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## ENDOCRINE CARE

**Low Serum Testosterone and Mortality in Older Men**

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**Abstract**

**Context:** Declining testosterone levels in elderly men are thought to underlie many of the symptoms and diseases of aging; however, studies demonstrating associations of low testosterone with clinical outcomes are few.

**Objective:** The objective of the study was to examine the association of endogenous testosterone levels with mortality in older community-dwelling men.

**Design, Setting, and Participants:** This was a prospective, population-based study of 794 men, aged 50–91 (median 73.6) yr who had serum testosterone measurements at baseline (1984–1987) and were followed for mortality through July 2004.

**Main Outcome Measure:** All-cause mortality by serum testosterone level was measured.

**Results:** During an average 11.8-yr follow-up, 538 deaths occurred. Men whose total testosterone levels were in the lowest quartile (<241 ng/dl) were 40% [hazards ratio (HR) 1.40; 95% confidence interval (CI) 1.14–1.71] more likely to die than those with higher levels, independent of age, adiposity, and lifestyle. Additional adjustment for health status markers, lipids, lipoproteins, blood pressure, glycemia, adipocytokines, and estradiol levels had minimal effect on results. The low testosterone-mortality association was also independent of the metabolic syndrome, diabetes, and prevalent cardiovascular disease but was attenuated by adjustment for IL-6 and C-reactive protein. In cause-specific analyses, low testosterone predicted increased risk of cardiovascular (HR 1.38; 95% CI 1.02–1.85) and respiratory disease (HR 2.29; 95% CI 1.25–4.20) mortality but was not significantly related to cancer death (HR 1.34; 95% CI 0.89–2.00). Results were similar for bioavailable testosterone.

**Conclusions:** Testosterone insufficiency in older men is associated with increased risk of death over the following 20 yr, independent of multiple risk factors and several preexisting health conditions.

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**Articles citing this article**

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