

# The Benefits of Playing Outside "STEM" from Science

[Emily Shapiro](#) • Apr 21, 2015

2 Upvote



Outdoor play is essential for the optimal [development of young children](#). Many of us are aware that it is also necessary for the optimal health — physical and emotional — of adults.

There has been increasing talk about the advantages to productivity of taking a walk around the block during lunch hour. We feel the tension melt away when we arrive at the country for a weekend, or even when we take a stroll in the park. Being surrounded by green seems to be soothing for most people. Seeing the sky and taking in sunshine, even in predominantly concrete surroundings, wards off [depression](#).

What is so important for adults is even more critical for young children whose bodies are developing, whose habits are forming, whose self-regulating abilities are new and unreliable, and whose understanding of the physical world is minimal and growing as fast as the child's experience allows.

## Why Kids Need To Play Outside

Some of the reasons young children need to play outdoors every day are obvious. We are all aware of the [obesity epidemic](#) in our country. Children need to move in order to burn calories. At least as importantly, they need to find joy in moving so that it can become a lifelong habit that will protect their health in the long term. Organized games in a noisy gymnasium can teach children valuable skills, but they are no replacement for getting to know and enjoy what one's own body can do, in natural surroundings.

I know adults who grew up wandering the woods around rural homes, and now turn to exercise when they feel stress. Of course, there are many other factors in a person's choice of stress-management strategy, and a life outdoors is not insurance. But most of us would like to do whatever we can to increase the chances that our children will head outdoors for a run when they feel overwhelmed rather than to the misuse of food and other substances, unhealthy relationships, and so on.

Outdoor play, in many anecdotal reports, helps [children with ADD and ADHD](#). Focused physical activity of the sort active children devise for themselves is helpful for attention difficulties. Some degree of what we now consider attention disorders used to be absorbed by the regular routines of children's lives. Even fifty years ago, many children walked to and from school and spent hours outdoors every day, whether climbing rocks in the woods, riding bikes on suburban streets, or playing hopscotch on city sidewalks. Fifty years before that, when a large percentage of American children lived on farms, focused physical activity was not only permissible, but required. Children did chores that required large motor exertion, and provided practice with [executive function](#) (the ability to organize tasks effectively) in a concrete context. The less time children spend in focused physical activity, the more problematic attention issues seem to become.

# The Lessons Kids Learn from Outdoor Play

The [cognitive benefits of outdoor play](#) are tremendous, though they may not be obvious at first glance. In outdoor play, children practice planning and executing ideas. They experience making a guess about something and then trying it out — *if I drop this pebble into that puddle, how high will it splash? Will I get wet?* With enough of this kind of experience, children acquire an intuitive understanding of scientific method. Later, when it is taught formally inside the classroom, children who have had the experiences have a great head start in understanding what the teacher is talking about.

In outdoor play, children learn, through repetitive practice that they would never be induced to undertake in a classroom exercise, various attributes of solids and liquids. For instance, picture a child experimenting with containers of different sizes: *If I use this cup to fill the bucket, I have to fill and dump five times before it is full. But if I use this larger cup, I only have to fill and dump three times! This other cup is taller than that one, so it should fill the bucket even faster, but it doesn't. Why? Oh! Because it is skinnier!* Just by playing with these containers, this child would be learning about the conservation of matter, which is one of the concepts that Piaget believed could only be learned through the accumulation of concrete experiences. It is going to be more difficult to teach older children how to calculate the volume of a three dimensional object if they have not had adequate experience of play with sand, water, or snow.

One day, in this long, snowy winter in the North East, I watched a kindergartner, suitably clothed in snow pants, boots, and waterproof jacket deliberately experiment with how a slide behaves in different conditions. The first time she went down, it was covered in snow. The next time, because her body had pushed the snow off the slide, it was wet. She noticed the difference in her sliding speed, got curious, and got hold of a cloth, which she used to dry the slide. She was learning about friction, and when the time comes for a teacher to explain the concept to her class, chances are good this child will be one of the first to grasp it.

Frank Wilson, a professor of neurology at [Stanford](#), wrote a book entitled "[The Hand,](#)" which describes the co-evolution of our brains and our hands. Wilson reports that medical school professors are finding it difficult to explain to their students how the heart works as a pump, because the young people have had so little hands on experience with the physical world.

There is a lot of talk these days about [STEM](#) education (Science, Technology, Engineering and Math), especially for girls. Awareness, curricular development, and teacher trainings are all important supports for encouraging children's learning in these

areas. But the best STEM education for our youngest children is lots of hands on, full body, exploratory experience (aka play) in the real, physical world.