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Effects of testosterone on Type 2 diabetes and components of the metabolic syndrome.

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**Abstract:** Observations from clinical studies suggest that low serum levels of testosterone in men are often associated with obesity, insulin resistance, and metabolic compromise. Indeed, the clinical symptoms of late-onset hypogonadism are markedly similar to those of Type 2 diabetes mellitus (T2DM) and metabolic syndrome, and may share a similar pathophysiology. Observational and experimental data suggest that testosterone treatment improves a number of hallmark features of T2DM and metabolic syndrome, namely insulin resistance, obesity, dyslipidemia, and sexual dysfunction. Consequently, clinical studies have been undertaken to assess the impact of testosterone-replacement therapy in this patient group. The present article reviews the observational clinical data suggesting an association between low serum testosterone and metabolic impairment, the clinical data relating to the effects of testosterone treatment on components of the metabolic syndrome, and the randomized clinical trials that have formally investigated whether testosterone-replacement therapy provides clinical benefit to hypogonadal men with T2DM and/or metabolic syndrome. © 2010 Ruijin Hospital, Shanghai Jiaotong University School of Medicine and Blackwell Publishing Asia Pty Ltd