

Beyond the Hype: Evaluating Low-Carb Diets

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Picture this: You're standing in the aisle of your local grocery store when you see an overweight man nearby staring at several brands of ketchup on display. After deliberating for a moment, he reaches for the bottle with the words "Low-Carb!" displayed prominently on the label. Is he making a smart choice that will help him lose weight and enjoy better health—or is he just buying into the latest diet fad?

Over the past decade, increasing numbers of Americans have jumped on the low-carb bandwagon. As of 2004, researchers estimated that approximately 40 million Americans, or about one-fifth of the population, were attempting to restrict their intake of food high in carbohydrates (Sanders & Katz, 2004). Proponents of low-carb diets say they not only are the most effective way to lose weight but also yield health benefits such as lower blood pressure and improved cholesterol levels. Meanwhile, some doctors claim that low-carb diets are overrated and caution that their long-term effects are unknown. Although following a low-carbohydrate diet can benefit some people, these diets are not necessarily that best option for everyone who wants to lose weight or improve their health.

Purported Benefits of Low-Carbohydrate Diets

To make sense of the popular enthusiasm for low-carbohydrate diets, it is important to understand proponents' claims about how they work. Any eating plan includes a balance of the three macronutrients—proteins, fats, and carbohydrates—each of which is essential for human health. Different foods provide these macronutrients in different proportions; a steak is

primarily a source of protein, and a plate of pasta is primarily a source of carbohydrates. No one recommends eliminating any of these three macronutrient groups entirely.

However, experts disagree on what protein: fats: carbohydrate ratio is best for optimum health and for maintaining a healthy weight. Since the 1970s, the USDA has recommended that the greatest proportion of one's daily calories should come from carbohydrates—breads, pastas, and cereals—with moderate consumption of proteins and minimal consumption of fats. High-carbohydrate foods form the base of the “food pyramid” familiar to nutrition students.

Those who subscribe to the low-carb philosophy, however, argue that this approach is flawed. They argue that excess weight stems from disordered metabolism, which in turn can be traced to overconsumption of foods high in carbohydrates—especially refined carbohydrates like white flour and sugar (Atkins, 2002; Agatson, 2003). The body quickly absorbs sugars from these foods, increasing the level of glucose in the blood. This triggers the release of insulin, delivering energy-providing glucose to cells and storing some of the excess as glycogen. Unfortunately, the liver turns the rest of this excess glucose into fat. Thus, adherents of the low-carb approach often classify foods according to their glycemic index (GI)—a measurement of how quickly a given food raises blood glucose levels when consumed. Foods high in refined carbohydrates—sugar, potatoes, white breads, and pasta, for instance—have a high glycemic index.¹

Dieters who focus solely on reducing fat intake may fail to realize that consuming refined carbohydrates contributes to weight problems. Atkins (2002) notes that low-fat diets

recommended to many who wish to lose weight are, by definition, usually high in carbohydrates, and thus unlikely to succeed.

Even worse, consuming high-carbohydrate foods regularly can, over time, wreak havoc with the body's systems for regulating blood sugar levels and insulin production. In some individuals, frequent spikes in blood sugar and insulin levels cause the body to become insulin-resistant—less able to use glucose for energy and more likely to convert it to fat (Atkins, 2002). This in turn helps to explain the link between obesity and Type 2 diabetes. In contrast, reducing carbohydrate intake purportedly helps the body use food more efficiently for energy. Additional benefits associated with these diets include reduced risk of cardiovascular disease (Atkins, 2002), lowered blood pressure (Bell, 2006; Atkins, 2002), and reduced risk of developing certain cancers (Atkins, 2002).

Given the experts' conflicting recommendations, it is no wonder that patients are confused about how to eat for optimum health. Some may assume that even moderate carbohydrate consumption should be avoided (Harvard School of Public Health, 2010). Others may use the low-carb approach to justify consuming large amounts of foods high in saturated fats—eggs, steak, bacon, and so forth. Meanwhile, low-carb diet plans and products have become a multibillion-dollar industry (Hirsch, 2004). Does this approach live up to its adherents' promises?

Research on Low-Carbohydrate Diets and Weight Loss

A number of clinical studies have found that low-carbohydrate diet plans are indeed highly effective for weight loss. Gardner et al. (2007) compared outcomes among overweight and obese women who followed one of four popular diet plans: Atkins, The Zone, LEARN, or Ornish. After 12 months, the group that had followed the low-carb Atkins plan had lost significantly more weight than those in the other three groups. McMillan-Price et al. (2006) compared results among overweight and obese young adults who followed one of four plans, all of which were low in fat but had varying proportions of proteins and carbohydrates. They found that, over a 12-week period, the most significant body-fat loss occurred on plans that were high in protein and/or low in “high glycemic index” foods. More recently, the American Heart Association (2010) reported on an Israeli study that found that subjects who followed a low-carbohydrate, high-protein diet lost more weight than those who followed a low-fat plan or a Mediterranean plan based on vegetables, grains, and minimal consumption of meats and healthy fats.² Other researchers have also found that low-carbohydrate diets resulted in increased weight loss (Ebbeling et al., 2007; Bell, 2006; HealthDay, 2010).

