

## **If The Shoe Fits...**

**We've all done it! A training partner raves about this new trail running shoe they've been using. So you buy it, only to spend the next few months cursing through blisters or sprained ankles or a shoe that just seemed to fall apart as you ran. We all know that trail running shoes need to have some specific characteristics over and above the normal running shoe. But what a lot of trail runners don't realise is that even the best trail running shoe isn't necessarily the best shoe for them.**

In this modern era, it is hard to find a poor running shoe. The most basic pair of modern shoes is superior to what Peter Snell trained in for his world records and Olympic glory. But that doesn't mean that any old shoe will do. Whether you're eyeing up the most basic or most advanced model, the only shoe for you is the one that suits the foot that's going to wear it.

Despite all the technology, marketing, colour co-ordination, price... and your training partner's best meant advice... selecting running shoes is about finding a shoe that suits the runner in question. From head to toe, your body is unique to you. The shoe your training partner swears by might very well leave you on the injury list, because at approximately 600 strides per kilometre the potential for injury via poor shoe choice is huge.

In today's info-hungry world, most runners know how to fit a shoe; most realise if they have one foot half size smaller than the other; and many trail runners appreciate that a sole with studs, waffles, lugs – or whatever the shoe manufacturers are calling them this month – will provide grip. But very few appreciate the most obvious but essential key to finding a shoe that works for you. Hardly anyone knows “their” foot.

### **Floppy or Rigid?**

Well, which is it? Don't know do you! Generally your feet can be described as either floppy or rigid, or if you're extremely lucky, somewhere in between. The floppy foot is most common and at its worst is recognised as the classic “flat foot”. Less common is the rigid foot, which can be both more and less problematic.

The “floppy” foot is seen most in the heavier runner and the runner with a heavy heel strike. Floppy feet are a superb shock-absorbing tool, but they are pre-disposed to injuries associated with biomechanics due to the excessive lateral movement that provides this shock absorption.

The rigid foot is the exact opposite. Runners with rigid feet are generally recognised by high arches and narrow heels. When running they usually land on the fore foot or mid foot, which gives great propulsion but also puts greater stress through associated ligaments, tendons and muscles. Good sprinters often have naturally rigid feet, but the tightness that allows them to explode like wound up springs is also a poor shock absorber. For this reason runners with rigid feet are often pre-disposed to injuries related to impact and flexibility.

### **Straight or Curved?**

The flexibility issues around floppy and rigid feet tend to decree what shape your foot is. The floppy foot tends to be quite straight, while rigid feet are often curved. So not only do you want a shoe that suits the flexibility of your foot, but also the shape.

Most people have feet that are straight to semi-curved feet. But a fast way to assess your foot shape is to trace around it with pen on paper. The key then is finding a shoe that is close to matching the shape of your drawing. But first there's one more element.

### **Pronator or Supinator?**

Shoes are generally designed for one of three characteristics that the foot undertake during foot plant: pronation, supination and neutral. It is essential that you choose a shoe that suits what your foot does, because good running shoes are designed so specifically these days that getting the wrong features could be more harmful than going back to what Snell ran in during the 1960s.

Pronation – the inward roll of your foot as it moves from landing on the outer heel to pushing off on the inner toe – is the foot's natural shock absorbing mechanism. All runners pronate to some extent, but runners with the “floppy foot” tend toward over pronation, which is a major cause behind many injuries.

As much as pronation is a problem, insufficient pronation can also be an issue. This is termed supination, which is characterised by landing on the outer side of the foot but failing to roll inward. Supination is seen in runners with rigid feet. It is far less common than pronation, but equally problematic due to the poor natural shock absorption qualities.

If you are lucky you have a neutral foot. This sits somewhere in between, where the foot strike on the outer heel and rolls inward a small amount to allow shock absorption. The neutral foot doesn't need a lot of support unless the runner is a tad heavier than normal.

Manufacturers design shoes to cater for pronators, supinators and neutral feet. Anti-pronation shoes have features to help control your foot's excessive inward roll, while anti-supination shoes have features to promote more inward roll. But because pronators tend to have floppier and straighter feet, anti-pronation shoes tend to a straighter shape. Likewise, supinators tend to have more curved feet so anti-supination shoes tend to be more curved. The neutral shoes are in the middle; usually semi-curved with minimal, if any, control features.

### **The Shoe For Your Foot**

Manufacturers design shoes to suit the various foot types. However, many of them also design shoes for what people want to see and so sometimes looks and comfort can get in the way of true design features.

For example, the thick Achilles tendon protectors on many modern shoes can be an irritant to your Achilles tendon. Likewise, some shoes have soft midsoles designed to absorb impact; but soft shoes are also less stable and the biggest cause of injuries is bad biomechanics created by instability, so cushioning isn't always a good thing.

You can see that finding shoes is all about knowing what your foot needs. If you have a straight foot then go a straighter shoe that includes other characteristics to match your feet. If you are a bigger runner then consider a cushioned shoe to guard against impact, but be aware that the extra cushioning may make the shoe less stable. To counter this a heavier runner might look for a board last, which is a stiff board glued under the inner sole to give the shoe extra stability.

