

PLANTAR FASCIITIS - Advice & Rehabilitation Leaflet

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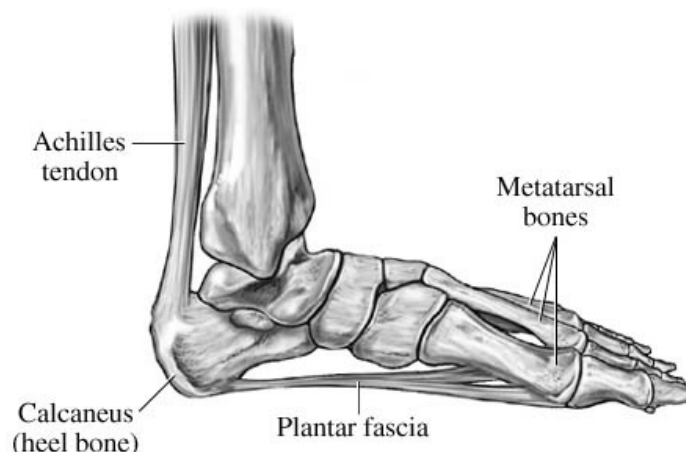
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Patient information and rehabilitation leaflet

Plantar fasciitis is the most common cause of pain on the bottom of the heel. Plantar fasciitis occurs when the strong band of tissue that supports the arch of the foot becomes irritated, thickened and less flexible than it should be.



Plantar fasciitis is a condition that generally improves over time, although this can typically be 6-9 months and about 10% of patients can have symptoms for much longer. A range of treatments can be used to reduce symptoms, and hopefully speed up recovery. There is no single treatment that works for everyone, and often several simple treatments are used in combination for maximal effect. Prolonged immobility or rest can worsen the condition and therefore plantar fasciitis should be treated actively.

In most cases, Plantar Fasciitis develops without a specific, single, identifiable reason. However, the risk factors that make you prone to the condition include the following;

- *Diabetes – especially poor diabetic control*
- *High arched or low arched foot shape*
- *Impact activity*
- *Obesity*
- *Older age*
- *Poor footwear*
- *Prolonged time standing / walking*
- *Smoking*
- *Tight calf muscles*
- *Weak foot arch muscles*

Whilst we can't do anything about some of the risk factors such as age, it is important to reduce the ones that you can, and these include measures such as losing weight, reducing or stopping smoking, changing shoes, modifying activity and undertaking a specific rehabilitation programme as shown on the next few pages.

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The following is a reminder of the exercise that you should have been shown. It is difficult to learn these exercises from a piece of paper; instead this is to help you remember what you have been shown already.

Home Exercise Programme Guide

1. Stretches of the plantar fascia
2. Stretching of the rest of the whole muscle chain
3. Balance exercises
4. Intrinsic foot muscle strengthening
5. Calf muscle strengthening

Progressing the home exercise programme

Everyone will be starting this programme from different ability levels, and so it is difficult to create a standardised programme that will cater to everyone's needs. However the following timeline will give you a guide as to the changes that we would like to see you making to your programme.

Week	Summary Guide
1 st & 2 nd week	Perform the stretches (point 2) and balance work (point 3 above) Hold each of the stretches for about 15 seconds each – apart from the rolling stretch for the plantar fascia which should start for at least 30 seconds
3 rd & 4 th week	Increase the plantar fascia rolling stretch up to a minute or two Increase the duration of the other stretches to 20 seconds in week 3, and 30 seconds each for week 4 Add in the intrinsic foot muscle strengthening exercise (point 4)
5 th & 6 th week	Add in the calf-muscle strengthening (point 5)
Thereafter	Continue with the home exercise programme set Progress the calf-muscle strengthening exercises Steadily increase the amount of regular physical activity done, aim for a minimum of 30 minutes of moderate-intensity activity a day (a level of activity which makes you slightly sweaty, and raises the breathing a little), and aiming for at least 5 active days a week

The diagrams and discussions on the following pages will show you the specific exercises discussed in this regime.

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You will be given a couple of options for each of the following stretches, so that if one version is uncomfortable you are able to try the other one.

