CONDITION

Pes planus

Pes planus is a foot shape in which the arch is low or flattened.

WHAT IT IS
A low or flattened arch of the foot

BODY SYSTEM
Bones, joints, muscles, and tendons

MAIN SYMPTOMS
Often none, foot pain, ankle pain, tired feet

WHAT CAUSES IT
Development, inherited anatomy, tendon problems, injury, or arthritis

HOW IT IS DIAGNOSED
Foot examination; weight-bearing X-rays when needed

MAIN TREATMENT
Supportive footwear, orthoses, exercises, and sometimes surgery

CAN IT BE CURED?
Sometimes - symptoms improve, but foot shape may remain

IS IT AN EMERGENCY?
Sometimes - after major injury or with poor circulation

LONG-TERM OUTLOOK
Usually manageable; painful progressive forms may worsen

Overview

Pes planus, also called flatfoot or flat feet, means the arch along the inside of the foot is low or touches the floor while standing. It may affect one foot or both.

Flat feet are common in children because arches develop gradually. Many children have flexible flat feet: the arch appears when they sit or rise onto their toes but flattens when they stand. This often causes no problems.

Adults may have had flat feet since childhood. Flatfoot can also develop later when the structures supporting the arch become weak or injured. One important cause is a problem with the posterior tibial tendon, which runs behind the inner ankle and helps hold up the arch. This adult condition is now often called progressive collapsing foot deformity.

A flat-looking foot is not automatically unhealthy. Treatment is usually needed only when there

is pain, stiffness, reduced mobility, or a change in foot shape. A clinician can help distinguish a flexible, painless foot shape from a rigid or progressive condition that needs closer assessment.

Symptoms

Many people with pes planus have no symptoms. They may notice only that the inside of the foot touches the ground or that shoes wear unevenly.

When symptoms occur, they can include:

Pain from adult-acquired flatfoot often starts behind or below the inner ankle, where the posterior tibial tendon runs. As the foot shape changes, pain may later develop on the outer side of the ankle because bones and soft tissues are being crowded.

In children, flexible flat feet are usually painless. Persistent pain, stiffness, frequent tripping, difficulty keeping up with activities, or a foot that looks different from the other side deserves assessment.

- Aching in the arch, heel, inner ankle, or lower leg
- Tired or heavy-feeling feet after standing or walking
- Swelling along the inside of the ankle
- Difficulty standing on tiptoe
- Reduced balance or changes in walking
- Shoes becoming uncomfortable or wearing down unevenly
- Stiffness, especially if the flatfoot is rigid

Causes and risk factors

Pes planus is not one single disorder. Several different patterns can produce a low arch.

In flexible flatfoot, the joints and ligaments allow the arch to flatten during weight-bearing. This often runs in families and may simply be part of a person's natural foot shape. Flexible flat feet are common during childhood while bones, muscles, and ligaments are still developing.

Some people have tight calf muscles or a tight Achilles tendon. This can place more pressure through the foot and contribute to discomfort.

Flatfoot that begins in adulthood may result from weakening or tearing of the posterior tibial tendon and nearby ligaments. Factors associated with tendon problems include increasing

age, a previous ankle injury, higher body weight, diabetes, inflammatory arthritis, and long-term steroid exposure. Having one of these factors does not mean that flatfoot will develop.

Other causes include osteoarthritis, rheumatoid arthritis, damage after a fracture or dislocation, and conditions affecting muscles or nerves. A rigid flatfoot in a child or young adult may be caused by an unusual connection between foot bones, known as a tarsal coalition.

Diagnosis

Diagnosis usually begins with a foot and ankle examination. You may be asked when the change began, where it hurts, whether it is getting worse, and how it affects walking or exercise.

The clinician may look at your feet while you sit, stand, walk, and rise onto your toes. They may check whether the arch returns when weight is taken off the foot. This helps show whether the flatfoot is flexible or rigid.

The examination may also assess:

Imaging is not always needed for a painless, flexible flatfoot. Weight-bearing X-rays may be used when there is pain, stiffness, injury, an obvious change in shape, or concern about progression. These X-rays are taken while you stand so they show how the bones line up under normal load.

Ultrasound or magnetic resonance imaging, known as MRI, may be considered if a tendon or ligament injury is suspected. CT scanning can give more detail about bones and may help assess a rigid flatfoot or tarsal coalition.

- Ankle movement and calf tightness
- Strength of the posterior tibial tendon
- Areas of swelling or tenderness
- Shoe wear and walking pattern
- Blood flow, skin sensation, and nerve function

Treatment and management

A painless flatfoot usually does not need treatment. Treatment does not aim to create a higher-looking arch when the foot works well. It focuses on relieving symptoms, supporting movement, and slowing progression when the structure is changing.

Supportive shoes may improve comfort. A firm heel area, secure fastening, and enough room for the toes can help the foot feel stable. Shoes that are badly worn or do not fit well may increase discomfort.

Foot orthoses are inserts worn inside shoes. Over-the-counter arch supports may be enough for some people. Custom-made devices may be considered when symptoms or foot shape are more complex. Orthoses can support the foot and reduce strain, but they do not permanently rebuild an arch.

A physiotherapist or other qualified professional may recommend exercises to improve calf flexibility, foot and ankle strength, and balance. The exercises should match the cause of the flatfoot. Exercise may help symptoms and function, but it cannot correct every structural deformity.

