ANDROGENS AND VITAMIN D LEVELS

Serum androgen levels are associated with vitamin D concentration, and vary with the seasons in a similar pattern, according to a study published in *Clinical Endocrinology*.

The vitamin D receptor is expressed in reproductive tissues including prostate, testis and human sperm, and receptor-knockout mice have gonadal insufficiency, suggesting a role for vitamin D in reproductive function. However, the role of vitamin D in human reproduction has not been extensively studied and remains unclear.

A research group from Germany and Austria recruited 2,229 men from the prospective LURIC (LUdwigshafen RIsk and Cardiovascular health) study. Levels of serum 25-hydroxyvitamin D (25(OH)D), testosterone, luteinizing hormone and sex-hormone-binding globulin were measured, and the free androgen index (FAI) calculated.

Almost one-fifth of men assessed had hypogonadism. The mean 25(OH)D concentration of these participants was markedly lower than that of men with sufficient testosterone. Regression analyses showed a significant association between 25(OH)D levels and testosterone, FAI and sex-hormone-binding globulin, even after adjusting for age and BMI. Significant monthly variations in testosterone and FAI followed a seasonal pattern similar to that of 25(OH)D, with a peak in late summer and nadir in spring.

The authors postulate that this might contribute to seasonal fluctuations in birth rates and athletic performance. In addition, there could be a role for vitamin D in the management of age-related low testosterone levels, which can have detrimental effects on sexual and cognitive function. Further studies will investigate whether vitamin D supplementation can improve androgen status and ameliorate the symptoms of testosterone depletion in elderly men, without the adverse effects commonly associated with testosterone therapy.

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Original article Wehr, E. *et al.* Association of vitamin D status with serum androgen levels in men. *Clin. Endocrinol.* **73**, 243–248 (2010)