1. Specific plantar fascia stretches

i) rolling stretch

Stand holding onto a stable surface such as a kitchen work top
Place a frozen drinks bottle (such as a half-litre soft drink bottle that was filled with water & kept in the freezer) under the standing foot's heel with a reasonable amount of weight through this.
Roll the bottle slowly from the heel all the way to the toes and back again taking at least 5 seconds to progress from the heel to the toes each time.
Do this for about 30 seconds to start with for each foot, increasing to a couple of minutes or more by week 3/4



You can do this with a large wooden rolling pin, or a specific device of which several are available, however in practice an ice cylinder works well.

ii) self-massage

Sit cross-legged on a stable chair and bring one foot over the other knee.
Using your hand, pull back on the toes on the foot to stretch out the plantar fascia and the tendons on the sole of your foot.
You can then directly massage the tight bands that you can feel with your other thumb.
Do this for at least 30 seconds initially, gradually increasing over time.



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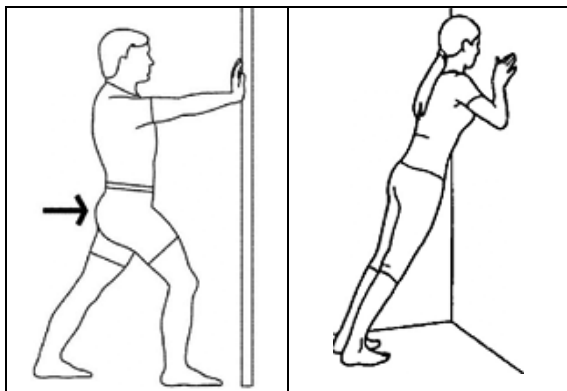
The previous stretches specifically target the plantar fascia. The following stretches focus on the muscle groups which if tight can have an adverse effect on the plantar fascia, and it is important to stretch these in addition to the plantar fascia to maximise benefit.

2. Stretches of the whole muscle chain

- With all of these stretches we normally recommend starting by holding the position for about 15 seconds, performing the stretch 3 times on each leg, and repeating these at least 3 times per day to start with.
 - By the third week - hold each of the stretches for 20 seconds, and do 4 of each stretch 3 times per day
 - By the fourth week – hold each stretch for 30 seconds, and do 5 of each stretch 3 times per day
- **A) Gastrocnemius stretches - (the “strength muscle” of the calf)**

i) stretching against the wall

Stand barefoot with feet facing forwards a little distance from a wall or chair
Take a step forwards with the “good” leg
Look at your back foot (which is the leg you are stretching) – make sure the foot is facing forwards & has not turned out, and has a straight knee and has the heel firmly on the floor
Bend the front knee / push the back hip forwards into a lunge so that you feel the stretch on the back calf



This can be altered as seen in the picture on the right into a press-up position on the wall, and you then cross one leg behind the other. This variation will require more arm strength to perform effectively.

ii) stretching on bottom step

Stand barefoot on your bottom step with the weight evenly distributed between your feet and your heels and middle of the foot over the edge of the step.
Slowly lower yourself down on one foot, feeling the stretching into your calf.



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- **B) Soleus stretches - (“stamina muscle” of the calf)**

i) bent knee lunge

This is a similar way of stretching to the previous stretch, but instead will focus on stretching the deeper of the two calf muscles, the one that is more of a “stamina” than a “strength” muscle.

Stand barefoot with feet facing forwards a little distance from a wall or chair

Take a step forwards with the “good” leg

Make sure your back leg is facing forwards and has not turned outwards

Whilst keeping the heel on the floor, bend the knee on the back leg until you feel a stretch in the back of the calf.

Make sure you bend the knee forwards over the middle of the foot, rather than letting it drift inwards.



ii) knee to wall stretch

Start with a similar position to the stretch shown on the left, but this time you are going to be stretching the front leg.

Take a step forwards with the leg you are stretching pushing the knee over the 2nd toe (the one next to the big toe),

Hold this position – you should feel that the stretch is “deeper” in the calf than the above stretch.



