Almond consumption and cardiovascular risk factors in adults with prediabetes.

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Abstract:
OBJECTIVE: The authors tested the hypothesis that in adults with prediabetes, an almond-enriched American Diabetes Association (ADA) diet improves measures of insulin sensitivity and other cardiovascular risk factors compared with an ADA nut-free diet. METHODS: DESIGN: Randomized parallel-group trial. SETTING: Outpatient dietary counseling and blood analysis. SUBJECTS: Sixty-five adult participants with prediabetes. INTERVENTION: Sixteen weeks of dietary modification featuring an ADA diet containing 20% of energy from almonds (approximately 2 oz per day). Measures of Outcome: Outcomes included fasting glucose, insulin, total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), triglycerides, TC:HDL-C, and HbA1c, which were measured at weeks 0, 8, and 16. Body weight, body mass index (BMI), waist circumference, blood pressure, and nutrient intake were measured at weeks 0, 4, 8, 12, and 16. RESULTS: The almond-enriched intervention group exhibited greater reductions in insulin (-1.78 μU/ml vs. +1.47 μU/ml, p = 0.002), homeostasis model analysis for insulin resistance (-0.48 vs. +0.30, p = 0.007), and homeostasis model analysis for beta-cell function (-13.2 vs. +22.3, p = 0.001) compared with the nut-free control group. Clinically significant declines in LDL-C were found in the almond-enriched intervention group (-12.4 mg/dl vs. -0.4 mg/dl) as compared with the nut-free control group. No changes were observed in BMI (-0.4 vs. -0.7 kg/m(2), p = 0.191), systolic blood pressure (-4.4 mm Hg vs. -3.5 mm Hg, p = 0.773), or for the other measured cardiovascular risk factors. CONCLUSIONS: An ADA diet consisting of 20% of calories as almonds over a 16-week period is effective in improving markers of insulin sensitivity and yields clinically significant improvements in LDL-C in adults with prediabetes.