Special to TSR

By Mark Cucuzzella

The World is Flat….if You Are a Foot

Evolution, Your Feet, and Footwear (5 subsections)

- **Health Benefits of Proper Foot Function**
- **Running Man theory of evolution**
- **Foot Anatomy 101- the Foot is Designed to be Flat on the Ground**
- **The Shoe Paradox**
- **Proper fit and What's Best for You**

Health Benefits of Proper Foot Function

The foot is more closely interconnected with the health of the entire body than we previously thought. When the foot is used properly the whole body benefits. Barefoot Motion takes a holistic look at the foot and how it effects every other bodily system.

- upright posture
- lower back relief
- less knee pressure
- stronger calf muscles
- flexible achilles tendon
- more range of motion
- healthy arches

Of the many benefits, stronger feet directly result in:

- Increased tolerance of impacts & work loads
- Increased threshold of standing & working fatigue
- Built in immunity to foot disorders

Running Man theory of evolution

Six million years ago our ancestors began walking on two feet. In that six million years the foot evovled from the flat-footed knuckle walking like that of a chaimpanzee, to what it is today, an arched foot perfect for upright, high speed running.
Scientists now know the missing link for what enabled humans to survive through periods that many other species went extinct, it's call Persistence Hunting. And the human body perfected the equipment for such high endurance running:

- an efficient perspiration system
- a respiratory system seperate from movement muscles
- upright posture
- **an achilles tendon**
- **an arched foot**

** Modern apes lack an Achilles tendon and also a key structure in the foot called the sustenaculum tali. Without these structures critical for running and arch support the ape can only run a few meters upright before resuming a quadruped gait.
resources
How Running Made Us Human

Persistence Hunt on YouTube

After an eight hour chase the prey "collapses from shear exhaustion" giving in to the ever persistent human runner

Foot Anatomy 101- the Foot is Designed to be Flat on the Ground

The foot is the least understood of all moving body parts because of the complex interworking between its many joints, tendons, nerves and more. What we do know is that the foot is perfectly built for its two most important functions: (1) absorbing shock and (2) propulsion. These functions are first controlled by the brain and spinal cord that receive messages from thousands of nerve

endings on sole of the foot. Nerves relay vital information about the ground terrain so the body can react accordingly. When the foot's sensing system is synchronized with its moving hardware the foot becomes an unbeatable, self-sufficient and adaptable machine.

"The foot is a masterpiece of engineering"

-Leonardo Da Vinci

foot facts

- 26 bones with 33 joints (making up one-quarter of the body's bones)
- over 100 muscles, tendons & ligaments (site of the strongest tendon in the body)
- over 200,000 nerve endings (densest concentration in entire body)
- over 250,000 sweat glands (expel 1 pint of sweat per day)
- a network of blood vessels

three major muscles:

- gastrocnemius (large calf muscle)
- soleus (lower calf muscle)
- quadratus plantae (sole muscles)

It is tendons that are most crucial for movement because they provide such a high amount of energy for their size, the kind of energy that can be seen by the stretching and snapping of a rubberband. The four major tendons originate below the knee and

string all the way down to the foot. The later two tendons string down along the inward side of the ankle bone, wrap under the arch, and attach at the very tips of the toes.

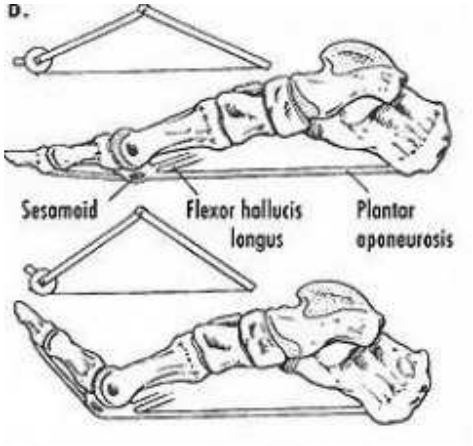
four major tendons:

- achilles tendon (strongest tendon in the body)
- posterior tibialis (supports arch)
- flexor digitorum (curls four smaller toes)
- flexor hallucis (curls big toe)

one major ligament:

- plantar fascia (tension from heel to ball of foot)

foot biomechanics



The foot's two main mechanical functions are (1) absorbing shock and (2) propulsion. At the point of ground touchdown the foot acts as a shock absorber, soft and flexible, and then in preparation for push-off the foot turns into a rigid lever. To help us further understand the workings of these functions we use a model called the Windlass Mechanism developed in 1954 and is now commonly used in various mechanical engineering applications.

