



Re-evaluating low-carbohydrate diets and mortality

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Re-evaluating low-carbohydrate diets and mortality

In the area of public health, there is little agreement on the dietary principles for the prevention and treatment of disease. Discussion is highly controversial; in particular for diets based on carbohydrate restriction. In their Article,¹ Sara B Seidelmann and colleagues concluded that low-carbohydrate diets were associated with increased all-cause mortality. Here we re-evaluate their work from the standpoint of traditional and novel criteria, potential effect on public awareness, and the practice of nutritional medicine.

First, in terms of relevance and accuracy, Seidelmann and colleagues did not investigate a low-carbohydrate diet as a specific intervention, contrary to the general understanding and expectation of patients and health-care providers. Instead, carbohydrate consumption was evaluated using data from the Atherosclerosis Risk in Communities (ARIC) study,² which was not designed for this purpose. Of note, Seidelmann and colleagues relied on semi-quantitative food frequency questionnaires that have been criticised for high error rates.³ Data were collected twice per patient with a 6-year interval. Furthermore, the benefits of therapeutic carbohydrate restriction⁴⁻⁶ were not discussed in the Article.

Strength of association is generally taken to be the most important criterion when considering causality in nutritional epidemiology. In the Article,¹ the hazard ratio for the lowest carbohydrate intake quintile compared with a moderate carbohydrate intake was 1.2, which is very close to 50:50 odds.

In multivariable analyses, low-carbohydrate diets in various forms have provided overwhelming benefit

in treating obesity, diabetes, and metabolic syndrome,⁴⁻⁶ which predicts a reduction in all-cause mortality, whereas the Article suggested an increase.¹ Seidelmann and colleagues did not indicate what other factors are presumed to override such a reduction, or include any numerical calculations to show the relative contributions of different factors.

In summary, no low-carbohydrate diet was tested in the ARIC study.² As such, we believe that Seidelmann and colleagues' study¹ conclusions, if taken as a basis for recommendations, might be a risk in restricting patient choices, inhibiting future research, and impeding the advancement of public health.

We declare no competing interests.

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- 1 Seidelmann SB, Claggett B, Cheng S, et al. Dietary carbohydrate intake and mortality: a prospective cohort study and meta-analysis. *Lancet Public Health* 2018; **3**: 419–28.
- 2 The Atherosclerosis Risk in Communities (ARIC) study: design and objectives. The ARIC investigators. *Am J Epidemiol* 1989; **129**: 687–702.
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