# Abstract

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## Relative telomere length and cognitive decline in the Nurses' Health Study.

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**OBJECTIVE**: Telomeres are short DNA repeats on the ends of mammalian chromosomes, which can undergo incomplete replication leading to gradual shortening with each cell cycle. Age and oxidative stress are contributors to telomere shortening; thus, telomere length may be a composite measure of biologic aging, and a potential predictor of health status in older adults.

**METHODS**: We evaluated whether relative telomere length (the proportion of telomere repeat copy number to single gene copy number, using a real-time PCR method) predicts cognitive decline measured ten years later among ~ 2000 older participants in the Nurses' Health Study (NHS). Mixed linear regression was used to evaluate mean differences in cognitive decline according to telomere length.

**RESULTS**: After adjustment for potential confounders, we found that decreasing telomere length was associated with more cognitive decline, although associations were modest (e.g. for a global score, averaging all six tests in our cognitive battery, mean difference=0.03 standard units per SD increase in telomere length; p=0.04). The magnitude of these estimates was similar to the differences we find in this cohort for women one year apart in age (e.g. the differences that we observe between women who are 73 versus 74 years of age)

**CONCLUSION**: Our results suggest that telomere length is not a particularly powerful marker of impending cognitive decline.

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