

Replacing American snacks with tree nuts increases consumption of key nutrients among US children and adults: results of an NHANES modeling study.

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Abstract:

Background: Replacing typical American snacks with tree nuts may be an effective way to improve diet quality and compliance with the 2015–2020 Dietary Guidelines for Americans (DGAs). Objective: To assess and quantify the impact of replacing typical snacks with composite tree nuts or almonds on diet metrics, including empty calories (i.e., added sugars and solid fats), individual fatty acids, macronutrients, nutrients of public health concern, including sodium, fiber and potassium, and summary measures of diet quality. Methods: Food pattern modeling was implemented in the nationally representative 2009–2012 National Health and Examination Survey (NHANES) in a population of 17,444 children and adults. All between-meal snacks, excluding beverages, were replaced on a per calorie basis with a weighted tree nut composite, reflecting consumption patterns in the population. Model 1 replaced all snacks with tree nuts, while Model 2 exempted whole fruits, non-starchy vegetables, and whole grains (>50% of total grain content). Additional analyses were conducted using almonds only. Outcomes of interest were empty calories (i.e., solid fats and added sugars), saturated and mono- and polyunsaturated fatty acids, fiber, protein, sodium, potassium and magnesium. The Healthy Eating Index-2010, which measures adherence to the 2010 Dietary Guidelines for Americans, was used as a summary measure of diet quality. Results: Compared to observed diets, modeled food patterns were significantly lower in empty calories (–20.1% and –18.7% in Model 1 and Model 2, respectively), added sugars (–17.8% and –16.9%), solid fats (–21.0% and –19.3%), saturated fat (–6.6% and –7.1%), and sodium (–12.3% and –11.2%). Modeled patterns were higher in oils (65.3% and 55.2%), monounsaturated (35.4% and 26.9%) and polyunsaturated fats (42.0% and 35.7%), plant omega 3 s (53.1% and 44.7%), dietary fiber (11.1% and 14.8%), and magnesium (29.9% and 27.0%), and were modestly higher in potassium (1.5% and 2.9%). HEI-2010 scores were significantly higher in Model 1 (67.8) and