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THE ROLE OF NUTS IN ADIPOSITY AND OBESITY PREVENTION



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Overweight and obesity have reached epidemic proportions in the XXI century. Since 1975, obesity has approximately tripled its prevalence worldwide, affecting about 13% of the world's population in 2016¹. It is noteworthy that overweight and obesity are associated with a higher rate of mortality than underweight¹. Therefore, public strategies focused on the reduction of these health issues must be a priority at global, regional and local levels.

Overweight and obesity are characterized by an abnormal/excessive accumulation of fat that could affect health. The body mass index, defined as the body weight divided by the square of the height, is a common index used to classify both diseases. According to the World Health Organization (WHO)¹ overweight is defined as a body mass index equal to or above 25kg/m² and obesity greater than or equal to 30kg/m². Although both disorders are multifactorial, it has been shown that environmental and behavioral factors are their major contributors. In fact, in many cases excess body weight is the result of a high calorie intake along with sedentary behavior². Therefore, obesity and overweight are in great measure preventable by tackling these factors. Diet has been in the spotlight of research since the beginning of the seventies, when the US government and nutritional organizations recommended a low-fat diet to reduce the intake of saturated fatty acids and calories³. Consequently, the consumption of energy-dense high-fat foods such as nuts has been affected.

The total fat content of nuts ranges from approximately 43.9% to 78.8%, monounsaturated and polyunsaturated fatty acids being the major components (31.6% to 62.4%)⁴. Given their macronutrient composition, they would be expected to increase the risk of weight gain and obesity as other energy-dense foods do. In fact, there is a widespread belief among the general population and health professionals that nuts are unhealthy because of their high fat content. However, the potential contribution of nuts to weight gain has been a matter of debate in recent years. Few large prospective cohort studies have analyzed the association between nut consumption and long-term weight change. In a Mediterranean

population of 11,895 university graduates, frequent nut consumption (at least 2 servings of 50 g/week) was not associated with weight gain during a median of 6 years of follow-up (OR: 0.61; 95% CI: 0.34 to 1.10) compared to those who almost never consumed nuts⁵. Similarly, in the Nurses' Health Study (NHS) I, no differences in weight gain were observed across the different categories of nut consumption (never/almost never, <once/week, 1-4 times/week, ≥5 times/week) after 16 years of follow-up⁶. However, in the NSH II, after analyzing 51,188 women aged 20-45 years old, those consuming nuts ≥2 times/week had significantly less mean weight gain (5.04 kg ± 0.12) compared to those rarely consuming

Despite being an energy-dense food, scientific evidence supports the notion that nut consumption can be incorporated into the diet without adversely affecting body weight.

nuts (5.55 kg ± 0.04) during 8 years of follow-up⁷. Similarly, in a pooled analysis of the NSHI, NSHII and the Health Professionals Follow-up Study, per one serving increase in nut consumption participants showed 0.57 lb (~0.3 kg) less 4-year weight gain⁸. Recently, results from 10 European countries in the European Prospective Investigation into Cancer and Nutrition (EPIC) study, including 373,293 participants, showed that individuals in the highest quartile of nut intake had -0.07kg (95% CI: -0.12 to -0.02) less weight gain and 5% lower risk of becoming overweight or obese (RR: 0.95; 95% CI: 0.92 to 0.98 and RR: 0.95; 95% CI: 0.90 to 0.99, respectively) compared to those non-consumers after an average of 5 years of follow-up⁹. Due to the observational nature of prospective cohort studies, we can claim only associations and we cannot draw inferences about causation. For that reason, results from randomized clinical trials (RCTs) are of great importance. In 2013, a meta-analysis of 33 RCTs evaluated the effect of nut-enriched diets on changes in BMI (Body Mass Index), body weight and waist



circumference, demonstrating that nut-rich diets do not increase these measures of adiposity compared to different control diets¹⁰. However, the majority of RCTs included in this meta-analysis were conducted during a relatively short period of time, included small sample sizes and were conducted mainly in young and middle-aged adults. Recently, the Walnuts and Healthy Aging (WAHA) study has attempted to deal with these major limitations. The study included 356 free-living healthy elderly subjects that were randomized into an intervention group (where 15% of their estimated daily energy needs were supplied by walnuts) or a control group (habitual diet with instructions to refrain from eating walnuts or other nuts). After 2 years of follow-up, the results showed that the inclusion of walnuts in the diet does not promote weight gain or cause changes in body composition¹¹. These findings corroborate those from the previous meta-analysis and add new insights to allay the fear that nut consumption may promote obesity.

In summary, evidence from prospective cohort studies and RCTs regarding nut consumption and obesity is quite strong and consistent. Despite the fact that nuts are an energy-dense food, their inclusion in the diet does not promote weight gain. Further studies analyzing different types of nuts and preparation methods (e.g. salted versus unsalted nuts) are needed in order to corroborate the present findings. ■

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