

Effects of Low-Carbohydrate and Low-Fat Diets: A Randomized Trial

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KEY POINTS FROM THIS STUDY:

- 1) In the US, 1/3 of deaths are due to cardiovascular disease (CVD).
- 2) The annual cost of caring for Americans with CVD is projected to increase to approximately \$1.48 trillion by 2030. "Thus, CVD is one of the most important public health challenges in the United States."
- 3) Low-carbohydrate [higher fat] diets are popular for weight loss, but their cardiovascular effects have not been well studied.
- 4) The objective of this study was to examine the effects of a low-carbohydrate [higher fat] diet compared with a low-fat [higher carbohydrate] diet on body weight and cardiovascular risk factors.
- 5) This is a randomized clinical trial involving 148 men and women followed and assessed at 12 months: 73 participants were assigned to the low-fat [higher carbohydrate] diet group and 75 were assigned to the low-carbohydrate [higher fat] diet group.
- 6) The low low-carbohydrate [higher fat] group consumed <40 g/d of digestible carbohydrate (total carbohydrate minus total fiber).
- 7) The low-fat [higher carbohydrate] group consumed <30% of daily energy intake from fat (<7% from saturated fat); 55% of their daily energy was from carbohydrate, based on National Cholesterol Education Program guidelines.
- 8) Participants in each group refrained from changing their physical activity levels. "Physical activity levels were similar in both groups] throughout the study."
- 9) Total calories were the same between the two groups.

10) At 12 months, compared to those on the low-fat [higher carbohydrate] diet participants on the low-carbohydrate [higher fat] diet had:

- Greater decreases in weight (−3.5 kg [8 lbs.])
- Greater decreases in fat mass (−1.5%)
- Greater decreases in the ratio of total to high-density lipoprotein (HDL) cholesterol
- Greater decreases in triglyceride levels
- Greater increases in HDL cholesterol levels

11) “The low-carbohydrate [higher fat] diet was more effective for weight loss and cardiovascular risk factor reduction than the low-fat [higher carbohydrate] diet.”

12) “Participants in this 12-month study who were randomly assigned to a low-carbohydrate [higher fat] diet lost more weight and had greater reductions in certain markers of cardiovascular disease than those assigned to a low-fat diet.”

13) “Restricting carbohydrate may be an option for persons seeking to lose weight and reduce cardiovascular risk factors.”

14) “A low-carbohydrate [higher fat] diet may be beneficial for weight loss and reduction of cardiovascular risk factors.”

15) “Weight loss from baseline values was greater in the low-carbohydrate [higher fat] group than in the low-fat [higher carbohydrate] group at 3, 6, and 12 months.”

16) The reduction in body weight was significantly greater in the low-carbohydrate [higher fat] group at 12 months (−3.5 kg [7.7 lbs.]).

17) Those on the low-carbohydrate [higher fat] diet had significantly greater reductions in fat mass and significantly greater proportional increases in lean mass.

18) Levels of HDL cholesterol increased significantly more in the low-carbohydrate [higher fat] group than in the low-fat group. **[Important]**

19) “At 12 months, participants in the low-carbohydrate [higher fat] group had significantly greater decreases in CRP level than those in the low-fat group.”

20) “Participants in the low-carbohydrate [higher-fat] group had significant decreases in estimated 10-year risk for CHD at 6 and 12 months, whereas those in the low-fat [higher carbohydrate] group did not.” **[Key Point]**

- 21) “Significantly more participants on the low-fat [higher carbohydrate] diet reported headaches at 3 months”: 25% in the high carbohydrate group vs. 8% in the higher fat group.
- 22) “Our study found that a low-carbohydrate diet induced greater weight loss and reductions in cardiovascular risk factors at 12 months than a low-fat diet among black and white obese adults.” **[Key Point]**
- 23) “Compared with a low-fat [higher carbohydrate] diet, a low-carbohydrate diet [higher fat] resulted in greater improvements in body composition, HDL cholesterol level, ratio of total-HDL cholesterol, triglyceride level, CRP level, and estimated 10-year CHD risk.”
- 24) “Because CVD is the most common cause of death in the United States and obesity is a particularly prevalent risk factor, our study has important clinical and public health implications.”
- 25) “Findings from this trial may offer new evidence for the recommendation of a low-carbohydrate diet to obese persons as an additional non-pharmacologic approach for weight loss and reduction of CVD risk factors.”
- 26) “Our findings suggest that the loss of fat mass accounts for most of the reduction in body weight on a low-carbohydrate [higher fat] diet.”
- 27) “We found that a low-carbohydrate [higher fat] diet resulted in a significantly greater reduction in the ratio of total-HDL cholesterol, which has been identified as a strong and independent predictor of CHD.”
- 28) “In summary, this 12-month randomized, parallel-group trial showed that a low-carbohydrate diet resulted in greater weight loss and reduction in cardiovascular risk factors than a low-fat diet among obese black and white adults. Restricting carbohydrate may be an option for persons who are seeking to lose weight and reduce cardiovascular risk factors.”

COMMENTS FROM DAN MURPHY

An excellent book that supports this study is *The Big Fat Surprise* by Nina Teicholz, 2014.

In addition, this book shows how science, scientific journals, evidence based healthcare, governmental agencies, and public policy can be manipulated by individuals with hidden agendas.