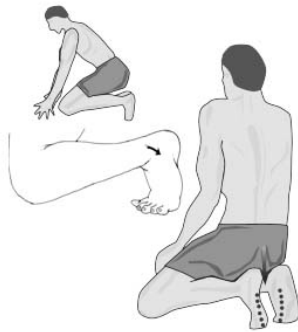
Sometimes this stretch can feel uncomfortable on the front of the knee on the front foot, and if this is the case you may be better with the version on the left.

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- **C) FHL stretches (Flexor Hallucis Longus) - big toe tendon**

i) crouching

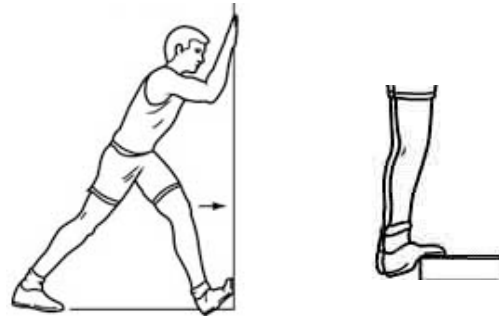
Kneel down with a pillow under your knees with your weight on your knees. Support yourself initially with your hands if you need to. Tuck your feet under you, up on your toes. Slowly lean back so that the weight is transferred from your knees to your heels. Hold this position before returning your weight to your knees.



This stretch works best if done for longer than some of the others, and a guide is to hold it for double the length of the other stretches in this group.

ii) against wall

Stand in a lunge position with toe either on a large book, or against the wall. Similar position to the stretches above, but this time the foot is much closer to the wall. The heel of the front foot is firmly on the floor, with the foot angled diagonally up the wall. Bend the front knee to the wall – you should feel a stretch either in the low calf, ankle or under the foot.



Alternatively, this stretch can be done placing an object like a large book under your toe & stretching as above.

- **D) Hamstring stretches**

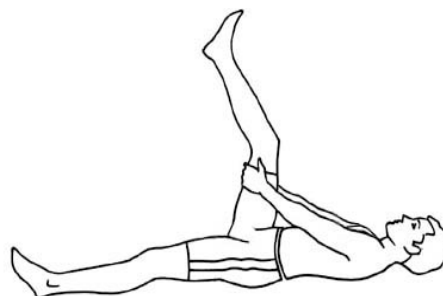
i) hurdle stretch

Place a chair against a wall with the seat facing outwards. Place the heel of your foot for the leg you are stretching as far back into the chair as you can reach, which should keep the ankle flexed to about 90°. Keeping your back straight and the knee straight of the leg you are stretching, slowly lean forwards sliding your hands down this leg until you feel a stretch at the back of your thigh and calf. Hold this stretched position.



ii) lying down

Lie flat on your back with both legs straight. Bring one leg towards you, bending your knee and your hip, so that your hip is at about 90 degrees. Reach down with your hands and hold the back of your thigh. Using the muscles of the leg slowly straighten the knee as far as the hamstrings will allow it to. Hold this stretched position.



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These last two sets of exercises seek to improve balance and coordination, and improve intrinsic strength within the foot itself.

3. Balance exercise (proprioception) – *be careful not to fall & injure yourself with this exercise*

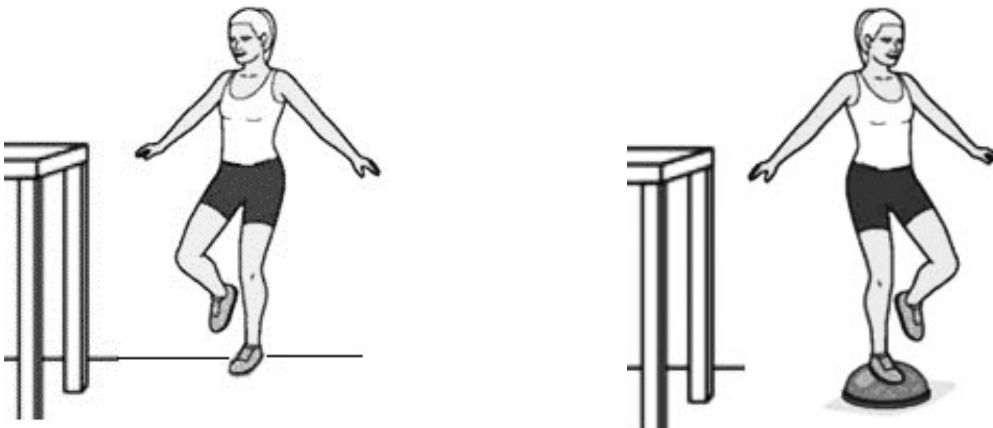
Start to practice by standing on one leg on a firm, flat surface with your eyes open.

