



## OrthoInfo Basics

# Plantar Fasciitis

**Do you have a stabbing pain in your heel when you first step out of bed in the morning? Does the pain worsen as the day goes on?**

These are some common complaints of plantar fasciitis (fashee-EYE-tiss).

Plantar fasciitis occurs when the strong band of tissue that supports the arch of your foot becomes irritated and inflamed.

The tissue (the plantar fascia) tends to tighten when it rests, which is why pain flares up after sleeping or sitting for any length of time.

### What causes plantar fasciitis?

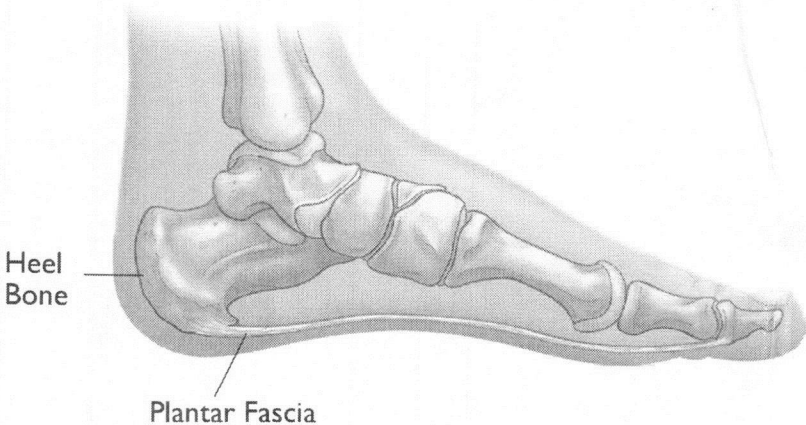
Your plantar fascia is designed to absorb high stresses and strains. But sometimes too much pressure damages the tissue and causes heel pain.

Sources of extra stress include:

**Overuse.** Plantar fasciitis is common in runners and walkers. Spending a lot of time walking or standing on hard surfaces can also strain the arch of your foot.

**Anatomy.** Having flat feet, high arches, and tight muscles in your calves and heels can result in extra stress on your fascia.

**Shoes.** Heel pain is often caused by shoes that do not fit properly or provide enough cushion and support.



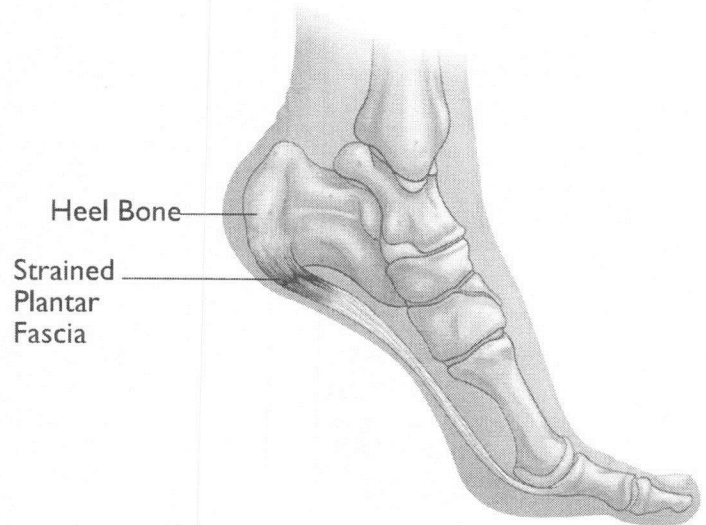
### How does a doctor know if I have it?

Your doctor will examine your foot and talk to you about what causes plantar fasciitis.

Are you a runner or do you play sports where your feet pound on hard surfaces? Are you overweight? Do you wear high heels every day?

**Physical examination.** After discussing your symptoms and medical history, your doctor will examine your foot and ankle. Because plantar fasciitis is a common condition, the information gained during the examination is usually enough for your doctor to make a diagnosis.

**Tests.** During the examination, your doctor will rule out other causes of heel pain, like tendonitis, arthritis, or a stress fracture. To help do this, your doctor may suggest some tests, such as x-rays, magnetic resonance imaging (MRI) scans, and bone scans.



### How is plantar fasciitis treated?

When treated early, most plantar fasciitis symptoms can be resolved with simple methods.

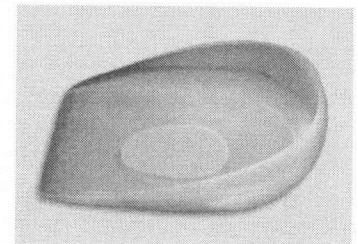
**Exercise.** Plantar fasciitis is aggravated by tight muscles in your feet and calves. Stretching the arch of your foot and your heel cord (Achilles tendon) is the most effective way to relieve the pain that comes with the condition.

