# Testosterone supplementation and body composition: results from a meta-analysis of observational trials.

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**Objective**. The concept of testosterone (T) supplementation (TS) as a new anti-obesity medication in men with testosterone deficiency syndrome (TDS) is emerging

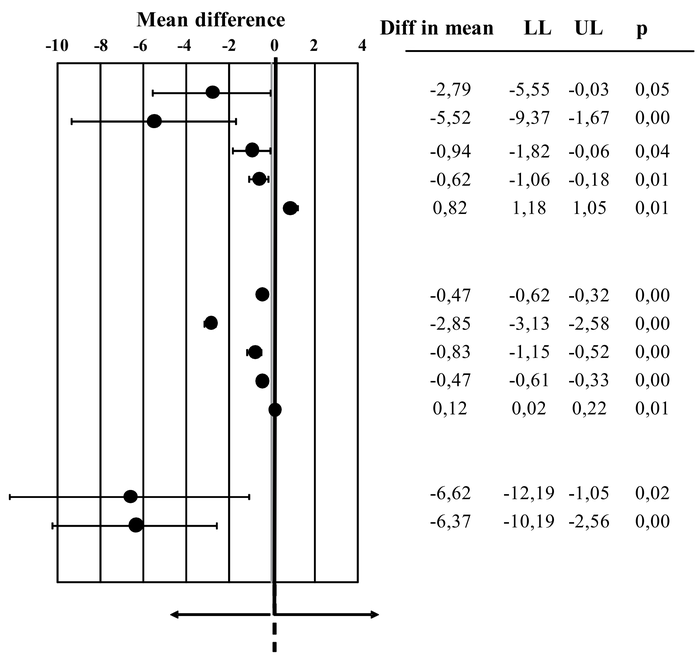
**Methods.** To systematically review and meta-analyze available observational and register studies reporting data on body composition in studies on TS in TDS.

## Results

Out of 824 retrieved articles, 32 were included in the study enrolling 4513 patients. When compared to a previous meta-analysis (see poster #) of RCT only, patients included in observational trials were younger, had lower T levels, higher prevalence of diabetes mellitus and longer duration of follow up (see below).

