

Prescription Foot Orthotics Can Help You Put Your Best Foot Forward

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Almost everyone has suffered from foot pain at some point in his or her life. A poll conducted by the American Podiatric Medical Association found that more than half of all Americans had missed a day of work because of foot problems. Considering that the feet are the major weight-bearing part of the body, it's little wonder we run into problems.

A close look at the human foot reveals a marvel of design and efficiency. Each foot has more than 100 working parts. No less than 26 bones work with the foot's ligaments, muscles and tendons in two very small structures to support and balance the weight of the entire body. The force through a foot during normal walking is enormous. Walking puts up to 1.5 times one's bodyweight on the foot. On average, our feet log 1,000 miles per year. As shock absorbers, feet cushion up to one million pounds of pressure during one hour of strenuous exercise.

Foot pain is not normal and should not be ignored. The presence of foot problems can affect the proper functioning of other parts of the body, including the hip, knee and back.

Foot problems are often treated with shoe inserts called orthotics. Custom-made orthotics are medical devices inserted into the shoe to correct an abnormal or irregular walking pattern. They are prescribed to reduce pain, to provide support, to prevent foot deformity or keep it from getting worse, to provide better positioning, to relieve pressure on a certain area of the foot, and to improve the overall biomechanical function of the foot and lower extremity.

Orthotics work like shock absorbers, removing pressure and stress from painful areas in the foot and ankle. Orthotics also promote the proper alignment of the feet. They can restore balance, improve sports performance and even alleviate pain in the knee, hip and lower back. Research shows that back problems, the most common form of chronic pain, can often be traced to a foot imbalance.

Since orthotics alter the way a person walks, stands and absorbs shock from the ground, anyone wishing to use them should have a good reason. It is recommended that individuals considering orthotics consult a professional with the proper training and credentials, such as a podiatrist.

Custom orthotics prescribed by a doctor of podiatric medicine should not be confused with the prefabricated models found in shoe stores, ski and skate shops, pharmacies, sporting goods stores or mail order catalogues. There is a significant difference in quality and effectiveness. Anyone who provides orthotics as a sideline business may not have the proper training and qualifications.

Prefabricated orthotics, mass-produced to fit an "average" foot, may cost less, but usually do not properly correct the specific problems found in an individual's foot and may end up doing more harm than good. Many times, this type of orthotic can actually worsen a condition and create orthopedic problems elsewhere in the body. Those at particular risk are people with heel pain, achilles tendon pain, back or knee problems or those who have a high arch foot type or flat feet.



Custom made orthotics

Exercise enthusiasts who engage in high impact or high velocity sports often buy prefabricated orthotics to provide support or serve as shock absorbers. It is usually better to consult a podiatrist to find the most appropriate device for their needs. Orthotics are very sport specific and different sports require different orthotics (ski boots, golf shoes, cycling shoes, skates, tennis sneakers, hiking boots, etc.)

Custom-made orthotics can provide relief for many different types of foot pain including heel pain and plantar fasciitis; arch pain; pain caused by bunions, an injury or a sprain; pain caused by running, walking and sports; pain related to diabetes; and pain experienced by senior citizens whose feet change as they grow older. Foot orthotics do not actually correct foot or ankle problems, such as fallen arches. But orthotics can reposition the structures in the foot to optimize biomechanical function and reduce the chance of injury.

A podiatrist, who has extensive knowledge of lower extremity biomechanics and orthopedic foot function, prescribes orthotics after a thorough consultation and evaluation of a patient's particular problem. This health professional will ask about any medical problems or pain a patient may be experiencing. The podiatrist will also conduct a gait analysis and consider orthopedic issues, level of activity, the type of activity, foot type, and biomechanics, which refers to ankle, knee and hip movement. X-rays may be taken, as well.

Based on an individual's particular problem or needs, the doctor makes a judgement about whether orthotics will be helpful or if some other treatment is warranted. When prescribed responsibly and used correctly, orthotics can be extremely beneficial.

Prescription orthotics require a minimal number of office visits and allow the patient to wear different shoes while providing pain relief. The custom-made orthotic is prescribed by the podiatrist to make the foot function more effectively as a "machine." In addition, orthotics are made to remove abnormal pressure and stress from painful areas in the foot, ankle and lower extremity. It is not uncommon for a doctor to prescribe custom orthotic devices to address problems elsewhere in the body, such as the knee, hip and lower back. It is important for patients to follow the doctor's instructions on when to wear them to obtain the greatest benefit.

In addition to providing relief for painful foot problems or an injury, those who may benefit from orthotics include people who must walk or stand excessively on the job. For those who are active in sports, orthotics will often increase endurance, performance and strength. For overweight individuals, orthotics can help to counteract the extra stress on the feet, as minor problems are often magnified due to the increased weight.

Orthotics are particularly effective in relieving foot fatigue and discomfort experienced by older adults, who may have developed arthritis in their feet. Orthotics may also be prescribed for children who have a foot deformity.

In athletic individuals, sports activities result in a great deal of movement and pressure on the foot. Slight imbalances in the foot that are not harmful or even detectable under usual circumstances may make one more vulnerable to injury with the extra stress of sports activity. By eliminating the need for one's muscles to compensate for imperceptible imbalances, orthotics can reduce fatigue and promote efficient muscle function to enhance performance.

Orthotics take various forms and are constructed of various materials. All have the goal of improving foot function and minimizing stress forces that could ultimately cause foot deformity and pain. There are three broad categories of orthotics: those that primarily attempt to change foot function, those that are mainly protective in nature, and those that combine functional control and protection.



Custom made orthotics

While orthotics can be made by several different processes, most podiatrists make a plaster mold of the patient's foot and send it to a laboratory with a prescription. At the lab, technicians pour plaster into the mold, and when it hardens, it exactly reproduces the bottom of the individual's foot. Based on the doctor's prescription, the technicians then custom-make a device to meet the patient's specific needs.

Rigid orthotic devices are designed to control foot function, and may be made from a firm material such as plastic or carbon fiber. These orthotics are mainly designed to control motion in two major foot joints, which lie directly below the ankle joint. This type of orthotic is often used to improve or eliminate pain in the legs, thighs and lower back due to abnormal function of the foot.

Soft orthotic devices help to absorb shock, improve balance and take pressure off uncomfortable or sore spots. They are usually made of soft, compressible materials. This type of orthotic is effective for arthritis or deformities where there is a loss of protective fatty tissue on the side of the foot. They are also helpful for people with diabetes.

The third type of orthotic, which is semirigid, is often used for athletes. It allows for dynamic balance of the foot while running or participating in sports. By guiding the foot through proper functions, it allows the muscles and tendons to perform more efficiently. It is constructed of layers of soft materials, reinforced with more rigid materials.

To summarize, orthotics allow the muscles, tendons and bones of the feet and lower legs to function at their highest potential. When appropriately prescribed, orthotics can decrease pain, not only in the foot, but also in other parts of the body such as the lower back. They can also increase stability in an unstable joint, prevent a deformed foot from developing additional problems, and improve quality of life overall.

Please visit The Non-operative Foot and Ankle Service at Hospital for Special Surgery.