


# Doc, what running shoes should I get?

## Introduction

 Running is a very common sport and it can be done anywhere, anytime. The outfit required is minimal although the most important piece of equipment is the pair of running shoes. In the market, there are many brands and designs of running shoes giving the athlete an extremely wide choice which can be confusing.



## Biomechanics of running

Although running is often taken for granted, the mechanics involved is quite complex. At heel strike, the impact can be up to 5x the body weight and the bones in the foot loosen up to absorb the impact. As the foot rolls forward, the bones in the foot tightens up to act as a lever in preparation for the toe-off. The weight of the body is transmitted to the outside border of the foot as the foot rolls forward, such that at toe-off, the toe pushes off the body. The entire movement is done subconsciously and coordinated by the muscles in the calf and feet. As such it is little wonder that aches and pain in the feet are common after long walks and runs considering the complexity of the mechanics and the high repetition of these actions.

Other than protection from external injurious agents, the function of the running shoes is to soften the impact and facilitate the biomechanics of running to minimize injuries. In some instances, the running shoes can help to correct some of the faulty mechanics of running.

Runners can be broadly classified into 3 broad groups:

- a) Pronators
- b) Neutral
- c) Supinators

These groups describe the attitude of the runner's foot at the time of stance (weight bearing) phase, where the foot is in contact with the ground. In pronators, the inside of the foot collapses and weight is transmitted through the inside of the foot as is evidenced by the observation of preferential wear of the soles on the inside of the shoe. The

condition may be associated with flatfeet, which may give rise to knee pain, shin splint, bunions and plantar fasciitis.

In neutral runners, the transmission of weight is normal. In supinators, the weight transmission is mainly on the outer border of the feet and these runners are prone to ankle sprains. Supinators tend to have high arches.

### **Fit the shoe to running & not running to shoe!**

In the selection of running shoes, attention should be paid to the running characteristics and fit the shoe to the characteristics of the runner.

In the most basic running shoe design, shock absorption features high in the design list. This is characterized by the thick cushion at the heel area of the shoe with different materials using used by different manufacturers. The heel counter is an important part of the shoe as it serves to stabilize the hindfoot on heel strike. The midsole is usually soft to permit rollover as the foot advances in the stance phase.

For pronators, the medial support is important. At the midfoot, this takes the form of an arch support and medial post at the big toe. The support on the medial side prevents excessive collapse of the medial column and corrects the running biomechanics.

For supinators, lateral support is important. This prevents the hindfoot from excessive inversion resulting in ankle sprains.

### **The Long & Short of it**

We are familiar with the importance of buying the right fit of shoe. However, in practice, many people are squeezing their feet into poorly fitted shoes and developing pains and aches. A few tips to effective shoe shopping.

- a) Buy shoes at the end of the day. Feet expands as the day go by and it is better to buy shoes a touch bigger because feet expands as you run
- b) Wear your running socks to buy shoes
- c) Width is just as important as your shoe length. Some manufacturers produce shoes with different widths for the same shoe length to fit the different toe widths. It is advisable to buy shoes that fit both in length and width for maximum comfort in running. The toes should not feel squeezed together when running as this will lead to stress points and bunions
- d) Buy with your head not your heart. Sometimes the design of the shoe catches your attention although the characteristic does not match your running style. Buy the shoes that best fit your running style as you will not look good running with sore feet.

- e) Buy your shoe within your budget. Running shoes do NOT last forever regardless of what the advertisement tells you. As such, buy a pair that fits your purpose and will not cause you too much pain to replace. The average shock absorbency lifespan is about 500 km or 6 months, whichever is earlier. As such, be prepared to change 2 pairs of shoes per year and not splash on an expensive pair and hope it last forever.