

Testosterone Elevating Ingredients

Chrysin

- Increases testosterone production from testis Leydig cells and inhibits aromatase which converts testosterone to progesterone. Shoieb S, Esmat A, Khalifa A et al. Chrysin attenuates testosterone-induced benign prostate hyperplasia in rats. *Food Chem Toxicol.* 2018. 111:650- 659. Martin L, Touaibia M. Improvement of Testicular Steroidogenesis Using Flavonoids and Isoflavonoids for Prevention of Late-Onset Male Hypogonadism. *Antioxidants (Basel).* 2020. 9(3):237. Ibrahim A, abul-hajj Y. Aromatase inhibition by flavonoids. *J Steroid Biochem Mol Biol.* 1990. 37:257-60. Balam F, Ahmadi Z, Ghorbani A. Inhibitory effect of chrysin on estrogen biosynthesis by suppression of enzyme aromatase (CYP19): A systematic review. *Heliyon.* 2020. 6:e03557.

Diindolylmethane

- protects prostate and testicles Nachshon-Kedmi M, Yannai S, Fare F. Induction of apoptosis in human prostate cancer cell line, PC3, by 3,3'-diindolylmethane through the mitochondrial pathway. *Br J Cancer.* 2004. 91:1358-63. Goldberg A, Draz H, Montes-Grajales D et al. 3,3'-Diindolylmethane (DIM) and its ring-substituted halogenated analogs (ring-DIMs) induce differential mechanisms of survival and death in androgen-dependent and -independent prostate cancer cells. *Genes Cancer.* 2015. 6(5-6):265- 280. Li Y, Wang Z, Kong D et al. Regulation of FOXO3a/beta-catenin/GSK-3beta signaling by 3,3'-diindolylmethane contributes to inhibition of cell proliferation and induction of apoptosis in prostate cancer cells. *J Biol Chem.* 2007. 282(29):21542-50.

Gamma Oryzanol

- lowers LDL-cholesterol which is associated with an increase in endogenous testosterone production Devarajan S, Singh R, Chatterjee B et al. A blend of sesame oil and rice bran oil lowers blood pressure and improves the lipid profile in mild-to- moderate hypertensive patients. *J Clin Lipidol.* 2016. 10(2):339-49. Bumrungpert A, Chongsuwat R, Phosat C et al. Rice Bran Oil Containing Gamma-Oryzanol Improves Lipid Profiles and Antioxidant Status in Hyperlipidemic Subjects: A Randomized Double-Blind Controlled Trial. *J Altern Complement Med.* 2019. 25(3):353-358. Berger A, Rein D, Schäfer A et al. Similar cholesterol-lowering properties of rice bran oil, with varied gamma-oryzanol, in mildly hypercholesterolemic men. *Eur J Nutr.* 2005. 44(3):163-73.

Longjack Eurycoma Longifolia (root)

- increases testosterone levels Tambi M, Imran M. Eurycoma longifolia Jack in managing idiopathic male infertility. *Asian J Androl.* 2010. 12(3):376-80. George A, Henkel R. Phytoandrogenic properties of Eurycoma longifolia as natural alternative to testosterone replacement therapy. *Andrologia.* 2014. 46(7):708-21. Talbott S, Talbott J, George A et al. Effect of Tongkat Ali on stress hormones and psychological mood state in moderately stressed subjects. *J Int Soc Sports Nutr.* 2013. 26;10(1):28. Tribulus Terrestris • significantly increased total and free serum testosterone levels in healthy adults Ștefănescu R, Tero-Vescan A, Negroiu A et al. A Comprehensive Review of

the Phytochemical, Pharmacological, and Toxicological Properties of *Tribulus terrestris* L. *Biomolecules*. 2020. 10(5):752. Milasius K, Dadeliene R, Skernevicius J. The influence of the *Tribulus terrestris* extract on the parameters of the functional preparedness and athletes' organism homeostasis. *Fiziol Zh*. 2009. 55(5):89-96. Roaiah M, El Khayat Y, Gamal El Din S et al. Pilot Study on the Effect of Botanical Medicine (*Tribulus terrestris*) on Serum Testosterone Level and Erectile Function in Aging Males With Partial Androgen Deficiency (PADAM). *J Sex Marital Ther*. 2016. 42(4):297-301.