

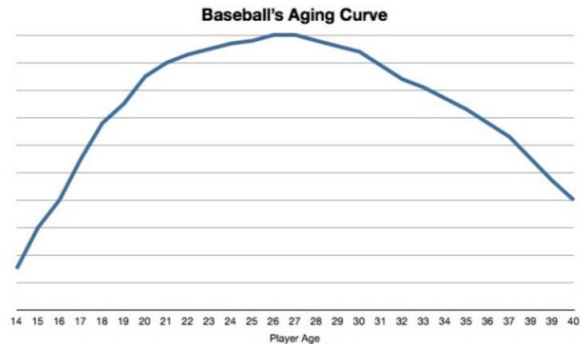
Running Against the Aging Curve



I attempted to run my first 100 at the ripe old age of 46. It was a failure full of introspection. I had experienced enough early failures ultrarunning (finishing nearly last or not finishing) that it caused me to conclude that I was probably too old to become an ultrarunner. But in reality, the average finisher age for those who ran my first 100-miler was age 44.

So at age 46 in 2004, I mistakenly considered myself too old to be a serious runner. After all, I knew that for most professional sports you are over-the-hill by your mid- 30s. I was still recovering from a torn meniscus and believed that I would always be a back-of-the-pack runner because of my age, and my knee.

As I started to love the sport of ultrarunning, I wished that I could have found the sport when I was much younger, wondering how well I could have performed without an aged, broken body. I wished I didn't have a bad knee, believing that it would always limit my speed and distance.



But as my experience progressed and my fitness improved, I learned to manage my knee problem. My performance started to surprise me. Could I actually be somewhat good at this sport in my old age? The first indication came to me when I started to add some road running to my races, including 5Ks, 10Ks, and a few marathons. As I ran them, I would look around me and see that I was running with youngsters in their 20s. I started to place pretty high overall and routinely placed in my age group.

Older can be faster

One of my problems early on was that I had set my expectations too low. I believed that my age and late entrance into the sport was a real barrier. My message to the runners in their late 40s and 50s is that they shouldn't believe that it is too late. I learned that the sport of ultrarunning is indeed a sport for the older runner.

You generally will not find too many 100-mile ultrarunners who are in their 20s. Ultrarunning needs patience and time to be able to finish 100-milers. Young runners are typically very busy with their early careers and family life. They don't have the time to put into the training. With our fast-paced world, they may lack the patience to be part of an endurance sport.

In 2016, at the age of 57, during one of my 100-milers, I observed a 27-year-old runner who was trying to keep up with me. With all the time to think on the trail, I enjoyed watching this young runner who was desperately trying to keep ahead of the old man. He indeed had some good young speed and strength, very physically fit, but I could tell pretty early on that he lacked the patience and endurance to succeed. Sure

enough, as the miles went by, he slowed significantly and eventually had to quit. This is fairly typical with young runners; they can use their youthful speed early, but too often crash and burn before the race is finished. Ultras are for the elderly.

Cheating Father Time

My running turned into a constant fascinating experiment for one who is aging. I share my elderly experiences and performance, not to boast, but as an example of what is possible for the fairly average older athlete. Don't short-change your capability.

By age 48, with a couple years of slowish long distance running under my belt, I started to get faster instead of slower. I never believed that I could one day run a sub-24-hour 100, but it happened. Then, at age 49, when I finished 60th at Leadville 100 out of 590 runners, my eyes were opened. I wasn't yet nearing the peak of my running performance, it was only starting. I soon believed that I could still get better and better. Age 49 wasn't too old for the 100-mile distance.

At age 49 I actually won my first 100-mile race with a small field of 25, and that greatly increased my confidence. At age 50, I won the Utah State 5K for age 50+, and won my age group for the USATF 100-mile national championship. I also went and ran the Boston Marathon with very little road race training, finishing in 3:24. Just a couple years earlier, I never dreamed achievements like that were possible for me. I became convinced that I truly was now a runner, and even at age 50, a very good runner.