Windlass Mechanism

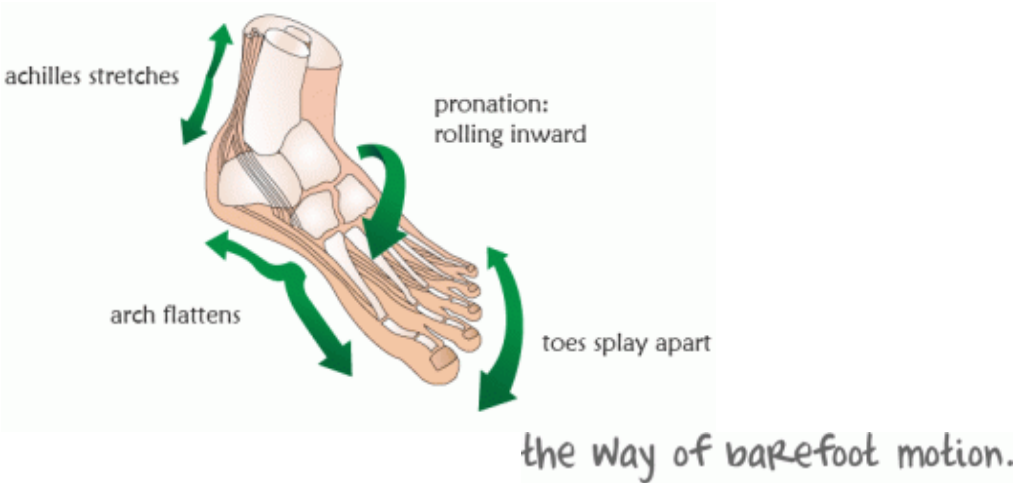
The foot uses the Windlass Mechanism upon landing and at push-off. The arch of the foot can imagined as a triangle. The bottom of the triangle is the all important plantar fascia ligament that serves as a high tension cable. When the toes are lifted the plantar fascia wraps around the metatarsal bones tightening its tension which lifts the foot's arch higher and higher. The further the toes are flexed back the higher the arch rises.

The raising and flattening of the arch is maybe the most important mechanism of the foot. Since the height of arch is controlled by flexing the toes, the toes play a critical role in both absorbing shock and propulsion. During the stride cycle as the foot

comes down for a landing the toes are flexed up so that the foot lands with the arch high like a shock absorber at full extension. Then as the body bears weight on the foot, the toes lower and the arch flattens dissipating shock in a controlled manner. Into the next phase of the stride the body moves forward and the heel lifts up which again flexes the toes up lifting the arch and turning it into a rigid lever. The rigid lever makes for an energy efficient and rapid push-off. Therefore, according to the Windlass Mechanism free movement of the toes and plantar fascia ligament are critical for proper shock absorption and propulsion.

barefoot motion

The foot has evolved to be an incredibly advanced system for movement. When in its natural state (without shoes) the foot moves in the most efficient and healthy way. It rolls, stretches, expands, and grasps the ground. The foot is so self-sufficient that it only works properly without shoes. Therefore, nothing worn on the foot can improve the foot's functions but only hinder them. For example the foot has its own built in system for absorbing shock: see the picture of the Foot's Natural Suspension System to the right.



unshoe fit:

- **NO arch support:** foot's arch needs to flatten on impact to dissipate shock.
- **NO heel cushioning:** heel needs to be flat & level in order to stretch achilles tendon.
- **NO stability or motion control:** foot uses pronation, rolling inward, to deflect shock.
- **NO cramped toe box:** toes splay apart upon contact softening the landing.

Foot's Natural Suspension System

The foot is the model for an ideal shock absorber. Most shock absorbers work in one direction, the foot functions in three. The Windlass Mechanism explains the vertical movement of the arch but it doesn't explain the other directional planes. Pronation happens in a tilting direction and in the lateral direction the transverse arch flattens and toes splay apart.

pronation

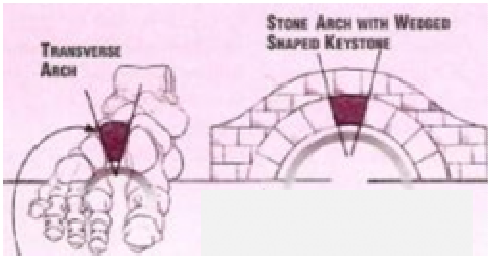
Pronation as a term has gotten a bad rap from the running shoe industry, however, it may be the most critical of all foot functions. Unfortunately, the running shoe industry has attacked "pronation" for nothing more than a marketing ploy.

Pronation is the natural motion of the foot rolling or tilting inward in order to dissipate shock. It occurs at different degrees and is best seen when running or landing from a jump. The foot lands on the outside border with the ankles turned inverted. As body weight settles down on the foot, the ankles roll inward and the foot rolls inward flattening out. Pronation cannot occur with arch support, especially the support of rigid orthotics. Support simply blocks the foot from rolling inward which causes the impact force to go up the body instead of being dissipated.

transverse arch flattening

The ball of the foot is made of five very mobile metatarsal bones. An arch spans across these metatarsals known as the transverse arch. The foot naturally rolls across the ball of the foot starting at the outside and rolling inward to the big toe.

To initiate the roll the foot touches down on the outside at the 5th metatarsal. This 5th metatarsal is very mobile and displaces easily away from the other four metatarsals making for a soft touchdown. At this point the transverse arch begins to flatten just like a leaf spring suspension system. This flattening widens the ball of the foot by about 15%. Rarely when fitted for a shoe do you account for the extent to which the foot widens. Which is why a "snug fit" can easily result in a stress fracture of a metatarsal bone.



toes splay apart

As the five metatarsals widen upon bearing-weight, the five toes splay apart. They must spread even further apart than the

metatarsals, with open space between each toe. The toes are responsible for forming a stable, wide base for the upright body. A second function of the toes is sensory proprioception. Upon touching down the toes spread across the ground so they can relay critical information to the brain, describing the level of landing surface and how the body will have to adjust its lean. Contrary to popular belief, the toes are the widest part of the foot, not the ball of the foot. Unfortunately, since fashion dictates shoe design instead of foot biomechanics, shoes are designed with tapered toeboxes, narrower than the ball of the foot.

