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NEWS

RSNA Press Release

Walking Slows Progression of Alzheimer's

Released: November 29, 2010

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At A Glance

- Walking five miles per week protects brain volume and slows cognitive decline in people with Alzheimer's disease and mild cognitive impairment.
- Brain volume is vital to brain health.
- Between 2.4 million and 5.1 million Americans have Alzheimer's disease.

CHICAGO — Walking may slow cognitive decline in adults with mild cognitive impairment (MCI) and Alzheimer's disease, as well as in healthy adults, according to a study presented today at the annual meeting of the Radiological Society of North America (RSNA).

"We found that walking five miles per week protects the brain structure over 10 years in people with Alzheimer's and MCI, especially in areas of the brain's key memory and learning centers," said Cyrus Raji, Ph.D., from the Department of Radiology at the University of Pittsburgh in Pennsylvania. "We also found that these people had a slower decline in memory loss over five years."

Alzheimer's disease is an irreversible, progressive brain disease that slowly destroys memory and cognitive skills. According to the National Institute on Aging, between 2.4 million and 5.1 million Americans have Alzheimer's disease. Based on current population trends, that number is expected to increase significantly over the next decade.

In cases of MCI, a person has cognitive or memory problems exceeding typical age-related memory loss, but not yet as severe as those found in Alzheimer's disease. About half of the people with MCI progress to Alzheimer's disease.

"Because a cure for Alzheimer's is not yet a reality, we hope to find ways of alleviating disease progression or symptoms in people who are already cognitively impaired," Dr. Raji said.

For the ongoing 20-year study, Dr. Raji and colleagues analyzed the relationship between physical activity and brain structure in 426 people, including 299 healthy adults (mean age 78), and 127 cognitively impaired adults (mean age 81), including 83 adults with MCI and 44 adults with Alzheimer's dementia.

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Patients were recruited from the Cardiovascular Health Study. The researchers monitored how far each of the patients walked in a week. After 10 years, all patients underwent 3-D MRI exams to identify changes in brain volume.

"Volume is a vital sign for the brain," Dr. Raji said. "When it decreases, that means brain cells are dying. But when it remains higher, brain health is being maintained."

In addition, patients were given the mini-mental state exam (MMSE) to track cognitive decline over five years. Physical activity levels were correlated with MRI and MMSE results. The analysis adjusted for age, gender, body fat composition, head size, education and other factors.

The findings showed across the board that greater amounts of physical activity were associated with greater brain volume. Cognitively impaired people needed to walk at least 58 city blocks, or approximately five miles, per week to maintain brain volume and slow cognitive decline. The healthy adults needed to walk at least 72 city blocks, or six miles, per week to maintain brain volume and significantly reduce their risk for cognitive decline.

Over five years, MMSE scores decreased by an average of five points in cognitively impaired patients who did not engage in a sufficient level of physical activity, compared with a decrease of only one point in patients who met the physical activity requirement.

"Alzheimer's is a devastating illness, and unfortunately, walking is not a cure," Dr. Raji said. "But walking *can* improve your brain's resistance to the disease and reduce memory loss over time."

Coauthors are Kirk Erickson, Ph.D., Oscar Lopez, M.D., James Becker, Ph.D., Caterina Rosano, M.D., Anne Newman, M.D., M.P.H., H. Michael Gach, Ph.D., Paul Thompson, Ph.D., April Ho, B.S., and Lewis Kuller, M.D.

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