

*Understanding*  
**Plantar Fasciitis**



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# What is plantar fasciitis?

The most common cause of heel pain in Australia is plantar fasciitis (say PLAN-tar fashy-EYE-tuss). It all comes down to the ligament that runs from your heel bone and along the sole of your foot to support your arch. While the plantar fascia ligament is very strong, it is still a ligament like any other and over-straining can make it:

- weak
- tender
- swollen
- irritated
- painful
- thickened
- tight



However, unlike many other ligaments, the plantar fascia is crucial to standing and walking, meaning it is under strain much of the time. As such, undue heel pain during or following normal standing and walking is one of the leading symptoms of plantar fasciitis.

## How common is plantar fasciitis?

Very common, 1 in 10 people will develop plantar fasciitis in their lifetime. With simply standing and walking as a cause, it's no surprise plantar fasciitis is so common – especially in middle-aged people and people of any age who are on their feet a lot, such as military personnel, athletes, hospital staff and tradesmen.

Another reason plantar fasciitis is so common is because there are so many factors that can contribute to its development. Everything from your gait, ankle strength, body weight, exercise level and choice of footwear can play a role. And often, simply ageing itself grants no favours to our bones and joints.

# Understanding plantar fasciitis

Everyone gets foot pain at some time in their lives. Sometimes it is just a random ache, sometimes it just keeps coming back. If you have the latter, it could be plantar fasciitis.

In this book, you are going to learn all about this common condition and the treatment options available to everyone.



# How do I tell if I have plantar fasciitis?

Some sufferers get plantar fasciitis in both feet, others just one – either way there is a classic set of symptoms. Do any of these sound like you?

- You've just woken up and as you get out of bed you find the first steps to be unusually painful.
- You're watching a movie on the couch with your feet up, when you stand up as the credits roll you find your feet are aching and stiff.
- You've been on your feet at work for a few hours and as the day goes on the pain not only mounts but accelerates.
- You go about your daily life with mild foot pain that gets much, much worse when you climb stairs.
- You go jogging and you have some heel pain, but it seems to go away as you warm up only to return with a vengeance when your session is over.



# How do I tell if I have plantar fasciitis?

## Why does plantar fasciitis present like this?

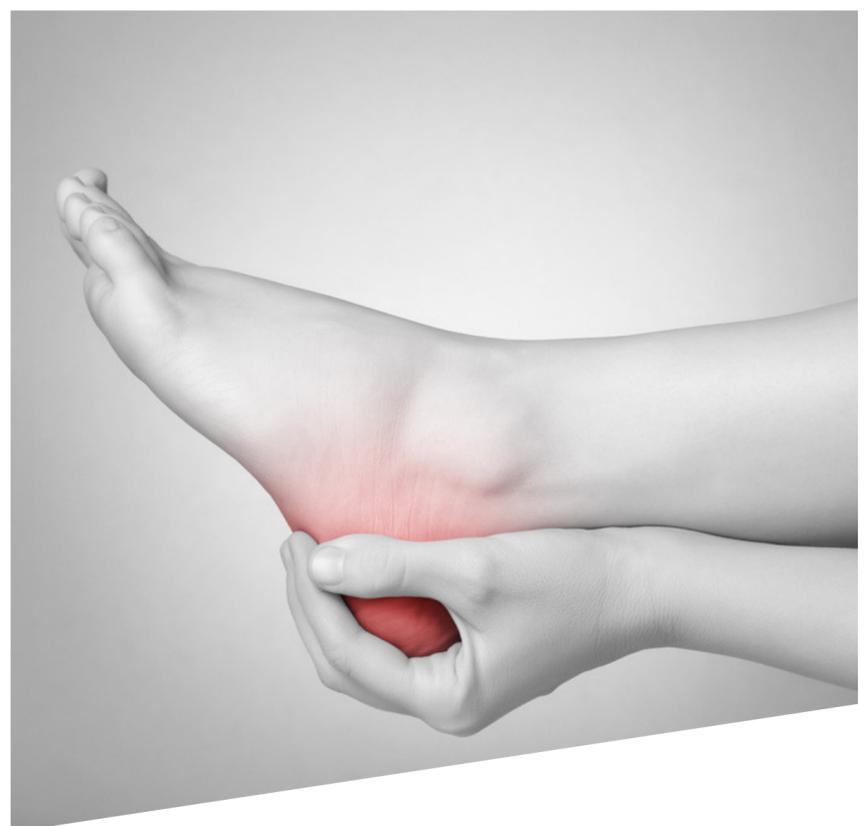
In the case of tissue trauma, when we rest or put our feet up, our injury repair cells along with fluid travel to the traumatised area to begin tissue repair. When we suddenly get up or move after resting the fluid disperses, putting increased pressure on our surrounding nerves and soft tissue. This results in intense pain for the first few steps until the fluid spreads and the pressure reduces making it easier to walk.

