

LATERAL PLANTAR NERVE ENTRAPMENT



■ ■ ■ Description

Lateral plantar nerve entrapment is a nerve disorder in the foot that causes pain in the heel. There usually is no loss of feeling in the foot. It involves compression of the lateral plantar nerve (the nerve to a small muscle in the foot and to the lining of the heel bone) by ligament-like tissues (fascia) and muscle or bone.

■ ■ ■ Common Signs and Symptoms

- Pain, tenderness, or burning on the inner part of the heel that may migrate up the ankle and to other parts of the bottom of the foot
- Pain that is worse with standing, running, or jumping, although it may also occur at night

■ ■ ■ Causes

- Pressure on the lateral plantar nerve at the heel of the foot, causing pinching of the nerve between ligament-like tissue and the bone or muscle
- Inflammation of the plantar fascia, causing nerve inflammation

■ ■ ■ Risk Increases With

- Sports that require standing on the toes often or for a prolonged period, such as sprinting, ballet, and figure skating
- Shoes with minimal padding and loss of shock absorption
- Looseness of the joints of the foot, flat feet, or stiffness of the big toe (hallux rigidus)
- New arch supports (orthotics) that have high arches
- Medical disorders, including diabetes mellitus and thyroid disorders

■ ■ ■ Preventive Measures

- Maintain appropriate conditioning:
 - Foot and ankle flexibility
 - Muscle strength and endurance
 - Cardiovascular fitness
- Wear proper equipment, such as shoes and orthotics, and ensure correct fit.
- Wear arch supports and heel cushions.

■ ■ ■ Expected Outcome

This condition is usually curable with appropriate treatment; sometimes it heals spontaneously. Uncommonly, surgery is required.

■ ■ ■ Possible Complications

Persistent pain in the foot or ankle and inability to compete due to pain.

■ ■ ■ General Treatment Considerations

Initial treatment consists of rest from the offending activity and medications and ice to help reduce inflammation and

pain. Arch supports and heel cushions are beneficial. Cross-training is usually helpful. Stretching, and strengthening exercises of the muscles of the foot and ankle, particularly the Achilles tendon, may be useful. If 12 months of this treatment is not successful, surgery may be necessary to free the pinched nerve. This provides almost complete relief, with full return to sporting activities in most patients. Training, while wearing orthotics, usually begins 6 weeks after the surgery.

■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Pain relievers may be prescribed as necessary by your physician, usually only after surgery. Use only as directed and only as much as you need.

■ ■ ■ Heat and Cold

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

■ ■ ■ Notify Our Office If

- Symptoms get worse or do not improve in 2 weeks despite treatment
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

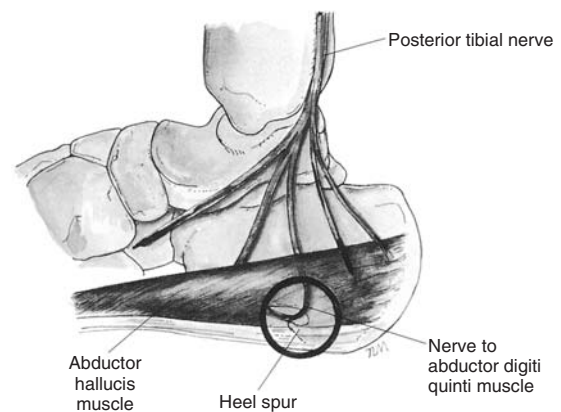


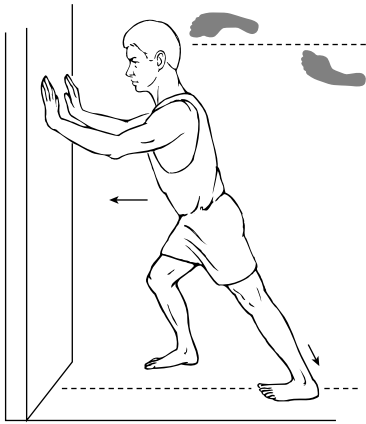
Figure 1

From Baxter DE: *The Foot and Ankle in Sport*. St. Louis, Mosby Year Book, 1995, p. 130.

