Patient Information: Stress Fractures

What are stress fractures? How are they caused?
- A stress fracture is when tiny cracks form in a bone due to excess stress and overuse
  - Overuse occurs when bone is not given adequate time to recover from activity, and fatigued muscles are unable to absorb forces on the bone
  - Excess stress can be caused by increases in duration or intensity of exercise, new activities, or new exercise surfaces
- A lack of micronutrients vital to bone health (calcium, vitamin D) can increase the likelihood of a stress fracture
  - Nutritional deficiencies and stress injuries are both part of the Female Athlete Triad
- Most stress fractures occur in the lower leg and foot, but can occasionally occur in the upper leg and spine

What are the symptoms of a stress fracture?
- Pain and possibly swelling that is markedly worse with activity and improves with rest
- Tenderness to touch over the affected bone

How is a stress fracture diagnosed?
- A physical exam can lead to the diagnosis of a probable stress fracture
- X-rays are typically normal, but may be done to rule out a full fracture or other bone problems
- Musculoskeletal ultrasound can be done to look for inflammation in or around the bone
- MRI or CT scans may be done for stress fractures in complicated areas, or those that are slow to heal

How is a stress fracture treated?
- Reducing bone stress using boots, casts, or crutches
- Anti-inflammatory medications for pain
- Return to activity is slow and gradual and begins after a set healing period, if pain has subsided
- Activity Progression
  - No weightbearing, no impact (swimming, biking)
  - Weightbearing, no impact (elliptical, weights)
  - Weightbearing, impact (running, jumping)
- Intensity progression:
  - Always begins with low intensity, short duration exercise, and eventually progresses to longer duration, high intensity activities

How can I prevent stress fractures?
- Slowly increase duration and intensity of activities, particularly with new activities or new surfaces
- Use activity-appropriate, supportive footwear
- Always warm up and stretch, and do a cool down
- Integrate cross-training into your exercise routine (for example, low body weightlifting for runners)
- Include variety in your activities and sports
- Schedule rest days, and low impact days (yoga, etc)
- Have adequate intake of calcium, vitamin D, protein, and healthy fats for bone and muscle recovery

Where can I learn more about stress fractures?

To schedule an appointment, visit the Steward St. Elizabeth’s Sports Medicine website at: semc.org/services-directory/orthopedics/sportsmedicine

Adapted from: American Academy of Orthopaedic Surgeons (www.aaos.org), Hospital for Special Surgery (www.hss.edu), Mayo Clinic (www.mayoclinic.org)
This information is for patient reference only. It is not intended to diagnose or guide treatment without evaluation by a physician.