

## Sever's disease

Sever's disease (sometimes called calcaneal apophysitis) causes pain in the heel. It is more common in children who are regularly involved in high impact sport activities such as running and jumping.

It can usually be treated with rest, wearing supportive footwear for sports, and shoe inserts to support the heel. It is a harmless condition and usually gets better within a few weeks or a few months.

### What is Sever's disease?

Sever's disease (also called calcaneal apophysitis), is the most common cause of heel pain in childhood and adolescence. It is thought to be an overuse syndrome caused by repetitive microtrauma. This is the result of increased pulling by the calf muscles onto the heel, through the Achilles tendon. This puts pressure on the growth plate in the heel bone. Small avulsion - or pulling - fractures occur followed by inflammation in that area. It is more common in young people who play a lot of sport.

### What are the symptoms of Sever's disease?

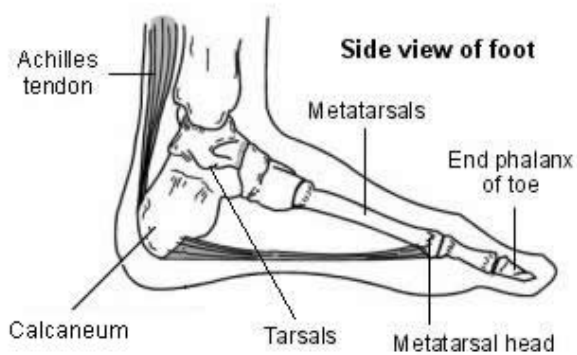
The typical symptoms are pain and swelling at the back of the heel, or underneath it. The pain usually comes on gradually over a little while. It tends to become worse with walking, running or jumping. The pain may cause limping and walking on toes.

There is usually difficulty with running, jumping or participating in any sports activities. The affected heel is usually tender and squeezing the heel on both sides causes pain. There may be pain with any movement of the ankle and the heel may become swollen.

The symptoms usually affect children between the ages of 7 and 14 years.

## What causes Sever's disease?

The symptoms usually affect children and young people when the heel bone (calcaneum or calcaneus) is not fully developed. The pain is due to overuse and repeated stress on the heel, and the recurring pulling by the muscles and tendons attached to the heel bone. This causes inflammation of the growing part (called the growth plate) of the heel bone.



The heel bone's growth plate is particularly sensitive to repeated running and pounding on hard surfaces. Therefore, regular participation in sports such as football, basketball or athletics may cause the problem. Other possible causes include being very overweight, and the tendon at the back of the heel (Achilles tendon) being very tight. Sever's disease is also more common if there are other foot problems such as flat feet or high-arched feet.

## How common is Sever's disease?

It is not known exactly how common it is but it is estimated to occur in 3.7 out of 1000 people. Sever's disease is the most common cause of heel pain in children and adolescents. It can affect either one foot or both feet. This condition is more common in young people active in sport. It often seems to occur when there has been a stage of rapid growth (a growth spurt). It is uncommon once children have reached their full size (adult height). Boys are more often affected than girls.

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## How is Sever's disease diagnosed?

Your doctor will usually be able to diagnose Sever's disease by taking a history of the symptoms and examining the foot and ankle. Tenderness when squeezing the heel is often used to make a diagnosis. Investigations are not needed unless the diagnosis is not certain. Occasionally, investigations may be needed to rule out any other cause of the heel pain, such as [X-rays](#), [ultrasound](#), [CT](#) or [MRI scan](#).

## What is the treatment for Sever's disease?

The treatments used usually include simple measures to allow the heel pain to resolve. These treatments include the following:

- **Advice on suitable footwear** - especially footwear used for sports activities. Good supportive shoes are important for sporting activities, particularly for people who do a lot of running and/or jumping.
- **Applying ice to the heel** - may help to reduce the heel pain.
- **Reducing activity** - any particular activity causing the heel pain, especially any sports activity, should be stopped or reduced to allow the inflammation to resolve. This is usually only needed for a few weeks. Immobilising the lower leg and ankle in a plaster cast is occasionally needed if the pain is very severe but this is rarely needed.
- **Supporting the heel** - temporary shoe inserts or orthotic devices may provide support for the heel. It may be helpful to obtain advice about heel supports from a GP, pharmacist or podiatrist. A podiatrist is a person who is qualified to diagnose and treat foot disorders.
- **Physiotherapy and exercises** - suitable exercises may include stretching and strengthening the calf muscle (gastrocnemius) and tendon.
- **Medicines** - non-steroidal anti-inflammatory drugs (NSAIDs), such as [ibuprofen](#), can help reduce the pain and inflammation.

There is no convincing evidence for any of these treatment options. So it is not known for sure what the best way of treating this condition is.

# What is the outlook (prognosis) for Sever's disease?

Sever's disease usually gets completely better within 2–3 months. However, the condition may recur and need further treatment. The long-term outcome is excellent, as it does not cause any permanent problems.

## Can Sever's disease be prevented?

The risk may be reduced by wearing well-made supportive shoes, especially for any sports activity.

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## Further reading

- [Smith JM, Varacallo M](#); Sever's Disease. StatPearls Publishing; 2018–2019.
- [James AM, Williams CM, Haines TP](#); "Effectiveness of interventions in reducing pain and maintaining physical activity in children and adolescents with calcaneal apophysitis (Sever's disease): a systematic review". *J Foot Ankle Res.* 2013 May 3;6(1):16. doi: 10.1186/1757-1146-6-16.
- [Tu P](#); Heel Pain: Diagnosis and Management. *Am Fam Physician.* 2018 Jan 15;97(2):86–93.
- [Alfaro-Santafe J, Gomez-Bernal A, Lanuza-Cerzocimo C, et al](#); Effectiveness of Custom-Made Foot Orthoses vs. Heel-Lifts in Children with Calcaneal Apophysitis (Sever's Disease): A CONSORT-Compliant Randomized Trial. *Children (Basel).* 2021 Oct 25;8(11):963. doi: 10.3390/children8110963.
- [Belikan P, Farber LC, Abel F, et al](#); Incidence of calcaneal apophysitis (Sever's disease) and return-to-play in adolescent athletes of a German youth soccer academy: a retrospective study of 10 years. *J Orthop Surg Res.* 2022 Feb 9;17(1):83. doi: 10.1186/s13018-022-02979-9.

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Authored by:	Peer Reviewed by: Dr Colin Tidy, MRCGP	
Originally Published: 19/11/2023	Next review date: 26/09/2023	Document ID: doc_29193

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