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Study Finds Cardiorespiratory Fitness Improves Memory Among Older Adults

(Boston)--Older adults who have greater heart and lung health also have better memory recall and cognitive capabilities. The study, which appears online in the *Journal of Gerontology*, examines the relationship between cardiorespiratory fitness (CRF), memory and cognition in young and older adults.

Aging is associated with decline in executive function (problem solving, planning and organizing) and long-term memory for events. CRF has been associated with enhanced executive function in older adults, but the relationship with long-term memory remains unclear.

Researchers compared 33 young adults (age 18-31) and 27 older adults (age 55-82) with a wide range of cardiorespiratory levels. Participants completed exercise testing to evaluate their cardiorespiratory function and neuropsychological testing to assess their memory, planning and problem-solving abilities. In addition to standardized neuropsychological tasks of executive function and long-term memory, participants engaged in a laboratory task in which they had to learn face-name associations.

They found older adults who had higher cardiorespiratory levels (i.e. were more "fit" performed as well as young adults on executive function measures. On long-term memory measures, young adults performed better than older high fit adults, who in turn performed better than low fit older adults. In older adults, better physical fitness level was associated with improved executive function, and memory. In young adults, fitness had no effect on their memory or executive functions.

According to the researchers these findings demonstrate that the effect of CRF is not limited to executive function, but also extends to long-term memory. "Our findings that CRF may mitigate age-related cognitive decline is appealing for a variety of reasons, including that aerobic activities to enhance CRF (walking, dancing, etc) are inexpensive, accessible and could potentially improve quality of life by delaying cognitive decline and prolonging independent function," explained corresponding author Scott Haynes, PhD, assistant professor of psychiatry at Boston University School of Medicine and the Associate Director of the Neuroimaging Research for Veterans Center at the VA Boston Healthcare System.

"More research is needed to explore the specific mechanism of how physical fitness enhances brain structure and function as well as to clarify the impact of specific exercise programs (i.e. strength, aerobic or combined training) or dose of exercise (frequency, intensity, duration) on a range of cognitive functions," he added.

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