To Thy Own Gait Be True

With thx to Cathy Leonard for editing & Duncan Scott for 2 pairs of New Balance 1500s

Richard Oldrieve
oldrieve@aol.com

This particular blog post is about the tear I suffered to the distal tendon that connects my left kneecap to my quadricep. In detailing the probable hows and whys I suffered the tendon tear, I'm hoping to forestall other runners from suffering what I see will be an increasingly common injury.

The "when" I suffered the tear seems rather straight forward. On Monday, October 12th, 2021, due to Covid-19 postponements, I ran relatively pain free the first ever "Fall Boston Marathon." Nonetheless, events surrounding the race led me to tearing the tendon about 5 weeks later while wearing Asics training version of Nike's "Vaporfly" in the CRRC's Fall Classic Half Marathon.

Thus, the question becomes: "What were the events that led me to try a switch to 'Super Shoes' and suffer the ill-fated tear?"

Other than all the world records and sheer number of articles written about super shoes, Bob Ashmus is a key reason why I tried the switch. First, we trained together for 3 years, as Bob returned from New Jersey on a bi-weekly basis to visit his mom who was suffering from dementia at the same time mine was suffering from it. Plus, we started five marathons and ran together in four of them for at least 16 miles.. Thus, we've had plenty time to discuss the pluses and minuses of super shoes. Plus, Bob has run one marathon a month for 3 or 4 years and his times are 10 to 15 minutes faster than my fastest grand master times.

Most impressively, the day before the 125th Boston Marathon, my friend Bob had run a 3:49 in the Chicago Marathon, and so I had picked him up at Boston Logan Airport so we could then run the first part of Boston together.

With Bob having run Chicago the day before, and his having already qualified for the Spring 2022 Boston, and me needing to break 3:45 to guarantee I would qualify for the Spring 2022 Boston, we had discussed the night before how I would probably need to pull away at some point in the race. Without telling him, I guesstimated he could hang with me for 10 to 13 miles. To my amazement, Bob kept chugging away beside me, even as we passed the halfway mark (see right photo). My guesstimate was in shambles.

Bob is in the gray shirt wearing his orange Vaporflies while I'm wearing my New Balance 1500s and Cornell track and field shirt. A few miles earlier, the woman behind us had joined us and said she did so because she found our pace very comfortable, so she started running and talking with us. Looking carefully, you can see her stride matches mine as it did in four other photos of two different photographers spread over the same 40 meters. Unfortunately, within 600 meters or so after this last photo in the sequence she had fallen back.

Although many marathoners hit the wall while scaling "Heartbreak Hill," the infamous hill between miles 16 and 21 is not a just one steady climb of 200 feet of altitude gain. Instead, it comprises a series of 8 stepladder inclines where you go up an incline to gain 25 to 75 feet in altitude followed by a modest descent of 10 to 65 feet of altitude. The ascent totals about 315 feet.

As we passed the halfway mark, I began to worry that our pace was starting to slow even before the roller coaster began. But then we accelerated just enough on a major descent to mile 16 with an 8:12 split that made me think that we might be able to finish together with a 3:45. Nonetheless, our next two splits were in 8:42 and 8:38, and so after running an 8:20 on the descent to mile 19, I finally told Bob that I needed to pull away up the next ascent where I ran a split of 8:15 and finished with a 3:43, while Bob kept on chugging and finished with a very respectable 3:48.

Cleveland Road Runners Club New York City Marathon finishers at Scenic Park: Mike Schipper, Mike Fry (official NYRR water stop worker), me, Heather Kuch, Paulina Williamson, & Bob Ashmun. Minus Rick Roman from the Thursday Night Runners—the winner who left long before the rest of us finished.

On top of running two major marathons on successive days in 3:49 and then 3:48, and finishing together in the Cleveland Road Runners Club virtual half marathon in 3:36, since the fall of 2018 and possibly earlier, Bob had smoked several marathons in the mid 3:20s including the Atlantic City, Philadelphia and

Rehoboth Seashore Marathons. Giving credit where he thought it was due, Bob had been praising HIS "super shoes"—the Nike Vaporfly with its carbon plate that springs you forward and preserves your fitness. During our training runs, and occasionally during races, he kept suggesting I should give them a try.

