A view on high-protein, low-carb diets / Response

To the Editors:

The Journal of the American Dietetic Association is a respected peer-reviewed publication used by many registered dietitians both in their practice and to disseminate information to the public. The article "High-Protein, Low-Carbohydrate Diets: Do They Work?" (J Am Diet Assoc. 2000;100:760-761) authored by Karen Stein, contained several inaccuracies describing the Atkins Diet. Specifically, there are 5 statements (below), which do not reflect the rationale behind the Atkins nutrition plan.

1) The first phase of the Atkins Diet allows 4 grams of carbohydrate a day. The first and most restrictive phase (induction) of the Atkins Diet allows up to 25 grams of carbohydrates daily. Sources of carbohydrates include approximately 3 cups of dark green leafy vegetables and salad ingredients. After induction, the amount of carbohydrates is increased in 5-10 gram increments (based on weight loss) throughout the various stages (ongoing weight loss, pre-maintenance and maintenance) of the diet. Weight maintenance is achieved by determining the maximum amount of carbohydrates an individual can consume without gaining weight. This can be verified by referencing Dr. Atkins New Diet Revolution.

2) Consumption of fewer calories is the reason for weight loss.

The premise that the diet is based on restricting calories is an erroneous report. The rationale of the diet is based on utilizing fat as a primary energy source. Ketosis will decrease appetite in some individuals; however, we encourage our patients to consume more calories. Recently, a study conducted at Schneider Children's Hospital compared obese adolescents on a "non-energy restricted, lowcarbohydrate, ketogenic diet" to those on a "conventional low-fat diet." The conclusion showed that the children lost 66% more weight on the low-carbohydrate diet, and consumed more calories when compared to weight lost on a calorie-restricted low-fat diet.

3) Anecdotal reports, not science, are what the Atkins Diet is based upon. Although, at the present time, there has not been research published directly from The Atkins Center, there are many studies that have been conducted and are taking place on low-carbohydrate diets. Eric C. Westman, MD, conducted a sixmonth study of the Atkins Diet at the Durham VA Medical Center and found that mean percent bodyweight decreased 10.3%, mean percent body fat decreased 2.996, total cholesterol decreased 4.9%, triglycerides decreased 42.9%, HDL increased 18.4%, cholesterol/HDL ratio decreased 19.0%, and LDL decreased 6.9%. In fact, individuals, including those from Dr. Westman's study, who have maintained this regimen, appear to have improved cardiovascular levels, decreased blood pressure, significantly lower triglycerides, all supporting long-term health maintenance. There are many other studies supporting Atkins protocols that are
available through a simple search of medical literature. Most recently, the USDA announced its plans to study the efficacy and safety of the Atkins Diet.

4) The Atkins Diet lacks certain nutrients such as vitamin B, calcium and potassium.

The Atkins Diet has been evaluated for nutritional adequacy using the nutritionist five program. Within one day almost 100% of the vitamins and minerals analyzed met or exceeded the RDIs. The Atkins Diet is one of the most nutritious eating philosophies one can embrace. The diet includes highly nutrient-dense yet low-carbohydrate vegetables such as broccoli, asparagus, eggplant and spinach, some of which are calcium-rich as well. Also, the diet is heavily weighted on eggs, meat, chicken, and fish, which provide the body with essential amino (protein) and fatty acids as well as a litany of vitamins and minerals.

5) Heart disease, breast cancer and colon cancer are possible outcomes of eating this diet.

In regards to concern of the Atkins Diet causing cancer, helpful studies on nutrition and cancer do exist. One study on breast cancer states that, "Carbohydrate intake, in such trials, rises substantially compatible to our findings with an increase in risk of breast cancer (1). Among people who traditionally have very high intakes of white bread and pasta, the advice to substitute some servings of starchy food with fresh vegetables must be emphasized." A second study, which focuses on colorectal cancer, also shows that intake of eggs, meat and cheese were not related to the cancer risk (2). It also states, "A significant trend of increasing risk with increasing intake emerged for bread and cereal dishes."

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References


Response:

Editor's note: At the request of the Journal of the American Dietetic Association, Dr. Cheryl Rock has responded to the concerns addressed by Ms. Berkowitz:

In the history of popular diets, such as the Atkins diet, that have proliferated for the last several decades, there are several general issues. Although such diets typically emphasize avoiding or eating particular macronutrients or foods as the key to weight loss, a confounding factor in the interpretation of reported effects is that any manipulation of allowed foods or meal patterns typically produces short-term weight loss. Thus, observations based on free-living subjects cannot confirm or refute the specificity of a relationship between dietary composition and weight change. Reliance on carefully-controlled feeding studies, in which supervised subjects consume all meals under observation, is necessary for accurate identification of any dietary constituent as the causal agent for change in a physiological factor.

