

PATIENT INFORMATION: TIBIALIS POSTERIOR TENDON DYSFUNCTION

What is tibialis posterior tendon dysfunction?

The tibialis posterior tendon is one of the major stabilising structures of the foot. It runs behind the ankle joint and inserts into the navicular, a bone in the foot. Its main function is to help maintain the arch of the foot and keep the foot turned inwards when weight bearing.

Dysfunction can occur as the tendon stretches, causing pain and loses its elasticity resulting in deformity of the foot. This can result in a flat foot and the tendon can rupture completely (in some cases relieving pain altogether). Pain can also occur on the outside of the ankle as the soft tissues impinge and get caught underneath the lateral malleolus or bony lump on the outside of the ankle.

What non-operative treatment options are there?

It is important to maximise non-operative treatment prior to considering surgery. In particular, lifestyle modifications such as weight loss can help relieve the pain from the stretched tendon and also help protect any surgical reconstruction that may be required.

Physiotherapy can be helpful to stretch a tight calf and encourage gait re-training to walk on the outside of the foot if possible.

Importantly, orthotics can be very useful for people with a painful flat foot deformity. An arch support can support the dysfunctional tendon. A heel wedge in the shoe can also help re-align the hindfoot, placing the heel bone back underneath the leg bone, to stabilise the ankle. Some people do not need any further surgery provided they have suitable orthotics.

Injections into the soft tissues on the outside of the ankle can also help target pain and can relieve symptoms from impingement.

What operations are there to treat tibialis posterior dysfunction?

If you have attempted non-operative treatment, and still are unable to mobilise, have lots of pain and/or have significant problems with footwear, you may be suitable for corrective surgery. This type of surgery depends on whether or not you have developed arthritis, or

stiffness, in the foot and ankle.

If there is no arthritis in your foot or ankle, and the foot is still mobile (able to be assessed by a combination of clinical examination and imaging) a tibialis posterior tendon reconstruction may be suggested. This involves a series of small operations that combined corrects the deficiencies contributing to a flat foot. These procedures include:

- Using another tendon, the flexor digitorum longus (FDL), to take over the role of the degenerate tibialis posterior tendon. A 5-8cm incision is made over the inside of the foot to find this tendon and position it where the tibialis posterior tendon used to be. The foot has multiple other tendons that mimic the function of the FDL and it is not normally missed when used for the tendon transfer.
- The soft tissues on the inside of the foot, collectively called the spring ligament, are tightened up and fixed with a small anchor into the bone.
- To protect this repair, the heel bone is cut and moved to reposition it under the leg bone (a varising calcaneal osteotomy). This is fixed with one to two screws to stabilise the osteotomy. This can be done via a minimally invasive technique in some circumstances.
- In certain circumstances such as severe ligamentous laxity and obesity, an additional screw into the subtalar joint may be used to hold open the joint and help prevent the deformity from recurring. Approximately 30% of patients need this screw removed by six months.
- Sometimes the calf muscle needs to be lengthened if the deformity has been present for a long time. This involves a small incision on the inside of the leg approximately 10cm below the knee.

If arthritis is present in the joints around your foot and ankle (subtalar joint, talonavicular joint or calcaneocuboid joint) it might be more appropriate to fuse your foot. This procedure is called a triple arthrodesis as these three joints are fused. This is usually done via a combination of arthroscopic, or keyhole surgery, and open surgery. There are normally two incisions, one on each side of the foot. This procedure treats the pain from the arthritis in these joints but as a

consequence the foot is quite stiff.

What happens after the operation?

Both procedures commonly require an overnight stay in hospital. A half-cast is applied to the foot at the end of the operation which helps support the foot and ankle and provide some pain relief. Patients are required to be non-weight bearing for two weeks while the wound heals. After two weeks, patients will have a wound check, stitches removed and be fitted with a walking cast or moon boot. Patients are normally permitted to partially weight bear in the cast or boot until six weeks after the operation. They are progressively allowed to increase their weight bearing status over the following four weeks and fully weight bear in the cast or boot ten weeks following the operation. An x-ray will be taken out of the plaster. If this shows the osteotomies and/or fusions have united, patients can then weight bear as tolerated out of the cast.

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| Two weeks post-operatively | Non weight bearing |
| Two to six weeks post-operatively | Partial weight bearing in a walking cast or boot |
| Six to ten weeks post-operatively | Gradually increase weight bearing in a walking cast or boot |
| Ten weeks post-operatively | Weight bear as tolerated in a cast or boot |
| After ten weeks post-operatively | Weight bear as tolerated without a cast or boot in a supportive shoe. |
| Six to twelve months post-operatively | Swelling resolves and patient restores normal gait |

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What are the risks of a flexible flatfoot reconstruction (tendon transfer)?

Sometimes the deformity can recur. Patients at high risk for recurrence include obese patients, patients with significant ligamentous laxity and patients with inflammatory arthropathy like rheumatoid arthritis. In the event of a recurrence of the deformity, revision surgery may be required which is normally a triple fusion.

Rarely the wounds can become infected. These can be treated with dressings and/or antibiotics. More rarely, a formal wound debridement under a general anaesthetic is required.

Occasionally the osteotomy site, where the heel bone is cut to support the tendon transfer, fails to unite. In this instance revision surgery may be required to encourage the bone to heal.

Sometimes metalware used to hold the corrected position of the foot is prominent and requires removed. In particular, studies suggest the use of a screw in the sinus tarsi requires removal of the screw in 30% of patients.

There are many small nerves in the foot and sometimes they can be damaged during the surgery. This may result in numbness or tingling over the toes or the scar itself.

This is a painful procedure and you will experience some discomfort following the surgery.

There is a small chance of developing a blood clot which can form in your legs or your lungs. This risk of this will be discussed with you. Being non-weight bearing for two weeks following the surgery increases the risk of a blood clot. In some patients, blood-thinning medication such as aspirin may be prescribed to reduce the risk.

What are the risks of a triple arthrodesis?

Your foot will become stiff following the procedure. You may have a small, mildly noticeable limp due to the change in your gait.

The stiffness in the joints that are fused increases the stress around the fusion and arthritis can

occur in the ankle or midfoot as the patient ages. Sometimes patients need to have these joints treated as well.

There is a small risk of non-union at the fusion sites. The risk of a non-union is five times higher in smokers compared to non-smokers so it is generally preferable to cease smoking prior to the procedure. In an established non-union, revision surgery may be required to encourage the bones to heal.

Sometimes the metalware is prominent and needs to be removed once the bones have healed.

There is a small chance of developing a blood clot which can form in your legs or your lungs. This risk of this will be discussed with you. Being non-weight bearing for two weeks following the surgery increases the risk of a blood clot. In some patients, blood-thinning medication such as aspirin may be prescribed to reduce the risk.

If you have any other questions please contact the surgery below:

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