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Can This Brain Exercise Put Off Dementia?

A new study is believed to be the first to show that speed training can reduce the risk for the condition



Screenshot of the exercise Double Decision. Players have to distinguish between two blue cars, one a convertible and one a hard top, and find the location of the Route 66 sign. *PHOTO: POSIT SCIENCE*

By

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One particular type of mental exercise may succeed at doing what nothing else has before: putting off dementia.

A new, 10-year study showed that speed training—computer exercises that get users to visually process information more quickly—beat out memory and reasoning exercises, two other popular brain-training techniques. Researchers found that a total of 11 to 14 hours of speed training has the potential to cut by as much as 48% the risk of developing dementia 10 years later.

The results of the study, called Active, for Advanced Cognitive Training in Vital Elderly, were presented Sunday at the Alzheimer's Association International Conference in Toronto, the world's largest gathering of Alzheimer's researchers. The study is believed to be the first to demonstrate that a behavioral intervention can reduce the incidence of dementia. Many people practice various brain-training exercises to keep the mind limber as they age.

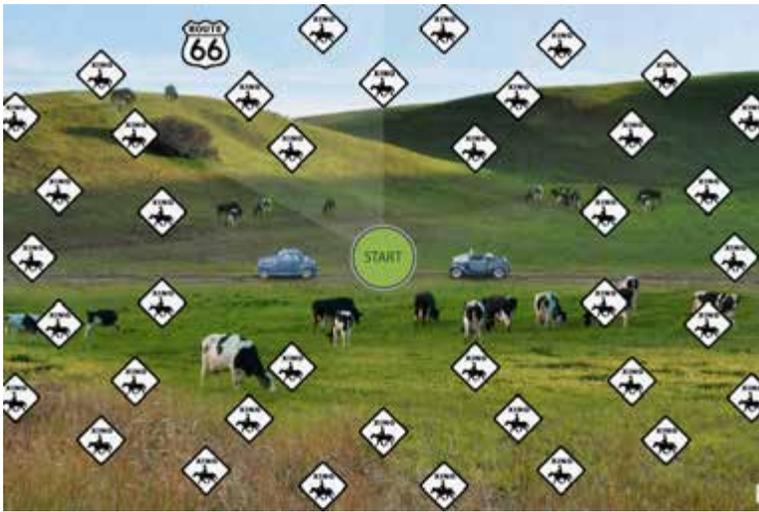
Previous research released as part of the Active study showed all three types of brain training tested led to improvements in cognitive function and the ability to perform daily living skills, such as preparing a meal. Speed training topped the other techniques in reducing the incidence of at-fault car crashes and forestalling declines in health, and was the only intervention to protect against symptoms of depression.

“If you can reduce the chance of getting dementia by nearly 50% with this, that's huge,” says Michael Roizen, chairman of the Wellness Institute at the Cleveland Clinic, who wasn't involved in the study.

The study, which was funded by the National Institute on Aging and the National Institute of Nursing Research, included 2,832 healthy subjects, ages 65 to 94, at six study sites around the U.S. Participants were randomized to get one of the three cognitive-training programs or be in a control group. Memory and reasoning training were done with an instructor, not on a computer, and didn't cut the risk for developing dementia.

The speed-training participants had 10 one-hour training sessions over five weeks with an instructor on hand for help. Some had booster sessions a year later and three years later.

Participants getting only the initial 10 hours of training had on average a 33% lower risk for developing dementia 10 years later, whereas those who received the additional sessions reduced their risk by 48%. The data is considered preliminary because it hasn't yet been peer reviewed or published in a medical journal. Jerri Edwards, director of the School of Aging Studies and Byrd



Another screenshot of the Double Decision exercise shows that players at an advanced level have to distinguish between even more distractors in finding the Route 66 sign. *PHOTO: POSIT SCIENCE*

Alzheimer's Institute at the University of South Florida, who presented the data and led the most recent analysis, says the researchers wanted to disclose the findings as soon as possible.

Brain-training games have been a big business for years. That has sparked pushback from some scientists skeptical of claims manufacturers made, including that the products could reduce or reverse cognitive decline. The Federal Trade Commission earlier this year settled a \$2 million deceptive advertising lawsuit against Lumos Labs, charging that the company was making false claims of protecting against dementia and age-related cognitive decline in its brain-training program Lumosity.

“For the majority of brain fitness products sold today the marketing hype has exceeded the science,” says Murali Doraiswamy, director of the neurocognitive disorders program at Duke University Health System in Durham, N.C. “The Active results will definitely provide a big credibility boost to the field,” Dr. Doraiswamy says. But the study also raises questions about how much speed training is optimal, he says, adding that further research would be needed to replicate the results.

It isn't clear whether speed training affects the neurophysiological processes that cause dementia, says Glenn Smith, chairman of the department of clinical and health psychology at the University of Florida, in Gainesville, who has done

independent research with similar products. But at minimum they can help “people develop reserve or resilience in the face of whatever brain changes are happening that would lead to dementia,” he says.



Dr. Jerri Edwards, a researcher at the University of South Florida, presented the study findings at the Alzheimer's Association International Conference in Toronto. *PHOTO: UNIVERSITY OF SOUTH FLORIDA*

The exercise used in the study was developed by researchers but acquired by Posit Science, of San Francisco, in 2007. A more user-friendly version of the game, called Double Decision, is now part of the company's BrainHQ online service, a cognitive-training program. A monthly subscription, which includes access to Double Decision, is \$14 a month, or \$96 a year. Posit Science says the company intends to file a medical-device application to the Food and Drug Administration based on the recent clinical trial findings.

In Double Decision, users must identify an object at the center of their gaze and simultaneously identify an object in the periphery. As players get correct answers, the presentation time speeds up, distractors are introduced and the

targets become more difficult to differentiate.

Speed training is designed to improve the speed and accuracy of processing visual information and expand the useful field of view, or UFOV—the visual area over which a person can make quick decisions and pay attention without moving the eye or head. UFOV decreases with age and is associated with a decline in performance on daily tasks, particularly driving a car.

Dr. Edwards, who presented the study findings, disclosed that she worked as a consultant to Posit Science for a few months in 2008 to analyze data and prepare a publication.

Following the Active study, Dr. Edwards says the next step would be a trial to determine the optimal dose of training and understand how it affects the brain. Such a trial would take people at risk for developing dementia and give them the training to see if it prevents development of the disease.

“Dementia by definition involves functional impairment,” Dr. Edwards says. “So if we’re improving people’s everyday functional performance” through speed training, their likelihood of developing dementia may go down.

“The potential to benefit is great and the risks are none to minimal,” she says. She recommends people start speed training beginning at age 50.

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