

## Reduce Your Risk for Shin Splints

By Kristin Smith, CFT

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Overuse injuries, especially in the lower legs, are common in soccer players. Intense running, sudden stops and starts and jumps all contribute to ankle, knee and shin pain. Of these, shin pain, often referred to as “shin splints,” may be the easiest to treat and prevent.

### What Are Shin Splints?

The term “shin splints” is often applied to any pain between the knee and ankle. The American Medical Association (AMA) describes shin splints as “pain and discomfort in the leg from repetitive running on hard surfaces or from forcible, excessive use of the muscles that flex the ankle.”

In everyday terms, shin splints are an overuse or stress-related injury involving the muscles and tendons of the lower leg. Symptoms include general lower leg pain, tenderness on the inside or outside of the shin bone, swelling, lumps over the shin bone or pain when the foot or toes are pointing toward the floor. Pain is usually most noticeable during and after exercise.

As with many overuse syndromes, pain usually develops gradually with exercise and subsides with rest. If left untreated and with continued stress, the pain can progressively increase in intensity and frequency until it is present while walking or even at rest in the most severe cases.

### Anatomy, Causes

The lower leg is divided into four compartments, each of which contains a group of muscles and other tissue. Each compartment is responsible for different actions and functions of the lower leg.

If balance in strength and flexibility is not maintained between the muscle compartments, one compartment may overpower another, resulting in imbalance and stress — and eventual overuse — of the muscle or muscles of the weaker compartment. Muscles most commonly involved in shin splints are the front shin or deep calf muscle compartments.

Repetitive use of, and continued force on, the lower leg during soccer-related activities, in combination with any risk factors, can result in shin splints. Activities most associated with shin splints include sudden starts and stops, hopping, jumping and bounding.

### Risk factors:

- muscle imbalances: muscles are too strong or tight
- muscle inflexibilities
- bone alignment: biomechanics
- improper foot wear
- training errors
- training surfaces
- equipment

### Treatment and Prevention

Equipment and training programs as well as injury management strategies are key to reducing pain from shin splints and preventing them altogether. Rest, ice massages and anti-inflammatory medications are best used when pain is at its worst.

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**Rest.** Although players might be reluctant to leave the game, one of the best ways to reduce pain and inflammation in muscles and tendons is to rest. Doing so allows the tissue to heal. Players can maintain fitness by considering non-impact exercise during this time period, such as biking. After pain is reduced, introduce soccer play gradually to avoid re-injury.

**Apply ice.** Ice massages on the affected area help to reduce inflammation when pain is at its worst. Avoid direct ice-to-skin contact. Use ice wrapped with a towel to protect the skin.

**Use** non-steroidal anti-inflammatory medication (or ibuprofen) when appropriate to help reduce inflammation.

**Cross train.** Cross training during recovery from shin splints is important. Less stressful activities, such as swimming, pool running or bicycling, can be used as substitutes during the healing phase with a gradual return to full activity as symptoms diminish.

**Shoes.** Proper foot wear can help reduce the risk of injury and stress to the lower leg by providing good shock absorption, motion control and stability in the foot. Turf shoes are best on surfaces where traction isn't as important. They can also help to prevent ankle and knee injuries. Screw-in cleats are linked to high injury rates. Molded cleats and turf shoes should be broken in gradually rather than suddenly wearing them day-to-day. Some players may consider shock-absorbing insoles to provide more support on hard surfaces.

**Balls.** Non-absorbent, synthetic balls are best used on wet playing fields. Water-logged, leather balls can contribute to injury because of the forces needed to move the ball.

**Training programs.** Begin training programs gradually to allow the body to acclimate to the rigors of running, cutting, pivoting and stopping and starting. Pre-season training should include easy exercises that help to improve leg strength, ability, balance, flexibility and physical conditioning. De-conditioned athletes who participate in intense training too soon are at risk for overuse injuries. In-season training should include complex drills to challenge agility and jumping. As with any exercise program, there is risk of injury. Participants should check with their health care provider before starting a soccer program.

**Stretch.** Stretching after soccer practice and games can help to decrease muscle soreness and promote muscle balance. Flexibility exercises can easily be included as a cool down or during team wrap-ups and announcements.

**See your health care provider.** If pain continues after rest and ice, see a sports medicine doctor or physical therapist. Multiple biomechanical (bone alignment) factors and muscle imbalances have been associated with shin splints but must be evaluated by a health professional. One of the most significant factors contributing to shin splints is excessive or prolonged pronation (rolling in) of the foot, causing excess stress. Some people benefit from an orthotic device to reduce pronation, and therefore the amount of stress on the muscles in the lower leg.

Muscle imbalances resulting from lack of flexibility in the calves, combined with weakness in the front of the shin and the calf muscles should be addressed by a health care professional through stretching and strengthening.

### **Helpful Resources**

Minnesota Sports Medicine Same-day/Next day Appointments: **612-273-4800**

Institute for Athletic Medicine 24-hour Hotline: **612-920-8850**