



ST. FRANCIS ATHLETIC TRAINING

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Shin Splints

The medical name for shin splints is 'Medial Tibial Stress Syndrome' which simply defines the condition as a syndrome in which stress, over time, has caused an injury to the medial (inside) part of the tibia (lower leg). It is very common in athletes who pound the legs - runners, sprinters, figure skaters, gymnasts, etc. It is a typical overuse injury. It does not occur overnight, but over a period of time during which the athlete has had repeated stress placed on the legs. It is not the added force caused by weight-bearing - for it is not common in weightlifters or other athletes that put a lot of force on their bones - but rather the impact force associated with running. This is one of the reasons why proper footwear is essential for anyone involved with running. Figure skaters, gymnasts, etc. don't have the luxury of choosing ideal footwear with adequate cushioning so, if you're a runner, exercise your ability to pick a good pair of shoes.

The Anatomy

The pain associated with shin splints is thought to correspond to the area where the soleus muscle of the calf attaches to the shin bone, or tibia. If you've ever whacked your shin, you know that there's not a lot of tissue on the front of the tibia. The majority of the muscles attach to the back of the tibia. If you put your fingers on the front of the tibia, right on the bony ridge that you can feel, and then roll inwards, you will almost be able to feel behind the tibia. There's a bit of a 'shelf' on the medial (inward) side of the tibia. This is usually where sore spots associated with shin splints occur.

Signs and Symptoms

- Pain located on the medial (inside) part of the lower leg (often 2-5 inches in length).
- Pain is often worse with running or other weight bearing exercise.
- Pain may be related to training on exceptionally hard surfaces (concrete, indoor tracks) or on tight turns (indoor tracks).
- Pain may linger even after cessation of the offending activity depending on severity.

What's Going On

The idea, as outlined above, is that the soleus muscle is "pulling" hard on the backside of the tibia, thereby causing pain. This causes inflammation in the outer layer of the bone, called the periosteum. It is directly related to the repetitive pounding forces associated with running, etc. The soleus muscle has to flex and pull in response to the pounding and this aggravates the periosteum.

It's important to understand that sometimes shin splints will present with the same signs and symptoms as a stress fracture in the tibia. It is also thought that shin splints can progress to stress fractures if not treated properly. Because of this it is very important that if you think you have shin splints, and they are not responding to rest or treatment, that you have your shin splints evaluated by sports medicine professional. Stress fractures are serious and usually require a minimum of 6 weeks to heal properly.

What Causes Shin Splints?

Shin splints can result from a variety of causes. Below is a list of the most common causes:

1. Improper Training: The most common cause of shin splints is due to improper training. Many novice exercisers start exercising too much, too soon and their bodies are not conditioned for the type of stress that is being put on it. Any exercise program, regardless of the type of activity, should be progressive to help prevent stress-related injuries. Over-training is another common cause of shin splints, therefore conditioned exercisers and athletes are not immune. Their programs must also be progressive and include rest and recovery days.

2. Improper Footwear: Something as simple as buying a new pair of shoes can help alleviate and even prevent shin splints. When you are participating in weight-bearing exercises, such as jogging, force and stress is being applied to your legs with each step. Wearing the proper footwear will help absorb some of that stress. Also, make sure you invest in a shoe that is biomechanically correct for your foot. For instance, if you over-pronate when walking and/or running, you may need a shoe with a more supportive arch. Many specialty athletic footwear stores have experts that can help you find the best shoe to fit your needs.

3. Hard or Inflexible Surfaces: Working out on hard surfaces increases the stress applied to your body. The hardest surfaces tend to be concrete and black top. Try exercising on more flexible surfaces, such as a running track, a treadmill with a shock-absorbing deck or even grass.

4. Muscle Weakness: The calf muscle (gastrocnemius and soleus) and the front shin muscle (anterior tibialis) are the muscles that support the tibia (shinbone). If one or all three of these muscles are weak or imbalanced, your lower leg may not be strong enough to handle pounding-type activities. Therefore, your risk of shin splints is increased.

5. Foot Biomechanics: The way you strike your foot during exercise may be contributing to overuse injuries. Those who are knock-kneed, bow-legged, and who over-pronate when walking or running are at an increased risk for shin splints. As stated above, proper footwear may help alleviate some of the symptoms, however talk with a fitness professional, athletic trainer or physical therapist for additional recommendations.

How Can I Treat Shin Splints?

Most shin splint cases can be alleviated and treated fairly easy. If you suspect shin splints, try the following at-home remedies. If your symptoms persist after trying the recommendations below, please consult a medical professional.

1. Rest: Rest is the best way to help eliminate shin splints. Time will allow the area to heal. Exercising through the pain will cause the symptoms to persist and in some cases worsen. Training changes, such as biking or swimming, can be done during this time if they are pain-free. These activities provide an excellent cardio-workout without the stress to the shins.

2. Ice: Ice will help soothe and heal shin splints by bringing down any swelling in the area. An ice cup massage following activity is recommended.

3. Strengthening and Flexibility Exercises: The stronger and more flexible the calf and anterior tibialis muscles are, the less likely you are to develop shin splints. Strengthening these muscles can also speed-up the healing process. Try the following exercises:

1. Calf Stretches - to increase flexibility in the calf muscles
2. Eccentric Calf Raises - to strengthen the calf muscles
3. Standing Toe Raises - to strengthen the anterior tibialis muscle
4. Walking on heels - to strengthen the anterior tibialis muscle
5. Toe Crunches - to strengthen the anterior tibialis muscle

4. Anti-inflammatory Medication: Anti-inflammatories such as Ibuprofen, can help keep swelling and pain to a minimum. Always consult your doctor before taking any medications.

As frustrating as shin splints may be, most cases are not severe and can be treated by you at home. By following the simple recommendations above, you can prevent and alleviate the symptoms of shin splints and be back to your regular exercise routine or training in no time.