CHAPTER 18

The Nature Cure

In every walk with nature, one receives far more than he seeks.
—JOHN MUIR

In many modern societies, biophilia and the recognition of nature's extensive values [lie] dormant. Our present day context of sprawling settlements, enslaving technology, compulsive consumption, and weak natural sciences educational curriculums account for much of this disconnection and apathy, and yet at significant socio-economic and potentially irreversible environmental costs.
—HELEN SANTIAGO FINK

MYTH: *Exercise promotes health, regardless of where you are.*

FACT: *Evidence shows that physical activity in nature provides additional levels of mental and physical health and well-being.*

Nature is something we tend to forget, or take for granted, yet it ties much of this book together. The natural world is the source of the food we eat, the air we breathe, the water we drink, and the resources that go into the products we consume. Evidence strongly suggests that exposure to nature benefits physical and mental health in a variety of important ways, and can derail disease before it develops.

Humans are a species—highly evolved, we believe—that is inextricably linked to the natural world. And by moving our bodies

through the range of motion we were designed for, including running, we become an extension of nature. What could be more fulfilling than to express ourselves in the most complete and natural way we can? And what more appropriate place to use and care for our bodies than in the environment in which we evolved? Medical researchers understand much about what happens to us physiologically when we exercise. We know less about the more intangible qualitative benefits of moving and *being* in the outdoors.

Sports, which are generally done outside, are a proxy for managing the challenges of nature. It may be no coincidence that some of the most popular *individual* sports are those that place the human body in a natural setting with only minimal tools or mediation: mountaineering, rock climbing, skiing, surfing, and swimming. And running. These activities pivot around the same basic goal: *to efficiently and gracefully negotiate the challenging terrain ahead, assisted by little more than the bodies and minds we were born with.* (Or, from another perspective, to simply get through it without falling, crashing, or sinking.)

AN EPIDEMIC OF E-DEVICES

The average number of hours per day that people spend indoors on digital devices seems only to climb, while our time spent outdoors—and in nature, especially—declines. Children and "screenagers" are especially vulnerable to a physically nondemanding but attention-robbing indoor lifestyle, such that we are broadly witnessing what Richard Louv (author of *Last Child in the Woods*) has termed "nature deficit disorder." The habit of remaining indoors continues even as we learn how interior, manufactured environments (along with the poor nutrition and lack of physical activity that tend to accompany them) contribute to obesity, high blood pressure, type 2 diabetes, heart disease, depression, and many other illnesses.

It's as if kids these days are under self-imposed (or parent-directed) house arrest. A study by Frances Kuo and colleagues found that children who engage in outdoor activities in nature exhibit significantly fewer symptoms of attention deficit hyperactivity disorder (ADHD) than children who engage in activities in

other settings. These findings were consistent across age, gender, and income groups, as well as geographic regions and diagnoses. Related research has shown that children with ADHD focus better on tasks after as little as only twenty minutes outdoors. Outdoor play in natural environments also fosters improved relationships among children and better cooperation, communication skills, and creativity.

The mental health benefits from time spent in nature may even exceed the significant physical benefits. Experiments performed by Marc Berman and researchers at the University of Michigan have demonstrated nature's broad restorative value in terms of cognitive functioning. "Nature, which is filled with intriguing stimuli," he concludes, "modestly grabs attention in a bottom-up fashion, allowing top-down, directed-attention abilities a chance to replenish." Urban environments, by contrast, overflow with stimuli that continually demand our top-down attention (to avoid being hit by a car, for instance, or to continually check that your handbag is safe). This ultimately depletes rather than restores cognitive function.

In another study, Ruth Ann Atchley and colleagues confirmed that exposure to nature can replenish our ability to focus attention on a specific task. Atchley sent fifty-six women (who had never previously hiked) out into a remote area for four days, disconnected from all media and technology. Before their hike, they were tested on creative problem-solving tasks that draw upon higher-order cognitive skills. Four days later—while still out in nature—they were tested again. Their performance improved by 50 percent.

WHEN IT COMES TO THINKING, LESS IS MORE

In addition to a short-term performance boost on cognitive tasks, exposure to nature may offer longer-term benefits to mental well-being. A study by Gregory Bratman and colleagues at Stanford compared participants who went on a ninety-minute walk through a natural environment with those who walked through an urban environment. The nature walkers reported lower levels of rumination—repetitive, self-referential, negative thoughts—and showed increased neural activity in the subgenual prefrontal cor-

tex. Deactivation of this area of the brain is linked to an increased risk of depression and mental illness.

