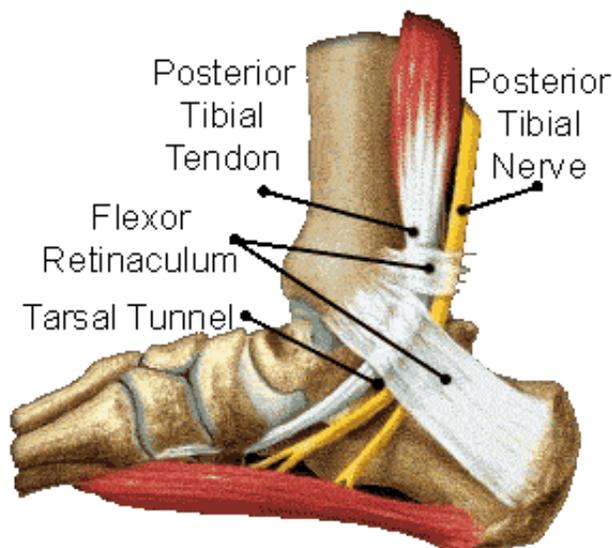


# Tarsal Tunnel Syndrome

**Introduction** Tarsal tunnel syndrome is a condition that occurs from abnormal pressure on the posterior tibial nerve. The condition is similar to carpal tunnel syndrome in the wrist. The condition is somewhat uncommon, and can be difficult to diagnose.

**Anatomy** The posterior tibial nerve runs into the foot behind the medial malleolus, the bump on the inside of the ankle. As it enters the foot it runs under a band of fibrous tissue called the flexor retinaculum. The flexor retinaculum is a dense band of fibrous tissue that forms a sort of tunnel, or tube. Through this tunnel the tendons, the nerve, the artery and the veins that travel to the bottom of the foot are all held together. This tunnel is called the tarsal tunnel. The tarsal tunnel is made up of the bone of the ankle on one side and the thick band of the flexor retinaculum on the other side.



**Causes** Anything which takes up space in the tarsal tunnel will increase the pressure in the area, because the flexor retinaculum cannot stretch very much. As the pressure increases in the tarsal tunnel, the nerve is the most sensitive to the pressure and is squeezed against the flexor retinaculum. This causes dysfunction of the nerve leading to the symptoms of tarsal tunnel syndrome. The term dysfunction means that something isn't working right. In the case of a nerve, this usually means that there is numbness in the area of skin that the nerve would normally supply sensation to. There may also be weakness in the muscles supplied by the nerve, and pain near the area where the nerve is being pinched.

**Symptoms** Tarsal tunnel syndrome usually causes a vague pain in the sole of the foot, that most patients describe as a burning or tingling type

pain. The symptoms are typically made worse by activity, and are reduced by rest. There may be pain to touch along the course of the nerve as well. If the condition becomes worse, numbness and weakness may occur in the foot.

**Diagnosis** The diagnosis of tarsal tunnel syndrome begins with a complete history and physical examination. A Tinel's sign may be present. This is a tingling sensation that shoots electric shocks into the foot when the skin above the nerve is tapped with a finger at the level of the irritation.

If more information is needed to make the diagnosis a nerve conduction velocity (NCV) may be suggested by your doctor. This test measures how fast the nerve impulses travel along a nerve. If the test shows that the impulses are traveling slowly across the ankle, this may confirm a diagnosis of tarsal tunnel syndrome.

**Treatment** Treatment for this condition is varied - depending on what may be contributing to the pressure on the nerve. Anti-inflammatory medications and rest may be suggested to control the symptoms initially. If the condition is being aggravated by abnormal position of the foot, then orthotics may be suggested to relieve the stretching of the nerve. A cortisone injection may give temporary relief of symptoms.

If the symptoms fail to respond to conservative treatments, surgery to relieve the pressure on the posterior tibial nerve may be suggested.

Surgery is usually done by making a small incision in the skin behind the medial malleolus, (the small bump on the inside of the ankle), The incision is made along the course of the posterior tibial nerve. The nerve is located and released by cutting the flexor retinaculum. The surgeon will then surgically follow the nerve into the foot, making sure the nerve is free of pressure throughout its course.

This surgery can usually be done as an outpatient. The surgery can be done using a general anesthetic (where you are put to sleep) or some type of regional anesthetic. A regional anesthetic is a type of anesthesia where the nerves going to only a portion of the body are blocked. Injection of medications similar to novocaine

are used to block the nerves for several hours. This type of anesthesia could be a spinal block (where the lower half of the body is asleep) or a foot block (where only the foot is asleep).

Following surgery, the skin is repaired with sutures. You will need to keep the incision clean and dry for several days. You will also need to use crutches for several days while the incision heals.