

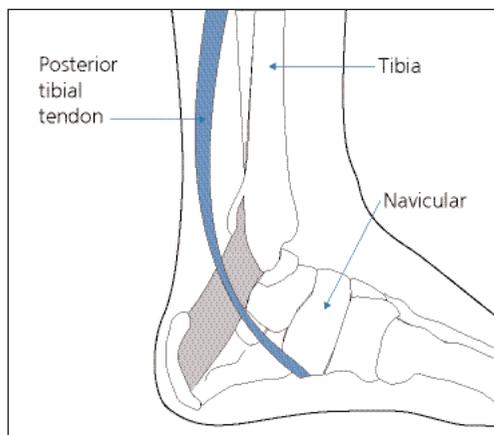
A patient's guide to

# adult aquired flatfoot deformity **or** tibialis posterior tendon dysfunction

The Foot and Ankle unit at the Royal National Orthopaedic Hospital (RNOH) is a multi-disciplinary team. The team consists of three specialist orthopaedic foot and ankle consultant surgeons (Mr Singh, Mr Cullen and Mr Goldberg), specialist doctors in training, a physician assistant, clinical nurse specialist, orthotists, physiotherapists and occupational therapists. All team members are specialised in foot and ankle care and work together to provide and deliver a quality service.

## Tibialis Posterior Tendon Dysfunction

The tibialis posterior is a muscle in the lower leg. The tendon from this muscle runs behind the inside bone on the ankle (called the medial malleolus), across the instep and attaches to the bottom of the foot. The tibialis posterior is important as it helps to hold the arch of the foot up and stop the foot rolling over. Sometimes the tendon becomes stretched and inflamed. This condition can be called Tibialis Posterior Tendon Dysfunction, Tibialis Posterior Insufficiency or Acquired Adult Flat Foot.



## Common causes

**Flat footedness** – most people who develop the condition already have flat feet. With overuse or continuous loading, a change occurs where the arch begins to flatten more than before, with pain and swelling developing on the inside of the ankle. Inadequate support from footwear may occasionally be a contributing factor.

**Trauma or injury** – occasionally this condition may be due to a sprain or direct blow to the tendon.

**Age** – the risk of developing Posterior Tibial Tendon Dysfunction increases with age and research has suggested that middle aged women are more commonly affected.

**Other possible contributing factors** – being overweight and inflammatory arthritis.

## Classification

Tibialis Posterior Tendon Dysfunction is a condition of increasing symptoms and deformity. It is however loosely classified into four stages as described below.

### Stage one:

- Tendon is stretched
- Medial ankle pain (instep), especially when walking
- Swelling along the tendon
- Able to stand on tiptoe on one leg
- Usually treated with insoles and physiotherapy

### Stage two:

- Tendon is partially torn
- More severe pain and swelling
- Increased flattening of the foot
- Unable to go on tiptoe on one leg
- Treated as above, tendon reconstruction if necessary

### Stage three:

- Heel is 'fixed'
- Treated with the use of insoles (orthoses)
- A fusion of the hind foot may be necessary

### Stage four:

- Accompanying ankle deformity
- Surgery to the ankle may also be necessary

## Common symptoms

**Pain** – and/or swelling behind the inside of your ankle, along your instep or the outside of the ankle and foot. You may be tender behind the inner ankle where the posterior tibial tendon courses and occasionally get burning, shooting, tingling or stabbing pain as a result of inflammation of the nerve inside the tarsal tunnel.

**Difficulty walking** – the inability to walk long distances and a generalised ache while walking even short distances. This may probably become more pronounced at the end of each day.

**Change in foot shape** – sometimes your tendon stretches out, this is due to weakening of the tendon and ligaments. When this occurs, the arch in your foot flattens and a flatfoot deformity occurs, presenting a change in foot shape.

**Inability to tip-toe** – a way of diagnosing Posterior Tibial Tendon Dysfunction is difficulty or inability to ‘heel rise’ (stand on your toes on one foot). Your tibialis posterior tendon enables you to perform this manoeuvre effectively. You may also experience pain upon attempting to perform a heel rise.