The Shoe Paradox

The conventional belief is that for a shoe to be healthy it must be cushioned and supportive. However, the reality is just the opposite. Cushioning and support are damaging to the foot and even harmful on the body, because they alter your motion from what's natural. This concept is tough to understand, seeing that we've believed just the opposite for decades. Prior to now we haven't looked at the foot for what it is: a living, adapting, & sensing complex system. The following are some of the flaws and faults of conventional shoes:

- Cushioning blocks feeling of the ground causing loss of nerve sensation.
- Support immobilizes the foot causing muscle atrophy.
- Support leads to a dependency like "drugs for your feet."
- Even slightly elevated heels throw posture out of alignment.

Effects of Heel Lift in Pictures- figures credit Dr. Rossi

unnatural shoe technology

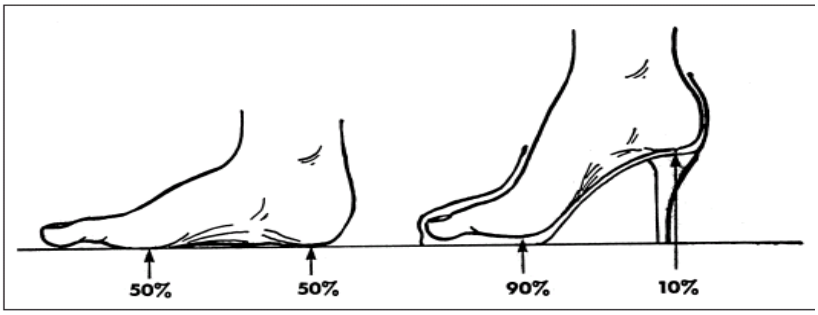


Fig. 23: Weight distribution on foot in standing, barefoot versus high heels.

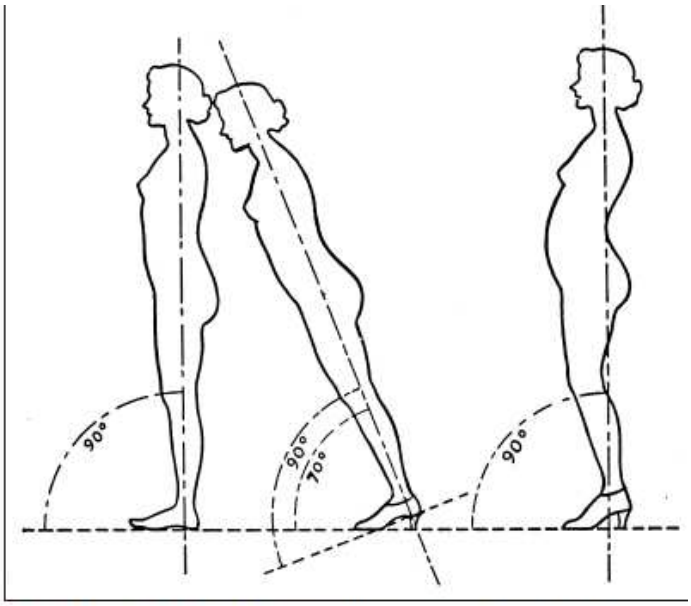


Fig. 24: Left, normal body column stance barefoot; center, tilt of body column on medium heel if body was a rigid column; to regain erect stance, column makes "adjustments" to create new body profile.

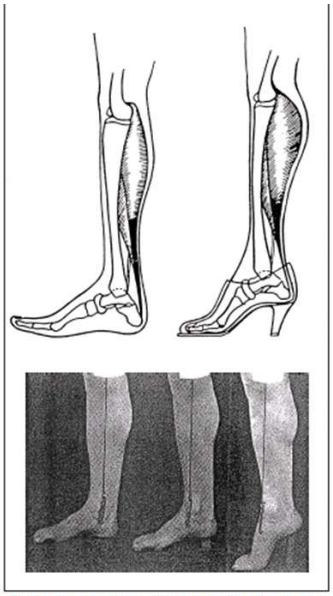


Fig. 25: Top, contrasting effect of elevated heel on foot, Achilles tendon and calf muscles. Tendon is shortened. Bottom, changes in leg musculature from barefoot to low heel to high heel.

Fig. 26: Altered angles of lower leg, barefoot to high heel. Accommodating changes required in body column joints to return lower leg to vertical position. But many women retain bent-knee stance and accompanying faulty of body posture and faulty weight fall on foot.

