

Perspectives: A Critical Analysis of Recent Claims About the Atkins-Style Diet

Sarah Ash

Nothing guarantees time on the morning talk shows and evening news magazines like a controversy about what we should (or should not) be eating. This was clearly demonstrated recently when journalist Gary Taubes published an article in the *New York Times Sunday Magazine* entitled, "What if It's All Been a Big Fat Lie?" in which he suggests that current mainstream dietary recommendations to eat less fat and more carbohydrates "are the cause of the rampaging epidemic of obesity in America."[\[1\]](#) Taubes goes on to suggest that the high-fat, low-carb diet made popular by Dr. Atkins and long reviled by the medical establishment may actually be the right approach to weight loss.

While there are reasons to be interested in studying an Atkins-style diet, Taubes has oversimplified what is a very complex issue, ignoring and distorting data. The purpose of this article is to provide a critique of some of his major arguments in an effort to help health care professionals better respond to these and similar issues in the future.

First, it is important to point out that Taubes has mixed together two different topics.

- What has contributed to the dramatic rise in obesity rates in the United States over the past decade?
- Once weight gain has occurred, what are the best ways to lose the weight and keep it off?

His basic premise is that high carbohydrate intake is responsible for the obesity epidemic, and therefore carbohydrate restriction must be its "cure." But as we will see, the link is weaker than he suggests, and the underlying issues are much more complex.

Let's start with the rise in obesity. As Taubes correctly points out, the obesity epidemic started in the early 1980s and really began to escalate in the '90s. While it may track with increases in carbohydrate intake, that doesn't mean carbohydrates are the direct cause or that other factors

aren't involved as well. For example, researchers have also found an association between the increasing rates of both obesity and insulin resistance (or Syndrome X) and decreases in dairy consumption over the same time period. Taubes also notes correctly that during this time the percentage of calories from fat in the typical U.S. diet declined, as recommended by health care professionals, yet people still gained weight. What he doesn't reveal is that although **the percentage of calories from fat** decreased, our **absolute intake** went up. That's because our **total calorie consumption** also increased. Think of it this way: 30 percent of \$2,500 is still more money than 34 percent of \$2,000. Similarly, 30 percent of calories from fat out of 2,500 total calories is still more fat than 34 percent out of 2,000. We now eat more food and, therefore, more calories. Period.

If high carbohydrate intake does lead to obesity, one might expect to see it reflected in comparisons of different populations. Taubes makes only a passing reference to the carbohydrate-centered diet of the Italians. He is reminded of his mother's admonition against eating starches because of her "vague observation that Italians tended towards corpulence because they ate so much pasta." He claims this was "documented" by noted epidemiologist Ancel Keys who wrote that the Italians were among the heaviest populations he had studied. Taubes neglects to mention that this was just the personal observation of a single individual (not even a study) from more than 40 years ago. Had he looked at more recent data, he would have found the prevalence of overweight and obesity to be 37 percent in Italy as compared to 61 percent in the United States. Clearly spaghetti, *per se*, isn't inherently fattening.

Then, there is the argument that we did not evolve to eat a lot of starches and sugars because these products were absent from our diets as recently as 10,000 years ago (prior to the dawn of agriculture). Not only do the Italians seem to do okay on their carbo-centric diet, the country with the highest life expectancy (77 for men and 84 for women as compared to 73 and 79 for the United States) is one that relies even more heavily on a diet high in starch (rice), with only minimal fat intake. That is, of course, Japan, where rates of obesity are also extremely low (3 percent versus 22 percent in the United States).

But how might carbohydrates lead to obesity in the first place? Here, in a nutshell, is the theory that Taubes presents.

Intake of so-called high glycemic index carbohydrates, especially refined carbs like white rice, pasta, bread and simple sugars, results in a rapid release of glucose into your bloodstream, triggering the release of high levels of the hormone insulin. Insulin then quickly clears the glucose out of your bloodstream. But because of the very high insulin level, the glucose level falls too low, making you hungry. So you eat again, and so goes the cycle -- the more refined carbs you eat, the more you will stay hungry. In addition, insulin, being what is known as an anabolic, or "building" hormone, also promotes the

storage of fat. Unfortunately, the fatter you get, the more your cells become resistant to its effects. Therefore you need to put out more insulin, which only makes it easier to store fat, and so on.

