

Dr. Gene Desepoli

Anterolateral Shin Splints Summary Treatment Sheet

Pathology:	<p>Anterolateral shin splints results from strain to the tibialis anterior muscle from eccentric overuse, running on hard ground surfaces or from direct trauma to the muscle itself. The muscle functions to concentrically dorsiflex and invert the ankle and to also eccentrically decelerate ankle's plantarflexion during running or walking. This may overstress the muscle.</p> <p>Pain may be present along the course of the tibialis anterior's insertion (Sharpey's fibers) or may be localized to specific areas within the muscle. A periostitis may result as the tenoperiosteal attachment is continually pulled away from the bone.</p>
History:	<p>The patient may have a history of training for a running event or of recently increasing their running mileage.</p>
Assessment:	<p>There will be painful resisted dorsiflexion of the ankle and painful passive overstretching of the ankle into plantarflexion.</p>
Bolstering/ Patient comfort:	<p>Ensure that all muscles are relaxed during treatment.</p>
Heat/Cold Therapy:	<p>Ice (and rest) is appropriate in the acute stage and also when the goal is to desensitize the area for deeper treatment. Local ice massage works well. In chronic, less painful stages heat may be useful.</p>
General Massage:	<p>Massage of all muscles from above the knee to the intrinsic muscles of the foot is important.</p>
Specific Massage:	<p>Gradually deepening massage to the patient's tolerance is appropriate. Stripping, compression and broadening strokes will prove helpful. Circular thumb massage and broad cross-fiber strokes are two other valuable strokes to be applied.</p> <p>Myofascial release strokes are appropriate as well.</p>
Evaluate / Treat TrPs:	<p>Eliminating trigger points in all the lower leg's compartments: anterior (tibialis), posterior (gastrocs/soleus/tibialis) and lateral (peroneals) is important. This will provide increased range of motion and allow normal muscle lengthening.</p>
Stretching Exercises/	<p>It is important to focus on stretching of the anterior and posterior calf muscles.</p>
Range of Motion:	<p>This can be passive (towel stretch) or active (contracting peroneus longus to provide a dynamic stretch). Ankle plantarflexion and eversion will stretch the tibialis anterior.</p>
Strengthening:	<p>As the condition improves, strengthening of the tibialis anterior will increase its ability to withstand overuse and stress.</p>
Stress Reduction:	<p>As needed</p>

Patient Education:	Evaluate the type of footwear worn by the patient. Look for an adequate arch and/or recommend the use of orthotics. Self-treatment including ice and light massage can be taught to the patient.
Ergonomic factors:	Educate the patient about proper footwear and about avoiding overuse. When a patient refuses to decrease their training mileage, wrapping the area with an ace bandage may decrease the stress placed on the tibialis anterior pulling on the bone during contraction. Ice pre- and post-activity will lessen injury.
Medical Referral	It is appropriate to co-treat the patient with a doctor and/or to receive medical approval. Other more serious conditions (compartment syndrome) may be overlooked and tears of the fascia must be ruled out
Useful Web Links:	http://www.sportsinjuryclinic.net/cybertherapist/front/lowerleg/shinsplints.htm http://www.nlm.nih.gov/medlineplus/ency/imagepages/19482.htm http://www.thestretchinghandbook.com/archives/shin-splints.htm

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Shin Splints

A shin splint is pain resulting from damage to the muscles along the shin.

The usual cause is long-standing, repeated stress to the lower leg. Two groups of muscles in the shin are susceptible to shin splints. The location of the pain depends on which group is affected.

Anterolateral shin splints affect the muscles in the front (anterior) and outside (lateral) parts of the shin. This type of injury results from a natural imbalance in the size of opposing muscles. The shin muscles pull the foot up, and the larger and much stronger calf muscles pull the foot down each time the heel touches the ground during walking or running. The calf muscles exert so much force that they can injure the shin muscles.

