

First in a Series

# Strengthen Your Feet and Ankles to Improve Walking Safety and Performance



Photos courtesy of Johnson Outdoors Inc.

By Ray McClanahan

As more Americans turn to walking for fitness, fun, and the pursuit of health, opportunities to participate increase every year. Walkers benefit from relay events specifically designed for them. Racewalking opportunities challenge those who wish to compete and find their own personal best. There are better coaching resources, seminars on walking, and multiple opportunities to connect with other walkers for group walks.

Walkers also find many exciting opportunities to get off the concrete and blacktop and pursue walking on more natural and yielding surfaces, such as sand, grass, gravel, snow, and mud. The Wildwood Trail in Northwest Portland boasts some of the finest mud around for a few months of the year before turning to hard-packed dirt, making for some amazing and ever-changing walking terrain.

As walkers venture off-road, they often experience a totally different physical walking experience than they have previously had on a flat, hard surface. They are challenged by walking up, down, and along hillsides. They find themselves needing to look down in search of roots, rocks, and uneven areas. They find a greater need for their bodies to accommodate different ground surfaces.

This is where I come in. I am the keeper and preserver of the foot and ankle joints of walkers and runners. I am the sports podiatrist. I realize the crucial role played by the multiple joints of the walker's feet and ankles that enables the walker to traverse undulating ground while keeping the body upright. I am keenly aware of how strong, adaptable feet and ankles can allow a walk-

er's entire body weight to pass over the talus bone painlessly, even when carrying a heavy pack.

This is accomplished by allowing the foot and ankle to do what they do best: adapt to changing ground and relay tactile details to the brain. The brain uses this information to activate the muscles of the body in response to what was sensed by the foot, ankle, and lower leg. When this happens as it should, walking is accomplished and perceived in an efficient and flowing manner.

Unfortunately, most Americans have not had the opportunity to develop strength and adaptability in their feet and ankles over their lifetimes. Exacerbating the problem is the current tendency of footwear retailers to promote certain technologies built into a shoe or boot, such as motion-controlling or anti-pronation features. Some Medical professionals also favor prescribing footbeds, orthotics, and arch supports. The philosophy of the anti-pronation crowd implies that there are defects in the adapting and sensing mechanisms of the feet and ankles of walkers, and that these defects can be corrected by applying some method of partial immobilization built or placed into the footwear of walkers.

In contrast to this common view, it's my belief the human body was specifically designed for the activity of walking and will involuntarily develop strength and adaptability of the feet and ankles, except under certain select circumstances. The most significant of these circumstances is the use of footwear when walking. Close second, in severity of negative long-term consequences, is the lack of awareness that most footwear designed

for walking is the most likely reason for injury experienced during extended walking. Because of this lack of awareness, footwear is not considered in the differential diagnosis of a walking injury.

Many walkers who have sought consultation with us have discovered the benefits of transitioning to footwear that enables their feet and ankles to function as nature intended them to. That is, to be strong, flexible, and perceptive of the ground surface being walked upon.

Future installments of this series will explain how to make this transition safely and comfortably. ■

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Second in a Series

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Spending time in nature is definitely a secret to health. To that end, I recommend you take it all in. Literally. Right down to feeling the sand between your toes or the moss under your heels. Or in my case, jumping up and down barefoot, in the “icky-sticky-mud” with my 2-year-old-daughter, Kaiya, after we have watered our garden.

Whatever your occasion might be to enjoy the rejuvenating effects of nature, make certain not to leave your feet out of the experience. After all, like your hands, feet are specifically designed to sense the environment. Your feet can sense differences in heat and cold just like your hands; they are equally sensitive to pain, as you will know if you step on a sharp object that punctures the skin.

Your feet are also capable of adjusting to countless ground configurations while keeping your body upright and moving forward. These natural adaptive mechanisms are sometimes hampered by footwear that is designed to be used for walking on hard, flat surfaces; this kind of footwear restricts movements that are useful when walking on soft or uneven terrain.

Examples include anti-pronation or motion-controlling footwear. When you are on ground that is varied, like many of the trails in the Pacific Northwest, there will be occasions when your feet will need to pronate, even over-pronate to avoid an injury.

Yes, you read that right, in some instances pronation is a necessary protective mechanism.

Consider the example of my wife, Shannon: She suffered an ankle sprain while we were walking on a trail in Bend, because the footwear she was wearing would not allow her foot and ankle to pronate, or accommodate the sloping cant of the trail. Instead, the footwear directed her foot and ankle in the direction of supination, which is a rolling to the outside, the same basic direction that causes an inversion ankle sprain.