It is not practical to totally avoid standing and walking. The approach many people instinctively adopt is changing the way they walk, this, however, can lead to even worse problems as it can throw out the precise bio-mechanical balance of proper walking.

It's a recipe for further complications, including leg, hip, knee, ankle and back pain. This is how plantar fasciitis, through its knock-on effects, can drastically hamper a normal active life.

If plantar fasciitis goes untreated long enough, it can even lead to skeletal changes such as a heel spur. Clearly visible on X-rays, this bone growth extending from the heel at the anchor point of the plantar fascia ligament, is thought to develop in response to the constant strain.

Essentially, if you have persistent heel pain, you should really talk to a doctor, podiatrist or sports physician.

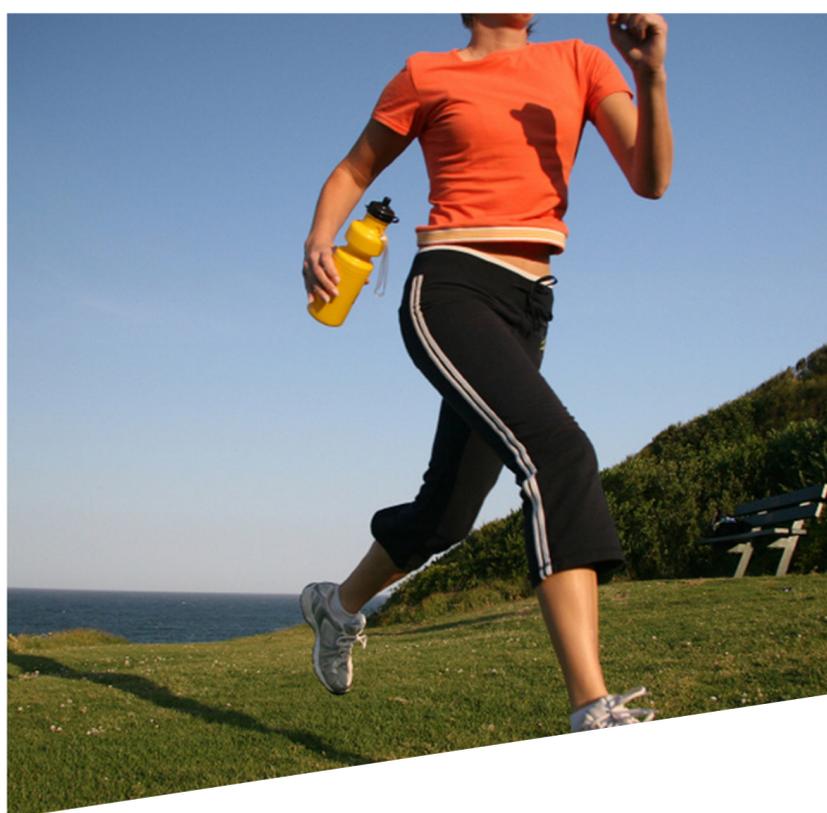


# What causes plantar fasciitis?

In normal walking, your plantar fascia ligament stretches every time your foot strikes the ground. Add in a repeated stressor and it means the ligament becomes weak, swollen, and irritated (inflamed). It may hurt for the entire time you are on your feet.

Risk factors for developing plantar fasciitis include:

- **Feet that roll in too much** – This could be due to pronation or flat feet.
- **Feet that roll out too much** – This could be due to supination or high arches.
- **Physical activity** - walking, standing or running for long periods.
- **Being overweight** – This places excess strain on muscles and joints.
- **Suddenly gaining weight** – This can be due to pregnancy or any rapid weight gain which puts sudden stress on the plantar fascia.
- **Wearing shoes that don't fit well** – If shoes are too small, the foot can become cramped which can affect muscle function and lead to increased pressure under the arch. At the same time, shoes that are too big can encourage the muscles of the foot to work harder to hold the foot in the shoe which can also lead to excess strain under the arch of the foot.



