

Heel pain and Plantar Fasciopathy (pain beneath the heel)

What is it?

Persistent pain beneath the heel is one of the most common symptoms within the foot and ankle. Numerous medical terms are used to describe heel pain including plantar fasciitis, plantar fasciosis or policemen's heel. Clinicians prefer to use the terms plantar heel pain or plantar fasciopathy, these refer to pain under the sole of the foot (Plantar), within connective tissue collagen (Fascia) and disorder (opathy).

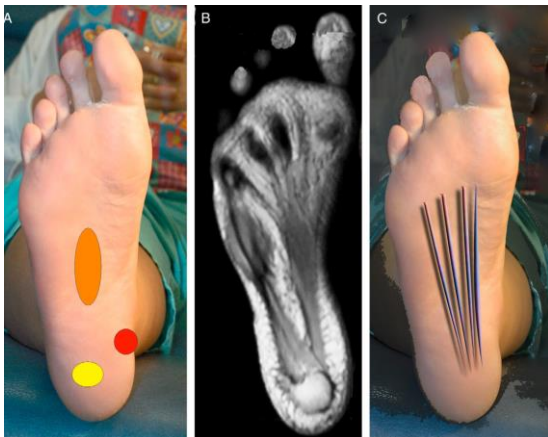
The plantar fascia is a broad band of fibrous tissue located from the heel to base of toes, enveloping muscles beneath the foot, assisting in stability of the arches during walking and exercise.

What does it do?

It functions similar to a tendon in storing and releasing energy, this makes activities such as running more efficient.

Why does it get painful?

Pain symptoms typically occur after too much exercise or activity that the plantar fascia is unaccustomed to such as prolonged standing. Excessive stress / strain loads upon connective tissues such as fascia, result in fraying or micro tears and secondary tissue thickening in the fascia. It may then become irritable at its attachment to the heel bone (calcaneum) known as traction periostitis.



A – common sites of heel pain
B – MRI scan showing the plantar fascia
C – sites of tension strain within the plantar fascia

James L. Thomas et al. 2010

How long does it last?

Plantar heel pain may last for weeks and often settles without treatment. Typically, it usually lasts for six to nine months and 80% of people's symptoms are clear by 24 months.

Are there other reasons it may occur?

It may affect anybody, but is most common in people over the age of 40 years. There are many theories why people experience pain including:

- Excessive, intense or sudden increases in exercise
- Weight gain

- Stiffness or weakness about the foot, ankle or lower limb
- Foot posture e.g., those with high or low arches
- Occupations that require long periods of standing upon hard floors

If you experienced an injury with sudden pain, swelling, bruising, redness or changes in the appearance of your foot shape, ask your GP to refer you into your local Musculoskeletal (MSK) service for opinion from a Foot and Ankle Health professional.

Signs and Symptoms

Pain typically occurs gradually without a specific episode of injury. It may be triggered by sudden increases in activity and exercise with or without a sudden change in the style of footwear used, e.g., walking for long periods in flat shoes after normally wearing heeled shoes. This may result in excessive loads to the plantar fascia tissue and the start of the pain process.

It typically affects one foot, but about one third of people experience pain in both. Pain at rising in the morning with the first few steps feeling very sore is common, easing as you move during the day but returning at the end of the day. It is known that long periods of standing aggravate symptoms.

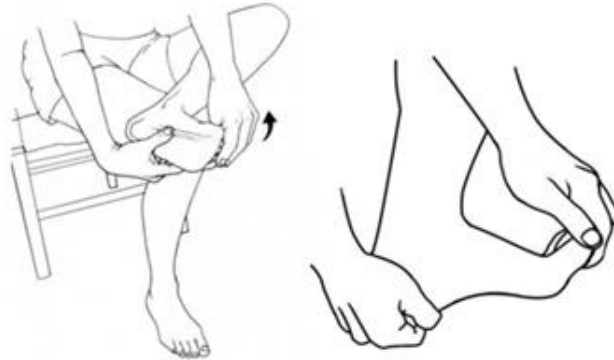
How can I manage my heel pain?

Most conditions that affect the musculoskeletal system (Bones, ligaments, tendons muscles and nerves) can be managed with simple activity changes and exercise e.g., reducing periods of running or standing, without the need to see a medical specialist. The following strategies may reduce your pain and lead to a quicker recovery.

