

Foot Pain and Exercise

Dr. Schulman and Dr. Kilberg discuss some of the most common causes of foot pain and what treatment is available to return to exercise activity quickly.

Heel and Arch Pain on the Bottom of the Foot

Heel and arch pain is caused by many different conditions. The most common heel pain is caused by inflammation in a ligament called the plantar fascia. The pain is located on the middle bottom of the heel and is present upon first arising in the morning or after arising from a seated position. Plantar fasciitis, as it is called, is seen in those with both flat feet and high arches. Flat feet cause chronic stretching and tearing to this ligament where it attaches to the heel bone. High arches cause abnormal shock to be transmitted to this area with every step. Direct injuries, though less common, can also cause inflammation to the plantar fascia. Though usually self-healing over time, this condition can last for many years when no treatment is given, and can make exercise nearly impossible. For treatment, a therapy of inflammation reduction with anti-inflammatory medications, steroid injections, icing and stretching is necessary. It should also be combined with arch support through prescription shoe inserts (orthotics) to support a flat foot or provide shock absorption to a high arched foot. Only rarely is surgery required.

Pain Behind the Heel

Pain behind the heel can be caused by inflammation of the Achilles tendon (tendonitis), as well as extra bone growth in the heel bone (Haglund's deformity and heel spurs). Achilles tendonitis is quite common, and exercise only worsens the condition. It develops for a wide variety of reasons. When combined with a spur or enlargement of the back of the heel bone, even simple shoe use can be painful. Treatment centers around stretching of the Achilles tendon, with icing, anti-inflammatory medication, ankle bracing, and physical therapy. Untreated Achilles tendonitis can lead to tendon degeneration and even rupture. When the bone spur or enlargement is causing most of the pain, surgery is needed to remove it. Out of all the conditions described here, this is the one that requires the most surgical recovery time and needs 3-4 months rehabilitation prior to returning to exercise activities.

Pain On The Outside Of The Foot (away from the other foot)

The most common cause of pain in the outside of the foot is inflammation of a tendon (tendonitis) that starts in the leg and wraps around the ankle, attaching on the foot. Often slowly injured when walking or running on uneven surfaces, this tendon can be chronically irritated during athletic activity. The tendonitis can progress to a more significant tearing injury if left untreated. Treatment involves the use of a brace to temporarily stabilize the ankle, anti-inflammatory medication, icing, and rest. Physical therapy is used later on if not improving, and severe cases may need surgery. Usually a speedy recovery back to activity is seen in most cases. Occasionally bone problems can cause pain on the outside of the foot. A stress fracture or even a full fracture can be seen in the long bone on the outside of the foot. Stress fractures are due to long term stress applied to the bone from a repetitive activity or pressure, and full fractures develop from a twisting injury or weight dropped on the foot. These injuries to the bone are notorious for poor healing, and require complete rest from activity and immobilization for the quickest return to activity. Surgery is generally recommended for athletes when a full fracture is present in order to return to activity sooner.

When the pain is felt near the base of the little toe, a Tailor's bunion is usually at fault. This is an enlargement of the head of the long bone on the outside of the foot, and can cause pain with shoe use. Treatment simply involves wearing a wider shoe or using padding to keep the shoe from rubbing on the prominence. If this doesn't help, then a simple procedure to shave the prominence works well.

Pain On The Inside Of The Foot (near the other foot)

Like the outside of the foot, pain on the inside of the foot is usually caused by a tendonitis of another tendon that begins in the leg, wraps around the inside of the ankle, and attaches on a bone along the side of the foot. Usually seen in people with flat feet, this tendon slowly degenerates over time due to the stress of a flat foot stretching it out. Athletic activities worsen it. This condition requires prescription shoe inserts (orthotics) to control the foot from flattening, as well as rest, icing, anti-inflammatory medications, and possibly physical therapy. If allowed to progress, this condition can become very severe and may require reconstructive surgery. If treated early, healing is successful and can allow a quick return to activity. The orthotics will generally prevent it from returning.

Other causes of pain on the inside of the foot could include an entrapment of a nerve near the ankle bone. This condition, similar to carpal tunnel syndrome, can cause pain to shoot into the heel and into the bottom of the foot, and it may even cause numbness, burning, and tingling to the foot. Treated similarly to the tendonitis discussed above, this condition may also heal with steroid injections. If not healing, surgery may be needed to free up the nerve.

When the pain is along the side of the big toe joint, it could be due to a bunion. Bunions are a complex foot deformity of both bone and soft tissue. Usually inherited from one's family, bunions have several underlying causes, most commonly flat feet. Over time, muscular changes needed to adapt to walking with flat feet will contract the great toe towards the second toe, and make prominent the 1st metatarsal head (bone) on the inside of the foot. This can create pain in the bunion when rubbed against tight shoes. Joint pain in the great toe can develop over time due to its abnormal position and eventual onset of arthritis. The great toe can also crowd into the lesser toes. Treatment can include measures that attempt to pad the bump or separate the great toe from the second toe. Wider shoes may also help relieve bump pain. However, in most cases, surgical correction with correction of the bone position and soft tissue contracture is necessary to permanently treat this condition.

