



NAVIGATION

Is zinc the answer to male infertility?



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Men are often seen as high consumers of meat, one of the richest sources of zinc, perhaps leading to assumptions that they're getting enough of this important nutrient. Data shows, however, that at least half of Australian males aged 14 years and over are not meeting recommendations for zinc intake. A nutrient that is fundamental for many functions in the body, zinc is also essential for a healthy male reproductive system, and inadequate intake could have negative consequences for men's reproductive health, including sexual maturation and testosterone production. Studies have also found an association between zinc and male infertility, which is particularly concerning given male infertility is responsible for a significant number of total infertility cases.

Zinc can affect sperm quality

Infertility is a growing public health issue, estimated to affect around 15% of all couples of reproductive age worldwide,^[1] and [around one in six couples in Australia](#). Rightly or wrongly, much of the focus regarding infertility is often centred on the causes of female infertility. However, male infertility, caused by factors such as reduced sperm count and quality, can account for up to 40% of infertility cases. Zinc is a nutrient that is essential for a healthy male reproductive

system. Deficiency can affect sexual maturation and testosterone production, which may result in hypogonadism and impotence. Normally, zinc is present in high concentrations in semen, which is thought to aid sperm function. A recent analysis of studies examining male infertility has however found zinc concentration to be significantly lower in the semen of infertile men.^[2]

Men may be at risk of zinc deficiency

Measuring zinc status in individuals can be difficult; however, deficiency is known to be a widespread public health problem, particularly in developing countries.^[3] It is estimated that around 17% of the global population may be zinc deficient,^[4] and studies have indicated that several population groups in Australia may be at risk of deficiency. These include small children, adolescents, the elderly and vegetarians or vegans.^[5] Data from the most recent Australian Health Survey also shows that many women may not be getting enough zinc. More surprisingly, however, is that a greater number of men are more likely to have a suboptimal intake. In fact, from the age of 14 years, at least 50% of males were not meeting recommendations.

Zinc supplementation could improve fertility

As stereotypically high consumers of meat, one of the richest sources of zinc, many may assume that men can easily meet their daily requirements for this important nutrient. However, the Australian Health Survey also revealed that although most males over 14 years are reaching the recommended daily serves of meat, almost one of these serves comes from discretionary foods, which may be high in saturated fats or sodium and perhaps not nutritionally adequate as a source of zinc and other vital nutrients. This indicates a need for increased awareness and education directed towards males, emphasising the importance of an adequate intake of zinc-rich foods to support good health and normal development. In particular, men need to be aware of the implications zinc can have on their reproductive health.







For those unable to meet their zinc requirements through diet alone, supplementation could be beneficial. Studies have found positive effects of zinc supplementation in men, measuring a significant increase in sperm concentration, sperm count and normal sperm production in both fertile and infertile men, with the greatest improvement in the infertile group. There was also an increased effect when combined with folate supplementation.^{[2][6]}

Zinc: a vital nutrient from conception to old age

Zinc also plays a fundamental role for many other functions right throughout the lifecycle. It is essential for normal development and growth, from pregnancy through to adolescence, supporting cognitive development, eyesight, wound healing and immune function. Zinc also plays a role in inflammatory response, with

chronic conditions such as arthritis, diabetes, atherosclerosis, impaired cognitive function and macular degeneration believed to be associated with zinc deficiency. [3] As such an important nutrient for all stages of life, particularly for reproduction and fertility, it is vital that everyone, and men in particular, ensure they are meeting their requirements for zinc.

References

1.  Salas-Huetos A, Bulló M, Salas-Salvadó J. Dietary patterns, foods and nutrients in male fertility parameters and fecundability: a systematic review of observational studies. *Human Reproductive Update*. 2017;23(4):371-89
2.  ^{a b} Zhao J, Dong X, Hu X, Long Z, Wang L, Liu Q, et al. Zinc levels in seminal plasma and their correlation with male infertility: A systematic review and meta-analysis. *Scientific Reports*. 2016;6:22386
3.  ^{a b} Wessels I, Maywald M, Rink L. Zinc as a Gatekeeper of Immune Function. *Nutrients*. 2017;9(12):1286
4.  Wessells KR, Brown KH. Estimating the Global Prevalence of Zinc Deficiency: Results Based on Zinc Availability in National Food Supplies and the Prevalence of Stunting. *PLoS ONE*. 2012;7(11):e50568
5.  Gibson R, Heath A. Population groups at risk of zinc deficiency in Australia and New Zealand. *Nutrition & Dietetics*. 2011;68(2):97-108
6.  Wong WY, Merkus HM, Thomas CM, Menkveld R, Zielhuis GA, Steegers-Theunissen RP. Effects of folic acid and zinc sulfate on male factor subfertility: a double-blind, randomized, placebo-controlled trial. *Fertil Steril*. 2002;77(3):491-8

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