Ten years before the Super shoe movement there was the barefoot, forefoot, and zero drop shoes movement. Thirty years before that, back in the late 1970s, one of my teammates showed a picture of me kicking the last 1000 meters of a college cross country race at Van Cortland Park. He thought it was particularly relevant because I was out kicking Don Page—who had fearsome kick and was the reigning NCAA 800 & 1500 meter outdoor champ, and 3 time 1,000 meter indoor champ. In looking at all aspects of my kick, I noticed that I was running up on my toes, and upon further reflection, I realized that for most of my track races, I would land on my forefoot and then move up onto my toes when trying to kick. (The first 1600 meters and last 1200 meters of Van Cortland's course are equivalent to running on a cinder track. It's the middle 5200 meters which is a narrow roller coaster). Thus, I have always been on the lookout for zero drop racing shoes. For example, at age 29, I ran a 2:25:19 at Boston wearing nothing but rubberized track spikes.

Consequently, I was a bit skeptical that any super shoe would work with my fore-foot stride. Nonetheless, I didn't want Bob to think I was a Luddite who wouldn't even test out a newer type of shoe that was earning him PRs and allowing him to run four times as many marathons per year in his late 50s than I'd ever run in my prime. Nonetheless, I had learned long ago that marathons can cause blisters and swelling that make buying shoes afterwards problematic. As a result, months before the October 2021 Boston, I tested various brands of Super Shoes at Second Sole and ended up choosing the Asics version over New Balance's.

Then a couple weeks after running Boston, I ran 4 or 5 training jogs and runs in the Asics Super Shoes, before racing in the November 2021 Fall Classic Half Marathon. One reason I wanted do the Fall Classic is that it is a two-lap course that would give me a chance to drop out if the shoes were causing pain. The other was that in the previous 18 months, I had run one real and four virtual half marathons in 1:38, and as a result I had a way to judge whether the Super Shoes were helping me run faster. A third reason was that I could then take off 6 weeks or so before I had to start training for the Spring 2022 Boston Marathon.

If they felt good, and I ran faster than 1:38, I could wear the training version of the Asics Super Shoe over my winter build up to the Spring 2022 Boston. If they continued to feel good in training, I could then purchase the race version of the Asics Super Shoe and maybe run a 3:29 Boston and shut up my school's guidance counselor—who bragged about his 3:30 PR, while ignoring my 50 to 60 sub 3 hour marathons before I turned 45.

After one lap of the Fall Classic, I knew beating 1:38 was off the table, but the real trouble with the shoes began while I was going around the toboggan run's parking lot at mile 8. Suddenly, my right knee started whimpering and my left started screaming "this ain't good." When my finish time barely broke 1:47, I knew that even if I recovered from the knee pain, my personal super shoe experiment was over.

After three weeks of swimming and biking that helped the knee feel better, and some light jogging that still caused pain, I visited my regular MD. He put the knee through motions and wrote a prescription an X-Ray. Even before the results were in, I tried to arrange an appointment with Dr. Keppler, the

orthopedic surgeon who had done arthroscopic surgery to repair a meniscus tear on the same left knee 20 years earlier. Unfortunately, the office secretary would only let me see his associate.

Dr. George Friedhoff's good news interpretation of the x-ray was that there had been no damage to cartilage. Nonetheless, he explained that over the years I had developed what was the equivalent of heel spurs where the tendons form calcium stalactites as they slowly pull away from the heel bone. But instead of where the Achilles tendon attaches to a runner's heel, my stalactites were forming where the quadricep tendons attach to the knee cap while other flecks of calcium were forming in the tendon itself. Dr. Friedhoff's suggested some leg strengthening rehab techniques that were similar to what I had done for my cartilage tear 20 years earlier as in my 45 years of battling chondromalacia of the patella (arthritis on the back of the kneecap).

Armed with a diagnosis, I dug into online medical resources such as journal articles and Q&As written by doctors affiliated with well-known research hospitals and found that poor blood flow can lead to calcium building up in knee tendons. Consequently, I started doing self-massage of the knee and making sure that my nighttime sleeping position wasn't constricting blood flow. Similarly, some medical websites mentioned that blood flow problems can be exacerbated by the same combination of alcohol and purines from seafood that sometimes have caused gout in my big right toe. Finally, I also saw where the patella spurs can be caused by too much calcium—so I stopped taking glucosamine. All these attempts at healing were hampered by the fact I had already begun to ramp up my training for the April 2022 Boston Marathon.

