

Testosterone replacement in 181 obese, hypogonadal men leads to continuous weight loss and over 5 years and improved glucose homeostasis

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Introduction: Obesity can cause testosterone deficiency and vice versa. Weight loss has been shown to increase testosterone levels. This study analysed effects of normalization of testosterone in obese hypogonadal men.

Methods: Open-label, single-center, cumulative, prospective registry study of 181 men (mean age 59.11 ± 6.06 years) with testosterone levels ≤ 12.1 nmol/l were treated with testosterone undecanoate 1000 mg/12 weeks after an initial 6-week interval.

Results: After 5 years the following changes occurred: weight (kg) decreased from 114.71 ± 11.59 to 93.24 ± 8.49 . The statistical significance was $p < 0.0001$ vs baseline and vs the previous year over 5 years indicating a continuous weight loss. Waist circumference (cm) declined from 111.2 ± 7.54 to 100.47 ± 7.11 ($p < 0.0001$ vs baseline and vs the previous year over 5 years). Body mass index (BMI, m/kg^2) declined from 36.72 ± 3.72 to 30.22 ± 2.6 ($p < 0.0001$ vs baseline and vs the previous year over 5 years). The mean per cent weight loss after 1 year was $5.2 \pm 0.24\%$, after 2 years $9.11 \pm 0.25\%$, after 3 years $11.58 \pm 0.27\%$, after 4 years $13.78 \pm 0.28\%$ and after 5 years $16.41 \pm 0.3\%$.

71 (39%) of our patients had known type 2 diabetes at baseline which was treated by their family physician. In these men, waist circumference decreased by 10.06 cm, weight by 18.29 kg (15.71%). Fasting glucose declined from 6.61 ± 0.77 mmol/L (119.07 ± 13.89 mg/dl) to 5.42 ± 0.16 mmol/L (97.63 ± 2.83 mg/dl), HbA_{1c} from 8.33 ± 0.78 to $5.88 \pm 0.4\%$.

Conclusions: Normalising testosterone produced progressive loss of weight, waist circumference and BMI over the full 5 years of the study. In the diabetic subgroup, both fasting glucose and HbA_{1c} improved progressively over the full 5 years of the study.