CONDITION

Calcaneal valgus

Learn what calcaneal valgus means, how heel alignment is assessed, when treatment may help, and which symptoms need prompt medical attention.

WHAT IT IS
Outward tilt of the heel bone

BODY SYSTEM
Bones and joints

MAIN SYMPTOMS
Foot or ankle pain, tired feet, walking changes, heel stiffness

WHAT CAUSES IT
Positioning, inherited looseness, tendon or joint problems

HOW IT IS DIAGNOSED
Physical examination, sometimes weight-bearing X-rays

MAIN TREATMENT
Observation or nonsurgical care

CAN IT BE CURED?
Sometimes - positional newborn cases usually improve

IS IT AN EMERGENCY?
Sometimes - pale, blue, cold, or displaced foot

LONG-TERM OUTLOOK
Often harmless, but progressive cases may stiffen and develop arthritis

Overview

Calcaneal valgus describes an outward tilt of the calcaneus, or heel bone, relative to the lower leg. When viewed from behind, the heel may angle outward while the ankle appears to roll inward. This position is also called hindfoot valgus.

Calcaneal valgus is a description of alignment, not always a diagnosis by itself. It commonly appears with a low or flattened arch, known as flatfoot or pes planus. The combined pattern may be called planovalgus.

The term can also refer to calcaneovalgus foot in a newborn . In this flexible positional condition, the foot points upward toward the shin and outward. It often develops because of the baby's position before birth and usually improves as the muscles and soft tissues loosen after delivery.

In older children and adults, heel valgus may be flexible or rigid. A flexible heel can move closer to a neutral position when there is no weight on the foot or when the person stands on tiptoe. A rigid deformity remains fixed. This distinction matters because flexible, painless alignment often needs no treatment, while painful, stiff, or worsening alignment requires evaluation.

Calcaneal valgus matters when it causes pain, affects walking, creates pressure areas, or reflects another foot, tendon, joint, or nerve condition. A clinician can determine whether the alignment is a normal variation, a flexible flatfoot pattern, or part of another problem.

Symptoms

Some people have visible heel valgus without symptoms. Parents may notice that a child's ankles lean inward, the arches flatten while standing, or shoes wear unevenly. These findings alone do not necessarily mean that treatment is needed.

When symptoms occur, they may include:

In adults, pain and swelling behind or below the inner ankle may involve the posterior tibial tendon. This tendon helps support the arch and control the heel. Progressive weakness or damage can contribute to a worsening flatfoot and hindfoot valgus.

A newborn with calcaneovalgus usually has a foot that can be moved gently toward a normal position. The top of the foot may rest close to the front of the lower leg. The condition is often painless.

A newborn's foot should be assessed promptly if it is stiff, cannot be moved gently toward neutral, has an unusual rocker-bottom shape, or looks very different from the other foot. These features may point to a different condition, such as congenital vertical talus, which requires specialist care.

- Pain or aching along the inside of the ankle, arch, heel, or outside of the foot
- Tired or heavy-feeling feet after standing, walking, or sports
- Difficulty finding comfortable shoes
- Calluses or skin irritation from uneven pressure
- Reduced endurance or changes in walking
- Stiffness or limited side-to-side movement of the heel
- A foot shape that appears to be getting flatter or more tilted over time

Causes and risk factors

In newborns, calcaneovalgus is usually caused by positioning in the uterus. Limited space may hold the foot in an upward and outward position. It may be more noticeable after a pregnancy with reduced room for movement. This positional form is generally flexible and is not the same as clubfoot, in which the foot points downward and inward.

In children, calcaneal valgus commonly occurs as part of flexible flatfoot. Young children naturally have lower-looking arches because of soft-tissue flexibility and a fat pad under the arch. The arch often becomes more visible with growth, although some people continue to have flexible flat feet throughout life.

Inherited ligament looseness can make the joints more flexible and allow the heel to tilt outward during standing. Tightness in the calf muscles or Achilles tendon may also place extra stress on the arch and hindfoot.

Less common causes in children include:

In adults, calcaneal valgus may be longstanding or may develop as the foot's supporting structures change. Progressive collapsing foot deformity, previously called adult-acquired flatfoot, often involves the posterior tibial tendon as well as ligaments that support the arch.

Factors associated with adult heel valgus or worsening flatfoot can include prior ankle or foot injury, arthritis, tendon disease, and long-term strain on the supporting tissues. Body weight may increase the load on the feet, but it is rarely the only explanation for the deformity.

Having one of these factors does not mean a person will develop painful or progressive calcaneal valgus.

- A tarsal coalition, in which two or more foot bones are joined abnormally
- Neuromuscular conditions that affect muscle control or strength
- Differences in bone shape or development
- Inflammatory joint disease
- Previous injury

Diagnosis

Diagnosis begins with a medical history and physical examination. The clinician may ask when the alignment was first noticed, whether it is changing, where pain occurs, and how symptoms affect walking or activity.

