

Millions of people each year enjoy the advantages of exercise. Along with these advantages comes a possible disadvantage - injury. Injuries are a common occurrence for exercisers, experienced or inexperienced. Most injuries result from overuse or improper technique. However, some injuries, like shin splints, can also result from wearing the wrong shoes, running on the wrong surface or weak and inflexible muscles and tendons.

DESCRIPTION

Shin splints is a term used to describe pain in the lower leg. More commonly, the pain is located on the anterior/medial side (front/inside) of the tibia (shin bone) which can radiate along the shin from the ankle to the knee. Another location for pain is on the posterior side (back) of the tibia. There may be numbness, an aching and/or throbbing feeling, and tenderness to the touch. Some have even described it as a tingling or prickly feeling. The pain typically lasts from 15 to 30 minutes then subsides once the activity has ended and the muscles/tendons have relaxed and are stretched.

WHAT CAUSES SHIN SPLINTS?

Most often, the pain associated with shin splints stems from tight calf muscles/tendons and weak shin muscles/tendons. The injury may be further aggravated by a variety of factors:

- Pronation of the foot (tilting in), resulting in a "flattening out" of the arch
- Supination of the foot (tilting out)
- Walking/running on hard surfaces
- Overuse, overtraining
- Non-supportive shoes
- Flat feet

HOW DO YOU TREAT SHIN SPLINTS?

The best treatment for shin splints is rest. You do not have to stop exercising completely. You can try alternative, non-impact exercises such as swimming, cycling or rowing. After each exercise session, ice the area for 10 to 15 minutes, while keeping the leg elevated. If the pain persists for more than two to three days, consult a fitness professional for ways to remedy the situation. If the pain persists for more than one to two weeks, consult your physician.

HOW DO YOU PREVENT SHIN SPLINTS?

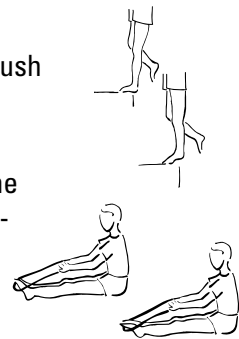
- Strengthen the muscles/tendons in the front and back of the lower leg (i.e., tibialis anterior/posterior, peroneal muscles, gastrocnemius, and soleus). (See: Exercises to Strengthen the Muscles/Tendons of the Lower Leg.)
- Engage in stretching exercises to improve flexibility of the tendons and muscles before and after exercise sessions. (See: Stretches for the Muscles/Tendons of the Lower Leg.)
- Avoid running on hard surfaces.
- Avoid overtraining or increasing your distance/time too quickly. (Limit increases to no more than 10 % per week.)
- Wear well-fitting shoes that are comfortable and have good support.

*Do not let shin splints ruin the fun of exercising! For more information on shin splints, contact an Exercise Specialist at The National Institute for Fitness and Sport at **317-274-3432** or visit www.nifs.org.*

EXERCISES TO STRENGTHEN THE MUSCLES/TENDONS OF THE LOWER LEG

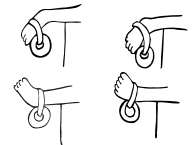
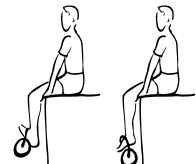
Gastrocnemius, Soleus, Achilles Tendon

- **Toe Raise** – Stand on the bottom step of a staircase with your heels hanging off. Slowly push your toes into the step while raising your heels until you feel a slight tension in the calf muscle. Then slowly lower your heels and repeat for the desired number of repetitions.
- **Toe Press (using rubber tubing)** – Sit on a mat with both legs extended. Loop a piece of the tubing around the balls of the feet. Grasp the loose ends of the tubing. Push your toes forward until you feel a slight tension in your calf muscle. Then slowly return to the starting position and repeat for the desired number of repetitions.



Tibialis Anterior/Posterior, Peroneal Muscles

- **Ankle Dorsiflexion** – Sit on the edge of a high desk or table with the knees bent and the weight held above the level of the floor. Secure weights around the instep of the foot. Bring the toes up toward the front of the leg by bending the ankle. Then slowly return to the starting position and repeat for the desired number of repetitions.
- **Ankle Inversion** – Lie on your side with the foot to be exercised on the bottom; the foot is positioned off the edge of the table. Secure the weights around the instep of the foot. Turn the ankle so that the toes face up toward the ceiling. Then slowly return to the starting position and repeat for desired number of repetitions. (Example I)
- **Ankle Eversion** – Lie on your side with the foot to be exercised on top; the foot is positioned off the edge of the table. Secure the weights around the instep of the foot. Turn the ankle upwards, raising the toes as high as possible. Then slowly return to the starting position and repeat for the desired number of repetitions. (Example E)



STRETCHES FOR THE MUSCLES/TENDONS OF THE LOWER LEG

Gastrocnemius, Soleus, Achilles Tendon

- **Standing Calf Stretch** – Stand, facing a wall with feet approximately two to three feet away from the wall. Lean forward with hands resting on the wall to support your upper body. Bring one leg forward and lean toward the wall moving the hips forward. Your weight should be supported by the back straight leg. Keep the heel of the straight leg on the floor. Both feet should be pointing straight ahead.
- **Achilles Tendon Stretch** – Sit on a mat with one leg fully extended and the other leg bent with the foot flat on the floor. Keeping your heel on the mat, raise your toes toward your knee. You can use your hands to bring toes closer to assist in the stretch.



Tibialis Anterior/Posterior, Peroneal Muscles

- **Ankle Rotation** – Sit on a mat and keep one leg straight while bending the other. Grab foot with opposite hand of bent leg and rotate the ankle manually to the right and repeat for the desired number of repetitions, then to the left respectively.
- **Ankle Extension** – Sit on a mat with both legs straight in front of you. Extend feet (point toes away), then return to the starting position and repeat for the desired number of repetitions.
- **Ankle Flexion** – Sit on a mat with both legs straight in front of you. Flex feet (bring toes toward you), then return to the starting position and repeat for the desired number of repetitions.
- **Inversion/Eversion** – Sit in a chair with feet flat on the floor. Rotate your ankles inward so the soles of the feet are facing outward. Return to the starting position and rotate the ankles so the soles of the feet are facing inward. Then, return to the starting position and repeat for the desired number of repetitions.

