

Calcaneal Apophysitis

(Sever's Disease)



Definition: Inflammation (-itis) of the growth plate (apophysis) on the heel bone (calcaneus).

Description: A painful inflammation of the heel's growth plate. It typically affects children between the ages of 8 and 14 years old because the heel bone (calcaneus) is not fully developed until at least age 14. Until then, new bone is forming at the growth plate, a weak area located at the back of the heel. When there is too much repetitive stress on the growth plate, inflammation can develop.

Symptoms:

- Heel pain is generally exacerbated by physical activity (walking, running, jumping, etc).
- Walking with an altered gait (limp)
- Foot and ankle stiffness or discomfort upon waking in the morning
- Swelling and/or tenderness in the heel

Causes:

- As children go through a growth spurt, often times the muscles can't keep up with the bone growth. This leads to tighter muscles (usually the calves) putting more pull and stress on the Achilles tendon insertion point.
- Generally affects 8-14 year olds (when rapid growth occurs).
- Sports that involve running and jumping on hard surfaces may exacerbate pain.
- Sports that involve side to side movements or rapid cutting movements may exacerbate pain.
- Improper footwear:
 - Cleats provide minimal support/cushion and create increased pressure on the bottom of the heel.
 - Shoes with inadequate support for your mechanics or that do not match up with your foot shape could cause excessive movement of the feet and exacerbate the symptoms.
- In some cases, overpronation may put more stress on the growth plate of the heel.
- Tight Calf Muscles: You have two calf muscles (Gastrocnemius and Soleus) which connect to your Achilles tendon. The main jobs of the calf is to plantar flex the foot (push off on your toes) and stabilize the lower leg when the foot is on the ground. The Achilles tendon attaches on the back of that heel bone. If the calf muscles are too tight, they will pull on the Achilles tendon, increasing the stress at the insertion point on the heel bone and causing it to become irritated and inflamed.

Other Considerations:

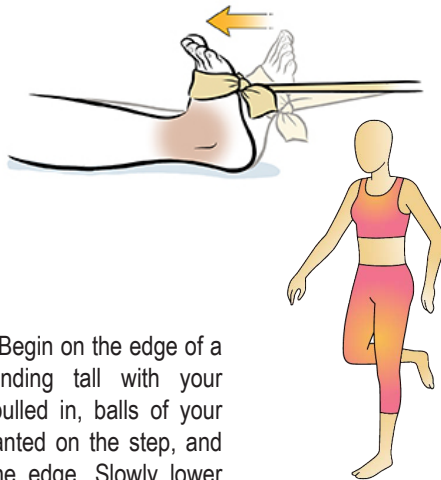
- Calcaneal Apophysitis can easily be mistaken for both Achilles Tendonitis and Plantar Fasciitis.
- With injuries more common in adults, such as Achilles Tendonitis and Plantar Fasciitis, symptoms typically subside or lessen during activity as the inflammation decreases. However, with Calcaneal Apophysitis, the symptoms will typically worsen with increased activity due to the repetitive irritation of the growth plate.
- Although the symptoms can be managed by treatment, the only true fix for Calcaneal Apophysitis is to wait until the growth spurt ends and the muscles and tendons can catch up in length and strength.

Self-treatment Options:

- ☐ **Support:** Cushion and supportive shoes and insoles can help to alleviate symptoms.
 - Make sure that you are wearing the proper amount of support for your foot. With extreme pain, avoid going barefoot as much as possible and consider practicing in cushioned shoes and saving cleats/spikes for games and competition only.
 - Add a cushion or lift to the heel of your shoes/cleats to take stress off of the growth plate and muscles/tendons.
- ☐ **Stretching:** Reducing the tension on the growth plate and surrounding muscles/tendons can alleviate symptoms. *See below for pictures of suggested exercises.*
- ☐ **Strengthening:** Increasing strength to the lower leg and foot can help to reduce excessive movement and therefore alleviate symptoms. *See below for pictures of suggested exercises.*
- ☐ **Rest:** "Play it by pain" - use pain to dictate your level of activity.
- ☐ **Ice:** This may help reduce the amount of inflammation and reduce pain.
- ☐ **Free Clinics:** Most people walk and run in a way that puts excessive braking and friction on their joints, muscles, and tendons. Take a **FREE Good Form Running** and/or **Good Form Walking** clinic to have your form analyzed! Our **Stretch, Strengthen, and Roll** class will cover common muscle imbalances and how to correct them.
- ☐ **Products:** Insoles, massage ball, Heel Cups, leukotape, KT tape

Note: We always recommend seeing a physician or attending our Injury Clinic on Wednesdays from 6-8pm for more information.