More than half of the world's population now live in urban areas, and by 2050 this proportion will reach 70 percent. Bratman's findings suggest that in our rapidly urbanizing world, investments in access to natural environments could yield valuable mental health dividends for urban dwellers.

A PRESCRIPTION WITH ENDLESS FREE REFILLS

Although "nature deficit disorder" isn't recognized as a medical term, I hope that it will gain broader currency, applying to a variety of physical, mental, and emotional symptoms that correlate with isolation from the natural world and lack of exposure to sunlight.

Family physicians are especially well positioned to treat it. As doctors, it behooves us to help connect our patients, especially youth, to the outdoors—for the same reasons that we need to initiate more doctor-patient conversations about prediabetes, diet, and obesity.

I'm honored to be a part of several collaborations with government agencies, corporations, physicians, and local civic groups. Nature Prescriptions is one of these, and we are dedicated to improving public health by linking the health care system to our public lands. Especially useful are the maps and info on regional parks and trails. (The *Discover the Forest* page, for example, includes a park finder that is searchable by zip code.)

The National Environmental Education Foundation is another organization that has zeroed in on getting kids more involved with nature. And the Children & Nature Network, cofounded by Richard Louv, is dedicated to getting kids, families, and communities reconnected to the natural world.

FILL THIS PRESCRIPTION IN YOUR LOCAL FOREST

Motivated by the objective of improving public health, even the National Park Service has gotten in on the act. The national Park

Rx initiative (parkrxamerica.org) is a coalition of health providers, public land agencies, national nonprofits, community organizations, and the NPS, offering park prescriptions programs across the nation. (Yogi Bear takes on a whole new meaning.) And Park Rx America helps doctors to offer their patients access to a free health resource—their local parks. A patient's electronic medical record shows their zip code, and doctors can offer patients a map of their local parks and trail systems. Currently, the network draws from an online database of more than 350 green spaces in the D.C. area, now expanding to a wider region, including West Virginia. The receptionist prints out the patient's local map as they depart.

If you're located in an urban area, a city park is better than no park. Some may argue that urban green spaces, while pleasant, don't offer much of a dose of unmitigated nature. But they provide valuable respite and restoration from chaotic urban life. City parks not only boost individual health and mental wellness, but they are good for the cities, too, due to the cooling effect of evaporation from soil, grass, trees, and waterways. Urban green spaces also offset the absorption of heat by concrete and asphalt. Buildings located around parks use less energy for cooling.

Jennifer Wolch and colleagues found that among three thousand children aged nine and ten, those with access to parks (within five hundred yards) and recreation programs (within six miles) had a significantly reduced risk of obesity at age eighteen. And simply painting urban spaces green brings people outside more often.

You cannot medicate your way to health. Medications and therapy are marginally effective for many chronic conditions. As a doctor, I feel it is essential to prescribe nature to most of my patients. (If only nature prescriptions could be billed to insurance companies, more doctors and medical professionals would prescribe them.) Why do many medical doctors—clinical biologists, in effect—seem to view and treat humans as separate from the natural, biological world? Too often, what physicians see and treat are diseases of captivity.

With my patients, I usually approach the topic indirectly. Rather than ask, for instance, "What do you do for exercise?" I'll say, "What do you like to do that involves movement outdoors?" Continuing in this vein, I might ask, "How does it make you feel

when you come back from that activity?" or "How do you feel if you've gone a week without getting outside or visiting a park or natural area? Do you prefer to be solitary, or with a group, and move with intensity, or in a leisurely way?"

How a patient feels is not a bad indicator of their health. So I solicit a bit of subjective medical history by asking, "During what period of life did you feel the best?" and then have them tell me *why* that is. The process of simply sharing this information serves to remind them of the value of the activity.

As a follow-up, I'll ask, "Would you like to find a way to do more of that?" Then I might offer some background on the benefits of walking, for instance, especially if the patient has high blood pressure or insulin resistance. In a way, I'm prescribing *purpose:* a means to reach a level of vitality that will make them feel better.

