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Spine & Sports: Patients have a love-hate relationship with orthotics


Scott Gillman

There is a love-hate relationship between patients and their foot orthotics. Some present me their $400 or $700 custom-fabricated foot orthotics and curse about it. Some pull from their shoe a store-bought, name-brand soft insert, sold with the claim it provides a cure of everything, from foot pain to back pain to mental attitude.

So here's the scoop: anything you put in your shoe and under your foot is considered an "orthotic." Most prefabricated, off-the-shelf orthotics are simply soft sponges with contours, or gels that giggle but do not offer support or change foot posture. They look like they have an arch, but they really don't. There are some better brands that really do provide some structural support, including PowerSteps, Superfeet and ALINE brands, each providing a contoured heel and some form of arch support for a fair price.

As for custom foot orthotics, there are many different styles and designs using different materials, including EVA-foam, cork and hard plastics. Some custom orthotics are made using a foam impression of the foot or a plaster cast of the foot. Others are generated based on computerized force plate foot pressure profile.

Foam impression casting of the foot remains a very popular and viable method. The patient's foot is pressed into a block of urethane foam, similar to the type of foam used for dried flower arrangements. The foam dents and molds around the foot, creating an impression of the foot's anatomy. Standing full weight in the foam is outdated and flawed, since it only captures the posture of the foot when it is completely deformed.

The computerized force plate method, while expensive, offers no guarantee of a better orthotic. With foam impression the doctor attempts to figure out where the "neutral" ankle position is, but research shows there is a lot of error in this guesswork method. None of these systems are proven to be any better than another.

There is a concept that seems to make the most sense, and it is based on fabricating an orthotic that supports the arch of the foot in its highest position achievable when the foot is flat to the ground. Check out MASS theory or the "Maximum Arch Supination Stabilization" via Youtube.com. The foot has an arch and a "big" toe for a reason. We bipedal humans were meant to walk by levering over an arch; thus, by rocking from our heel, over the arch, and pushing off on the big toe.\

Most orthotics don't provide adequate arch support.This is likely why many of the most expensive custom orthotics fail, or why they don't work any better than the $30 off-the-shelf variety. A simple test will tell you if your orthotic arch is too low. While sitting, place your foot on the orthotic. Lift your heel up keeping the "ball" of your foot on the orthotic. Then lift the orthotic to the heel. With your foot in this "plantarflexed" position, the orthotic's arch should still contour the arch of the foot. If it doesn't, then it is too low. A low-arched orthotic allows the foot to come off the arch and then slap down against it when walking or running. A high-arched or MASS-posture orthotic creates the support necessary to change foot posture and mechanics.

For many who need foot orthotics or struggle to find the right ones, this is a big step in the right direction.

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