Dorsiflexion with Resistance Band: Tie one end of a resistance band to a stationary object and the other to your forefoot. Dorsiflex the foot by slowly pulling the forefoot toward your shin. Hold for 3-5 seconds and slowly let the band pull the foot back to a plantarflexed (pointed down) position. Repeat 15-20 times per foot multiple times per day. Progress by using a stiffer band, performing the movement more slowly, and dorsiflexing (lifting up) the toes throughout the exercise.



Calf Stretches:

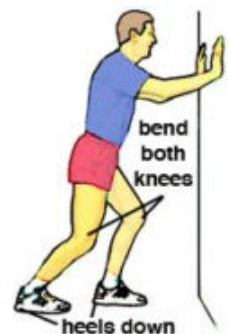
Gastroc:

Stand with your right foot back. Keep your back knee straight and forward leg bent. Keeping your heel planted on the floor & toes facing straight ahead, lean forward from the ankles toward the wall. Hold for 30 seconds, then switch legs.



Soleus:

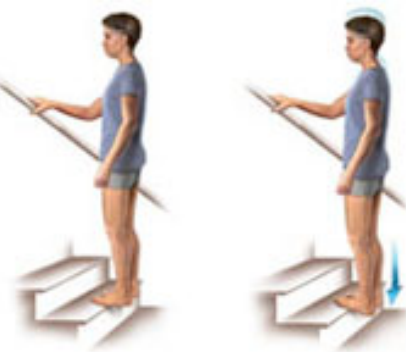
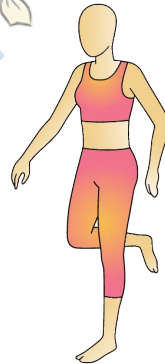
Stand with your right foot back. Put a slight bend in your back knee and forward leg bent. Keeping your back heel planted on the floor & toes facing straight ahead, lean forward from the ankles toward the wall. Hold for 30 seconds, then switch legs.



Heel Drops: Begin on the edge of a step by standing tall with your abdominals pulled in, balls of your feet firmly planted on the step, and heels over the edge. Slowly lower your heels, resisting gravity, until your calves are fully extended and your foot will not dorsiflex (lift up) anymore. Then, slowly raise the heel back to level. It should take 4-6 seconds to go in each direction. Progress by moving to a single leg and then holding light weights.

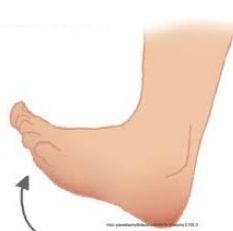
Single Leg Balance:

Balance on one foot for 30 seconds while barefoot. If this is too easy, close your eyes and tilt your head back! Advance to single leg squats by bending your knee, being sure it does not drift to the inside and the hips remain level.

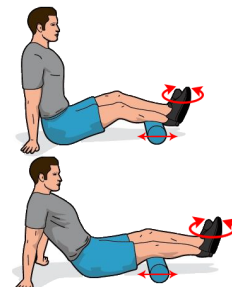


Dorsiflex foot

Walk Forward on Heels



Shuffle (Heel) Walks: This will help to strengthen the anterior (shin) muscles to assist with dorsiflexion and help gain calf length. Begin by dorsiflexing your foot. With your foot dorsiflexed, walk forward on your heels 30 steps, then turn around and walk back. To increase effectiveness dorsiflex (lift up) your toes.



FOAM ROLL Begin with the roller on the achilles and perform circular motions with your foot, 3x each direction (clockwise and counter-clockwise). Then slowly move up the calf by rolling 2" up, 1" back, so you are doubling over. Stop to perform the foot circles on any sore spots.