As I entered my 50s, I wondered when "Father Time" would catch up with me. Would this next year be my plateau? Instead of improving, would I start declining? With each year I was puzzled, a significant decline that I was expecting, didn't arrive.



Declining Runner Performance



There are various studies that take a look at declining runner performance. Some look at typical marathoners, others look at highly trained world record holders. They all seem to indicate that runner performance starts declining by the mid-30s. Overall from age 35-60, runner performance declines about 0.5-1.0% percent per year for highly fit runners. For those doing successful vigorous training, it is believed this could be cut in half for many years.

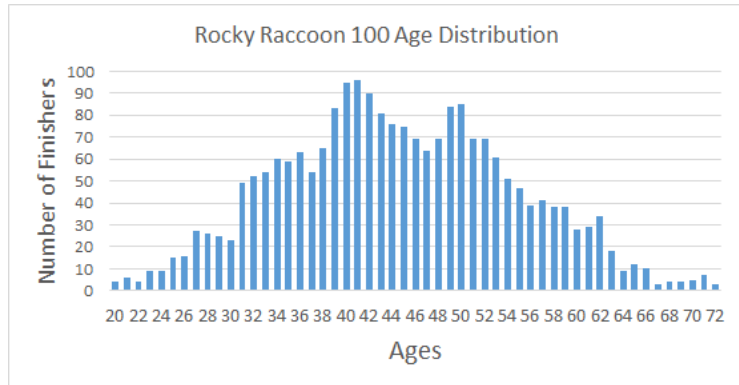
Examining results from the Chicago marathon, there was a 4.3% decline from runners in their 30s compared to the 40s. There was an 8.2% decline from the 40s to the 50s. And finally, there was a 10.3% decline from the 50s to the 60s

These runner studies generally apply to marathon runners. What about 100-milers? Do the same statistics apply?

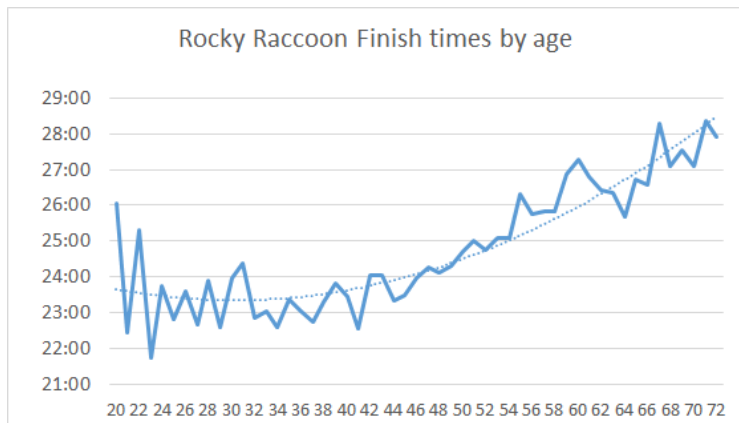
100-mile Case Study – Rocky Raccoon 100

I took a look several cases of 100-milers to see the comparison of finish times by age. First, I wanted statistics from a course that has been relatively the same over the years and generally has consistent weather conditions. I chose to look at Rocky Raccoon 100 near Houston Texas. I pulled finisher data for the past 15 years. I didn't want to go back too far in time because times can be affected by improved runner technology and fueling. I also took a look at only Male finishers. The amount of data used, was 2,206 finishing times for runners age 20-72.

First, let's take a look at the age distribution for these finishers. The average finishing age for this data was 44.5 years old. It shows that younger runners don't typically run or finish 100-milers and finishers certainly tail off after age 62. Age 31 appears to be the age when more young runners start to finish this 100-miler.



Next, what is the average finishing time by age? This chart shows that the peak performance age is in the early 30s. This corresponds with marathon studies that identifies age 30 as the peak. Runners of 100s in their 20s are much fewer, but those who do finish can have great results.



