Suggestions for those w/ Bony Stress Injury/Fracture:

Rest is important. Take adequate time to allow the bone to heal.
- Stress fx may take as long as 6-16 weeks to get better!
  - If you don’t rest or change your training your stress fracture will NOT get better.
- Recovery depends on location and extent of stress fx
- Utilize crutches if you are unable to walk without a limp or pain.
- Rest = don’t do full sporting, but we encourage “safe exercise”, (biking, Swimming, pool running, unloaded weight training) while you are Resting from your sport.
- Return to full activity before you are recovered can result in a true fracture.

Exercise
Exercise that does not stress your fracture site is encouraged as increased circulation is essential for optimal bone healing. Biking, pool work, elliptical, or Ultra G are encouraged as they will increase blood flow and facilitate healing. Pain is your best guide. If it hurts or increases your pain, don’t do it.

Weight training activity is encouraged for all athletes as part of a general fitness program. Avoid any lifting with your injured extremity. Modify all activity to accommodate your disability.

If your lower body is injured, work your upper body. If your right leg is injured, work your left leg. Just because your injured doesn’t mean you need to stop weight training. If you have questions about a specific weight training exercise and how it may affect your injury, please discuss it with the athletic trainer.

Strengthening Exercises:
There really isn’t any way to do strengthening work for your bone when you are trying to recover from a bony stress injury. Weight training has been noted to be beneficial for increasing bone strength in the active population, but when injured, strength exercises that stress your recovering injury may be contra-indicated. Avoid calf strengthening exercises for the first 4 weeks of recovery. Strength training the calf musculature including endurance work is encouraged after the first 4 weeks of recovery.
Evaluate your Diet:

* Eat a diet with lots of color. (Fruits and vegetables)
  - Great source of essential nutrients!
  - Most teenagers do not eat a colorful diet that is nutrient rich.

Consider Supplementation: (Essential Bone nutrients)

- Dietary sources are best, but consider supplementation if diet is lacking.
- The body will only absorb a certain % of supplementation. Don’t take large doses of vitamins at one time. Rather take 2-3 smaller doses across the day.
- One of the best times to take Vitamins is at night when your body is looking to go into repair mode and is in need of available nutrients.

- Drink Skim milk and eat dairy products
  - Normal teenage diet is generally low in dairy intake.
  - Addition of 1 cup of milk, yogurt, or ice cream may decrease chances for stress fx.
- Consider a good multi vitamin for growth and development.
- **Vit D** - 800-1,000 IU /Day – (active individuals)
  - is a key nutrient for bone growth and development.
  - Sunlight provides Vit D.
    - Get sun, but avoid prolonged exposure and sun burning
  - For more information please visit: https://ods.od.nih.gov/factsheets/VitaminD-HealthProfessional/

- **Calcium** – 1200-1500 mg/day –
  - Also a key component for building bone strength.
  - Optimal dosing 500mg or less
  - Calcium absorption may be blocked by
    - Excessive Animal protein, dietary fiber, & caffeine.
    - Certain medications – tetracycline’s, Anti-acids (Proton Pump inhibitors (Prevacid, Protonics etc)

**Forms of Calcium:**
- Calcium Citrate optimal, also aids with Iron absorption
  - May be taken between meals.
- Calcium Carbonate is most cost effective
  - Should be taken with meals
- If you have trouble taking pills, consider beverages fortified with Calcium
  - Orange juice, High calcium mineral water
  - For more information please visit: https://ods.od.nih.gov/factsheets/Calcium-HealthProfessional/

***When taking supplements, it is important to read the label and follow directions. Questions should be discussed with your family physician.

**Discuss your menstrual status w/ your parents / Physician**
- Those with only 4-9 menses/year are considered oligomenarheic.
- Those with <4 menses/year are consider ammenorheic.
- Concerns with heavy bleeding should be addressed.

**Address Body Weight Issues:**
- Optimal BMI is 20-28
- Low body weight can contribute to amenorrhea and stress fracture. A BMI below 19.5 is considered low/abnormal.
- (Check your BMI with an online calculator)
  - Increase caloric intake, decrease activity if BMI low.
- Excessive body weight can contribute to stress fracture.
  - Decrease caloric intake, increase activity if BMI is high
  - If your foot makes contact with the ground 1,000 times/mile x you run 3 miles = 3,000 foot strikes. Consider a person who weighs 125 pounds. They will generate 375,000 pounds of force on your body. -
- an extra 5 pounds can add 15,000 extra pounds of stress to your legs over 3 miles.
  - Consider the impact of extra weight over 100 miles!

