

A Twins Study Shows ADHD Isn't Just Genetic

If school environment plays a part, what should we change?



ILLUSTRATION: TOMASZ WALENTA

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We all know the longstanding debate about nature versus nurture in determining our traits and personality. How much of our identity has to do with genetics and how much with our environment? Studies of twins—both identical (from one fertilized egg) and non-identical (from two)—have been a prime tool in sorting this out, because they allow scientists to isolate more easily the effect of genes.

Such research has been especially helpful in trying to understand the widespread problem known as Attention Deficit/Hyperactivity Disorder. Multiple studies, with identical and non-identical twins, have led scientists to conclude that genes cause 70% of the differences that could lead to an ADHD diagnosis.

What about the rest of the equation, the “nurture” part? When children’s restless and inattentive behaviors interfere with life, they often get an ADHD diagnosis and medication. But are there ways other than drugs to mitigate ADHD? A new twins study suggests that environmental changes could help too. 

It's absurd to abolish recess, dismantle playgrounds, and ignore nature, including children's nature.



Australia and colleagues included only identical twins with the goal of understanding the *nongenetic* part of the problem. Among the 1,024 pairs of identical twins in the paper, published in the *Journal of Abnormal Psychology*, any differences between the twins in a pair had to be due almost completely to the environment.

The researchers followed the children—in Australia, the U.S. and Scandinavia—from kindergarten to third grade. Every year, parents rated each twin using the Disruptive Behavior Rating Scale, which has nine questions each about hyperactivity and inattentiveness. Other studies have found this scale to reflect actual behavior.

Using sophisticated statistics, the researchers tracked the difference between the twins across these school years. Many twins didn't show a difference in behavior. Some showed a consistent difference for all four years, suggesting that something had happened in their lives before the reporting period, causing the divergence. But most of the differences between twins appeared only briefly—occurring at just one age. This implies that something in their environment had changed to affect their behavior.

The study didn't address what caused the problems, nor whether the ADHD-like behavior would lead to a longer-term or recurrent problem. But because most of the differences came and went in a year or so, it suggests that we may be able to adjust the environment to address at least some disruptive behavior.

We know from the history of ADHD that the school environment matters enormously. In fact, although the disorder causes other life problems, ADHD was essentially unrecognized before the era of universal schooling.

My own research suggests how critical such factors are. The hunter-gatherer children I studied in the 1970s in Botswana had a lot to learn—how to determine the age of animal tracks, for example, or where to dig for tubers—but they learned on the move, in playful groups. When economically developed cultures started asking children to sit still for seven hours a day, we soon discovered that a minority of them—10% or more, especially boys—couldn't do it.

Anthropologists view ADHD as a “mismatch” disorder—due to a discrepancy between the world we evolved in and our world now. So what's the solution, aside from medication? We could give children a break. We have long known that frequent recess and play improve attention; such activity is routine in countries such as Finland and Japan.

Yet Olga Jarrett of the Georgia State University College of Education, writing on the website of the US Play Coalition, a play-advocacy group, has shown that the recent trend in the U.S. has been, absurdly, to abolish recess, dismantle playgrounds and ignore nature. This is no way to reduce the number of children, now millions, on medication for ADHD.

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