

Arch Supports & Orthotics - Use & Misuse

Orthotic shoe inserts are everywhere. A brief look at the available literature, advertisements, and the Internet will reveal a plethora on these little devices. Spend a little time reading this stuff and you will quickly be convinced that there are disparate and conflicting opinions on their use and usefulness. Frequently the opinions you come across are not based on solid evidence. Some runners talk about their orthotic shoe inserts like they are the best things since sliced bread. Others toss their shoe inserts in the nearest trash can as if they are week-old bread sliced or not.

Purpose of Shoe Inserts

Reasons for using shoe inserts abound. They increase the area of contact between the ground and the foot, distributing the force of impact over a greater area. In this way they redistribute the pressures acting on the bottom of the foot and thus provide relief to sensitive or painful areas. They give added support to the arches and they can control the amount and the rate of foot motion - especially pronation.

Arch Support vs. Orthotic Shoe Insert

In the fifties shoe inserts were called arch supports. In the late sixties Merton Root developed a new concept for shoe inserts that differed from the traditional "arch support". Dr. Root proposed an intricate clinical examination, to identify faulty static alignment of the foot and lower extremity. The aim of the examination was to identify the foot's so-called "neutral position" of the foot. The neutral position is the position where the foot is neither pronated nor supinated, that is, neither on the outer edge nor the inner edge of the sole bears the body's weight. Root's orthotic shoe inserts were fabricated of materials similar to those used in the traditional arch support, but wedges or posts are added in an attempt to balance the foot about this theoretical neutral position.

Root's inserts share similarities with the traditional arch support. Both devices are used to treat pain in the feet and lower extremity. Basic design is a major difference between the two devices. An arch support attempts to fill in the entire area under the foot that is not in contact with the ground. An orthotic shoe insert uses a similar shell, but it is designed with a small space between the bottom of the foot/arch and the top of the orthotic shell. This small space is to allow some motion; otherwise with the addition of the wedges the device is to controlling.

Misuse

As is often the case with new concepts or new ideas, shoe inserts can be

misused and over-used. Grandiose expectations may exist that the new device will solve all problems and result in world records. Whether the device is an arch support or orthotic shoe insert there are two possible mistakes that can be made fitting the inserts. Either the device limits foot motion too much, or it fails to limit motion enough. Given that the total range of motion for pronation and supination available in the foot is relatively small (roughly 15°) it is more likely the shoe insert will limit motion too much leading to pain and sometimes injury.

Decisions

If your running buddy, a shoe salesman, a magazine article or a health care professional recommends that you use a shoe insert is very can be very difficult to decide whether this advice is sound or not. Once the decision is made that an shoe insert is needed many additional questions arise. Do I need orthotic or arch support? Should my inserts be custom molded or pre-molded? Do I want total contact or wedges? Hard or soft, permanent or temporary, and how much should it cost?

From my experience three criteria are necessary before I recommend orthotic shoe inserts. The first criterion is pain in the foot or lower extremity. There is a large number of case studies in the medical literature documenting the effectiveness of orthotic shoe inserts to help manage pain. Some runners seek orthotics in order to improve their performance, but there is little evidence to support this contention that esthetics inserts can improve racing ability or finish times.

The second criterion is there should be signs of excessive pronation (inward rotation of the foot/ankle). There are several ways to determine if the foot is pronating to much or at the wrong time. A description of the assessment of too much pronation or pronation at the wrong time is beyond the scope of this article. However, it is often said that if your feet are flat than they pronate to much. Sometimes this is true but not always. For some individuals their feet are equally flat lying in bed, standing on them, or running. In this case it is unreasonable to expect an shoe insert to change a flat foot from being flat when it is always flat. Flat is flat. Four investigations demonstrate orthotic shoe insert affect the amount or rate of pronation when walking. On the other hand at least one study claims orthotic shoe inserts fails to affect pronation. Despite the limited evidence there is some consensus among health care professionals that the use of shoe inserts will diminish excessive or prolonged pronation.

The third criterion is there should be an identifiable faulty alignment, which provides a logical explanation for the observed excessive pronation, and

this faulty alignment should be responsive to the use of an shoe insert. This third criterion requires the knowledge of an individual with education and training in intricate examination procedure developed by Dr. Root.

The following is a list of questions, which can help determine if shoe inserts are needed.

- ❑ Did you wear corrective shoes or braces as a small child? If the answer is yes prior history suggests there was a need for shoe inserts in the past; therefore there is a greater probability they will be helpful now. This is analogous to eyeglasses, once you need eyeglasses you'll always need them. We don't out grow the need and we don't correct the defect or fault we accommodate to the fault.
- ❑ Did you suffer a fracture in the lower extremity during a growth period? If yes there is a good chance one leg grew longer than the other. This may need to be addressed with an shoe insert.
- ❑ Are both feet the same shoe size and/or shape. If one foot is distinctly different than the other chances are there is a faulty alignment, which may benefit from an shoe insert.
- ❑ Are there signs one foot pronates more than the other foot?