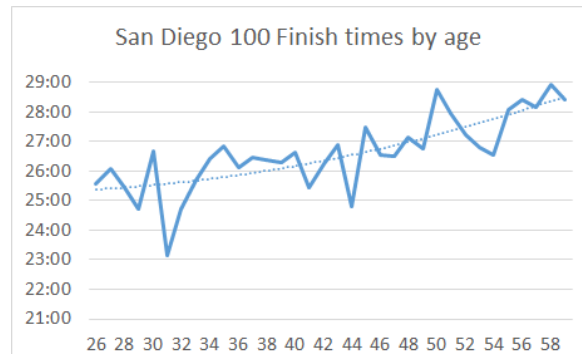
Decline in average 100-mile performance starts in the late 30s but is not significant. Decline during the 40s is 3.7% total or .37% per year which is a somewhat slower decline compared to marathoners.

Using the trend line further, decline during the 50s is faster, about 5.6% total or .56% per year. However, this is a much slower decline than marathon studies that pegged performance decline in the 50s to about 10%. Decline for those who are still able to finish 100s in their 60s, was about 7.7% total, or .77% per year.

I conclude that runners of 100s should expect the decline in performance to not be as rapid as their marathoner friends.

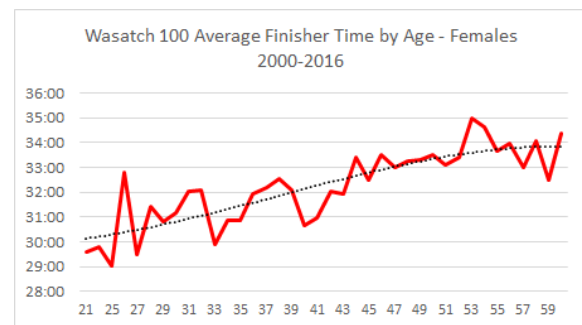
100-mile Case Study – San Diego 100

Here's a check to see if a similar trend line exists for another race, the San Diego 100. Using 750 finish times, the trend is a bit different. I believe the reason is that this race is quite a bit more difficult and the 32-hour cutoff time is harder for older runners to achieve, making the trend line more linear. The decline in performance from age 40-60 is about 0.4% per year

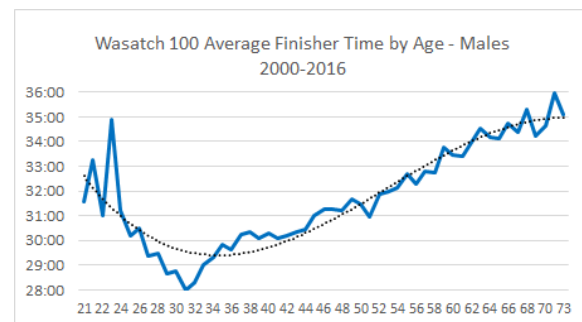


100-mile Case Study – Wasatch Front 100

Now let's look at a more difficult 100-miler run at altitude, Wasatch Front 100. For 460 Female finishers from 2000-2016, the trend line for time vs. age is fairly linear, the younger, the faster. The average finisher age is 41.1 years old.



Next, looking at male finishers. The sample size is larger, 2,382 finishers. The aging slope is more similar to the Rocky Raccoon slope. The peak performance age is in the early 30s. Younger runners in their early/mid 20s who face Wasatch likely have not yet had enough experience or a large enough mileage base to bring their finish times below 30 hours on this difficult course.



With the 36-hour Wasatch cutoff, an increased number of slower older runners can finish compared to San Diego 100 with its 32-hour cutoff. Performance decline during the 40s is 4.4%. Decline during the 50s is 6.1%. The average finisher age for the men is 42.6 years old.

