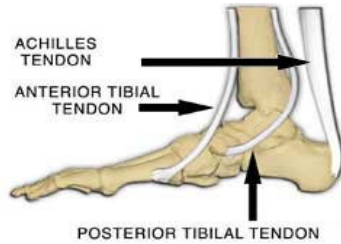


**POSTERIOR TIBIAL TENDON DYSFUNCTION
ADULT ACQUIRED FLATFOOT**

Tendons connect muscles to bones and stretch across joints, enabling you to bend that joint. One of the most important tendons in the lower leg is the posterior tibial tendon. This tendon starts in the calf, stretches down behind the inside of the ankle and attaches to bones in the middle of the foot. The posterior tibial tendon helps hold your arch up and provides support as you step off on your toes when walking. If this tendon becomes inflamed, over-stretched or torn, you may experience pain on the inner ankle and gradually lose the inner arch on the bottom of your foot, leading to flatfoot.



Signs and symptoms of posterior tibial tendon dysfunction

- Pain and swelling on the inside of the ankle
- Loss of the arch and the development of a flatfoot
- Gradually developing pain on the outer side of the ankle or foot
- Weakness and an inability to stand on the toes
- Tenderness over the midfoot, especially when under stress during activity



Risk factors

Posterior tibial tendon dysfunction often occurs in women over 50 years of age and may be due to an inherent abnormality of the tendon. But there are several other risk factors, including:

- Obesity
- Diabetes
- Hypertension
- Previous foot/ankle surgery or trauma
- Local steroid injections
- Inflammatory diseases such as rheumatoid arthritis, spondylosing arthropathy and psoriasis
- Athletes who are involved in sports such as basketball, tennis, soccer or hockey may tear the posterior tibial tendon. The tendon may also become inflamed if excessive force is placed on the foot, such as when running on a banked track or road.

Diagnosis

The diagnosis is based on both a history and a physical examination. Your physician may ask you to stand on your bare feet facing away from him/her to view how your foot functions. As the condition progresses, the front of the affected foot will start to slide to the outside. From behind, it will look as though you have "too many toes" showing. You may also be asked to stand on your toes or to do a single heel rise: stand with your hands on the wall, lift the unaffected foot off the ground, and rise up on the toes of the other foot. Normally, the heel will rotate inward; the absence of this sign indicates posterior tibial tendon dysfunction. Your doctor may request X-rays, an ultrasound or a magnetic resonance image (MRI) of the foot.

There are four stages of posterior tibial tendon dysfunction.

- Stage I The posterior tibial tendon is inflamed but has normal strength. There is little to no change in the arch of the foot. The patient can still perform a single-limb heel rise and has a flexible hindfoot. Orthotic treatment options include medial heel and sole wedges, arch support, and articulated AFOs
- Stage II The tendon is partially torn or shows degenerative changes and as a result loses strength. There is considerable flattening of the arch without arthritic changes in the foot. cannot perform single-limb heel rise. Pain is now present on the lateral aspect of the ankle. Orthotic treatment is the same as that in stage I, with the addition of more rigid arch supports.
- Stage III Results when the posterior tibial tendon is torn and not functioning. As a result the arch is completely collapsed with arthritic changes in the foot. solid ankle AFOs are suggested
- Stage IV Is identical to stage three except that the ankle joint also becomes arthritic. With rigid AFO management as the orthotic treatment.

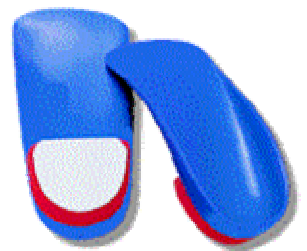
Treatment

Without treatment, the flatfoot that develops from posterior tibial tendon dysfunction eventually becomes rigid. Arthritis develops in the hindfoot. Pain increases and spreads to the outer side of the ankle. The way you walk may be affected and wearing shoes may be difficult.

The treatment your doctor recommends will depend on how far the condition has progressed. In the early stages, posterior tibial tendon dysfunction can be treated with rest, anti-inflammatory drugs such as aspirin or ibuprofen, and immobilization of the foot for 6 to 8 weeks with a rigid below-knee cast or boot to prevent overuse. After the cast is removed, shoe inserts such as a heel wedge or arch support may be helpful. If the condition is advanced, your doctor may recommend that you use a custom-made ankle-foot orthosis or support. Treatment of this condition begins with support of the foot. This is done with shoe modifications, orthotic arch support and, at times, a brace that is custom molded to the ankle.

UCBL Orthotic

The UCBL is a special orthotic which has a deeper heel cup and comes up higher in the arch. This is often referred to as a UCBL orthotic named after the lab where it was developed: The University of California Biomechanics Laboratory in San Francisco. It requires wearing a running shoe or lace-up casual shoe.



The Ritchie Brace®

The Ritchie Brace is a custom ankle brace (ankle foot orthosis/AFO) designed to treat chronic conditions of the foot and ankle. It has revolutionized the non-operative approach to the treatment of posterior tibial tendon dysfunction.



Surgical Reconstruction

If conservative treatments don't work, your doctor may recommend surgery. Several procedures can be used to treat posterior tibial tendon dysfunction; often more than one procedure is performed at the same time. Your doctor will recommend a specific course of treatment based on your individual case. Surgical options include:

Tenosynovectomy. In this procedure, the surgeon will clean away (debride) and remove (excise) any inflamed tissue surrounding the tendon.

Osteotomy: This procedure changes the alignment of the heel bone (calcaneus). The surgeon may sometimes have to remove a portion of the bone.

Tendon transfer: This procedure uses some fibers from another tendon (the flexor digitorum longus, which helps bend the toes) to repair the damaged posterior tibial tendon.

Lateral column lengthening: In this procedure, the surgeon removes a small wedge-shaped piece of bone from the hip and places it into the outside of the calcaneus. This helps realign the bones and recreates the arch.

Arthrodesis: This procedure welds (fuses) one or more bones together, eliminating movement in the joint. This stabilizes the hindfoot and prevents the condition from progressing further.

