Testosterone replacement may help older men improve and maintain aerobic capacity

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Testosterone replacement therapy may help older men who have limited mobility and low testosterone improve their aerobic capacity and lessen its decline with age, new research finds. The results were presented in a poster Sunday, June 22, at ICE/ENDO 2014, the joint meeting of the International Society of Endocrinology and the Endocrine Society in Chicago.

"These findings are potentially relevant to older men who have experienced the age-related decline in endurance capacity that may be due in part to low testosterone. If proven safe over the long-term, restoring testosterone to normal levels may improve an important measure of physical performance and enhance their quality of life," said lead study author Thomas W. Storer, PhD, Director of the Exercise Physiology Laboratory at Brigham and Women's Hospital of Harvard Medical School in Boston, Massachusetts.

Aerobic fitness declines as people grow older. In previous research, the authors showed that testosterone therapy might improve endurance capacity in aging men, but the effects of testosterone on aerobic performance in mobility limited older men have not been evaluated.

"We believe this is the first report of enhanced endurance performance as a result of testosterone therapy in men who have difficulty performing some physical tasks but are otherwise healthy. At least in the short term, testosterone therapy may lessen the rate of decline of an important marker of physical fitness in older men with low testosterone. This may

lead to reduced fatigue and improved quality of life," he said.

To investigate whether testosterone supplementation improves measures of aerobic function — the peak oxygen uptake and the gas exchange lactate threshold — Dr. Storer and his colleagues analyzed data from subjects in a larger randomized controlled study of men over age 65 who had low testosterone levels and difficulty performing the usual physical activities of daily living. For 6 months, 28 men in one group received 10 milligrams of testosterone gel and 36 men in a second group received a placebo gel. All subjects completed a cycle exercise test to measure their peak aerobic fitness before and after the 6 month study..

The men taking testosterone displayed a slight improvement in aerobic fitness while those taking placebo showed a slight decline. This small increase in aerobic capacity in the testosterone group eliminated the expected decrease that men generally experience with natural aging.

Among the men taking testosterone, the age-related decline in the peak oxygen uptake was 3.4 times less than expected, while the rate of decline among the men taking placebo accelerated to nearly twice the expected rate. The decrease in gas exchange lactate threshold was significantly smaller in the testosterone group than in the placebo group. Longer term studies are needed to evaluate safety and durability of effect.

Provided by The Endocrine Society

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