

Restoring testosterone to normal levels in elderly men is efficacious in weight reduction – a follow-up study over 5 years

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Introduction and Objectives: Obesity is associated with reduced testosterone, and low testosterone induces weight gain. This study analysed the effects of normalization of serum testosterone on anthropometric parameters in mainly elderly, hypogonadal men.

Methods: Open-label, single-center, cumulative registry study of 255 men (mean age 60.6 ± 8.0 years), with testosterone levels ≤ 3.5 ng/mL. 215 men were studied for at least 2 years, 182 for 3 years, 148 for 4 and 116 for at least 5 years. They received parenteral testosterone undecanoate 1000 mg/12 weeks after an initial interval of 6 weeks.

Results: The following changes were observed: weight (kg) decreased from 106.22 ± 16.93 (minimum: 70, maximum: 139) to 90.07 ± 9.51 (min 74, max 115). The statistical significance was $p < 0.0001$ vs baseline and vs the previous year over 5 years indicating a continuous weight loss over the full observation period. Waist circumference (cm) declined from 107.24 ± 9.14 (min 86, max 129) to 98.46 ± 7.39 (min 84, max 117) ($p < 0.0001$ vs baseline and vs the previous year over 5 years). Body mass index (BMI, m/kg^2) declined from 33.93 ± 5.54 (min 21.91, max 46.51) to 29.17 ± 3.09 (min 22.7; max 36.71) ($p < 0.0001$ vs baseline and vs the previous year over 5 years). The mean per cent weight loss after 1 year was $4.12 \pm 3.48\%$, after 2 years $7.47 \pm 5.01\%$, after 3 years $9.01 \pm 6.5\%$, after 4 years $11.26 \pm 6.76\%$ and after 5 years $13.21 \pm 7.24\%$. At baseline, only 5% of men fell into the normal weight category (BMI ≤ 24.9 kg/m^2). 24% were overweight (BMI 25-29.9), 57% obese (BMI 30-40) and 14% morbidly obese (BMI ≥ 40). At the end of the observation period, 95% of men had lost any weight, 90% had lost ≥ 5 kg, 76% ≥ 10 kg, 53% ≥ 15 kg, and 31% lost ≥ 20 kg. At baseline, only 4% of men had a normal waist circumference (< 94 cm), 27% had an increased waist circumference (94-101.9 cm), and 68% a substantially increased waist circumference (≥ 102 cm). 97% experienced any reduction in waist circumference, 86% lost ≥ 5 cm, 46% ≥ 10 cm and 7% ≥ 15 cm.

Conclusions: Almost all hypogonadal men are overweight and the majority are obese. Normalising serum testosterone produced loss of weight, waist circumference and BMI. These improvements were progressive over the full 5 years of the study.