

Science Suggests Access To Nature Is Essential To Human Health

ScienceDaily (Feb. 19, 2009) —

Elderly adults tend to live longer if their homes are near a park or other green space, regardless of their social or economic status. College students do better on cognitive tests when their dorm windows view natural settings. Children with ADHD have fewer symptoms after outdoor activities in lush environments. Residents of public housing complexes report better family interactions when they live near trees.

These are only a few of the findings from recent studies that support the idea that nature is essential to the physical, psychological and social well-being of the human animal, said Frances Kuo, a professor of natural resources and environmental science and psychology at the University of Illinois. Kuo will present her own and other findings on the subject at the annual meeting of the American Association for the Advancement of Science in Chicago on Feb. 13.

“Humans are evolved organisms and the environment is our habitat,” Kuo said. “Now, as human societies become more urban, we as scientists are in a position to look at humans in much the same way that those who study animal behavior have looked at animals in the wild to see the effect of a changing habitat on this species.”

Humans living in landscapes that lack trees or other natural features undergo patterns of social, psychological and physical breakdown that are strikingly similar to those observed in other animals that have been deprived of their natural habitat, Kuo said.

“In animals what you see is increases in aggression, you see disrupted parenting patterns, their social hierarchies are disrupted,” she said.

Considerable research has found that violence and aggression are highest in urban settings devoid of trees and grass, for example.

Kuo has studied how access to nature influences crime and conflict resolution among residents of public housing facilities in Chicago. These facilities provide an ideal laboratory for studying the “green effect,” she said, because their

occupants are randomly assigned to standard housing units, some of which have grass and trees nearby.

In a 2001 study of the Robert Taylor Homes (recently demolished), Kuo and her colleague, U. of I. landscape architecture professor William Sullivan, found that those who lived in housing units with no immediate view of or access to nature reported a greater number of aggressive – including violent – conflicts with partners or children than their peers who lived near trees and grass.

In another 2001 study, Kuo and Sullivan looked at two years of crime statistics in relation to specific addresses in the Ida B. Wells public housing facility in Chicago. After controlling for other factors, the researchers found that crime rates were highest for residences with little or no proximity to nature. Identical units with views of grass and trees were associated with significantly less crime.

“Roughly 7 percent of the variation in crime that can’t be accounted for by other factors can be accounted for by the amount of trees,” Kuo said.

Humans suffer a variety of negative social effects when living in barren landscapes. Kuo and her colleagues have shown that these effects include decreased civility, less supervision of children outdoors, more illegal activity, more aggression, more property crime, more loitering, more graffiti and more litter.

“We might call some of that ‘soiling the nest,’ which is not healthy,” she said. “No organisms do that when they’re in good shape.”

Certain psychological problems are also likely to appear more often in those lacking access to nature, she said.

“In our studies, people with less access to nature show relatively poor attention or cognitive function, poor management of major life issues, poor impulse control,” she said.

Other researchers have found that access to nature positively influences a person’s mood, life and work satisfaction, she said.

Kuo has seen such psychological effects in children with ADHD. In a 2001 study, she and her colleagues asked parents of children with ADHD which after-school activities worsened – and which soothed – their children’s symptoms. The parents consistently reported that outdoor activities in natural settings lessened their children’s ADHD symptoms more than activities conducted indoors, or in built environments outdoors.

In a 2008 study, Kuo and a colleague, Illinois postdoctoral researcher Andrea Faber Taylor, studied children with ADHD who went on field trips in green or manmade environments. After the trips, other researchers (who didn't know where the kids had been) tested their concentration. Children with ADHD had significantly better concentration after a walk in a park than in an urban setting. The difference was comparable to what is achieved with standard ADHD medication, Kuo said, although "no one knows how long the green effect will last."

More recent studies by various teams in Japan, the Netherlands, the United Kingdom and the U.S., are showing that access to nature – or lack thereof – can also have significant physical effects. A large-scale study in the Netherlands found that general health is predicted by the amount of green space within a 1-mile or 3-mile radius, Kuo said. Another study found that elderly Japanese adults lived longer when their homes were within walking distance of a park or other green space. These effects were independent of their social or economic status. While none of these studies proves conclusively that nature is essential to optimal functioning in humans, Kuo said, the body of evidence strongly points in that direction.

"So when people say: 'As a scientist, would you say that we know this now? Do we know that people need nature?' I say: 'As a scientist I can't tell you. I'm not ready to say that,'" Kuo said. " 'But as a mother who knows the scientific literature, I would say, yes.' "

Adapted from materials provided by [University of Illinois at Urbana-Champaign](#).