

Testosterone levels improve in obese men following a common weight-loss operation

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A common weight-loss operation called sleeve gastrectomy can make testosterone levels normal in obese men, according to new findings presented at the 2015 Clinical Congress of the American College of Surgeons. Surgeons from Stanford University in California reported that after undergoing this bariatric surgical procedure, obese patients with low testosterone levels experienced a measureable increase in their testosterone levels over a 12 month-period following the operation.

"When men are obese, they have low [testosterone](#). And we know that low testosterone has an impact on sexual quality of life, but it's also an independent cardiac risk factor. Men with low testosterone have more cardiac events than men with normal testosterone," according to study coauthor John Morton, MD, MPH, FACS, chief, bariatric and minimally invasive surgery, Stanford University School of Medicine. "Low testosterone also increases the risk of sarcopenia, a loss of muscle that accelerates the aging process, so it has an impact on many different levels."

The aim of the study was to investigate the effect of surgical weight loss following sleeve gastrectomy on serum testosterone, DHEA (a precursor to testosterone), and prostate-specific antigen (PSA). This clinical study involved 24 obese male patients undergoing gastric sleeve surgery, also called sleeve gastrectomy, at Stanford Hospital. Serum testosterone, DHEA, and PSA were measured before and at three, six, and 12 months after the procedure.

The researchers found that the study group experienced a significant increase in average serum testosterone after undergoing sleeve gastrectomy. At 12 months, testosterone had increased on average from 295 to 423 ng/dL. The normal range for circulating testosterone is 300 to 1000 ng/dL. A person is diagnosed with low serum testosterone when the level drops below 300 ng/dL.

Before the procedure, 63 percent of participants had low testosterone and afterwards, only 41 percent did. The average BMI was 46 before surgery and 31 after the operation. In addition, DHEA also rose, from 12.8 to 39.6 ng/mL, and serum PSA concentration rose over 12 months from 0.62 to 0.75 ng/mL with no change in PSA mass, which is a marker for prostate cancer progression.

"More men should seek surgical care for obesity as they carry more risk from their weight—low testosterone causes further weight gain, increases cardiac risk, and decreases quality of life. And sleeve gastrectomy can improve all of those comorbidities," Dr. Morton said.

The researchers wanted to look specifically at sleeve gastrectomy because they said it has never been studied in this way before. Sleeve gastrectomy, which was introduced about 10 years ago, has replaced gastric bypass as the new gold standard in weight-loss operations. It's a shorter, lower-risk procedure.

During the operation, the surgeon removes about 75 percent of the stomach, leaving a narrow tube or "sleeve" the size of a banana. The result is that patients feel full after eating small amounts of food. People with a body mass index (BMI) greater than 35 with a medical problem, or a BMI greater than 40, are candidates for this operation.

"When you are obese, your fat becomes converted to estrogen, which will compete with testosterone and drive it down," Dr. Morton said. "The nice thing about what this process does is it creates an autotransfusion of testosterone from yourself. This process occurs because you are losing weight, and therefore losing that estrogen, causing your natural testosterone stores to rise. It's actually really helpful across the board for these patients."

Although obesity rates between men and women are about equal, men undergo weight-loss surgery

in far lower numbers than women. About 80 percent of bariatric surgery patients are women and twenty percent are men.

"The take home message is that if you are an obese man with low testosterone your therapy should be weight loss not testosterone replacement, and a successful way to achieve meaningful [weight loss](#) is through a bariatric operation," Dr. Morton said. "This is a unique and beneficial finding for sleeve gastrectomy hasn't been studied before, demonstrating for the first time, that [testosterone levels](#) are improved in a group of obese male patients following sleeve gastrectomy."

More information: Fuchs H.F., Broderick R.C., Harnsberger C. R., et al. Benefits of Bariatric Surgery Do Not Reach Obese Men, *J Laparoendosc Adv Surg Tech*. March 2015, 25(3): 196-201.

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