

"A randomized trial of a low-carbohydrate diet for obesity."

Foster, G. D., H. R. Wyatt, et al. *N Engl J Med* 348(21): 2082-90,2003.

BACKGROUND: Despite the popularity of the low-carbohydrate, high-protein, high-fat (Atkins) diet, no randomized, controlled trials have evaluated its efficacy.

METHODS: We conducted a one-year, multicenter, controlled trial involving 63 obese men and women who were randomly assigned to either a low-carbohydrate, high-protein, high-fat diet or a low-calorie, high-carbohydrate, low-fat (conventional) diet. Professional contact was minimal to replicate the approach used by most dieters.

RESULTS: Subjects on the low-carbohydrate diet had lost more weight than subjects on the conventional diet at 3 months (mean [\pm SD], -6.8 ± 5.0 vs. -2.7 ± 3.7 percent of body weight; $P=0.001$) and 6 months (-7.0 ± 6.5 vs. -3.2 ± 5.6 percent of body weight, $P=0.02$), but the difference at 12 months was not significant (-4.4 ± 6.7 vs. -2.5 ± 6.3 percent of body weight, $P=0.26$).

After three months, no significant differences were found between the groups in total or low-density lipoprotein cholesterol concentrations. The increase in high-density lipoprotein cholesterol concentrations and the decrease in triglyceride concentrations were greater among subjects on the low-carbohydrate diet than among those on the conventional diet throughout most of the study. Both diets significantly decreased diastolic blood pressure and the insulin response to an oral glucose load.

CONCLUSIONS: The low-carbohydrate diet produced a greater weight loss (absolute difference, approximately 4 percent) than did the conventional diet for the first six months, but the differences were not significant at one year. The low-carbohydrate diet was associated with a greater improvement in some risk factors for coronary heart disease. Adherence was poor and attrition was high in both groups. Longer and larger studies are required to determine the long-term safety and efficacy of low-carbohydrate, high-protein, high-fat diets.