

Enhancing blood sugar control boosts brain health for people with type 2 diabetes

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Controlling blood sugar levels improved the ability to clearly think, learn and remember among people with type 2 diabetes who were overweight, a new study shows. But losing weight, especially for people who were

obese, and increasing physical activity produced mixed results.

"It's important to properly control your [blood sugar](#) to avoid the bad brain effects of your diabetes," said Owen Carmichael, Ph.D., Professor and Director, Biomedical Imaging at Pennington Biomedical Research Center. "Don't think you can simply let yourself get all the way to the obese range, lose some of the weight, and everything in the brain is fine. The brain might have already turned a corner that it can't turn back from."

The new paper examined close to 1,100 participants in the Look AHEAD (Action for Health In Diabetes) study. One group of participants was invited to three sessions each year that focused on diet, [physical activity](#), and social support. The other group changed their diet and physical activity through a program designed to help them lose more than 7 percent of their [body weight](#) in a year and maintain that [weight loss](#). Cognitive tests—tests of thinking, learning, and remembering—were given to participants between 8 to 13 years after they started the study.

The research team theorized that people with greater improvements in [blood sugar levels](#), physical activity and weight loss would have better cognitive test scores. This hypothesis proved partially true. Reducing your blood sugar levels did improve test scores. But losing more weight and exercising more did not always raise cognitive test scores.

"Every little improvement in [blood sugar control](#) was associated with a little better cognition," Dr. Carmichael said. "Lowering your blood sugar from the diabetes range to prediabetes helped as much as dropping from prediabetes levels to the healthy range."

More weight loss was either better or worse depending on the mental skill involved, Dr. Carmichael said. People who lost more weight

improved their executive function skills: [short-term memory](#), planning, impulse control, attention, and the ability to switch between tasks. But their verbal learning and overall memory declined.

"The results were worse for people who had obesity at the beginning of the study. That's a 'too little, too late' type of message," he said. "People with diabetes who let their obesity go too far, for too long may be past the point of no return, cognition-wise."

Increasing physical activity also generated more benefits for people who had overweight compared to those with obesity, the study shows.

Finding a way to offset the health effects of type 2 diabetes is vital. More than 25 percent of U.S. adults 65 or older have type 2 diabetes. The disease doubles the risk of cognitive impairment and dementia, including Alzheimer's disease, and greatly increases health care needs and costs.

The article was published in *The Journal of Clinical Endocrinology and Metabolism*.

More information: Owen T Carmichael et al, Long-term change in physiological markers and cognitive performance in type 2 diabetes: the Look AHEAD Study, *The Journal of Clinical Endocrinology & Metabolism* (2020). [DOI: 10.1210/clinem/dgaa591](https://doi.org/10.1210/clinem/dgaa591)

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