

Posterior Tibial Tendon Problems



The posterior tibial muscle originates at the back and inside of the main bone of the leg (the tibia). The muscle becomes a tendon just above the ankle, which then runs from behind the inner knob of the ankle (the medial malleolus) to below this knob. The tendon continues towards the arch, eventually attaching to a bone at the inner side of the arch (the navicular bone) and extending under the arch to the various bones of the arch. The muscle and tendon together are one of the most important supporting structures of the arch. The tendon uses the knob (medial malleolus) as a pulley while supporting the arch.

There are several different locations and scenarios where the posterior tibial muscle or tendon can become painful. One of the most common locations where the tendon can become injured is just below the inner knob of the ankle (the medial malleolus). This condition is often called **tibialis posterior dysfunction (TPD)**. A second location is at the tendon's attachment to bone at the inner arch (the navicular bone). This condition is called **posterior tibial enthesopathy**. A third location is along the back edge of the main bone of the leg and ankle. This condition is called **posterior tibial stress syndrome**.

In all of the conditions involving the posterior tibial muscle/tendon can be caused when the posterior tibial muscle/tendon is overwhelmed in trying to support the arch. Any factor that causes flattening of the arch (pronation) makes the posterior tibial muscle/tendon work harder, and can cause problems to arise over the many repetitions of daily weight-bearing activity. Factors that cause overuse of the posterior tibial muscle/tendon include: overweight, tight calf muscle, inherited flatfoot, poorly supporting footwear, and increased exercise load or workload on the feet. Alternatively, but more infrequently, the tendon can be injured by a sudden injury that rolls the foot outward (pronation). Compounding the potential to develop problems involving the posterior tibial tendon is the fact that the tendon can weaken, particularly as the circulation within the tendon can diminish with age, or with ingested medications, such as prednisone or ciprofloxacin.

TPD – tibialis posterior dysfunction. This condition can be quite disabling. The tendon degenerates and begins to tear, usually in the area just below the inner knob of the ankle (the medial malleolus). As the tendon begins to tear, it slides upon itself and lengthens. Once the tendon dramatically lengthens, the foot begins to flatten and roll outward from under the leg. In late cases, when the foot has been dislocated for awhile, arthritis can develop in the joints below the ankle.

Early in the course of TPD, you might notice pain and swelling in the area just below the inner knob of the ankle (the medial malleolus), particularly with weight-bearing activities, or upon standing after sitting or lying down for awhile. Later, you might notice the arch becoming flatter and/or the foot rolling out from under the leg. In late cases, you might also notice pain just below and in front of the outer side of the ankle.

TPD can be treated initially with a cast and crutches for 6-12 weeks, followed by a custom ankle brace for at least one year. Alternatively, TPD can be treated with major reconstructive surgery. The decision to treat this condition by non-surgical or surgical means is dependent upon a number of circumstances, and is ultimately a decision made between you and your provider. The foot malalignment associated with TPD cannot be restored without surgery. Late cases of TPD and those failing non-surgical measures are usually best treated with surgery.

Posterior tibial enthesopathy. This condition usually responds well to non-surgical treatment within weeks to months, but infrequently requires surgery if non-surgical care fails. Pain is located at the knobby bone at the inner side of the arch (navicular bone), particularly with weight-bearing activities, or upon standing after sitting or lying down for awhile. You might notice swelling at this area as well. Usually, there is no dislocation of the foot as a result of this condition. In some cases, there is an extra bone, called the Os Tibiale Externum, located at the knobby bone at the inner side of the arch (navicular bone).

Posterior tibial stress syndrome. This condition is more common in athletes. The pain is felt along the inner side of the main bone of the leg (tibia), just above the ankle. Usually, there is no swelling. The condition usually responds to non-surgical care within several weeks.

What can I do for myself?

