

Why Kenyans Run Faster



FESTUS LANGAT, ORIGINALLY OF KENYA, CROSSES THE FINISH LINE AT THE 2008 VANCOUVER SUN RUN IN 29:26.

BY NOW, THE Pose or Chi methods of improving running gait are well known. Maybe you've tried on one of the new breed of running shoes made by Newton or Nike. Is there a revolution afoot—one aimed at tinkering with something as elemental as the way we run? Can it make you a faster and more natural runner?

All the fuss is about a shift from the traditional heel-strike gait pattern to forefoot landing. The premise behind this movement is that forefoot landing is more efficient and results in fewer overuse injuries. Does this translate to improved performance? The latest research seems to indicate so. Consider the Kenyans: they are recognized for their success at distance running, having won three times as many Olympic medals in distance running as any other country in recent years. And if you've ever watched one of their stars glide across a finish line, body thrust forward and toes leading the foot, you'll know they represent the epitome of running efficiency.

Researchers have begun to study the elite Kenyans to determine what factors contribute to their extraordinary running performance. A 2008 study in the *International Journal of Sports Medicine* found that Kenyan runners have a low body mass index, low body fat, and slim limbs. Interestingly, they also found that elite Kenyan runners travelled further to school (by running) than their Kenyan non-elite counterparts. But does this explain their dominance? Surely most

distance runners are skinny and spent lots of time running around as kids.

What about the Kenyans' gait? The researchers found that their elite runners have a short ground contact time, faster cadence, and greater leg stiffness values than other populations. They theorized that these gait characteristics—indicative of forefoot landing—result in good running economy.

Test yourself by running barefoot. How do you land without the support of your shoe? Most people will naturally land on their forefoot or close to it. Do you think the Kenyans were running with today's cushioned running shoes to and from school? Most likely they were barefoot or in a much cheaper shoe than we are used to. The research on landing patterns commonly compares barefoot running (akin to forefoot landing) to shod, or heel-strike, running.

Foot-strike patterns will vary depending on speed: the higher the speed, the greater the tendency toward a forefoot-landing pattern. They will also vary with footwear. The greater the heel cushion in a shoe, the more likely one is to heel strike. The body naturally gravitates to whatever gives it the best cushioning.

So if it works for the Kenyan gazelles, will it work for us? Is it more efficient for your average runner who's used to big wads of expensive foam—sold as performance shoes, of course—to cushion her feet?

Research comparing shod (heel-strike) running and barefoot (forefoot) running found that shod runners had a slower cadence, higher vertical displacement, and increased ground contact time. They also used more energy to run than their barefoot counterparts. Barefoot runners were found to have shorter stride lengths, less vertical movement and impact force, lower eccentric work demand on quads, but greater demand on calf muscles. Overall, running barefoot was found to be more energy efficient and used different muscle groups than shod running, but there was no difference in speed.

Does forefoot striking result in fewer injuries? Research shows that shod runners have higher vertical displacements than barefoot runners, which results in more injuries. Heel striking is also associated with more pronation motion, which can be a cause of running injury. Further, forefoot running puts less load on the knee, another area of concern for runners.

But forefoot running has its own stresses, specifically on the Achilles tendon and the whole musculo-skeletal system. Without allowing for tissue adaptation (i.e., progressing at rates that allow your soft tissues to get used to the stresses placed on them), a forefoot runner may suffer injury to the body's muscles or tendons.

The research tells us that it works for the Kenyans but that this is no guarantee for running success. With lots of Pose drills and a gradual shift to less supportive shoes, forefoot running has the potential to make you more efficient and potentially faster and less injury-prone. But those Kenyan superstars have a lot of other advantages besides flimsy shoes and an efficient gait—like a daily six-mile jaunt to and from school. ■

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