

## Orthotics or not? That is the question...

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Call them orthoses. Call them orthotics. Call them inserts. Call them insoles. Call them footbeds... But call them something!

Are they good? Are they bad? Do you really need them? Are they worth it in expensive running shoes? That is what we are about to discover.

Not many of us were blessed with perfect feet! According to studies, less than 10% of the world's population would have what is called a normal or neutral foot, meaning a foot that does not require any special care or support to maintain its shape when loaded with the body weight. Orthotics are inserts added inside footwear to support the foot's natural structure. Your feet are the base of support of your entire skeleton, so they may affect the entire body if they are tilted or not straight, just like the Tower of Pisa!

### Do I need them?

As we mentioned above, not too many of us have perfect feet, so chances are neither do you! But not having a perfect foot does not necessarily mean that your feet will require attention. Let's start by figuring out what kind of foot you have, and then we will see what kind of attention it needs, if any.

**Pronated Feet:** The most common of all foot structural problems. A *pronated* foot is simply a foot that has a falling arch (also mistakenly called *flat foot* - mistakenly because the foot is not really flat, it just flattens out with weight on it). The problem is that in most cases, it is not as simple as saying that the arch is weak and that we just have to support it; the foot looks flat because maybe the leg is rotated to the inside so the foot also rolls on the inside and the arch collapses. Maybe it is the heel itself that is unstable and rolling to the inside. Maybe some of the muscles are tight and pull the front of the foot to the inside. Maybe some nerves aren't functioning properly and make some muscles weak... But in any case, such deformity leads not only to a mal-alignment at the ankle and foot, but also at the knee, hip, pelvis and even the back. For runners (or any other sport addict), this means possible long-term damage; possible abnormal wear and tear of the joint surfaces and surrounding. If you think you have pronated feet (or if your feet look flat on the floor), perform this quick test:

- ☞ Lift up your bare foot and look underneath to see if you have an arch. If you do, continue with this present test. If you do not, move down to *Flat Feet*. Now put your foot down on the ground and gradually transfer all of your weight on that leg. Is the arch still there or is your foot now flat (or flatter) on the ground? If the arch is still there, and **as pronounced as** it was up in the air, then you do not have pronated feet (this does not mean that you have a perfect foot yet!). If you are not sure, look if your foot seems to have gained some length when you put it on the ground, as that is also a sign that the foot is collapsing. If you can see that your arch has flattened out (as it does in about 70% of the population), you have pronated feet, meaning that some structure somewhere in your body is not doing its job, or that your entire leg posture is inadequate and therefore your

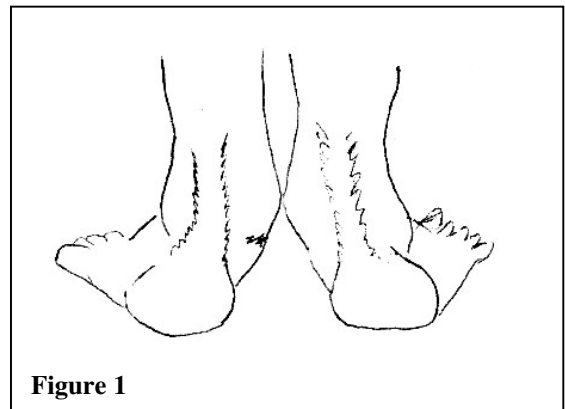


Figure 1

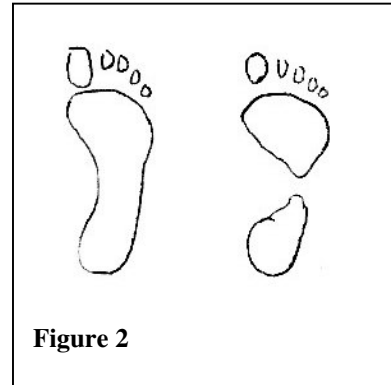
foot looks flat like a pancake when you put weight on it. See figure 1.

**Flat Feet:** If you thought you had pronated feet but realised when you lifted up your foot that you did not even have an arch, then you have flat feet, and real ones!

**Supinated Feet:** not very easy to diagnose yourself just by looking at it, but in general the arch is quite defined. What you can do is focus on what you feel as you take a few steps barefoot: does it feel like you are walking on the outside border of your foot? Take a look at your running shoes: are they worn out on the outside of the sole, or is it more in the centre? If you see that the wearing pattern stays on the outside of the sole from the heel to the toes, chances are you might be a supinator. Also, if the heel counter of most of your shoes is deformed and leans to the outside, then you have another sign that you are a supinator.