The main symptom of anterolateral shin splints is pain along the front and outside of the shin. At first, the pain is felt only immediately after the heel strikes the ground during running, walking, skiing, or other similar exercises. If the person continues to run, the pain occurs throughout each step, eventually becoming constant. Usually by the time the person sees a doctor, the shin hurts when touched.

To allow this type of shin splint to heal, the runner must stop running temporarily and do other kinds of exercise. Exercises to stretch the calf muscles are helpful. Once the shin muscles start to heal, exercises to strengthen them, such as the bucket-handle exercise, can be done in 3 sets of 10 every other day.

Posteromedial shin splints affect the muscles in the back (posterior) and inner (medial) parts of the shin, which are responsible for lifting the heel just before the toes push off. This type of shin splint often results from running on banked tracks or crowned roads and can be worsened by rolling onto the outside of the feet (pronation) excessively or by wearing running shoes that do not adequately prevent such rolling.

The pain produced by this type of shin splint usually starts along the inside of the lower leg, about 1 to 8 inches above the ankle, and worsens when a runner rises up on the toes or rolls the ankle in. If the person continues to run, the pain moves forward, affecting the inner aspect of the ankle, and may extend up the shin to within 2 to 4 inches of the knee. The severity of the pain increases as the shin splint progresses. At first, only the muscle tendons are inflamed and painful, but if the person keeps running, the muscles themselves can be affected. Eventually, tension on the inflamed tendon can actually pull it from its attachment to bone, causing bleeding and further inflammation.

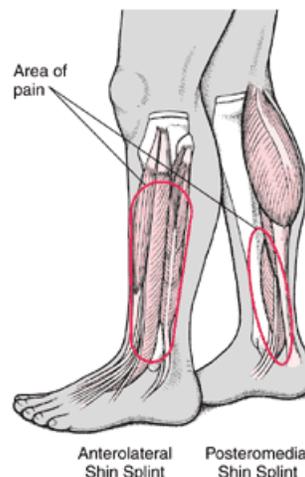
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Pronunciations

 [calcitonin](#) [epicondylitis](#) [popliteus](#) [tendinitis](#)

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www.clinicaltrials.gov

Shin Splints



Shin splints may develop in the muscles in the front and outer parts of the shin (anterolateral shin splints) or in the muscles in the back and inner parts (posteromedial shin splints). Pain is felt in different areas, depending on which muscles are affected.

The primary treatment is to stop running and do other types of exercise until running is no longer painful. Running shoes with a rigid heel counter (the back part of the shoe) and special arch supports can keep the foot from rolling onto the outside excessively. Avoiding running on banked surfaces can help prevent shin splints from recurring. Exercises to strengthen the injured muscles are useful.

An experimental treatment consists of [calcitonin](#) (a hormone that builds bone) injected daily or [alendronate](#) (a drug that slows bone loss) given by mouth; this treatment has healed some shin splints that were unresponsive to other measures. Sometimes none of the available treatments are effective, and the runner must abandon running permanently.

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Strengthening the Shin Muscles

Bucket-handle exercise

Wrap a towel around the handle of an empty water bucket. Sit on a table or other surface high enough to prevent the feet from touching the floor. Place the bucket handle over the front part of one shoe. Slowly raise the front of the foot by flexing the ankle, then slowly extend the foot by pointing the toe. Repeat 10 times, then rest for a few seconds. Do 2 more sets of 10. To increase resistance, add water to the bucket—but not so much that the exercise is painful.

Toe raises

Stand up. Slowly rise up on the toes, then slowly lower the heels to the floor. Repeat 10 times, then rest for 1 minute. Do 2 more sets of 10. When this exercise becomes easy, do it while holding progressively heavier weights.

Outward rolls

Stand up. Slowly roll the ankle out so that the inner part of the sole is raised off the floor. Slowly lower the sole back to the floor. Do 3 sets of 10.

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**TIBIALIS
ANTERIOR**

TIBIA

SOLEUS

**COMMON
SITE OF
ANTERIOR
SHIN SPLINTS**

**COMMON
SITE OF
POSTERIOR
SHIN SPLINTS**

