

How Climate Change is Changing Running

As we welcome the beautiful month of May, I'm asking runners and readers of this newsletter not to leave Earth Day in April. For many of us, the outdoors is a lifeline. Pounding roads and trails, being a runner often means hours outside every week through all of the elements (for those of us who loathe the treadmill). Keeping Earth Day in mind every day means not only appreciating the planet we have, but also understanding how to take care of it, and how to take care of ourselves as the threat of a changing climate persists.

Why We Need To Be Outside

The research supporting how exercise and spending time outside benefits our mental and physical health is abundant. But for running specifically, being able to safely run outdoors can be essential not just for our mental and physical wellbeing, but also for our training.

There is nothing like a long run outside. Navigating different neighborhoods or trail systems, that time is precious to many runners like me. In the wintertime, those runs can help stave off seasonal depression and sickness as we are among the few who continually get Vitamin D exposure and maintain an exercise routine filled with endorphins.

Even on cloudy, gloomy days, that fresh air and engagement with a world beyond the bubble of our homes and apartments helps us feel a part of something bigger than ourselves. We pass runners embarking on runs long and short, exchanging smiles, nods, waves, or even high-fives of encouragement with total strangers, knowing we are connected by this sport.

For some runners, going outside means meeting up with a run club at a local park and physically being a part of a community that breathes and works together.

It isn't just sunshine, fresh air, and people that we find outside. Being able to train on different terrain can be essential for race preparation. Those turns you take on street corners? They're strengthening your feet, ankles, and balance. Those hills you dread on your running route? They're building muscle in your quads and calves to tackle the hills of your goal race. Getting to run down those hills? Just as important as running up them, because you do not want to be ill-prepared for how downhill running can wreck your quads in a race.

Especially for trail runners, that time in mountains and parks can be crucial to prepare for trail races and ultramarathons where you have to power through uneven terrain, jump over roots and rocks, cross over streams, and prepare yourself for high altitude for distances as long as 250 miles for the really ambitious (crazy).

Most of all, putting in those miles through myriad conditions gives you the confidence that you can handle anything. Conquering a long run through a rain shower, sweltering heat and humidity, or icy snow storms enables you to feel even more confident that when you show up on race day, no matter the weather or terrain, you can handle it. Even if you never run a race, surviving the toughest workouts and runs is one of the most special things you can do to prove to yourself your own strength, bravery, and resilience.

Runners' relationship to the planet is undeniable. But as Earth suffers amidst the climate crisis, it's time to deepen how the running community engages with the environment.

How We Impact the Planet As Runners

I remember standing on the sidewalk of First Ave watching the New York City Marathon in 2022 and seeing the discarded water cups, gel packets, banana peels, posters with encouraging messages, and other scraps that collected on the streets as 43,879 people ran through the city. I wondered if any of them felt a pang in their chest the way I did as I watched the garbage continue piling up as the day went on.

But trash represents a tiny fraction of a runner's carbon footprint.

A [study published in 2021](#) found that the bulk of a runner (or even a spectator's) carbon footprint, or "a measure of the amount of carbon dioxide and other carbon compounds emitted due to the consumption of fossil fuels by a particular person," comes from transportation to events.

The World Major Marathons in New York, Chicago, Boston, Tokyo, London, and Berlin draw thousands of runners from around the world. These are the premier marathon races, often occupying people's bucket-lists to complete one or all of them. Many of their participants fly to get there—producing the most greenhouse gas emissions of any mode of transportation.

There is an option to buy carbon offsets for air travel, which entails spending money that goes towards projects that reduce carbon emissions to offset the additional carbon in the atmosphere that you are responsible for. However, choosing that option is never as effective as opting out of contributing those emissions in the first place. We don't want carbon offsets to become an excuse to continue putting carbon in the atmosphere.

I don't want to shame anyone who flies to races; I'll be flying later this year to Georgia for my next marathon. If it isn't a yearly habit, something you do every once in a while for a special opportunity, by all means continue living your life and enjoying this wonderful sport. But there are people out there who fly to multiple races per year—to them, I encourage you to explore your nearby communities. There are many more races out there than just the flashiest destination ones, and it never hurts to engage meaningfully with local runners.