# What causes plantar fasciitis?

- **Wearing shoes that are worn out** – If shoes are worn out they can place the foot in an abnormal position, changing the way we walk and putting extra strain on surrounding muscles and ligaments.
- **Tight Achilles tendons** – This reduces the amount of movement at the ankle joint and therefore increases the strain through the plantar fascia as it has to work harder.
- **Tight calf muscles** – This leads to a shortened calf muscle, less movement at the ankle joint and increased stress under the arch of the foot.
- **Trigger Points** – Trigger points are a knot or irritable spot in muscle or soft tissue due to overuse, injury or exertion. We often have many trigger points throughout our body.
- **Repetitive overuse** – This could be due to sports or activities.
- **A foot injury** – When we injure a foot or ankle, our surrounding muscles, tendons and ligaments often spasm to protect us from further injury. During this process, trigger points can develop and ligaments can become stretched. This, in turn, can result in muscle weakness and other conditions such as plantar fasciitis.



# Pregnancy and plantar fasciitis

Pregnancy is also a contributing factor to plantar fasciitis. Actually, it is two causes at once. First, the increase in weight puts extra pressure on feet.

Second, one of the physiological changes of pregnancy is a loosening of the ligaments. In turn, this can lead to stretching of the plantar fascia ligament which can trigger the condition.



# Treatment for plantar fasciitis

## Stages of treatment

Plantar fasciitis is almost always treatable. There are three phases:

1. Relieve symptoms to address the pain and inflammation.
2. Promote full healing through addressing the causes of the plantar fascial strain.
3. Preventative measures to ensure the plantar fascia ligament is not further damaged, including improving strength and flexibility and correcting foot posture.

If you suffer from plantar fasciitis you may find that moving through the three stages of treatment can take up to a year. Yes, this is a long time, however 95 percent of people either recover from or are able to manage the condition without surgery and in most cases with the right treatment and advice the symptoms can reduce much sooner.

## Moving through the phases of treatment

Because plantar fasciitis has many possible causes (often more than one at a time) and because everyone's feet are different, the mix of treatment measures and their effectiveness is never the same from case to case. This does however give medical professionals a lot of options to work with. Surgery is always the very last resort.



# Treatment for plantar fasciitis

## Footwear

Because plantar fasciitis is often caused by how you walk, it is vital that your footwear is comfortable, supportive and suitable for your job or activity. Choosing the correct footwear, appropriate orthotics and supportive strapping can improve the way you walk through changing the alignment and pressure on your joints. This alone can be highly effective in reducing plantar fasciitis strain and pain.



## Selecting footwear

There are 4 important factors to remember when shoe shopping:

1. The back of the shoe's heel must be firm and strong. You should not be able to bend the heel counter (back of the shoe) with your thumb when pressing firmly in this area.
2. The shank or the middle of the shoe must be strong, ie must not bend in half.
3. The toe of the shoe must bend for lift off during gait.
4. The shoe must have laces, velcro or retainers for support. Elastic is not recommended as this stretches over time resulting in more movement and instability.

# Treatment for plantar fasciitis

## Podiatry

If you are suffering from plantar fasciitis, you should visit your podiatrist for regular check-ups. This will include gait analysis (looking at how you walk), joint and muscle assessment to determine contributing factors and appropriate treatment.

## Physical therapy

Physical therapy can also assist people with plantar fasciitis, as it focuses on treatment of muscles, bones and tendons of the of the body. It is vital to have some form of physical treatment even if you start to feel better with a change of shoes or inserts as this may only provide temporary relief and the risk of plantar fasciitis can be extremely high if the cause and biomechanical dysfunction has not been addressed.

## Acupuncture and dry needling

This technique involves the gentle insertion of fine acupuncture needles into tight or spasmed muscles or soft tissue to reduce tension and tightness. This technique is also referred to as dry needling or trigger point release.



# Treatment for plantar fasciitis

## Remedial Massage

Massage of the muscles in the foot and calf is often highly effective in addressing heel pain because the pain can often be referred from muscles higher up in the body ie calf, knee, hip and back.