In this modern age, we have the advantage of data from such carefully controlled studies, in which
the effect of manipulations of fat, carbohydrate and protein on body weight (and various body compartments and other physiological variables) have been examined. Energy balance, rather than the specific contribution of energy from fat or carbohydrate, is firmly established as the ultimate determinant of weight loss or gain (1; reviewed in 2). Current evidence suggests that energy density may explain the link between diet composition and obesity (3,4). Dietary fat can exert an important influence on energy density of the diet because high-fat foods are energy-dense, and this is the basis for recommending a reduction in fat intake to promote weight loss. Whether or not dietary fat plays a role in the development and treatment of obesity has been extensively reviewed (5-7), and considerable evidence has been reported both for and against the specificity of this relationship. In support of the possible usefulness of encouraging a low-fat diet to promote weight control, follow-up studies of persons who have successfully maintained long-term weight loss suggest that this type of dietary pattern may play a role in promoting weight maintenance (8).

However, energy intake may remain constant (or even increase) in spite of a reduction in fat intake, an important issue in interpreting observational data. Energy density of the diet is influenced by several factors in addition to dietary fat, including fiber, water, and other dietary constituents (3). Many low-fat, high-carbohydrate food choices also can be energy-dense. Very-low-fat diets are notoriously low in satiety, so that longer-term compliance with these diets is challenging, if not impossible for most people, in an environment full of appetizing alternative food choices. Very-high-carbohydrate diets have physiological effects that may not be beneficial for some individuals, such as adversely influencing glycemic control and lipid profiles of persons with glucose intolerance (9). Also, manipulating carbohydrate intake has been demonstrated to have a short-term effect on sodium and fluid balance (10), which must be considered when examining weight change in response to modifying carbohydrate in the diet.

Regarding the details of the Atkins diet book, a careful review reveals that the Induction Diet limits carbohydrate sources to 1-2 tossed salads a day as the sole source of carbohydrate (11; p. 105 and p. 338), with instructions to eliminate salad if urinary ketone testing does not indicate responsiveness (11; p. 106). Approximately 3.5 cups of salad is estimated to provide 3.5-4.0 g carbohydrate, even using the carbohydrate content data listed in the book (11; p. 416). The data describing lipid changes are confounded and cannot be assumed to relate to diet composition per se. In controlled stable isotope studies, weight loss (regardless of the composition of the diet) has been shown to promote a suppression in cholesterol biosynthesis (12), which contributes to a decline in circulating lipid concentrations. Such studies suggest that observations of a reduction in plasma cholesterol concentration in response to diet manipulation that promotes weight loss (an effect that is likely temporary, until body weight stabilizes) is not accurately interpreted as demonstrating that the dietary pattern exerts a favorable long-term effect on cardiovascular disease risk. Estimated nutrient adequacy based on analyzed menus suggests that deficiencies are unlikely for those who are strictly adherent to these menus. However, nutrient intakes of free-living persons who translate the diet book guidance into actual food choices is unknown. In previous studies on a population level, the micronutrient intakes of free-living persons reporting consumption of a lowfat diet are clearly superior to those of persons reporting a higher-fat diet (13).

There is a consistency of the evidence suggesting a link between diet composition and risk for chronic diseases, such as vascular disease and cancer (14-16). The overwhelming majority of studies reported to date, including both epidemiological and laboratory approaches, suggest that eating carbohydrate-rich foods such as vegetables, fruits, legumes and whole grains, and limiting saturated fat intake, over a lifetime, is associated with substantially reduced risk for vascular disease and some cancers (14-16; reviewed). Dietary guidelines to reduce risk for chronic disease are responsive to new, scientifically-sound data and information, but these data are moving the guidelines toward greater emphasis on moderation, rather than toward extremes, in recommended intakes of macronutrients (17-19).

As long as the U.S. population seeks easy answers to weight control, diet books will be popular.
Short-term weight loss in response to these regimens is seductive for patients and providers, and it
can reinforce a dietary pattern that may, in the long-term, be associated with increased risk for
chronic disease. While current evidence from nutritional science, involving modern methodologies
and rigorous scientific approaches, suggests that extremes of carbohydrate or fat intakes are not
advantageous in the long-term, this message does not sell diet books. As noted decades ago
(2021), hardly anyone is free from false beliefs about food, including health professionals. Many
years ago, advice for how to interact with patients and proponents of popular diets and
scientifically unsound theories was provided by Faith Fitzgerald (22), who advised that the health
professional "speak the truth softly, and stand by, ready to help as much as possible should their
magic fail." That advice is particularly relevant for dietetics professionals, as the translators of
nutritional science and as knowledgeable experts who can help patients and other health
professionals cope with popular diets.

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