

# Testosterone improves verbal learning and memory in postmenopausal women

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Postmenopausal women had better improvement in verbal learning and memory after receiving treatment with testosterone gel, compared with women who received sham treatment with a placebo, a new study found. Results were presented Monday at The Endocrine Society's 95th Annual Meeting in San Francisco.

"This is the first large, placebo-controlled study of the effects of testosterone on mental skills in postmenopausal women who are not on estrogen therapy," said principal investigator Susan Davis, MBBS (MD), PhD, of Monash University, Melbourne, Australia. "Our study has confirmed our similar findings from two smaller studies in postmenopausal women and suggests that testosterone therapy may protect women against [cognitive decline](#) after menopause."

Menopause has been linked with [memory decline](#) because of a decrease in levels of the protective [hormone estrogen](#). Yet testosterone also is an important hormone in women because it has a role in [sexual desire](#), [bone density](#) and energy while improving mood. In men, studies have shown that testosterone replacement has favorable effects on [brain function](#).

In this new, investigator-initiated study, the Australian researchers randomly assigned 92 healthy postmenopausal women, ages 55 to 65, who were not receiving estrogen therapy, to receive one of two treatments for 26 weeks. The treatments were a testosterone gel (LibiGel, BioSante Pharmaceuticals) applied daily to the upper arm, or a placebo, an identical-appearing gel containing none of the medication.

Neither the study participants nor the investigators were aware of which gel the women received.

Before treatment and at 12 and 26 weeks of treatment, subjects underwent comprehensive testing of their cognitive function (mental skills) using a computer-based battery of tests designed for people with normal brain function (CogState). Ninety women completed the study. The investigators found no [cognitive differences](#) between groups before the start of treatment.

After 26 weeks, the women who received testosterone therapy had a statistically significant and clinically meaningful improvement in verbal [learning and memory](#)—how well they recalled words from a list, Davis reported. The average test score for the testosterone-treated group was 1.6 points greater than that of the placebo group. No differences between the groups were evident for any other cognitive test.

Women receiving testosterone therapy reported no major side effects related to the gel. Their testosterone levels increased with treatment but remained in the normal female range.

Although further study is needed in more women, Davis said the results are important. "There is no effective treatment to date to prevent memory decline in women, who are higher risk of dementia than men," she said.

No testosterone-only product has yet received U.S. Food and Drug Administration approval for use in women. BioSante provided the study drug and partial funding for this study but had no control over study design or data analysis. CogState Australia provided computation of the cognitive testing, which the researchers then analyzed. Davis reported receiving funding from the Australian National Health and Medical Research Council as a principal research fellow.

Provided by The Endocrine Society

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