## Low Level Laser Therapy



Treating plantar fasciitis with low level, painless laser involves using low-powered pulses to reduce both pain and inflammation, whilst improving circulation and reducing spasmed muscles or scar tissue. Laser works by creating a chemical reaction within the cells and studies have proven that this is carried systemically through the blood stream making this an effective modality for many chronic conditions and also identifying that laser treats a much larger area than just the site of treatment.

## Injections of Corticosteroids

Corticosteroids are powerful anti-inflammatory agents that can be injected to specifically target problematic areas. While slightly invasive and unpleasant, it is nonetheless an effective and well-proven method to reduce pain and swelling associated with plantar fasciitis.

# Treatment for plantar fasciitis

## Extracorporeal shockwave therapy

Extracorporeal shockwave therapy (ESWT) works by sending sonic impulses into the affected area. It can often help reduce plantar fasciitis symptoms in cases that have not responded to other treatments.



## Prolotherapy

In prolotherapy, a concentrated combination of dextrose (a naturally occurring form of glucose) and local anaesthetic is precisely injected into the affected tissue. These careful injections stimulate natural healing and growth on a cellular level.

## Medications

Painkillers are effective in treating the heel pain symptoms of plantar fasciitis; however, they mask the severity of the conditions and do not address the cause. Over-the-counter painkillers, such as ibuprofen, are usually enough to help with the pain and your doctor may also prescribe stronger anti-inflammatories.



Topical creams are also recommended such as Tiger Balm, Fisiocrem and Voltaren gel and can be used with massage techniques of the heel and calf which is also effective in providing pain relief.

# Treatment for plantar fasciitis

## Surgery

Yes, but it is not common; statistics report only approximately 5% of cases require surgical intervention. While generally not a major procedure, plantar fasciitis surgery is usually the last resort after all other treatment avenues have been explored and the pain continues to impede your daily life.

As a mark of their reluctance for surgery, many specialists will attempt non-surgical treatments for at least 6-12 months before surgery is considered. Moreover, specialists also expect that non-surgical treatments can take up to 12 months to be fully effective.



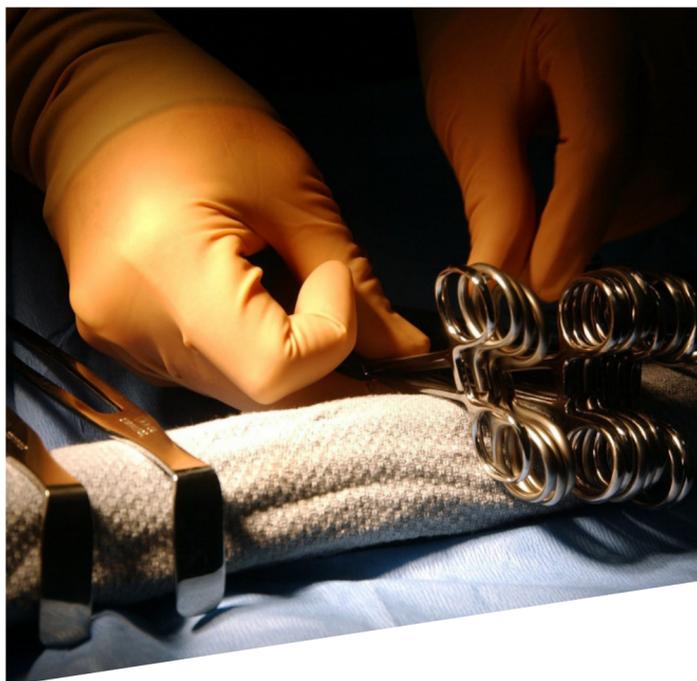
# Treatment for plantar fasciitis

## Surgical procedures

In the unusual case when plantar fascia surgery is undertaken, it will generally be a day surgery performed under local, rather than general anaesthetic.

There are three main procedures in plantar fasciitis surgery:

1. **Plantar fascia release** – a procedure that involves cutting part of the plantar fascia ligament to release tension and relieve the persistent inflammation. It is minimally invasive and usually done by endoscopy. Open surgeries are also carried out in rare cases.
2. **Heel spur removal** – at the time of plantar fascia release surgery, some doctors also opt to remove the heel spur itself. In isolation, the spur is not usually a problem, but how it interacts with the ligament can cause problems. Heel spurs are generally quite small and the procedure is not significantly more involved than plantar fascia release.
3. **Stretching or loosening specific foot nerves** – Stretching or loosening foot nerves is referred to as neurolysis and completely removing or severing certain nerves is called a neurectomy. Both techniques aim to reduce painful stimulus.