It is ok to hold onto something stable like a worktop if you need to when starting out. Then gradually progress from holding onto something, to touching a worktop lightly, to intermittently touching & then not touching at all.

Look to stand on either leg for about 30 seconds in total x 3 each leg – at least 3 times per day

When you are getting good at these exercises, then to progress this further place a pillow under your standing foot (or wobble board) and gradually build up the time you are balancing for.

When you are getting very good, try standing on one leg on a firm surface, but this time with your eyes closed – this makes the exercise harder as you no longer have your eyes giving you clues about your wobbling.



4. Intrinsic foot muscle strengthening

These are the tiny muscles in the feet that help with all sorts of activities, and often pain can inhibit these from working, causing them to weaken.

To start this exercise, stand on a towel on the floor barefoot. Then practice by scrunching up the towel under your feet with both feet either together or singly. A tissue or piece of kitchen towel will also work just as well

Look to start with about 30 seconds, and progress this to several minutes each time, three times per day.



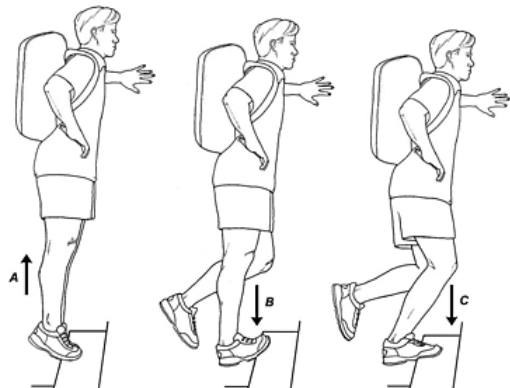
An alternative is to use pebbles or marbles on the floor, and practice trying to pick these up by scrunching your toes.

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5. Calf strengthening

The last stage of this home exercise programme is to increase strength within the calf muscles to off-load the pain from the plantar fascia.

These exercises load the calf muscle/tendon using body weight, as it is being stretched – the medical phrase for this is “eccentric strengthening”; one of the most important things to do with this exercise is to do these very slowly to get benefit from them. There is some evidence that even if you have symptoms only on one side that these exercises should be done for both sides.

<ul style="list-style-type: none">• Stand on your first step with weight evenly between both feet• Slowly, raise yourself onto your tiptoes with your knees straight (Fig A)• Hold this position for about 2 seconds• <u>Very slowly</u> lower your heels as far as they can go, so that your heels go below the level of your toes – this needs to be done very slowly over about 7 seconds (Fig B)• Hold this stretched position for 2 seconds• Slowly push yourself back up to a tiptoe position, over about 7 seconds <p style="text-align: center;"><i>(repeat)</i></p>	
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We would normally ask you to do 3 sets of this exercise, once a day only – starting at a number of repetitions where you are starting to feel the load.

Once you have completed this exercise with your knees straight, then repeat this exercise with your knees bent (figure C)

Normally we would look for you to increase slowly at weekly intervals, starting these normally from about the fifth week of rehabilitation. To progress this exercise, gradually increase the number of repetitions that you do.

- When you are able to do 3 x 15, progress on to raising onto tiptoes using both feet, but coming down on one foot (and then repeating to do the other side), before raising and lowering only with 1 foot at a time.
- To progress beyond this, the using a rucksack start cautiously adding weight to this. (as per the diagram above)

In conclusion

These exercises are designed to help your foot symptoms, they will take some time and effort to do well and you will be best advised to set aside some time at various points each day to ensure that you are able to do these effectively.

If you find a family member or friend to help you this can improve your perseverance with the programme.

Remember you will need to do these exercises regularly in order to benefit from them.