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ROLE OF TESTOSTERONE IN WOMEN

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Annotation

Testosterone is an androgen, which is a “male” sex hormone that plays a role in reproduction, growth, and maintenance of a healthy body. In men, testosterone is mainly produced in the testes. In women’s bodies, testosterone is produced in the ovaries, adrenal glands, fat cells, and skin cells. Generally, women’s bodies make about 1/10th to 1/20th of the amount of testosterone as men’s bodies.

Keywords: testosterone, albumin, androstenedione, dehydroepiandrosterone (DHEA).

Premenopausal women also produce 0.3 mg of testosterone daily. Unlike in men, 50% of testosterone production in women comes directly from the ovaries and the adrenal glands, with the remaining 50% produced by testosterone precursors such as androstenedione and dehydroepiandrosterone (DHEA) in peripheral tissues. Only 2% of the total testosterone is free, whereas 98% is bound to albumin or sex hormone–binding globulin (SHBG). Fluctuations in SHBG alter the bioavailability of free testosterone. The administration of exogenous estrogens, such as oral contraceptives, increases hepatically synthesized SHBG, thereby reducing the bioavailability of free testosterone. Oral contraceptives also diminish follicle-stimulating hormone and luteinizing hormone levels, thereby suppressing ovulation and inhibiting androgen production. The combination of these two mechanisms may lead to very low circulating levels of free and bioavailable testosterone. Several studies have documented the negative effects of oral contraceptives on sexual function, including diminished sexual interest and arousal, suppression of female-initiated sexual activity, and decreased frequency of sexual intercourse and sexual enjoyment. In premenopausal women with regular menstrual cycles, testosterone and androstenedione rise in the late follicular and luteal phases. In premenopausal

women there is also a diurnal variation in testosterone, with levels peaking in the morning.

Unlike estrogen and progesterone levels, which fall abruptly with menopause, testosterone levels diminish gradually throughout life. Between the ages of 30 and 60, total and free testosterone levels decrease by 50%. In addition, adrenal precursors, DHEA and DHEA sulfate, decrease with increasing age. Decreased androgen levels associated with aging have been associated with decreased libido, arousal, orgasm, and genital sensations.

In conclusion to aging there are several clinical conditions in premenopausal women that are associated with low testosterone levels. Hyperprolactinemia and adrenal insufficiency can cause hypogonadotropic hypogonadism and loss of libido. Cushing disease or endogenous or exogenous glucocorticosteroid excess leads to adrenal suppression and androgen insufficiency and indirectly inhibits sexual function. Symptoms of androgen insufficiency include diminished sense of well-being or dysphoria; unexplained fatigue; decreased libido, sexual receptivity, and pleasure; and vasomotor instability or decreased vaginal lubrication despite adequate estrogen treatment. Bone loss, decreased muscle strength, and changes in memory or cognitive function are also possible as a result of diminished androgen production.

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