As we turn to thinking about our own communities, we have to remember the privilege of running in welcoming neighborhoods, lively cities, beautiful parks, and scenic trails, for those who have access. Back in 2022, I was reassured by the thought that the New York Road Runners and the city itself are well-equipped to handle the cleanup of one of the world's most prestigious marathons. But what about smaller races in local communities, or even the day-to-day runners who may not pick up after themselves?

When we step outside, it's every runner's duty to respect the places we run. On my long runs, I always bring my empty gel packets back with me or dump them in a garbage can if I can find one. I especially applaud the runners who stop to pick up trash along their runs, turning it into an eco-friendly game or goal to pass the time of many isolated miles.

Some runners take eco-consciousness a step further and make their own gels or bring fuel in reusable packaging—I for one am a fan of packing SaltStick chewable tablets into Stasher

reusable silicone bags that I can easily wash when I get home. We must leave the trails as we found them, if not even cleaner.

How Climate Change Impacts Us

I aspire to put the planet first by thinking about the ways in which I can make this world better, before I think about how it impacts me. The reality is, though, this planet is changing, and that can be especially scary for runners who spend so much of their time outdoors.

As runners, heat can not only be detrimental to our performance, but also to our safety. The National Weather Service predicts this to be the [hottest summer on record](#). Any runner knows that running in the heat is hard, but there are numerous ways in which heat impacts the body that we may not think about when we step out the door for those summer runs.

A [study from 2021](#) outlined the physiological impacts of exercise under heat stress. As our planet warms and summers become hotter, the most imminent threats to runners out in the heat are exertional heat illness, and in the most severe of cases, heat stroke.

“Heat exhaustion often occurs in hot and humid conditions and is characterized by heavy sweating, malaise, fatigue, and dizziness. Nausea, vomiting, headache, fainting, weakness, and cold or clammy skin may also be observed,” the study’s authors wrote.

Muscle cramps can also occur as a result of heat exhaustion during exercise, especially when training load and intensity are high, the authors indicate. This is when hydration and sodium intake can be crucial as well, as sodium loss can be a precursor to heat-related muscle cramps.

In the most extreme of circumstances, runners can experience heat stroke. The risk of adverse outcomes increases the longer your body temp remains high, with more extreme symptoms like dizziness, vomiting, seizures, multiorgan failure, and even coma occurring the longer the body is unable to cool down. The best remedy is cooling down the body as quickly as possible.

Humidity is another important factor to consider. The more humid the air is—meaning, the more water vapor in the air—the harder it is for our bodies to cool off as sweating becomes near impossible with the atmosphere reaching its peak capacity for water. This can escalate the effects of running in the heat and the demand placed upon our bodies.

Heat also worsens air quality. Ground-level ozone notably worsens during heat waves, [according to IQAir](#), which provides real-time global air quality. “Heat acts as a chemical catalyst and converts existing elements in the air into ozone and other harmful byproducts,” IQAir writes.

With heat waves come increased wildfires as well, one of the main generators of ozone pollution as volatile organic compounds flood the air. I’m sure many people recall when wildfire smoke spread down to New York, turning the city’s sky an apocalyptic red-orange that prevented people from leaving their homes without a mask.

Air quality has become an increasingly important factor to consider while running. We are breathing harder, more frequently, and requiring more oxygen to be pulled into our body in the process; but as we encounter more days with poor air quality, it may mean running outside is not an option. Many runners were forced onto the treadmill during last year’s wildfires, while

others had to skip their runs altogether. The [Air Quality Index](#) provides guidance on when it is safe to exercise outside, while IQAir can tell you what your current city's air quality is.

While air quality presents a complicated challenge, the most important thing is that we always put our health and safety first; running on a day filled with smog is not worth the damage to our lungs. Save your health for the days when the air is clear and the heat is bearable, so you can run at your best while staying safe.

How To Stay Safe in a Changing Climate

After understanding how climate change jeopardizes our running and health, there are crucial steps we have to take to stay safe while running into a warmer future.

One of the most immediate things in our control is how we prepare for a hot run. The most ideal time to run is early in the morning or in the evening when the sun is low, but even then the day's heat may never relinquish.

Something that became a regular practice of mine while marathon training last summer was to stick my hydration bladder in the fridge overnight and then pop some ice cubes in it in the morning. I've also heard of folks freezing a small amount of water in their handheld bottles overnight as a makeshift ice cube.

I remember running along the Albany Rail Trail in summer 2020 in late-morning heat—in the most inefficient way possible—and zig-zagging along the path to catch every patch of shade I could. It may not have been practical, but it did help.

