Almonds decrease postprandial glycemia, insulinemia and oxidative damage in healthy individuals.

Jenkins, DJA 2006
Journal Of Nutrition
136:2987-2992.

Abstract:
Strategies that decrease postprandial glucose excursions, including digestive enzyme inhibition, and low glycemic index diets result in lower diabetes incidence and coronary heart disease (CHD) risk, possibly through lower postprandial oxidative damage to lipids and proteins. We therefore assessed the effect of decreasing postprandial glucose excursions on measures of oxidative damage. Fifteen healthy subjects ate 2 bread control meals and 3 test meals: almonds and bread; parboiled rice; and instant mashed potatoes, balanced in carbohydrate, fat, and protein, using butter and cheese. We obtained blood samples at baseline and for 4 h postprandially. Glycemic indices for the rice (38 6 6) and almond meals (55 6 7) were less than for the potato meal (94 6 11) (P , 0.003), as were the postprandial areas under the insulin concentration time curve (P , 0.001). No postmeal treatment differences were seen in total antioxidant capacity. However, the serum protein thiol concentration increased following the almond meal (15614 mmol/L), indicating less oxidative protein damage, and decreased after the control bread, rice, and potato meals (210 6 8 mmol/L), when data from these 3 meals were pooled (P ¼ 0.021). The change in protein thiols was also negatively related to the postprandial incremental peak glucose (r ¼ 20.29, n ¼ 60 observations, P ¼ 0.026) and peak insulin responses (r ¼ 20.26, n ¼ 60 observations, P ¼ 0.046). Therefore, lowering postprandial glucose excursions may decrease the risk of oxidative damage to proteins. Almonds are likely to lower this risk by decreasing the glycemic excursion and by providing antioxidants. These actions may relate to mechanisms by which nuts are associated with a decreased risk of CHD.