

BrainTrain Bugle

Brains Matter!

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Could Brain Training Prevent Dementia?



In October of 2014, a group of seventy academics associated with the Stanford Center for Longevity released a consensus statement asserting that no scientifically credible evidence supports the claim that playing “brain games” results in any significant improvement in a person’s cognitive skills or in any transfer to real-life functional abilities. In particular, they challenged any claims made by online brain game services that such training could prevent or reverse dementia. This statement and other negative press have caused health care professionals to become understandably cautious about recommending cognitive training to their clients.

In response to these Stanford assertions, a group of over 120 research scientists published a dissenting statement (www.cognitivetrainingdata.org), which expressed the opinion that the Stanford Center had committed a serious error of omission by ignoring the numerous scientific findings that support cognitive training. Their documentation included a list of over 100 published, well-controlled, peer-reviewed studies. Many of the studies “show improvements that encompass a broad array of cognitive and everyday activities, show gains that persist for a reasonable amount of time, document positive changes in real-life indices of cognitive health, and employ control strategies designed to account for placebo effects.” They asserted that to make the statement that “brain training doesn’t work” fails to take into account that some programs are “built by gamers,” while others are “rigorously constructed by scientists with deep knowledge of the brain.”

Now, a remarkable, ten-year study presented by Dr. Jerri Edwards in July at the Alzheimer’s Association International

Conference in Toronto, has found that computer exercises targeting processing speed and visual perceptual discrimination could dramatically cut the risk of developing dementia ten years later. The “ACTIVE” study (Advanced Cognitive Training for Independent and Vital Elderly) collected data on nearly 3,000 healthy adults with an average age of 74 at the start of the study. The participants were randomly divided into four groups; the first group received no training; the second group was given ten hours of classroom instruction on techniques and strategies to boost memory; the third group received classroom instruction on sharpening reasoning skills; neither the second nor the third group participated in any computerized exercises. The fourth group was given ten hours of computerized mental processing speed and visual perceptual discrimination training over five weeks. Some of the participants in the fourth group were randomly assigned to receive three more hours of booster sessions a year later and again, three years later. The results showed that, while the classroom instruction did not significantly lower the risk of dementia, the fourth group participants’ risk of developing dementia after ten years was 33% lower than it was for the control group. The group that received the additional booster sessions was 48% less likely than the control group to develop dementia. Based on this research, the Alzheimer’s Association has updated its position, stating that a healthy diet, lifelong learning, and brain training may reduce the risk of cognitive decline, and that brain training may also reduce the risk of dementia.

Other smaller scale controlled brain training studies have also demonstrated positive results. For example, a study published in 2009 in the American Journal of Alzheimer’s Disease (Eckroth-Bucher & Siberski) combined traditional cognitive stimulation with computerized cognitive training using the Captain’s Log MindPower Builder. Thirty-two non-impaired, mildly impaired, and moderately impaired adults over the age of 65 were randomly placed into a control or experimental group. Training was conducted for 45 minutes a day, two days a week, for six weeks. Statistically significant improvement for the mildly and moderately impaired participants was found post-training and again at eight weeks follow-up. Another study published in Neurology (Fotuhi, et al., 2015)

evaluated the effectiveness of a holistic brain fitness program with cognitively impaired adults. The program included training with the Captain’s Log MindPower Builder and produced significant improvement in the participants’ cognitive functioning.

Further research is needed to determine the most effective brain exercise paradigm. The ACTIVE study did a remarkably minimal amount of training but did find that more training got significantly better results. How much training would be optimal? The exercises focused on speed and visual processing skills; would additional types or a greater variety of exercises further improve the outcome? What if computerized working memory or reasoning exercises were included?

In any case, the results of the ACTIVE study are “spectacular,” according to Susanne Jaeggi, who originally signed the 2014 Stanford Center consensus statement. If cognitive training can even just postpone the incipient dementia epidemic, it would be of enormous benefit. Clearly there’s a lot more to brain training than just playing games!

Morningstar Neurofeedback

Dr. Connie McReynolds

8580 Utica Avenue

Suite 200

Rancho Cucamonga, California 91730

(909) 944-1717

<https://mstareurofeedback.com/>