DISEASES & CONDITIONS

Fallen arch

November 6, 2024

Reviewed by **Robert H. Shmerling, MD**, Senior Faculty Editor, Harvard Health Publishing; Editorial Advisory Board Member, Harvard Health Publishing

What is it?

A fallen arch or flatfoot is known medically as pes planus. The foot loses the gently curving arch on the inner side of the sole, just in front of the heel. If this arch is flattened only when standing and returns when the foot is lifted off the ground, the condition is called flexible pes planus or flexible flatfoot. If the arch disappears in both foot positions - standing and elevated - the condition is called rigid pes planus or rigid flatfoot.

Flexible flatfoot

Flexible flatfeet are considered normal in young children because babies are not born with a normal arch. The arch may not form fully until sometime between ages 7 and 10. Even in adulthood, 15% to 25% of people have flexible flatfeet. Most of these people never develop symptoms. In many adults who have had flexible flatfeet since childhood, the missing arch is an inherited condition related to a general looseness of ligaments. These people usually have extremely flexible, very mobile joints throughout the body, not only in the feet.

Flatfeet also can develop during adulthood. Causes include joint disease such as rheumatoid arthritis, and disorders of nerve function (neuropathy). In many cases of adult-onset flatfeet, no cause can be identified.

Rigid flatfoot

Unlike a flexible flatfoot, a rigid flatfoot is often the result of a significant problem affecting the structure or alignment of the bones that make up the foot's arch. Some common causes of rigid flatfeet include:

- **Congenital vertical talus** - In this condition, there is no arch because the foot bones are not aligned properly. In some cases, there is a reverse curve (rocker-bottom foot, in which the shape is like the bottom rails of a rocking chair) in place of the normal arch. Congenital vertical talus is a rare condition present at birth. It often is associated with a genetic disorder such as Down syndrome, or other congenital disorders. The cause is unknown in up to half of cases.
- **Tarsal coalition** (peroneal spastic flatfoot) - In this inherited condition, two or more of the foot bones are fused together, interfering with the flexibility of the foot and eliminating the normal arch. A rare condition, it often affects several generations of the same family.
- **Lateral subtalar dislocation** - Sometimes called an acquired flatfoot, it occurs in someone who originally had a normal foot arch. In a lateral subtalar dislocation, there is a dislocation of the talus bone, located within the arch of the foot. The dislocated talus bone slips out of place, drops downward and sideways, and collapses the arch. It usually occurs suddenly because of a high-impact injury related to a fall from a height, a motor vehicle accident, or participation in sports, and it may be associated with fractures or other injuries.

Symptoms

The majority of children and adults with flexible flatfeet never have symptoms. However, their toes may tend to point outward as they walk, a condition called out-toeing. A person who develops symptoms usually complains of tired, aching feet, especially after prolonged standing or walking.

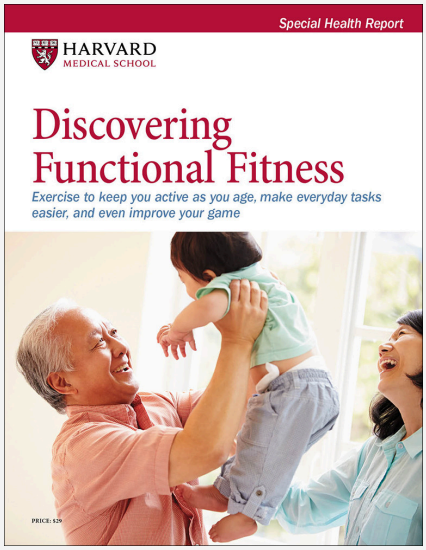
Symptoms of rigid flatfoot vary depending on the cause of the foot problem:

- **Congenital vertical talus** - The foot of a newborn with congenital vertical talus typically has a convex rocker-bottom shape. This is sometimes combined with an actual fold in the middle of the foot. The rare person who is diagnosed at an older age often has a "peg-leg" gait, poor balance, and heavy calluses on the soles where the arch would normally be. If a child with congenital vertical talus has a genetic disorder, additional symptoms often are seen in other parts of the body.
- **Tarsal coalition** - Many people have no symptoms, and the condition is discovered only by chance when an x-ray of the foot is obtained for some other problem. When symptoms occur, there is usually foot pain that begins at the outside rear of the foot. The pain tends to spread upward to the outer ankle and to the outside portion of the lower leg. Symptoms usually start during a child's teenage years and are aggravated by playing sports or walking on uneven ground. In some cases, the condition is discovered when a child is evaluated for unusually frequent ankle sprains.
- **Lateral subtalar dislocation** - Because this often is caused by a traumatic, high-impact injury, the foot may be significantly swollen and deformed. There also may be an open wound with bruising and bleeding.

Diagnosis

If your child has flatfeet, his or her doctor will ask about any family history of flatfeet or inherited foot problems. In a person of any age, the doctor will ask about occupational and recreational activities, previous foot trauma or foot surgery, and the type of shoes worn.

You may be interested in...



Discovering Functional Fitness

As we get older, everyday tasks—squatting to weed your garden, reaching for a book on a high shelf—can become harder to do without pain or discomfort. It doesn't have to be this way! Workouts that focus on "functional fitness" can help you prevent and even reverse these changes and so you can enjoy greater strength, power, flexibility, and mobility in everyday movements. What the heck is functional fitness? Functional fitness improves your ability to carry out daily activities more easily and more confidently. This is the kind of exercise you need to stay active and independent, on your own terms, doing what you love to do. And the benefits go beyond muscle strength and mobility.

LEARN MORE →

The doctor will examine your shoes to check for signs of excessive wear. Worn shoes often provide valuable clues to gait problems and poor bone alignment. The doctor will ask you to walk barefoot to evaluate the arches of the feet, to check for out-toeing and to look for other signs of poor foot mechanics.

