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Risk Factors for Alzheimer's Disease and Longitudinal Memory Performance

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M.K. FOSTER, M. SEIDENBERG, J. WOODARD, K. NIELSON, J. SMITH, M. LANCASTER, M. MATTHEWS, N. HANTKE, A. BUTTS & S. RAO. Risk Factors for Alzheimer's Disease and Longitudinal Memory Performance.

Objective: Greater risk for Alzheimer's disease (AD) is associated with carrying the apolipoprotein E (ApoE) $\epsilon 4$ allele and a family history (FH) of AD. Little research has examined the long-term cognitive effects of these risk factors. We examined longitudinal memory performance over five years in elders with a combination of risk factors.

Participants and Methods: Sixty cognitively intact elders underwent neuropsychological assessment at baseline, 1.5 years, and five years. Among ApoE $\epsilon 4$ non-carriers, 16 participants had a FH of AD, while 20 participants had no FH of AD. Twenty-four ApoE $\epsilon 4$ carriers comprised a third group of participants, either with ($n=17$) or without ($n=7$) a FH of AD. We used univariate repeated measures ANOVAs to identify possible group differences in memory performance and to examine potential time-by-group interactions.

Results: Longitudinally, there were significant interaction effects for time and group on the Rey Auditory Verbal Learning Test Immediate Learning, Delayed Recall, and Percent Retention variables, with ApoE $\epsilon 4$ carriers declining from baseline differently than the other groups. Follow-up analyses revealed that differences in memory across groups were not apparent until the five-year follow-up assessment, when the ApoE $\epsilon 4$ carriers performed worse than those without the ApoE $\epsilon 4$ allele.

Conclusions: Results suggest that the $\epsilon 4$ allele is associated to a greater degree than FH for AD with reduced memory performance over time. Longitudinal studies of cognitively intact individuals may require long follow-up periods, perhaps 5 years or more, to detect the influence of AD risk factors between groups.

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