What's strange and ironic, is that I've always known that doing hills and stairs strengthens my quadriceps and calf muscles which helps my racing stride and reduces my chondromalacia. Compounding my stupidity was the fact that even if I hadn't flared the knee pain from racing a half marathon in the super shoes, doing hills would have been useful for doing well at Boston. Yet, I didn't do any hill training after a December trip to California.

Even more problematic for running a quality spring 2022 Boston was the fact the Hoka soft sole fad followed by the Super Shoe racing fad had supplanted the zero drop and bare-foot running fad, and thus, I couldn't find any zero or 4-millimeter drop race shoes like the New Balance 1500s I wore in the 2021 Fall Boston or the Asics Fuse-X shoes I had used in the 1999 Boston, Cleveland, and Rehoboth Beach marathons. Hence, I resorted to trying the most recent version of Asics Gel DS Trainer 26 which were similar to earlier models that I had used in many of my marathons between ages 35 to 45. Consequently, their drop was halfway in between zero drop and the Asics Super shoe.

As in the Fall Classic, I felt pretty good at the start of my fifth Boston Marathon, and thus I ran my first 4 miles under 8 minutes and my next 5 in the 8:15 range. Nonetheless, after about 9 miles, my left quad and tendons began screaming and my pace slowed dramatically. With the knowledge there had been no cartilage damage in the Fall Classic half marathon where I had the Asics Super Shoes, I grinded on with times of 9:57 and 9:59 per mile as I started the Heart Break Roller Coaster. Further, my only goal became to finish so I slowed even further. Then at the top of Heartbreak, I calculated that to break 4 hours, I only needed to jog slightly over 10 minutes a mile for the 5-mile long downhill to the finish line. This brightened my day, because not only would this beat my personal worst of 4:06, but it would also sound good to even non-runners. And yes, I made it with room to spare—3:59:09.

It didn't take me long to figure out my marathoning days might be over. That's because some 19 years ago, I had stopped running marathons at age 45 because I had recognized that it was becoming impossible for me to keep my track and cross-country midfoot landing style for a full marathon and so I scaled back to running half marathons. (And to be honest, in most of the set of my Boston photos from 2019, 2021, and 2020, it was my heel landing first) At that time, I recognized that eventually I would have to scale back to 10Ks, but I hoped that would be another 15 to 20 years off.

Out of nowhere, a dozen years after my step-children Katherine and Jon served as my seconds at the 1999 Big Sur Maratho,n where I finished 3rd in the Master's Division, Jon started running 5K "tough mudder" runs with his son. Then Jon and I both ran the 2013 & 2015 San Diego Holiday Half Marathons. The first one I beat him by 12 minutes. Two years later it was down to four minutes. In between, during the summer of 2015, when I was 57, Jon won the lottery to enter the Big Sur Marathon, and suggested I should enter the last chance lottery. But instead of relying on the lottery, I reminded him of my 3rd place Masters finish and how the story would have a good feel-good ring to the elite athlete coordinator. As I expected, the coordinator let me in. What I didn't expect was that he gave me a seeded number and free entry.

After I barely beat Jon at the Holiday Half in December 2015, my wife pointed out that come April, Jon might just be ready to beat me. Thus, as the National Weather Service started forecasting 14 to 20 mile per hour winds, my internal debate was whether I should just start and run with Jon the whole way (possibly ducking behind him in the headwinds) or try to live up to the free entry and seeded number that had been given me. In the end, I started near the front, while Jon started closer to the back. I ran well for the first six miles in the Sequoias. When I hit the coast and the headwinds, I began slowing down—even as I tried to tuck behind several packs of passing runners. Then at the 11-mile mark, Jon caught me. We ran side-by-side for the two-miles up the wind-shielded 500-foot climb to the iconic car commercial bridge. There Jon proved his mom prophetic, because as we passed the piano player the wind almost blew me backwards. So, I told him to carry on without me while I focused on making it to the finish line so I could make my red-eye flight home out of LAX. I ended up running my personal worst time of 4:06 while Jon ran around 3:34.

Two years later Jon asked if would be interested in running Boston. I said yes, and dutifully chose to try to qualify on the wind and sun shielded Tow Path marathon—which I had won once and finished second or third every time I didn't get injured. Thus, I qualified with 7 minutes to spare for the age 60 age group, while Jon missed by about the same for his late 30's age group. After running Boston for the first

time in 31 years, I found myself once again addicted to marathoning. Thus, I proceeded to run one Towpath, one Rehoboth Beach, two Clevelands, three Bostons, and a virtual New York City Marathon.