You should use as many of these treatments as possible concurrently:

- q Wear supportive shoes at all times when standing/walking.
- q Add an arch support to your shoe. (we recommend Superfeet orthotics (green) - which can be purchased at The Depot Store next to the Department of Foot and Ankle Surgery.)
- q Avoid standing or walking barefoot. Avoid flat footwear like slippers or sandals.
- q Perform calf stretching exercises for 30-60 seconds on each leg at least two times per day. (Stand an arm's length away from the wall, facing the wall. Lean into the wall, stepping forward with one leg, leaving the other leg planted back. The leg remaining back is the one being stretched. The leg being stretched should have the knee straight (locked) and the toes pointed straight at the wall. Stretch forward until tightness is felt in the calf. Hold this position without bouncing for a count of 30-60 seconds. Repeat the stretch for the opposite leg.)
- q Lose weight.
- q Modify your activities. (Decrease the time that you stand, walk, or engage in exercise that put a load your feet. Convert impact exercise to non-impact exercise – stationary cycling, swimming, and pool running are acceptable alternatives.)
- q Use ice on the painful area for 15-20 minutes, at least 2-3 times per day. (Option A - Fill a styrofoam or paper cup with water and freeze it. Peel back the leading edge of the cup before application. Massage the affected area for 15-20 minutes. Option B –Apply an ice pack for 15-20 minutes. CAUTION: AVOID USING ICE WITH CIRCULATION OR SENSATION PROBLEMS.)
- q Use an oral anti-inflammatory medication. (We recommend over-the-counter ibuprofen. Take three 200mg tablets, three times per day with food – breakfast, lunch, and dinner. To obtain the proper anti-inflammatory effect, you must maintain this dosing pattern for at least 10 days. Discontinue the medication if any side effects are noted, including, but not limited to: stomach upset, rash, swelling, or change in stool color. IF YOU TAKE ANY OF THE FOLLOWING MEDICATIONS, DO NOT TAKE IBUPROFEN: COUMADIN, PLAVIX, OR OTHER PRESCRIPTION OR OVER-THE-COUNTER ORAL ANTI-INFLAMMATORY MEDIATIONS. IF YOU HAVE ANY OF THE FOLLOWING HEALTH CONDITIONS, DO NOT TAKE IBUPROFEN: KIDNEY DISEASE OR IMPAIRMENT, STOMACH OR DUODENAL ULCER, DIABETES MELLITUS, BLEEDING DISORDER.)
- q See your doctor when you have failed to respond to the above regimen after 1-2 months of application.

What can my doctor add?

- q Prescribe physical therapy. (Ultrasound and interferential electric current therapy can be useful methods of reducing inflammation.)
- q Refer you for custom-made foot orthotics. (Custom foot orthoses are not a covered benefit of the Kaiser Health Plan. However, custom foot orthoses are available through the Department of Foot and Ankle Surgery on a fee for service basis.)
- q Refer you for a custom-made foot and ankle brace. (The brace is made for the affected side in cases of TPD. Kaiser usually pays for 80% of the cost.)
- q Put you in a cast. (A cast is applied from below the knee to the toes typically for 6 or more weeks. You are encouraged to use crutches and not put weight on the foot while the cast is on.)
- q Perform surgery. (There are a variety of surgical procedures that may be applicable in the surgical management of your problem. Although the natures of these procedures differ, there are some generalizations that can be made about surgery for your problem: The anesthesia is usually general or spinal. A below-knee cast is utilized for 6-12 weeks. Weight bearing is usually not allowed for 6 or more weeks. Recovery takes 4-12 months. The success rate is about 80%. About 15% are better, but still have some problems. About 5% are no better or worse. Risks include, but are not limited to: infection, nerve injury or entrapment, prolonged healing/recovery, wound or scar problems, incomplete relief of pain, no relief of pain, worsened pain, recurrent pain, calf atrophy, weakness, limping, incomplete arch restoration, failure of bone cuts or fusions to heal, and transfer of pain to other sites or joints.)