**Special Sleeves/Wraps/ Kinesio tape** –
Physiologically, a cloth, neoprene sleeve or Kinesio tape WILL NOT provide appreciable support to your bone or leg.

**Creams/Ointments:**
Creams and ointments act as skin irritants. They DO NOT increase the blood flow to the bone or deeper muscles. Biofreeze does not have a freezing effect on the tissue. Icy Hot does not increase the blood flow to the bone or deeper tissue. They merely cause a skin irritation, stimulate the sensory nerves which may decrease some of the pain sensation, but they WILL NOT provide any physiologic benefit or speed healing.

**Don’t overlook the value of good injury care.**
Ice and elevation can be beneficial in helping to reduce swelling and the pain associated with a bony stress injury.

**Stretching Exercises:**
Stretching exercises of lower leg are contra-indicated during the initial phase of recovery. Light stretching may be incorporated during the return to sporting phase of recovery.

**Foam Rolling:**
Foam Rolling has not been shown to improve recovery of lower leg stress fracture. For some it may even make symptoms worse.

**Pneumatic Brace** –
- There is very limited evidence that a pneumatic stirrup brace will help you return to sporting activity quicker. Aircasts can be purchased online.

**Exercise Modification:**
- Bike or swimming instead of running
- Track your HR for training effect

**Avoid Training Errors:**
Things to consider:
- Improper warm-up,
- Preparation: Aerobic conditioning, strength training
- Faulty equipment
- Training Intensity, Duration, Frequency, Distance, Rest
- Not enough rest
Avoid The Rule of Too’s –
Too far, too fast, too hard, too soon, too often, too much

Sleep:
Don’t overlook the value of a good night’s rest. Studies show that those who get
Less than 7.5 hours of sleep each night are at greater risk for stress fracture.
Sleep is a key recovery and rebuilding time for the body.

Correct Faulty Biomechanics
Faulty biomechanics should be addressed by a well-trained Athletic Trainer or
Physical Therapist.

Run FASTER
Forward Body lean 5-7%
Arms swing hips to chest
Stride length should remain under your body
Track your feet alignment. One foot in front of the other.
Explode midfoot to big toe.
Rhythm – approximately 90 rpm on treadmill.

Consider Orthotics
Individuals who have been identified with faulty biomechanics may benefit from
The use of an orthotic to help dissipate forces and correct faulty mechanics.
- An orthotic will help to support your foot in a “neutral” position.
- Custom Orthotics can be made by a podiatrist, athletic trainer or physical
  therapist or they can be “custom” made by using and impression tray. They
  can be something as simple as an arch support that you get at Dick’s or your
  local drugstore, or as complex as a custom made one with special postings and
  accommodations. Generally, arch supports that you get in a drug store are
  only 20-30% effective, but they may work for some people. Those with
  greater biomechanical issues may consider a more controlling orthotic.
- Consider trying an inexpensive orthotic that is “custom made” by Foot
  Management, Inc. The orthotics cost $90-100 and are effective for 50-60% of
  users. www.footmanagement.com

Shoes:
Just because a shoe says Nike, looks great or you paid a lot of money for them,
doesn’t make them the right shoe for your foot. Shoes should be fit for your foot
posture. High arched people need more flexible shoes, flat footed/over pronators
need shoes with more arch and heel support. If you can bend a shoe in half or
rock the heel easily, it’s a flexible shoe. If it is more solid, it has more support.
- If you have been wearing your shoes for over then 300 miles, they probably
  have lost 50% of their shock absorbing ability. You might consider getting
  new shoes!
- Wear appropriate shoes for your sporting activity.
Returning to Sports:
  - **IT IS A Gradual Process!!!!!**
  - Start with walking and integrate running gradually.
  - Learn to run “quietly”, control landing, fire your proprioceptors (supporting musculature)
  - When returning to running, start at 30-50% normal workout, every other day first two weeks
  - Increase gradually over weeks (10% increase/week)
  - Introduce hills (uphill/downhill running), zig zags, intervals and jumping AFTER 4-6 weeks of gradual training.
  - Begin training on a good surface (rubberized track or solid ground.
    - Road/concrete is too hard. Wet/soft grass/sand is too soft
    - Vary your training surfaces over time.

** Consider utilizing the graduated Return to Running Program posted on our website.

Suggestions for those with repeat stress fractures:
  - Consider blood work to rule out deficiencies or identify problems.
    - We can recommend a good bone workup.
  - DXA scan and body composition scan may be beneficial.
    - Contact our office for further details.
  - Re-evaluate your running mechanics and training.
    - Our physical therapists are here to assist you.