During a July half marathon, where the temperature was already 80 degrees at the starting line, I tried to stay as cool as I could by dumping water all over me at multiple water stops. Electrolytes were also a huge priority during that race—I used the Huma+ gels with double electrolytes combined with Gatorade along the course, and I think that's probably why I didn't end up cramping.

Shade, wearing a hat, drinking (or dumping on yourself) ice-cold water, and wearing light-colored, reflective, breathable moisture-wicking clothes are all effective ways to stave off the symptoms of running in the heat and help your performance as much as possible. But hydration is probably the most important of them all.

When we run in the heat, we sweat more, therefore losing more electrolytes. Summer running demands more electrolytes, but as the planet continues warming it becomes all the more essential to consider even in the spring and fall months. It's hard to overdo it on the sodium in my experience and I always bring extra SaltStick electrolyte chews with me, even if I don't end up using them. I fill my hydration vest with extra electrolytes in anticipation of a hot run and bring gels I know have a higher sodium content.

Some (crazy, in my opinion) people even consume straight salt packets on runs.

Whatever you need to do to get those electrolytes in—do it. Your body will thank you and your training will not needlessly suffer. There were too many days after long runs where I'd feel extra run down, tired, and have a headache, but the second I drank a tall glass of water mixed with

electrolytes, I felt better. Just because the run ends does not mean your high hydration and electrolyte needs do too. In fact, I find it hard to take in enough water and electrolytes on runs sometimes, so I follow my run up immediately with extra electrolyte-infused hydration to top it off.

Another important factor to consider for older runners (60 and above), according to the exertional heat study, is that as you age your sweat response becomes less effective; however, the fitter you are, the better ability you have to thermoregulate your core temperature while training.

Lastly, while this may hurt that all-too-resilient stubborn mindset, we must slow down when running in the heat. If race day approaches and temperatures are soaring, it's time to adjust your plan—taking in more electrolytes, more fuel, and even scrapping your goal time or pace. It may not be ideal, but you'll be doing yourself a favor by adjusting your effort accordingly and simply trying to finish strong, rather than going all-out and ignoring the heat that will catch up with you, and possibly prevent you from finishing at all.

Even on everyday runs in the summer, you have to slow down. Run according to how you feel, not according to the pace you think you should be running. With higher temps comes increased effort at slower speeds.

Running in the heat can become very serious very quickly the fewer precautions we take to protect ourselves, especially as it becomes more apparent that we will be running in hotter temperatures more frequently. The good news is, aerobic endurance enhances our ability to shed heat more efficiently. Heat acclimatization can be quite beneficial for runners as well—while we do have to run slower in the heat to stay at an easy effort, this easy running expands our aerobic capacity as our body adjusts to the harsher conditions. Once fall comes and cooler temps relieve us, we often find ourselves running faster but still maintaining an easy effort—results from all of the hot, summer miles.

The most important thing we can do is not let our pride or stubbornness to get our runs in come at the cost of our health and safety. There are temperatures where it is simply unsafe or unbearable to run, and we have to use our best judgment. Especially if you have a long run or tough speed workout, consider moving that to another day or hopping on the treadmill if the conditions are going to make you suffer needlessly.

How to Take Action

Every community has local environmental initiatives (if not, consider starting your own with fellow running friends!); those can include trail cleanups, composting services, upcycling and recycling programs for old clothes and electronics, and advocacy groups that organize protests or lobby important environmental legislation.

For runners specifically, there is an organization called [Runners for Public Lands](#), “dedicated to protecting the people and places we love by organizing runners for climate action, sustainability practices, the protection of public lands, and equitable access to nature.” On their website, you can become a member to support their advocacy and conservation efforts, or find programs to get involved in.

At the heart of environmental advocacy is spreading awareness and accurate information to galvanize others to get involved, or simply to keep the conversation going. Another great resource for runners is Tina Muir and Zoë Rom's book, [*Becoming a Sustainable Runner: A Guide to Running for Life, Community, and Planet*](#).

For many runners, the ability to get outside and run safely is like a vital organ. To make sure we can keep doing that, we have to maintain our sense of community and obligation to our planet. Any action step is a step forward, no matter how small it may be. Those little acts can snowball into community organizing and building something beautiful where runners work together to preserve and better our planet that is in dire need of our help.