

Bariatric surgery reverses low testosterone levels in male teens with obesity

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Bariatric surgery not only treats obesity and reverses Type 2 diabetes, but a new study now shows that it also reverses low testosterone levels in teen males with obesity. The finding is important because in addition to

reducing inflammation and increasing insulin sensitivity, weight loss after bariatric surgery may also influence sexual and fertility functions. Results were published in the *European Journal of Endocrinology*.

This is the first major study to examine how [weight loss](#) after [bariatric surgery](#) affects testosterone in [adolescent boys](#). Obesity in adolescent boys can often lead to hypogonadism, as shown by lower-than-normal testosterone concentrations, which may lead to sexual difficulties and reduced fertility.

"It is remarkable that testosterone levels more than doubled and in fact normalized in most adolescent boys who underwent bariatric surgery, and this was maintained up to five years," said study co-author Thomas Inge, MD, Ph.D., Surgeon-in-Chief and Director of Adolescent Bariatric Surgery Program at Ann & Robert H. Lurie Children's Hospital of Chicago, and Professor of Surgery and Pediatrics at Northwestern University Feinberg School of Medicine. "This testosterone response was greater than that expected in adults undergoing these same operations and adds to the growing list of benefits of using bariatric surgery in teenagers with severe obesity."

The study involved 34 teen males with severe obesity who were enrolled in Teen-Longitudinal Assessment of Bariatric Surgery, a prospective, NIH funded observational study. These teens underwent bariatric surgery and were followed for five years. Prior to surgery, only 27 percent of participants had normal free testosterone levels. Two years later, 80 percent had [normal levels](#), and five years later, 67 percent maintained normal free testosterone levels, presumably due to some weight regain.

The study, which was led by Dr. Paresh Dandona's team in the Division of Endocrinology at the University of Buffalo, also showed dramatic reductions in inflammation and [insulin resistance](#), which provides hope that adolescent males with severe obesity who undergo bariatric surgery

may have a better outlook for future metabolic health and fertility.

"The rise in testosterone levels paired with improvement in [insulin sensitivity](#) after bariatric surgery point to benefits in improving glucose metabolism, fertility, lipid metabolism, bone mineralization, and muscle mass. These changes can help decrease morbidity over the lifespan related to obesity-related complications," said Ellen Kim, MD, pediatric endocrinologist and Medical Director of the Interdisciplinary Weight Management Program at Lurie Children's, as well as Associate Professor of Pediatrics at Northwestern University Feinberg School of Medicine.

More information: Sandeep Dhindsa et al, High prevalence of subnormal testosterone in obese adolescent males: reversal with bariatric surgery, *European Journal of Endocrinology* (2022). [DOI: 10.1530/EJE-21-0545](#)

Provided by Ann & Robert H. Lurie Children's Hospital of Chicago

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