Heel pain and calcaneal spurs

A calcaneal spur is a small bony projection that is formed on the calcaneus or heel bone, either at the back of the heel or under the sole of the heel. Find out what causes heel pain and calcaneal spurs.

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A calcaneal spur is a small bony projection that is formed on the calcaneus or heel bone, either at the back of the heel or under the sole of the heel. It’s caused by damage to the bone accumulating over a long period of time as a result of chronic inflammation of the Achilles tendon in the calf or the tough sinewy tissue called the plantar fascia, which is found on the soles of the feet.
What causes heel pain and calcaneal spurs?

Every time you take a step, one of your heels has to support the whole weight of your body. As you move, the load is equal to 20 times your own body weight.

The load is softened by a pillow of fat under the heel and a large sinew or ligament (the fibrous tissue that joins muscle and bone together) under the sole of the foot.

This sinew is called the plantar fascia and it pulls the heel bone forward (in opposition to the Achilles tendon, which pulls it backwards).

If an athlete does not warm up properly or a person with a sedentary job exercises heavily during the weekends, they might overload the muscles of the calf or strain the Achilles tendon, which joins these muscles to the heel bone.

When overloaded the tendon becomes tight and painfully inflamed, which places extra strain on the plantar fascia and muscles in the soles of the foot.

The strained plantar fascia becomes inflamed and may even develop tiny cracks. This is known as plantar fasciitis.

Every time you sit down, sleep or otherwise rest your legs, the muscles of the sole of the foot will contract in an attempt to protect the damaged sinew.

The pain in the heel will then no longer be felt. But when you get up again and put weight on the foot, the foot and ankle may feel stiff (because of the inflammation) and the pain will return either at the back of the heel or on the soles of the feet.

When you start to move, the plantar fascia may crack even more causing a vicious cycle of damage and pain.

Inflammation at the point where the Achilles tendon (at the back of the heel) or the plantar fascia (under the heel) join the heel bone (a bone known as the Calcaneum) stimulates cells that form bone to deposit bone in this area, eventually leading to the build up of a bony prominence on the heel bone called a calcaneal spur.

But it’s not the spur itself that causes the pain. The spur is a sign of chronic inflammation in the connective tissues, which is the result of a prolonged overload.

It should also be pointed out that heel spurs can occur on their own, without plantar fasciitis or pain, or may be linked to some types of arthritis (inflammation...
of the joints). And plantar fasciitis or Achilles tendonitis don’t necessarily lead to spur formation.

What are the symptoms of an overloaded or inflamed sinew or of a calcaneal spur?

- A sharp, stabbing or dull but intense pain under or on the inside of the heel.
- The pain is typically relieved during rest, but is worse after getting up again.
- As a rule of thumb, it is most painful first thing in the morning.
- The feet or calf muscles may feel very stiff in the morning, making walking difficult.
- The pain is made worse by walking on a hard surface or carrying something heavy, such as a suitcase.
- The pain can become so severe that it becomes difficult to continue your daily work.
- Calcaneal spurs may cause no symptoms at all.

Special risk groups

- Most sufferers are people who are overweight and middle-aged. The excess weight puts additional load on all the muscles, tendons and bones, while with age, the shock-absorbing fat pillow under the foot shrinks and becomes less effective.
- Weekend athletes whose muscles aren’t tuned up for sudden intense activity.
- People who have feet that are pronated and not corrected. Pronated means that the foot tends to roll inwards when a person walks or runs.

Foot care advice

- Get advice from a physiotherapist about the right sort of exercises to help the condition. Stretching exercises, which you can begin while still lying flat in bed in the morning can help to loosen the feet and calves and get you going. They should be done several times through the day too. Patients with plantar fasciitis often have tightness of the Achilles tendon and stretching interrupts the vicious cycle in which the two disorders aggravate each other. Up to 90 per cent of people find that their pain eases after 2 to 3 months of stretching exercises.
- Take time to warm up and stretch before taking part in sport or exercise and cool down afterwards.
- If you run or jog, it is better to run a short distance several times a week than one long run once a week.
- Do not overestimate your abilities. If necessary, seek advice about creating a suitable running schedule that will give your body time to adapt.
- If you experience pain in the heel, you may be overloading your tendons.
- To help the healing process, follow the RICE principle, which stands for Rest, Ice, Compression and Elevation.
- If you have an acute flare up of pain, rest the foot and do not run until it has
settled again. Apply an ice pack, such as a packet of frozen peas that has first been wrapped in a towel or cloth. An elasticated support bandage will compress and support the foot. It should be firm, but not so tight that it affects the circulation of blood. Elevate the foot by resting it on a chair or a pillow. However regular low intensity exercise can help to ease the condition, so a balance has to be found between too much and too little exercise. Simply avoiding exercise completely may leave the legs and feet stiff and is not good for your general health.

- Invest in suitable shoes.
- The heel can be supported with a small cushioned insole inside the shoe.
- Arch supports that fit inside shoes will prevent feet from pronating.
- If you are overweight, losing weight can help resolve foot problems and prevent further trouble.
- Talk to your doctor about anti-inflammatory painkillers – for example ibuprofen may help if taken regularly but can cause irritation of the stomach lining.

**How does the doctor make the diagnosis?**
Calcaneal spurs and plantar fasciitis are usually diagnosed by the symptoms revealed during a clinical examination.

To eventually confirm the diagnosis and exclude other possible causes of heel pain like arthritis, the doctor may order other investigations such as X-rays.

**Prognosis**
Plantar fasciitis is a chronic condition that often lasts 12 months or more before eventually subsiding.

Once a calcaneal spur develops, it can be a difficult condition to treat.

However, many cases involve only minor ligament damage, which is relieved in a matter of weeks or months.

Prevention by taking early corrective measures against any predisposing factors will improve the long-term prognosis.

**How is a painful heel or calcaneal spur treated?**

- In all stages of the condition it is important to use appropriate footwear and adopt footcare habits.
- Reduce activity during acute pain and rest the heel.
- Physiotherapy can teach useful non-weight bearing exercises to stretch the tissues and use techniques such as ultrasound to help healing. These help in up to 90 per cent of cases.
- Your doctor may prescribe anti-inflammatory medicines.
- Injections of steroids will sometimes reduce pain dramatically but the effects will only be temporary.
A state-registered chiropodist or podiatrist, particularly one with an interest in biomechanics will be able to offer advice on foot posture and the use of corrective insoles or footwear.

If pain persists despite these treatments, your doctor may suggest referring you to an orthopaedic surgeon who can offer treatments such as the following.

- Extracorporeal shockwave therapy. This takes just a few minutes. A special machine is used to apply a shockwave to the surface of the foot. Three treatments are usually given, one or two weeks apart. The shockwaves cause microscopic damage to the plantar fascia, which stimulates healing. It may also make the nerves less sensitive to pain. About 80 per cent of patients find this treatment helps them.
- A course of injections
- Surgery is often no more than a last resort when pain is hard to deal with, and it may be ineffective. One technique that may help, known as medically as gastrocnemius release, carefully releases some of the tension in the calf muscle, taking the strain off the inflamed heel. It can be done as a minimally invasive technique through a tiny incision.

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Based on a text by Dr Flemming Andersen

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