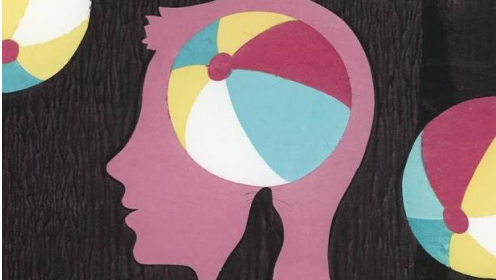


Moving away from drugs, training the mind could be key to treating ADHD

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Bolstering cognitive control through mind exercises could help treat ADHD and ADD.
(ALEX NABAUM/NYT)

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Which will it be – the berries or the chocolate dessert? Homework or the Xbox? Finish that memo, or roam Facebook?

Such quotidian decisions test a mental ability called cognitive control, the capacity to maintain focus on an important choice while ignoring other impulses. Poor planning, wandering attention and trouble inhibiting impulses all signify lapses in cognitive control.

Now a growing stream of research suggests that strengthening this mental muscle, usually with exercises in mindfulness, may help children and adults cope with attention deficit hyperactivity disorder (ADHD) and its adult equivalent, attention deficit disorder (ADD).

The studies come amid growing disenchantment with the first-line treatment for these conditions: drugs.

In 2007, researchers at the University of California, Los Angeles, published a study finding that the incidence of ADHD among teenagers in Finland, along with difficulties in cognitive functioning and related emotional disorders such as depression, were almost identical to rates among teenagers in the United States. The real difference? Most adolescents with ADHD in the United States were taking medication; most in Finland were not.

“It raises questions about using medication as a first line of treatment,” said Dr. Susan Smalley, a behaviour geneticist at UCLA and the lead author.

In a large study published last year in *The Journal of the American Academy of Child & Adolescent Psychiatry*, researchers reported that while most young people with ADHD benefit from medications in the first year, these effects generally wane by the third year, if not sooner.

“There are no long-term, lasting benefits from taking ADHD medications,” said Dr. James Swanson, a psychologist at the University of California, Irvine, and an author of the study. “But mindfulness seems to be training the same areas of the brain that have reduced activity in ADHD.”

“That’s why mindfulness might be so important,” he added. “It seems to get at the causes.”

Depending on which scientist is speaking, cognitive control may be defined as the delay of gratification, impulse management, emotional self-regulation or self-control, the suppression of irrelevant thoughts, and paying attention or learning readiness.

This singular mental ability, researchers have found, predicts success both in school and in work life.

Cognitive control increases from about the age of four to 12, then plateaus, said Dr. Betty Casey, director of the Sackler Institute for Developmental Psychobiology at Weill Cornell Medical College. Teenagers find it difficult to suppress their impulses, as any parent knows.

But impulsivity peaks around age 16, Casey noted, and in their 20s most people achieve adult levels of cognitive control. Among healthy adults, it begins to wane noticeably in the 70s or 80s, often manifesting as an inability to remember names or words, because of distractions that the mind once would have suppressed.

Bolstering this mental ability, specialists are now suggesting, might be particularly helpful in treating ADHD and ADD.

To do so, researchers are testing mindfulness: teaching people to monitor their thoughts and feelings without judgments or other reactivity. Rather than simply being carried away from a chosen focus, they notice that their attention has wandered, and renew their concentration.

According to a recent report in *Clinical Neurophysiology*, adults with ADD were shown to benefit from mindfulness training combined with cognitive therapy; their improvements in mental performance were comparable to those achieved by subjects taking medications.

The training led to a decline in impulsive errors, a problem typical of ADD, while the cognitive therapy helped them be less self-judgmental about mistakes or distractedness.

Mindfulness seems to flex the brain circuitry for sustaining attention, an indicator of cognitive control, according to research by Dr. Wendy Hasenkamp and Dr. Lawrence Barsalou at Emory University in Atlanta.

For a study published in *Frontiers in Human Neuroscience*, they imaged the brains of meditators while they went through four basic mental movements: focusing on a chosen target, noticing that their minds had wandered, bringing their minds back to the target, and sustaining their focus there. Those movements appeared to strengthen the neural circuitry for keeping attention on a chosen point of focus.

Meditation is a cognitive control exercise that enhances “the ability to self-regulate your internal distractions,” said Dr. Adam Gazzaley, a neuroscientist at the University of California, San Francisco.

His research seeks to duplicate these effects with video games that “selectively target the key circuits without the kind of side effects you get with drugs.”

With colleagues, he designed NeuroRacer, a game for older adults in which they respond to traffic signs that appear suddenly while driving on a winding road. The game enhanced cognitive control in subjects ranging in age from 60 to 85, according to a study published in Nature.

Dr. Stephen Hinshaw, a specialist in developmental psychopathology at the University of California, Berkeley, said the time was ripe to explore the utility of non-drug interventions like mindfulness.

Swanson agreed. “I was a skeptic until I saw the data,” he said, “and the findings are promising.”