Nail Pain

Most nail pain is caused by ingrown nails. Ingrown nails may be inherited, and may also be seen later in life due to gradual damage to the cells under the skin that grow the nail (nail matrix). Repetitive injuries to the toe, such as heavy objects falling, pressure from poorly fitting shoes, nail fungus, or toe bruising (common in athletes) may cause irreversible changes to the nail matrix. In time, the nail may abnormally grow inward due to these changes. Less commonly, poor nail trimming technique may leave a spike of nail that may protrude into the skin as the nail grows outward. Regardless of its cause, an ingrown nail will cause pain and inflammation to the skin along side it, and eventually infection will develop. If untreated, the infection may spread and may eventually involve the toe bone underneath.

Temporary treatment may consist of regular soaking in warm, soapy water, application of antibiotic ointment, and the use of antibiotic medication to control the infection. The offending nail border must be removed to resolve the condition. This is accomplished through a short office procedure where the nail border is removed under local anesthesia and a mild acid is used to prevent the nail matrix from ever growing the nail back into the skin. Home based "bathroom surgery" is not recommended as this may significantly worsen the condition.

Other causes of nail pain can include nail fungus infection, which may cause the nails to become thickened, loosened, discolored, and crumbly. The nail thickness causes pain when it strikes the shoe during activity. Treatment requires prescription medication to eliminate the infection, and the nails can be smoothed out to reduce the prominence in ones shoes.

Another common nail problem seen in runners and treadmill users is bruising and loosening of the toenails. When shoes are a little too long, the foot will piston in and out of the shoe, resulting in low level injury to the toe tips. This can also occur in shoes that are too tight. The nails will subsequently bruise and loosen. This can be prevented by wearing properly sized shoes.

Pain In The Ball Of The Foot

Pain in the ball of the foot can be caused by many conditions. The most common type seen in active people is a neuroma. This is an inflammation of the tissue that surrounds the nerves that travel between the long bones of the foot towards the toes. Symptoms can include the sensation of a hard or hot pebble in the ball of the foot, as well as burning, tingling, and numbness in the toes immediately beyond the area of pain in the ball of the foot. Rubbing often relieves some of the symptoms. The pain generally worsens with activity.

Usually one's foot structure combined with poorly fitting shoes is the underlying cause, but other factors including injury can be present.

Treatment can consist of steroid injections to shrink the nerve tissue swelling, as well as anti-inflammatory medications and icing. Custom foot inserts help to relieve the pressure under the foot, and wider shoes reduce squeezing on the nerve. Sometimes surgery is necessary to remove the painful nerve segment.

Other causes can include too much pressure to the bones at the ball of the foot as seen in people with flat feet, and in people with very high arches. This pressure eventually overwhelms the body's natural fat pad, and inflammation develops. The bones feel more prominent on the ground, and any hammertoe deformity present can aggravate this by pushing down on the bone in the ball of the foot even further. Treated with well padded custom inserts and supportive shoes, the pain usually can be controlled without surgery and a quick return to activity is possible. Sometimes the toes need to be surgically straightened and prominent bones lifted when the pain is more severe.

If the pain is under the big toe joint, the cause may be due to inflammation of two small bones called sesamoids. These egg shaped bones are found in every foot, and can be injured if repetitive stress is applied to them, such as in running or other impact activities. This condition needs a brief period of rest and de-weighting of the big toe joint, along with icing and anti-inflammatory medications. Reoccurrent cases need specialized inserts to reduce pressure and stress to the bones themselves. Many times, pain in the ball of the foot is simply from a painful callus. Calluses are formed when the skin has too much pressure from the ground below and the bone above. The top layer of the skin thickens up to form a sort of armor to protect the skin. When this layer is too thick, or when this tissue grows inward and not outward, it can cause pain. Treatment involves regular shaving of the skin build-up, and inserts to decrease the pressure to the ball of the foot.

Ankle Pain

Most pain felt around the ankle can be attributed to the tendonitis conditions described above as the tendons wrap around the ankle joint on either side. However, ankles can become arthritic themselves over time. When symptoms begin at an earlier age, this can be due to joint damage from a previous injury of fracture.

Wearing of the cartilage with bone spur formation causes pain and motion restriction. Anti-inflammatory medications can help, along with therapy. Surgery to clean the joint out is sometimes needed to restore motion.

Ankle sprains are another common cause of foot pain. Even the most mild of sprains can take 3-4 weeks to heal. All active people should have their sprains evaluated, as sometimes other silent injuries occur which need more specialized treatment.

Generally ankle sprains respond well to icing, rest, and ankle bracing. More involved sprains may need physical therapy in order to return to activity. Very severe sprains with tearing of the ankle ligaments may need surgery to repair them. It should be noted that with repeated sprains, the ankle becomes weaker and more likely to sprain again. Consistent ankle braces during activity are recommended for those with numerous ankle injuries for protection.

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