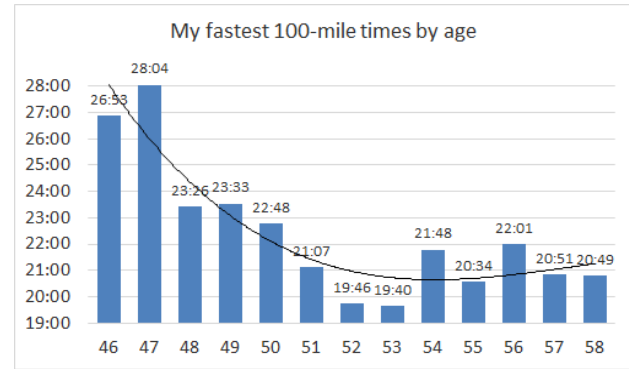
My Performance Decline

At age 48, I was starting to perform well, probably in the highly fit category by that time. Over the next ten years, I should have expected to decline between 5-10%. With vigorous training that decline could possibly be decreased to only about 2.5%-5% total over that ten-year span.

For me, how much has my runner performance declined during my 50s so far?

My Path to Ultrarunning – Davy Crockett

I believe this chart is a great indicator of my performance against age. Because I run so many 100-milers, there is enough of a sample size to compare performance year to year. At age 46-47, I was just getting experience, running in the back of the pack, and fighting against cutoff times. But at age 48, my experience had arrived, my skill as a runner had been developed and I started to believe that my age should not be a barrier to running 100-milers faster. My performance drastically improved during my late 40s as fitness and experience increased. I experience about a 5% performance improvement each year.



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Clearly my 100-mile times greatly improved as I arrived into my 50s and that honestly stunned me. The performance plateau still didn't arrive as I broke the sub-20-hour barrier for a 100-miler, a time that most ultrarunners never achieve, and I did it at age 52 and 53.

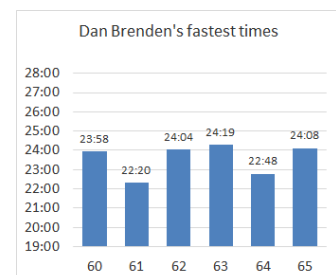
I saw improvement for about eight years before an age-related plateau or decline started to show up. I've been told that a seven-year improvement period, instead of age decline, can be typical depending on what age you enter the running sport. You should expect improvement if you train hard and stay healthy.

In 2012, at the age of 53, I suffered a serious stress fracture in my tibia that sidelined all my running for about six months. I learned the reality that with older age, bone strength is decreased and I needed to be much more careful to avoid injury. Because of my new leg injury, I no longer could run fast sustained shorter road races (5Ks, 10Ks, marathons) because of the stress caused on the healed bone injury. But I was fine with that. With age, those fast-paced races would often cause muscle strains anyway, which I wanted to avoid. I needed to stick with the age-friendly 100-mile distance.

From age 55 to 58, the chart shows my performance has been pretty steady with the trend line starting to go up (declined performance). Through my 50s, I bucked the aging decline curve and actually have improved about 8% total. But in recent years, the trend line is indicating that I've finally started to decline, perhaps at a rate of about 1% per year.

At age 57, in 2016, according the realendurance.com, I achieved the 5th, 6th, and 8th fastest 100-mile times in the world for runners age 57+. Also for 2016, my 110 miles in a 24-hour race was the 2nd furthest in the world for runners age 56+. At age 58 I beat my 2016 time by a few minutes. I've concluded that for me, I really can't expect any better than to among the best in my age group for this long distance. I'm probably doing the best I can. Working harder would probably decrease performance.

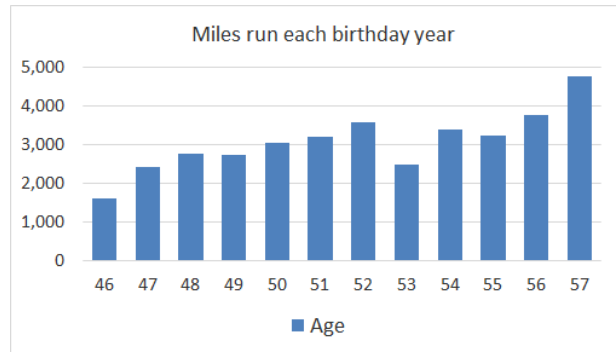
What might be possible as I get into my 60s (if I continue running 100-milers)? Will the decline be huge? One example to look at is the runner who has the most 100-mile finishes in the world, Dan Brenden. Even in his 60s, he has been able to maintain 24-hour 100-miler speed.