Line of falling weight moves forward with heels

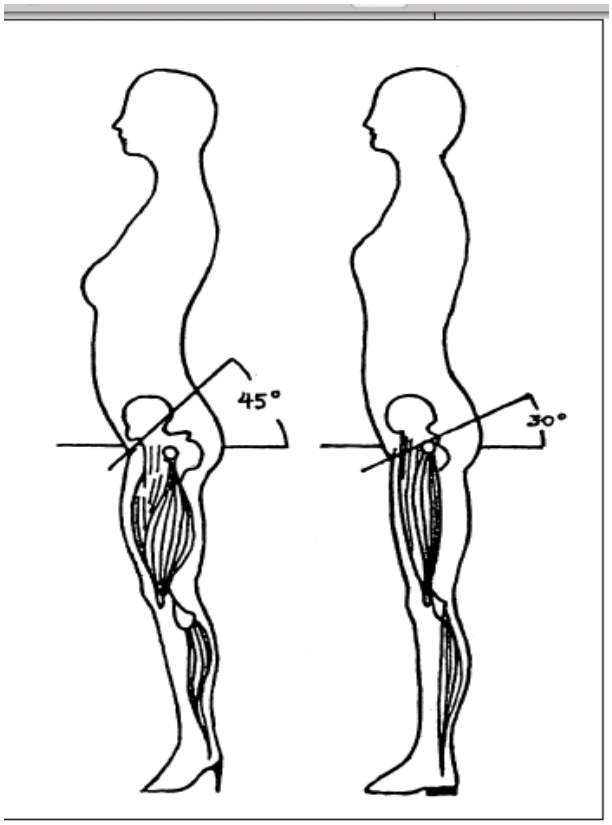


Fig. 31: Left, altered angle of pelvis on high heel. Also note accompanying changes in body contours (buttocks, breast).

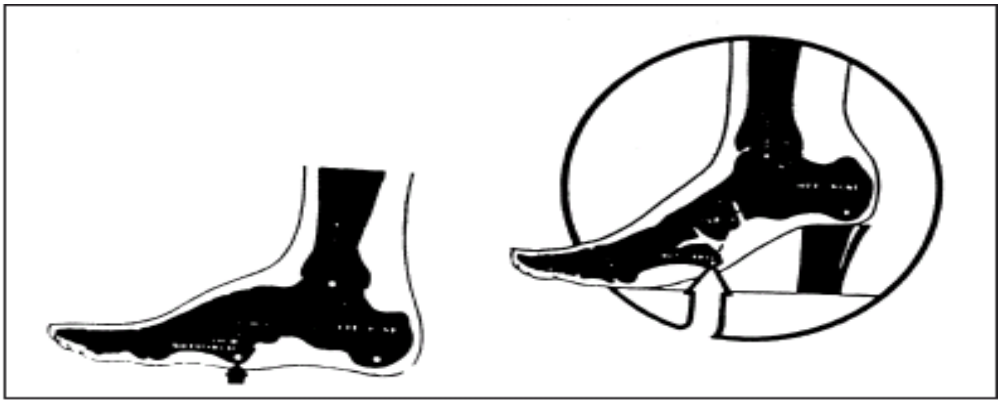
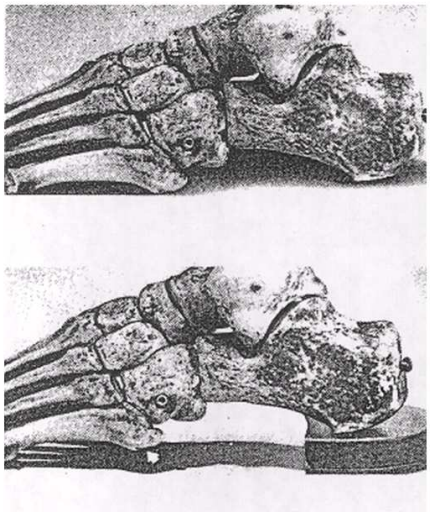


Fig. 32: Left, base of fifth ray as an important weightbearing element. Right, base of ray off ground by shoe heel, eliminating weightbearing function. Normal weightload here now imposed on other parts of foot.

5th Ray off the ground



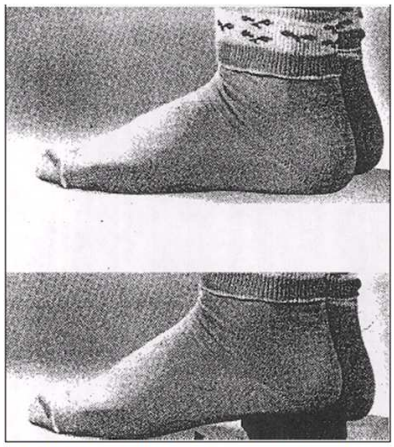


Fig. 33: Top, weightbearing function of base of fifth ray. Second, even low heel denies the ray its normal function. Third and fourth, same effect on flesh-covered foot.

