

Moving more in old age may protect brain from dementia

January 16 2019



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Older adults who move more than average, either in the form of daily exercise or just routine physical activity such as housework, may maintain more of their memory and thinking skills than people who are

less active than average, even if they have brain lesions or biomarkers linked to dementia, according to a study by Rush University Medical Center published in the January 16, 2019, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

"We measured levels of [physical activity](#) in [study participants](#) an average of two years prior to their deaths, and then examined their donated brain tissue after death, and found that a more [active lifestyle](#) may have a [protective effect](#) on the brain," said Dr. Aron S. Buchman, lead author of the study paper and associate professor in the Department of Neurological Sciences at Rush University Medical Center. "People who moved more had better thinking and [memory](#) skills compared to those who were more sedentary and did not move much at all."

The researchers found movement may provide cognitive reserve to help maintain thinking and memory skills when there are signs of AD pathology present in the brain.

Study compared cognition test results and activity data for 454 older adults

The study assessed 454 [older adults](#); 191 had [dementia](#) and 263 did not. All participants were given physical exams and thinking and memory tests every year for 20 years.

The participants agreed to donate their brains for research upon their deaths. The average age at death was 91 years.

At an average of two years before death, researchers from the Rush Alzheimer's Disease Center gave each participant an activity monitor called an accelerometer. The wrist-worn device monitored physical activity around the clock, including everything from small movements

such as walking around the house to more vigorous activity like exercise routines.

Researchers collected and evaluated seven days of movement data for each participant and calculated an average daily activity score. The results were measured in counts per day, with an overall average of 160,000 counts per day.

People without dementia had an average of 180,000 counts per day, and people with dementia had an average of 130,000 counts per day.

Researchers found that higher levels of daily movement were linked to better thinking and memory skills. The study also found that people who had better motor skills—skills that help with movement and coordination—also had better thinking and memory skills.

Little differences in activity correlated with big differences in dementia rates

For every increase in physical activity by one standard deviation, participants were 31 percent less likely to develop dementia. For every increase in motor ability by one standard deviation, participants were 55 percent less likely to develop dementia.

Buchman said analysis showed that physical activity and motor abilities accounted for eight percent of the difference among people's scores on the thinking and memory tests.

After participants' death, researchers examined their donated [brain tissue](#), looking for lesions and biomarkers of dementia and Alzheimer's disease.

The relationship between activity and test scores was consistent even when researchers adjusted for the severity of participants' [brain lesions](#). They also found that the relationship was consistent in both people who had dementia and people who did not have dementia.

The link between a higher level of physical activity and better thinking and memory skills was unrelated to the presence of biomarkers of Alzheimer's disease and related disorders.

Exercise may protect the brain, but more study is needed

"Exercise is an inexpensive way to improve health, and our study shows it may have a protective effect on the brain," said Buchman. "But it is important to note that our study does not show cause and effect.

"It may also be possible that as people lose memory and thinking skills, they reduce their physical activity. More studies are needed to determine if moving more is truly beneficial to the [brain](#)."

A limitation of the study was that it did not have data on how active participants were over the course of their lives, so it is unknown if physical activity in early life also may have played a role. Also, the study did not include the type of physical activity, so it is difficult to determine if one physical activity may be more beneficial than another.

Provided by Rush University Medical Center

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