

# A GUIDE TO SHIN PAIN (SHIN SPLINTS)

## KAPI'OLANI ORTHOPAEDIC ASSOCIATES

*Pediatric Orthopaedics*  
*Spine Deformity*  
*Sports & Dance Medicine*  
*Young Adult Hip Preservation*

1319 Punahou Street  
Suite #630  
Honolulu, Hawaii 96826  
Phone: (808) 945-3766  
FAX: (808) 942-9837  
www.kapiolani.org

**Robert C. Drukin, M.D.**  
**Division Head**  
**Pediatric Orthopaedics**  
Associate Clinical Professor  
Department of Surgery, John A.  
Burns School of Medicine,  
University of Hawaii

**William E. Burkhalter, M.D.**  
**Pediatric Orthopaedic Surgeon**  
Assistant Clinical Professor  
Department of Surgery, John A.  
Burns School of Medicine,  
University of Hawaii

**Jennifer R. King, D.O.**  
**Pediatric Sports Medicine**  
Assistant Clinical Professor  
Department of Surgery, John A.  
Burns School of Medicine,  
University of Hawaii

### **What is shin pain?**

Shin pain is pain on the front of the lower leg below the knee and above the ankle. It can hurt over the shin bone (tibia) or over the muscles on either side of the shin bone. Shin pain is also called shin splints.

### **How does it occur?**

Shin pain generally occurs from overuse. This problem can come from stress fractures of the tibia or fibula or from irritation of the muscles or other tissues in the lower leg. It can occur in runners who increase their mileage or the intensity of their running, or who changes the surface on which they are running. When you walk or run, your foot normally flattens out a small amount when it strikes the ground. If your foot flattens out more than normal it is called over-pronation. Over-pronation can contribute to shin pain.

### **What are the symptoms?**

You have pain over the front part of your lower leg. You may have pain at rest, during exercise or both.

### **How is it diagnosed?**

Your doctor examines your lower leg. He or she will look for tenderness over the front of your shin. Your doctor may watch you walk or run to see if you have problems with over-pronation. Your doctor may order x-rays or a bone scan to check for stress fractures.

### **How is it treated?**

Treatment may include:

- applying ice packs to your shin for 20 to 30 min every 3 to 4 hours for 2 or 3 days or until the pain goes away.
- doing ice massage (Freeze water in a Styrofoam cup. Peel the top of the cup away to expose the ice and hold onto the bottom of the cup while you run ice into your leg for 5 to 10 minutes.).
- taking anti-inflammatory medication prescribed by your doctor
- wearing prescribed, custom made arch supports (orthotics) to correct over-pronation
- doing rehabilitation exercises.

While you are recovering from your injury, you will need to change your sport or activity to one that does not make your condition worse. For example, you may need to bicycle or swim instead of run. When you begin to run again, you should wear good shoes and run on soft surfaces.

### **When can I return to my sport or activity?**

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your leg recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may safely return to your sport or activity when, starting from the top of the list and progressing to the end, each of the following is true:

- You have full range of motion in the injured leg compared to the uninjured leg.
- You have full strength of the injured leg compared to the uninjured leg.
- You can jog straight ahead without pain or limping
- You can sprint straight ahead without pain limping
- You can do 45-degree cuts, first at half-speed, then at full-speed.
- You can do 20 yard figures-or-eight, first at half-speed then at full-speed
- You can jump on both legs without pain and you can jump on the injured leg without pain.

### **How can I prevent shin pain?**

- Since shin pain usually occurs from overuse, be sure to begin your activities gradually.
- Wear shoes with proper padding, and change your shoes after 500 miles of wear.
- Run on softer surfaces.
- Warm up properly and stretch the muscles in the front of your leg and in your calf.

## Shin Pain (Shin Splints) Rehabilitation Exercises

Start these exercises when your pain has decreased by about 25% from the time when your injury was most painful.

### 1. Calf stretch

A. Calf stretch with towel: Sitting on a firm surface with your injured leg straight in front of you take a towel and loop it around the ball of your foot. Pull the towel toward you. Hold this position for 30 seconds. Relax. Repeat 3 times. When you don't feel much of a stretch anymore using the towel anymore using the towel, start stretching the calf in the standing position described below.

B. Standing calf stretch: Facing a wall place both hands at about eye level on the wall. Keep your uninjured leg forward and your injured leg back about 12 to 18 inches behind your uninjured leg. Keep your injured leg straight and your heel on the floor. Next, do a slight lunge by bending the knee of the forward leg. Lean into the wall until you feel a stretch in your calf muscle. Hold this for 30 to 60 seconds. Repeat 3 times.

2. Active range of motion of the ankle: Sitting or lying down with your legs straight and your knee towards the ceiling, move your ankle up and down, in and out, and in circles. Don't bend your knee while doing this. Repeat 02 times in each direction. Push hard in all directions.

3. Anterior Compartment stretch: Stand with one hand against a wall or chair for balance. Bend your knee and grasp the front of the foot of your injured leg. Bend the front of the foot towards the heel. You should feel a stretch in the front of your shin. Hold for 10 seconds. Repeat 10 times.

### 4. Thera-Band Strengthening exercises for the lower leg

A. Resisted dorsiflexion flexion: Sit in front of a doorway with your legs outstretched. Anchor the Thera-band in a door by tying knots in the ends and closing the knots in the door. Next, loop the Thera-Band around the forefoot of your injured leg. Pull your foot towards your face with the Thera-Band supplying resistance. Return slowly to the starting position. Repeat 10 times. Do 3 sets of 10.

B: Resisted plantar flexion: Sitting with your legs outstretched, put the tubing around the foot of your injured leg and hold the ends of the tubing in your hands. Gently press your foot down stretching the Thera-Band. Return to the starting position. Repeat 10 times. Do 3 sets of 10.

C. Resisted inversion: Sit on the floor with your uninjured leg crossed over your injured leg. Hold one end of the Thera-Band in your hand and tie the other end in a loop. Place the loop around the forefoot of the injured leg and have the band wrapped around the uninjured foot to provide an anchor. Move your injured foot inward with the Thera-Band providing resistance. Return your foot to the starting position. Repeat 10 times. Do 3 sets of 10.

D. Resisted eversion: Sitting on the floor with both legs straight out, have the Thera-Band looped around both feet. Slowly turn the injured foot outward, keeping the uninjured foot still. Return to the starting position. Repeat 10 times. Do 3 sets of 10.

5. Heel raises: Balance yourself while standing behind a chair or counter. Raise your body up onto your toe, then slowly lower it. Repeat 10 times. Do 2 sets of 10.

### 6. Toe raises

A. Sitting: Sit on a firm surface with your feet flat on the floor. Keep your heel on the floor and raise your toes off the floor. Repeat 10 times. Do 3 sets of 10. When the sitting exercise becomes easy, progress to standing, as described below.

B. Standing: Standing with your feet flat on the floor, rock back onto your heels and lift your toes off the floor. Hold this for 5 seconds. Repeat 10 times. Do 3 sets of 10.