

Richard Louv

Nature Deficit

Is ADHD research overlooking the green factor?

AS ANY PARENT or teacher probably knows, the number of children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) has skyrocketed—by 33 percent from 1997 to 2002. Prescriptions of stimulant medications such as methylphenidate (Ritalin) and amphetamines (Dexedrine) have risen as well, especially for preschoolers. From 2000 to 2003, spending on ADHD drugs for children under five rose 369 percent.

Scientists have yet to definitively explain the trend. Some critics say the reporting might be skewed—that ADHD may have been with us all the time but called by other names or missed entirely. Another theory is that the disorder might be overdiagnosed; pharmaceutical companies have intensely marketed medications, and school officials often urge parents to seek treatment for disruptive children.

Still, the disorder is real. One suspected cause of ADHD symptoms is overstimulation, especially from television viewing. But another significant factor in the ADHD phenomenon—and a potential treatment—could be as close as our own backyards.

Children diagnosed with ADHD have trouble paying attention, listening, following directions, and focusing on tasks. They may also be aggressive, antisocial,

and susceptible to academic failure. Based on high-tech images of the brain, some scientists report that ADHD children show altered levels of some neurotransmitters and slight shrinking in the part of the cerebral cortex that governs attention and impulse control. But scientists are not clear whether those differences indicate a cause for the disorder, perhaps due to a genetic defect, or are simply manifestations of another cause or causes.

In ongoing studies by the Human-Environment Research Laboratory at the University of Illinois, researchers have discovered tantalizing evidence for a new view of the syndrome. In a 2004 study published in the *American Journal of Public Health*, the laboratory found that children as young as five showed a significant reduction in ADHD symptoms when they engaged with nature.

Parents and guardians were asked to identify after-school or weekend activities that left their children functioning particularly well or poorly. The study measured responses to two types of activities: those in green landscapes—such as grassy backyards, parks, and farmland—and those in indoor playgrounds and paved recreation areas. The researchers designed the study to account for any effects of physical exercise so they could measure only the

influence of green settings. They also factored out age, gender, family income, geographic region, size of community, and the severity of diagnosis.

In fifty-four of fifty-six cases, outdoor activities in more natural settings led to a greater reduction in ADHD symptoms than activities in less natural areas. The only instances when symptoms worsened occurred in the artificial environments. In a related experiment, the laboratory found that children could focus on specific tasks better in green settings.

Other researchers have found that engagement with nature buffers against life stresses, which otherwise could aggravate ADHD. Although most of their studies focus on adults, an increasing number gauge the impact of green settings on children. A 2003 Cornell University study reported that the more nature a child encountered at home—including exposure to indoor plants and window views of natural settings—the less he or she was affected by negative stresses.

A 2003 study by researchers at the New York State College of Human Ecology reached similar conclusions. Nancy Wells, the lead researcher, said that exposure to nature resulted in “profound differences” in children’s attention capacities and that “green spaces may enable children to think more clearly and cope more effectively with life stress.” That, in turn, could strengthen a child’s attention and potentially decrease the symptoms of ADHD.

It’s not clear why exposure to nature would have such an apparently powerful influence on brain functions related to attention. One theory is that the experience

simply engages a child mentally and physically in a “natural” way, consistent with how humans have evolved. In an earlier hunting and gathering or agricultural society—which is to say, during most of humankind’s history—young people were more likely to engage in physically demanding, mentally relaxing activities that immersed most of their sensory receptors: climbing, hunting small animals, baling hay, splashing in the swimming hole.

As recently as the 1950s, most U.S. youngsters still had some kind of agricultural connection. Even in towns or cities, kids played ball in sandlots or spent hours building forts in tangled and wild “vacant” lots. Their unregimented play was steeped in nature. That kind of exposure to nature has faded dramatically in recent decades, but our need for nature—possibly physiological—has not. “Neurologically, human beings haven’t caught up with today’s overstimulating environment,” says Michael Gurian, a family therapist and author of *The Wonder of Boys*. “The brain is strong and flexible, so 70 to 80 percent of kids adapt fairly well. But the rest don’t.”

If ADHD has something to do with a lack of nature, the neurological mechanics could be explained by the attention-restoration theory developed by Stephen and Rachel Kaplan, husband-and-wife environmental psychologists at the University of Michigan. The Kaplans have taken their inspiration from philosopher and psychologist William James, who, in 1890, described two kinds of attention in adults: directed and involuntary.

In the early 1970s, the Kaplans studied the impact of a range of activities and found



jason
I need the
hi-res or
original

too much directed attention (this could include computer tasks, homework, studying for a test) leads to what they call “directed-attention fatigue,” marked by impulsive behavior, agitation, irritation, and inability to concentrate. Directed-attention fatigue occurs because neural inhibitory mechanisms become overstressed by blocking competing stimuli. Subsequent research, including more than one hundred studies linking exposure to nature to stress reduction, has supported the Kaplans’ theory—and the salutary influence of what they called “the restorative environment.” According to the Kaplans, nature can be the most effective source of restorative relief.

The University of Illinois team, while not questioning the effectiveness of current ADHD treatment methods, has also suggested that nature therapy could be a third option, after prescription medications and behavioral therapy. They recount how one parent began taking her son to the local park for thirty minutes each morning before school, which she indicated reduced his ADHD symptoms. “Come to think of it,” she told the researchers, “I have noticed his attitude toward going to school has been better, and his schoolwork has been better this past week.” Another parent of a boy with attention-deficit symptoms began engaging him regularly in outdoor activities like

fishing, with similar results. “When I read the results of your study,” he reported to the researchers, “they hit me in the face. I thought, yes, I’ve seen this!”

If a greener environment can play a role in curing ADHD, few if any studies have explicitly examined whether the converse is also true: that ADHD may be a set of symptoms initiated or aggravated by lack of exposure to nature. By this line of thinking, many children may benefit from medications, but the real disorder lies in the society that has disengaged children from nature and imposed on them an artificial environment for which they have not evolved. Viewed from this angle, children and adults alike would suffer from what might be called nature-deficit disorder, not in a clinical sense, but as a condition caused by the cumulative human costs of alienation from nature, including diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses.

If that’s the real ailment, a walk in the woods would be the ideal treatment: it’s not stigmatizing, has no serious side effects, and it’s free. But such reliance on greenery would underscore the need to scale back industrialism, redesign homes, schools, and cities, and expand access to nature—which can’t be encapsulated in a pill, but could be equally powerful medicine. 🌿

Author

Head

Deck