**High Arch:** Some people have such a high arch that when they put their foot on the ground, the middle part of the foot does not even touch the floor. Do you think you are one of them? Take a few steps somewhere you can see your footprint (sand, wet feet on dry floor, snow if you are doing a polar bear spa!) and see if you can actually detect an entire footprint or if the middle part is missing (figure 2 - right). If it is, you have a high arch, or as they say in the medical field: a *pes cavus*.

**Neutral or Normal Foot:** Your foot looks exactly the same whether it is up in the air or down on the ground. The wearing pattern on your sole probably starts from the middle or the outside of the heel and slowly moves to the middle of the foot, or slightly to the inside. Your footprints look normal (figure 2 – left).



Now that you have found out what kind of foot you have, let's see if you will need the extra support. The question to ask is: do you have any pain anywhere? (or do you suffer from a chronic injury that does not seem to heal?). If the answer is no, well good for you. You definitely do not need orthotics, and in fact you should not even be reading this article. But since it will make you smarter, keep on reading anyway!

If you are not so lucky and the answer is yes, then ask yourself "where is the pain?" If located anywhere above your belly button, chances are orthotics will not help much, although they do improve posture. But if it is below the waist, then they may be helpful. Is the pain at night or during daytime? If it wakes you up at night, consult your doctor. If it tends to be more during the day (anywhere from waking up in the morning to going to bed at night), then you may find some relief with orthotics, no matter what kind of foot you have. Even people with normal or neutral feet may find some relief with orthotics or off-the-shelf insoles from the extra support and cushioning they provide.

If you have pronated or supinated feet, then you have to think that the misalignment is due to some joint surfaces not matching up perfectly (bones are like pieces of a puzzle, designed to fit perfectly), and that later on down the road, the misalignment may lead to an early degeneration of those joint surfaces, aka osteoarthritis. Custom orthotics can help restore alignment to the affected areas.

If you have a true flat foot, then you are the luckiest person on the planet! You don't need any extra support, anything will do as the entire surface of the foot comes in contact with the ground and gives you great support. If you have a high arch foot, but there is no sign of misalignment, then the only problem is that you never get any support from shoes or even from over-the-counter orthotics. Your arch is so high that if regular inserts or shoes were designed to provide you with support, they would be too high for the average population! So never having any support means that eventually you may have some foot fatigue or soft tissue that gets overstretched and becomes painful. You may also develop early osteoarthritis in the middle of the foot from the *overhanging* bones. Custom orthotics can help support a high arch.

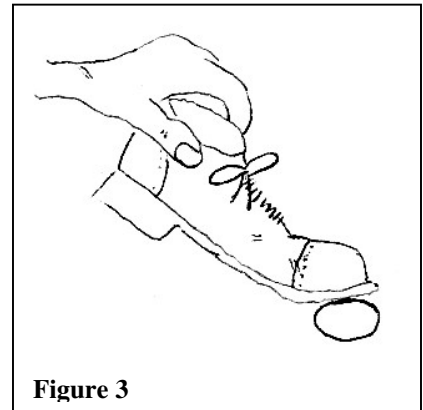
### Who should I see?

Your usual health specialist (massage therapist, family doctor, physiotherapist, chiropractor, etc...) can help you with the diagnosis and decide whether or not orthotics could help. If so, they should refer you to a foot specialist (podiatrist, certified pedorthist or orthotist) that will establish the cause of your problem and help you solve it.

### What about shoes?

The most common question is “what good can orthotics do if I put them in a crappy pair of shoes?” Well, let’s first make sure that you know what good shoes are. Here is what you should look for:

- Flexible forefoot: the shoe should be so easy to flex that you could put the front of the shoe on an egg (raw of course) and bend the shoe without breaking the egg (see figure 3). Running shoes are different because they have a *rocker sole* that allows them to rock instead of bending, so don’t even try, they will not pass the raw egg test!
- An anatomically-correct bending point: your foot bends where your toes start (at the *ball of the foot*). Thus, so should your shoe. Flex the shoe and make sure that it bends where your foot also bends.
- Stiffness in torsion: the shoe should not be wishy-washy. When you grab the toe box with one hand and the heel with the other, it should be difficult to deform the shoe with torsion. This prevents the forefoot from rolling too much on a stable heel.
- Sturdy heel cup: the heel of the shoe should be made of a rigid material (like a polymer and not a cardboard) so that it supports the heel. The heel cup should also be solidly attached to the sole, so that the solid plastic heel cup does not simply move on the sole (or detach from it).



So how are your shoes? If you think that they do not qualify as good shoes (your work shoes and training shoes should definitely all pass the test, otherwise you are in trouble), then I would recommend that you start by getting better footwear. If you do not feel any improvement in a week or two, then you may want to consider inserts for your shoes, custom made or off-the-shelf, depending on your health specialist’s recommendation.

If you do not suffer from any pain or chronic injury, proper footwear and support is still important. It will definitely help your feet stay healthy and keep you happy for a long, long time!

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