



# ORTHOTICS & YOUR FEET

By Craig Osborne, Chiropractor © 2010

Our feet are a complex arrangement of 28 bones which have the purpose of absorbing shock as they hit the ground. It's essential they move correctly so that everyday walking and running is possible.

## HOW PROBLEMS BEGIN

In terms of human development, our feet should develop on a variety of surfaces, but nowadays it's usually just concrete. If we had regular exposure to grass, sand, rocks, or clay as we grow up then most of us would probably have normal feet. Statistically, probably less than about 10% of us do. The majority pronate (roll in) too much, and a small percentage (~5%) supinate (roll out). Once you've finished growing it's not possible to change your feet, but in a growing child it is. This means that it's essential feet problems that a child has must be assessed and corrected quickly. Many back problems stem from feet problems that develop during puberty. Interestingly, very few people actually teach their children to walk, it is generally learnt but observation. So any problems a parent has, will probably be copied by the child. This can be changed if addressed early enough.

## CAN'T I JUST WALK DIFFERENTLY?

Often when I raise the foot problem, I get asked, can't I just pay more attention to how I walk and it will change? The simple answer unfortunately is no. Any attempts to actively change walking style will usually just lead to an imbalance in muscle tension and contribute to back problems. The key to addressing any foot problems is not to stop the foot from moving, but to prevent the excessive movement and this is where an orthotic fits in.

## WHAT ARE ORTHOTICS?

An orthotic is a shaped device used to support, correct, or allow for abnormalities with the feet. There are many different types available. Anything you buy off the shelf will be of minimal assistance, and in some instances may exacerbate any condition you have. Since an orthotic is designed to CONTROL excessive foot motion, if it's too soft it won't be able to. If the arch support can be compressed easily with thumb pressure it won't work well.

## WHICH ORTHOTICS?

An entry level custom orthotic is made from EVA, a compound that is used in the mid-soles of many running shoes. It comes in different densities, and is heat moulded to ensure personalised fit to your feet and shoes. Wedges or lifts added to the orthotic are used for various conditions depending on your need. This includes significant pronation, metatarsalgia, and anatomically short legs

A far better product is with our computerised prescription assessment (Gaitscan). A force platform records what your foot does during walking and uses this information to create a custom shell orthotic. While they are more expensive they are less bulky, and

last much longer. Compared to the tradition casting technique these reflect what your foot does during movement rather than a static foot position lying on your back.

## WHY USE THEM?

As your feet hit the ground, the bones are designed to move in such a way to absorb the impact force, transmit those forces through the body and react in conjunction with the muscles to move your body around. If this normal movement is altered, it reduces how effectively this process works, and leads to multiple problems.

There is some debate as to exactly what they do, one argument is that for an adult it controls the foot in the correct anatomical position **as it hits the ground**. It means that your foot no longer has to react to concrete - we effectively change the ground to suit the foot. Recent thinking is that it provides neurological information to the foot (and therefore the brain) about where the foot is in space, and therefore allows for a better muscular reaction of the body to impact forces

The difference for children is that an orthotic will help correct the underlying abnormality.



Flat Foot



Pronated Foot



Normal Foot



High Arch Foot

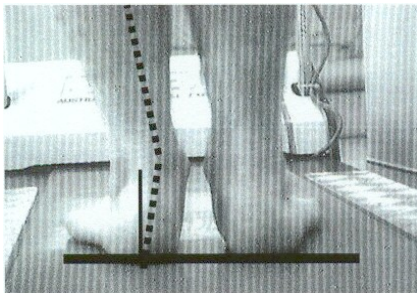
This is why an adult orthotic will last longer than one for a child. With growing feet regular appointments and assessments are required to ensure that modifications can be made to the orthotic in accordance with how the foot is changing.

## WHY FOCUS ON THE FOOT?

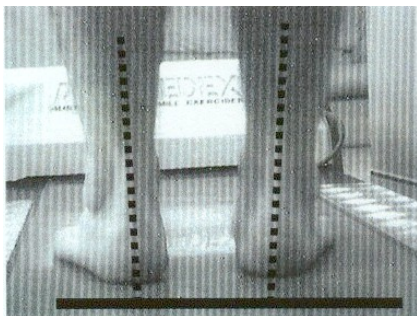
Let's consider the problem of pronation, which most of us do to some extent. The following lists the types of problems that can develop if left untreated:

- heel spurs / plantar fasciitis
- bunions
- corns and calluses
- repetitive ankle sprains
- pain at the base of the toes
- medial knee pain
- runner's knee
- low back pain
- sway back

If we place the foot in neutral with a correctly fitted orthotic, the mechanical stresses will be reduced and many of these problems may be stopped or at least reduced.



Resting uncorrected position



Neutral corrected position

A pronated foot causes the shin to rotate outwards, the femur (thigh) to rotate inwards, and then the pelvis on that side to tilt forward and lead to stress in the lower back.

## HOW MANY SETS?

The Gaitscan orthotics are designed to last 3-5 years, although it's quite possible they could last longer. Given that we all have various shoe types, once we have a well fitted and performing orthotic, a second pair is typically arranged. This enable the orthotic to be used across a greater range of shoe types and activities. Problems tend to arise if on orthotic is not used consistently.

## EXCEPTIONS TO THE ABOVE

More advanced or complicated problems with feet may require plastic moulded orthotics that are taken from a cast of your foot. If this is the case I would refer you to a clinic in the city which would take care of you. For children who walk pigeon-toed or toe-out, an orthotic called a gait plate is used. This is also a hard plastic and would be referred out.



Out Toed

Pigeon Toed

## ORTHOTICS PRICING

We take the approach of providing an excellent product at a very competitive price. We also provide a loyalty discount to existing chiropractic patients, and a 2nd pair discount when the Gaitscan is used.

## ORTHOTIC SHOES

The company we source our orthotics from has an excellent range of shoes — we have brochures in the clinic, or have a look on-line at [www.theorthoticgroup.com](http://www.theorthoticgroup.com).

