

# Exercise may protect brain volume by keeping insulin and BMI levels low

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Studies have shown that exercise helps protect brain cells. A new study looking at the mechanisms involved in this relationship suggests that the role exercise plays in maintaining insulin and body mass index levels

may help protect brain volume and thus help stave off dementia. The research is published in the April 13, 2022, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"These results may help us to understand how physical activity affects brain health, which may guide us in developing strategies to prevent or delay age-related decline in memory and thinking skills," said study author Géraldine Poissnel, Ph.D., of Inserm Research Center in Caen, France. "Older adults who are physically active gain cardiovascular benefits, which may result in greater structural brain integrity."

In contrast, researchers found that the relationship between [exercise](#) and the metabolism of glucose in the brain was not affected by insulin or body mass index (BMI) levels. Reduced glucose metabolism in the brain can be seen in people with [dementia](#).

The study involved 134 people with an average age of 69 who had no memory problems. The people filled out surveys about their physical activity over the past year. They had brain scans to measure volume and glucose metabolism. Information was gathered on BMI and insulin levels as well as cholesterol, blood pressure and other factors.

People with the most physical activity had a higher total volume of [gray matter](#) in their brains than people with the least amount of physical activity, with an average of about 550,000 cubic millimeters (mm<sup>3</sup>) compared to about 540,000 mm<sup>3</sup>. When researchers looked only at areas of the brain affected by Alzheimer's disease, they found the same results.

Those with the most activity also had a higher average rate of [glucose metabolism](#) in the brain than those with the least amount of activity.

Higher physical activity was not associated with how much [amyloid](#)

[plaque](#) people had in their brains. Amyloid plaque is a marker for Alzheimer's disease.

Poisnel said more research is needed to understand the mechanisms behind these relationships. "Maintaining a lower BMI through physical activity could help prevent disturbed insulin metabolism that is often seen in aging, thus promoting brain health," Poisnel said.

The study does not prove that exercise protects [brain volume](#). It only shows an association.

A limitation of the study is that people reported their own physical activity, so they may not remember it accurately.

Provided by American Academy of Neurology

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