Increased training

Runner studies indicate that the yearly decrease in performance can be delayed somewhat with vigorous training. I believe my training has been accomplishing this.

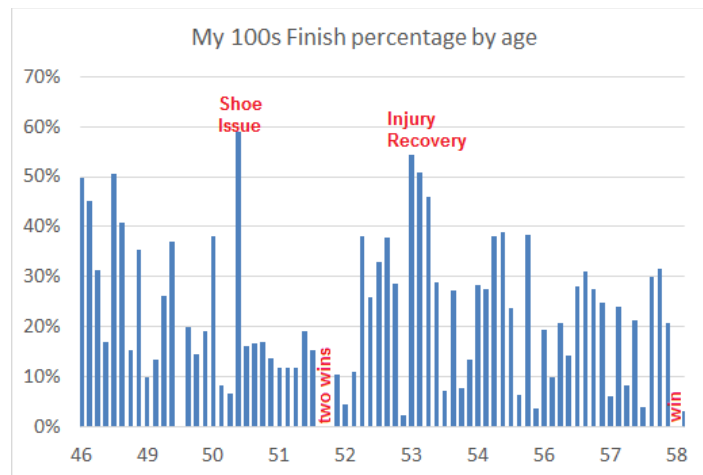
Countering the effects of age takes some hard work. Instead of decreasing miles as I get older, I have increased them. Compare this with my previous chart to see that what increased work has been needed to sustain my performance in my late 50s. At the time of this writing, I'm 58 and my weekly miles so far rivals what I did at age 57. (Note that age 53 was affected due to my significant injury.)



Measuring race performance

The ultrasignup website uses an odd method to compare how well you perform in your races. A percentage of time behind the winner time is scored for you. I dislike this method because all it takes for a low score is for a very elite runner to be in the field. It measures who showed up to race rather than how you really did. Also, your lower scores early in your running career live with you forever.

Instead, I like to know: Did I finish in the top 10%, top 20%, etc. for all runners who started?



This chart includes my 100-mile finish percentage. I didn't include races with small fields of less than 25 runners. A lower percentage is better. It indicates that I finished higher overall in the standings (example: Top 10%). For a win, I finished in the top 0%.

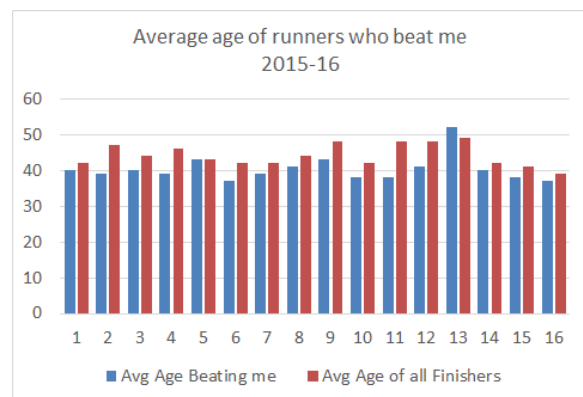
This chart shows that I had peak 100-mile performance from age 50-52 when I was regularly finishing around the top 10% of the fields. But even so, into my late 50s, the overall performance has been generally sustained. I now place quite a bit lower on mountain 100s compared to flatter courses. Runners into their late 50s should believe they can still perform well with good hard work.

Beating the Youngsters

As an older runner, frequently I look around me while running and see that I'm running with many younger runners. Thoughts go through my mind that I have no business running up with these youngsters. I get called "sir" a lot by young runners respecting their elders. If I start walking, they look at me concerned and ask a question that always bugs me, "Are you OK?" But it is always very satisfying to look at the race results and see my old age in with many of those youngsters.

