

Why We Train Barefoot

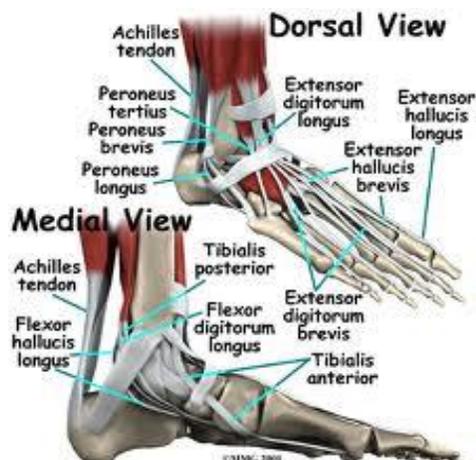
By Dana Varela

Have you ever gone through a spooky house at Halloween in pitch, black darkness? Using your sense of touch to find your way through every unknown bend and surprising turn? I bet you trusted your hands to feel and find that safe path, protecting your blinded movement forward, right? The brain relies on this proprioceptive information our hands provide. Well, our feet are no different. The brain equally imparts feedback from our feet to allow our bodies to move through space safely.

Our skin is covered with over 600,000 sensory receptors that feed our brain with the information we need to know like where we are in space, if we are cold, if we are in danger, or what just plain feels good. These nerve endings provide our brain with knowledge of what our body is or should be doing consciously and unconsciously. Your feet touch the ground first. Messages are sent to the brain, then the central nervous system, then to muscle fibers in your legs, hips, trunk and all the way up your body to make efficient movements happen. So what happens when this first source of sensing environmental information is covered? We know our body is intricately connected. Every system is integrated to work together. If the first points of contact we have, meaning our feet, are clouded in shoes then we have essentially distorted or dimmed what our sensors are trying to communicate from our feet to our brain and muscles through our proprioceptive awareness. **WARNING!**



Our feet anatomically are very impressive. Of our body's 206 bones, 28 are in each foot; thus totaling 25% of our body's skeletal needs. The foot also has 33 joints, 107 ligaments, and 19 tendons, along with a large amount of these proprioceptive sensory receptors. The bottom line is our feet are designed to be strong, resilient, and support the entire weight of our bodies.



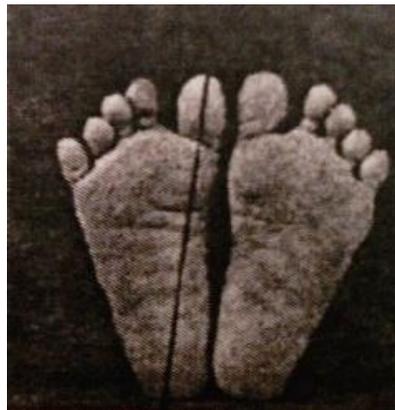
The muscles of our feet need to work well. Shoes not only dim the proprioceptive awareness of our feet, but compress the bones and muscles as well. The joints are unable to move through their designed full range of motion; therefore, the muscles are inhibited from working correctly. Continued repetition of this distortion weakens the muscles. The brain begins shutting down the neural connections that are not being used and starts finding ways to restrict our movements to protect us, causing compensations and imbalances within our bodies that reduce our ability to move well and increase our potential for injuries. It is a use it or lose it situation. As neural connections begin shutting down and muscles weaken in the foot, symp-

toms like the loss of our arches (flat-footed) can occur. We can lose our dexterity. We should be able to separate our toes just like our fingers. Not having these abilities presents a lack of motor control, which is very important to our stability and ability to move efficiently.



Effects of wearing shoes

Note the distorted feet, match that of the shoes.



Characteristic of Normal feet:

- Straightness and separation of toes
- Widest part of foot at toes
- Long axis from big toe down through the center of the heel.