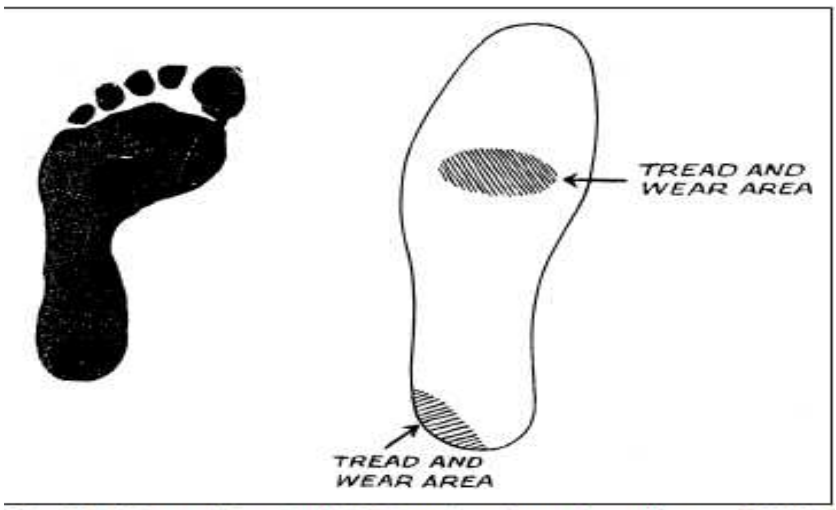


Fig. 34: Normal footprint showing large tread area. Right, tread area on average shoe reduced by 60-80 percent as a result of faulty last design, elevated shoe heel and shank, toe spring, etc.

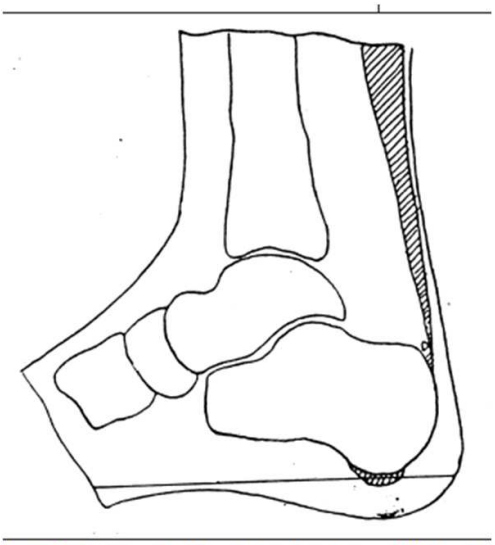
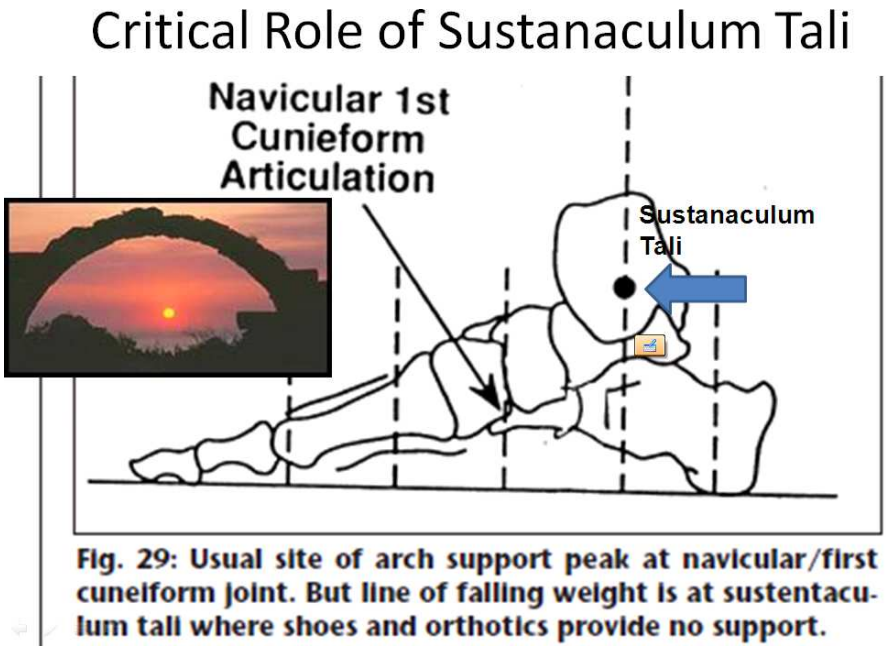


Fig. 27: Concave bottom of calcaneous, with protec tive bursa. This is normal site of heel strike, allowing foot and weight to roll forward easily with progres sive sequences of step.



Shoe Design Flaws

- **heel elevation:** Mistakenly, almost every shoe available today has some sort of heel height, this is especially harmful in athletic shoes.

- **toe spring:** (sole curvature upwards) From the ball of the foot to the toes shoes curve upwards, incorrectly lifting the toes off the ground.

- **tapered toebox**: (narrow toe area) Nearly every shoe narrows from the ball of the foot to the toes (symmetrically), however the shape of the foot is widest at the toes and offcenter from the big toe.

- **curved last:** (i.e. "crooked" last) The midfoot area of the sole is cutout denying use of the 5th metatarsal ray, which is naturally a weight-bearing bone.

*other design flaws that you need to be aware of include: motion control, arch support, plush cushioning, thick soles, shank stiffeners, and medial posting devices

articles of evidence

Footwear: The Primary Cause of Foot Disorders- **A MUST READ**

to read article click here

Dr. Rossi, a podiatrist with over 400 published articles, explains the details of how footwear design affects the health of our feet.