> **RANGE OF MOTION AND STRETCHING EXERCISES** • Lateral Plantar Nerve Entrapment

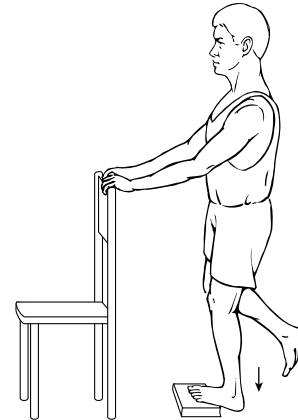
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it during activities.
- Each stretch should be held for 20 to 30 seconds.
- A *gentle* stretching sensation should be felt.



STRETCH • Gastrocnemius

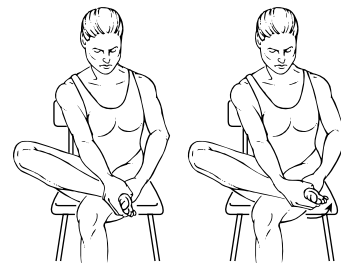
1. Stand *one* arm length from the wall as shown. Place calf muscle to be stretched behind you as shown.
2. Turn the *toes in* and *heel out* of the leg to be stretched.
3. Lean toward wall leading with your waist, allowing your arms to bend. **Keep your heel on the floor.**
4. First do this exercise with the knee straight, then bend the knee slightly. Keep your heel on the floor at all times.
5. Hold this position for _____ seconds.
6. Repeat exercise _____ times, _____ times per day.



STRETCH • Gastrocnemius

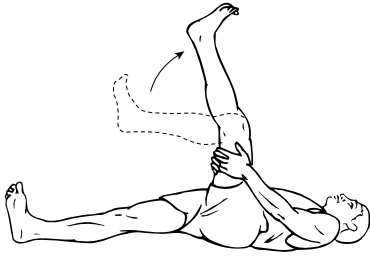
Note: This exercise can place a lot of stress on your foot and ankle and should only be done after specifically checking with your physician, physical therapist, or athletic trainer.

1. Place your toes and the ball of your foot on a book(s) or the edge of a stair. Your heel should be off the ground.
2. Hold on to a chair or stair rail for balance.
3. Allow your body weight to stretch your calf.
4. First do this exercise with the knee straight, then bend the knee slightly.
5. Hold this position for _____ seconds.
6. Repeat exercise _____ times, _____ times per day.

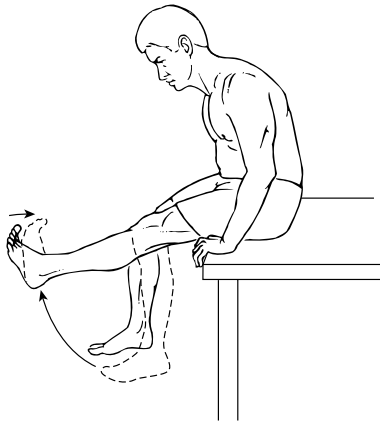


RANGE OF MOTION • Ankle Inversion

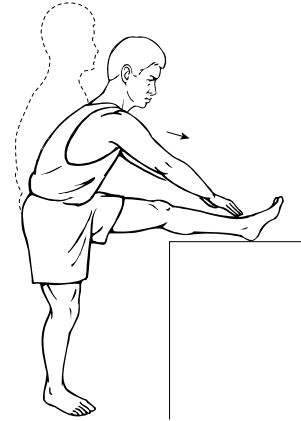
1. Sit with your _____ leg crossed over the other.
2. Grip the foot with your hands as shown and turn the sole of your foot upward and in so that you feel a stretch on the outside of the ankle.
3. Hold this position for _____ seconds.
4. Repeat exercise _____ times, _____ times per day.

**FLEXIBILITY • Hamstrings**

1. Lie on your back with your leg bent and both hands holding on to it behind the thigh as shown.
2. Your hip should be bent to **90 degrees** and the thigh pointing straight at the ceiling.
3. Straighten out your knee as far as you can. Keep your thigh pointing straight toward the ceiling.
4. Keep the other leg flat on the floor.
5. Hold this position for _____ seconds.
6. Repeat exercise _____ times, _____ times per day.

