



Enhancing Testosterone

Without Testosterone Supplementation

Testosterone is an essential hormone for men. It helps to regulate libido, bone mass, fat distribution, muscle mass and strength, and the production of sperm. As men age, they often produce less testosterone. When testosterone hormone therapy is unavailable or inappropriate for a particular patient, there are non-hormonal options to boost testosterone secretion.

Lifestyle

Stress Relief

- Studies have shown that minimal hormone concentrations of testosterone in mice corresponded to high levels of anxiety.
- Another study found that stressful conditions reduced testosterone levels in normal subjects.
- It is important to identify and relieve daily sources of stress in order to maximize the body's ability to produce testosterone and retard the process of andropause.
- Address suboptimal/low cortisol levels when warranted.



Sleep

- Sleep duration is associated with androgen concentrations in men.
- A good night's sleep and good sleep hygiene may be an important adjunct modality in testosterone optimization.



Exercise

- Research has shown that exercise is an effective way to maintain testosterone levels.
- Slow movement exercises significantly raises the concentrations of plasma epinephrine, serum growth hormone, and free testosterone.
- Short-term, moderate intensity and low volume endurance training can significantly increase testosterone concentration in previously untrained men.
- Weight resistance exercises build muscle mass which boosts testosterone levels.

Herbs and Nutrient Support

Zinc

- Required by the pituitary to release luteinizing hormone which stimulates the testes to produce testosterone
- Zinc deficiency upregulates the aromatase enzyme. Zinc helps to suppress aromatase and prevent conversion of testosterone to estradiol

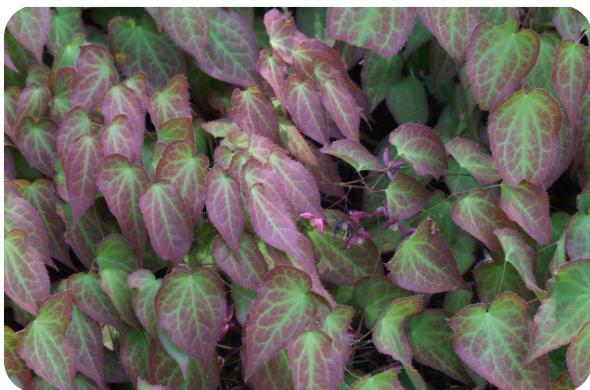


Tribulus Terrestris

- Steroid saponins extracted from tribulus terrestris were shown to stimulate sperm production and improved sperm viability in rats
- A tribulus-containing supplement resulted in significantly increased serum levels of androstenedione, free testosterone, estradiol and DHT

Epimedium Grandiflorum

- Epimedium, aka "Horny goat weed", includes several flavonoids that act as aromatase inhibitors as well as glycosides that stimulate testosterone production.
- Epimedium may also block calcium channels causing vasodilation which can enhance erections and increase testosterone production.



Saw Palmetto

- Saw palmetto has been shown to inhibit 5-a-reductase activity on testosterone in vitro, thereby preventing the conversion of testosterone to dihydrotestosterone (DHT)
- May act to increase the metabolism and excretion of DHT through inhibition of cellular and nuclear receptor binding
- Shown to be as effective as finasteride (Proscar) without the loss of libido as a side effect

Stinging Nettle Root

- Displaces testosterone from SHBG binding sites, rendering more free (bioavailable) hormone
- Works to inhibit aromatase activity, preventing testosterone from converting to estrogen
- Interferes with the binding of SHBG to binding with receptors in the prostate that activate androgen receptors

Herbs and Nutrient Support Continued

DIM/Indole-3-carbinol (I3C)

- These are compounds found in cruciferous vegetables.
- I3C converts into DIM in the stomach if there is sufficient acidity
- DIM blocks aromatization of testosterone into estrogen, thus enhancing testosterone levels. DIM also promotes healthy metabolism of estrogen, treating estrogen dominance



Chrysin, Luteolin, Myricetin, and resveratrol

- Help to block aromatase (the enzyme that converts testosterone into estradiol).

Hormone Supplementation



DHEA

- DHEA is a precursor to testosterone (and also to estrogen) in the hormone cascade
- DHEA supplementation can be an effective way to raise testosterone levels in hypoandrogenic men, but because it can also raise estradiol levels, patients will need to be monitored with repeat testing.

Progesterone

- Progesterone can work to block the conversion of testosterone to DHT, and in doing so preserves testosterone levels.

Health Disclaimer: All information given about health conditions, treatments, products and dosages are not intended to be a substitute for professional medical advice, diagnosis or treatment.

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