# Treatment for plantar fasciitis

## Orthotic treatments

Common, quick and non-invasive, treating plantar fasciitis with insoles or orthotics is simple and effective. The insert in your shoe 'tunes' the bio-mechanical forces of your standing and walking to reduce tissue stress and improve the alignment of your joints, bones, muscles and tendons.

However, there are so many different kinds available that it's difficult to find the right type for your foot and specific case of plantar fasciitis. In general, there are three kinds of plantar fasciitis insoles.

### 1. Off-the-shelf orthotics

Most people will initially encounter off-the-shelf orthotics at pharmacies or sports stores. Usually the people buying them have not sought professional advice and their inserts are not customised.



**synxsole**<sup>®</sup>  
ORTHOTICS

When shopping for these types of orthotics it is important to look for neutral orthotics such as Synxsole orthotics which are suited to all foot types ie– those that roll in (pronation) and those that roll out (supination). Without professional advice, you want to reduce the risk of causing further damage by choosing an orthotic that is safe and gentle and does not press up too much into the delicate arch area, especially given how tender and inflamed it can be with plantar fasciitis.

Off-the-shelf orthotics can be a great starting point for anyone suffering from heel and arch pain. If pain persists, you should always consult your podiatrist or health professional with the inserts you have purchased as in some cases these can be modified according to your needs.

# Treatment for plantar fasciitis



## 2. Pre-fabricated orthotics

This type of orthotic is usually encountered via consultation with your podiatrist where they are carefully matched according to your needs and foot type. They are then quickly customised by a trained professional while you wait by adding wedges, pads or raises ie. prescribed according to your individual needs.

## 3. Casted customised orthotics

A casted orthotic is a one-off orthotic created specifically to treat your case of plantar fasciitis. These orthotics are prescribed after expert assessment by a podiatrist or health professional. As they are built from a cast of your actual foot, each is unique and offers the maximum effectiveness in treating your case.

Customised orthotics are best for extreme foot types that have difficulty fitting into a prefabricated orthotic, i.e. severely pronated or supinated foot types. Cases who have responded well to prefabricated orthotics and are looking for a more permanent orthotic are good candidates for custom made orthotics as well as those with severe symptoms.

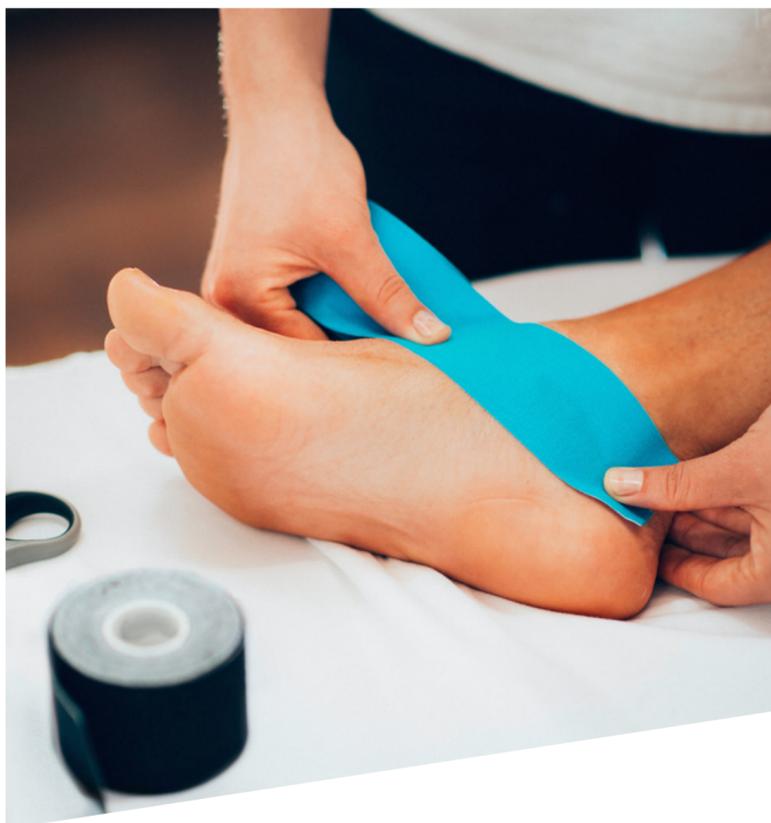


# Treatment for plantar fasciitis

## Does taping work?

Yes, taping is an effective treatment for plantar fasciitis. Just like the huge range in orthotics, there are many types of taping techniques and each is highly customisable. Two of the most popular types of tape are:

- **Rigid taping** – A firm tape designed to restrict movement and is ideal for acute and extremely painful cases. Even though its adhesive is very strong, this tape must be replaced regularly and be kept dry when showering. The other negative is that it should not be used for long periods unless advised by your healthcare professional.
- **Kinesiotaping** – A flexible, stretchy tape that is designed to guide and assist joint movement and improve joint awareness while also enabling full joint range of motion. Kinesiotaping generally lasts longer between applications and can be worn in the shower. There is a growing trend for this type of taping with the most popular tape on the market called Rocktape. Rocktape has strong adhesive and is hypoallergenic making it a safe and superior choice.



# FAQs about plantar fasciitis

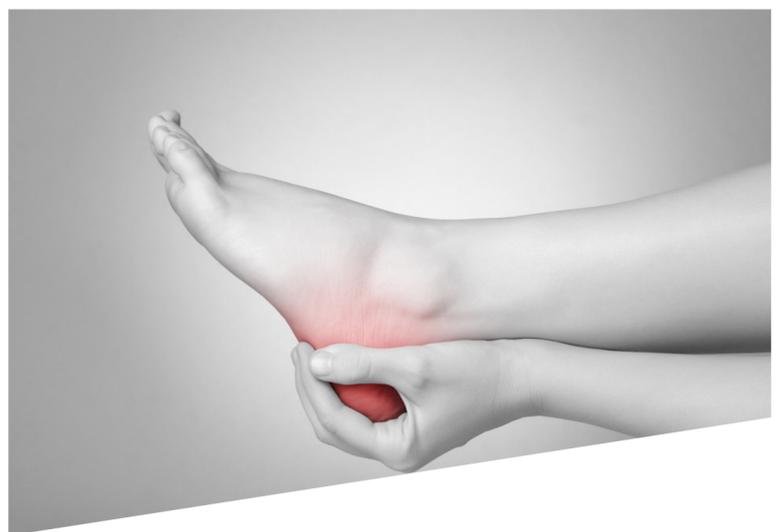
## How did I get plantar fasciitis?

Plantar fasciitis can develop over time and not usually related to a single incident. Often, the root cause is the complex interaction of your entire biomechanical system – muscles, joints, bones, tendons and ligaments – as you go about everyday life. This, coupled with inappropriate footwear, increased activity or prolonged standing can exacerbate symptoms and lead to the condition.

That being said, the appearance of plantar fasciitis pain can usually be traced to some ongoing change in your activities weeks or months beforehand. Perhaps you have been running more, trialing a new workout, gaining weight, walking barefoot on the beach, working long hours on your feet or climbing ladders – all can be risk factors in bringing a long-developing case of plantar fasciitis to the surface.

## How long does it take for the heel pain to subside?

Plantar fasciitis is different for everyone, so the answer to how long the pain will take to respond to treatment is also different for everyone. Firstly, plantar fasciitis sometimes heals by itself. This is uncommon, as most of the time the pain stabilises or decreases over time with the right treatment plan. In the best-case scenario, full recovery can take approximately 6 weeks. Non-surgical treatment can last up to a year although many cases can generally resolve between 6-12 months.



