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NEWS

RSNA Press Release

Exercise Helps Prevent Age-Related Brain Changes in Older Adults

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At A Glance

- Researchers used MRI and MR angiography to study brain differences between older adults who exercise and those who don't.
- Older adults who exercised three hours per week for 10 years had a greater number of small blood vessels in the brain and better cerebral blood flow.
- The researchers used a novel 3-D computer modeling system to analyze vessel characteristics.

CHICAGO — Older adults who exercise regularly show increased cerebral blood flow and a greater number of small blood vessels in the brain, according to findings presented today at the annual meeting of the Radiological Society of North America (RSNA).

The study, conducted at the University of North Carolina (UNC) – Chapel Hill, is the first to compare brain scans of older adults who exercise to brain scans of those who do not.

"Our results show that exercise may reduce age-related changes in brain vasculature and blood flow," said presenter Feraz Rahman, M.S., currently a medical student at Jefferson Medical College in Philadelphia. "Other studies have shown that exercise prevents cognitive decline in the elderly. The blood vessel and flow differences may be one reason."

The researchers recruited 12 healthy adults, age 60 to 76. Six of the adults had participated in aerobic exercise for three or more hours per week over the last 10 years, and six exercised less than one hour per week. All of the volunteers underwent MRI to determine cerebral blood flow and MR angiography to depict blood vessels in the brain.

Using a novel method of three-dimensional (3-D) computer reconstruction developed in their lab, the researchers were able to make 3-D models of the blood vessels and examine them for shape and size. They then compared the blood vessel characteristics and how they related to blood flow in both the active and inactive groups.

The results showed that the inactive group exhibited fewer small blood vessels in the brain, along with more unpredictable blood flow through the brain.

"The active adults had more small blood vessels and improved cerebral blood flow," said the study's senior author, J. Keith Smith, M.D., Ph.D., associate professor of radiology at

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UNC School of Medicine. "These findings further point out the importance of regular exercise to healthy aging."

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Co-authors are Elizabeth Bullitt, M.D., Laurence, Katz, M.D., and Bonita Marks, Ph.D.

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RSNA is an association of more than 42,000 radiologists, radiation oncologists, medical physicists and related scientists committed to excellence in patient care through education and research. The Society is based in Oak Brook, Ill. (RSNA.org)

Editor's note: The data in these releases may differ from those in the printed abstract and those actually presented at the meeting, as researchers continue to update their data right up until the meeting. To ensure you are using the most up-to-date information, please call the RSNA Newsroom at 1-312-949-3233.

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