Main points:

- Elevated heels create a "domino effect" of bones
- Shortened achilles tendons in shoe-wearing countries
- Nearly all shoes neglect the weight-bearing function of the midfoot & toes
- Lacing shoes is nothing more than "foot corseting"
- "The less a shoe does TO a foot, the better FOR the foot"

And for fun click here and here and here

Children's Footwear: Launching Site for Adult Foot Ills

to read article click here

Dr. Rossi explains how shoes both "deform and handicap" our feet from early development. And comes up with a solution calling for podiatrists to lead the way by encouraging healthy foot development in childhood which will force shoe manufacturers, for the first time in history, to introduce shoes that "do not deform and defunctionalize feet." Interesting points:

- The Myth of Support
- The Myth of Pronation
- The Myth of Ankle Support

For another nice read on this click here.

Dr. Ray McClanahan

Takes a rare approach in podiatry. He helps clients to a more self-sustainable foot instead of setting out to make immediate and often short-lived corrections. His entire site is incredibly knowledgeable. Click here

This video explains a lot in a few minutes

*"Many people know that high heels are more about fashion than being orthopedically-sound for walking. But what is wrong with athletic shoes? Even **athletic shoes** elevate the heel, extend the toes, and pinch the toes together. Instead of enhancing performance, this actually compromises the natural gait, leading to chronically tight extensor muscles and toes that structurally change so that they are crunched toward the midline. The foot functions best as a barefoot, that is, when the heel and forefoot are completely level, and the toes are allowed to flex, extend, and spread."*

"...the reality, the shoe market is driven by what "looks good" on the shelf and will therefore sell. This is as true of athletic shoes as it is of fashion shoes...Indeed, even when shoe designers are presented with findings that flat, wide shoes are optimal for foot function and health, they do not utilize this information, because such a style is not congruous with the fashionable look. Additionally, considerably more money can be charged for a shoe that boasts "arch support" or "motion control" than for a simple

flat shoe. So ultimately, the very shoes that are supposed to enhance performance actually hinder it by altering natural foot shape and gait."

quoted by **Dr. Ray McClanahan**

shoe myths

myth: Cushioning in a shoe absorbs shock.
myth: In the past they didn't have the hard surfaces of today, so we need soft cushioning & support.
myth: Feet are fragile and need protection.
myth: Repetitive stress activities weaken the arch over time.
myth: Shoes prevent and decrease injuries.
myth: I overpronate so I need a shoe to correct it.
myth: Shoes are designed by extensive research and testing.
myth: Children need a "good" shoe for healthy foot development.
myth: Running shoes improve performance and absorb impact.
myth: You want a snug fit.
myth: I have heel pain so I need cushioning.
myth: I need arch support for standing on hard surfaces all day.
myth: Average life expectancy has increased, shoes are necessary to preserve the life of our feet.

myth: **Cushioning in a shoe absorbs shock.**
myth busted: Cushioning underneath the foot increases the force that you step down with. Every time the foot steps down the body tries to find its stability and so with softer material under the foot you subconsciously attempt to step through the shoe to get to a harder my stable surface. Also, cushioning blocks feeling of the type of surface beneath your feet. With cushioning the 200,000 nerve endings on the sole of the foot send false information to the brain because of the confusion for what's actually under the foot, "is it hard or soft?", "flat or uneven?". The other thing about cushioning is that it's typically combined with arch support and a snug fitting shoe, which together rob the body of its natural suspension system.

myth: **In the past they didn't have the hard surfaces of today, so we need cushioning**
myth busted: First of all, the surfaces of today are no harder than the in the past. Some civilizations lived mainly on rocky terrain that was so uneven there wasn't a flat enough spot to set up a bed. More importantly, the body adjusts accordingly to the hardness of the ground by landing with more knee flexion and more foot pronation. However, the more inhibiting the shoe, the less

the body senses the hardness of the ground. For example, when wearing a working boot the body does not adjust to the great differences between walking on soft grass and walking on hard rock. Thirdly, barefoot runners of today consider pavement one of the easiest surfaces to run on, because it's so smooth and consistent. When you go off the road is when it gets tough. Natural terrain is unpredictable and the occasional rock can catch you careless.

myth: **Feet are fragile and need protection.**

myth busted: Contrary to common belief, your feet are not fragile. Most likely, they have been in shoes your entire life and you have just never given your feet a fair chance. Most of us wear flip-flops in the summer and you may have noticed by the end of the summer your feet are stronger and built-up. The feet are amazing in that they adapt to whatever you wear or don't wear on your feet. The skin on the sole of your feet is the fastest at regenerating of all the skin on your body. This skin is 6 times stronger than all other skin tissue. Your muscles, tendons, ligaments, and bones are just as incredible at recovering and building up a tolerance. The other problem with this myth is that protection in a shoe takes on a new meaning. Protection in shoe design has gotten so overdone. Now we have toe bumpers, so we can carelessly go about bashing our toes. We have stiff plates in our soles, so we can mindlessly stomp our feet through the ground. And we have support and cushioning to insulate us from the world around us.