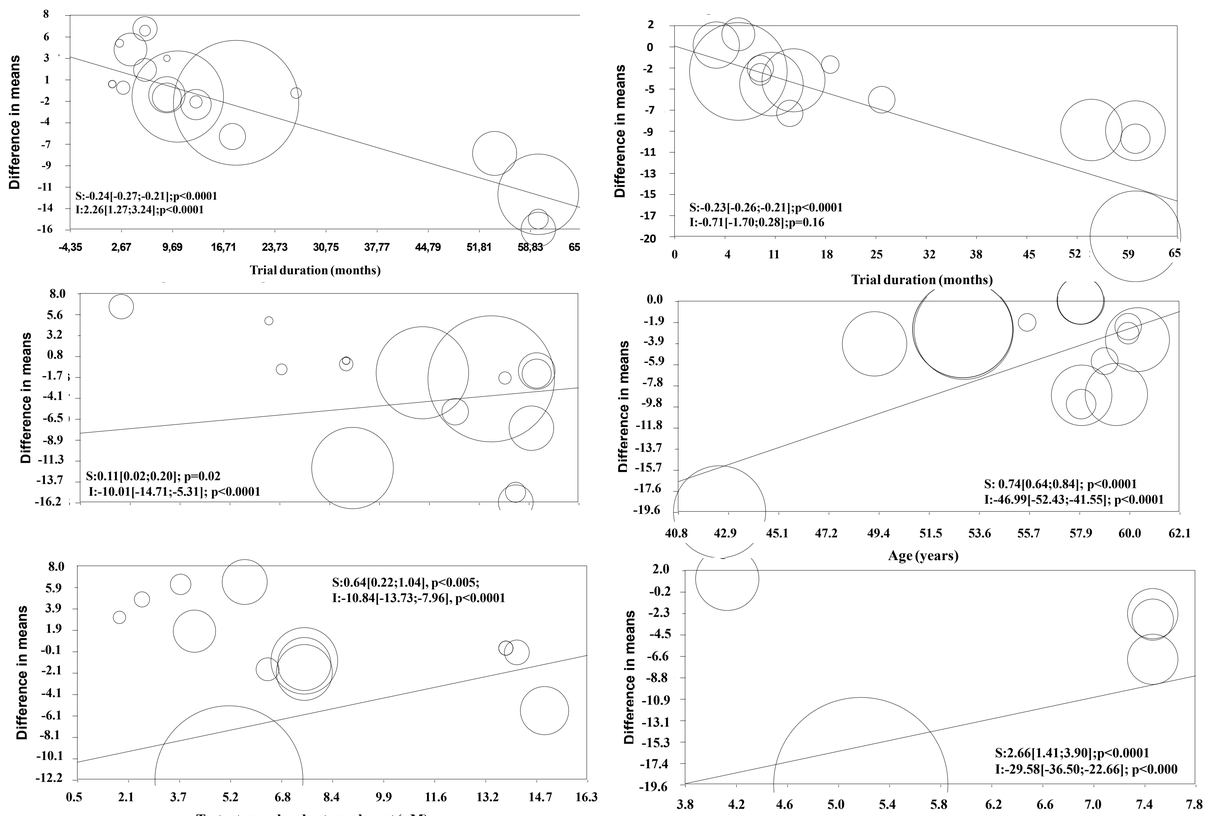
| Parameter | Observation trials | Randomized controlled trials | p |
|---|---|---|---|
| Age (years) | 51.7±6.1 | 62.0±8.5 | <0.0001 |
| Testosterone levels (nM) | 7.2±3.6 | 11.6±2.7 | <0.0001 |
| Trial duration (months) | 18.7±19.0 | 9.1±8.1 | <0.0001 |
| Diabetes mellitus (%) | 20.4±13.6 | 18.3±33.3 | 0.001 |
| Body mass index (kg/m$^2$) | 29.3±2.9 | 28.6±2.6 | NS |

## Weighted mean differences (with 95%CI) of different parameters at end point




| Source | # Trials | Diff in mean | LL | UL | p |
|---|---|---|---|---|---|
| **Body composition** | | | | | |
| Weight (Kg) | 19 | -2,79 | -5,55 | -0,03 | 0,05 |
| Waist circumference (cm) | 13 | -5,52 | -9,37 | -1,67 | 0,00 |
| BMI (Kg/m$^2$) | 16 | -0,94 | -1,82 | -0,06 | 0,04 |
| Fat mass * | 11 | -0,62 | -1,06 | -0,18 | 0,01 |
| Lean mass * | 10 | 0,82 | 1,18 | 1,05 | 0,01 |
| **Glyco-metabolic profile** | | | | | |
| Fasting glycemia (mM) | 12 | -0,47 | -0,62 | -0,32 | 0,00 |
| HOMA index | 3 | -2,85 | -3,13 | -2,58 | 0,00 |
| Total Cholesterol (mM) | 18 | -0,83 | -1,15 | -0,52 | 0,00 |
| Triglycerides (mM) | 19 | -0,47 | -0,61 | -0,33 | 0,00 |
| HDL (mM) | 18 | 0,12 | 0,02 | 0,22 | 0,01 |
| **Blood pressure** | | | | | |
| SBP (mmHg) | 11 | -6,62 | -12,19 | -1,05 | 0,02 |
| DBP (mmHg) | 11 | -6,37 | -10,19 | -2,56 | 0,00 |

## Meta-regression analysis




**Conclusions.** Present data support the view of a positive effect of TS on body composition and on glucose and lipid metabolism. In addition, a significant effect on body weight loss was observed, which should be confirmed by a specifically designed RCT