

Influence of body mass index and serum lipids on the cholesterol-lowering effects of almonds in free-living individuals.

Jaceldo-Siegl, K 2011
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Abstract:

Background and aims: Short-term (4-9 weeks) human feeding trials have shown nut consumption to reduce serum total cholesterol (TC) and LDL-cholesterol (LDL). We hypothesized that individual levels of BMI, LDL, TC and triglycerides modify the cholesterol-lowering effect of almonds in a 24-week almond supplementation trial in a free-living population. Methods and results: We performed secondary analysis on data from a previously published study. Using a sequential study design, all participants followed their habitual diets during the first six months (control), and then consumed an almond-supplemented diet (habitual + almonds) for another six months. 100 adults enrolled; 19 were lost to attrition. Those who completed the study were men (n = 43) and women (n = 38) with mean (SD) age 49.4 (13.6) years. During almond supplementation, we found statistically significant changes in TC (-0.22 mmol/L), LDL (-0.22 mmol/L), TC:HDL (-0.35), and LDL:HDL (-0.28) in participants with baseline LDL levels ≥ 3.30 mmol/L, but not among normocholesterolemic individuals. Direction and magnitude of change were similar among individuals with TC ≥ 5.20 mmol/L but not in the lower strata. Tests of interaction (diet x TC and diet x LDL) were significant. Reductions in the ratios TC:HDL, and LDL:HDL were significant among those with BMI < 25 kg/m², but not in heavier individuals; however, formal tests of interaction did not reach significance.