

**Sex Hormones Implicated  
in Prostate Enlargement**

The enlargement of the prostate gland that occurs with aging, known as benign prostatic hyperplasia (BPH), makes its appearance in most men while they are in their thirties. By the age of 80, approximately 85% of men have BPH. Up to one-third of men between 40 and 79 years of age have severe symptoms of BPH, including difficulty initiating urination, a weak urine stream, or awakening from sleep to urinate more than two or three times each night.

With more and more men are opting for testosterone supplementation to enhance their overall health, it is important to ascertain whether such therapy will correspondingly increase the risk of BPH. To date, the epidemiological evidence has not implicated serum testosterone levels in adversely affecting prostate health, nor have men who have received hormone replacement therapy been shown to have a higher rate of either prostate cancer or BPH.

Researchers at Gazi University in Ankara, Turkey, sought to determine the association, if any, between the serum concentration of sex hormones and severe symptoms of BPH.\* The study enrolled 61 men who were scheduled for radical surgery as a treatment for BPH, along with 45 asymptomatic matched control subjects. Although the degree of hyperplasia increased with age, the only significant relationship between hyperplasia and hormone levels involved estradiol. Estradiol levels were significantly higher in men with greater than 50 grams of hyperplastic tissue. The fluctuation of circulating hormones that occurred as a function of age was similar between the BPH group and control group. Specifically, free testosterone levels declined with age, while estradiol, prolactin, and gonadotropin levels increased.

The authors concluded that it is unlikely that serum concentrations of sex hormones are related to BPH, but rather it is the increasing ratio of estradiol to free testosterone that is important in the development of BPH.

—Dean S. Cunningham, MD, PhD

**Reference**

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# Antioxidants May Protect Against Hearing Loss

Recent research published in the medical journal *Laryngoscope* lends further credence to the belief that supplemental antioxidants may protect the inner ear from traumatic and age-related hearing loss.<sup>1</sup>

In a study conducted at Southern Illinois University, scientists studied the effects of supplemental vitamin E on hearing loss induced by a potent anticancer drug, cisplatin. Rats receiving vitamin E before an injection of cisplatin sustained far less damage to the sensory hairs of the inner ear than rats that did not receive vitamin E. Scientists believe that cisplatin damages hearing in much the same way that normal aging erodes hearing; both conditions are believed to be the result of free-radical damage.<sup>2,3</sup> Scientists hypothesize that vitamin E and other antioxidants are able to neutralize damaging free radicals before they affect sensitive sensory hairs in the inner ear.

The study's findings echo similar research published in recent years. In 2002, Yale University researchers determined that hearing loss correlates with both age and noise exposure. They found that subjects with higher vitamin E levels tend to suffer less loss of hearing than patients with low vitamin E levels.<sup>4</sup> Likewise, in a study conducted in Israel in 2003, human subjects with sudden hearing loss of unknown origin were more likely to recover their hearing after

treatment with supplemental vitamin E than patients who did not receive the antioxidant.<sup>5</sup>

Other recent studies have noted a hearing-protective effect for other supplemental antioxidants, including resveratrol,<sup>6</sup> vitamin C, melatonin,<sup>2</sup> and acetyl-L-carnitine and alpha-lipoic acid.<sup>3</sup>

—Dale Kiefer

**References**

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