

# Testosterone concentrations in men affected by genetic makeup

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Genetics play an important role in the variation in, and risk of, low testosterone concentrations in men. A study by the CHARGE Sex Hormone Consortium, published in the open-access journal *PLoS Genetics* on Thursday, 6th October, is the first genome-wide association study to examine the effects of common genetic variants on serum testosterone concentrations in men.

Testosterone is the principal [male sex hormone](#) and a potent anabolic steroid. It exerts a variety of important physiological effects on the human body. Low testosterone concentrations in men are associated with increased risk of [cardiovascular morbidity](#), type 2 diabetes, atherosclerosis, osteoporosis, metabolic syndrome, and sarcopenia. Testosterone concentrations are known to decrease with age, but the observed inter-individual variability in testosterone concentrations in men is poorly understood.

By pooling the data of 14,429 Caucasian men, an international collaboration of 10 independent cohorts, co-led by the University of Gothenburg and the University of Greifswald, discovered genetic variants at the sex hormone-binding globulin (SHBG) gene and on the X chromosome associated with an increased risk of low testosterone.

Lead author Prof. Claes Ohlsson from the University of Gothenburg says: "This is the first large-scale study to identify specific genes for low serum testosterone concentrations. It is very interesting that the genetic contribution of the identified genetic variants to testosterone

concentrations is substantial."

Co-senior author Dr. Robin Haring from the University of Greifswald concludes: "The reported associations may now be used in order to better understand the functional background of recently identified disease associations related to low testosterone concentrations in men."

**More information:** Ohlsson C, Wallaschowski H, Lunetta KL, Stolk L, Perry JRB, et al. (2011) Genetic Determinants of Serum Testosterone Concentrations in Men. PLoS Genet 7(10): e1002313.  
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