

Physical Fitness Linked to Brain Fitness!

More physically fit children had stronger brain tissue linked to cognition.

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New research shows being physically fit can improve the structure of brain matter that plays a role in learning!

Staying physically fit isn't just good for your health. It's also a good way to beef up your brain, according to new research.

Greater aerobic fitness generates more fibrous and compact white matter which can lead to improved cognitive performance, says the team of researchers led by Laura Chaddock-Heyman, a research scientist at the University of Illinois at Urbana-Champaign's Beckman Institute! Compact white matter is a type of nerve tissue connected to learning and brain function.

"Our work has important implications for educational and public health policies. Sedentary behaviors and inactivity are continually on the rise and physical activity opportunities are being reduced or eliminated during the school day," Chaddock-Heyman says. "Hopefully these findings will reinforce the importance of aerobic fitness during a child's development, and lead to additional physical activity opportunities in and out of the school environment."

The researchers used a type of magnetic resonance imaging (MRI) to look at five different white matter tracts in the brains of two dozen 9- and 10-year-olds, half of whom were more physically fit than the other half. White matter also works to carry nerve signals between different parts of the brain, and all of the tracts examined have been associated with attention and memory, the study says.

According to the Centers for Disease Control and Prevention, only one-quarter of American youths currently engage in the recommended amount of daily physical activity, and research shows this to have a negative impact on their academics!

Previous research showed that improved fitness can boost students' memory and learning, but this new study is the first to show a connection between physical fitness and brain structure during childhood.

"We know from previous work that more highly fit children outperform lower fit children on tasks of attention, memory, and school performance," Chaddock-Heyman says. "Thus, it is possible that white matter structure is another pathway by which fitness relates to improved cognition."

The study was published Tuesday in the journal *Frontiers in Human Neuroscience*. The researchers plan to conduct a five-year study to determine whether children's white matter structure will improve if they start and maintain a new physical fitness routine.

"Be smart, and exercise your heart," Chaddock-Heyman says. "High levels of physical fitness are not only good for one's physical health, they're also good for one's cognitive and brain health."