

Natural-terrain schoolyards reduce children's stress, says Colorado University-Boulder study

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Playing in schoolyards that feature natural habitats and trees and not just asphalt and recreation equipment reduces children's stress and inattention, according to a University of Colorado Boulder study.

Working on class assignments or [gardening](#) in such settings also provide stress-reducing benefits for [youth](#), according to a paper published in the journal *Health & Place*. The study is one of the first of its kind to focus on the relationship between student access to green settings and stress.

"Many schools already offer [stress management programs](#), but they're about teaching individuals how to deal with stress instead of creating stress-reducing environments," said Louise Chawla, CU-Boulder professor of environmental design and lead author of the study. "Schools are where children spend a major part of their life hours, so it's an important place to look at for integrating daily contact with the natural world because of the many benefits it brings."

Natural-terrain schoolyards—with dirt, scrub oak and water features, for example—foster supportive relationships and feelings of competence, the researchers found.

Combination schoolyards that have at least some natural-habitat landscaping, even if they include built structures as well, can have positive impacts on children, said Chawla, who also is the director of CU-

Boulder's Children, Youth and Environments Center.

Co-authors of the paper included three former doctoral students: Kelly Keena and Illène Pevec, both who were at the University of Colorado Denver; and Emily Stanley, who was at Antioch University New England in Keene, N.H.

For the study, a variety of settings were observed including [elementary-school](#) students' recess in wooded and built areas; fourth- through sixth-grade students' use of a natural habitat for science and writing lessons; and high school students' gardening for volunteerism, required school service or coursework.

The sites were located at a private elementary school in Baltimore that serves children with dyslexia and other learning disabilities; a public elementary school in suburban Denver with students from a range of socioeconomic backgrounds; and four public and private entities for teenagers—a college preparatory school, a public high school, an alternative school and an afterschool program—throughout Colorado.

Together the researchers logged more than 1,200 hours of observation. They interviewed students, teachers, parents and alumni and coded keywords from the interviews for their findings, among other methods.

Over three school years at the Baltimore elementary school recess site, 96 percent of students in the first through fourth grades chose to play in the woods when they had the option of heading either there, to a playground or to an athletic field. In the woods, the younger children freely engaged in exploratory and sensory-based activities. The older [children](#) cooperatively organized activities like building forts and trading found objects.

Teachers at the Baltimore elementary school reported that the students

returned from recess with longer attention spans. Some parents said the experience was empowering and critical to their child's well-being and social and emotional balance.

Students at the Denver elementary school, who completed assignments in a natural habitat, found the process to be an escape from stress in the classroom and at home, according to the study. Twenty-five percent of the students spontaneously described the green area as "peaceful" or "calm."

There also were anecdotal observations at the Denver school. In one case for example, a group of menacing schoolmates were unable to provoke a student in the green space whose temper normally was quick to escalate, according to the author.

"In more than 700 hours of observations at the Denver school's green outdoor space, zero uncivil behaviors were observed," said Chawla. "But there were many incidences of arguments and rudeness indoors, as there are at many schools."

Among the teenage participants throughout Colorado who gardened, 46 percent referred to calm, peace and relaxation in addition to other positive descriptors when reflecting on their experiences. They also gave four main reasons for their favorable reactions: being outdoors in fresh air; feeling connected to a natural living system; successfully caring for living things; and having time for quiet self-reflection.

For schools that are interested in providing [natural habitats](#) for [students](#) but only have built outdoor spaces, Chawla suggests tearing out some areas of asphalt or creating joint-use agreements with city parks and open space.

"Schools are really prime sites for an ecological model of health and for

building access to nature into part of the school routine as a health measure," said Chawla.

Provided by University of Colorado at Boulder

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