High Dietary Nut Intake: Too Much of a Good Thing?

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In epidemiologic studies, nut intake has been inversely associated with development of hypertension and coronary heart disease. Mechanisms include improvement of the lipid profile and endothelial function. Walnuts are higher than most other nuts in polyunsaturated fat (PUFA), especially α-linolenic acid.

In this issue of the Journal, Dr. Schutte et al randomized 62 men and women with the metabolic syndrome (National Cholesterol Education Panel definition) to a diet high in monounsaturated fat (MUFA)-rich cashews, a diet high in PUFA-rich walnuts, or a control diet. During the 8-week intervention, baroreflex sensitivity (BRS) improved in the cashew group, but decreased in the walnut group. Body weight remained unchanged. The baroreflex mechanism is critical for blood pressure (BP) homeostasis, and is a reflection of cardiac autonomic regulation and sympathetic activation. The BRS is frequently impaired in the metabolic syndrome, hypertension, cardiovascular disease, and diabetes, and may contribute to the increased cardiovascular mortality seen in these conditions.

Important features of this study include focus on the metabolic syndrome, which increases the risk of cardiovascular disease and especially, diabetes. Other strengths include a randomized controlled design, with two nut groups and a control group. Limitations include its short duration, differences in total fat intake among groups, and a lack of measures of endothelial function or other measures of cardiac autonomic function.

This study raises more questions than it answers. Improvement of BRS may be yet another mechanism by which nuts decrease cardiovascular risk. Why cashew nuts improve, but walnuts impair BRS is, however, unclear. Differences in fatty acid composition or micronutrients may play a role. For example, PUFA made up 21% of energy intake in the walnut group. Diets very high in PUFA may have detrimental health effects, for which reason some guidelines have proposed that dietary PUFA not exceed 10% of energy intake. Also of concern, plasma glucose increased in the cashew group. Unlike many earlier dietary nut trials, neither of the nuts improved the lipid profile. These findings may be related to the high total fat intake in the nut groups (36.5% to 40.5% of energy intake). In a review by some of the investigators, nuts seemed to improve the lipid profile most clearly when total fat intake was not more than 35%, but many of the studies had major methodologic limitations. In the KANWU study, the benefits of substitution of MUFA for saturated fat on insulin sensitivity and BP occurred only when total fat consumption was <37% of total energy intake. In epidemiologic studies suggesting a cardioprotective benefit, nut intake has been low, mostly less than one serving (about 30 g) of nuts/d.

The study by Schutte et al suggests that in high amounts, cashew nuts may have adverse affects on fasting glucose and walnuts on BRS in high-risk individuals with the metabolic syndrome. More studies are needed on the short- and long-term cardiovascular and metabolic effects of moderate and high intakes of walnuts, cashews, and other nuts in the context of moderate and high-fat diets, especially in high-risk individuals. In the meantime, it seems prudent to recommend moderate consumption (30 to 90 g/d) of nuts with 35% or less of energy intake from total fat as part of a healthy diet to reduce cardiovascular risk.

References