## **How it progresses**

Ageing leads to decreased strength of muscles, tendons and ligaments. If a person has flat feet, a greater load is placed on their tibialis posterior tendon. Over time this can cause stretching, inflammation and degeneration of the tendon, which may result in the tendon tearing. This process has a knock on effect to the arch of the foot, which may appear collapsed and the position of the bones of the foot and ankle may alter.

## **Reasons for a tibialis posterior tendon reconstruction**

A tibialis posterior tendon reconstruction is usually performed for stage two symptoms, when the tendon is partially torn, there is pain and swelling, the foot is becoming flatter, it is not possible to go up on tiptoes on the foot and function is becoming limited.

## Expected outcome:

- Improved function/mobility/muscle strength
- Improved pain relief and less need to take painkillers
- Improved arch height and alignment
- Stop the progression of the deformity
- Able to do a single heel raise
- Returning to low impact sports may be possible but strenuous sport is unlikely
- Full recovery may take up to twelve months.

## Treatment

The adult acquired flatfoot is best treated early. Accurate assessment by your doctor will determine which treatment is suitable for you.

## Non surgical

Reduce your level of activity and follow the [RICE](#) regime:

**R – rest** as often as you are able. Refrain from activity that will worsen your condition, such as sports and walking.

**I – ice**, apply to the affected area, ensure you protect the area by applying a towel over the foot before using the ice pack.

**C – compression**, a Tubigrip or elasticated support bandage may be applied to relieve symptoms and ease pain and discomfort.

**E – elevate** the affected foot to reduce painful swelling.

You will be prescribed pain relief in the form of non-steroidal anti-inflammatory medications (if you do not suffer with allergies or are asthmatic).

**Immobilisation of your affected foot** – this will involve you having a below the knee cast for four to eight weeks. In certain circumstances it is possible for you to have a removable boot instead of a cast. A member of the foot and ankle team will advise as to whether this option is suitable for you.

**Footwear is important** – it is advisable to wear flat sturdy lace-up shoes, for example, trainers or boots. This will not only support your foot, but will also accommodate orthoses (shoe inserts).

Orthoses (insoles, functional orthoses, ankle supports, braces, ankle foot orthoses (AFOs)) – are usually custom-made to increase the functional stability of the foot and improve the mechanical properties of the tendon as well as reducing the actual degree of strain on the tendon. This reduces pain and inflammation.

Physiotherapy – exercises and physiotherapy are often used to increase mobility, strengthen the tendon itself, stretch your Achilles tendon as well as reduce pain.

## Surgical technique(s)

Surgery is usually performed when non-surgical measures have failed. The goal of surgery is to eliminate pain, stop progression of the deformity and improve a patient's mobility.

More than one technique may be used, and surgery tends to include one or more of the following:

- The tendon is reconstructed or replaced using another tendon in the foot or ankle. The name of the technique depends on the tendon used:
  - Flexor digitorum longus (FDL) transfer
  - Flexor hallucis longus (FHL) transfer
  - Tibialis anterior transfer (Cobb procedure)
- Calcaneal osteotomy – the heel bone may be shifted to bring your heel back under your leg and the position fixed with a screw
- Lengthening of the Achilles tendon if it is particularly tight
- Repair one of the ligaments under your foot

If you smoke, your surgeon may refuse to operate unless you can refrain from smoking before and during the healing phase of your procedure. Research has proven that smoking delays bone healing significantly.

## **Before the operation (pre-operatively)**

You will see a pre-admission nurse to check you are medically well enough for surgery. It is important to mention any medicines that you are taking, either prescribed or non-prescribed, including over the counter medications, herbal remedies or aspirin, warfarin, hormone replacement therapy (HRT), the contraceptive pill or medication for high blood pressure.

Prior to admission for your surgery there are a number of issues that need to be considered, for example, can someone help you carry out basic every day tasks such as preparing food and food shopping? If you have stairs, how will you get up and down them? Do you have sturdy hand rails? If your toilet is downstairs, would it be easier to have your bed downstairs until you have recovered and are able to negotiate the stairs safely?

The pre-admission nurse will discuss these with you and if they have any concerns about your coping at home after your operation, they may refer you to a physiotherapist and/or an occupational therapist. The therapist will telephone you to discuss your needs and it may be necessary to attend for a more in-depth assessment. This will ensure that we plan for your discharge home safely and shorten your stay in hospital.

