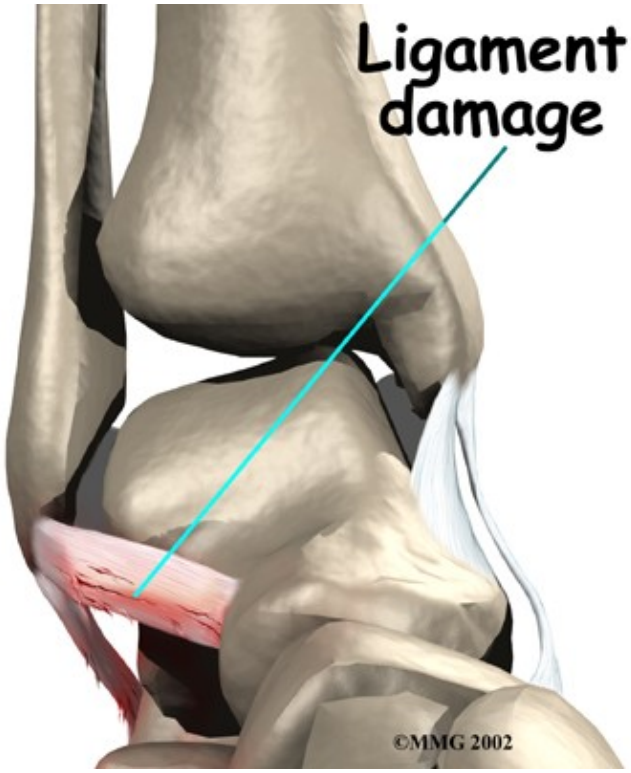
The lateral ligaments are by far the most commonly injured ligaments in a typical inversion injury of the ankle. In an inversion injury the ankle tilts inward, meaning the bottom of the foot angles toward the other foot. This forces all the pressure of your body weight onto the outside edge of the ankle. As a result, the ligaments on the outside of the ankle are stretched and possibly torn.

A severe form of ankle sprain, called an ankle syndesmosis injury, involves damage to other supportive ligaments in the ankle. This type of injury is sometimes called a high ankle sprain because it involves the ligaments above the ankle joint. In an ankle syndesmosis injury, at least one of the ligaments connecting the tibia and fibula bones (the lower leg bones) is sprained. Recovering from even mild injuries of this type takes at least twice as long as from a typical ankle sprain.

Related Document: Peak Physical Therapy's Guide to Ankle Syndesmosis Injuries

Symptoms

What does an ankle sprain feel like?



Initially the ankle is swollen, painful, and may turn ecchymotic (bruised). The bruising and swelling are due to ruptured blood vessels from the tearing of the soft tissues. Most of the initial swelling is actually bleeding into the surrounding tissues. The ankle swells as extra fluid continues to leak into the tissues over the 24 hours following the sprain.

People who have sprained an ankle often end up spraining the ankle again. If the ankle keeps turning in with activity, the condition is called ankle instability. Patients who have ankle instability lose confidence in their ankle to support them, especially on uneven ground. They often have swelling around the ankle that doesn't go away. Pain and swelling in a joint can cause a reflex where the body turns off the muscles around the joint. This can cause times when the ankle feels like it is going to give way, meaning it may have a tendency to twist again very easily.

People who have had several mild ankle sprains or one severe sprain are prone to impingement problems in the ankle. The ligaments that were sprained may become irritated and thickened, causing them to get pinched near the edge of the ankle joint.

Related Document: Peak Physical Therapy's Guide to Ankle Impingement Problems

Diagnosis: Ankle Sprain Physical Therapy in Newburgh and Orange County New York.

Following an assessment your Physical Therapist at Peak Physical Therapy will advise you of the findings and create an individualized therapy program.

He or she may request additional testing to help define the true nature of your injury. Below is a guideline of what you might expect during rehabilitation for an ankle injury.

When you visit Peak Physical Therapy, we will do a physical examination to evaluate the injury and determine which ligament has been injured.

Our Physical Therapist will move your ankle in different positions in order to check the ligaments and other soft tissues around the ankle.

Some of our tests involve placing stress directly on the ankle ligaments to see if the ankle has become unstable and to find out if one or more ligaments have been partially or completely torn. If a complete rupture of the ligaments is suspected, our therapist may refer you to a doctor for stress X-rays.

Treatment: Ankle Sprain Physical Therapy in Newburgh and Orange County New York.

Non-surgical Rehabilitation

Even if you don't need surgery, you will likely need to follow a program of rehabilitation and exercise for your ankle injury. When you visit Peak Physical Therapy for Physical Therapy in Newburgh and Orange County New York, we can create a program to help you regain ankle function. It is very important to improve strength and coordination in the ankle.

