

## **Greater Cognitive Declines in Reason, Number, Memory Factor and Immediate Recall Observed in Midlife (Age 42-59) for an APOE Sample of the Seattle Longitudinal Study**

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This study examined differences in cognitive abilities for groups varying in APOE allele type. Risk for cognitive decline in old age has been found to vary by APOE allele type, where the APOE-e4 allele is the second leading risk factor for Alzheimer's disease, however little research has examined cognitive change during midlife. The midlife sample included APOE genotyped participants from the Seattle Longitudinal Study (Total N = 531; M age at Time 1 = 51.3); Homozygous e4 (N = 15; M age = 50.9); Heterozygous e4 (N = 135; M age = 51.1); no e4 (N = 381; M age = 51.4). Standard Error of Measurement (SEM) scores were made for each cognitive measure, classifying individuals as either stable, declined or gained across three occasions. Chi-squared analysis indicated more decliners than expected while comparing e-33 to e-44 for inductive reasoning [ $X^2(1,278) = 4.29, p < 0.05$ ] and number ability [ $X^2(1,261) = 4.15(1,261), p < 0.05$ ]. Similar trends were found when comparing homozygous e-4 to heterozygous e-4 and homozygous e-4 to all other allele types for both inductive reasoning and number ability. Report of family history of dementia was also associated with having at least one 4 allele [ $X^2 = 4.86(1,804), p < 0.05$ ]. Mean comparisons of level were found to be lower for e-44 (M = 45.43) than e-33 (M = 51.83) for memory factor at occasion 2 [T(1,125) = 1.90, p = 0.05], and occasion 3 [T(1,125) = 1.93, p = 0.05] (M44 = 43.29, M33 = 49.82). Similar trends were found for comparing homozygous e-4 to heterozygous e-4 and homozygous e-4 to all other allele types. Mean comparisons of level were found to be lower for e-44 (M = 12.71) than e-33 (M = 15.16) for immediate recall at occasion 3 [T(1,121) = 1.75, p > 0.05]. Mean comparisons of level were found to be lower for e-44 (M = 47.20) than e-33 (M = 52.38) for number ability at occasion 3 [T(1,321) = 1.95, p = 0.05]. Similar trends found for comparing heterozygous e-4 to homozygous e-4, homozygous e-4 to all other allele types, and at least one e-4 allele to no e-4 allele. Mean comparisons of level were found to be lower for e-44 (M = 50.33) than e-24 and e-34 (M = 54.12) for inductive reasoning at occasion 3 [T(1,148) = 2.08, p > 0.05]. This research shows that cognitive decline may be observed in Midlife.

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