

Diet quality improves for parents and children when almonds are incorporated into their daily diet: a randomized, crossover study.

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Abstract:

The health benefits of nuts may, in part, be due to the fiber that provides substrate for the maintenance of a healthy and diverse microbiota. We hypothesized that consuming almonds would benefit immune status through improving diet quality and modulation of microbiota composition in parents and their children, while improving gastrointestinal function. In a crossover trial, 29 parents (35 ± 0.6 years) and their children ($n = 29$; 4 ± 0.2 years; pairs) consumed 1.5 and 0.5 oz, respectively, of almonds and/or almond butter or control (no almonds) for 3 weeks followed by 4-week washouts. Parents completed daily questionnaires of stool frequency and compliance with nut intake. The Gastrointestinal Symptom Response Scale was administered weekly. Participants provided stools for microbiota analysis and saliva for secretory immunoglobulin A. Serum antioxidant/proinflammatory balance was determined in parents. From weekly dietary recalls (Automated Self-Administered 24-Hour Dietary Recall), nutrient and energy intake were assessed and Healthy Eating Index-2010 scores were calculated. Consuming almonds increased total Healthy Eating Index score from 53.7 ± 1.8 to 61.4 ± 1.4 (parents) and 53.7 ± 2.6 to 61.4 ± 2.2 (children; $P < .001$). Minimal changes in gastrointestinal symptoms and no change in stool frequency were noted with the almond intervention. Microbiota was stable at the phylum and family level, but genus-level changes occurred with nut intake, especially in children. No differences were observed for immune markers. Although higher intakes of almonds or longer interventions may be needed to demonstrate effects on immune status, a moderate intake of almonds improves diet quality in adults and their young children and modulates microbiota composition.