Although these results are promising, they may be short-lived. Dieters who succeed in losing weight often struggle to keep the weight off—and unfortunately, low-carb diets are no exception to the rule. HealthDay (2010) cites a study recently published in the *Annals of Internal Medicine* that compared obese subjects who followed a low-carbohydrate diet and a low-fat diet. The former group lost more weight steadily—and both groups had difficulty keeping weight off. Similarly, Swiss researchers found that, although low-carb dieters initially lost more weight than those who followed other plans, the differences tended to even out over

time (Bell, 2006). This suggests that low-carb diets may be no more effective than other diets for maintaining a healthy weight in the long term.

One likely reason is that a low-carbohydrate diet—like any restrictive diet—is difficult to adhere to for any extended period. In commenting on the Gardner study, experts at the Harvard School of Public Health (2010) noted that women in all four diet groups had difficulty following the plan. Medical professionals caution that low-carbohydrate diets are difficult for many people to follow consistently and that, to maintain a healthy weight, dieters should try to develop nutrition and exercise habits they can incorporate in their lives in the long term (Mayo Clinic, 2010). Registered dietician D. Kwon (personal communication, August 10, 2010) comments, “For some people, [low-carbohydrate diets] are great, but for most, any sensible eating and exercise plan would work just as well”.

Other Long-Term Health Outcomes

Regardless of whether low-carb diets are most effective for weight loss, their potential benefits for weight loss must be weighed against other long-term health outcomes such as hypertension, the risk of heart disease, and cholesterol levels. Research findings in these areas are mixed. For this reason, people considering following a low-carbohydrate diet to lose weight should be advised of the potential risks in doing so.

Research on how low-carbohydrate diets affect cholesterol levels is inconclusive. Some researchers have found that low-carbohydrate diets raise levels of HDL, or “good” cholesterol (Ebbeling et al., 2007; Seppa, 2008). Unfortunately, they may also raise levels of LDL, or “bad”

cholesterol, which is associated with heart disease (Ebbeling et al., 2007; Reuters Health, 2010). A particular concern is that as dieters on a low-carbohydrate plan increase their intake of meats and dairy products—foods that are high in protein and fat—they are also likely to consume increased amounts of saturated fats, resulting in clogged arteries and again increasing the risk of heart disease. Studies of humans (Bradley et al., 2009) and mice (Foo et al., 2009) have identified possible risks to cardiovascular health associated with low-carb diets. The American Heart Association (2010) and the Harvard School of Public Health (2010) caution that doctors cannot yet assess how following a low-carbohydrate diet affects patients' health over a long-term period.

Some studies (Bell, 2006) have found that following a low-carb diet helped lower patients' blood pressure. Again, however, excessive consumption of foods high in saturated fats may, over time, lead to the development of clogged arteries and increase risk of hypertension. Choosing lean meats over those high in fat and supplementing the diet with high-fiber, low-glycemic-index carbohydrates, such as leafy green vegetables, is a healthier plan for dieters to follow.

Perhaps most surprisingly, low-carbohydrate diets are not necessarily advantageous for patients with Type 2 diabetes. Bradley et al. (2009) found that patients who followed a low-carb or a low-fat diet had comparable outcomes for both weight loss and insulin resistance. The National Institute of Diabetes and Digestive and Kidney Diseases (2010) advises diabetics to monitor blood sugar levels carefully and to consult with their health care provider to develop a

plan for healthy eating. Nevertheless, the nutritional guidelines it provides as a dietary starting point closely follow the USDA food pyramid.

Conclusion

Low-carb diets have garnered a great deal of positive attention, and it isn't entirely undeserved. These diets do lead to rapid weight loss, and they often result in greater weight loss over a period of months than other diet plans. Significantly overweight or obese people may find low-carb eating plans the most effective for losing weight and reducing the risks associated with carrying excess body fat. However, because these diets are difficult for some people to adhere to and because their potential long-term health effects are still being debated, they are not necessarily the ideal choice for anyone who wants to lose weight. A moderately overweight person who wants to lose only a few pounds is best advised to choose whatever plan will help him stay active and consume fewer calories consistently—whether or not it involves eating low-carb ketchup.

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