- **Rest / activity modification:** Plantar fasciopathy treatment focuses upon reducing tissue stress temporarily, allowing more tolerable pain levels. Tissues take time to repair and pain may take some time to settle. A reliable indicator of progressing improvement is how pain feels first thing in the morning or when standing up. If, upon standing, pain lasts longer or is more intense then this may be a sign that you have overdone things the day or two before, so ease back on activity for a while.
- **Footwear:** Footwear is a known risk factor and a way to manage heel pain. Always use a soft cushioned sole, well fitted and wide enough to allow the toes to comfortably spread out. Avoid walking barefooted whilst heel pain is present. Some people find wearing a shoe that has a small heel more comfortable than flat shoes.
- **Medication:** National guidelines suggest paracetamol for pain and an anti - inflammatory tablet (NSAID) such as Ibuprofen to reduce pain and inflammation. These can raise the risk of heart attack or stroke and you should ideally consult with a pharmacist or GP if concerned and have a known history of cardiovascular disease.
- **Heel pads:** Use a thick soft foam or gel heel pads in your shoes to improve comfort. Ensure these are worn as soon as you rise in the morning and avoid barefoot walking on hard floors.
- **Ice massage:** roll your barefoot back and forth from toes to heel over a frozen plastic bottle or can. This may help gently desensitise symptoms and can be comforting at the end of a long day.



- **Taping the foot:** Your therapist may apply tape to your foot and show you how you may do this yourself. Taping attempts to immobilise and rest the plantar fascia, this often allows a patient to walk more comfortably. Avoid tape if you have fragile or sensitive skin. Do advise your therapist if concerned and stop use if a rash occurs.
- **Early exercises:** Plantar Fascia 'stretch': Assume the position below and gently bend your toes upwards and push with your finger or thumb into your arch, changing location frequently. Perform this 10 times for 10 seconds, three times per day.

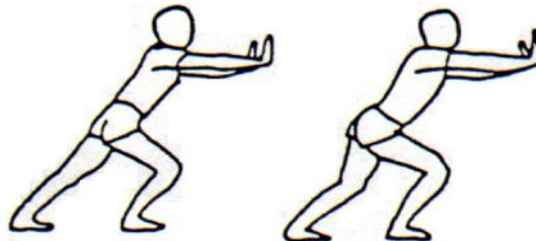


- **Standing plantar fascia 'stretch':** Assume the position below, be careful not to put too much weight upon the heel. This exercise is gently held still for 30 seconds and repeated three times per day



- **Calf stretches:** Frequent calf stretching may ease symptoms in the heel. The calf and plantar fascia are structurally linked. Stiff calf muscles may increase tension or the pull upon the fascia during standing and walking, they may restrict the foot from bending upwards overloading the plantar fascia and arches.

When we sleep our muscles, tendons and fascia may become stiff causing pain with the first few steps in the morning or when standing up. The aim of these exercises is to mobilise the muscles and fascia in the leg and foot, promoting optimal movement and calf muscle length.



Position your body against a wall as shown with your painful foot behind the body. Keep your feet straight, maintain the arch of the foot from rolling in and keep your heels to the ground. Swap feet over and repeat. Hold each stretch for 15 seconds and try not to bounce forwards and backwards. Progressively increase the stretch hold for 60 seconds 5 times per day. Perform every other day.

- **Strengthening / loading exercises:** The following exercise may improve calf muscle strength, ankle range of motion and normalise plantar fascia tissue structure and its ability to better tolerate mechanical loads.
 1. Insert a towel under your toes of the painful foot and slowly rise up onto your tiptoes on the count of 3 seconds and pause for 2 seconds.
 2. Gently ease back down on 3 seconds and pause 2 seconds
 3. Aim to repeat this no more than 12 times, perhaps start with a low number and build up progressively.
 4. Repeat the exercise 3 times per day for 3 weeks.
 5. After 3 weeks repeat the exercises but try adding weight, e.g. a rucksack with a heavy book or use a heavy bag. By adding weight we typically reduce repetitions to 10max and repeat four times a day for 3 weeks.
 6. After 3 weeks progress to 8 repetitions 5 times per day. Add a little more weight each week until stronger.



Rathleff et al 2014

Completing the exercises in this order may reduce the time you experience pain overall. It is also important to continue performing exercise once your pain has settled, to reduce the risk of pain returning.

It is normal to feel some discomfort whilst performing the exercises, but continued pain should be managed by reducing the frequency, try doing just 50% of the advised exercises and slowly build up again.

Summary

Heel pain usually occurs from overdoing things, with symptoms that may settle quickly or last for one to two years if not managed appropriately.

By following the above advice, you may be able to self - manage and reduce the length of time taken for pain to settle down.

If you have tried the exercises and followed advice but continue to experience pain, ask to see a foot and ankle professional.

Sources of information

James L. Thomas et al. The Diagnosis and Treatment of Heel Pain: A Clinical Practice. Guideline–Revision 2010. The Journal of Foot & Ankle Surgery 49 (2010) S1–S19.

Rathleff MS, Mølgaard CM, Fredberg U, et al. High-load strength training improves outcome in patients with plantar fasciitis: A randomized controlled trial with 12-month follow-up. Scand J Med Sci Spor 2014:n/a-n/a doi: 10.1111/sms.12313 [published Online First: Epub Date]].

Important information

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If after reading this information there are questions you would like to ask, please list them below and ask your nurse or doctor.

Reference

The following clinicians have been consulted and agreed this patient information:
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The Podiatry Department have agreed this patient information leaflet.

Next review date: April 2022

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