

PROSTATE AND TESTOSTERONE—THE MOST IMPORTANT KEYWORDS IN MEN'S HEALTH AND HEALTHY AGING

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ABSTRACT

Key Words: *aging; men's health; prostate; sexual dysfunction; testosterone*

The prostate is a very important organ affecting the overall health of aged men. They might have some type of prostate disease, but the most common are benign prostatic hyperplasia (BPH) and prostate cancer. One commonality between these two diseases is that the incidence rate is increasing every year and another commonality is that the incidence increases with age.

Sexual dysfunction, one of the most common side effects following radical prostatectomy in patients with prostate cancer, significantly reduces the quality of life after the treatment of cancer. BPH, which is much more prevalent than prostate cancer, typically causes lower urinary tract symptoms (LUTS), which interfere with the normal life of men after middle age.

Testosterone is already considered as an indicator of men's health based on various studies, and it is recommended to maintain adequate concentrations throughout the life.¹ Testosterone affects various organs, both directly and indirectly, as well as sexual function, and the serum concentration decreases with age. While the most recent American College of Physicians (ACP) guidelines limited the effects of testosterone replacement therapy (TRT) to sexual function,² the American Urological Association (AUA) guidelines released in 2018 indicated that positive effects on sexual function, anemia, bone mineral density, lean body mass, and mood can be expected. However, the effects of TRT on cognitive function, diabetes, energy, fatigue, and

lipid profiles remain inconclusive according to the AUA guidelines.³ This gap in the perceived differences in the effects of TRT is expected to be narrow, as more well-designed, large-scale studies on the efficacy and safety of TRT are conducted.

There has been a long-standing debate over the concern that hormone therapy increases the risk of prostate cancer. However, recent studies have shown the safety of TRT to the extent that its use is possible in well-treated patients with prostate cancer.⁴

An interesting topic of recent research related to testosterone is the association of sexual dysfunction with sleep disorders and obstructive sleep apnea.⁵ Chronic sleep insufficiency and sleep disorders affect many aspects of men's health, including sexual function. Indeed, many patients with LUTS or erectile dysfunction have sleep disorders as well. Common sleep disorders include obstructive sleep apnea, insomnia, shift work disorder, and restless legs syndrome, which have been shown to be related to the occurrence of sexual dysfunction. A decrease in testosterone may be a link between sleep disorders and the occurrence of sexual dysfunction.^{5,6} In addition, research is underway on relationships between thyroid hormone levels and BPH/LUTS.⁷ The results reported by Lee and La Vignera et al. justify the hypothesis regarding the functional involvement of thyroid hormones in the pathogenesis of prostatic hyperplasia.^{8,9}

As such, the prostate and testosterone are closely related to each other and to other diseases in men. In other words, they are two keywords that are important to men's health in many ways.

What remains now is elucidating to what extent testosterone therapy can contribute to healthy aging in men. Similar to the extensive research conducted on growth hormone therapy previously,¹⁰ research is now required on TRT to answer medical questions regarding how

testosterone can play a role in anti-aging and healthy aging.

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CONFLICT OF INTEREST

The authors have no potential conflicts of interest to disclose.

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