## **What to bring with you**

Please ensure that you have a flat sturdy shoe to wear on the non-operated foot following surgery. If you use a walking stick or crutches, please ensure you bring these with you.

## After your operation

A physiotherapist will see you on the ward and teach you how to walk using a walking aid. If you have to use stairs at home you will be taught the safest way to do this.

You will usually stay in hospital for approximately one to two days after your operation. Treatment is individual for each patient. However, it is normal, following a tendon transfer and calcaneal osteotomy, for you to have a plaster cast in place following your operation. Your foot may be placed in an inverted position (facing inwards). You need to make sure that you do not get the plaster wet.

## Outpatient review

After two weeks you will have your plaster changed and stitches removed. A new plaster will then be re-applied.

Your plaster cast will be changed every two weeks until your foot is in a neutral position. You will be non weight bearing (this means NO weight is to be put through the affected limb) until your foot is in a neutral position. When the foot has reached a neutral position you may put your full weight through the operated limb while walking.

You will usually come out of the plaster completely six to eight weeks after the operation (depending on the operation you have had) and you are likely to then have your foot in a supportive walking boot.

Prolonged physiotherapy is required following your operation. You may also need to have an insole for your shoe and this will be arranged with the orthotist should it be necessary.

## Things to look out for

- **Swelling** – you should expect some swelling after your operation. If swelling persists or worsens and you are concerned, seek advice from a member of the foot and ankle team or your GP.
- **Infection** – any operation is at risk of infection. Fortunately it is not common in this type of surgery but a small number of patients do get a wound infection and these normally settle after a short course of antibiotics. In rare circumstances, the infection may be more severe and require further surgery to remove infected tissue and administer a longer course of antibiotics.
- **Blood clots** – Deep Vein Thrombosis (DVT) or Pulmonary Embolus (PE) are rare but can occur. Please inform the team if you have had a DVT or PE in the past or if you have a family history of clotting disorders. You will be given an anti-embolic stocking to wear on your other leg and daily blood thinning injections while your leg is in plaster.

- **Numbness or tingling** – this can occur at the surgical site(s) if fine, hair-like nerves are cut or more major nerves are stretched. This is normally temporary, however, patchy numbness or sensitised areas may be permanent. In rare circumstances, the nerves can become hypersensitive in a condition called 'Complex Regional Pain Syndrome'. This can lead to severe pain as well as colour and temperature changes in the foot. If this happens, your consultant will discuss treatment with you.
- **Wound healing** – if blood supply to the area is not good, wounds may be slow to heal. If this is the case, more frequent wound dressings may be required to ensure that the wound does not become infected.
- **Scarring** – any type of surgery will leave a scar. Occasionally this can cause pain and irritation. If this happens, please discuss this with your consultant.
- **Metalwork** – occasionally screws or plates can cause pain after surgery. If this is the case, please discuss your concern with your consultant as it may be possible to remove the metalwork once the tissues have healed.

**REPORT SEVERE PAIN, MASSIVE SWELLING, CHEST PAIN, EXCESSIVE NUMBNESS OR PINS AND NEEDLES.**

## Getting back to normal

- **Returning to work:** If your job is mostly sitting, you may be allowed back to work four weeks following surgery, provided you can keep the leg elevated. However, if your job is more physical and involves long periods on your feet then it may take longer.
- **Walking:** Most people aim to be walking independently three months after the operation. However this depends on your walking tolerance before the operation.
- **Footwear:** It can take several months for ankle swelling to go down, but most people can wear normal footwear by six months.
- **Driving:** If you have an automatic car and undergone surgery on the left ankle, you can usually drive by two weeks after your operation. Otherwise, it may take about three months to be able to drive. In order to be safe to drive, you must be able to perform an emergency stop. You must inform your insurance company regarding the type of operation that you have undergone to ensure that your cover is valid.
- **Sport:** Resuming sporting activity depends on your operation and will be discussed with you. Generally you can return to low impact sports approximately six months after your operation.

If you have any comments about this leaflet or would like it translated into another language/large print, please contact the Clinical Governance Department on 020 8909 5439/5717.

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