Confused? Taubes says it's simple Endocrinology 101. The only trouble is that it really needs to be taught at the graduate level because it is so much more complex. To begin with, focusing on the glycemic index (GI) of an individual food is misleading for several reasons. First, few foods are eaten alone. For example, the glycemic index of a baked potato decreases as you add butter, margarine, sour cream, or anything else with fat or protein in it because those nutrients will delay the movement of the food from the stomach to the small intestine, ultimately delaying the rate of absorption of the glucose into the bloodstream. Second, the index changes as a food ages and with preparation method and cooking time. The glycemic index of a banana can vary twofold depending on its ripeness; the index of potato cubes goes up when they are mashed; and pasta cooked *al dente*, the way the Italians like it, has a much lower (theoretically more desirable) number than the longer cooked, mushier US version. Note that one of the highest foods on most GI lists is a French baguette, with a GI almost identical to eating straight glucose, yet the French don't appear to be plagued by obesity. Finally, a high GI actually does not necessarily mean a high insulin response. In fact, research suggests that the total calories of a meal are a better predictor of the insulin response than the GI of the component foods (note that insulin is released in response to dietary protein as well).

Finally, the procedure used to assess a food's GI has its limitations. For example, most values are based on a relatively small number of people (typically 10). Your own response, because of age, ethnicity, or just individual variation, could be quite different. Plus, each food is fed in an amount equal to what it takes to get 50 grams of carbohydrate from that food. For bread that's four slices, but it takes eight whole carrots (because they are much less carbohydrate dense). Is the glycemic response the same for just one carrot? No. In fact the GI is likely of little value for most fruits and non-starchy vegetables. The Glycemic Index is, however, an interesting tool, and I'm sure that we will be hearing more about it in the future. For now, its value on an individual food basis is limited.

This gets us back to the issue of total food intake. Americans are definitely eating more. Is it because they are hungrier due to their high carbohydrate intake as Taubes claims? It is true that during the late 1980s and through the 1990s, as health care professionals continued to extol the virtues of high carbohydrate/low fat eating, the food industry, sensing a desire on the part of Americans to finally shape up their eating habits, began developing new lines of reduced and fat-free foods. By the mid 1990s, nearly one in three new food products made a low-fat claim and shopping carts overflowed with them. Chief among these was the incredibly successful SnackWell's® line whose fat-free devil's food cookies were so popular that grocers were forced

to post "one per customer" signs, and some consumers went so far as to form buying clubs to get around the restrictions.

But as Taubes points out, taking out the fat often meant taking out the flavor. So to compensate, food companies added lots of refined sugars in its place. While those devil's food cookies were fat-free, they were hardly calorie-free, though many seemed to think so. In fact each one had as many calories (50) as a regular Chips Ahoy!®. Were people eating them by the truckload because their hunger was fueled by the cookies' high carbohydrate content? No, people were eating them because they thought they could. When I asked my college students in the '90s how many more reduced-fat Chips Ahoy!® they were likely to eat in place of three regular ones most said five to six. They were always shocked to learn how many you actually could eat before you equaled the calorie content of the originals (See the end of the article for the [answer!](#)). I doubt that reduced-fat and fat-free foods would have taken off as they did had nutritionists done a better job of communicating their limitations early on. Note that today's more "savvy" consumer has sent SnackWell's® sales tumbling, from a high in 1995 of \$603 million to just \$134 million in 2001.

Nutrition educators also could have done a better job communicating the difference between a Food Guide Pyramid "serving" and the portion size one might eat at a sitting. One of the significant changes that occurred when the Pyramid replaced the Basic Four in the early '90s was the increase in recommended grain servings from "at least" four, to six to eleven (mirroring the emphasis on increasing carbohydrate consumption in place of fats). Unfortunately, we failed to communicate that one Pyramid "serving" of pasta was only half a cup, not the entire plateful. How many of today's super-sized bagels does it take to equal six servings of the bread group? (See the end of this article for the [answer!](#))

And speaking of super-sizing, another contributor to obesity is increases in portion size, coupled with the increased rate of eating out. Americans go to restaurants, on average, four times a week now, accounting for about a third of their total calories. The increased prevalence of super-sizing at fast food franchises probably tracks as well with rising obesity rates as anything else. Taubes says that it isn't logical to suggest that societal pressure to be thin can be overcome by constant bombardment of food advertising and the lure of a super-size bargain meal and that our consumption of larger servings must therefore be driven by our increased carbohydrate-induced hunger. But according to the National Alliance for Nutrition and Activity, "the increasing size of American food portions is linked to the food industry's growing reliance on "value" marketing . . . a technique used to increase food company profits"

(see <http://www.cspinet.org/policy6/nana.html>). The cost of the food itself is small relative to the overall cost of producing it. So at Cinnabon®, for example, "upgrading" to the larger pastry represents only a 24 percent increase in price but a 123 percent increase in calories. The consumer thinks he has gotten a good deal and the company has made more money. As the

Alliance points out, fast food restaurants encourage customers to "super-size it!" and also bundle high calorie (and high profit margin) sodas and French fries into "meals." Couple this with study findings that most people eat what is put in front of them, especially when they have paid for it at a restaurant, and you have a recipe for excess calorie intake.