If you have a curved foot and high arch then you should be looking at neutral or curved shoes. Consider extra cushioning to guard against impact, but because rigid feet are prone to sprains a trail runner should make sure the shoe is high under the ankles, is not too high in the heel and fits firmly around the heel.

For people with acute pronation or supination problems manufacturers have motion control shoes. They use features that range from strengthened heel cups to plastic shanks that control the torque created by the foot as it changes position during the stride. A good running shoe retailer – or better yet, a podiatrist – will advise you of the extent of your pronation or supination.

### **What About Trail Running?**

Despite best efforts, many modern running shoes are not suited to trail running. In many cases protection features necessary for road running are counter-productive for running off the road. For example, the super soft shock absorption features of many shoes can make a shoe unstable in off-road conditions

Many manufacturers recognise things like this and there are several very good trail running shoes on the market. But there are also many trail shoes that just aren't that good for trail running. Because trail running is tough on both the runner and their shoes, both shoe manufacturers and runners often fall into the misconception that trail running shoes need added protection.

Adding lots of features to a shoe can make it too bulky, heavy, ungainly and unstable for trail running. What trail runners need is a shoe that allows you to develop a feel for the ground while still protecting you from the worst terrain. If you have some dedicated trail shoes then ask yourself if they match the following criteria:

*Weight:* A trail running shoe needs to be light. When wet and muddy a heavy shoe becomes like a boot and the weight can bring on fatigue and can make your feet less responsive and nimble. In short – a heavy shoe is hindering rather than helping.

*The Upper:* The material on the upper part of your shoe needs to drain well and protect your feet from the terrain. A good trail shoe should have material that allows drainage after getting wet, but will still protect the runner and shoe from the rough terrain. A mesh material is best on top, with tougher materials on the sides where your foot often scuffs rocks and roots. For extra stability on rough ground the upper should be slightly higher under the ankle and should house a strong and snug heel cup. Be aware too, that the water resistant materials on some shoes can actually be as much a hindrance as a help. In races that involve river crossings, no shoe is going to keep water out. And after a full soaking water resistant materials can actually stop the shoe from draining, so sometimes normal materials can be better.

*The Inner Sole:* The inner sole is important for absorbing the friction between your feet and the shoe. The thicker the better, and innersoles with slight cupping design tend to move around less when wet. For people with biomechanical issues a specialist innersole like Formathotics is sometimes a good way of getting motion control and stability while still being able to run in a shoe that isn't too bulky.

*The Midsole:* Because trail running is principally on soft and rough surfaces, the most important feature in the midsole is stability. Cushioned shoes are less stable and usually have higher heels, all of which is potentially less stable. So look for a shoe with a firmer midsole and lower heel. People with stability issues may benefit from a shoe with a shank through the middle of the midsole, but be aware that shoe flexibility is quite important when trail running. You need the shoe to sort of mould to the terrain so that your feet get a feel for what is happening. A heavily control shoe is usually not flexible, so unless you have severe control issue it's better to strap your ankles and run in a flexible shoe.

*The Outer Sole:* Obviously a trail shoe needs good grip, but there's more to it than that. Trail shoes need to provide grip on a wide range of surfaces ranging from rocks and roots to mud, sand and slick clay. The tread pattern needs to provide grip in both forward and side ways motions, but be wary of shoes with too many studs because in muddy conditions they just clog up and provide no grip at all. The actual type of rubber the outersole is made of is crucial. Manufacturers seem to prefer carbon rubber, which last longer but is more slippery on slick surfaces. Blown rubber is lighter, much grippier and has slight better shock absorption, but it doesn't last as long. Some trail shoes are now coming out with tiny metal studs in the rubber studs to provide added grip on hard, slick surfaces like rocks and tree roots.

#### *Moulding The Shoe To Your Needs*

The most important thing is always to find a shoe that suits the shape and characteristics of your feet. However, sometimes the shape that feels best on your foot doesn't have the features you need or prefer for trail running. Coast to Coast legend Steve Gurney spent years running in heavy trail shoes before deciding that road racing shoes provided a better feel for rough terrain. Of course road racing shoes don't have the protection or grip needed on rough terrain, so Gurney would often glue thicker material to the outside of shoes and has even have had brand new shoes re-soled with something that provides better grip. Other common changes you might consider include trimming the heel tab off your shoes because the constant movement in many directions can cause irritation to the Achilles tendon. Changing the laces for bungee-like elastic laces is a good idea because the elastic laces don't get lose when wet and allow you to slip a shoe off and on quickly if you get grit inside. To get around a shoe clogging up when muddy you can take a knife to some of the studs. This gives mud less to clog on to without impeding your grip on the ground.

#### **Get Good Advice**

Hopefully by now you're better equipped to find a trail shoe that suits your foot as much as it suits the trails. But just to make sure you should purchase shoes from a good running shoe outlet. Good retailers are well versed in what shoes will suit what runners and what type of running they will be doing. Good retailers have trained staff who not only keep themselves current with trends in the industry but also provide expert advice and sometimes even video analysis. They also get a lot of feedback from runners, so they know what shoes are popular with what kinds of people. A 20min session in a good running shoe should confirm you're wearing the right shoe for you.