

Orthopedic Specialists on Barefoot Running

What are your thoughts about barefoot running, or running with minimalist shoes?

Holdermann: Not totally supportive. I can understand the interest, and there certainly is a media/internet movement to support it. Barefoot running, however, lacks science based evidence to support it on any term of longevity. I think that it is an effective tool if used as a component of training, in a controlled environment. It requires good running technique. It will not be favorable for someone who is a heel to toe runner. A midfoot striker would translate much easier to this style of running. Running on pavement or concrete barefoot does potentiate a number of overuse quality injuries and puncture or laceration quality injuries that may be avoided wearing a protective shoe.

Lange: In theory, I support the idea. But our society and the way we are raised make it hard to quit shoes cold-turkey. It takes time to work into a minimalist shoe or barefoot running and I think the barefoot running craze is doing an injustice by making people feel they should make the switch so suddenly. I think running in minimalist shoes is a good training exercise, in moderation, and could be added to a training program.

Owens: I am very cautious about barefoot running. The average person walks about 12-15,000 steps per day. Each step places multiples of your body weight on the foot. Running puts even more stress on the feet--depending on your running style and gait (e.g. "heavy heel strikers"). If you already have a mechanical predisposition to foot troubles (such as high arches/cavus feet, or low arches/pronation, or a tight achilles or leg length discrepancy), then I think you are asking for trouble with minimalist shoes. On the other hand, I acknowledge that barefoot running may resolve some of the malalignment issues that plague runners who are in improper shoes / inserts. I would propose that they should try to find the root cause of the problem and address it with a shoe or orthotic that brings them into balance. This is very challenging and most docs are not equipped to sort this out. There are abundant anecdotal reports of runners resolving their hip/back/IT band issues with barefoot running.

Schepmann: Great idea. However, transition to this type of running should be approached with caution and progressed gradually to minimize the risk of injury. Most runners have some type of biomechanical flaw in their running form and/or anatomy/physiology. The runner may be injury-free with supportive shoes but may develop an injury trying to run without this support. A gradual transition from a traditional running shoe to barefoot running may allow the runner to adapt, without injury, to the biomechanical changes that occur with barefoot running. However, some runners may never be able to adapt to barefoot running.

Do you believe that more supportive shoes have lead to more deconditioned musculature in our feet?

Holdermann: Yes and no. More supportive shoes do tend to limit the bulking of the intrinsic

muscles (muscles in the feet), but they do not decondition the muscles. There is nothing definitively antagonistic about supportive running shoes. The benefits of protection, shock absorption and improved impact distribution far exceed any negative impact on intrinsic musculature. I think that more importantly, the surfaces in which the majority of us run and work are the causalgia of the majority of our foot woes. Feet seem to favor moor undulated surfaces where the relationship of the foot to the ground is constantly changing such as trails, beaches, grassy fields, ect. This versus, tile, concrete and pavement where the foot experiences a very repetitive positioning. We refer to the forces on the foot as ground reaction forces. When the foot is always in the same position, these forces are absorbed and displaced the exact same way with every step. This can lead to over use quality injuries and ultimately the break down of various structures throughout the lower extremities.

Lange: I think that theory could be supported, but I don't see everyone throwing out there shoes and ripping up the concrete so we will have to keep wearing shoes for now. I think a shoe can be overly constructed and for some this could do more harm than good. I support a shoe that allows the metatarsals to move freely, as if the person was barefoot, and an overly constructed shoe may limit this natural movement.

Owens: This is a complicated question. Bottom line: if you have the proper shoes for your feet and they fit well: No.

Schepmann: I believe this is a valid concern but am not aware of any research that has been conducted in this area. An argument can be made for either side of this statement. More supportive shoes can be like a brace and takes the place of our natural physiological support system (muscles). This can lead to disuse atrophy/deconditioning...which is along the lines of "use it, or lose it". On the flip side, some people might not be exercising their foot musculature without the assistance of shoes. If they didn't have the supportive shoes, they might not be running at all, and not getting the benefit of exercise. Thus, even if it is proven to cause deconditioning in the feet, would you rather have deconditioned feet or a deconditioned cardiovascular system?

Have you had any personal experience with barefoot running (yourself, patients, family, friends)?

Holdermann: Yes. No one, however, that has taken it farther than an experimental phase or an added component to training.

Lange: I have never tried it, but I do have patients who have tried it. Those with 5 fingers like them, but don't just run or walk in those, they switch it up with shoes too. I haven't heard too much other feedback, but the barefoot running thing seems to work out. They mostly mention how they feel it a lot more in the calf muscles which is typical. It works those supportive muscles of the foot so much more and the calf is shortened with that mid foot strike. I do have a patient with a 1st MTPJ issue I help her manage and she noticed less pain and stiffness in the joint with barefoot running (on the trails) which we attributed to the midfoot strike it encouraged in her.

