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### Shin Splint

A shin-splint is the most common cause of exercise-induced leg pain encountered by athletes of all levels. It is commonly used as a "garbage can" term to include a variety of exercise-induced leg pathologies but actually represents a very specific problem. It is essentially an inflammatory reaction involving the connective tissue of the leg (called the deep or crural fascia) at its insertion into the inside (medial) or front (anterior) aspect of the leg bone (tibia). Thus "tibial stress syndrome" is the common medical term used to refer to this condition though I prefer the term "tibial fasciitis" because it specifically implicates the deep fascia as the etiologic anatomic structure involved. This condition needs to be differentiated from other common and uncommon causes of leg pain as the correct diagnosis will dictate treatment.

Treatment for shin-splints can vary depending on the location (medial vs anterior), duration and severity of the problem. Listed below is a comprehensive four stage initial (vs resistant or recalcitrant) treatment program that has met with excellent success at our sports medicine center. It is important to complete all four stages of the program to obtain a more predictable result. If the response to this program is not favorable then re-evaluation of the patient is indicated. If the diagnosis remains firmly established, additional (more aggressive) treatment measures may need to be considered, i.e., steroid injections, surgery, etcetera.

#### **Tibial Fasciitis Initial Treatment Program**

##### **PHASE 1- Acute Phase:**

- decrease acute pain and inflammation:
- absolute rest- NWB with crutches
- relative rest- WB boot or walker
- "ICE" (ice; compression; elevation)
- NSAIDS

Note: depending on the severity of the problem the acute phase can be bypassed but should always be considered especially if clinical symptoms are significant. When palpation of the involved shin area exhibits minimal to no discomfort the rehabilitation phase can be initiated.

##### **PHASE 2- Rehabilitation Phase:**

- Further decrease pain and inflammation:
  - ultrasound
  - phonophoresis
  - neuroprobe
  - contrast baths
  - decrease scar formation:
  - transverse friction/deep tissue massage
  - augmented soft tissue mobilization (ASTM)



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- Maintain/increase flexibility of injured (and surrounding) tissue:
  - active > passive joint range of motion
  - stretching exercises
- Strengthen fascial/bone interface:
  - open to closed chain therapeutic exercise (isometric > isotonic > isokinetic)

Note: when patient can complete these exercises without symptoms then the functional phase can begin. The techniques used to decrease scar formation can initially exacerbate the condition especially when using ASTM.

### PHASE 3- Functional Phase:

- Functionally strengthen fascial/bone interface (and surrounding tissue):
  - continue open to closed chain therapeutic exercise
  - plyometric training (trampoline > jumping rope > "verticle jumps")
- Protect injured area during functional activity:
  - shin taping
  - neoprene shin sleeve
  - consider leg brace (Air Cast)
  - orthoses PRN
  - appropriate athletic foot gear

Note: this is probably the most important phase because it prepares the patient for their return to activity. Care needs to be taken at this stage not to allow the patient to overdo these exercises and stay within their limits as re-injury can easily occur.

### PHASE 4- Return To Activity

- Return to desired sport activity:
  - gradual, systematic, "to tolerance"
- Initiate preventive strategies:
  - orthoses PRN
  - appropriate athletic footwear
  - functional exercises (i.e., pilates, plyometrics)
  - revise training program