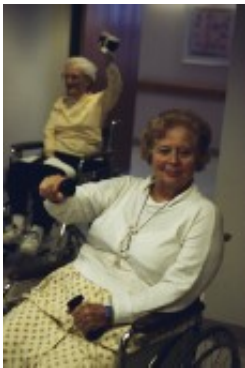


# Exercise can shield the aging brain, studies show

July 16 2012, By Jenifer Goodwin, HealthDay Reporter

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Weight training, walking helped older adults' memory, according to new studies at Alzheimer's meet.

(HealthDay) -- Evidence is mounting that exercise provides some protection from memory loss and Alzheimer's disease, with three new studies showing that a variety of physical activities are associated with healthier brains in older adults.

One study found that normally sedentary [older adults](#) who walked at a moderate pace three times a week for a year boosted the size of the [brain](#) region involved with [memory](#).

A second study found that twice-weekly resistance (weight) training helped women with mild signs of mental [decline](#) improve their scores on thinking and memory tests. And the third showed that [exercise](#) done for

strength and balance also improved memory.

None of the findings offer a clear-cut prescription for thwarting mental declines and Alzheimer's, but taken together, the growing body of research strongly suggests that physical activity is essential for healthy brain aging, and may help prevent Alzheimer's, said Heather Snyder, senior associate director of medical and scientific relations for the Alzheimer's Association.

"These studies really start to strengthen the literature about the impact that physical activity may have to reduce the risk of Alzheimer's disease," Snyder said.

The studies were to be presented Sunday at the Alzheimer's Association annual meeting in Vancouver.

In one study, U.S. researchers at three universities divided 120 older, sedentary adults without [dementia](#) into two groups. One group did aerobic exercise by walking on a track at a moderate pace for 30 to 45 minutes three times a week; the other group did stretching and toning exercises.

A year later, MRI brain scans showed that the size of the [hippocampus](#), a region of the brain involved with memory, increased by 2 percent in the walking group. In the stretch-toning group, hippocampal brain volume declined by 1.5 percent.

After age 50 or 55, adults lose about 1 percent of brain volume per year, said lead study author Kirk Erickson, an assistant professor of psychology at the University of Pittsburgh. Marked shrinkage of the hippocampus can be a sign of Alzheimer's disease.

The new findings show that "the hippocampus remains very plastic

throughout life, even in late life," Erickson said. "We can not only stop it from shrinking, but we can increase the size of the brain in a relatively short amount of time, just one year of getting people more active."

Erickson and his colleagues also measured concentrations in the blood of brain-derived neurotrophic factor (BDNF), which is important in learning, memory and other brain functions, Erickson said.

They found that people who had greater increases in the size of their hippocampus also had a greater boost in BDNF, which suggests a healthier brain, he said.

Yet, how [brain volume](#) or BDNF levels relate to memory or thinking ability remains murky. The fact that both groups -- those who did [aerobic exercise](#) and the stretch-tone group -- performed better on thinking and memory tests after a year says that various types of exercise may act on different regions of the brain or different brain networks, Erickson said. Rather than saying one type of exercise is more important than another, the answer is likely more complex, with various types of physical activity affecting different aspects of brain health, Erickson said.

To test just that kind of theory, researchers from the University of British Columbia and the University of Illinois, Urbana, divided 86 women aged 70 to 80 who already showed signs of mild [mental decline](#) into three groups. One did twice-weekly resistance (weight) training, another did twice-weekly aerobic training (walking) and the third did twice-weekly balance and tone exercises.

After six months, the resistance training group showed significantly improved performance on tests of attention and memory compared to the other two groups, the researchers found. Resistance training also led to functional changes in three [brain regions](#) involved in memory. The

aerobic training group showed improvement in balance, mobility and cardiovascular capacity.

The third study, by researchers at the National Center for Geriatrics and Gerontology in Japan, focused on 47 older adults with the mild memory impairment who were divided into two groups. One did 90 minutes of supervised exercise twice a week, while the other, the control group, sat through a few sessions of health education.

The exercise group did strength training, aerobics *and* exercises to improve balance, for one year.

Those in the exercise group showed improvement on a memory task and tests gauging their ability to use language compared to those in the education group, although both groups showed memory improvements, the researchers said.

"There is a lot of evidence out there suggesting that exercises can be beneficial for you in a whole variety of ways, whether it's reducing risk of obesity and weight gain or reducing inflammation," Erickson said.

"Exercise is associated with an increased lifespan, and repeatedly has been shown to be associated with reducing risk of dementia. There looks like there is a very direct link between [physical activity](#) and the integrity of the brain."

Because this research is being presented at a medical meeting, the data and conclusions should be viewed as preliminary until published in a peer-reviewed journal.

In addition, experts noted that while these studies found an association between exercise and healthier brain aging, the researchers didn't prove a cause-and-effect relationship.

**More information:** The [U.S. National Institute on Aging](#) has more on Alzheimer's.

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