**Nonsteroidal anti-inflammatory medications.** Over-the-counter pain medicines like ibuprofen and naproxen may provide the relief you need. Your doctor may also prescribe a pain medication, such as prescription-strength ibuprofen.

**Supportive shoes.** Good shoes with extra cushioning in the heel can be very helpful. Soft rubber heel lifts, heel cups, or heel wedges for your shoes provide even more support. These can be purchased at your local drug store, or sometimes at your doctor's office.

Avoid shoes that have little padding, or thin and hard leather soles.

**Night splints.** Because your fascia tightens up overnight, your doctor may prescribe a night splint to help ease morning heel pain. This splint stretches the Achilles tendon, the plantar fascia, or both while you sleep.



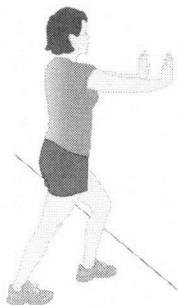
Heel pads provide extra support

## OrthoInfo Basics — Plantar Fasciitis

### What stretches can relieve heel pain?

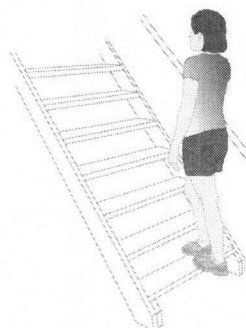
A session with a physical therapist can help you learn specific exercises.

Stretches like the ones shown here should be done 3 times a day – in the morning, at midday, and before you go to bed. Be sure to stretch both sides, even if only one heel is involved.



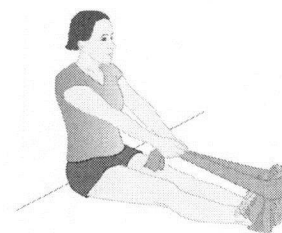
Lean forward against a wall with one leg in front of the other. Straighten your back leg and press your heel into the floor. Your front knee is bent. Hold for 15 to 30 seconds.

**Do:** Keep both heels flat on the floor. Point the toes of your back foot toward the heel of your front foot.



Stand on a bottom step and place the ball of your foot on the edge of the step. Slowly drop your weight into the heel of your foot, pushing your heel lower than edge of the step. Hold for 15 to 30 seconds.

**Do:** Hold onto the banister for balance.



Sit on the floor with both legs out in front of you. Wrap a towel around the ball of one foot and pull the towel toward your body. Hold for 15 to 30 seconds.

**Do:** Sit up tall and keep your legs straight.

### What else might help?

About 90 percent of people greatly improve within 2 to 3 months of initial treatment.

If your plantar fasciitis continues after initial treatment, your doctor may suggest new approaches.

**Custom orthotics.** Inserts for your shoes can be custom-made for you to correct your foot position or remove pressure from various places on your foot. People with very high arches, flat feet, or foot deformity are more likely to need orthotics.

**Casting and walking boots.** If your symptoms are not resolving, your doctor may recommend wearing a removable boot walker or cast for a short time.

*(continued on page 4)*

## OrthoInfo Basics — Plantar Fasciitis

(Other Treatment — continued from page 3)

**Injection.** If conservative treatments do not relieve your symptoms, your doctor may suggest a corticosteroid injection. This delivers a high dose of anti-inflammatory medicine to the site of your pain.

**Surgery.** When other options fail to relieve symptoms, a surgical procedure may be considered.

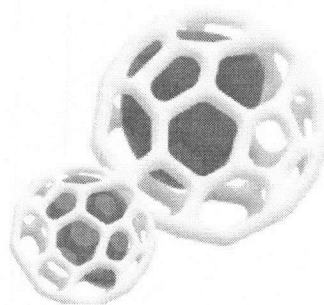
More than 98 percent of people get better without surgery. Your doctor may consider surgery after 6 to 12 months of initial treatment without improvement.

### For more information

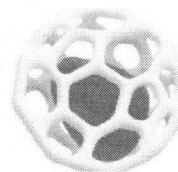
For more information about heel pain and plantar fasciitis, visit *OrthoInfo* at [www.orthoinfo.org](http://www.orthoinfo.org).

*OrthoInfo* is the patient education website of the American Academy of Orthopaedic Surgeons (AAOS), and is a trusted source of information about musculoskeletal conditions. Our articles are developed by orthopaedic surgeons, and provide detailed information about a wide range of injuries and diseases, as well as treatment options and prevention topics.