So, after my "slow," painful, and yet edifying Spring 2022 Boston, I somewhat came to terms with the fact that 17 years after I had retired from marathoning, maybe it was time to scale back—retire from marathons, re-retire from half-marathons, and run only races that are 10K or less. As a result, one month after Boston I downgraded my Cleveland Marathon entry to a 10K. There, I ran a respectable time of 49:34 (7:59 per mile) and finished second in my age group. Then at the Bay Days 5-mile I ran 37:52 (7:35 per mile) and finished 3rd in my age group.

More importantly, I also re-started my training diet of hills and stairs. In fact, after our granddaughter graduated from Berea High School, Susan and I took her and her friend to Paris and London for a graduation present, and I resorted to climbing stairs to the top of monuments such as the Arc de Triumph and running stairs in the Metro stations or beside the "incline" up to the Montmartre Arts district in Paris.

In those two weeks, my knee SEEMED to be getting stronger even when averaging 30,000 steps daily from my daily runs plus the tourist hiking & walking with my wife Susan along rivers, in parks, cathedrals, museums, castles, and amongst statues and Stone Henge style standing stones. I also experimented with Nike and Brooks cushioned shoes that were shaped much like the discontinued New Balance 1500s I had used while running with Bob in the fall 2021 Boston. These seemed to work to cushion the blow to a degree, but they also added side to side sway and bounce that torqued the knee and caused pain in a slightly different way.

In September of 2022, I couldn't quite decide whether my hill and stair climbing training was helping, or if I were just fooling myself. A physician's assistant had me try cortisone—which alleviated my pain for two weeks. When he decided two weeks hadn't been useful enough to try again (especially since the bill had been $1400), so he ordered up an MRI. This time a report on the MRI came back with about a dozen things that were NOT wrong with the knee such as a dreaded cartilage tear, and only one thing that was wrong—torn distal quadricep tendon (which isn't that different than Friedhoff's diagnosis). With this definitive diagnosis, I made an appointment with Dr. Keppler himself—the guy who had done my cartilage surgery. After looking at the MRI he offered two treatments:

1. Platelet-Rich Plasma injection (PRP)--the Tiger Woods treatment of centrifuging your blood to consolidate stem cells and blood platelets so that they can be directly injected into the tendon to facilitate healing, regrowth, and oxygen flow.

2. Surgery

A few minutes later, Keppler said something that caused me to apologize for following up my visit with his associate by training for and running Boston the previous Spring. Instead of admonishing me for being so stupid, he asked, “How fast?”

When I said “3:59” he promptly replied, “Surgery is not an option. If you have surgery, you’ll never run anywhere that fast again.” Something about his tone made me believe he expected that the Platelet-Rich Plasma therapy might not completely heal my knee, but it and my tolerance of pain would allow me to run again.

After pausing to reflect on being told that the tendon surgery would end my running career, I then asked, “If I have the PRP, what would cause me to tear the tendon all the way through?”

He went back to a golfing analogy by stating that if I wind up to hit a long drive, my foot slips, and I tried too hard to keep from falling, that’s when I might sever the tendon enough to require surgery.

Since he knew I was a runner heading into winter training, I thought a better explanation would have been: “slipping on ‘Black Ice’ and trying to keep from falling.”

With Keppler’s answer, I felt fortunate that in 8th grade I had broken my hand in a pick-up kick ball game. I had learned about trying too hard NOT to fall when I had charged towards home which was a flattened paper cup. I didn’t see it until I was almost past it, and as a consequence I slipped and broke my hand while trying to reach back to slap it.

Some twenty years later I perfected my falling even more, when my wife was trying to teach her 3 kids and me how to downhill ski. Thus, whe had bought Jon a subscription to *Skiing Magazine*. When he left it in the bathroom cubby, I retrieved it, and read an article describing the best way to avoid destroying your knees: Learn to recognize when you’re going to fall, accept your fate, don’t fight the fall, and instead roll onto your shoulder while raising your legs into the air like an over-turned turtle.

After the visit, I was hoping to receive the plasma rich platelet injection before our winter trip to see the San Diego grandchildren, especially since I would have been all too willing to pay the entire $350 that Dr. Keppler had estimated out of my pocket.

