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## Six Ways Nature Helps Children Learn

Spending time in nature helps kids do better in school, in a number of surprising ways.

BY MING KUO | JUNE 7, 2019

Some years ago, Richard Louv made the case in his book, *Last Child in the Woods*, that kids were spending so little time in nature that they had “nature deficit disorder.” The consequences they suffered were dire: more stress and anxiety, higher rates of obesity and ADHD, and more.



Many parents probably recognize that being outside in nature is good for their children’s health. But they may also see a tradeoff: Encouraging their kids to get outside means less time hitting the books. And less time studying must mean less academic success, right?

Wrong. Remarkably, it turns out that the opposite may be true. As research has grown in this area—including my own—we’ve discovered that nature is not just good for kids’ health; it improves their ability to learn, too. Even small doses of nature can have profound benefits.

The evidence for this comes from hundreds of studies, including experimental research. In one study, fifth-grade students attended school regularly at a local prairie wetlands, where science, math, and writing were taught in an integrated, experiential way as students participated in onsite research. When compared to peers attending regular schools, those who’d attended school

outside had significantly stronger reading and writing skills (as measured by standardized tests) and reported feeling more excited about school because of the experience. Students at the outdoor school who'd previously had low attendance rates ended up with higher attendance, too.

Other studies echo these findings. One study found that students at schools with more tree cover performed better academically—especially if they came from lower socioeconomic backgrounds. Still another compared students randomly assigned to take science lessons either in a classroom or in a school garden and found outdoor lessons more effective for learning—and the more time they spent in the garden, the greater their gains.

How do green space and nature help kids learn? In a surprising variety of ways, we're discovering. Nature improves children's psychological and physical well-being, for sure—and that can impact learning. But it also seems to affect how they attend to and engage in the classroom, how much they can concentrate, and how well they get along with teachers and peers. Here is what we know so far.

## Nature restores children's attention

Attention is clearly important for learning, but many kids have trouble paying attention in the classroom, whether it be because of distractions, mental fatigue, or ADHD. Luckily, spending time in nature—taking a walk in a park and even having a view of nature out the window—helps restore kids' attention, allowing them to concentrate and perform better on cognitive tests.

## Nature relieves children's stress

Just like adults, children are less stressed when they have green spaces to retreat to occasionally, helping them to be more resilient. Studies have found that holding a class outdoors one day a week can significantly improve the daily cortisol patterns of students—reflecting less stress and better adaptation to stress—when compared to kids with indoor-only instruction. Also, in a study looking at children in rural environments, those with more nature nearby recovered better from stressful life events in terms of their self-worth and distress.

## Nature helps children develop more self-discipline

Many children—particularly those with ADHD—have trouble with impulse control, which can get in the way of school learning. My colleagues and I have found that green space near kids' homes helps them to have more self-discipline and concentrate better—especially girls. Also, parents of kids with ADHD report that when their kids participate in activities outdoors versus indoors, it reduces their ADHD symptoms. Since self-discipline and impulse control are tied to academic success, it's perhaps no surprise that...

# Outdoor instruction makes students more engaged and interested

Kids seem to like classes outdoors. Unfortunately, many teachers fear bringing kids outside to learn, worrying that they'll be "bouncing off the walls" afterward and less engaged in the next (indoor) lesson. Luckily, research seems to suggest that kids are more engaged in learning not only *during* outdoor classes but also upon returning to their classroom afterward—even if the subject they return to is not nature-related.

## Time outdoors may increase physical fitness

While physical fitness is important for children for many reasons, one that may not immediately come to mind is the role it plays in learning. In particular, cardiorespiratory fitness seems to support efficient cognitive processing, and kids with higher fitness levels do better academically. Though it's not clear that nature affects physical fitness directly, it is true that the more time kids spend in nature, the better their cardiorespiratory fitness. Having access to nature may encourage children to be more physically active and keep in shape longer as they age.

## Nature settings may promote social connection and creativity



The social and physical environment in which children learn can make a difference in their academic success. Letting kids spend time in settings with natural elements or giving them structured nature experiences can make for a calmer, socially safe, and fun learning environment. And being outdoors can also enhance peer-to-peer relationships and student/teacher relationships needed for learning, even for students who otherwise feel marginalized socially.

Some argue that nature provides a rich tapestry of "loose parts"—sticks, stones, mud—that encourage pretend play and exploration, creativity and problem solving. Indeed, teachers' and principals' observations suggest that children's play becomes strikingly more creative, physically

active, and social in the presence of loose parts.

It's clear to me that we need to do more to bring this important resource into our schools. Architects and city planners should keep trees and green areas in and near schoolyards. And teachers and principals should incorporate lessons outdoors and use recess not as a reward for good behavior, but as a way to rejuvenate students' minds for the next lesson.

By doing so, we won't only be benefitting our kids' psychological well-being—though that's reason enough! We will likely help them perform better in school, too. And, as a connection to nature breeds more care for nature, we may also be inspiring the future stewards of our natural world.

Humans evolved to grow and thrive in natural environments, and research is showing the costs of indoor childhoods. It's time to cure “nature deficit disorder” in our kids by giving “nature time”—not just studying and extracurricular time—the importance it deserves.

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## About the Author



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**Ming Kuo, Ph.D.**, leads the Landscape and Human Health Laboratory at the University of Illinois at Urbana-Champaign. Her research convincingly links healthy urban ecosystems to stronger, safer neighborhoods, lower crime, reduced AD/HD symptoms, reduced aggression, and an array of other mental and physical health indicators. Dr. Kuo's work has spurred increased urban forestry efforts in Wales, Germany, the Netherlands, the Caribbean, and the United States, and, in 2018, she was awarded the Heinz Award for the Environment.

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