The doctor will examine your feet for foot flexibility and range of motion and feel for any tenderness or bony abnormalities. Depending on the results of this physical examination, foot x-rays may be recommended.

X-rays are always performed in a young child with rigid flatfeet and in an adult with acquired flatfeet due to trauma.

Expected duration

Although infants are usually born with flexible flatfeet, most develop normal arches sometime between ages 7 and 10. In the 15% to 20% of children whose flatfeet last into adulthood, the condition often is inherited and lifelong. However, it may not cause symptoms.

A rigid flatfoot is a long-term condition, unless it is corrected with surgery or other therapy.

Prevention

In some cases, fallen arches may be avoided by preventing or treating its cause. For example:

- Avoiding foot or ankle injury may prevent fallen arches related to trauma.
- Among people with rheumatoid arthritis, those whose arthritis is well controlled with treatment may be less likely to develop fallen arches than those whose arthritis is poorly controlled.

In most cases, however, there is no known way to reliably prevent fallen arches.

Treatment

For mild pain or aching, acetaminophen (Tylenol) or a nonsteroidal anti-inflammatory drug (NSAID) such as aspirin or ibuprofen (Advil, Motrin, and others) may be effective.

Flexible flatfoot

When there are no symptoms, treatment is not needed.

If a child older than age 3 develops symptoms, the doctor may prescribe a therapeutic shoe insert made from a mold of the child's foot, or a corrective shoe. As an alternative, some doctors recommend store-bought arch supports. These appear to work as well as more expensive treatments in many children. With any conservative, nonsurgical treatment, the

goal is to relieve pain by supporting the arch and correcting any imbalance in the mechanics of the foot.

Surgery is typically offered as a last resort in people with significant pain that is resistant to other therapies.

Rigid flatfoot

The treatment of a rigid flatfoot depends on its cause:

- **Congenital vertical talus** - Your doctor may suggest a trial of serial casting. The foot is placed in a cast and the cast is changed frequently to reposition the foot gradually. However, this generally has a low success rate. Most people ultimately need surgery to correct the problem.
- **Tarsal coalition** - Treatment depends on your age, extent of bone fusion, and severity of symptoms. For milder cases, your doctor may recommend nonsurgical treatment with shoe inserts, wrapping of the foot with supportive straps, or temporarily immobilizing the foot in a cast. For more severe cases, surgery is necessary to relieve pain and improve the flexibility of the foot.
- **Lateral subtalar dislocation** - The goal is to move the dislocated bone back into place as soon as possible. If there is no open wound, the doctor may push the bone back into proper alignment without making an incision. Anesthesia is usually given before this treatment. Once this is accomplished, a short leg cast must be worn for about four weeks to help stabilize the joint permanently. About 15% to 20% of people with lateral subtalar dislocation must be treated with surgery to reposition the dislocated bone.

When flatfeet develop with no identifiable cause, treatment may not be necessary. If symptoms are bothersome, treatment options include shoe inserts (orthotics), braces, acetaminophen, or an NSAID such as ibuprofen or naproxen. Surgery may be recommended if function is impaired or if pain is severe despite more conservative treatments.

When to call a professional

Call your doctor for persistent or unexplained foot pain, whether or not you have flatfeet. This is particularly important if your foot pain makes it difficult for you to walk.

Call your pediatrician or family doctor if your child complains about foot pain or appears to be walking abnormally. Even if there are no foot symptoms, it is wise to check with your doctor periodically about your child's foot development, just to be sure that everything is progressing as expected.

Prognosis

Up to 20% of children with flexible flatfeet remain flatfooted as adults. However, most do not have any symptoms. If a child with flexible flatfeet begins to have foot pain, conservative treatment with shoe modifications can usually relieve the discomfort, although it may not correct the problem permanently.

For rigid flatfeet, the outlook depends on the cause of the problem:

- **Congenital vertical talus** - Although surgery usually can correct poor alignment of foot bones, many children with congenital vertical talus have underlying disorders that cause muscle weakness or other problems that interfere with full recovery.
- **Tarsal coalition** - When shoe modifications are not effective, casting may help. When surgery is necessary, the prognosis depends on many factors, including which bones are fused, the specific type of surgery, and whether there is any arthritis in the foot joints.
- **Lateral subtalar dislocation** - With proper treatment, most people recover without severe long-term complications or disability. In some cases, there is continuing stiffness in the area of the foot arch, but this does not necessarily cause pain or difficulty in walking. The risk of long-term problems is lowest in people who have at least three weeks of aggressive physical therapy after their casts are removed.

Additional info

National Institute of Arthritis and Musculoskeletal and Skin Diseases
https://www.niams.nih.gov/

American Podiatric Medical Association (APMA)
https://www.apma.org/

American College of Foot & Ankle Orthopedics & Medicine

https://www.acfaom.org/

American College of Foot and Ankle Surgeons

https://www.acfas.org/

About the Reviewer

Robert H. Shmerling, MD, Senior Faculty Editor, Harvard Health Publishing; Editorial Advisory Board Member, Harvard Health Publishing

Dr. Robert H. Shmerling is the former clinical chief of the division of rheumatology at Beth Israel Deaconess Medical Center (BIDMC), and is a current member of the corresponding faculty in medicine at Harvard Medical School. ... See Full Bio

View all posts by Robert H. Shmerling, MD

Related Topics

BONES AND JOINTS

Give praise to the elbow: A bending, twisting marvel

BONES AND JOINTS

Identifying arthritis in your fingers and thumbs

BONES AND JOINTS

Surprising foods that boost bone health

BONES AND JOINTS

FREE HEALTHBEAT SIGNUP

Get the latest in health news delivered to your inbox!

SIGN UP →