



AAN 74th ANNUAL MEETING ABSTRACT

Media Contacts:

Renee Tessman, rtessman@aan.com, (612) 928-6137

Michelle Uher, muher@aan.com, (612) 928-6120

EMBARGOED FOR RELEASE UNTIL 4 P.M. ET, SUNDAY, FEBRUARY 27, 2022

Abstract Title: Cardiorespiratory Fitness Is Protective Against Alzheimer's and Related Disorders

Press Release Title: Physical Fitness Linked to Lower Risk of Alzheimer's Disease

Authors: Edward Zamrini^{1,2}, Yan Cheng², Peter Kokkinos^{1,2}, Charles Faselis^{1,2}, Helen Sheriff^{1,2}, Yijun Shao^{1,2}, Ali Ahmed^{1,2}, Qing Zeng-Teitler^{1,2}

¹Washington DC VA Medical Center, and ²George Washington University

Objective: To evaluate the association between cardiorespiratory fitness (CRF) and the risk of developing Alzheimer's Disease and Related Disorders (ADRD).

Background: Currently there are no known effective treatments to prevent or stop the progression of Alzheimer's Disease and Related Dementias. CRF is associated with favorable health outcomes. Thus, we examined the relationship between CRF measured using an exercise treadmill test (ETT) with incident AD/ADRD.

Design/Methods: Using the Veterans Health administration's national electronic health record we identified 649,605 Veterans 30-95 years of age who completed standardized ETT between 2000-2017 and were free of ADRD at the time of the ETT. Natural language processing was used to extract metabolic equivalents (METs). We formed five age-specific fitness categories, lowest-fit (n=132,63; METs=3.8 ±), low-fit (n=129,493; METs=5.8 ±), moderate-fit (n=120,988; METs=7.5±), fit (n=137,122; METs 9.2±) and highest-fit (n=129,368, METs=11.7±), based on peak METs achieved during the first ETT.

ADRD was identified using International Classification of Diseases (ICD) codes. Hazard ratios (HRs) and 95% confidence intervals (CIs) for incident ADRD during 8.8 years of average follow-up were estimated using lowest-fit group as the referent, adjusting for baseline characteristics.

Results: The mean age of the participants was 61 years (standard deviation, 11). Of those, 5.7% were women and 16.6% African Americans. Unadjusted incident rates for ADRD were 9.5, 8.5, 7.4, 7.2 and 6.4 per 1,000 person-years for the lowest-fit to the highest-fit group, respectively (p<0.001). When compared to the lowest-fit group, multivariable adjusted HRs (95% CIs) for incident ADRD associated with low-, moderate-, high- and highest-fit groups were 0.87 (0.85-0.90; p<0.001), 0.80 (0.78-0.83; p<0.001), 0.74 (0.72-0.76; p<0.001) and 0.67 (0.65-0.70; p<0.001), respectively.

Conclusions: Our findings suggest that the association between CRF and ADRD risk is inverse, independent, and graded.

Study Support: 1RF1AG069121 and resources from Office of Research and Development, Health Services Research and Development, and the use of facilities at the Washington DC VA Medical Center and at George Washington University.