

## How to Choose a Running Shoe

From ePodiatry.com

Running shoes are the most important piece of equipment that a runners has. They help prevent injury and they may help the running gait be more efficient. The running shoe market is huge and most of the running shoe companies make significant investment into the technology and science of running shoes.

### **The anatomy of a running shoe:**

Running shoes have become more complicated over the years, but still consist of some basic components:

The outsole: This is the treaded layer on the undersurface of the shoe, usually made from carbon rubber or similar material. It resists wears and provides traction. It may also have a studded or waffle design to enhance traction on softer surfaces.

The midsole: This is considered the most important part of running shoes as it is the cushioning and stability layer between the upper and the outsole. The most common materials for the midsole of running shoes is ethylene vinyl acetate (EVA), polyurethane (PU) or a combination of the two. Often there is a dual-density midsole that has a firmer material on the inner side (medial side) to help limit pronation (rolling in) of the foot. A lot of proprietary technologies developed by different manufacturers go into the midsoles of running shoes (eg air, gel and high-tech plastics materials).

The upper: This is the part of the shoe that wraps around and over the top of the foot. It may be made of a synthetic material that is lighter and breathable (to reduce heat from inside the running shoe). The tongue of the upper should be padded to cushion the top of the foot against the pressure from the laces. Often, at the back of the running shoe, the upper is padded to prevent rubbing and irritation against the achilles tendon.

The heel counter: This is a firm and inflexible cup which is built into the upper of running shoes and surrounds the heel. It is usually very firm so that it can control motion of the rearfoot.

Post or footbridge: This is the firm material in the midsole which increases stability along the inner side (arch side; medial side) of the running shoe.

### **How to choose running shoes:**

All the runners need the best protection that running shoes can provide - the running shoe needs to absorb shock, control motion, be flexible and be durable. Because of the complexity of individual foot biomechanics and the complexity of running shoes on the market, it is usually a good idea to go to a specialty running shoe store as they will have the expertise to help you find the best running shoe for your individual needs.

To help you get the best shoe, here are some tips that will help:

- shop in the later part of the afternoon - feet get bigger during the day and they will get bigger when running
- wear the socks that you would normally wear during running
- a number of other factors should be taken into account when deciding which shoe is best for you - such as how much you run; how heavy you are; presence of any specific foot problems

- it often can help to bring an old pair of shoes with you, so the sales person can see where your shoes tend to wear the most

### Which is the best running shoe?:

There is no best running shoe. Every runner is different; every brand of running shoes is different; each model of running shoe is different - the challenge is to match the features of each runner to the features of a particular brand and model of running shoe. This is why going to a specialty running shop where specialized knowledge provided is so important. If you are comfortable in your knowledge of your foot biomechanics and the type of shoe that is most suitable for you, we recommend online purchases here.

### How to decide which type of running shoe you need:

The first step is deciding the type of foot you have - it is probably the most important aspect of matching a brand and model of running shoe to the individual. During normal running (and walking), the outside of the heel strikes the ground first (supinated position) - this is why the wear is common in this area. The foot then rolls inward and flattens out along the longitudinal arch-pronation (pronation). The foot should then supinate by rolling through the ball - this helps make the foot a rigid lever for efficient propulsion. A number of different biomechanical problems can interfere with these normal motions. A running shoe can help facilitate this normal function and help overcome many of the minor biomechanical problems that interfere with a motion. An inappropriate running shoe can actually have the effect of interfering with this normal function.

Usually, most runners who develop an injury either supinate (roll out) or pronate (roll in) too much. Normal amounts of pronation and supination are needed for normal function, but abnormal amounts increase the risk for injury.

Excessive pronation is the most common cause of running injury. A pronated foot rolls inwards at the ankle, the midfoot bulges inwards and the longitudinal arch flattens. Those who over-pronate generally have very flexible and unstable feet, so need running shoes with a lot of motion control. A motion control shoe has design features that give a high level of support - a firmer anti-pronation post on the inside of the midsole; a firm or dual density midsole; and a firm heel counter.

A supinated foot rolls outwards at the ankle and has a high arch. They tend to be more rigid and are very poor at absorbing shock, so they will need running shoes with a lot of cushioning. Cushioned shoes tend to be poor at motion control.

The amount of excessive pronation or supination present will determine if you need a neutral running shoe with an even amount of mild motion control and mild shock absorption; or a running shoe designed for mild, moderate or severe amount of pronation, with mild, moderate, or severe motion control or stability; or a running shoe for mild, moderate or severe amount of supination, with varying degrees of shock absorption or cushioning.

### How to fit running shoes:

Once the type of running shoe is matched to the type of foot, several brands and models should be tried on for comfort and fit.

### Tips on how to make sure the shoe fits:

- check for adequate length by determining if there is at least a half-thumb's width between the end of the longest toe and the end of the shoe. Quite often the second toe is the longest toe, often called "Morton's Toe".
- the toe box should allow the toes to move around.
- the shoe should have adequate length at the widest part of the foot - it should not be too tight, but the foot should not slide around either.
- if in doubt, err on the larger size.
- the heel counter should fit snugly - the heel should not slip and rub.
- go for a run in them - how do they feel?
- try several brands and models in the type of running shoe that you need - they will all have different fit and comfort characteristics.
- get both feet measured (most people have one foot that is bigger than the other - this may or may not be a significant amount) - the running shoes should be fitted to the larger foot.
- make sure the running shoe sole flexes easily where the foot flexes.
- if you have orthotics, fit the shoes with them in. Also, buy shoes with insoles that can be removed so you can modify or replace them with orthotics.
- Do not rely on a break in period - running shoes should feel good the day you buy them.

### How long do running shoes last?:

This is very dependant on how much time is spent in the running shoes. The midsole, which is the important cushioning and stability layer of running shoes, usually wears out before the outsole. When this happens the running shoe loses its functional stability. The best way to check for this is to look for creasing of the midsole material in areas of high load. Also monitor the torsional (twisting) stability of the shoe.

As a general rule, you should be able to get up to 300 – 500 miles from a running shoe, depending on your wear tendencies.