

Serum lipid response to the graduated enrichment of a Step I diet with almonds: A randomized feeding trial.

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Abstract:

Background: Frequent consumption of nuts may lower the risk of cardiovascular disease by favorably altering serum lipid and lipoprotein concentrations.

Objective: We compared the effects of 2 amounts of almond intake with those of a National Cholesterol Education Program Step I diet on serum lipids, lipoproteins, apolipoproteins, and glucose in healthy and mildly hypercholesterolemic adults.

Design: In a randomized crossover design, 25 healthy subjects (14 men, 11 women) with a mean (\pm SD) age of 41 ± 13 y were fed 3 isoenergetic diets for 4 wk each after being fed a 2-wk run in diet (containing 34% of energy from fat). The experimental diets included a Step I diet, a low-almond diet, and a high-almond diet, in which almonds contributed 0%, 10%, and 20% of total energy, respectively.

Results: Inverse relations were observed between the percentage of energy in the diet from almonds and the subject's total cholesterol (P value for trend < 0.001), LDL-cholesterol (P < 0.001), and apolipoprotein B (P < 0.001) concentrations and the ratios of LDL to HDL cholesterol (P < 0.001) and of apolipoprotein B to apolipoprotein A (P < 0.001). Compared with the Step I diet, the high-almond diet reduced total cholesterol (0.24 mmol/L or 4.4%; P = 0.001), LDL cholesterol (0.26 mmol/L or 7.0%; P < 0.001), and apolipoprotein B (6.6 mg/dL or 6.6%; P < 0.001); increased HDL cholesterol (0.02 mmol/L or 1.7%; P = 0.08); and decreased the ratio of LDL to HDL cholesterol (8.8%; P < 0.001). Conclusions: Isoenergetic incorporation of ≈ 68 g of almonds (20% of energy) into an 8368-kJ (2000-kcal) Step I diet markedly improved the serum lipid profile of healthy and mildly hypercholesterolemic adults. Total and LDL-cholesterol concentrations declined with progressively higher intakes of almonds, which suggests a dose-response relation.