health & fitness

Running Shoes

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By Ben Pearl, D.P.M.

There here are different approaches to selecting a running shoe. Sticking to the basics like the old adage, if the shoe fits wear it, will produce more consistent results, than selecting a shoe based on a new high-tech feature or an oversimplified algorithm.

Runner's World has popularized the idea of looking at an impression of your foot in the sand or on a towel after you take a shower and matching this impression with one of three prototypes; high arch, normal arch and low arch. These shoes are correlated with a running shoe type. A cookie cutler approach does not address the advances in your foot structure that make one shoe better than another.

Every foot has a unique structure, which will influence function and only partially be captured by a flat impression.

The shape of your foot is like a snapshot; it is not the whole movie so that you gain some information but not the whole picture. This is ultimately why your emphasis should be on fit. An example of how you end up selecting the wrong type of shoe is someone who matches their foot as a low arch and incorrectly selects a pronation control shoe.

Pronation is the process of rolling the inside of your ankle towards the ground. It is normal to have some amount of pronation particularly when you are running. A person with a light frame and an arch that flattens when weight beating and might be better suited with a shoe that concentrates on stability. They might also already have on orthotic

(a prescription arch support) and not need the additional pronation control. They could have a painful area under the ball of their foot on the outside, which might not respond as well to more restricted motion towards the inside. These are only a few of hundreds of scenarios where there are overriding circumstances that confound the snap shot approach. Determining how much pronation that is normal lies in the eye of the beholder. The best person to do this is a sports medicine professional such as a podiatrist, or other health professionals that deal with feet.

When you buy a running shoe it is important that you have them fit after some activity so your foot will be swollen similar to when you are running. If you use orthotics you should bring those with you so that you can make sure the orthotic shoe combination is a good fit. You will usually need to remove the removable innersole in a running shoe if you use an orthotic.

Companies of running shoes are constantly reconstructing shoes to stay on the cutting edge. Materials are now selected using the same technology that NASA uses to analyze the composition of rocket and space suit components. This is called finite element analysis. For example, a midsole material may be desired that is springy but does not bottom out quickly. Selected materials can then be laminated together to try to achieve a desired goal. This sounds great but sometimes there are problems incorporating this data into a very complex model; human locomotion of the foot.

The main features of the running shoe include the outer sole, midsole and upper. The outer sole is analogous to the outer tread of a tire and provides the traction for the shoe. The midsole is the next layer and is the primary shock absorbing layer. The upper is the material that is at the instep. Pronation control features may take many forms. Roll bars, wedges and increased density in the midsole materials.

New bells and whistles on a running shoe are sometimes introduced for the same reason a new feature on a car is introduced. Sometimes there is substance behind the new model change and sometimes it's about selling cars or in this case running shoes. The patent life of some of these new technologies can influence when a new technology is introduced. A patent has a twenty year life cycle. A case in point is a major running shoe company that has advertised a shoe for over a decade with a sole filled with air. There was even a window put in so that you can actually see the air.

A new technology introduced by the same shoe company is purported to have an energy return insole. It has catchy design with one material resembling springs surrounded by a matrix of another material. The sole is also supposed to last longer before bottoming out. This may have some merit, but it is also possible that there is no substantial value to the added price of the shoe. The basic features are what is most important.

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