Is DHEA Contraindicated in Men with Benign Prostatic Hypertrophy (BPH) or Prostate Cancer?

By Ward Dean, M.D.

DHEA (dehydroepiandrosterone) is the most abundant steroid hormone in the body. It is also one of the most significant age-related biomarkers, which predictably declines with age in even the healthiest of people (Fig 1). Abnormally low levels of DHEA have been reported to be related to a number of diseases, including cancer, diabetes, coronary artery disease, obesity, and Alzheimers. Supplemental DHEA has been reported in study after study to have immunoregulatory, anti-diabetic, anti-cancer, anti-obesity and anti-stress activity, and to be involved in the prevention of atherosclerosis, hypertension, hypercholesterolemia, Alzheimers disease and multiple sclerosis. (9, 2)

Nevertheless, one controversy plagues many physicians, their patients, and consumers who are considering the addition of DHEA to their supplement regimens. This controversy involves whether men with prostate disease–either benign prostatic hypertrophy (BPH) or prostate cancer–should take DHEA. This question stems from the much-speculated possibility that DHEA could aggravate both conditions, based on the belief that DHEA is converted in the body into testosterone, and that testosterone, and/or its metabolite, dihydrotestosterone (DHT) causes or worsens BPH and prostate cancer. Lets examine each of these issues separately and review some of the laboratory and clinical studies that are relevant to these questions.

Fig 1
Decline of DHEA-S with age
Prostate Size (and Incidence of BPH) Increases with Age BPH is a common affliction of men over 50. The incidence of BPH progressively increases with age (Fig 2, pg. 2). Symptoms that indicate the presence of BPH include (1) hesitation of urination, (2) a reduction in urinary force, (3) dribbling at the end of urination, and (4) nocturia (getting up one or more times during the night to urinate). In severe cases, it can cause complete urinary obstruction! These symptoms are due to compression of the urethra as it passes from the bladder through the gland. Large-scale autopsy studies confirm that prostate size increases significantly with age, in parallel with the severity of symptoms.(3)

Fig 2.
Incidence of BPH in men with age (redrawn from Guess, et al, 1994)

Prostatic Hypertrophy or Prostate Cancer: Is it too Much or Too Little Testosterone? Conventional medical wisdom holds that both prostatic hypertrophy and prostate cancer are due to or are promoted by testosterone and/or dihydrotestosterone. Consequently, standard medical therapy for these conditions includes blocking dihydrotestosterone formation by drugs, avoiding testosterone replacement, or (in the case of prostate cancer) orchiectomy (surgical removal of the testicles). Nevertheless, I am not yet convinced that testosterone is necessarily the bad guy. For example, it is clear that testosterone, like DHEA, drops progressively with age in both men and women (Fig 3). Consequently, it does not seem logical to me that diseases which increase in incidence with age are caused by a hormone that progressively decreases with age. Dr. William Campbell Douglass, a pioneer in **alternative medicine**, agrees with me that: . . . testosterone has been proven to be protective against cancer . . . it has been suggested that testosterone is contraindicated in men with cancer of the prostate. In view of the hormones protective effect in other cancers, I doubt the validity of this supposition.(7)

Dr. G. Debled, a European urologist, also believes that testosterone deficiency rather than excess DHT is a major causative factor of BPH. In fact, Dr. Debled uses testosterone to treat BPH. Furthermore, Dr Debled reports that in over 20 years of administering testosterone for patients with BPH, he has not had a single case of prostate cancer develop–despite the fact that approximately 50 cases should have been discovered, based on statistical averages.(13)

estradiol are controversial.(4)Finally, Dr. B. de Lignieres conducted a nearly two-year survey of men aged 55-70 years of age who were treated with testosterone. He found that high levels of testosterone induced a number of clinical benefits, while reducing prostate size and prostate-related symptomatology.(6)
Is DHEA Converted into Testosterone in Men?

The major reason for the concern about DHEA supplements in men is the belief that (1) testosterone causes BPH and prostate cancer, and (2) because DHEA is a precursor of testosterone (Fig 4), consuming DHEA supplements in a physiological range may abnormally raise testosterone levels (and thus cause BPH or prostate cancer). While DHEA may raise testosterone levels in women, who very efficiently convert it to testosterone, this does not appear to be true for men. These statements are based on the findings of scientists at the University of California, San Diego, who performed a study on 13 men and 17 women, ranging from 40-70 years of age. These subjects were given 50 mg of DHEA orally every night for a six-month period. It was found that testosterone, dihydrotestosterone, and androstenedione were doubled in women–bringing these levels into the physiological range for young women. In men, however, only androstenedione levels increased slightly, while testosterone and dihydrotestosterone levels were unchanged (Fig 5).16 Clearly, it appears that physiologic doses of DHEA [i.e., doses that restore DHEA and DHEA-S (DHEA-Sulfate) levels to those of youthful men and women] do not significantly elevate testosterone in men.

