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## ***Our Orthotic Concept***

There are several options used by various orthotic devices, all promising better durability, better comfort, etc. However, nothing seems to be as comfortable, supportive and withstand mileage better than modern plastics.

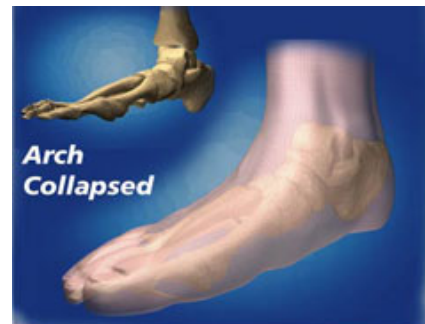
The orthotics I use for 99% of my patients is a Sports Medicine device (DynaSport) by Burns Laboratories. More importantly is the method used in casting for the devices.

Here is some information on the method we use to cast and a better understanding of why:

There are two basic states of the foot that should be very familiar: ***arch up and arch down***. The arch down state happens when, after the heel strikes the ground, the foot unwinds inside and the arch does a free fall due to gravity. Most people are able to do this so well they overdo it.

The ***arch up state*** comes next, because that is what makes the foot a rigid lever for push off. The foot must wind back up inside to raise the arch and stiffen itself. If the arch stays down you have to propel yourself forward with a mushy foot. That is not only tiring because your muscles have to work harder, it leads to the common foot pains and deformities that afflict millions every day: bunion, plantar fasciitis, and metatarsalgia to name a few.

The ***arch down state*** is important to absorb shock and adjust to uneven floor surfaces. But when it is overdone, the arch can't get back up. Going down hill is easy, but how does it get back up, into the arch up state? About 90% of the population can't get back up enough to have normal foot function. Assisted by gravity, body weight, muscle weakness and hard floors, the foot learns to unwind and flatten the arch ever closer to the ground, getting flatter with age. You may have heard this called ***over-pronation***, which is just a fancy name for flat, flexible feet.



A long time ago, people tried helping others with very flat feet, by devising platforms that would fit in their shoes under their feet and hold up their arches. The only problem was they used solid steel, wood and solid chunks of leather -all of which felt like rocks under their feet. This was so common that medical practices abandoned the idea of holding the arch up, because few people could tolerate it.



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So to this day, the most common approach to helping the flat foot avoids direct arch contact and control. Combinations of cushions, wedges under the heel or forefoot, or arch supports failing to match the contour of the arch are used to try to control the flattening foot.. This is why most major studies have shown that typical custom foot orthotics work no better than what you might buy off the shelf at the drug store or supermarket.



The take home message is that in order to obtain Biomechanical Control of the foot, an orthotic device must contour the arch at its highest-neutral position -by applying a force directly up under the arch to stop the abnormal drop of the arch. The reason we can now do that comfortably is modern plastics. The goal is to create a custom, supportive platform for each foot that is rigid enough to achieve the arch up state, yet flexible enough to allow some small degree of flattening for shock absorption, terrain adaptation and comfort. The weight of the patient is taken into account because it predicts the thickness of the device, which will offer the best control of the foot.

In addition, the level and nature of activities a person participates in offer further information utilized to make a device more custom in order to offer the ideal biomechanical control of your feet.

