

Testosterone Supplementation Benefits Older Men

By Gil Ross — February 17, 2016



A [new report](#) ^[1] in the current *New England Journal of Medicine*

addresses a topic that has long aroused controversy in primary care, internal medicine, and geriatrics: Does supplementing testosterone in older men with low testosterone levels add to quality of life and functional enhancement?

The study, entitled "Effects of Testosterone Treatment in Older Men," was done by a multi-center group, The Testosterone Trial Investigators, led by Peter J. Snyder, MD, of the Perelman School of Medicine at the University of Pennsylvania. Their underlying thesis was that serum T concentrations decrease as men age, but benefits of raising testosterone levels in older men have not been established.

The overall design of the Testosterone Trials is quite complex, including seven independent, double-blind, placebo-controlled trials intended to address specific outcomes that are postulated to be related to testosterone deficiency (sexual function, vitality, physical function, cognitive function, anemia, bone density, and cardiovascular status). The trials are related by common methods and shared measures, thus maximizing the power of the overall investigation. This is the first of several planned studies: it describes the findings of the three main studies, whose primary outcomes focused on sexual function, physical function, and vitality.

For this study, they assigned 790 men 65 years of age or older with a serum T-concentration of less than 275 ng per deciliter and symptoms suggesting hypoandrogenism to receive either testosterone gel or placebo gel for one year. Each man participated in one or more of three trials: the Sexual Function Trial, the Physical Function Trial and the Vitality Trial. The primary outcome of each of the individual trials was evaluated in all participants.

The study participants were recruited on the basis of stringent criteria (age \geq 65 years, total testosterone levels below the normal range for younger men [$<$ 275 ng per deciliter], symptoms related to predetermined outcomes, and no contraindications to participation). Only 1.5 percent of those screened (790 of 51,085 men) were eligible and enrolled. The average participant was 72 years of age; almost 90 percent of participants were white, most were obese, most had hypertension, more than one third had diabetes, and one out of five had sleep apnea.

The study's conclusion: In symptomatic men 65 years of age or older, raising T-concentrations for one year from moderately low to the mid-normal range for men 19 to 40 years of age had a

moderate benefit with respect to sexual function, and some benefit with respect to mood and depressive symptoms. But it had no benefit with respect to vitality or walking distance.

The results show that testosterone therapy did yield certain benefits, but at this point their clinical importance is uncertain. The study confirmed that testosterone supplementation can yield improvements in sexual function, but the benefits were modest and tended to wane in the latter months of the treatment period.

There were only small gains in physical performance and in indexes of mood and depression; overall vitality was no better with testosterone therapy than with placebo. For each of the outcomes, some older men may have a more vigorous response to testosterone therapy and thus could be more attractive candidates for supplementation. However, it was not possible to confidently identify them by the testosterone levels achieved with therapy.

The select nature of the participants reflects the scientific rigor of the trials, and explains to some extent the causes of the low T-levels, but also clearly limits the generalizability of the conclusions. It cannot be assumed that the results observed in these studies would be similar in men with higher T-levels, those with different demographic or clinical characteristics, or among younger men (in fact, most testosterone prescriptions are written for middle-aged men).

There is considerable controversy about possible adverse effects of testosterone therapy in older men, and these studies do not resolve this controversy. However, there were only minor effects on hemoglobin and PSA levels, and no apparent major toxic effects.

Here's the bottom line as I see it: T-therapy was not a panacea, and these findings alone are insufficient to support a decision to initiate testosterone therapy in symptomatic older men. Larger and more extended trials would be needed to determine whether therapy has negative effects on unstudied outcomes such as prostate or cardiovascular health. Of course, given [the recent news](#) [2] that one-fourth of men *over age 85* have had sex within the last year might sway some doctors and patients to be more willing to prescribe a little androgenic boost for appropriate seniors.

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