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Sexual Function, Men & Testosterone:

Dietary Supplement Intervention

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Introduction

The roughly 1% per year decline in testosterone levels after age 30 has been termed “andropause”. Andropause has been well documented in the medical literature for decades.

The clinical consequences of androgen deficiency can be observed in multiple areas, one of which is sexual function.i A reduction in testosterone production can wreck havoc with a healthy sex life, having an adverse effect upon libido, the ability to obtain and maintain an erection, and sexual satisfaction in general. Research has demonstrated that specific traditional herbs and botanical agents may do much to help increase testosterone levels within a normal range, thereby support libido and sexual activity. These herbs and botanical agents include Epimedium, Tribulus, Eurycoma and anti-aromatases.

Epimedium

Epimedium is a traditional botanical medicine used in China and Japan.i ii Although this herb has a history of traditional use for supporting healthy functioning of the kidneys, joints, liver, back and knees, its principle use is as an aphrodisiac. According to Rister, Epimedium has testosterone-like effects, stimulating sexual activity in both men and women, increasing sperm production, stimulating the sensory nerves, and increasing sexual desire. In fact, research has shown that Epimedium significantly increases testosterone in mice.

Aphrodisiac research

Epimedium’s aphrodisiac effects have been verified in both animal and human research. Mice treated with an Epimedium preparation produced “apparent effects on the improvement of sexuality.”i Since Epimedium has been traditionally used for kidney health, it’s interesting that research has demonstrated a sexual potentiation effect and improved quality of life in patients with a chronic renal condition who were given Epimedium.ii In double-blind, placebo controlled research using Epimedium in combination with other herbs, 60 percent of healthy male subjects experienced enhancement of sexual satisfaction, compared to the placebo group in which none of the subjects experienced enhanced sexual satisfaction.iii In another study, Epimedium in combination with other herbs one hour prior to sexual activity resulted in an increase in penile axial rigidity in two thirds of healthy male subjects.

Mechanisms of action

Research has shown that Epimedium significantly increases testosterone in mice. In addition, there may be at least two other mechanisms of action for Epimedium. One has to do with the fact that sexual arousal is linked to the activity of cholinergic neurotransmitters. However, an enzyme called acetylcholinesterase (AChE) inactivates cholinergic neurotransmitters within 1/500 of a second. As it turns out, research shows that Epimedium is capable of inhibiting AchE. Such an inhibition may support higher levels of the key cholinergic neurotransmitters associated with sexual arousal. The other mechanism of action is that Epimedium supports nitric oxide levels, which are essential for arousal and erectile tissue engorgement. As an added bonus, research has shown that Epimedium has anti-fatigue effects, which can only be helpful during sexual activity.

Tribulus terrestris

In Ayurveda, the herb Tribulus terrestris has been used in promoting genito-urinary health, supporting sexual activity, and as a general tonic for centuries. An Ayurvedic preparation containing Tribulus terrestris was used to treat fifty patients complaining of lethargy, fatigue and lack of interest in day to day activities. The results showed an overall improvement (45%) in symptoms.

Of greater significance are the studies where the standardized extracts of Tribulus terrestris were found to have a stimulating effect on the libido. After conducting a study of Tribulus terrestris in rodents, researchers concluded, “Tribulus terrestris extract appears to possess aphrodisiac activity probably due to androgen [i.e. testosterone] increasing property of Tribulus terrestris.” Similar findings were found in another study on primates, where researchers noted that tribulus increased testosterone in the animals, and another later study on rodents. An extract of Tribulus terrestris (Tribestan; Sopharma, Sofia, Bulgaria) has gained recent interest following promotional presentations of English language translations of Bulgarian pharmaceutical company research. Reportedly, the Tribulus extract elevated circulating testosterone and luteinizing hormone amounts that were depressed in men who were part of infertile couples.

Eurycoma longifolia

Eurycoma longifolia, also known as Long Jack root, is used traditionally in Malaysia for sexual potency as well as for sports enhancement. At least one of its mechanisms of action as a sexual enhancer is that it results in elevated testosterone levels. This has been demonstrated in animal research; and more importantly in human research where male subjects under 50 years old experienced an average testosterone increase of approximately 91% with E. longifolia. This may be due to a reduction in sex hormone binding globulin (SHBG) which would otherwise make free testosterone unavailable. In one study, extracts from E. longifolia were orally administered to rats twice daily for 10 days. Testosterone was used as a positive control. Results showed that E. longifolia Jack produced a dose-dependent increase in sexual performance of the treated animals. The authors reported, "The present study therefore gives further evidence of the folk use of E. longifolia as an aphrodisiac."

Anti-aromatases

Certain plant compounds have value for men because they are anti-aromatases. Anti-aromatases are substances which prevent testosterone from being converted into an estrogen—thereby maintaining higher testosterone levels. The way this works is that by decreasing estrogen production, pituitary luteinizing hormone (LH) secretion is maintained. This is important since the chief function of LH in males is to simulate the continued secretion of testosterone. Two anti-aromatase plant compounds are methoxyisoflavone and chrysin.

Methoxyisoflavone

A plant-derived flavone called 5-methyl-7-methoxyisoflavone (methoxyisoflavone for short), was originally discovered and patented by the Hungarian pharmaceutical company Chinoin in the late 1970s. In a nutshell, Chinoin was spearheading research to discover food additive "nutrient partitioning agents" for livestock. A nutrient partitioning agent allows an animal to increase muscle size and decrease fat without changing their diet, a big boon to farmers. Within 30-days of methoxyisoflavone administration, body weight increases of 7-20% were reported in calves, cattle, hogs, poultry, and rabbits. In human trials performed by Chinoin, 4.4-6.6 pound increases in lean body mass were found after only several weeks of use. Although the exact mechanism of action is presently unknown, one possibility is that methoxyisoflavone is capable of inhibiting aromatization. It does this by binding to the active site of aromatase activity, thereby preventing the aromatase enzyme from doing its job.

Chrysin

The flavone Chrysin has been found to inhibit the aromatization of androstenedione (an androgen) and testosterone to estrogens.i Additional research has also demonstrated certain anti-estrogenic effects from chrysin.ii In one study, chrysin was compared to Cytadren, a popular anti-estrogenic drug. Chrysin was shown to have almost identical activity.iii This is truly significant considering the fact that Cytadren has been shown to inhibit estrogen production by up to 92% in human subjects with a 250 mg dose. Chrysin has also been found to have equivalent anti-aromatase activity to aminoglutethimide, a pharmaceutical aromatase inhibitor.iv To that end, the plant compound chrysin has been found to inhibit the aromatization of testosterone to estrogens.