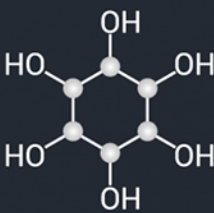


Myo-inositol And Its Role In Male Fertility





Overview of Myo-inositol

- ➔ Myo-inositol, is also known as myo-inositol 1-phosphate.
- ➔ This polyol occurs naturally in foods such as corn, beans, fruits and nuts and is also synthesised endogenously in humans.
- ➔ It is involved in cell signalling, membrane composition and metabolic processes.



Biosynthesis and elimination

-  Biosynthesis of Myo-inositol occurs mainly in the kidneys and it can be found in high concentrations in the thyroid, testes, liver, brain, spleen and pituitary gland.
-  It is catabolised in the kidney to produce O-glucuronic acid and oxylulose-5-phosphate, which enter the pentose phosphate pathway and are eliminated via urine.

Role of Myo-inositol in human physiology

- 1 It is crucial for various cellular processes, including signal transduction, osmoregulation and phospholipid synthesis.
- 2 Myo-inositol derivatives such as phosphatidylinositol and inositol triphosphates, participate in intracellular signalling.

Myo-inositol in reproductive health

Present in the male reproductive tract and spermatozoa

- ➔ Myo-inositol is present in the male reproductive tract and spermatozoa.
- ➔ It influences sperm motility, mitochondrial function, membrane stability and DNA integrity.
- ➔ It also plays a role in sperm capacitation and hyperactivation, which are essential steps for fertilisation.



Effect of Myo-inositol on semen parameters



Sperm Motility

- ➔ Supplementation with Myo-inositol has been shown to improve sperm motility
- ➔ Improvements have been observed in both fresh and frozen-thawed semen samples



Sperm performance

- ➔ Myo-inositol supplementation is associated with improved sperm performance in both natural conception and assisted reproduction contexts



Other parameters

Myo-inositol also has a positive effect in the following outcomes:

- ➔ Significant increase in antioxidant activity
- ➔ Decrease in lipid peroxidation
- ➔ Reduced DNA fragmentation

Additional Benefits of Myo-inositol



Several clinical and experimental studies suggest that Myo-inositol improves sperm parameters in men with oligoasthenoteratozoospermia.



Supplementation with Myo-inositol has also been associated with improved fertilisation rates and embryo quality in assisted reproductive technology.

Conclusion

Myo-inositol is a promising supplementation option for male infertility, with benefits extending to various sperm-related parameters including motility, performance and antioxidant activity.

Reference

Vazquez-Levin MH, Verón GL. Myo-inositol in health and disease: its impact on semen parameters and male fertility. *Andrology*. 2020;8(2):277-98.
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