TheScientist
EXPLORING LIFE, INSPIRING INNOVATION

Time Spent in Nature Is Good for You

Research has repeatedly suggested that spending time in natural environments improves ment and physical well-being. Now, scientists are gathering the data needed to incorporate this phenomenon in health-care guidelines.

Oct 1, 2019
JEF AKST

ABOVE: © UNSPLASH, DAVID NARCU

Mathew White is on a mission to garner Mother Nature the respect he thinks she deserves when it comes to human health. For decades, scientists and health-care professionals have recognized that exposure to green spaces, such as public parks or forests, is linked with lower risks of all sorts of ailments common in the developed world—including cardiovascular disease, obesity, diabetes, and mental distress—and even of mortality. Experimental work has demonstrated myriad physiological responses that occur when people spend time in natural environments: blood pressure drops, heart rate decrease immune function improves, and the parasympathetic nervous system directs the body to rest and digest.

As humans increasingly populate urbanized areas, they are spending less and less time in natural environments—perhaps to the detriment of their health. But before doctors can start advising their patients to head to the neares park, there is an important outstanding question, says White, an environmental psychologist at the University of Exeter Medical School in the UK: How much time in nature do you need to generate these apparent benefits? Mo of the research that has linked health outcomes with exposure to the natural world didn't use frequency or durati of park visits, but rather the amount of green space within a certain distance of a person's home, White says. But ' not so much where you live; it's whether you use it or not."

The UK government had just the data he was looking for. The Department for Environment, Food & Rural Affair (Defra) carries out an annual survey called Monitor of Engagement with the Natural Environment to gather data how UK residents use their local public green spaces to guide policy decisions regarding land use. In the early 201 however, when White wanted to use the data to estimate what dose of nature was needed to show benefits to a person's health, Defra wasn't gathering information on health and wellbeing. So he and his colleagues asked the government to add a few questions to the survey, then waited a couple of years for the answers to roll in.

With responses from nearly 20,000 participants in the 2014/15 and 2015/16 survey data, White's group found the answer he was after: spending at least two hours in nature per week was strongly correlated with self-reports of be in good health or having high wellbeing. "I was very surprised, to be honest," says White. "We had no idea" that su a clear threshold of time per week would emerge from the data.

He was further surprised to learn that it didn't seem to matter how many trips to a park people took, so long as th got in their two hours per week. It could be a long visit one day, a couple of hour-long trips, three visits of 40 minutes, or four half-hour excursions. "They were the big categories that we were able to look at, and we found th it was exactly the same," says White. He and his colleagues speculate that, if nature's apparent health benefits are a

result of being able to de-stress, then whatever pattern of green space exposure fits one's schedule is probably the best way to achieve that goal.

Researchers have yet to completely describe the physiological mechanisms underlying the apparent health benef of time in nature, but relief from stress is undoubtedly part of the whole picture, says the University of Edinburgh Catharine Ward Thompson, a landscape architect who studies how the environment affects behavior and health. and others have shown, for example, that "natural environments appear to help the body regulate the functioning the hypothalamic pituitary adrenal axis, which regulates cortisol secretion and whose dysregulation is associated with a range of disease outcomes." Other proposed mechanisms include natural environments' positive effect on ability to focus our attention after a long, cognitively demanding day, and an abundance of microorganisms that appear to boost immune function. And plant life can emit antimicrobial volatile organic compounds while filterir out pollutants in the air that can have detrimental effects on human health.

Humans are spending less and less time in natural environments—perhaps to the detriment of their health.

Researchers agree that health-care recommendations for people to spend time in nature are probably years away but "the movement has begun," Teresa Horton, an evolutionary and ecological physiologist at Northwestern University, writes in an email to *The Scientist*. Several organizations around the world now promote awareness of nature's contribution to health. "Researchers in the area are working to have their voices heard by policy makers [to] organize the available information to make the case for 'nature as medicine,'" says Horton.

White is now working with the UK government to obtain more longitudinal data that will yield further insights in the relationship between the natural environment and human health—and clearer answers to those critical questi of how much time we need to spend in green space, and how often, in order to achieve the health benefits it can provide. The weekly two-hour threshold sits well with Ward Thompson, who got similar results in a small-scale study done for *BBC2*'s television program *Trust Me, I'm a Doctor*, set to air over the coming months. But Jules Pretty professor of environment and society at the University of Essex, thinks two hours per week sounds "at the low en speculating that 30 minutes a day might be more beneficial.

Nevertheless, efforts to quantify exposure to natural environments is a step in the right direction, says Pretty, who with colleagues was the first to use the term "a dose of nature" to evaluate the amount of exposure needed to reap benefits. "That was kind of the deliberate medicalization of the language around nature and health," he says.

The University of Washington's Gregory Bratman, who recently coauthored a paper calling for city planners to monitor and consider the mental health benefits of natural environments, agrees that White's study is a valuable addition to the literature. "[W]e think that [the] study addresses issues of duration/dose in an interesting way!" he writes in an email to *The Scientist*. "[We] hope that this work helps to add to the conversation about urban design a planning when it comes to decision making regarding accessible nature."

Jef Akst is managing editor at The Scientist*. Email her at jakst@the-scientist.com.*

Keywords:

air quality, disease & medicine, ecology & environment, immune system, nature, notebook, physiology, public health, stress response, survey