myth: **Repetitive stress activities weaken the arch over time.**

myth busted: First of all "repetitive stress" is a misleading term because what health practitioners usually mean when they use this term is "high impact exercise," which makes up nearly all exercise. As we all know exercise is the best thing you can do for your body. However, for practical use lets use their term, "repetitive stress," to dispel this myth. When you apply repetitive stress to any part of the body, it does fatigue but only for a short time and then it BUILDS BACK STRONGER. The arch of the foot is no exception. So when the arch is naturally exposed to repetitive stress it will get stronger which raises the arch so that next time it can better handle more repetitive stress. This is yet another case that we see the foot is a more adaptable machine than we ever thought.

myth: **Shoes prevent and decrease injuries**

Myth busted: In fact the opposite may be true. There has never been a single well done study to support the theory that more shoe is better. Strong evidence shows that thickly cushioned running shoes have done nothing to prevent injury in the 30-odd years since Nike founder Bill Bowerman invented them(See published article). Some smaller, earlier studies suggest that running in shoes may increase the risk of ankle sprains, plantar fasciitis and other injuries. Runners who wear cheap running shoes have fewer injuries than those wearing expensive trainers. Meanwhile, injuries plague 20 to 80 percent of regular runners every year. A recent study, by the American Academy of Physical Medicine and Rehabilitation and published last December in the academy's journal, *PM&R*, found that wearing running shoes "increased joint torques at the hip, knee and ankle," when compared to barefoot running.

myth: **I overpronate so I need a shoe to correct it**

Myth busted: As described in our section on foot mechanics, pronation is a natural and functional movement. Overpronation is not when it is combined with weaknesses in the knee and hip…causing the runner to lose good alignment. To see extreme pronation that is completely functional watch this video of marathon world record holder Haile Gebresalasie. His foot is pronating and acting like a spring, but his core is aligned and solid. Strengthen your foot and support structure and you will run more like Geb in function, even if not in speed. If you are weak in the hips and feet- you will pronate and deform your knee angle. Watch the girl in the video, she is pronating and her knees are "kissing".

myth: **Children need a "good" shoe for healthy foot development**

Myth busted: As Dr. Lieberman demonstrated so well in his landmark paper in Nature (Jan 26, 2010)- footwear can influence natural gait. See Dr Lieberman's amazing site of research. Next time you are in a park, watch a child run barefoot. Notice the relaxed movement and foot placement. They lean slightly forward and their legs fall out behind them. They do not strike hard on their heels. Then watch the child with the highly cushioned or supportive shoe. The difference is easy to see. Anything on a child's feet should support natural neuromuscular development (see the best article ever written on the topic).

Children's footwear should have the following:

- Thin soles, allowing proper proprioception, neuromuscular activation in the entire kinetic chain, and complement the body's natural ability to absorb ground forces.
- Low, flat to the ground profile- designed for all play activity that involves climbing, running, and jumping.
- Enhance lateral movement and not place the foot on a platform or have a slope from heel to forefoot. The materials should be soft and supple- allowing natural foot function.
- The toebox must be wide enough to allow natural toe spread. Foot support is created by the natural arch of the foot with the great toe stabilizing the arch. When the heel is elevated and great toe deviated toward the second toe (a common design flaw in many shoes which come to a point) - this stability is compromised.
- A single piece midsole/outsole allowing protection on unnatural surfaces (concrete, asphalt) and natural rough surfaces (rock,trail) while allowing proprioception and natural dissipation of ground reactive forces.
- A child does not need "traction" to grip. Their foot does that.
- Upper material should be soft, breathable, and washable.
- Shoes should not be fit with thick, heavy socks- as these interfere with foot proprioception.

myth: **Running shoes improve performance and absorb impact**

myth busted: Watch any international marathon with world class African and Japanese runners and this is proof in itself. The best wear what is essentially a slipper on their feet. Enough shoe to protect them from the urban streets of New York City, Chicago, Berlin, or other major cities that host the events. The marathon world record was run in Adidas Adizero by Haile Gebresalasie. (See video of amazing efficient running form) . This is one of the lightest non shoes on the market. It has slight heel elevation, but for Geb he is going so fast and is so far forward with his lean…he is essentially running on his toes, settling down his heel, and springing for the full 26 miles with incredible elastic recoil of his Achilles and foot.

Excerpts from USATF Coaching Article #168 a Must Read.

Modern running footwear is well endowed with cushioning purportedly to reduce impact forces absorbed by the body. However, there exists no scientific study providing evidence that cushioning has a significant effect on impact forces. On the other hand, there is evidence that an *increase* in impact forces is associated with softer shoes (Shorten, M.R. "The Myth of Running Shoe Cushioning." *Keynote Lecture given at the 4th International Conference on the Engineering of Sport*, September 2002; Robbins. "Overload protection: avoidance response to heavy plantar surface loading." *Medicine and Science in Sports and Exercise*, 20.1(1988): 85-92).

Combine this evidence with the previously mentioned sensory deprivation aspect of shoe cushioning and the role of athletic footwear as a protective device must be questioned.