Swelling and pain are treated with modalities like ice or electrical stimulation. If swelling in the ankle is severe, our therapist may also apply massage strokes from the ankle toward the knee with your leg kept in an elevated position. This helps get the excess tissue fluid moving out of the ankle and back into circulation. Your Physical Therapist may issue a compression wrap and instruct you to wrap your ankle and lower limb and to elevate your leg.

Many of the specific nonsurgical treatment options that we use at Peak Physical Therapy depend on whether your problem is an ankle sprain or ankle instability.

Ankle Sprain

The best results after an ankle sprain come when treatment is started right away. Our Physical Therapists will use treatments to stop the swelling, ease pain, and protect the injured ankle from weight-bearing activities. A simple way to remember the essential steps of initial treatment is by the letters in the word RICE. These stand for rest, ice, compression, and elevation.

- Rest: The injured tissues in the ankle need time to heal. Crutches will prevent too much weight from being placed on the ankle in the early days after injury.
- Ice: Applying ice can help ease pain and may reduce swelling.
- Compression: Gentle compression pushes extra swelling away from the ankle. This is usually accomplished by using an elastic wrap or compression sock.
- Elevation: Supporting your ankle above the level of your heart helps control swelling.

Our Physical Therapists may also apply specific hands-on treatment called joint mobilization to improve normal joint motion. These treatments restore the natural gliding motion between the ankle bones that may be restricted following injury. This form of treatment speeds healing and improves function after an ankle sprain. It may also help clients to return more quickly to their activity or sport.

Small nerve sensors inside the ligament are injured when a ligament is stretched or torn. These nerve sensors give your brain information about the position of your joints, a sensation called proprioception or position sense. For example, nerve sensors in your arm and hand give you the ability to touch your nose when your eyes are closed. The ligaments in the ankle work the same way. They send information to your

nervous system to alert you about the position of your ankle joint. Our Physical Therapist will help you retrain your position sense as a way to steady the ankle joint and protect you from spraining your ankle again.

Another effective treatment for ankle sprains is disc training using a circular platform with a small sphere under it. While sitting or standing, patients place their feet on the platform and work the ankle by tilting the disc in various directions. This form of exercise strengthens the muscles around the ankle, and improves balance and joint position sense.

Your Physical Therapist may also recommend medications. Mild pain relievers may help with the discomfort. Anti-inflammatory medications can help ease pain and swelling and get people back to activity sooner after an ankle sprain. These medications include common over-the-counter drugs such as ibuprofen. Talk to your doctor or pharmacist if you have specific questions about which pain reliever is right for you.

As treatment progresses, our Physical Therapist will have you gradually begin putting weight through the joint. Casts are uncommon unless the sprain is very severe or the ankle is broken because soft tissues weaken when they are kept immobile. Braces are available that can be worn to support the ankle, but still allow weight bearing. These are the most popular treatment for helping reduce strain on the healing tissues.

When you get full ankle movement, your ankle isn't swelling, and your strength is improving, our Physical Therapist will help you gradually get back to your work and sport activities. We may issue an ankle brace for athletes who intend to return quickly to their sport.

Although the time required for recovery is different for each patient, healing of the ligaments usually takes about four to six weeks, but swelling may be present for several months.

Physical Therapy for Ankle Instability in Newburgh and Orange County New York

If the ankle ligaments do not heal adequately, you may end up with ankle instability. This can cause the ankle to give way and feel untrustworthy on uneven terrain. If your ankle ligaments do not heal adequately following an ankle sprain, your Physical Therapist may suggest several things.

We may recommend changes in your footwear to help keep your ankle from turning in. Placing a heel wedge under the outer half of your heel blocks the ankle from rolling, as does a flared heel built into your shoe. In extreme cases, our therapist may prescribe a plastic brace, called an orthosis, to firmly hold your ankle from rocking side to side. Some patients feel a sense of steadiness from wearing high-topped shoes. Patients with ankle instability should avoid wearing high-heeled shoes.

Physical Therapy treatments at Peak Physical Therapy will likely be initiated to help restore joint range of motion, strength, and joint stability. Many people who have ankle instability have weakness in the muscles along the outside of the leg and ankle. These are called the peroneal muscles. Our Physical Therapist can teach you strengthening exercises for these muscles to help you control the ankle joint and improve joint position sense.

Post-surgical Rehabilitation

Patients usually take part in formal Physical Therapy after surgery. Rehabilitation after surgery can be a slow process. Although the time required for recovery varies, as a general guideline you should expect to attend Physical Therapy sessions for two to three months, and should expect full recovery to occur over six months.

