

Higher Serum Testosterone Level Was Associated With Lower Risk of Prediabetes in US Adults: Findings From Nationally Representative Data

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Low testosterone may be a novel risk factor for prediabetes. We assessed associations between prediabetes and total serum testosterone (TT), and whether the associations were modified by population characteristics. Data from 5330 adults aged ≥ 20 years who participated in the 2011–2016 National Health and Nutrition Examination Survey in the United States were used. Prediabetes was based on fasting plasma glucose, HbA1c, or OGTT. Sociodemographic, obesity, co-morbidities, and lifestyle factors were included in logistic regression models. A dose-response relationship was found between prediabetes and testosterone quartiles. Odds ratio (OR and 95% CI) for prediabetes across the quartiles of TT were: 1.00, 0.68 (0.50 - 0.92), 0.51 (0.36 - 0.72), 0.48 (0.34 - 0.70) in men; and 1.00, 1.06 (0.81 - 1.40), 0.81 (0.61 - 1.06), 0.68 (0.49 - 0.93) in women. Results changed marginally if models were adjusted for additional variables like BMI. Subgroup analyses showed differences in the association, which was stronger in some groups (for men: age < 50 , White and Black, overweight/obese, adequate physical activity, never-smoking; for women: age ≥ 50 , Black). Higher testosterone level was associated with a lower risk of prediabetes among US adults. The strength of association varied by population characteristics, weight status, gender, and lifestyle factors.

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