

### ***Lower Leg Syndromes***

**WHAT ARE SHIN SPLINTS:** AMA describes it as “Pain and discomfort in the leg from repetitive activity on hard surfaces, or due to forceful, excessive use of foot flexures.” Some feel that the diagnosis should be limited to musculoskeletal inflammations excluding stress fractures or ischemic disorders. Others feel that any exertional leg pain that occurs in the shins can be diagnosed as shin splints. Still others say that shin splints is Medial Tibial Stress Syndrome.

#### **SOME FACTS:**

- Shin Pain-18% of all overuse injuries in athletes
- “Shin Splints”- 10-15% of all running injuries
- 3<sup>rd</sup> most common injury in survey in 1977 Runner’s World
- Leg Pain Syndromes- 60% involve “shin splints”
- Runners- 15-16% incidence of stress fractures

Tibial stress injuries can be shown to be a continuum of an injury. Most injuries in runners start out to be a form of tendinitis. This then progresses into:

periostitis → Medial Tibial Stress Syndrome → Stress reaction → Stress fracture

#### **RISK FACTORS FOR STRESS FRACTURES:**

- Female Athlete Triad Syndrome (amenorrhea, osteoporosis, eating disorder)
- Increased age
- Poorer fitness
- Low bone density
- Less lean mass of LE’s
- Leg length discrepancy
- Low fat diet

#### **TREATMENT OF TIBIAL STRESS FRACTURES:**

- Stop precipitating activity (non-compliance risk)
- Cross-training while fracture heals
- Ice massage useful modalities
- No immobilization; walking encourages healing
- Graduated strengthening & flexibility program should allow complete resolution by 6-8 wks.

#### **MEDIAL TIBIAL STRESS SYNDROME (MTSS)**

MTSS is usually associated by pain and tenderness along the inner distal 2/3 of the tibial (shin) shaft. It is usually due to over use and weakness of the soleus, posterior tibialis and flexor digitorum longus muscle groups.

Runner will often present with the following:

- pain posteromedial tibial border (back inside edge of the shin bone)
- pain at the beginning of the workout
- dull pain to excruciating
- in advanced cases, it will bother them with every day activities
- usually occurs with change in mileage or surface

- manual resistance to active plantar flexion (pointing toe down) and inversion (turning foot inwards) is usually painful

#### **TREATMENT/REHABILITATION:**

- Rest a few days to 2 weeks
- Ice massage
- Anti-inflammatory medications (at times)
- Cross training
- Referral for athletic training or physical therapy (as needed)
- Treat excessive pronation with orthotics
- Stretch and strengthen the anterior and posterior muscles
- Eccentric strengthening is key at the end of rehabilitation before return to play

#### **PREVENTION:**

- Orthotics if excessive pronation or supination
- Maintain stretching and strengthening programs
- Correct training errors
  - Only a 10% change per week
  - Watch training on unforgiving surfaces
  - Poor shoes – after 125-250 miles = replace them

#### **CHRONIC EXERTIONAL COMPARTMENT SYNDROME (CECS):**

With activity, exercise increases the capillary surface and puts pressure on the muscles. This results in an increase in intracompartmental pressure. There should be a filtration and reabsorption of this fluid and the pressure should decrease. When this does not happen, it can result in a decreased capillary flow = decrease oxygen to the muscle and nerve tissue causing pain.

Athletes with this problem often complain of:

- Exercise induced leg pain
- A tight/squeezing sensation in the area (compartment swelling)
- Rest usually alleviates the symptoms
- It is usually localized to a specific compartment
- Numbness and decreased sensation can result
- Becomes worse over months
- Insidious onset in runners
- Vascular insufficiency can result
- Impaired muscle function can result

This type of injury is serious and often requires surgery. The physician will take intramuscular compartment pressure measurements. Dr. Nilesh Shah can provide that testing in his office.

**Nilesh Shah, MD** is the Medical Director for Summa Center for Sports Health and Pinnacle Sports Medicine. Dr. Shah is a board certified family practice physician and fellowship trained in Sports Medicine. Dr. Shah offers **same day / next day physician appointments**, including concussion evaluations. To schedule an appointment, call the St. Thomas office 330-379-5051 or Hudson office 330-342-4612.

**Hollie Kozak** is a licensed athletic trainer and the manager for Summa Center for Sports Health. If you have questions regarding pre-participation physicals, educational programming, athletic training contracts, etc., call her at 330-379-5356.

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