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## Foot and Ankle Conditioning Program

### ***Purpose of Program***

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After an injury or surgery, an exercise conditioning program will help you return to daily activities and enjoy a more active, healthy lifestyle. Following a well-structured conditioning program will also help you return to sports and other recreational activities.

This is a general conditioning program that provides a wide range of exercises. To ensure that the program is safe and effective for you, it should be performed under your doctor's supervision. Talk to your doctor or physical therapist about which exercises will best help you meet your rehabilitation goals.

**Strength:** Strengthening the muscles that support your lower leg, foot, and ankle will help keep your ankle joint stable. Keeping these muscles strong can relieve foot and ankle pain and prevent further injury.

**Flexibility:** Stretching the muscles that you strengthen is important for restoring range of motion and preventing injury. Gently stretching after strengthening exercises can help reduce muscle soreness and keep your muscles long and flexible.

**Target Muscles:** The muscle groups of the lower leg are targeted in this conditioning program, as well as the tendons and ligaments that control movement in your feet. These include:

- Gastrocnemius-soleus complex (calf)
- Anterior tibialis (shin)
- Posterior tibialis (center of calf)
- Peroneus longus (outside of lower calf)
- Peroneus brevis (outside of lower calf)
- Soleus (calf)
- Dorsiflexors (ankle)
- Plantar flexors (ankle)
- Invertors (ankle)
- Evertors (ankle)

**Length of program:** This foot and ankle conditioning program should be continued for 4 to 6 weeks, unless otherwise specified by your doctor or physical therapist. After your recovery, these exercises can be continued as a maintenance program for lifelong protection and health of your feet and lower legs. Performing the exercises three to five days a week will maintain strength and range of motion in your foot and ankle.

### ***Getting Started***

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**Warm up:** Before doing the following exercises, warm up with 5 to 10 minutes of low impact activity, like walking or riding a stationary bicycle.

**Stretch:** After the warm-up, do the stretching exercises shown on Page 1 before moving on to the strengthening exercises. When you have completed the strengthening exercises, repeat the stretching exercises to end the program.

**Do not ignore pain:** You should not feel pain during an exercise. Talk to your doctor or physical therapist if you have any pain while exercising.

**Ask questions:** If you are not sure how to do an exercise, or how often to do it, contact your doctor or physical therapist.



## Foot and Ankle Conditioning Program

### STRETCHING EXERCISES

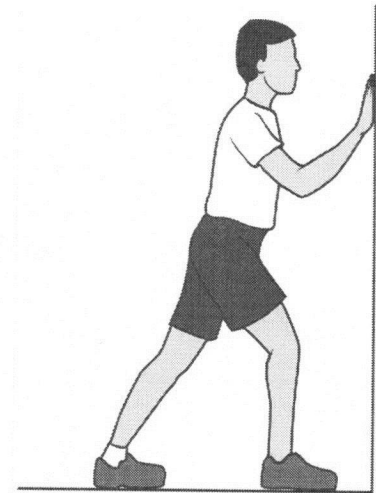
#### 1. Heel Cord Stretch

<b>Repetitions</b>	<b>Main muscles worked:</b> Gastrocnemius-soleus complex You should feel this stretch in your calf and into your heel
2 sets of 10	
<b>Days per week</b>	<b>Equipment needed:</b> None
6 to 7	

##### Step-by-step directions

- Stand facing a wall with your unaffected leg forward with a slight bend at the knee. Your affected leg is straight and behind you, with the heel flat and the toes pointed in slightly.
- Keep both heels flat on the floor and press your hips forward toward the wall.
- Hold this stretch for 30 seconds and then relax for 30 seconds. Repeat.

**Tip** Do not arch your back.



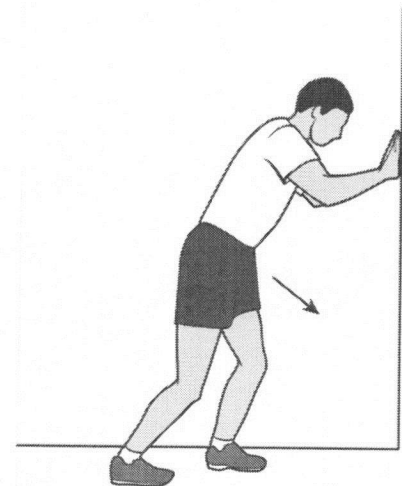
#### 2. Heel Cord Stretch with Bent Knee

<b>Repetitions</b>	<b>Main muscles worked:</b> Soleus You should feel this stretch in your calf, the sides of your ankle, and into your heel
sets of 10	
<b>Days per week</b>	<b>Equipment needed:</b> None
to 7	

##### Step-by-step directions

- Stand facing a wall with your unaffected leg forward with a slight bend at the knee. Your affected leg is behind you, with the knee bent and the toes pointed in slightly.
- Keep both heels flat on the floor and press your hips forward toward the wall.
- Hold the stretch for 30 seconds and then relax for 30 seconds. Repeat.

