

From Intuitive to Evidence Based: Developing the Science of Nature as a Public Health Resource

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Doctors nationwide have already begun giving their patients “park prescriptions,” instructions to improve their health by spending more time outdoors.^{1,2,3} A growing body of evidence suggests that nature, whether the green leaves of a city park or the natural sounds of a back-country wilderness, may help us think better, feel better, and possibly even live longer.^{4,5,6} But as the authors of a new commentary in *Environmental Health Perspectives* posit, before nature can truly be tapped as a public health resource, many critical research questions remain to be answered.⁷

“The notion that nature contact is good for people is very intuitive,” says lead author Howard Frumkin, a professor of environmental and occupational health sciences at the University of Washington. Proof is another matter, however: “There are some basic elements of this science that are just developing,” he says. “There’s an ironic disconnect between how widely held this view

is and how early we are in the scientific verification. It may be true that some exposures are very helpful, and others are of little help. Understanding the layers of truth to this is very important.”

What size and type of “dose,” for example, are required to achieve a health benefit? Do we need to be outside, or is peering through a window at a planted courtyard enough? How about watching nature on a screen? What is it about time with nature that helps us: cleaner air, room to roam, quiet contemplation? How, exactly, do the benefits accumulate: physiologically, psychologically, or in some combination? And do people of different cultures experience nature differently?

These are just a few of the questions raised by the commentary, an interdisciplinary effort from the University of Washington that draws upon environmental health, conservation biology, public policy, pediatrics, forestry, and psychology. The authors take a



What “dose” of nature is enough, and how should it be “administered” to confer potential health benefits? That’s just one of the avenues of inquiry that researchers need to pursue to advance our knowledge of the human–nature relationship. Images, clockwise from top right: © Image Source/Alamy Stock Photo; © Lumi Images/Alamy Stock Photo; © Terry Bruce/Alamy Stock Photo; © Cultura Creative (RF)/Alamy Stock Photo.

holistic perspective on a subject that is often expressed in simpler terms, such as the relationship between neighborhood green space and risk of type 2 diabetes,⁸ or living near a park and level of physical activity,⁹ or views of landscaped spaces and relief from stress and mental fatigue.¹⁰ Although such linear, reductionist approaches in research are useful, they should be balanced by more complex systems-based thinking, the authors write.

Even more critically, as the examples above illustrate, the field also must work toward more standardized and reliable definitions of nature “exposure,” the authors note, writing, “Despite the centrality of exposure assessment in epidemiologic research, there is little agreement on how best to define nature contact for research purposes, let alone how to measure it.”⁷

The implications of getting it right could reach even beyond human health, says study coauthor Josh Lawler, a professor of ecology at the University of Washington. A maturing evidence base could support policies that protect natural landscapes and biodiversity at the same time as human well-being. “Will the aspects of nature that give us these benefits, whether it is stress relief or more rapid healing or other psychological benefits . . . also provide benefits on the conservation and biodiversity side as well?” he asks.

Rooted in environmental health, the field is indeed growing more interdisciplinary—and for good reason, says Valentine Seymour, a Ph.D. candidate at University College London who authored a 2016 review of research into the relationship between nature and human health.¹¹ “I found quite a lot of existing studies across a broad spectrum of disciplines, and there is a need to bring these together,” she says. “Examining the human–nature relationship from a single disciplinary perspective could lead to partial findings that neglect other important sources.” By contrast, adopting mixed-method approaches and what Seymour calls a “pragmatic outlook” accounting for real-world political, economic, and social forces should support the field’s continued growth.

Payam Dadvand, a senior researcher at the Barcelona Institute for Global Health who was not affiliated with the new commentary, agrees that an important goal going forward will be designing studies whose results can be readily translated into policy. “For example,” he says, “a ten-tree increase around a residential address gives X amount of benefit.”

Local governments in the Pacific Northwest are already clamoring for guidance in designing green infrastructure that can protect both water quality and human health, says coauthor Bobby Cochran, executive director of the Portland, Oregon–based non-profit Willamette Partnership.^{12,13} “They are seeing the body of

research out there that’s showing that there are benefits, and they are saying, ‘Great, tell me how best to direct my investment.’”

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