Fig 5.
Effect of nightly oral dose of 50 mg DHEA on androgen levels (testosterone, dilhydrotestosterone, and androstenedione in men and women, compared with placebo (redrawn from Morales, et al, 1994). Note the significant increases in androgen levels in women and the lack of effect on these levels in men.

On the other hand, when pharmacologic doses of DHEA are administered (i.e., doses that are far in excess of those required to restore levels to those of healthy young adults), testosterone and DHT levels do increase significantly. For example, in one elderly man, to whom 400 mg of DHEA was administered, significant and rapid rises were noted in DHEA, DHEA-S, testosterone and DHT (Fig 6).

Treatment of hypogonadal men with what were considered to be physiological doses of testosterone resulted in prostate size and PSA levels that were the same as normal men. The authors concluded that concern about testosterone-induced prostate growth should not preclude men with low testosterone levels from receiving testosterone therapy.(4) [And I have found that most men over 40 have decreased output of testosterone and are hypogonadal (compared to what they were at 20), and are therefore candidates for testosterone replacement therapy. – WD]

In Vitro Effects of DHEA on Prostate Cancer Cell Growth

Scientists at the New York University Medical Center, Tuxedo, NY, studied the effect of DHEA on the proliferation of (1) three human prostate cancer cell lines, and (2) cell cultures of rat prostate carcinomas. They reported that DHEA inhibited growth of the human prostate cancer cell lines by approximately 10%, 25%, and 80% at concentrations of 1, 10, and 22.5 ug/ml, respectively. DHEA also inhibited growth of rat prostate carcinoma cultures (www.with 50 nM testosterone [T]), by 11-40% at 1 ug/ml, 25-54% at 10 ug/ml, and 55-77% at 22.5 ug/ml. The scientists concluded that DHEA inhibits growth of human and rat prostate cancer cells in a dose-related fashion, that DHEA acts as a chemopreventive agent by direct growth inhibition of prostate cancer cells, and that DHEA should be considered for further research for prostate cancer chemoprevention in humans.(10, 15)

Fig 6
Changes in DHEA, DHEA-S, testosterone, dihydrotestosterone, and androstenedione after 400 mg oral DHEA in an delderly man (redrawn from Roberts and Fitten, 1990.)

DHEA Levels in Patients with Prostate Cancer

Physicians at the Department of Urology, Institute of Experimental Endocrinology at Humboldt University Medical School in Berlin, Germany, found that DHEA levels in patients with prostate cancer were significantly lower than healthy controls.(14) Their findings confirmed Fehler, et als previous report that DHEA-S levels were decreased in patients with prostate cancer.

Another interesting retrospective study conducted at Johns Hopkins University involved the analysis of DHEA and DHEA-S levels in blood serum that was collected and frozen in 1974 and the relationship of these levels to the subsequent development of prostate cancer. DHEA and DHEA-S levels for 81 men who were subsequently diagnosed with prostate cancer were found to have 11% lower levels of DHEA and 12% lower levels of DHEA-S compared to age-matched controls who did not develop prostate cancer. The authors concluded that it seems unlikely that serum levels of DHEA or DHEA-S are important risk factors for prostate cancer (5).

article, a substance that I have found to be very effective in rapidly alleviating symptomatic prostatic hypertrophy – and to reduce prostate specific antigen (PSA), a marker for prostate cancer, is Saw Palmetto Extract. A complete review of other very effective natural approaches to prostate disease are outlined in Dr. Michael Schachters brief but information-packed book*, The Natural Way to a Healthy Prostate*, Keats Publishing. 1-800-858-7014 WD

Summary

From the above review, the following conclusions appear to be clear:
1. The incidence of prostate disease increases with age.
2. Testosterone levels decrease with age.
3. Physiologic replacement doses of DHEA do not raise testosterone levels in men.
4. The link between high levels of testosterone and prostate disease is not without question.
5. In vitro growth of human and rat prostate cancer cells is inhibited by DHEA — and the higher the concentration of DHEA, the greater is the inhibition of growth!
6. Patients with prostate cancer have lower levels of DHEA and DHEA-S than age-matched controls, as confirmed by three independent studies.
7. DHEA (and perhaps testosterone) are not contraindicated, and, in fact, should be considered for the therapy of prostate disease.

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