Almond consumption and risk factors for Cardiovascular Disease: A systematic review and meta-analysis of randomized controlled trials

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Abstract:
Evidence suggests that eating nuts may reduce the risk of cardiovascular disease (CVD). We conducted a systematic review and meta-analysis of randomized controlled trials (RCTs) evaluating almond consumption and risk factors for CVD. MEDLINE, Cochrane Central, Commonwealth Agricultural Bureau, and previous systematic reviews were searched from 1990 through June 2017 for RCTs of ≥3 wk duration that evaluated almond compared with no almond consumption in adults who were either healthy or at risk for CVD. The most appropriate stratum was selected with an almond dose closer to 42.5 g, with a control most closely matched for macronutrient composition, energy intake, and similar intervention duration. The outcomes included risk factors for CVD. Random-effects model meta-analyses and subgroup meta-analyses were performed. Fifteen eligible trials analyzed a total of 534 subjects. Almond intervention significantly decreased total cholesterol (summary net change: −10.69 mg/dL; 95% CI: −16.75, −4.63 mg/dL), LDL cholesterol (summary net change: −5.83 mg/dL; 95% CI: −9.91, −1.75 mg/dL); body weight (summary net change: −1.39 kg; 95% CI: −2.49, −0.30 kg), HDL cholesterol (summary net change: −1.26 mg/dL; 95% CI: −2.47, −0.05 mg/dL), and apolipoprotein B (apoB) (summary net change: −6.67 mg/dL; 95% CI: −12.63, −0.72 mg/dL). Triglycerides, systolic blood pressure, apolipoprotein A1, high-sensitivity C-reactive protein, and lipoprotein (a) showed no difference between almond and control in the main and subgroup analyses. Fasting blood glucose, diastolic blood pressure, and body mass index significantly decreased with almond consumption of >42.5 g compared with ≤42.5 g. Almond consumption may reduce the risk of CVD by improving blood lipids and by decreasing body weight and apoB. Substantial heterogeneity in eligible studies regarding almond interventions and dosages precludes firmer conclusions.