News

Cognitive speed training may be able to postpone dementia by 20 years.



According to new research published today in Alzheimer's & Dementia: Translational Research and Clinical Interventions, adults 65 and older who completed five to six weeks of cognitive speed training—in this case, speed of processing training, which helps people find visual information on a computer screen quickly and handle increasingly complex tasks in a shorter amount of time—and who had follow-up sessions roughly one to three years later were less likely to be diagnosed with dementia, including Alzheimer's disease, up to two decades later.

The first and only randomized clinical trial of its kind, this study is funded by the National Institutes of Health (NIH) and evaluates 20-year associations with dementia, including Alzheimer's disease, among adults who took part in the Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE) study. In order to evaluate the long-term advantages of participants randomly assigned to three distinct forms of cognitive training—memory, reasoning, and processing speed—in contrast to a control group that did not get any training,

researchers recruited 2,802 people for this study between 1998 and 1999. Over the course of five to six weeks, individuals in the three training groups got up to ten sessions of cognitive training lasting 60 to 75 minutes each. Furthermore, half of the individuals were randomly assigned to receive boosters, or up to four further cognitive training sessions, which were scheduled between 11 and 35 months following the first training.

The speed-training group with boosters had a 25% lower incidence of dementia diagnoses (105 out of 264, or 40%) than the control group (239 out of 491, or 49%), according to the researchers' 20-year follow-up analysis. When compared to the control group, this was the only intervention that showed a statistically significant, or meaningful, difference.

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Researchers examined Medicare data from 2,021 participants (72% of the original study) between 1999 and 2019 in order to arrive at these conclusions. The follow-up study's participant characteristics were comparable to those of the initial experiment. At the beginning of the study, the average age of the participants was 74, 70% were white, and three-fourths were female. At an average age of 84, over three-fourths of the participants passed away during the follow-up period.

Deteriorations in thinking that make it impossible for a person to live freely or take care of themselves on a daily basis are known as dementia. According to estimates, 42% of persons over 55 may experience it at some point in their lives, and the annual cost to the United States exceeds $600 billion. The most prevalent kind of dementia, Alzheimer's disease, makes up roughly 60% to 80% of cases, whereas vascular dementia makes up roughly 5% to 10%. Lewy body, frontotemporal, or mixed dementias are other forms.

It's noteworthy that increased speed training was associated with a decreased incidence of dementia twenty years later, as this shows that even a relatively simple nonpharmacological intervention can have a lasting impact. Delays in dementia onset, even if slight, can have a significant effect on public health and lower the cost of growing medical care.

Marilyn Albert, Ph.D., director of the Alzheimer's Disease Research Center at Johns Hopkins Medicine and corresponding study author

According to Albert, more research is required to determine the underlying mechanisms that could account for these relationships as well as the reasons why the reasoning and memory interventions did not exhibit the same 20-year associations.

The results of this 20-year study build on earlier findings from the ACTIVE experiment, the biggest study in the United States to evaluate various forms of adult cognitive training. For up

to five years, ACTIVE researchers discovered that cognitive training improved individuals' ability to think, remember, reason, and make judgments fast. Additionally, ten years later, all three training arms were associated with better results in daily functioning. Furthermore, compared to the control group, speed training participants saw a 29% decreased incidence of dementia ten years later. Every booster session was associated with additional risk mitigation.

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According to the authors, speed training might have been especially successful because the program was flexible enough to adjust the degree of difficulty based on each participant's unique performance level on that particular day. Those who needed more time began at slower levels, whereas those who started faster advanced swiftly to faster difficulties. Every member of the group acquired the identical memory and reasoning techniques, hence the algorithms were not adaptable. Furthermore, whereas memory training and reasoning training promote explicit learning—which is more akin to learning facts and techniques—speed training promotes implicit learning, which is more like to an unconscious habit or ability. The results of the current investigation regarding dementia may be influenced by the fact that scientists already know that implicit learning functions in the brain considerably differently than explicit learning.George Rebok, Ph.D., site principal investigator and a lifespan developmental psychologist who develops community programs for healthy aging and is a professor emeritus of mental health at the Johns Hopkins Bloomberg School of Public Health, says, "Our findings support the development and refinement of cognitive training interventions for older adults, particularly those that target visual processing and divided attention abilities." "It is possible that adding this cognitive training to lifestyle change interventions may delay dementia onset, but that remains to be studied."

The scientists also point out that speed training might complement other lifestyle changes that improve brain connections, but further study is required to fully comprehend these relationships and validate this. Additional behaviors that have been linked to a lower risk of cognitive decline include maintaining cardiovascular health by regularly exercising and monitoring blood pressure, blood sugar, cholesterol, and body weight.

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