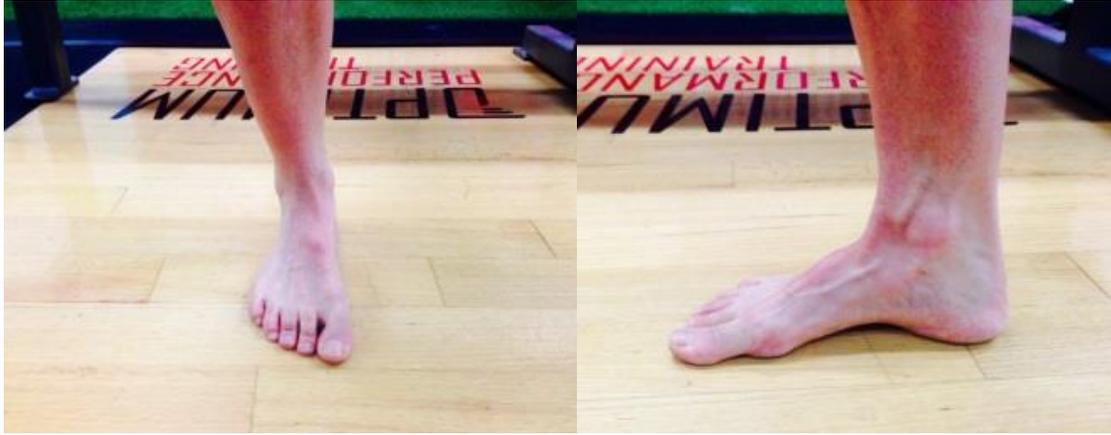
The feet should come in contact with the ground facing forward. When there is a good gait pattern, the big toe will touch the ground. This seemingly simple thing is very important. The big toe is the trigger to the whole kinetic chain; creating good alignment from the toe, through the ankle, knee, hip, and right up the chain. Pushing down through the big toe is crucial to moving and locomoting well. By locomoting well, energy is transferred through the body more efficiently. This allows the body to move more effectively with a biomechanical correct gait or stride. Our arches are designed to handle large amounts of compressive force. The arch of the foot should naturally be responsive. As the spring of the arch is allowed to work, the foot strengthens, the body moves better, and the brain functions better. This goes back to the intricate nature of how every part of our body is connected.



In shoes neither the toes, nor foot are ever in contact with the ground.

The bones that make up the support structure of the foot's arch are dependent on the foot's muscles to work properly. The bones are responsible for the forces that cause the arch to spread during walking, jumping, running or other activity. These bones are not fixed, but rather rotate, flex and extend during the various phases of the gait pattern, no different than the spine's vertebrae having the ability to move in order to function. If these intrinsic muscles are not allowed to work correctly, the bones may be permanently altered. Symptoms like, lowered arches, medial malleolus shift, plantar fasciitis, toe deformities and/or bunions are evidence of foot muscle weaknesses. These problems originate with the foot, but can be the root of various hip, knee, lower back and/or other musculoskeletal issues. We can tell if the muscles are working reflexively well together by observing what is called "short foot" position. With the toes and heel in tight contact with the floor the toes

should invert down and hold the surface, not round and grip. This foot position happens as a reflex from the big toe pressing into the ground causing the foot muscles to activate and the arch to rise. When this doesn't happen the toes loosen from the ground and/or lift up from the smallest toe side as well as the arch collapses and the ankle drops medially, making a "long foot" position also known as excessive foot pronation.



Short foot, good position



Long foot, bad position

We stress the need to be barefoot or in a minimalist type shoe for these reasons. Artificially supporting your arches is not going to strengthen them. They need to be used in order to be restored, work well and remain strong. The inherent and effortless result of giving your feet this needed feedback will strengthen your entire body and improve dexterity, motor control, and stability. The sensory information provided by the soles of the feet helps our movements, posture and even the smallest of details like how we breathe through proprioceptive feedback to our vestibular system. Shoes essentially attenuate all this feedback into a turned down or unheard voice. If the vestibular system within the head doesn't receive the proprioceptive message, the appropriate reflexive and conscious movement actions cannot be taken.



Allow your feet to work and do the job they were designed to do. It may take time to restore these lost functions, however we are resilient. Don't go through life "in the dark." Take off those shoes, turn up the volume in your feet and feel your body naturally become higher performing.



Example of rear elevated split squat barefoot. Note the short foot position and good arch in the loaded foot.



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