Owens: No. Only what I've heard from fellow runners at running stores and the people selling the shoes.

Schepmann: I have personally run barefoot and have had patients that ran barefoot or with minimalist shoes. It definitely changes the initial contact of the foot if you normally are a heel-striker with regular shoes. However, I have not had any experience with a runner who strikes with their forefoot in regular shoes and then runs barefoot or with minimalist shoes. I wonder would there be that much of a biomechanical difference?

Have you read any of the research on barefoot running or higher incidents of injury occurring with more expensive shoes? If so, what is your reaction to it?

Holdermann: I am not aware of any truly scientific based data on barefoot running outside of a multitude of testimonials. Nor am I privy to the price of a shoe versus foot injury. An appropriately fitting shoe is certainly valuable. It is always entertaining to hear people throw around terms such as pronation and supination and what shoe people should wear when these same people don't truly understand the mechanics of the foot and can't accurately define those terms. Shoe gear, especially running shoes, continue to improve every year.

Lange: So many more people are running now, so statistics could be skewed as far as the shoes leading to injury. I haven't read all the research, so until I do, I will not have a thorough answer to this question. But I think if it were 50/50 shod and barefoot runners, I bet we would be surprised to see it be pretty equal. It's kind of like yoga balls: yes, you can bounce yourself to a neutral spine and it's more dynamic and proprioceptive, but you can still slouch on a yoga ball.

Owens: No. If you have access to any good research articles (not marketing propaganda), I'd be very interested in reading them. The studies are very hard to properly perform. You always have to look critically at the study design and keep in mind that the funding source for the study (i.e. a manufacturer) may have a vested interest that biases the outcome.

Schepmann: I have read non-scientific articles and personal testimonials regarding the pros/cons of running barefoot, but not any published research on this topic. Some of the "research" I have seen was from shoe or sock manufacturers which lends itself to limitations due to the source.

Proponents of barefoot running argue that it automatically leads to initial contact with the forefoot or midfoot which allows for more shock absorption and changes our mechanics further up the kinetic chain. Do you have any opinions about initial contact with the heel vs. the forefoot?

Lange: I think midfoot strikers are faster runners, or vice-versa I guess. I think it's been shown to be an efficient way to run, since momentum is forward and you're not 'hitting the brakes' with

every step like a heel runner might be. This could be seen as a benefit of barefoot running. But every runner, and therapist, needs to weight the benefits and the risks.

Owens: The bottom line is that there are all different kinds of runners. "heel strikers", "Pronators", etc. The answer probably depends on which type of runner you are. I think that barefoot running will be better for some runners. I certainly do not think it is for everyone or that it is a panacea for all repetitive running injuries of the hip/knee/back.

If you really want to be scientific about it, you go to one of the academic centers with a gait analysis lab and have your gait analyzed. Then you pick a shoe that fits your gait and addresses your individual running style. For some, this may be barefoot running. Most people don't have the time or money for this. In that case, it's all about trial and error...isn't that what we all do anyway?

Schepmann: I think forefoot running can lead to increases in shock absorption. Runners tend to land more softly with a forefoot strike versus some runners who are "stompers" that land on their heel/midfoot. However, forefoot running can lead to increased forces at the forefoot (metatarsal heads) and midfoot. This type of landing will also change the biomechanics of the knee and hip thereby changing the stress at those joints. So it comes down to where in the foot/leg a person wants to try to reduce the mechanical stress.

If you had a patient who wanted to try barefoot running, what advice would you give them?

Holdermann: I would not necessarily deter them, but would recommend that they are very aware of the potential risks of injury. Most specifically, unknown terrain. I am a firm believer that feet were not made for shoes and I certainly question the efficacy in which shoes are accurately constructed for feet. That being said, it is difficult to run anywhere that you don't come across broken glass, shards of metal, sharp rocks or protective weeds. Anyone of these things could result in a serious injury that often requires surgical repair.

Lange: I tell them they can run to the track at the end of their run, take their shoes off and run once around the track. Next time they can go twice around the track. Or they can run on the grass infield of the track. If they slowly build up, they can train their lower extremities. I would not recommend throwing on some five fingers and 2 days later running a road race 1/2 marathon, or something wacky like that, which it seems some people do after reading 'Born to Run'. 5-fingers or barefoot running should become part of the training program, like doing their clamshells or their core work.

Owens: Only try it if you have no foot pain. No plantar fasciitis, no midfoot arthritis, no foot/ankle tendonitis, and no metatarsalgia. I feel barefoot running will make these conditions

worse. These are the things for which I prescribe specialized orthotics to unload or distribute foot pressure. If you have a cavus foot (high arch) or pes planus (low arch), these shoes may not be for you. If you have troubles in your hip/back/knee, they may help.

Schepmann: Same as stated in the above question, proceed with caution and progress gradual. Also to try running at a track or other shock absorbing surface initially, instead of a concrete running path.

Thanks again to:

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