Unfortunately, there was a bit of unfinished communication between Dr. Keppler, his secretary, my insurance company, and me. As a result, I headed out to San Diego without the treatment. Once there, I Facebook messaged my high school cross country teammate Gary about meeting for lunch. In December of 2021, Gary had wanted me to meet his son Bryce, who had won a full-ride cross and track scholarship to Wake Forest University. Gary had hoped I could tell Bryce what to expect as a Division I track and cross-country runner. Unfortunately, for a variety of reasons, I couldn’t get a car to meet him. In contrast during our 2022 visit, I had complete access to a car, and it took less than three hours to confirm a lunch at the “Stone Brewery” in Escondido.

During our conversation, Gary and I reminisced about his finishing fourth in the wrestling state championships, while I finished 8th in the two-mile (while Bryce

was probably rolling his eyes and saying to himself “Boring boomers.” But we then refocused our discussion to Bryce’s freshman year of running collegiate cross country at Wake Forest. I was bit awed when I learned that as a high school senior Bryce had run a 8:52 in the 3200; that’s because my high school best 2-mile of 9:21 is equivalent to a 3200 in 9:15 and my college best indoor 3,000 of 8:31 is equivalent to a 3200 in 9:05.

Then Gary told me that Bryce ended up red shirting his freshman year cross country season because, (drum-roll) as a high school senior he had torn his tendon connecting his quadriceps to his knee cap (patella) and had already received the Tiger Woods Platelet Rich Plasma injection.

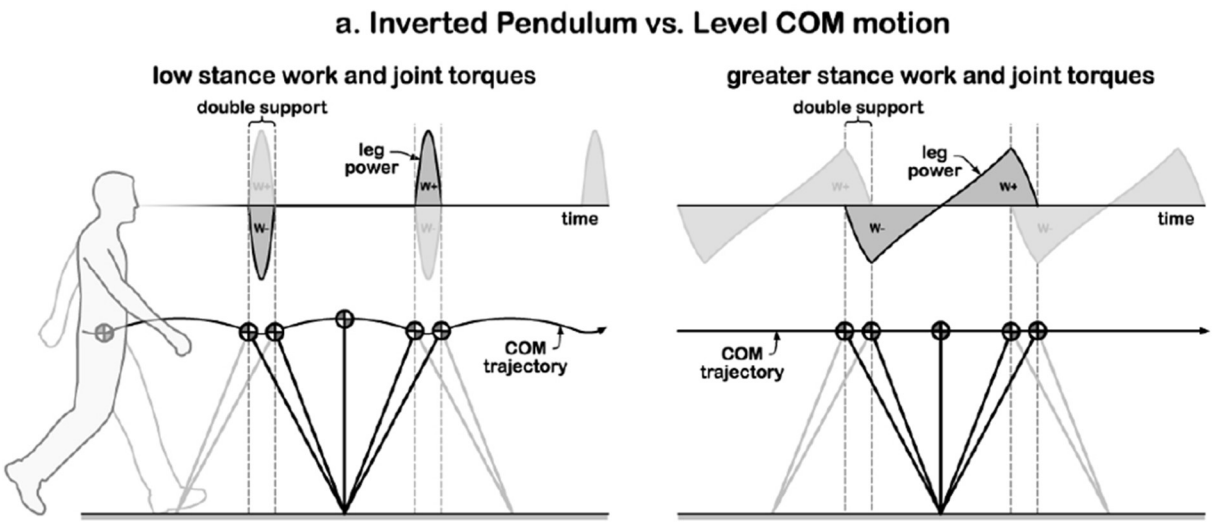
Now, we were eating lunch and I had had a couple of the IPAs that had made the Stone Brewery famous, and so that’s my excuse as to why it wasn’t until I got back to Jon’s house that I remembered to text Gary and ask if Bryce had run all his fast times in regular spikes and had torn his tendon AFTER switching to super spikes. Sure enough, Gary’s reply came back, “yes.”

So, the question becomes “Why?”

