

## Adult Acquired Flat Foot (also known as Posterior Tibial Tendon Dysfunction):

### WHAT IS IT?

The tibialis posterior is a muscle in the lower leg. The tendon from this muscle runs behind the inside bone on the ankle under the instep and attaches under the sole of the foot. This important muscle helps to hold the arch of the foot up. Sometimes the tendon becomes stretched and inflamed due to overuse or injury and this condition can be called Tibialis Posterior Tendon Dysfunction, Tibialis Posterior Insufficiency or Acquired Adult Flat Foot.

### Which Stage?

Tibialis Posterior Tendon Dysfunction is a condition of increasing symptoms and deformity and is considered to have four stages as described below.

#### Stage one:

- Tendon is stretched
- ankle pain (inside of ankle and instep), especially when walking
- Swelling along the tendon
- Able to stand on tiptoe on one leg (see picture)
- Treatment with insoles, supportive shoes and exercises



#### Stage two:

- Tendon is partially torn
- More severe pain and swelling
- Increased flattening of the foot
- Difficulty/pain going onto tiptoe on one leg
- Treated as above, surgical tendon reconstruction if treatment fails

#### Stage three:

##### As per Stage Two plus:

- The heel is stiff and 'fixed'
- Treatment using insoles (orthoses) and ankle support
- Surgery to fuse the hind foot may be necessary

#### Stage four:

##### As per Stage Three plus:

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

# Information for Patients:

## 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 fracture, 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, diabetes and inflammatory arthritis.

## COMMON SYMPTOMS:

- Pain – and/or swelling behind the inside of your ankle and along your instep. 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 the 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.

## Treatment

The adult acquired flatfoot is best treated early. If you suspect your tendon problem is at stage 1 (i.e. you are still able to stand on tip toes of the affected foot) or stage 2

## Information for Patients:

(your foot and ankle are still flexible rather than stiff and rigid) the problem can be managed well by following the advice in this leaflet. If you suspect your problem is stage 3 or 4 then please self-refer to your local NHS Borders Podiatry Service. Self Referral forms are available online or at your local health centre.

### Non surgical Management Stages 1 and 2:

If you are overweight try to get closer to your ideal weight. If you feel you need additional help with weight loss please self refer to NHS Borders Lifestyle Adviser Service – see 'Other Information' section below.

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. Try wearing a supportive arch support or insole which you can obtain from your high street chemist or online suppliers such as those listed in the 'Other Information' section below.

I – ice, apply to the affected area, ensure you protect the area from frostbite 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 may also try pain relief in the form of regular massage with 10% ibuprofen gel when painful (according to the instructions included with the gel). Please check with your pharmacist when buying the gel that you have no health reasons to prevent you safely using ibuprofen e.g. allergy or asthma.

Exercises and stretches are often used to increase mobility, strengthen the tendon itself, stretch your Achilles tendon as well as reduce pain. Suitable exercises can be found by following the link to the NHS Inform physiotherapy ankle exercises.

**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).**

In the first instance you should give these first line treatments at least 12 weeks to have an effect and if you are getting improvement, you should continue these treatments until the symptoms have resolved. If in the future the same symptoms return, then restart these treatments. If you find things do not improve gradually or get worse despite following this advice please self-refer to your local NHS Borders



## Information for Patients:

Podiatry clinic using the self-referral form which can be found online or at your local health centre.

### **Stages 3 and 4 (or 1 and 2 **after trying self help for 12 weeks with no improvement in symptoms**)**

We would advise you to self-refer to Podiatry Services or if you are considering surgery (stage 2 and beyond only) please discuss this with your GP who will make an appropriate referral for you.

These are some of the non-surgical management options for these stages:

All the treatments advised in stage one with the addition of:

Orthoses (insoles, functional orthoses, ankle supports, braces, ankle foot orthoses (AFOs)) – are sometimes custom-made to improve stability of the foot and to reduce the strain on the tendon. This also reduces pain and inflammation.

Once the tendon has been stretched (stage one), the heel starts rolling outwards.

Total immobilisation in a cast may help the symptoms to subside and prevent progression of the deformity in a smaller percentage of patients. Long-term use of orthoses may help stop progression of the deformity and reduce pain without surgery.

Non-surgical treatment is unlikely to prevent progression to stage three and four but may be chosen by some patients who either are unsuitable for surgery or prefer not to have surgery.

### **Surgical Options**

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. Stages 3 and 4 may require joint fusions to correct deformity and relieve pain.

### ***Other information:***

#### **Shoes and Insoles etc:**

Wider Fit Shoes: [www.widerfitshoes.co.uk](http://www.widerfitshoes.co.uk) Tel: 01933 311077

Healthy Step: <http://www.healthystep.co.uk/insoles/-/-/x-line-tpd/88>

Simply Feet Tel: 0845 3700380 [www.simplyfeet.co.uk](http://www.simplyfeet.co.uk)

## Information for Patients:

### Health and Wellbeing Information:

NHS Borders Lifestyle Adviser Service (weight loss and lifestyle change support and advice)  
<http://www.lass.scot.nhs.uk/>

*NHS Inform Physiotherapy ankle exercises:*  
<http://www.nhsinform.co.uk/msk/lowerbody/ankle/physiovideo/>