**Tip** Keep your hips centered over both feet.





## Foot and Ankle Conditioning Program

### STRETCHING EXERCISES

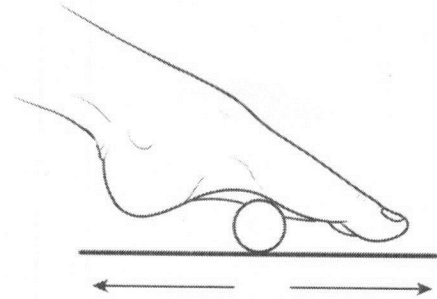
#### 3. Golf Ball Roll

<b>Repetitions</b>	<b>Main muscles worked:</b> Plantar fascia ligament You should feel this exercise along the bottom of your foot
1	
<b>Days per week</b>	<b>Equipment needed:</b> Golf ball
Daily	

##### Step-by-step directions

- Sit on a stable chair with both feet planted on the floor.
- Roll a golf ball under the arch of your affected foot for 2 minutes.

**Tip** Sit up tall and keep your foot toward your chair.



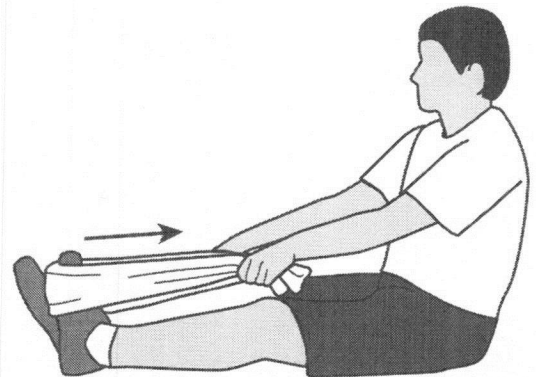
#### 4. Towel Stretch

<b>Repetitions</b>	<b>Main muscles worked:</b> Gastrocnemius-soleus complex You should feel this stretch in your calf and into your heel
2 sets of 10	
<b>Days per week</b>	<b>Equipment needed:</b> Hand towel
to 7	

##### Step-by-step directions

- Sit on the floor with both legs out in front of you.
- Loop a towel around the ball of your affected foot and grasp the ends of the towel in your hands.
- Keep your affected leg straight and pull the towel toward you.
- Hold for 30 seconds and then relax for 30 seconds. Repeat 3 times.

**Tip** Sit up tall and keep your legs straight.





## Foot and Ankle Conditioning Program **STRENGTHENING EXERCISES**

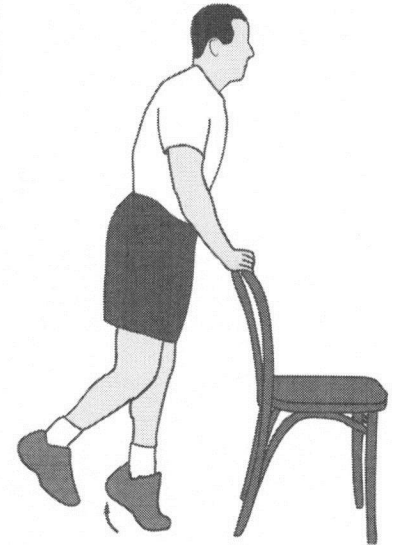
### 5. Calf Raises

<b>Repetitions</b>	<b>Main muscles worked:</b> Gastrocnemius-soleus complex You should feel this exercise in your calf
2 sets of 10	
<b>Days per week</b>	<b>Equipment needed:</b> Chair for support
6 to 7	

#### Step-by-step directions

- Stand with your weight evenly distributed over both feet. Hold onto the back of a chair or a wall for balance.
- Lift your unaffected foot off of the floor so that all of your weight is placed on your affected foot.
- Raise the heel of your affected foot as high as you can, then lower.
- Repeat 10 times.