At the end of 2016, I ran Across the Years 24-hour race and finished at a respectable 6th with 110 miles. I was surprised that most of my competition near the top of the standings were runners in their early 30s. The average age for the five runners that beat me was age 35. For an old man of 58, that made me feel young.

This chart takes a look at the average age of finishers (in blue) who beat me in 100 milers when I was age 56-57. The red lines indicated the average age for all finishers in that race. In this case, to clearly out-perform my age, I like to see those low blue lines into the 30s. In most of my 100-milers, there is no one older than me, who finishes ahead of me. That helps me believe that I'm still performing near the top of my age group.



Beating the Aging Curve

What can be done to do better beat the aging curve? For me, beating it to some degree each year is a great personal victory. To compete against the decline, the factors that contribute toward it need to be understood.

The typical reasons for age performance decline are:

- Reduced Aerobic Capability (VO2 Max)
- Reduced training volume and intensity
- Injury

Aerobic Capability (VO2 Max)

The primary factor for lower performance by age is likely a declining VO2 Max, the aerobic horsepower. I've never had mine measured, but I can tell that over the years my max heart rate has declined. It becomes harder to keep the heart rate high during tempo runs.

Some believe that older runners should reduce the number of longer runs and concentrate on working harder at 5K pace, running with a heart rate close to maximum, and to race these shorter distances frequently. Perhaps this is true if your only goal is to chase marathon minutes. But for 100-mile performance, the long run is required. Instead of fast 5K tempo runs, I now incorporate periodic faster long runs with some shorter (6 mile) tempo runs sprinkled in. For me, it isn't only helping VO2 Max, but it also is training my old feet to still turn over fast.

My Path to Ultrarunning – Davy Crockett

Another factor for me that is related to VO2 Mas, is a chronic congestion problem that occurs during runs of 50 miles or more. My older brother also has this problem. Perhaps it is a form of sports asthma or just a chronic sinus problem. My lungs start filling and I can notice that less oxygen is making its way through my system. When my stomach gets less oxygen, it starts shutting down and processing less calories. As I compare notes with other older runners, many also suffer from a similar condition. Courses at altitude makes even less oxygen available and thus causes me to suffer even more. My solution is to treat the congestion as I can, and to just understand that I will have greater difficulty with high altitude courses like Leadville, Bryce, Wasatch, etc.

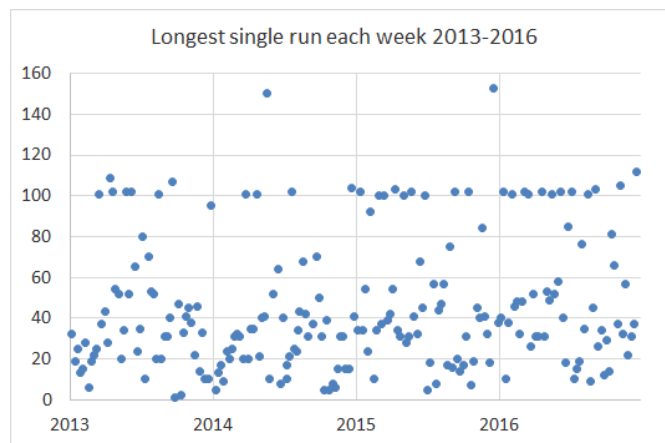
Training volume and intensity

As I have gotten older, it has become harder to get out and train. Cold and hot weather affect me more. It becomes difficult to motivate myself to go out into the elements. Reduced frequency and intensity of training will obviously cause the aging performance to decline faster.

In my early 50s, I needed less sleep and it seemed easy to get out for a morning run. In my late 50s, more sleep seems to be needed and I battle the alarm clock much more.

One easy solution has been putting an incline treadmill in my basement. Sure, it can be boring, but with all the multimedia available, it can be tolerable. It also helps train me to be mentally tough, an aspect required to consistently finish 100-milers.

