Runners frequently develop shin pain during or after some sort of exercise or activity, which could be caused by several factors. Often referred to as “shin splints,” this term itself is not an injury, but is a collective term that refers to a few different injuries of the lower leg. Although runners are most typically affected by shin splint symptoms, those who participate in jumping sports such as basketball, dance, tennis, etc. are also at risk.

The most common types of shin injuries include:

1. **Medial tibial stress syndrome (MTSS)** – Is the most common cause of leg pain in athletes. MTSS is an overuse injury which causes pain on the inner aspect of the shins. Pain usually runs along the length of the shin and may be present in one or both legs.

2. **Tibial stress fracture (TSF)** – Pain is usually more point-specific and located directly over the bone in the shin. Pain is usually relieved when not bearing weight. Stress fractures that are relatively new (2-3 weeks) will most likely not show up on an x-ray, and won’t until the bone starts to heal itself. If a stress fracture is diagnosed, it may be recommended to wear a boot or not bear weight for a period of time.

3. **Anterior tibialis tendonitis** – Pain is located along the outer border of the lower leg bone, where the anterior tibialis muscle is located. This muscle helps turn your foot inward and upward. Repetitive motion and increased strain on the muscle can cause inflammation in the tendon. Pain begins while running and may specifically be noticed after running hills or inclines.

Facts Related to Shin Splints:

- MTSS accounts for nearly 60% of all overuse injuries of the leg
- About 10-20% of runners will experience at least one bout of shin splints during their career
- TSFs account for 6-14% of running-related injuries
- TSFs seem to be more prevalent in females

Possible Causes

There are numerous theories about the origin of shin splints, but the exact mechanism of injury is frequently unknown. Possible causes of shin splints include:

- Faulty biomechanics while running/jumping
- Anatomical abnormalities, e.g., flattened or high arches or position of knees
- Muscle weakness, e.g. quads or gluteal muscles
- Decreased flexibility, especially in the calf muscles
- Low bone mineral density
- Hormonal imbalances
- Type of surface on which activity is performed, e.g. hard surfaces like concrete sidewalks or roads
- Quality and condition of footwear, e.g. poor quality or worn out running shoes
- Training technique, e.g. too aggressive progression of training frequency and pace

Prevention and Treatment

Because the lower leg bone is chronically inflamed due to repetitive forces, running further aggravates shin splint symptoms and prevents the affected site from healing properly. Shin splint prevention and treatment strategies:

- Decrease the intensity and duration of activity
- Resting 7-10 days is recommended; try biking or swimming to continue cardio exercise
- Ice (20 min with bag OR 5 min with ice cup massage over area) and elevate often during the day
- Inserts, orthotics, and new shoes may be helpful to alter where stress is placed on the feet and up the legs
- Running mechanics may need to be altered if inconsistencies are noted
- Stretching and strengthening may help decrease pain and improve function
STRETCHING EXERCISES

<table>
<thead>
<tr>
<th>Technique:</th>
<th>Hold each exercise 15-30 seconds in a gentle pain-free stretch. Do not bounce!</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency:</td>
<td>3-4 repetitions/exercise, 5-7 days per week*</td>
</tr>
</tbody>
</table>

Try stretching with your hands on a wall.
- Place the injured foot behind the other with your toes pointing forward.
- Keep your heels down and back leg straight.
- Slowly bend your front knee until you feel the calf stretch in the back leg.

Once you can stand, try placing your injured foot behind the other with your toes pointing forward.
- Keeping your heels down, slowly bend your back knee until you feel a heel stretch in the back leg.

Place top of toes on floor and turn toes inward toward opposite leg.
- Push top of foot down until a stretch is felt in outer shin.

*Recommendation: Begin stretches and exercises listed here (only if pain-free) until your appointment with the physical therapist or athletic trainer.

STRENGTHENING EXERCISES

<table>
<thead>
<tr>
<th>Frequency:</th>
<th>3 sets of 10 repetitions, 5-7 days per week*</th>
</tr>
</thead>
</table>

Tie the ends of an exercise band and shut in a door or tie to a dresser.
- Sit with your legs out in front of you, facing the door/dresser and loop the band over the top of your foot.
- Pull your foot up toward you, against the band.

With the band still in place, sit parallel to door/dresser and loop the band over the inside of your foot.
- Pull your foot inward against the band.
- Do NOT rotate entire leg inward, only the ankle.

With the band still in place, sit parallel with the door/dresser on your other side and loop the band over the outside of your foot.
- Pull your foot outward against the band.

Hold one end of band with hands and loop the band around the bottom of your foot.
- With leg out in front of you, push foot downward against the band.

References


If you are a registered University of Illinois student and you have questions or concerns, or need to make an appointment, please call: Dial-A-Nurse at 333-2700

If you are concerned about any difference in your treatment plan and the information in this handout, you are advised to contact your health care provider.

Visit the McKinley Health Center Web site at: http://www.mckinley.illinois.edu