SYMPTOMS

- 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)

DEFINITIONS

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 (see below).
- Injury generally occurs as a result of overuse

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 (periostium)
- Over-exertion causes small tears of the muscle from the covering of the bone (periostium)
- 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 of the inside of tibia (shin)

PRIMARY CAUSE

Excessive Pronation

- Pronation is a normal movement of the foot, that allows the arch to flatten to a degree, which helps the body to absorb and adapt to different ground surfaces.
- In analyzing ones gait, first contact is on the heel and outside of the foot; followed by a shift of body weight continuing forward, toward the arch and toes.
- If the foot is weak or tired and/or the footwear is not supportive, then the arch can flatten more than normal, which is excessive pronation.
- Flattening of the arch (excessive pronation) places pressure on the arch and can cause some rotation into the lower leg. This repetitive movement can cause overuse problems from the foot to the back.
- If excessive pronation occurs from lack of support, then increased stresses can be placed on the lower leg and contribute to overuse problems

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 (shoes should typically be replaced after 300-500 miles)
- Sudden increase in exercise or running (too much-too soon)
- Incorrect individual training plan
- Flat pronated feet

TREATMENT - ADVICE GIVEN MOST OFTEN IN LITERATURE

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

- Stretching of the calf (both gastroc and soleus muscles) and achilles tendon.
- Strengthening of the anterior leg muscles (that pull the foot and toes up).
- Supporting the foot with proper shoes and insoles can prevent and eliminate the vast majority of lower leg problems due to overuse.
- Physical therapy including massage, ultrasound and exercises

THE FOLLOWING ARE A FEW HELPFUL EXERCISES. CHECK WITH YOUR DOCTOR FOR SPECIFICS ON YOUR CONDITION AND WHAT YOU SHOULD, OR SHOULD NOT DO FOR YOUR PROBLEM.