Active lifestyle associated with less Alzheimer disease-related brain change among persons with APOE epsilon4 genotype

January 16 2012

A sedentary lifestyle is associated with greater cerebral amyloid deposition, which is characteristic of Alzheimer's disease (AD), among cognitively normal individuals with the ε4 allele of the apolipoprotein E (APOE) gene, according to a report published Online First by *Archives of Neurology*, one of the JAMA/Archives journals.

"The presence of an APOE ε4 allele is the most established genetic risk factor for Alzheimer disease (AD), with a higher percentage of individuals with AD having an ε4 allele in comparison with the general population," the authors write as background information in the article. "It has been suggested that APOE status may modify associations between lifestyle factors such as exercise engagement and risk of cognitive decline and dementia."

More information: Exercise Engagement as a Moderator of the Effects of APOE Genotype on Amyloid Deposition, *Arch Neurol.* Published online January 9, 2012. doi:10.1001/archneurol.2011.845

ABSTRACT

Objective. APOE 4 status has been associated with greater cortical amyloid deposition, whereas exercise has been associated with less in cognitively normal adults. The primary objective here was to examine

whether physical exercise moderates the association between APOE genotype and amyloid deposition in cognitively normal adults.
Design APOE genotyping data and answers to a questionnaire on physical exercise engagement over the last decade were obtained in conjunction with cerebrospinal fluid (CSF) samples and amyloid imaging with carbon 11–labeled Pittsburgh Compound B ([11C]PiB) positron emission tomography. Participants were classified as either low or high exercisers based on exercise guidelines of the American Heart Association.
Setting. Knight Alzheimer's Disease Research Center at Washington University, St Louis, Missouri.
Participants. A total of 201 cognitively normal adults (135 of whom were women) aged 45 to 88 years were recruited from the Knight Alzheimer's Disease Research Center. Samples of CSF were collected from 165 participants. Amyloid imaging was performed for 163 participants.
Results. APOE 4 carriers evidenced higher [11C]PiB binding (P