I give patients permission—okay, I encourage them—to go outside in almost any conditions and circumstances. As a medical student working for the Alaska Native Health Service, I lived in Nome for three months in the dead of winter and saw little sunlight. As often as I could, I went out and ran on the firmly packed Iditarod Trail. The cold, blustery weather was refreshing and rejuvenating, and it woke up not only my mitochondria and capillaries, but also my entire nervous system. (I started my runs into the wind, so that I could save the homeward, downwind leg as a reward at the end.)

People have somehow been convinced that the environment for exercise needs to be comfortable and homogeneous. I don't recall enjoying running any less in Nome than I do now that I'm back in a much warmer climate. The body needs to experience a variety of environments in order to adapt and thrive. Look at the conditions that wild animals endure, and the adaptations they make. They can survive extremes of heat and cold, throttle up intensity (such as when chasing prey or running from predators), and sleep or hibernate (when they need to conserve energy). Like our animal kin, we evolved to function well in many circumstances and all seasons. To replicate that, we should add new and different stresses each day. There's no bad weather, it's said—there's only bad clothing (and lassitude). If you're like me, the most memorable experiences transpire when conditions are unfavorable.

RUNNING OFF INTO THE WOODS

I have a number of colleagues and friends who are committed, athletic runners, yet they've never entered a road race. They are trail running enthusiasts. In addition to a refreshing shot of nature, trails offer the challenge and stimulation of changing terrain, and they generate less impact than hard pavement.

One friend, Bill Susa, began running in 1996, at age thirty-four. The same year, he was diagnosed with a cardiac arrhythmia. Less than a month later his father—an avid and accomplished runner—died.

"You would think that would be it for me," Bill told me, "but I was convinced I had to stick with running—not only as a touchstone to my father, but for my own physical health." In 2005, he moved to within a mile of the Appalachian Trail, and discovered trail running. "I have been hooked ever since," he said. "It's my chapel, my meditation, and my source of inner peace. It has helped me through a nasty divorce, estrangement from my daughter, and the high stresses of my career—I'm an air traffic controller."

Then in 2014, Bill was diagnosed with adrenal fatigue, attributed mainly to disruption of his circadian rhythms from his erratic work routine. "Between working different shifts every day of the week and trying to train seventy to ninety miles a week, I was on an unsustainable trajectory."

Bill couldn't *not* run. So he took a break and dialed back his training mileage (and performance expectations), and normalized his work schedule. After a few months he began making progress toward recovery. Along the way, he changed his point of view.

"Now, I'm saddled with—or enlightened by—a new reality. I view my trail runs not in terms of training, but as a form of recovery that is spiritually, physically, and emotionally necessary for my overall well-being. On each run, I await that magical, transcendental moment when my conscious mind shuts down and I find myself floating effortlessly down the trail, one with my surroundings. Each leaf, each stone, each tree becomes a part of me, and I an equal part of them. As the trees whiz by, I feel the tethers that bind me to my health challenges slip away. My mind enters what I can best describe as a state of flow. Brain chatter—good,

bad, and indifferent—ceases, and in that moment, in that span of immeasurable time, I'm enshrouded not by my limitations, but by a wellspring of hope: *I am free, and alive.* This is what I imagine heaven feels like."

SEEKING OUT NATURE SURPLUS SYNDROME

I haven't met anyone who seriously tried trail running and then gave it up. Nearly everyone who gets into it stays into it. I believe that's because trail runners think not in terms of *having* to go out and run, but *getting* to. As good as indoor cardio classes can be, I'm not sure they muster the same motivation, nor offer the same rejuvenating thrill and enjoyment, of trail running.

So get off your computer, get outside, get active, and make your feet your friends! The celestial realm that Bill Susa found in nature awaits.

DRILLS

- *Head for the sun!* Bask in the robust body of evidence that the sun and fresh air generate positive hormonal and mental effects. Healthy, restful sleep is essential on the far end of the daily spectrum—and this is boosted heartily by time you spend outdoors on the near end.

- *Get a dog,* or spend time with the one you have. Dogs know what's best for you—hence their insistence that you walk or run or move outside. Their companionship mitigates the isolation that is often a by-product of the modern, digital world.
- *Take a trip into nature.* Go hiking or even car camping. You'll find that your mind (and priorities) "reset," and that your awareness, focus, cognitive abilities, and feeling of well-being will return with you to civilization. The Japanese call this forest bathing.