

Public release date: 3-Mar-2008

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[JAMA and Archives Journals](#)

Low testosterone levels associated with depression in older men

Older men with lower free testosterone levels in their blood appear to have higher prevalence of depression, according to a report in the March issue of *Archives of General Psychiatry*, one of the JAMA/Archives journals.

Depression affects between 2 percent and 5 percent of the population at any given time, according to background information in the article. Women are more likely to be depressed than men until age 65, when sex differences almost disappear. Several studies have suggested that sex hormones might be responsible for this phenomenon.

Osvaldo P. Almeida, M.D., Ph.D., F.R.A.N.Z.C.P., of the University of Western Australia, Perth, and colleagues studied 3,987 men age 71 to 89 years. Between 2001 and 2004, the men completed a questionnaire reporting information about demographics and health history. They underwent testing for depression and cognitive (thinking, learning and memory) difficulties, and information about physical health conditions was obtained from a short survey and an Australian health database. The researchers collected blood samples from the participants and recorded levels of total testosterone and free testosterone, which is not bound to proteins.

A total of 203 of the participants (5.1 percent) met criteria for depression; these men had significantly lower total and free testosterone levels than men who were not depressed. After controlling for other factors such as education level, body mass index and cognitive scores ten in the lowest quintile (20 percent) of free testosterone concentration had three times the odds of having depression compared to men in the highest quintile.

The mechanism by which low hormone levels might affect depression risk has not been identified, but might involve changes in the levels of neurotransmitters or hormones in the brain, the authors note.

A randomized controlled trial is required to determine whether reducing prolonged exposure to low free testosterone is associated with a reduction in the prevalence of depression in elderly

men, the authors write. If so, older men with depression may benefit from systematic screening of free testosterone concentration, and testosterone supplementation may contribute to the successful treatment of hypogonadal [with low hormone levels] older men with depression.

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(Arch Gen Psychiatry. 2008;65[3]:283-289. Available pre-embargo to the media at www.jamamedia.org.)

Editor's Note: This study was supported by project grants from the National Health and Medical Research Council of Australia. Biochemical analyses were funded by a Sylvia and Charles Viertel Charitable Foundation Clinical Investigator Award. Please see the article for additional information, including other authors, author contributions and affiliations, financial disclosures, funding and support, etc.
