

Almond consumption improved glycemic control and lipid profiles in patients with type 2 diabetes mellitus.

2011

Metabolism-clinical And Experimental
60:474-479.

Abstract:

Almond consumption is associated with ameliorations in obesity, hyperlipidemia, hypertension, and hyperglycemia. The hypothesis of this 12-week randomized crossover clinical trial was that almond consumption would improve glycemic control and decrease the risk for cardiovascular disease in 20 Chinese patients with type 2 diabetes mellitus (T2DM) (9 male, 11 female; 58 years old; body mass index, 26 kg/m²) with mild hyperlipidemia. After a 2-week run-in period, patients were assigned to either a control National Cholesterol Education Program step II diet (control diet) or an almond diet for 4 weeks, with a 2-week washout period between alternative diets. Almonds were added to the control diet to replace 20% of total daily calorie intake. Addition of approximately 60 g almonds per day increased dietary intakes of fiber, magnesium, polyunsaturated fatty acid, monounsaturated fatty acid, and vitamin E. Body fat determined with bioelectrical impedance analysis was significantly lower in patients consuming almonds (almonds vs control: 29.6% vs 30.4%). The almond diet enhanced plasma α -tocopherol level by a median 26.8% (95% confidence intervals, 15.1-36.6) compared with control diet. Furthermore, almond intake decreased total cholesterol, low-density lipoprotein cholesterol, and the ratio of low-density lipoprotein cholesterol to high-density lipoprotein cholesterol by 6.0% (1.6-9.4), 11.6% (2.8-19.1), and 9.7% (0.3-20.9), respectively. Plasma apolipoprotein (apo) B levels, apo B/apo A-1 ratio, and nonesterified fatty acid also decreased significantly by 15.6% (5.1-25.4), 17.4% (2.8-19.9), and 5.5% (3.0-14.4), respectively. Compared with subjects in the control diet, those in the almond diet had 4.1% (0.9-12.5), 0.8% (0.4-6.3), and 9.2% (4.4-13.2) lower levels of fasting insulin, fasting glucose, and homeostasis model assessment of insulin resistance index, respectively. Our results suggested that incorporation of almonds into a healthy diet has beneficial effects on adiposity, glycemic control, and the lipid profile, thereby potentially decreasing the risk for cardiovascular disease in