I have seen this same scenario too often in my practice, and so I want to educate walkers who are exploring hiking or other off-trail activities. The solution is relying more on the ability of your feet and ankles to sense and adapt to ever-changing ground surfaces. We all have a special joint below our ankle joint, the subtalar joint. If you hold your lower leg off the ground and

rotate your foot in circles, you can appreciate how adaptable this joint is.

The subtalar and related joints in our feet and ankles should adapt to changing ground surfaces. Far too often another part of our body ends up making a less-than-ideal adaptation because the majority of footwear being used for walking, hiking, and running activities inhibits the motion around these very important joints.

If you wish to effectively use your subtalar joints while walking, there are several important points to consider: First, your footwear needs to be flexible. This can be tested by grabbing your shoe at the toebox and the heel and giving it a twist. The more flexible the better. Second, your footwear needs to be flat, from the back of the heel to the ends of the toes. Third, your footwear needs to allow your toes to spread wider than the ball of your foot.

Most walkers are unable to spread their toes, because the muscles necessary to accomplish this action have been weakened by the unnatural position created by most modern footwear.

Bear in mind that most American walkers have walked on flat surfaces and worn restrictive footwear for most of their lives. For these reasons, it is recommended that you pursue off-road walking slowly, while gradually easing into more flexible footwear. If you give your feet and body time to adapt to progressive changes in surface and footwear, you can expect to reap gains in foot and ankle strength, as well as flexibility, balance, and proprioception, which is the ability of your body to perceive its environment.

Tune in next issue for more discussion on the health of your feet and ankles.

Happy Walking! ■

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## Last in a Series Strengthen Your Feet and Ankles to Improve Walking Safety and Performance

By Ray McClanahan

Hopefully many of you responded to the challenge to give your feet and ankles a good workout by walking on softer surfaces in more flexible footwear.

Soft walking surfaces are not hard to find in the Pacific Northwest. Unfortunately, flexible footwear for walking and hiking is hard to find. The reason for this stems from unproven, outdated philosophies surrounding why walkers get injured.

It has been suggested that walkers get hurt by impact forces when their feet contact the ground. Consequently, more cushioning has been added to walking footwear, resulting in the elevation of the heel above the forefoot. This dampens the vital information that the nerves of the foot need to send to the brain to move the body forward.

It has also been suggested that walkers get hurt because their feet are pronating — when the ankle tips inward — so footwear designers have added motion-controlling, anti-pronation, or stability features to most walking footwear.

Despite these so-called advances in

footwear technology, more walking injuries are being sustained today. I believe lack of awareness of normal foot anatomy and foot positioning by footwear designers is the primary reason why walking-related injuries occur.

To understand normal foot anatomy, take a careful look at an infant's bare foot, or travel to a country where footwear is not worn. Normal foot anatomy is when the heel and entire forefoot are level with each other.

This rarely happens in any walking shoe, because the heel is elevated twice as high as the ball of the foot. Because of a design feature called "toespring," the ends of the toes are also held higher than the ball of the foot.

The negative effects of heel elevation and toespring are compounded by the fact that most walking shoes have a toebox that gets narrower beyond the ball of the foot. This tapered toebox is also not in keeping with normal foot anatomy, which demands that toes spread wider beyond the ball of the foot.

Because these design flaws ultimately cause injury, I don't recommend walking shoes to my patients. Instead, I suggest walking in footwear that is designed to position their feet as nature intended.

For this reason, we have our walkers training in various types of footwear that might not be considered "walking shoes."

One of the more popular brands satisfying these criteria of being flat, wide at the ends of the toes, and flexible is made by a company called Crocs. They recently launched a lace-up version of their footwear, which enables the fit to be customized for each walker's individual needs.

Shoe manufacturer Fila has also done a better-than-average job with their new "Corsa Sette," a flat and flexible racing shoe. Its only shortcoming is a tapered toebox. However, the material is so flexible that it is not much of a problem for walkers who wish to pursue normal forefoot anatomy by wearing toe spacers during walking activities.

Some of my patients have had good experiences wearing Teva sandals, aqua socks, moccasins, and wrestling shoes.

When it comes to selecting footwear for walking, resist the temptation to believe that technology will keep you from getting injured or increase your performance. The opposite has routinely been shown to be the case. In the case of footwear, less truly is more.

Transitioning to walking on softer surfaces in more flexible footwear has enabled many walkers to develop better foot strength, flexibility, and balance. It should be understood that patience is necessary, and some soreness is to be expected as your body adapts to more natural movement patterns.

I wish all a lifetime of healthy walking. ■

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Disclaimer: Dr. McClanahan does not receive compensation from any of the footwear manufacturers listed above.