Reducing or changing activities for a time may settle a painful flare. Lower-impact options, such as cycling or swimming, may be more comfortable than running or jumping. If body weight is adding to symptoms, gradual weight management may reduce pressure on the feet, but it is not the cause of every flatfoot.

Pain medicines may provide short-term relief for some people. Their suitability depends on your health, other medicines, and the cause of the pain, so a pharmacist or clinician can advise on safe options.

A brace or walking boot may be used for a painful tendon injury or a more advanced deformity. These should be fitted and monitored appropriately because long periods of immobilisation can weaken muscles and cause other problems.

Surgery is not usually needed for flexible, painless flat feet. It may be considered for persistent pain, tendon failure, severe stiffness, or progressive deformity that has not improved with non-surgical treatment. The operation may involve repairing or transferring a tendon, adjusting bone alignment, lengthening a tight calf muscle, or joining painful joints. Recovery can take months and varies with the procedure.

Complications

Most flexible flat feet do not lead to serious complications. When flatfoot is painful or progressive, however, altered alignment can place extra strain on the foot and ankle.

Possible complications include ongoing pain, tendon damage, reduced walking tolerance, ankle instability, and arthritis in affected joints. Corns, calluses, or pressure areas can develop where footwear rubs.

Progressive collapsing foot deformity may become stiffer over time. The heel can move

outward, the front of the foot may turn outward, and standing on tiptoe may become difficult. Earlier assessment can help identify whether support or treatment may slow this process.

People with diabetes or reduced feeling in their feet may not notice pressure injuries. Regular foot checks are especially important because a small sore can become more difficult to heal.

Prevention

Developmental or inherited flat feet cannot usually be prevented. Special shoes, exercises, or inserts have not been shown to create a lasting arch in a child with painless flexible flatfoot.

Not every case of adult-acquired flatfoot can be prevented either. Protecting general foot health may reduce avoidable strain. This includes wearing suitable footwear for your activity, building up new exercise gradually, and allowing ankle injuries to recover.

Seek routine assessment if one arch begins to flatten, especially when there is inner ankle pain or swelling. Managing conditions such as diabetes or inflammatory arthritis may also help protect tendons and joints, although it cannot guarantee that flatfoot will not develop.

Living with it and what to expect

A flexible flatfoot that causes no pain may remain a harmless foot shape for life. Children often develop a more visible arch as they grow, but some continue to have flat feet as adults without limits on activity.

Symptoms can come and go with changes in activity, footwear, injury, work demands, or body weight. Supportive shoes, orthoses, and suitable exercises often help people stay active. These measures may control discomfort even if the foot continues to look flat.

Adult-acquired flatfoot can progress over months or years. It may begin as tendon pain and later cause a visible change in alignment or stiffness. Progression is not certain, and its speed differs between people. Follow-up is useful if pain persists, the arch changes, or walking becomes harder.

After surgery, healing and rehabilitation are gradual. There may be a period when weight cannot be placed fully on the foot, followed by physiotherapy and a staged return to activity. The expected result and recovery time depend on which structures need treatment.

When to get medical help

Arrange a routine appointment if:

Seek prompt medical advice after an injury if you cannot put weight on the foot, there is marked swelling, or the foot looks deformed.

Get emergency help if the foot becomes suddenly cold, pale, blue, numb, or severely painful. These signs may indicate reduced blood flow. Urgent assessment is also needed for a rapidly spreading red, hot swelling with fever, or for an open wound with exposed tissue.

If you have diabetes, poor circulation, or reduced foot sensation, seek early advice for any new blister, cut, ulcer, redness, or swelling rather than waiting for it to become painful.

- Foot or ankle pain lasts, returns often, or limits normal activity
- One foot becomes flatter or changes shape
- There is persistent swelling along the inner ankle
- The foot is stiff or you cannot rise onto your toes
- A child has pain, stiffness, walking problems, or unequal feet
- Shoe changes and simple self-care do not improve symptoms

Common questions

Are flat feet normal?

They can be. Flexible, painless flat feet are often a normal foot shape, especially in children. Pain, stiffness, a new change, or flattening of only one foot is more likely to need assessment.

Can flat feet be fixed with exercises?

Exercises may improve strength, flexibility, balance, and pain. They do not reliably create a permanent arch when flatfoot is caused by bone shape or flexible ligaments. The most useful exercises depend on why the foot is flat.

Do I need arch supports?

Not everyone does. Arch supports may improve comfort when flat feet are painful, but painless feet do not usually need them. Inserts should feel supportive rather than creating new pressure or numbness.

Can flat feet cause knee or back pain?

Foot position can affect movement higher up the leg, but knee or back pain has many possible causes. A flat arch alone does not prove that it is causing pain elsewhere. An assessment may help if symptoms continue.

Can I run or exercise with flat feet?

Many people with flat feet run and take part in sport without difficulty. Comfortable footwear, gradual training, and attention to pain are helpful. New or worsening pain, swelling, or loss of function should be assessed.

Do children grow out of flat feet?

Many young children develop a visible arch as they grow. Some remain flat-footed without symptoms. Painless flexible flatfoot usually needs observation rather than treatment, while pain or stiffness should be checked.

Sources

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