I now concentrate on the weekly very long run instead of daily runs. Aging affects recovery, but I've discovered that if I do weekly very long runs that my recovery time is significantly reduced as long as I avoid muscle strains. My recovery time in my late 50s is far, far faster than it was in my early 50s. I can go out and run 50 miles and feel no soreness or fatigue a couple days later. I can easily battle the mental barriers of getting out to train by planning creative long and interesting runs each week.



This chart shows the longest single run each week across four years when I was age 54-58. As can be seen I have greatly increased the number of runs that are 50K or longer each year. This increased intensity of training has helped me delay the age-related decrease in performance.

Injury

Once I turned age 40, I noticed that my basketball-related injuries started to take much longer to heal. I knew that I was getting old. I retired from the sport I dearly loved in order to avoid injuries. With age, avoiding injury is critical. I watch reckless young runners doing stupid things in the mountains and think that they will be very lucky if they can still run at my age. Because I started running at age 46, I believe I saved many miles on my body that I now can use. I also avoided injuries pretty well in my youth. My bad knee was the result of a torn meniscus while skiing. After that, I gave up my other love, pounding the moguls on skis. I now ski only occasionally and am pretty cautious.



Earlier in my running career I learned how to run trails downhill with very good speed. I think all my skiing experience helped me to be fast and confident pounding the downhills with good technique and balance. But as I aged further (losing some balance and coordination), and because of my leg bone injury, my downhill speed has greatly declined. To counter that, I have concentrated on my uphill speed. At 58, I have trouble keeping up with younger runners on steep uphill because of declining VO2 Max, but I can run mild uphill with pretty good speed during an entire 100-miler. That has taken some good incline training to produce. During a mountain 100-miler, I will fall behind the steep early miles, but with patience, I am passing most of those runners on uphill beyond mile 60.

As you get older, the connective tissues between muscle and bones become more rigid. Range of movement decreases along with a reduced running stride length. Poor flexibility increases the risk for injury. Muscle mass also starts decreasing faster. To counter these factors I've had to start to do more core exercises and introduce some weight training. I know I probably will need to start adding more stretching. But these other activities are frustrating, taking time away from running.

As you age, you have got to listen to your body much more carefully. You need to know when recovery is needed and avoid at all costs any rigid training programs forcing you to train instead of listening to your body. You need to learn to recognize well the difference between discomfort and injury. For me, an injury is something that affects me for more than ten days. Most manageable discomfort will still go away in under ten days.

You need to know when to go to the doctor for help. I'm really bad about this. Early in my running career when I didn't know the difference between discomfort and injury, I would go to the doctor and get those weird sideways looks when I would explain my difficulties and what I did to cause them. In several instances they would go off in the wrong direction, cause worries, and provide no real help. Thus, over the years, I have tended to just avoid doctors unless I really know that I have an injury that needs help. I then usually tell them specifically what it's wrong and they agree. The best solution for me is probably to find a good doctor who is also a distance runner.

Old is Cool



Around 1984 when I was about 25, while working for IBM in upstate New York, I became acquainted for the first time with a serious marathoner, a man in his late 40s, Ron Breon. This guy was amazing. I considered him to be old, but he could outrun everyone I knew. How was that possible? Ron would lead a small number of runners several times a week for a run after work. This group would run what I considered a very long loop of four miles around our town. One day I decided to join in, thinking I was in pretty good shape. Ron ran with ease, never tiring. I struggled terribly to keep up and fell way behind but completed the run. I was humbled and never joined in again, but I always remembered watching Ron run. He put in my mind the amazing thought that someone who was “old” could be in such outstanding fitness, outrunning others in their 20s. Ron once said that the secret to being in shape was to never get out of shape. I had not learned that yet, but eventually did when I arrived at his age.

The running aging curve is real, but you can beat it with careful hard work. As you do, you can explore the world in amazing ways late into your life.