Selenium
Required for sperm maturation; Protects lipid shell encasing each sperm (prevents lipid peroxidation), which is especially important since sperm have a very delicate fatty acid composition.

Zinc
Supplementation in men with low zinc status is often successful for male infertility; Deficiency lowers testosterone & reduces sperm count.

Glutathione
Cofactor to the enzyme (glutathione peroxidase) that ensures structural integrity of sperm; Deficiency compromises sperm motility.

Carnitine
Transports fatty acids, the preferred energy source of sperm, into cells; Significantly improves sperm motility in clinical trials.

Vitamin A
Regulates genes that control sperm production (spermatogenesis); Deficiency may lower sperm count.

Copper & Manganese
Both are cofactors for superoxide dismutase (a very powerful antioxidant) that protects sperm from oxidative damage.

Coenzyme Q10
Acts as a potent antioxidant protecting sperm from damage; Improves semen bioenergetics via its role in mitochondrial function (helps sperm remain viable); A direct correlation exists between CoQ10 and sperm count & motility.

Sperm are highly susceptible to free radical damage to both their genetic material and cell membrane; Poor antioxidant status is a well documented cause of male infertility.

Folate
Deficiency may reduce testosterone; Critical to sperm creation due to its role as a methyl donor in DNA synthesis; The MTHFR (methyleneetetrahydrofolate reductase) C677T gene, which increases folate requirements, is a risk factor for male infertility.

Vitamin D
Increases sperm motility; Induces acrosome reaction, a process where a sperm releases enzymes to allow fusion with an egg; Men with low vitamin D may have slower sperm.

Vitamin C
Low levels increase damage to sperm’s genetic material; Supplementation improved sperm count, motility and structure in human trials.

Vitamin E
Protects sensitive sperm cell membranes; Enhances sperm’s ability to penetrate an egg.

Vitamin B12
Needed for cellular replication, including spermatogenesis; B12 moves from blood to semen to assist in sperm production; May increase sperm count.

Vitamin A
Regulates genes that control sperm production (spermatogenesis); Deficiency may lower sperm count.

Antioxidant Status
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Additional nutrients affect male fertility. This list is non-exhaustive.
REFERENCES


