

What is it?

Sever's disease refers to an irritation of the bony growth plate in the heel bone (calcaneus). The large calf muscles on the back of the shin (gastrocnemius and soleus) attaches to the heel bone via the Achilles tendon.

The function of this tendon is to transmit forces produced by the calf muscles to the heel to move the ankle and foot. In children, the portion of the heel bone into which the achilles tendon inserts is separated from the bulk of the heel bone by a growth plate. This growth plate enables bone growth to occur. However, it also represents a site of weakness in the bone which is easily stressed, irritated and subsequently becomes painful.



What are the symptoms?

The most common symptom is pain at the back of the heel bone immediately where the Achilles tendon attaches. Pain is felt most commonly during activity or exercise. The heel bone may also be tender to touch and / or swollen.



Figure 1

How did I get it?

High volumes of high intensity contraction of the musculature can injure the growth plate. This commonly occurs in sports which involve running and jumping and occurs during a period of rapid growth. Usually it is very active adolescents who are engaging in

training for multiple sports who suffer from Sever's disease.

During rapid growth, the calf muscle and achilles tendon become tighter as the bones grow. This leads to increased pulling of the calf musculature and Achilles tendon on the heel bone and growth plate.

What should I do?

If your child has pain at the back of the heel and you think it may be Sever's disease, you should consult a medical professional or physiotherapist for an examination to eliminate other causes of heel pain which may include juvenile arthritis.

Relative rest and ice may help alleviate the symptoms. Complete rest is not necessary but avoiding activities that cause pain will be useful until a clinic review has been performed. Crushed ice wrapped in a moist towel applied at the back of the heel for 15—20 minutes, every 1—2 hours may be helpful.

How is a diagnosis made?

A diagnosis can confidently be made on the history of the injury and examination findings. Usually x-rays are not necessary but they can sometimes be used to rule out other causes which may mimic Sever's disease.

What does rehab involve?

It is important to recognise that Sever's disease is a generally benign self-limiting condition. Sever's disease is a condition of pain and irritation rather than traumatic injury. The ankle is structurally intact so continuing to play sport on it will flare pain but not lead to long term disease. The pain always goes away when the growth spurt has stopped unfortunately that may be many years away.

It is often useful to decrease the amount of weight bearing activity by 50%. Every hour of weight bearing activity can be considered one unit. It is important to decrease the total weekly units of weight bearing activity by 50%. Do not neglect school based activity. If we only consider a child's focussed training exposure it might be 3 times per week in the afternoons and then a weekend game. Reducing that activity by 50% will be insufficient if the child is still very active outside of the more formal sport related activities. You cannot dismiss these other activities when calculating this

reduction which includes the running and jumping and any other vigorous activity which the child may do on a daily basis.

The 50% number is just a guide that works well for the majority. If it is a well-tolerated activity then you can slowly add this in. If there is still significant pain then of course it is necessary to further decrease activity.

In addition to activity modification it is necessary to increase the length of the musculature with flexibility training. As mentioned earlier, during rapid growth the muscles become tighter as the bones lengthen. It is important to stretch the entire lower leg musculature. When one muscle group is tight, other groups tend to also tighten up so you need to focus on more than just stretching the calves. See the accompanying video for stretching demonstrations.

A heel raiser, see figure 2 below, may help to take away some of the stress on the growth plate and is an

excellent comfort measure. The heel raise shortens the distance between the heel and the calf muscle meaning there will be less tension on the growth plate. This is a comfort measure and does not actually help the disease process. When the child is comfortable enough to walk without a heel raiser it should be removed.

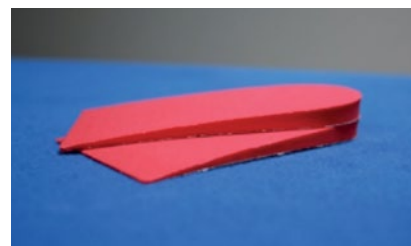


Figure 2 Heel raisers which fit into the heel of a shoe

Sometimes medications in the form of tablets, patches or injections are useful. These are only used in more severe cases though and can be avoided most of the time.



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