**Tip** Do not bend the knee of your working leg.



### 6. Ankle Range of Motion

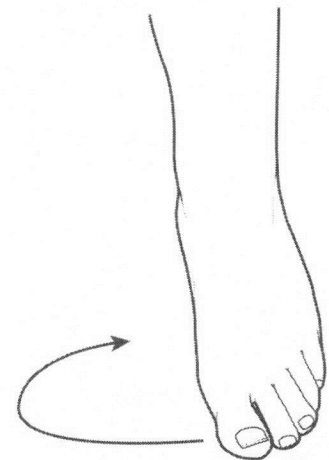
<b>Repetitions</b>	<b>Main muscles worked:</b> Dorsiflexors, plantar flexors, invertors, evertors You should feel this exercise at the top of your foot and throughout your ankle
2 sets	
<b>Days per week</b>	<b>Equipment needed:</b> None
Daily	

#### Step-by-step directions

- Sit down so that your feet do not touch the floor.
- Use your foot to write each letter of the alphabet in the air. Lead with your big toe.

**Tip** Keep the movements small, using just your foot and ankle.

### 7. Marble Pickup



**Repetitions**





## Foot and Ankle Conditioning Program **STRENGTHENING** **EXERCISES**

20

**Main muscles worked:** Plantar flexors

You should feel this exercise at the top of your foot and toes

**Days per week**

Daily

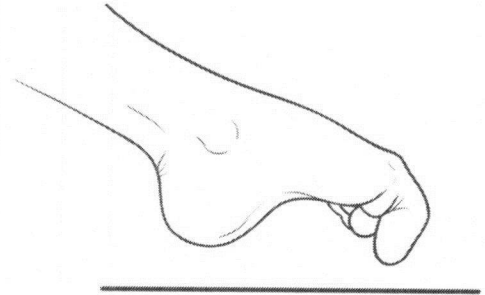
**Equipment needed:** 20 marbles

### Step-by-step directions

- Sit with both feet flat and place 20 marbles on the floor in front of you.
- Use your toes to pick up one marble at a time and place into a bowl.

**Tip**

Do not place the marbles too far out in front or to the side.





## Foot and Ankle Conditioning Program **STRENGTHENING** EXERCISES

- Repeat until you have picked up all the marbles.

### 8. Towel Curls

<b>Repetitions</b>
5
<b>Days per week</b>
Daily

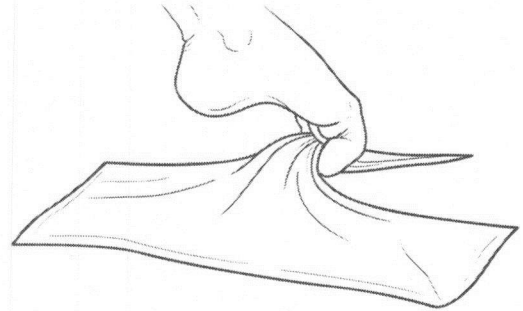
**Main muscles worked:** Plantar flexors

You should feel this exercise at the top of your foot and your toes

**Equipment needed:** Hand towel

#### Step-by-step directions

- Sit with both feet flat and place a small towel on the floor in front of you.
- Grab the center of the towel with your toes and curl the towel toward you.
- Relax and repeat.



### 9. Ankle Dorsiflexion/Plantar Flexion

<b>Repetitions</b>
3 sets of 10
<b>Days per week</b>
3

**Main muscles worked:** Anterior tibialis, gastrocnemius-soleus complex

You should feel this exercise at your calf, shin, the back of your heel, and the top of your foot

**Equipment needed:** Use an elastic stretch band of comfortable resistance

**Tip** You can make this exercise more challenging by placing a weight on the edge of the towel.

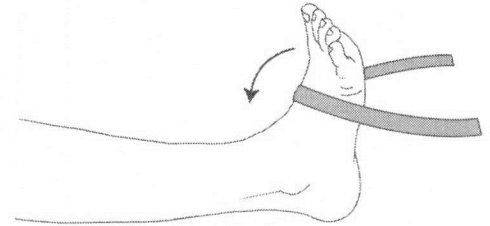


## Foot and Ankle Conditioning Program **STRENGTHENING** **EXERCISES**

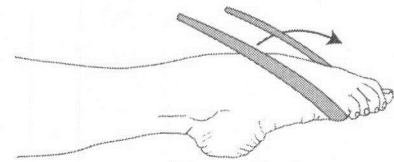
### Step-by-step directions

- Sit on the floor with your legs straight out in front of you.
- For dorsiflexion, anchor the elastic band on a chair or table leg, then wrap it around your foot.
- Pull your toes toward you and slowly return to the start position. Repeat 10 times.
- For plantar flexion, wrap the elastic band around your foot and hold the ends in your hand.
- Gently point your toes and slowly return to the start position. Repeat 10 times.

**Tip** Keep your leg straight and heel on the floor for support.



Dorsiflexion



Plantar flexion