

Intake of Nuts or Nut Products and Weight Gain

Dear Editor:

In the March issue of *Advances in Nutrition*, Liana L Guarneiri and Jamie A Cooper published a meta-analysis of 55 randomized controlled trials (RCTs) to explore whether nut intake causes weight gain (1). They concluded that interventions with nuts or nut products did not lead to changes in body weight, BMI, or waist circumference, independent of dietary substitution strategy. This is a sound conclusion because, apart from being an important source of nutrients and potential benefits in improving significant clinical outcomes (2), many people like nuts in their diet. However, due to the higher fat content of nuts, weight-gain concerns are quite common. Indeed, weight gain and BMI increase are inevitable with increasing age of the population, starting at young adulthood in both men and women and continuing through middle age (3) to early geriatric years (4). Thus, if the safety of a daily intake of 50 g of nuts in terms of weight gain is eventually verified, it would have a significant public impact. However, we thought several points in the current meta-analysis require further considerations.

First, the average duration of interventions in the studies included in the meta-analysis was 13.8 ± 21.5 wk, which may be insufficient to track the changes in body weight. In most metabolic diseases, any RCT with a drug requires a longer intervention phase to observe a clinically meaningful change in body-composition measures. As another example, oral nutritional supplement trials of just several weeks, which provide much more energy, in most vulnerable individuals are generally not successful in providing weight gain in RCTs. Therefore, much longer interventions may be suitable for exploring the impact of nut supplementation of diet on body composition in individuals with chronic metabolic and/or cardiovascular disease. In this regard, subgroup or sensitivity analyses with the longest exposure to a nut intervention among 55 studies could be useful as we recommend lifetime adherence to a diet that contains nuts or nut-enriched products.

Another question is whether the consumption of nuts does not lead to weight gain and changes in body composition in sedentary or less physically active subjects because physical activity determines weight change and adiposity (5–7). Moreover, greater amounts of physical activity, likely >150 min/wk, attenuate weight gain in adults (8). Among the studies included in the current meta-analysis, we noticed that some never assessed physical activity level, some did not include physical activity level in the fully adjusted models due to no difference in time, and some reported a significant

interaction with time. In such a case, sensitivity analyses could be included based on the categories of sedentary behavior and highest versus lowest level of physical activity. Presently, we believe it is not easy to recommend 50 g nuts/d to a sedentary individual without any concern about weight change. In addition to physical activity, another factor determining the amount of weight change is the BMI category, as obese individuals may be less likely to gain weight than normal-weight or overweight adults (9). Thus, changes in body weight and composition after nut consumption in the current meta-analysis could be stratified to BMI in a subset of studies.

In addition, categories of BMI and physical activity level may also interact, as was shown in a large cohort of middle-aged and older women followed for 13 y (10). In that study, weight change and physical activity were found to be interrelated, further modified by age, BMI, and menopausal status. A lower level of activity [<7.5 metabolic equivalent (MET)-h/wk] was associated with weight gain among women aged <65 y and among women with a BMI (in kg/m^2) <25 and among premenopausal women. While these data complement the former comments, stratified age and gender analyses could also be valuable given the differences in weight-change patterns in middle-aged and older-aged individuals and women (4, 10).

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