I had long deduced that one advantage of my fore-foot stride is that when I’m running fast, as I reach my foot forward, it skims the top of the track or asphalt. Thus, there is very little hip bounce in my stride and there is very little “jarring” when I land. Additionally, I can easily adjust my stride length to match those I’m running against in a pack. As a result, my best 10,000 meter track time was 30:27 in the “slow” heat of the Colonial Relays—where six of us took turns leading the pack. Furthermore, for my best 3 college and grad school seasons, my worst time was only 29 seconds slower. Then for road racing, I often wore rubberized track spikes—including my marathon PR of 2:25:13 at the 1988 Boston Marathon.

Which brings me back to the title of this blog “To thine own gait be true.”

What I first learned on NPR a few weeks before writing the first draft of this article, is that researcher Daniel Renjewski of the Technical University of Munich Germany and his team has done research into the bi-pedal walking motion of humans so that they can improve the prosthetics for walking and running. Dr. Renjewski’s focus is to better understand how human muscular movements contribute to what previous researchers have called a double bounce effect in human bipedal walking and running. As described by Dr. John H. Colins in his doctoral dissertation for the University of Michigan, the main bounce comes from the leg pushing the hip up most when the leg is perpendicular to the ground straight up and down. It is shortest when the leg is extended most. The second bounce is when the foot of the extended leg is near perpendicular to the ground when it is pushing off. Coming off these bounces is when gravity can supply the most potential energy to forward thrust. Furthermore the “push-off” by the toes is what supplies the energy to push the hip upwards as the opposite leg begins to become perpendicular to the ground.



In another 2008 doctoral dissertation by Reza Ghorbani for the University of Manitoba, Dr. Ghorbani found benefits for controllable stiffness in the human foot to produce greater pushoff while running at a high rate of speed. In an article published in 2018 in the journal PNAS, a research team at the University of Exeter composed of Dominic James Farris, Luke A. Kelly, Andrew G. Cresswell, and Glen A. Lichtwark conducted a study published into how foot muscles contract to supply the stiffness and speed described by Ghorbani. Intriguingly, this team thought their results supported the benefits of high arches—whereas me with my flatfeet has always looked for the controlled stiffness of track spikes with their plastic plates to help generate speed—recognizing that I was trading my gift of long endurances for more speed.

My deduction was these types of studies are what led Nike to develop their super shoes, because if you look at picture of Bob, as he is heading towards a foot plant, his toes are pointing down at sharper angle than mine. in turn the carbon plate helps the spring upwards into the second bounce be more powerful. While I developed a stride that focuses on smoothness and has far less bounce except when I'm in sprint mode. One reason for me developing this stride was because when I was a freshman in high school, the seniors would tell me to quit making so much noise clomping my shoes on the ground. The other reason was that the team had finished 9th in Ohio's State cross country championship, and if I wanted to stay caught up, I had to be as efficient as possible.

Thus, my guess is that super shoes are most beneficial to runners like Bob who picked up running in his late 40s and came to road racing without a track and/or cross-country background. While they are most damaging to older runners like me who have chosen shoes that help them develop smoothness and long ago programmed their neural networks to make the most of their stride.

I will point out that in the famous New York Times study/article about Super Shoes that the vaunted Nike Vapor Fly helped 69% percent of marathoners who switched to them run PRs. Intriguingly, Asics DS Racer was second with 68% (a shoe that I could only use in 5k and 10k races on the road as opposed to marathons though as noted above I did use the trainer version in many marathons) and the New Balance 1500 was third with 62%. I suspect that the high percentage of PRs for the Asics DS Racer and NB 1500 came from relatively new to racing forefoot runners who switched over from Hokas or other high cushioning trainers.

For me, the good news is that during a Cornell cross country team reunion zoom call where my teammate two-time Olympic Marathoner Pete Pfitzinger was the guest speaker, I learned that one of my other teammates, Duncan Scott, works as a product manager for the shoe development department at New Balance.

After the Zoom call, I sent some texts to Duncan about my problem of not being able to replace my discontinued New Balance 1500s. Duncan was then gracious enough to make calls to various distributors and found me two pairs of the wide size 11 of New Balance 1500s. One pair has worked well with my twice a week hill and stair training. While I've sparingly used the other for races.

So as the title of this blog suggests, don't automatically assume that super shoes will be the best shoe for your gait or stride. Meanwhile, I'm hoping Duncan Scott reads this blog and orders up some new product development for even better classic forefoot shoes that will benefit natural forefoot young runners who want to have successful track and cross-country careers before graduating to road races, as well as ancient fore-foot runners like me who can't adjust to super shoes.