

SHOE WEAR AND SHOE SELECTION

BY DOUGLAS F. TUMEN, D.P.M.

Do you pronate or supinate? The answer may surprise you, especially if you think you are a supinator.

Many runners decide what type of running shoe to buy based on the answer to the above question. Most often they do this by looking at the wear pattern on their shoes. Doing so is deceiving and can lead to choosing the wrong shoe, because few runners are excessive supinators.

PRONATION AND SUPINATION

To better understand this matter, let's start by examining what's normal. To run properly you must both pronate and supinate. When your heel initially contacts the ground (most runners run heel-to-toe), pronation begins.

Pronation is necessary at heel strike for two main reasons: it allows the foot to adapt to the terrain and it allows shock to be absorbed. Pronation basically turns the foot into a loose bag of bones. To demonstrate the opposite, try walking with a stiff, locked foot; you will quickly realize why pronation is necessary.

As the foot continues forward it must end its pronation and ready itself for toe-off, which leads to supination. Supination turns the foot into a rigid lever, as opposed to the loose bag of bones pronation causes. The foot is prepared to carry forward body weight in an efficient, protective manner. Thus, with normal biomechanics all runners should both pronate and supinate. The important question, then, is "Do I pronate or supinate excessively?" Looking at shoe wear alone can give interesting information but it is often misleading. Let's examine the matter of shoe wear more closely.

SHOE WEAR GIVES CLUES

Most runners assume that if their shoes wear out on the inside heel (medially), they pronate, and if their shoes wear out on the outside heel (laterally), they supinate. The first half of this statement is almost always true, while the second part is most often not.

That is, you are probably an excessive

pronator if your inside heel counter wears out, but if your outside heel counter wears out you may be either an excessive supinator, an excessive pronator, or you may have normal biomechanics.

Lateral shoe wear does not automatically signify supination for the following reason: Where your heel touches the ground does not determine the foot's motion after it is on the ground. Remember, pronation occurs once your foot is on the ground. So you could land laterally (on the outside), but your foot's motion after impact is usually in the direction of pronation. Here, then, is an example of lateral shoe wear without excessive supination. Again, just because medial shoe wear signifies pronation, lateral shoe wear does not automatically signify supination.

DOES ANYONE SUPINATE?

So who does excessively supinate? The most likely candidate is someone with a very high arch which does not flatten out when standing. This type of foot, which is not common, has difficulty pronating because of a limited range of joint motion, resulting in an extreme lack of shock absorption.

Because of this lack of shock absorption, it is easy to predict a

supinator's likely injuries: plantar fasciitis, heel spurs, metatarsal stress fractures, and knee pain. (These injuries are not unique to supinators, however, so don't assume you supinate just because you get them.) With this in mind, supinators fare best in well-cushioned, flexible running shoes.

Those runners who previously thought themselves supinators should determine if they have normal or excessively pronating feet. Because it is difficult to view pronation by looking at your feet while running, this is best done with a video camera that has slow motion playback from behind. Check with a sportsmedicine podiatrist for this service and other ways to find out your running style.

If you do pronate, you are susceptible to injuries caused by muscular and skeletal fatigue. Excessive pronation makes the muscles of your feet and legs do extra work in an attempt to limit the foot's pronation, which means these muscles never get a chance to rest. Tendinitis-type injuries are common for pronators, as are many of the major overuse running injuries, such as runner's knee. Pronators should look for shoes with motion control features. They need shoes built with firm materials, rigid or reinforced heel counters, and reinforced midsoles.

GENERAL GUIDELINES FOR SHOE SELECTION

IF YOU HAVE

A rigid high arch

A "normal" arch

A flexible low arch

LOOK FOR

soft midsoles
curved last
low or moderate rearfoot stability

firm midsoles
semi-curved last
moderate rearfoot stability or
external stabilizing device

firmest midsoles possible
straight last
high degree of rearfoot stability
uppers with substantial medial
and lateral support

CHOOSING YOUR SHOE

Given all this information, how should you choose a running shoe? First, try to determine your foot type and running style as discussed above. Avoid shoes that seem to have caused you injuries. If you have been running injury-free, stick with a similar style. Have a sportsmedicine professional, experienced running shoe store salesperson, or AR&FA make

recommendations if you want new shoes.

Finally, realize that just because a shoe is advertised as an anti-pronation model, it might not rid you of pronation problems. Your self-diagnosis may be off or the shoe may not give you as much motion control as you need. If your shoes don't seem to help, have your feet evaluated to view faulty mechanics and determine if orthotics are necessary.

Douglas Tumen is a podiatrist who practices in Kingston, New York. A specialist in podiatric surgery and sportsmedicine, Dr. Tumen is active in his local running community and has run the New York City Marathon six times. He boasts PRs of 17:50 for 5K and 37:56 for 10K. The accompanying chart was provided by Ernest Shiwanov, technical services manager for Turntec shoes.