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## Nut consumption improves semen quality



A nutrition intervention study published by researchers from the Autonomous University of Barcelona and the Rovira i Virgili University shows that eating 60 grams of nuts per day in men who maintain a Western-style diet (poor in fruit and vegetables and rich in fat and meat) increases the quantity and quality of sperm.

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Infertility is a public health problem in Western countries, affecting 15% of couples in reproductive age. In about half of these couples, a male factor is involved (e.g. the reduction of sperm quality).

Several studies have shown that human semen quality has declined in Western countries in recent years. This decrease has been associated to lifestyle factors including stress, smoking, alcohol and drugs intake, and unhealthy diets.

FERTINUTS is a nutrition intervention study designed to evaluate the effects of a regular nut consumption on semen quality. The study was developed on a total of 119 individuals who lived in a Western society and followed a Western-style diet (poor in fruits and vegetables and rich in fats and meat). The participants were randomly distributed into two groups: individuals from one group followed their usual diet during 14 weeks, while the other group complemented their usual diet with 60 g of a mixture of walnuts, hazelnuts and almonds. Each individual provided a sample of semen at the beginning and at the end of the intervention period. For each sample, the

seminal volume and the sperm concentration, vitality, morphology, and motility were determined. The effect of nut consumption on sperm DNA fragmentation, reactive oxygen species production, chromosomal stability, total DNA methylation, and microRNA expression were also determined. The sperm analysis was complemented with general anthropometric characteristics and blood biochemical parameters to check the diet follow-up by the participants.

Results showed that individuals who had added 60 g of nuts for 14 weeks in their Western-style diet showed significant increases in the total sperm count, sperm motility, and normal sperm morphology. That is, regular consumption of nuts significantly improves semen quality. Among the molecular mechanisms that could explain the observed semen quality changes, it stands up the reduction of the sperm DNA fragmentation in the group of individuals that supplemented their diet with nuts. In addition, these individuals also presented significant increases of fatty acids (especially omega 3 and 6), magnesium, vitamin E, and linoleic acid. Some of these nutrients are strong antioxidants and therefore, they may have produced a DNA protective mechanism against fragmentation explaining the improvement of the seminal quality.

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**References**

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