Rehabilitation proceeds cautiously after reconstruction of the ankle ligaments. Most patients are prescribed an ankle brace to wear when they are up and about, and they are strongly advised to follow the recommendations about how much weight can be borne while standing or walking. You may be restricted to non-weight bearing for up to 12 weeks. We will also provide you with instructions to make sure you are using crutches safely and only bearing the recommended amount of weight on your foot.

Your first few Physical Therapy treatments are designed to help control pain and swelling from the surgery. Our Physical Therapist may use ice and electrical stimulation treatments during your first few therapy sessions, progressing to massage and other hands-on treatments to ease muscle spasm and pain. Our Physical Therapist will use treatments to help improve your ankle range of motion without putting too much strain on the healing ligaments.

After about six weeks we may have you begin doing more active exercise. Exercises are used to improve the strength in the peroneal muscles. Our Physical Therapist in Newburgh and Orange County New York will also help you retrain position sense in the ankle joint to improve the stability of the joint.

At Peak Physical Therapy, our goal is to help you keep your pain under control, improve range of motion, and maximize strength and control in your ankle. When your recovery is well under way, regular visits to our office will end. Although we will continue to be a resource, you will be in charge of doing your exercises as part of an ongoing home program.

Peak Physical Therapy provides Physical Therapy in Newburgh and Orange County New York.

Physician Review

If a complete rupture of the ligaments is suspected, you may need to see a doctor for stress X-rays. These X-rays are taken while the ligaments are placed in a stretched position. The X-ray will show a slight tilt in the ankle bone if the ligaments have been torn.

Surgery

Surgeons will occasionally do procedures right away in athletes who tear a lateral ankle ligament. In most other cases of torn ankle ligaments, surgeons will try nonsurgical treatments before doing reconstructive surgery of the ligaments.

Ligament Tightening Procedure

Chronic ankle instability can happen when the lateral ankle ligaments are stretched or torn and the ankle keeps giving way. Surgery can be done to tighten the stretched ligaments and improve the stability of the ankle. The surgery usually involves the ATFL and the CFL.

In this procedure, an incision is made in the skin that lies over the lateral ligaments. Using a scalpel, the surgeon cuts the ATFL and CFL in half.

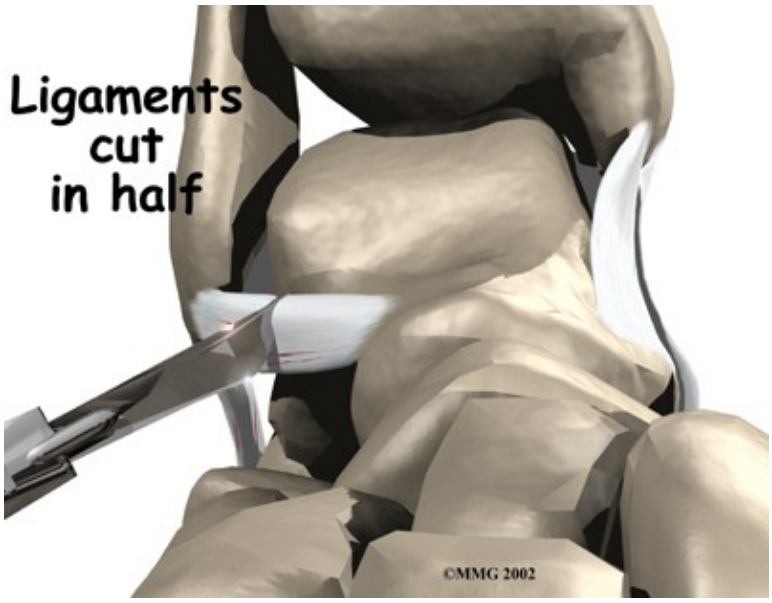
Holes are drilled along the lower end of the fibula bone, the small bone of the lower leg. The two ends of the cut ligament are overlapped and sewn together. The surgeon uses the drill holes in the fibula to hold the stitches to the bone.

A large band of connective tissue crosses the front of the ankle just below the lateral ligaments. This band,

