

Reduce Pressure to Your Feet with Stretching Exercises

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Studies have shown that tight calf and hamstring muscles significantly increase the plantar pressures to your feet. This may lead to the development of such foot conditions as plantar fasciitis (heel spur pain), achilles tendon pain, Morton's neuroma and capsulitis (inflammation in the small toe joints) among others.

Consistent stretching of these muscles can reduce the pressures to the heel and the front of the foot by as much as 50%. Stretching is especially beneficial for those with heel pain or plantar fasciitis. By simply incorporating a daily stretching regime, 8 out of ten patients who suffer with heel pain can greatly reduce or even eliminate their pain. Residual heel pain may be the result of an entrapped nerve and typically requires more aggressive treatment. For patients with diabetes, stretching reduces pressure under the ball of the foot and the big toe – two of the most common places where ulcers can occur.

An ancillary benefit of stretching is an increase in blood flow to the feet. This may lead to a reduction of symptoms associated with neuropathy, such as burning, tingling and numbness.

Below are images of a patient's feet who suffered from pain in the front part of the foot, underneath the toes and metatarsal heads (the small toe joints). One can appreciate the high-pressure areas underneath the metatarsal heads that are circled. This patient performed the stretches listed below for 10 minutes and then we took another image. Observe the reduced pressure in the front part of the foot as compared to the first image.

On the following pages a few beneficial stretching exercises are described. By stretching for as little as 10 minutes twice a day you will, over time, significantly reduce the pressure to the bottom of your feet and greatly improve the quality of your life.

*All stretching exercises should be done in manner that you feel a **MILD** pulling in your calf muscles.
You should NOT experience pain.*

Consult with your physician to see if stretching may have any adverse effects.



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Before Stretching

This foot impression was taken before stretching. Notice increased pressures under all metatarsal heads and the contracted toes with pressure on the tips. When our calf muscles are tight, they pull the heel bone upwards, tightening the tendons across the bottom and the top of the foot. This causes the heel and the ball to hit the ground much harder due to less elasticity.



After Stretching

This is an impression of the same foot after 10 minutes of stretching. Notice the reduction of pressures underneath the metatarsal heads and the toes are no longer contracted. This gives greater balance and a stronger foot. In essence, when the calves are stretched, the feet have a greater ability to act as a shock absorber.



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1. Calf Stretch (Gastrocnemius Muscle)



- Lean against a wall for support and to assist with stretching.
- Bend one knee and bring it toward the wall, while keeping the back leg straight
- During stretching, make sure both heels remain in contact with the ground
- Keep the toes of the back foot pointed toward the wall and maintain your body in a straight line (buttocks do not move or sag in toward the wall).

DO NOT BOUNCE

Hold position for 10 seconds and repeat 7 to 10 times

2. Soleus and Posterior Tibialis Muscle Stretch



- Lean against a wall for support and to assist with stretching
- Position yourself as above:
 - *then gradually bend both knees toward the wall until you feel a mild pull in the back of your legs*
- Remember to keep your heels in contact with the ground and keep the toes pointing forward.

DO NOT BOUNCE

Hold position for 10 seconds and repeat 7 to 10 times



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3. Prolonged Calf Stretching (Gastrocnemius)



- Place your foot as shown and stand on an incline board or stair. If needed, hold onto a rail or wall for support.
- Maintain both knees straight and keep your heels down as far as possible. The more your heels are pressed down the greater the stretch in the calf.
- You can substitute the incline board by standing with the ball of your foot on a stair and lower your heels gradually until you feel a pull in the back of your legs.
- Make sure to keep the body in a straight line

DO NOT BOUNCE

Begin by holding this position for 1 minute, gradually increasing to 5 minutes

4. Soleus and Posterior Tibialis Muscle Stretch



- Position yourself as in above stretch; however, *this time both knees should be slightly bent.*
- Be sure to keep a straight line from your buttocks to your head

DO NOT BOUNCE

Begin by holding this position for 1 minute, gradually increasing to 5 minutes.



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