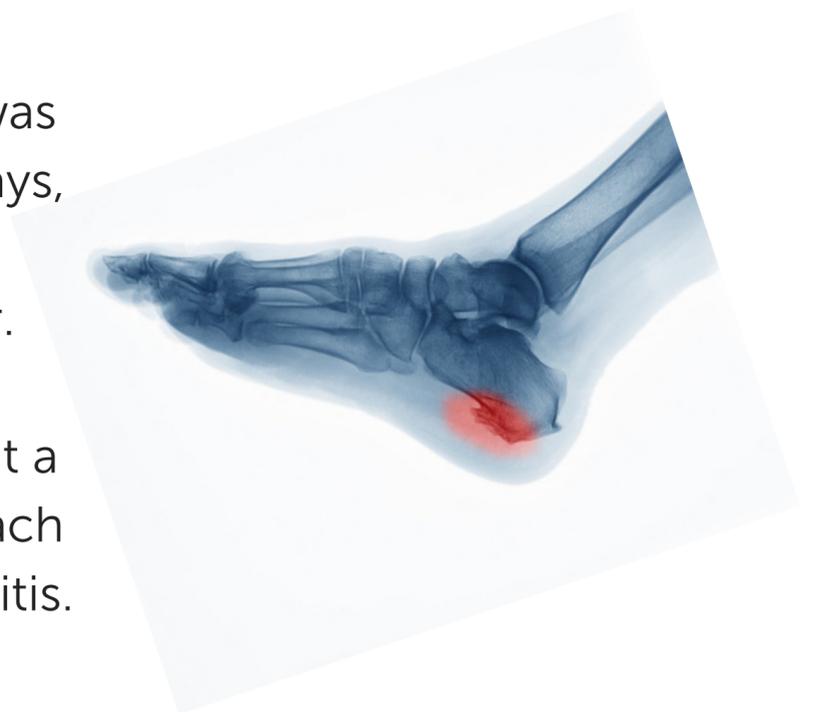
# FAQs about plantar fasciitis

## Do I need custom orthotics to cure my plantar fasciitis?

Overwhelmingly, custom orthotics are not necessary to treat plantar fasciitis. If they are, it will be part of a multi-method treatment program that also addresses pain relief and prevention.

## I have a heel spur, does that mean I have plantar fasciitis?

Maybe, but a heel spur is not always a problem by itself. In the past, a heel spur was thought to cause plantar fasciitis. These days, the opposite relationship is generally accepted: plantar fasciitis causes heel spur. Even so, heel spurs of themselves, often cause no problems or pain. In the case that a heel spur does need treatment, the approach is usually the same as treating plantar fasciitis.



## Will a night splint help with my plantar fasciitis?

It certainly can, however there are no promises with plantar fasciitis. A night splint works by gently keeping the toes pulled back. This stretches the plantar fascia ligament and prevents it from contracting which generally occurs when we are resting and sleeping. Note: so long as you are lying down or seated, a night splint can also be worn in the daytime to provide more consistent treatment.



# FAQs about plantar fasciitis

## Does pronation cause plantar fasciitis?

Sometimes. Pronation is the normal 'rolling in' movement of the foot and ankle when it comes into contact with the ground. It is necessary to reduce the shock of walking or running that is transferred to the joints of the knee, hip, pelvis and spine. While some pronation is necessary, some people pronate too much and this overstretches their plantar fascia ligament, leading to plantar fasciitis. By the same token, excess supination or 'rolling out' can also increase pressure or strain on the plantar fascia, Achilles tendon and calf muscle leading to plantar fasciitis.

## Should I stop exercising if I have plantar fasciitis?

No. Exercise is still a good idea and heel pain shouldn't stop you. It can however affect what exercises you do. Generally, you should dial back on the intensity of impact activities such as jogging and walking. I suggest introducing low-impact activities like swimming and pilates. It is also important to remember that weight gain from ceasing exercise can also have a negative affect in your recovery.



# FAQs about plantar fasciitis

## Are there any exercises I can do to help me?

Yes, your foot is a complex structure that supports our entire body weight. Like any other part of our body, it also needs strengthening. Your foot is made up of 4 layers of muscles and in order to increase the strength in all directions I recommend you do the following:

### Lengthening

During the first phase of your treatment it is important to gently lengthen your muscles. The three exercises I recommend to begin with are:

1. Gently stretching the calf muscle with a towel in a sitting position, applying the towel to the end of the toes and gently pulling towards you. Hold for 40 seconds and repeat 3 x.
2. In a seated position, bring your foot towards you and pull your toes back whilst pulling your heel down and away from the toes. This exercise is recommended before getting out of bed in the morning or after periods of rest as it will greatly reduce the pain associated with those first few steps. Hold for 10 seconds and repeat 10 x.
3. Massage ball: Use a spiky ball to massage under the arch of the foot by rolling the foot over the ball and release the tight muscles and plantar fascia.