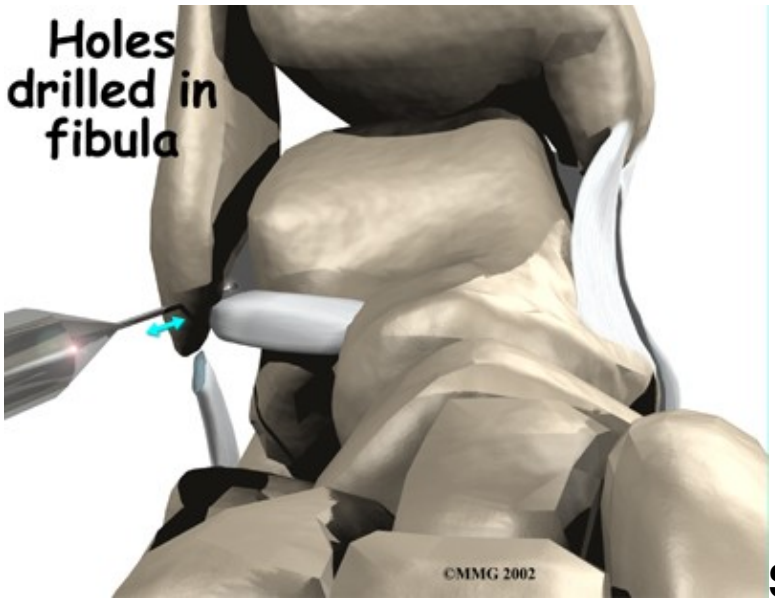
called the ankle retinaculum, holds the tendons in place. The surgeon pulls the top edge of the ankle retinaculum upward and sews it into the fibula. This helps reinforce the reconstructed ligaments.

The following images show each step of the ligament tightening procedure:

Step 1



Step 2



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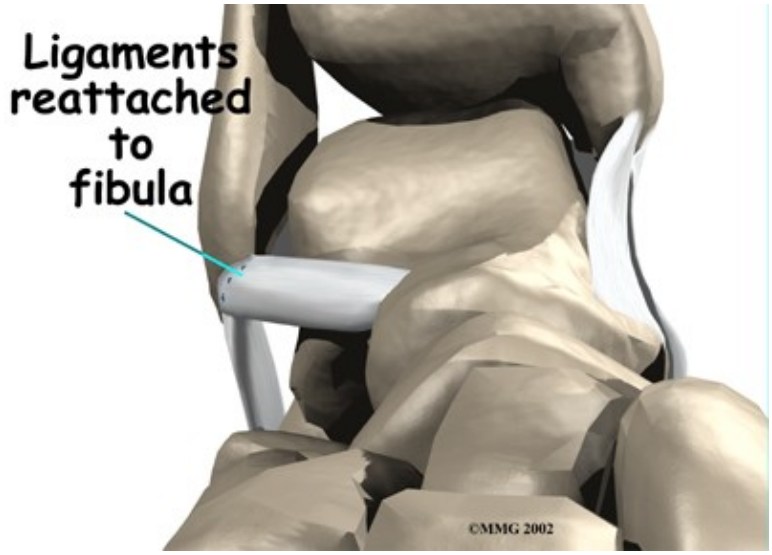

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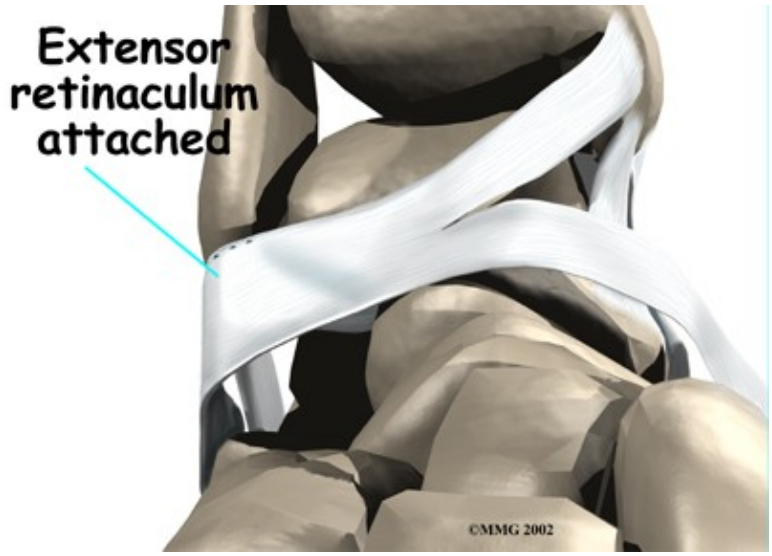

Tendon Graft Procedure

Another type of reconstruction is done using a tendon graft. If your surgeon feels that the stretched and scarred ligaments are not strong enough to simply repair in a ligament tightening procedure, then the ligaments must be reinforced with a tendon graft.

In this procedure, the surgeon removes a portion of one of the nearby tendons to use as a tendon graft. The tendon most commonly used attaches the peroneus brevis muscle to the outside edge of the small toe. A section of this tendon is put in place of the torn lateral ligaments.

After making the skin incision, the surgeon drills a hole in the fibula near the attachment of the original ligament. A second drill hole is made in the area where the ligament attaches on the talus (the anklebone).

The tendon graft is then removed (or harvested) and woven between these holes to recreate the ligament

complex.

After surgery, you will probably be placed in a cast or brace for about six weeks to allow the tendon reconstruction to heal. Following removal of the cast, Physical Therapy will be required to regain full use of the ankle.