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# Risk Factors for Alzheimer's Disease and Longitudinal Memory Performance

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**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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