# FAQs about plantar fasciitis

## Are there any exercises I can do to help me?

### Strengthening

After you have been lengthening your muscles for 2-3 weeks you can then start strengthening your muscles.

1. **Toe Scrunches** – put pencils on the floor and with the foot off the ground, reach down to pick up the pencils between the toes and move to the other side of the floor. This can be repeated 10-20 x.
2. **Arch Curls** – With the foot on the ground, imagine pulling the ball of the foot and heel towards each other without curling the toes too much. You should feel a curve through the arch area as you strengthen your arch. Hold this for 10 seconds and repeat 10 x.
3. **Toe Spreads** – Gently spread the toes apart, hold for 10 seconds and then relax, repeating this 10 x.



# FAQs about plantar fasciitis

## Why do I only have heel pain in one foot?

It is normal for each of your feet to be different slightly in size and also common for your legs to be different lengths, which can affect the amount of time each heel has in contact with the ground. Further, as people have a naturally dominant leg, their feet are also different strengths. Thus, the way we move and how we distribute our weight is not actually in perfect balance. Over time, this difference can lead to one foot developing a condition, like plantar fasciitis, whilst the other foot can be completely unaffected by it.

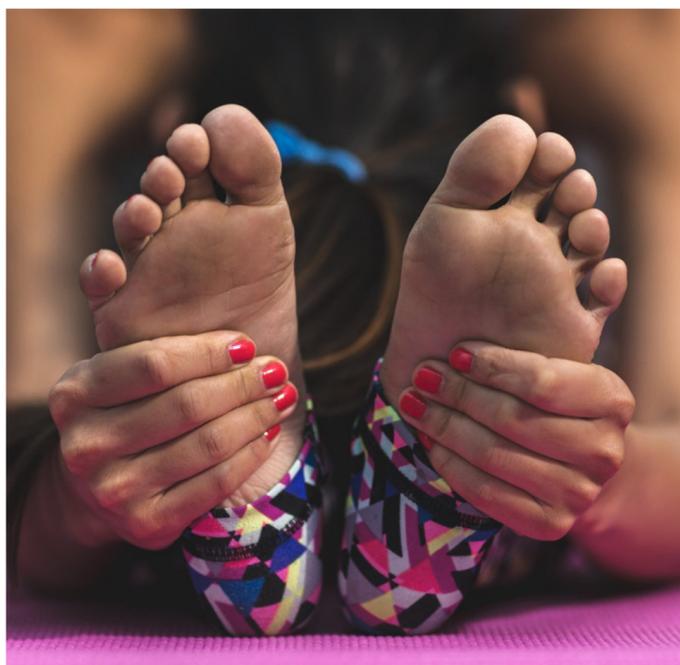
## Will my children get plantar fasciitis too?

Foot types do run in families so if your foot mechanics have played a part in your diagnosis then there is a chance your child may experience similar symptoms. This is good news as it means targeted early prevention can be undertaken. If your child has any signs of flat feet or high arches or symptoms, then Synxsole kids has been designed to provide gentle arch support and reduce the stresses placed through the arch of the foot.



# My top 4 tips on plantar fasciitis

1. Make sure you have correct shoes for the activity you are doing. Make sure they are neutral and supportive.
2. Try hands on treatment. I highly recommended; dry needling, laser acupuncture and joint mobilisation. Find a podiatrist or sports physician experienced in these techniques.
3. Try orthotics or arch supports. If you try off-the-shelf orthotics then pick something that is gentle and neutral ie Synxsole orthotics. If you try custom made orthotics, they should always feel comfortable and don't persevere with inserts that are uncomfortable or cause excess pressure in the arch area.
4. Exercises and stretches. It is important to lengthen and strengthen your muscles. A lengthening program followed by regular exercises to build up your muscle strength will help reduce the chance of plantar fasciitis recurring again.



Thank you

Thank you for taking the time to read  
my e-book on plantar fasciitis.

I hope you have found it useful and it will be of assistance  
as you or someone you know recover from plantar  
fasciitis.

Should you have any further questions about plantar  
fasciitis, please don't hesitate  
to contact me:

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Warm regards,

**RACHAEL FERGUSON**  
CHIEF EXECUTIVE OFFICER  
SYNXSOLE