**MOBILIZATION • Nerve Root**

1. Sit on a chair, bench, table, or counter that is high enough so that your feet are off the floor.
2. Slump/slouch when you sit, rounding your back and allowing your head to bend forward as shown.
3. **With your foot relaxed, slowly** straighten your _____ knee until it is straight or you feel a mild pull in the back of your knee or calf. Hold for a count of 10. Relax and let your knee bend.
4. If you can straighten your knee fully without feeling a pull, **slowly** pull your toes up toward you. Hold for a count of 10. Relax, and let your toes point.
5. Repeat exercise _____ times, _____ times per day.

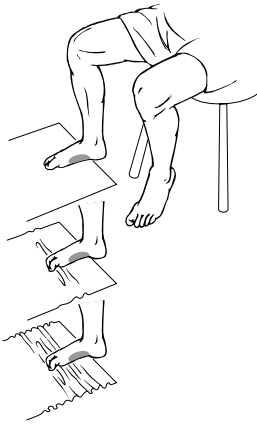
**FLEXIBILITY • Hamstrings, Ballet**

1. Stand and prop the leg you are stretching on a chair, table, or other stable object.
2. Place both hands on the outside of the leg you are stretching.
3. Make sure that your hips/pelvis are also facing the leg you are stretching.
4. Slide your hands down the outside of your leg.
5. Lead with your chest/breast bone. Keep your chest upright and back straight. Do not hunch over at the shoulders. Keep your toes pointing up.
6. You should feel a stretch in the back of your thigh.
7. Hold this position for _____ seconds.
8. Repeat exercise _____ times, _____ times per day.

➤ **STRENGTHENING EXERCISES** • Lateral Plantar Nerve Entrapment

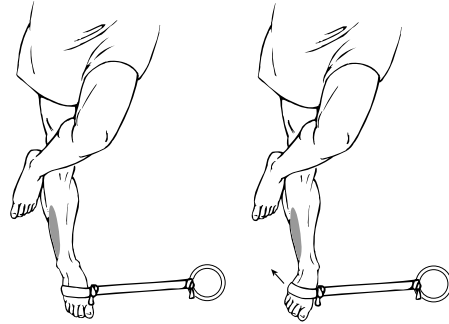
These are some of the *initial* exercises you may start your rehabilitation program with until you see your physician, physical therapist, or athletic trainer again or until your symptoms are resolved. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise, gradually increasing the number of repetitions and weight used under their guidance.



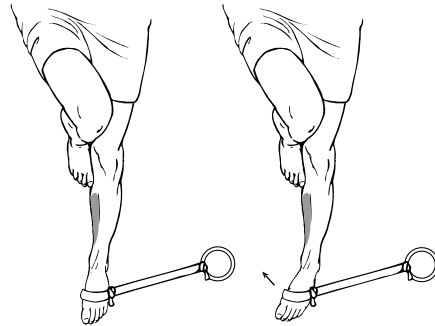
STRENGTH • Towel Curls

1. Sit in a chair and place a towel on a noncarpeted floor. Place your foot/toes on towel as shown. (You may also stand to do this exercise rather than sit.)
2. Curl/pull towel toward you with your toes while keeping your heel on the floor. Move towel with toes only. Do not move your knee or ankle.
3. If this is too easy, place a light weight (book, hand weight, etc.) at the far end of the towel.
4. Repeat exercise _____ times, _____ times per day.



STRENGTH • Ankle Eversion

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot.
2. Turn your toes/foot outward as far as possible, attempting to pull your little toe up and outward. Hold this position for _____ seconds.
3. Slowly return to starting position.
4. Repeat exercise _____ times, _____ times per day.



STRENGTH • Ankle Inversion

1. Attach one end of elastic band to fixed object or leg of table/desk. Loop the opposite end around your foot.
2. Turn your toes/foot inward as far as possible, attempting to push your little toe down and in. Hold this position for _____ seconds.
3. Slowly return to starting position.
4. Repeat exercise _____ times, _____ times per day.

Notes:

(Up to 4400 characters only)

Notes and suggestions