

## Obesity is strongly linked to low testosterone levels in men

This summary gives an overview of four research papers which discuss the link between obesity and low testosterone levels (also known as hypogonadism): one review focusing on the association between obesity, diabetes and low testosterone, and three clinical studies. The studies looked at the relationship between body mass index (BMI) and testosterone levels in men, and the effects of weight loss on testosterone levels in a group of very obese men (BMI >40 kg/m<sup>2</sup>) undergoing weight loss surgery; the link between obesity and testosterone levels in young men aged 14–20 years; and the relationship between health and lifestyle factors, including weight loss, and testosterone levels in men as they get older.



*Dr. Elizabeth Lee Vliet, M.D.*

### Key Findings

- Obesity is a major cause of low testosterone levels
- Hypogonadism is found in 75% of men considered very obese (BMI >40 kg/m<sup>2</sup>)
- The link between obesity and low testosterone levels is found in men at all ages, even in young men and teenagers
- The common decrease in testosterone seen in older men is not due to age, but rather to increasing body weight
- Testosterone decreases seen in men as they get older can be reversed with weight loss

*Age-associated changes in hypothalamic-pituitary-testicular function in middle-aged and older men are modified by weight change and lifestyle factors: longitudinal results from the European Male Ageing Study. Camacho EM, Huhtaniemi IT, O'Neill TW, et al. Eur J Endocrinol 2013;168(3):445-455.*

*Determinants of testosterone recovery after bariatric surgery: is it only a matter of reduction of body mass index? Luconi M, Samavat J, Seghieri G, et al. Fertil Steril 2013;99(7):1872-1879.*

*Testosterone concentrations in young pubertal and post-pubertal obese males. Mogri M, Dhindsa S, Quattrin T, et al. Clin Endocrinol (Oxf) 2013;78(4):593-599.*

*The role of obesity and type 2 diabetes mellitus in the development of male obesity-associated secondary hypogonadism. Saboor Aftab SA, Kumar S, Barber TM. Clin Endocrinol (Oxf) 2013;78(3):330-337.*

### Background Information

It is now well known that there is a relationship between low testosterone levels (hypogonadism) and obesity, and the studies presented here confirm that link and show that the relationship is also true in young men who are obese. Previously it was assumed that the decrease in testosterone seen in older men was due to age, but the age-related study showed that the drop in testosterone is actually due to weight gain, and that testosterone levels can recover through weight loss.

The exact reasons behind the link between low testosterone and obesity are still not fully understood, and further studies will be necessary to better understand why hypogonadism occurs in obese men regardless of their age.