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[PubMed Central](#) 1: [Neurology](#). 2005 Mar 8;64(5):866-71.[Related Articles, Links](#)**Endogenous sex hormone levels and cognitive function in aging men: is there an optimal level?****[Muller M](#), [Aleman A](#), [Grobbee DE](#), [de Haan EH](#), [van der Schouw YT](#).**

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**OBJECTIVE:** To determine whether endogenous sex hormone levels are associated with cognitive functioning in men. **METHODS:** Cognitive performance was assessed in 400 independently living men between ages 40 and 80 in a population-based cross-sectional study. Compound scores were calculated for memory function, processing capacity/speed, and executive function. The Mini-Mental State Examination was used as a measure of global cognitive function. The adjusted association of testosterone (T) and estradiol (E2) (total, bioavailable) with neuropsychological test scores in the total group and in subgroups was assessed by linear and logistic regression analysis. **RESULTS:** Curvilinear associations were observed between T and memory performance and processing capacity/speed, suggesting optimal sex hormone levels. No association between E2 and cognitive functioning was found. After the population was subdivided into four age decades, a linear association of T with cognitive functioning in the oldest age category remained. No association was found in the other age decades. Lower bioavailable T levels were associated with lower scores on processing capacity/speed and executive function; beta (95% CI) values were 0.36 (0.07 to 0.66) and 0.17 (-0.01 to 0.35). Similar results were observed for total T. **CONCLUSIONS:** Higher testosterone (T) levels are associated with better cognitive performance in the oldest age category. Apparent curvilinear associations between T and certain cognitive functions in men suggest an optimal hormone level for particular cognitive tasks and are explained by linear associations in the oldest age category.

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