

Low testosterone raises risk of age-related functional disability

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Elderly men with low levels of testosterone or other sex hormones have twice the likelihood of having declining physical function over two years' time compared with their peers who have the highest hormone levels, a new study from Australia finds. The results were presented Saturday at the joint meeting of the International Society of Endocrinology and the Endocrine Society: ICE/ENDO 2014 in Chicago.

"We also found that increasing muscle weakness—possibly due to decreasing [testosterone](#) concentration in the blood—could explain most of this relationship," said Benjamin Hsu, MPH, the study's principal investigator and a PhD candidate at the University of Sydney.

Although [testosterone levels](#) and the ability to perform self-care activities both decrease with age, it is unclear whether one or the other is a cause or an effect of aging, or if they are both due to a common third cause, Hsu said.

The aim of this study was to determine the relationship between an age-related decline in androgens, or male hormones, and increasing physical disability in [older men](#).

As part of the Concord Health and Ageing Project (CHAMP) in Sydney, the research included 1,318 men ages 70 and older who had health assessments when they entered the study from 2005 to 2007, and again two years later. The CHAMP study is funded by the National Health and Medical Research Council, the Sydney Medical School Foundation and

the Ageing and Alzheimer's Institute, all in Australia.

As a measure of their capacity to function independently, the men reported their ability to perform activities of daily living, such as walking, eating, getting dressed and personal hygiene. They also had blood tests that measured levels of important hormones, including their male hormones—testosterone and dihydrotestosterone—and two types of the [female hormone estrogen](#) (estradiol and estrone) that are present in men in lower amounts than in women. Also tested were measures of [muscle strength](#): grip strength and the strength of their quadriceps muscles in the thigh.

In their analysis, the investigators took into account known risk factors for physical decline, such as older age, smoking and obesity. Despite this, they found that the lower the level of testosterone or either of the estrogens, the higher the chance that the men had worse functional abilities at the two-year follow-up evaluation.

"Low testosterone, estradiol and estrone concentrations may be important contributors to, or biologic markers for, physical decline in older men, which impairs their independent living," Hsu said.

However, the relationship between lower reproductive hormones and functional decline did not remain statistically significant when either of the measures of muscle strength was added to the analysis, he noted.

"This study suggests that low testosterone in older [men](#) could lead to a decline in muscle strength, which might explain their increased risk of functional disability," Hsu said.

Provided by The Endocrine Society

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