

Effect of almonds on insulin secretion and insulin resistance in nondiabetic hyperlipidemic subjects: a randomized controlled crossover trial.

Jenkins, DJA 2008
Metabolism, Clinical And Experimental
57:882-887.

Abstract:

Nuts appear to have a marked effect in cohort studies in reducing the risk of coronary heart disease (CHD), but their demonstrated ability to lower cholesterol can only explain a proportion of the reduction in risk. Our aim was to assess whether improvement in carbohydrate metabolism provides a further explanation for the effect of nuts in reducing CHD. The effects of whole almonds, taken as snacks, were compared with the effects of low saturated fat (b5% energy) whole-wheat muffins (control) in the therapeutic diets of hyperlipidemic subjects. In a randomized crossover study, 27 hyperlipidemic men and women consumed 3 isoenergetic (mean, 423 kcal/d) supplements each for 1 month. Supplements provided 22.2% of energy and consisted of full-dose almonds (73 ± 3 g/d), half-dose almonds plus half-dose muffins, and full-dose muffins. Subjects were assessed at weeks 0, 2, and 4 and fasting blood samples were obtained. Twenty-four-hour urinary output was collected at the end of week 4 on each treatment. Mean body weights differed by less than 300 g between treatments. No differences were seen in baseline or treatment values for fasting glucose, insulin, C-peptide, or insulin resistance as measured by homeostasis model assessment of insulin resistance. However, 24-hour urinary C-peptide output as a marker of 24-hour insulin secretion was significantly reduced on the half-and full-dose almonds by comparison to the control after adjustment for urinary creatinine output ($P = .002$ and $P = .004$, respectively). We conclude that reductions in 24-hour insulin secretion appear to be a further metabolic advantage of nuts that in the longer term may help to explain the association of nut consumption with reduced CHD risk.