

# Abstract

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## Micronutrient quality of weight-loss diets that focus on macronutrients: results from the A TO Z study.

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**BACKGROUND:** Information on the micronutrient quality of alternative weight-loss diets is limited, despite the significant public health relevance.

**OBJECTIVE:** Micronutrient intake was compared between overweight or obese women randomly assigned to 4 popular diets that varied primarily in macronutrient distribution.

**DESIGN:** Dietary data were collected from women in the Atkins (n = 73), Zone (n = 73), LEARN (Lifestyle, Exercise, Attitudes, Relationships, Nutrition) (n = 73), and Ornish (n = 72) diet groups by using 3-d, unannounced 24-h recalls at baseline and after 8 wk of instruction. Nutrient intakes were compared between groups at 8 wk and within groups for 8-wk changes in risk of micronutrient inadequacy.

**RESULTS:** At 8 wk, significant differences were observed between groups for all macronutrients and for many micronutrients ( $P < 0.0001$ ). Energy intake decreased from baseline in all 4 groups but was similar between groups. At 8 wk, a significant proportion of individuals shifted to intakes associated with risk of inadequacy ( $P < 0.05$ ) in the Atkins group for thiamine, folic acid, vitamin C, iron, and magnesium; in the LEARN group for vitamin E, thiamine, and magnesium; and in the Ornish group for vitamins E and B-12 and zinc. In contrast, for the Zone group, the risk of inadequacy significantly decreased for vitamins A, E, K, and C ( $P < 0.05$ ), and no significant increases in risk of inadequacy were observed for other micronutrients.

**CONCLUSIONS:** Weight-loss diets that focus on macronutrient composition should attend to the overall quality of the diet, including the adequacy of micronutrient intakes. Concerning calorie-restricted diets, there may be a micronutrient advantage to diets providing moderately low carbohydrate amounts and that contain nutrient-dense foods.

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