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## A RUNNER'S FOOT MANUAL: LOVING YOUR FEET

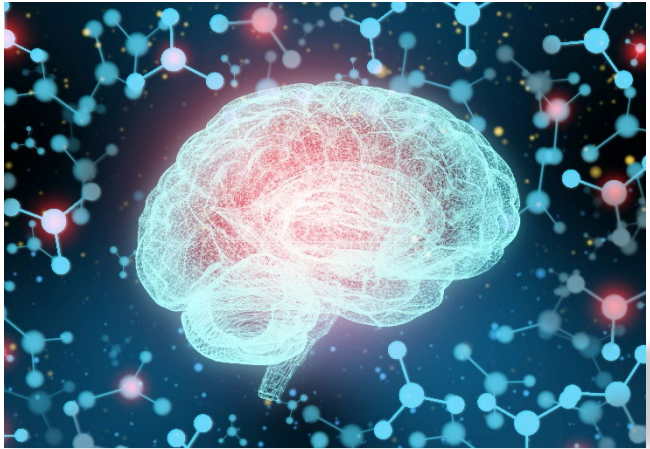
**AMAZING IN DESIGN:** The foot is an amazingly complex structure from both a mechanically and architecturally. From a functional viewpoint, it needs to be both sturdy and strong and at the same time, agile and forgiving. Each foot contains 28 bones with both feet accounting for greater than twenty five percent of all the bones in our entire body. Each foot is also comprised of 33 joint articulations and is meticulously controlled and influenced by more than a hundred muscles, tendons, and ligaments. When they all work in tandem, there is nothing quite like it in regards to function. On the other hand, when something goes wrong, the whole body can suffer.



**UNDER PRESSURE:** With each step your feet are subject to significant pressure. When running, heel strike is typically recorded at three times our weight and as the weight comes forward towards the forefoot, push off pressures can max out at anywhere between five to seven times your body weight with each step. For a 165 lb. Runner that is up to 1000 lbs. of pressure on the foot with each footstrike. If you start to calculate the average time we spend standing, waking and running, this adds up to an accumulative pressure of over 2.5 tons of weight that our poor feet are subject to on a daily basis. That is extraordinary amounts of force and pressure exerted on a relatively small structure.



**YOU'VE GOT A LOT OF NERVE!** The foot contains the highest concentration of nerve endings that is found anywhere in our bodies. In reality, our feet represent one of the body's main data (sensory) entry points that allows for us to be able to do complex activities such as running. Our feet are a vital sensory organ and function as a part of a complex sensory machine and super-computer which is supervised by your brain that is constantly calculating external data such as force, stress, and position of the foot relative to the ground. In addition, it also monitors internal information such as oxygen levels to hard working muscles, temperature modulation, blood flow regulation, and coordination and control of complex motions capable each joint in our feet. That's a lot of supercomputing!!! Each step is truly a miracle, that unfortunately we usually take for granted until one of these functions begins to falter with the onset of an overuse injury or trauma.



**LONG DISTANCE RELATIONSHIP:** The stage person walks about 7,500 steps per day. On top of this, a runner who goes 10 miles will add about 16,000 steps to their total. Over a lifetime, this means that the average person... not including runners who log way more steps, circumnavigates the Earth's circumference over 5 times by the time they are 80 years old. That is a HUGE volume of steps! When you add in pressure and stress, there are very few complex mechanical things that we as humans can engineer that would be able to withstand so many cycles without complete failure or breakdown.

Foot ailments can become your first sign of more serious medical problems. Your feet mirror your general health, so conditions like arthritis, diabetes, nerve and circulatory disorders can show their initial symptoms in your feet.

**LOVE AND MAINTINANCE:** Much like a car, routine maintenance can go a long way to keeping your feet running. Show some love and respect and they will continue to reward you with many miles of exercise, scenery and happiness. Most of all they will help you achieve extraordinary FEATS!



**STRETCHWORTHY:** Stretch your calves and your feet will thank you. Tight calf muscles are the most common link to most foot pathologies seen in runners. We often see most of your lives building calf strength, but very rarely spend enough working on our flexibility. An overly tight call muscle leads to a significant increase in the amount of uneven foot pressure ultimately faulting our gait with running mechanics. Over time, with the repetitious nature of running, tight calf muscles can overload the foot with enough abnormal pressure that the ultimate battle waged between the runner's feet against the stress imposed by earth's gravity is lost. Once this occurs, the impaired nature of our foot's natural shock absorption system

can easily leave us vulnerable leading to much greater risk of injury. On the other hand (or foot in this case), proper calf stretching leads to a much more pliable and compliant system and can pave the way for increased durability over the miles and can assist us in keeping our feet moving us forward towards our most loft worthy goals.

- 1) **MIX IT UP:** A diversity in running terrain, exercise intensity, weight training, core strengthening, and recovery can help you run even longer, faster and most importantly injury free. It is well documented that to achieve the highest level of performance, one must have a multi-faceted approach to their running discipline. In order to keep the running engine primed, proper time spent in the weight room, on a yoga mat or in a Pilates studio is a must. This helps to ensure that all the muscles, tendons and ligaments that govern our feet are ready, willing and able to battle the stresses of our running routines. Also, mixing up your running routine with interval training, trail running, and track sprinting can go a long way to helping your feet condition better than just routinely pounding the pavement on daily running route.



The same applies for your shoes. Use running specific shoes for running. Know that the materials used for cushioning and support break down with mileage... but even more importantly, they break down with time, whether they are used or not. Running in an older broken-down shoe can increase your risk of injury. While getting new shoes periodically is not cheap, running in old shoes will likely cost you more in the long run, literally. Also, use cross training shoes for cross training.



Also, don't forget to rest. Just like your brain that cannot function well without a good night's sleep, the feet need for you to take time to pamper and rest them. At home, treat your feet to a good supportive recovery [OOFOS sandal](#). Your feet deserve the extra pampering and will reward you with less breakdowns over time.



- 2) **BECOME a FOOT WHISPERER:** Your feet are smarter than you think... listen to them. Pain is not normal. Ignoring foot pain can lead to more time away from the activity you love. Whether it is a stress fracture, plantar fascial strain, nagging tendonitis or joint breakdown... get it diagnosed early by a trained medical professional to ensure it is just a minor bump in the road you are running on versus ignoring it which can often lead you to halt at a dead end and force you to go another direction with your training.



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