



Orthotics: Are they right for you?

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A common soreness found in both young and older athletes is general foot pain. This pain can be caused by long hours playing on the court or in the field. It can also be a result of bad biomechanics of the foot, specifically how it is designed to support an athlete's force and weight during sports. In order to aid the foot, and lower body joints, orthotics may be just what you need. Orthotics can play an instrumental role in the recovery of injuries and aid in preventing future injuries. Orthotics help utilize proper mechanics and help in distributing weight and force. Don't be surprised if you come in with knee pain and the

proper alignment for the push off phase of running. The 2nd variant is over pronation: while running the outside of the heel hits and collapses the arch inward beyond this range of motion mentioned above, forcing the runner to push off with just big toe and second toe. This is not optimal and can cause undue stress and force not only to the foot, but also the joints above. It is this form of over pronation that needs to be corrected in order to alleviate or prevent future injuries. Normal pronation of the foot can also be supported with an orthotic to ensure proper foot stability. These two forms of pronation can be supported with an over-the-counter, semi-custom or custom orthotic.



figure 1

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doctor's suggestion is to use orthotics to help combat the pain. Just remember that our feet are like tires on a car, if the tires have the right air pressure the car will get better gas mileage... same with our feet. With the right support we too will be more efficient on the field or court.

Biomechanics of the Foot During your office visit a physician may recommend orthotics for your child to aid in the recovery of an injury, or for the prevention of a future injury. One of the main reasons orthotics are prescribed in our office is because of foot pronation. There are two variants in pronation of the foot. A normal pronation is described as: while running, the outside of the heel contacts with the ground and collapses the arch inward anywhere from 10 to 15 degrees. This puts the foot in



figure 2

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Supination of the foot is the opposite of pronation. When the outer part of the heel makes contact with the ground the arch of the foot is lifted placing the force on the outside of the foot. This does not allow the foot to collapse and absorb the impact predisposing the athlete to lower extremity joint pain or injuries. Supination of the foot will usually require a custom made orthotic.

There is a simple way to determine your mechanics. You can see whether your foot is normal, pronating or supinating by observing wet footprints on concrete. If you see half of the arch connecting the heel to toes you have a normal pronating foot. If you see almost the whole arch, then you have an over pronating foot and could benefit from orthotics. If you see little or no arch connecting the outside of the heel to the toes you have a supinating foot and would definitely benefit from orthotics.

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Foot Types: There are many types of feet. In order to simplify the many types of feet we will break them down into a few different categories.

First there are those with a neutral arch. They present in clinic with an arch seen in both the sitting positions and weight bearing position.

The second type is a flexible arch. These individuals will present with a normal arch in a non weight bearing position, but when they stand the arch will collapse.

In addition to the flexible arch there are those with flat feet, or pes planus. These individuals have no arch in either the non weight bearing position or the weight bearing position.



sure the arch does not collapse to the floor while standing on the orthotic. If the orthotic does not allow the arch to collapse then it should offer the support that is required to stabilize the arch. The preferred orthotic in our clinic is a brand called Superfeet®. (figure 1) Superfeet® provides a good neutral arch support for a reasonable price (approximately \$40 - \$50).

The next type of orthotic is the semi-custom orthotic. This orthotic is tailored toward the individual and their needs This type of orthotic takes an "off the shelf" orthotic and customizes the fit to the individual and their needs. (figure 2) To get a semi-custom orthotic you must go to see an Orthotist who will analyze your foot and gait pattern. It is this extra attention to detail that drives the cost up. The price for semi-custom orthotics can range from \$80 - \$100.

The final type is a custom orthotic, which is tailored entirely toward the needs of the athlete. This orthotic is commonly used for those with high arches, over pronators and flat feet. Usually these types of feet cannot handle the shape of an over-the-counter or semi-custom orthotic. An Orthotist will take a mold or cast of the feet in which the orthotic can be designed. This cast or mold allows them to shape the orthotic to fit the individual's needs. This tedious process drives up the cost of this type of orthotic. They can cost anywhere from \$300 - \$500.

Then finally there are those with a high arch, or pes cavus. These individuals have a very high arch both in the non weight bearing position and weight bearing position.

Types of Orthotics: In general there are three types of orthotics: over-the-counter, semi-custom and custom. The over-the-counter orthotic can range from unsupportive to very supportive. This type can help support an athlete with an over pronation as well as support those with normal pronation. When choosing an over-the-counter orthotic make

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