

# WALNUTS & REPRODUCTIVE HEALTH

**THE AMERICAN SOCIETY FOR REPRODUCTIVE MEDICINE** has found evidence that infertility affects men and women equally. Twenty-five percent of infertile couples have more than one factor that contributes to their infertility.<sup>1</sup>

*Walnut health studies have provided encouraging results regarding the role of walnuts in reproductive health.*

**A STUDY** found healthy young men (ages 21-35) who ate 75 grams (approximately 2.5 ounces) of walnuts per day experienced positive shifts in sperm quality factors, including sperm vitality, motility (movement) and morphology (form).<sup>2</sup> Sperm quality is an indicator of male fertility.<sup>3</sup> This randomized, parallel two-group dietary intervention trial included 117 participants who routinely ate a Western-style diet. Approximately half were assigned to consume 75 grams of walnuts per day for 12 weeks as part of their usual diet, while the remaining half followed their typical diet but avoided consumption of tree nuts.

Consuming walnuts may have contributed to shifts in certain sperm quality factors in these healthy young men, but more research is needed to understand how these findings impact the broader male population, including men in fertility clinics. This study also reported higher amounts of alpha-linolenic acid (ALA), provided by walnuts, correlated with less frequent sperm aneuploidy (abnormal cell chromosome numbers), which can result in genetic abnormalities such as Down syndrome. Walnuts are the only nut with an excellent source of ALA, the plant-based omega-3 fatty acid (2.5g/oz).

**ANOTHER STUDY** explored possible mechanistic reasons for the results seen in the clinical trial. Mice fed a walnut-rich diet showed a reduction in lipid peroxidation, a process that can damage sperm cells.<sup>4</sup> This form of cell damage harms sperm membranes, which are primarily made up of polyunsaturated fatty acids (PUFAs). Previous studies have shown that PUFAs may play a role in sperm health and membrane function. Walnuts are the only tree nut that are predominantly comprised of PUFAs (1 ounce

contains 13 grams of PUFAs out of 18 grams of total fat), which is why they were included in this study. This promising animal research provides important insight, but the results are inconclusive regarding the effects on humans and how PUFAs function to reduce lipid peroxidation. Future human clinical studies are needed.

**A CLINICAL TRIAL** that examined the impact of a Mediterranean diet on maternal and offspring outcomes showed encouraging results. The study examined 1,252 multi-ethnic inner-city pregnant women in England with metabolic risk factors, including obesity and chronic hypertension. Researchers found those who followed a Mediterranean-style diet with a daily portion of nuts (30g/day or just over 1 ounce of mixed nuts; 15g walnuts, 7.5g almonds, 7.5g hazelnuts) and extra virgin olive oil saw a 35 percent lower risk of gestational diabetes and on average, gained 2.75 pounds less, compared to women who received standard prenatal care.<sup>5</sup>

In these studies, information on dietary intake and diet adherence was limited since participants were free-living and data was self-reported.<sup>3,5</sup> In the study on healthy young men, collection of blood specimens for hormone analysis occurred throughout the day to accommodate busy schedules of the subjects, but participants were asked to return at the same time of day for follow-up appointments to maintain consistency in the data collection.<sup>3</sup> In the context of a whole food diet, it is difficult to discern whether changes can be attributed to one specific food source or a combination of factors.<sup>3,5</sup>

<sup>1</sup>American Society for Reproductive Medicine. (2016). Quick Facts About Infertility. Retrieved from [www.reproductivefacts.org/faqs/quick-facts-about-infertility/](http://www.reproductivefacts.org/faqs/quick-facts-about-infertility/) <sup>2</sup>Robbins WA, Xun L, FitzGerald LZ, et al. Walnuts improve semen quality in men consuming a Western-style diet: randomized control dietary intervention trial. *Biol Reprod.* 2012, 87, 101. <sup>3</sup>World Health Organization. Laboratory Manual for the Examination and Processing of Human Semen, 5th ed. Cambridge, UK: Cambridge University Press; 2010. <sup>4</sup>Coffua LS, Martin-DeLeon PA. Effectiveness of a walnuts-enriched diet on murine sperm: involvement of reduced peroxidative damage. *Heliyon.* 2017, 3. <sup>5</sup>H. Al Wattar B, Dodds J, Placzek A, Beresford L, Spyreli E, Moore A, et al. Mediterranean-style diet in pregnant women with metabolic risk factors (ESTEEM): A pragmatic multicentre randomised trial. *PLoS Med* 2019, 16, e1002857.



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