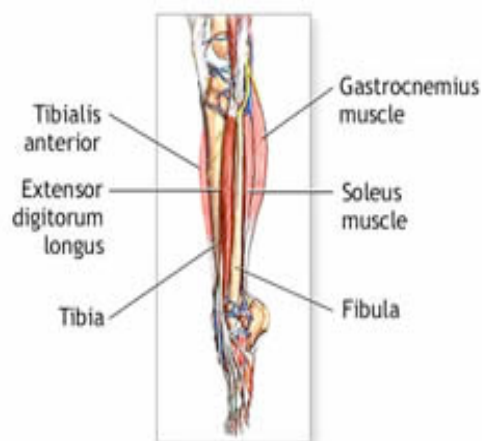




# McFarland Clinic

## SHIN SPLINTS



### WHAT YOU MAY EXPERIENCE

- Aching along front of shin, at beginning of or after activity.
- Pain along inside (medial) part of lower leg.
- Generally develops gradually over weeks or months
- May have swelling in lower leg (in area of pain)

### POSSIBLE SOURCES

**SHIN SPLINTS:** Common, umbrella term used to identify pain along the shin or front of lower leg. More specific names for this condition are based on the area of the pain and the anatomy involved. Injury generally occurs as a result of over use.

**STRESS FRACTURE-POSTERIOR:** Most often occurring on the tibia (shin bone) and along the bottom third of the lower leg. Often undetectable on x-ray until 10-14 days after pain starts.

### COMPARTMENT SYNDROME-ANTERIOR OR

**POSTERIOR:** The four divisions of muscles in the lower leg (anterior, lateral, posterior-superficial and deep) are each covered by thick tissue called fascia that surround the muscles completely. During exercise, muscle volume increases by 20%, increasing pressure within each compartment. Such pressure can affect blood vessels and nerves in the lower leg potentially causing pain and damage to tissue and nerves.

**TIBIAL PERIOSTITIS-POSTERIOR:** An inflammation of or trauma to the covering of the bone in shin (periosteum). Over – exertion causes small tears of the muscle from the covering of the bone. Pain is most pronounced in the lower 3rd of the posterior tibia.

### MEDIAL TIBIAL STRESS SYNDROME- POSTERIOR:

Stress to the muscles along the front medial side of the shin. Generally occurring along the bottom third and inside of the tibia (shin).

### CONTRIBUTING FACTORS

- Muscular imbalances of lower leg (calf muscles and anterior leg muscles).
- Insufficient shock absorption.
- Poor biomechanics/improper foot positioning while running.
- Worn out or inappropriate shoes.
- Sudden increase in exercise or running (too much-too soon).
- Incorrect individual training plan.
- Flat pronated feet.

### QUICK FIX

The **3 S's- Stretching, Strengthening, and Supporting**, along with ICE and REST, have been found to be the simplest and most effective for these injuries:

1. **Stretching** of the calf (both gastroc and soleus) muscles and Achilles tendon can help eliminate or prevent many problems with the Achilles tendon (**see LOWER LEG STRETCHES at back of this sheet**).
2. **Strengthening** of the anterior leg muscles (that pull the foot and toes up) (**see 4-DIRECTION LEG STABILIZATION at back of this sheet**).
3. **Supporting** the foot with proper shoes and insoles can prevent or help to eliminate the vast majority of lower extremity problems due to faulty biomechanics. You may consult with your Sports Medicine or Physical Therapist for guidelines about this, but your best bet would be to talk to an appropriate local running store.

### FOLLOW-UP

If these quick fixes do not help resolve your problem, this would be the point where you would consult your medical practitioner. You could start with your Primary Care or Sports Medicine Physician. They may test your knee & take x-rays or do an MRI or other tests to narrow down your diagnosis. Follow up from there could be with your Physical Therapist where a combination of manual therapy & specific exercises may help resolve your problem. If damage is significant, you may be referred to an Orthopedic Surgeon.



515-239-3410  
515-817-1237 fax



**Sports Medicine**  
1215 Duff Avenue  
Ames, Iowa 50010



McFarlandClinic.com  
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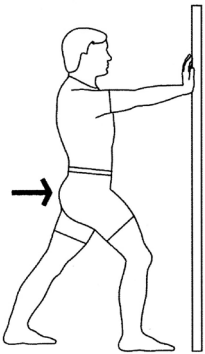
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## LOWER LEG STRETCHES & 4-DIRECTION LEG STABILIZATION

### 1. GASTROC & SOLEUS STRETCH



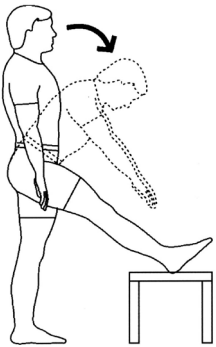
Stand with involved foot back, and leg straight. Keeping heel on floor and turned lightly outward, gently lean into wall until stretch is felt in calf. Hold 30 seconds.

Then bend both knees until a stretch is felt lower in calf.

Hold 30 seconds.

Repeat 3 times each on each side.

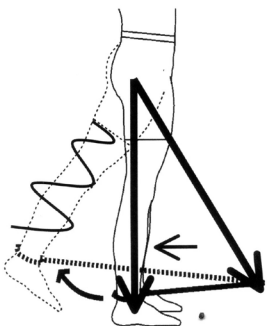
### 2. QUADRICEPS STRETCH



Pull heel toward buttock until a stretch is felt in front of thigh. Move bent knee behind hip to maximize stretch. **DO NOT JACK-KNIFE FORWARD.** Hold 30 seconds.

Repeat 3 times on each side.

### 3. HIP EXTENSION



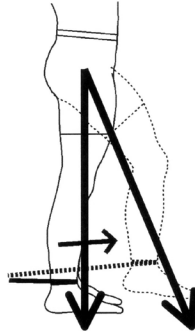
With Tubing around Right / Left ankle and other end secured in doorjamb, face door and pull leg straight back. Do not lean forward.

Repeat 10 times per set.

Do 3 sets per session.

Do 1-2 sessions per day.

### 4. HIP FLEXION



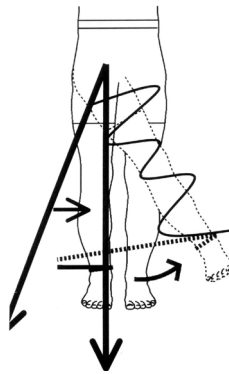
With tubing around Right / Left ankle and other end secure in doorjamb, bring leg forward, keeping knee straight.

Repeat 10 times per set.

Do 3 sets per session.

Do 1-2 sessions per day.

### 5. HIP ADDUCTION



With tubing around Right / Left ankle and other end secured in doorjamb, bring leg across body, and slowly return to starting position. Do not lean, keep body upright

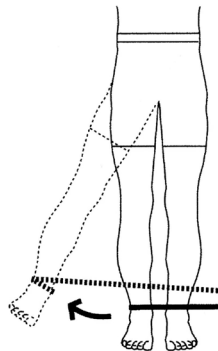
Repeat 10 times per set.

Do 3 sets per session.

Do 1-2 sessions per day

**Band on RIGHT ankle stabilizes LEFT, and band on LEFT ankle stabilizes RIGHT.**

### 6. HIP ABDUCTION



With tubing around Right / Left leg and other end secured in doorjamb, stand sideways with Right / Left hip facing door and extend leg out to the side.

Repeat 10 times per set.

Do 3 sets per session.

Do 1-2 sessions per day.



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