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Male Fertility and Hormonal Health

The impact of vitamin E supplementation on sperm analysis in varicocelectomy patients: a triple-blind randomized controlled trial

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Varicocele, characterised by abnormal dilation and elongation of the veins within the scrotum, is a common contributor to male infertility.

Varicocelectomy aims to correct the condition and improve male infertility; however, oxidative stress is also implicated in varicocele-related infertility, suggesting that antioxidant supplementation may provide additional benefits following surgery.

This three-month randomised control trial of 90 men undergoing varicocelectomy investigated whether adjunctive vitamin E supplementation could further improve fertility outcomes compared with placebo.

Varicocelectomy alone was shown to significantly improve sperm count and morphology, with greater improvements observed in men receiving vitamin E. Sperm motility was also significantly improved with combined vitamin E supplementation and varicocelectomy.

The authors concluded that while varicocelectomy treatment alone was effective for improving markers of male infertility, adjunctive vitamin E provided additional benefits to sperm quality.

Impact of coenzyme Q10 as an adjuvant therapy to letrozole on spermiogram results and sex hormone levels in Iraqi men with infertility; randomized open label comparative study

Reviewed by OUR EXPERTS

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JOURNAL: F1000RESEARCH 2024;12():1093
With Expert Review from Karin Elgar

Idiopathic oligoasthenoteratozoospermia (iOAT) is a form of male infertility characterised by impaired sperm production and quality without an identifiable underlying cause. Successful spermatogenesis relies on a complex interplay of reproductive hormones, including testosterone, and may be compromised when testosterone levels are low. However, producing sperm is only part of the challenge: oxidative stress can damage the sperm plasma membrane, potentially compromising sperm quality and survival. Male infertility treatment may therefore benefit from strategies that optimise sperm production while also protecting newly produced sperm from oxidative damage. This randomised controlled trial investigated whether adding the antioxidant coenzyme Q10 (CoQ10) to letrozole, a treatment used to support sperm production, could improve outcomes in men with infertility due to iOAT. Compared with letrozole alone, the addition of CoQ10 resulted in significant improvements in sperm count and morphology, as well as testosterone, oestradiol and follicle-stimulating hormone levels. The authors concluded that adding CoQ10 to letrozole should be recommended for men undergoing treatment for iOAT.

The Effect of Carob (Ceratonia Siliqua) on Sperm Parameters of Infertile Men: Systematic Review and Meta-Analysis of Randomized Controlled Trials

AYSU YILDIZ KARAAHMET, NURAN GENÇTÜRK, EMINE KINIK
JOURNAL: REPRODUCTIVE SCIENCES (THOUSAND OAKS, CALIF.) 2024;31(8):2481-2492 **With Expert Review from Chloe Steele**

Ceratonia siliqua L., commonly known as carob, is a natural source of antioxidants and has traditionally been used in some countries to support male fertility, with small clinical studies suggesting potential benefits for semen quality and testosterone levels. This systematic review and meta-analysis investigated the effects of carob supplementation on sperm quality and fertility-related parameters in men with infertility. Carob extract was associated with significant improvements in oxidative stress, sperm motility and sperm count, while semen volume and reproductive hormone levels remained unchanged. The authors concluded that carob supplementation may support male fertility by improving oxidative status and selected measures of sperm quality, although benefits were not observed across all fertility-related outcomes.

Do statins decrease testosterone in men? Systematic review and meta-analysis

SIDNEY GLINA, FELIPE PLACCO ARAUJO GLINA, LEONARDO LOPES, ET AL.
JOURNAL: INTERNATIONAL BRAZ J UROL : OFFICIAL JOURNAL OF THE BRAZILIAN SOCIETY OF UROLOGY 2024;50(2):119-135
With Expert Review from Karin Elgar

Testosterone synthesis relies on cholesterol, raising concerns that cholesterol-lowering medications such as statins could potentially influence testosterone production. However, previous studies examining this relationship have been contradictory.

This systematic review and meta-analysis of 22 observational and randomised control trials investigated whether ongoing statin use in individuals with hypercholesterolaemia was associated with reduced testosterone levels. Continuous statin use was associated with significant reductions in total testosterone in both observational studies and randomised control trials. However, the magnitude of the reduction was relatively small, with testosterone levels remaining within the normal clinical range.

The authors concluded that although statin therapy may modestly lower total testosterone, the reduction is unlikely to result in clinically abnormally low testosterone levels.