Both feet are usually examined while sitting and standing. The clinician may assess:

The tiptoe test helps show whether the deformity is flexible and whether the posterior tibial tendon can help reposition the heel. Not everyone can safely or comfortably perform this test, so the examination is adapted to the individual.

Imaging is not always needed for a flexible, painless foot. Weight-bearing X-rays may be ordered if there is significant pain, stiffness, one-sided deformity, progression, concern about bone alignment, or consideration of surgery. Taking the images while standing shows how the bones line up under normal load.

Ultrasound or MRI may be used when a tendon, ligament, or other soft tissue injury is suspected. CT may help evaluate complex bone anatomy or a possible tarsal coalition.

In newborns, diagnosis is often based on the appearance and flexibility of the foot. Imaging may be considered if the foot is rigid or the examination suggests another congenital condition.

- The direction of the heel when viewed from behind
- Whether an arch appears when the foot is not bearing weight
- How flexible the foot and ankle are
- Whether the heel moves inward and the arch rises during a tiptoe test
- Calf and Achilles tendon tightness
- Tenderness, swelling, calluses, muscle strength, and walking pattern
- Circulation and sensation in the foot

Treatment and management

Treatment depends on age, flexibility, symptoms, cause, and whether the alignment is progressing. The goal is usually to improve comfort and function, not simply to change how a painless foot looks.

A flexible, painless calcaneal valgus or flatfoot pattern often needs only observation. In children, shoe inserts or special shoes do not reliably create a permanent arch in an otherwise normal flexible foot. Unnecessary treatment can add cost and discomfort without improving long-term function.

For a newborn with flexible positional calcaneovalgus, observation and gentle movement are often sufficient. A clinician may show caregivers how to move the foot carefully toward a neutral position during routine care. The foot should not be forced. Casting is uncommon but may be considered when flexibility is limited or improvement is slower than expected.

When an older child or adult has symptoms, nonsurgical care may include:

Orthoses may improve comfort and function, but they do not necessarily correct the underlying bone shape. Custom devices are not always more effective than suitable nonprescription inserts, so the choice should be based on the person's symptoms, foot shape, and clinician's assessment.

Pain medicine may be appropriate for some people, but it should be selected with a clinician or pharmacist, especially for children, during pregnancy, or when there are kidney, stomach, heart, bleeding, or medication-related concerns.

Surgery is not used for a painless flexible foot. It may be considered for persistent pain, major functional limits, rigid deformity, tendon failure, or progressive collapse that has not improved with appropriate nonsurgical care. The procedure depends on the cause and may involve repairing or transferring a tendon, lengthening a tight calf structure, realigning bones, or fusing painful arthritic joints. Recovery can be lengthy, and the expected benefits and risks should be discussed with a foot and ankle specialist.

- Supportive, well-fitting footwear
- Activity adjustments while pain is active
- Calf or Achilles stretching when tightness is present
- Exercises to improve foot, ankle, and lower-leg strength
- Physical therapy for movement, balance, and walking mechanics
- Over-the-counter or custom orthoses to redistribute pressure and reduce symptoms
- A brace or walking boot for selected painful tendon or ligament problems

Complications

Many cases of flexible calcaneal valgus do not cause complications. When the alignment is painful, rigid, or progressive, uneven loading may place additional stress on the foot and ankle.

Possible problems include ongoing pain, calluses, difficulty with footwear, reduced walking tolerance, or strain on tendons and ligaments. A severe deformity can shift pressure toward the outer side of the foot and may eventually contribute to joint wear.

In progressive collapsing foot deformity, the arch may become lower and the heel may tilt farther outward. Later stages can become stiff and may involve arthritis of the hindfoot or ankle.

Complications after treatment depend on the treatment used. Braces or inserts can cause

rubbing or pressure if they do not fit correctly. Surgical risks may include infection, delayed bone healing, nerve irritation, stiffness, blood clots, or incomplete pain relief. A surgeon can explain the risks for a specific procedure without assuming that surgery will be necessary.

Follow up

Routine follow-up may be appropriate when heel valgus is painless and stable. Parents can mention a child's foot alignment during regular health visits. Earlier review is reasonable if the foot becomes painful, stiff, increasingly uneven, or limits play and walking.

Adults should arrange a non-emergency appointment if the arch appears to be collapsing, the heel angle is worsening, or pain and swelling persist around the inner ankle. Earlier treatment of a painful tendon problem may help preserve flexibility and function.

Contact a clinician promptly for:

Seek emergency care after an injury if the foot becomes pale, blue, cold, severely numb, or visibly displaced, or if pain is severe and rapidly worsening. These signs may indicate impaired blood flow or a major injury.

- New inability to bear weight
- Marked swelling, warmth, or redness
- A foot deformity that appears suddenly or follows an injury
- A wound, blister, or pressure area that is not healing
- Fever with a painful, red, or swollen foot
- New weakness, numbness, or loss of balance

Sources

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