Effect of almond consumption on the serum fatty acid profile: a dose response study.

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Abstract:

Consumption of almonds has been shown to be associated with a decreased risk of CHD, which may be related to their fatty acid (FA) composition. However, the effect of almond consumption on the serum FA composition is not known. Therefore, in the present study, we investigated whether almond consumption would alter the serum FA profile and risk of CHD, as calculated using Framingham's 10-year risk score, in a dose-dependent manner in hyperlipidaemic individuals when compared with a higher-carbohydrate control group using dietary interventions incorporating almonds. A total of twenty-seven hyperlipidaemic individuals consumed three isoenergetic (mean 1770 kJ/d) supplements during three 1-month dietary phases: (1) full-dose almonds (50–100 g/d); (2) half-dose almonds with halfdose muffins; (3) full-dose muffins. Fasting blood samples were obtained at weeks 0 and 4 for the determination of FA concentrations. Almond intake (g/d) was found to be inversely associated with the estimated Framingham 10-year CHD risk score (P¼0·026). In both the half-dose and full-dose almond groups, the proportions of oleic acid (OA) and MUFA in the TAG fraction (half-almond: OA P¼0·003; MUFA P¼0·004; full-almond: OA P,0·001; MUFA P,0·001) and in the NEFA fraction (half-almond: OA P¼0·01; MUFA P¼0·04; full-almond: OA P¼0·12; MUFA P¼0·06) increased. The estimated Framingham 10-year CHD risk score was inversely associated with the percentage change of OA (P¼0·011) and MUFA (P¼0·016) content in the TAG fraction. The proportions of MUFA in the TAG and NEFA fractions were positively associated with changes in HDL-cholesterol concentrations. Similarly, the estimated Framingham 10-year CHD risk score was inversely associated with the percentage change of OA (P¼0·069) and MUFA content in the NEFA fraction (P¼0·009). In conclusion, the results of the present study indicate that almond consumption increases OA and MUFA content in serum TAG and NEFA fractions, which are inversely associated with CHD lipid risk factors and overall estimated 10-year CHD risk.