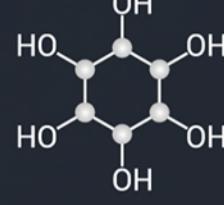


# Myo-inositol And Its Role In Male Fertility

## 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.

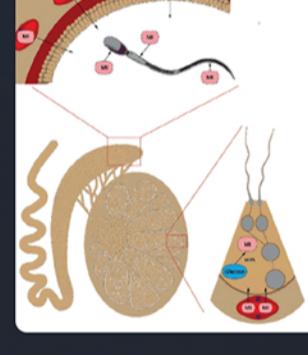
## Role of Myo-inositol in human physiology

- 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 spermatoza

- 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

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