How does running economy compare between the barefoot and shod state? Oxygen consumption has been shown to be 4.7% higher while wearing shoes (approximately 700 g per pair) and running at 12 km/h.(Warburton, Michael. "Barefoot Running." *Sportscience*, 5.3;2001). Reasons for this include the mass of the added footwear requiring additional energy to move the shoes through each stride, energy being absorbed by the shoe's cushioning, and the energy expense of flexing the sole of the shoe. When these energy drags are combined with the previously detailed loss of a stretch reflex from the lower leg it becomes understandable that barefoot running is more economical.

myth: **You want a snug fit**

Myth busted: Again, the opposite is true here. Having a snug fit is like having a corset for your feet. Tight lacing and snugness prevents the natural spread of the transverse arch on landing and the longitudinal arch on functional pronation. These two functions are critical for shock absorption. Snugness in the toe box prevents the natural spread of the toes, neglecting them of their function in propulsion and stability. You see many yoga instructors recommend "yoga toes" to correct the deformities a snug toe box has created in modern feet.

myth: **I have heel pain so I need cushioning.**

Myth busted: One of the main causes of plantar fasciitis is elevation of the heel with a more cushioned midsole. When the heel elevates the plantar fascia and Achilles shorten and becomes susceptible to injury when stressed with running activity which tends to stretch them out and stress them. Another negative effect of a cushioned elevated heel is the loss of the involuntary stretch reflex of the Achilles and posterior lower leg muscles. This stretch reflex is designed to aid the forefoot with propulsion, yet it can only be activated if the heel comes close to the ground. The elevated heels of most available footwear, including athletic shoes, prevent this stretch reflex from occurring. The foot muscles and plantar fascia must activate more to make up for the loss of this stretch reflex.

myth: **I need arch support for standing on hard surfaces all day**.

Myth Busted: (reference Dr. McClanahan) An arch is a structure that is able to support weight over an open space, by providing support on either end of that open space. This applies to the arch of the foot too where we must support on either end of the arch with proper position and function. This is exactly the opposite of the type of "arch support" that is available to consumers, either over the counter (Dr. Scholl's for example) or from their healthcare professionals(rigid orthotics). These products attempt to "support" the arch, not by supporting the ends of the foot arch, but rather by lifting up under the open space of the foot arch. This does not make sense. Consumers feel they need to do this and at times feel more comfortable in these type of arch supports since we are essentially walking on ramps which disturb the supportive ends of the arch. Individuals who grow up barefoot, naturally have the support they need for both ends of their foot arch, and this is likely part of the reason why their foot arches function perfectly throughout their lifetimes, and their feet do not break down, unlike 80% of Americans who by nature of their habitual shoe wearing and compromised arches, will suffer some form of foot problem at some point in their lives.

myth: **Average life expectancy has increased, shoes are necessary to preserve the life of our feet**.

Myth busted: Cultures that run and walk their whole lives in flat functional footwear (or barefoot) do not have the problems that habitual wearers of elevated heel shoes have through time. Fallen (or *failing*) arches rarely if ever occur in the Tarahumara Indians, Asian farmers and rickshaw walkers, and farmers in Costa Rica, Sardinia, and Icaria- the longest living places on the planet and places where moat of the day is spent on ones two feet. (see The Blue Zones). More importantly is that in these cultures osteoarthritis of the hips, knees, and back is extremely uncommon, perhaps another attribute to the benefits of the proper postural alignment from being flat to the ground.

Proper Fit

We defy the prior thinking of conventional shoes. A proper fit accounts for the natural expansion of the foot upon ground contact. Excess waste is eliminated, along with everything that inhibits your foot's natural motion. So your foot is free to move and work the way nature intended it to; the way of its own barefoot motion.

- toe wiggle freedom
- roomy wide forefoot
- closeness to ground
- full ground connection
- flexible sole

cram toes --vs-- real foot

Be "Barefoot" all day

So what do we recommend for you. Be barefoot or as close to barefoot all day. If you are a runner the time you spend on your feet all day is just as important to your health, strength, alignment, and foot function as the time you spend running. You might say it is more important if you are spending several hours day on your feet in work and leisure activity and struggling to squeeze a half hour run in.

We challenge you not to listen to us, but to listen to what your body is telling you. Try to go flat for a month. For daily walking and running activity there is nothing on the market close to Terra Plana Vivo Barefoot. Try them on and your feet will immediately feel a difference. Keep them on for a month and *your whole body will feel a huge difference* as muscles are woken up by the new communication with the ground.

For running be flat also. We have a range of shoes to meet your specific running needs: very minimal Terra Plana Evo's and Brooks and New Balance trail flats to more protective and responsive shoes from industry innovator Newton (Dr. Mark's favorite running shoe), and trail favorites Inov-8.

But remember to learn good posture and mechanics along with shoe transitions and make changes gradually. Listen to your body's messages and be your own best coach. For a great read on transitioning to more minimal shoes read Running Times piece by Brian Metzler.

Remember you goal is fun, play, discovery and "No Pain…Thank You" **not** "No Pain…No Gain".

To view a large file on all aspects of healthy running and walking go to the homepage of www.freedomsrun.org and download the presentation from the "training" page.

Here's to healthier and happier running.

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