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Testosterone Prevents Mental Decline in Aging Males

The Journal of Clinical Endocrinology & Metabolism. Vol. 87, No. 11 5001-5007

Longitudinal Assessment of Serum Free Testosterone Concentration Predicts Memory Performance and Cognitive Status in Elderly Men

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Abstract

Circulating testosterone (T) levels have behavioral and neurological effects in both human and nonhuman species. Both T concentrations and neuropsychological function decrease substantially with age in men. The purpose of this prospective, longitudinal study was to investigate the relationships between age-associated decreases in endogenous serum T (testosterone) and free T concentrations and declines in neuropsychological performance. Participants were volunteers from the Baltimore Longitudinal Study of Aging, aged 50–91 yr at baseline T assessment. Four hundred seven men were followed for an average of 10 yr, with assessments of multiple cognitive domains and contemporaneous determination of serum total T, SHBG, and a free T index (FTI). We administered neuropsychological tests of verbal and visual memory, mental status, visuomotor scanning and attention, verbal knowledge/language, visuospatial ability, and depressive symptomatology. **Higher free testosterone was associated with better scores on visual and verbal memory, visuospatial functioning, and visuomotor scanning and a reduced rate of longitudinal decline in visual memory. Men classified as hypogonadal (low testosterone) had significantly lower scores on measures of memory and visuospatial performance and a faster rate of decline in visual memory. These results suggest a possible beneficial relationship between circulating free Testosterone concentrations and specific domains of cognitive performance in older men.**