In addition to the increase in serving size, most Americans probably have no idea just how many calories they are eating. I surveyed students in my introductory nutrition class last semester and found that 61 percent under-predicted the number of calories in a Monster Burger® from Hardee's/Carl's Jr., 64 percent under-predicted the calories in a 32 ounce Coke, 78 percent under-predicted for a Bloomin' Onion® without the dressing from Outback Steakhouse®, 93 percent under-predicted for a movie-theater sized box of Milk Duds®, and 94 percent under-predicted the calories in a large tub of movie theater popcorn with butter. (How well can you predict? See the [answers](#) at the end of this article!)

Then, there is the decline in physical activity. Taubes minimizes the potential role that decreases in calorie expenditure, especially relative to increases in intake, may be playing in the obesity epidemic. He refers to a "leisure exercise mania" that began in the 1970s and "has continued through the present day" as evidence that people are getting fat in spite of being physically active. It's unclear, however, just who these exercise enthusiasts are. I was at the beach recently and did see a lot of people walking, jogging, biking, and rollerblading; I also saw that very few of them were overweight or obese. Recent government statistics indicate that in fact only 22 percent of Americans meet recommended physical activity guidelines while one-quarter report that they *never* engage in physical activity. We are increasingly sedentary in both our jobs and our leisure time -- we spend hours in front of computer and/or TV screens, sending e-mail, surfing the Internet, and/or watching the hundreds of TV channels now available through cable or satellite dishes.

Also note that while our current carbohydrate-rich diet is relatively "recent" in the history of humankind, one could argue that the change in the level of activity that we typically expend to procure our food, per unit calorie, between "then" and now is even more dramatic, and has occurred over an even shorter period of time. Consider what most of our ancestors from even one or two centuries ago, let alone ten millennia, would have done to eat a piece of cooked meat: catch it, kill it, skin it, and carve it up; and then, for the fire: collect the wood, create the spark, and wait for the coals to cool (without any chips and salsa to tide them over till the coals were ready). And the meat would hardly have been the high-fat/high calorie cuts we can enjoy today simply by driving our cars to and from the store and then turning on the grill! Want to lose weight? Become a contestant on the TV show *Survivor* where you have to find your own food.

We can see how the prevalence of obesity could have increased in the United States without it being caused directly by increases in carbohydrate intake: increased availability and

consumption of total calories, fueled by a food industry eager to satisfy what Americans think they want to eat, coupled with a lack of knowledge regarding what they really should be eating, all happening at the same time as a decline in physical activity. But what about the other side of the story: the ability of carbohydrate restriction to promote weight loss?

We do know that people on the low-carb/high fat and protein Atkins-type diet will lose weight, so the question is, why? Taubes would argue that the lack of carbs makes you less hungry because of decreased insulin production. But it is just as likely due to the fact that fat as well as protein produce greater satiety. That is, they keep you feeling fuller longer. That's because they linger in the stomach and also delay the rate at which the stomach empties into the small intestine. You will feel hungrier sooner if you eat a large plate of plain spaghetti as compared to a similar number of calories in a high fat meal. In fact, recent research suggests that Atkins adherents do tend to eat fewer calories than similar individuals on a low-fat weight loss program, which helps explain their often greater rates and amounts of weight loss, at least over short periods of time. Foods that are high in fiber, especially soluble fiber, such as unrefined grains, fruits, vegetables and legumes, have similar effects and can likewise be satiating. On the other hand, recent research suggests that liquid calories may be particularly poor at producing satiety; you could drink 250 calories in a 20-ounce Coke and not make much of a dent in your hunger.

The Atkins diet may be more palatable, in part because of its higher fat content, and this may help people stick with the diet for longer periods of time, leading to greater weight loss. There is no question that fat makes food taste good. It absorbs fat-soluble flavors and aromas and provides a "mouthfeel" that food scientists have had a hard time duplicating in a way that is pleasing to the palate. It is interesting that while we have been willing to accept a wide variety of sugar-substitutes that fall far short of the "real" thing (e.g., the bitter aftertaste of saccharine and metallic taste of NutraSweet®), successful fat-substitutes have been much harder to develop.

So maybe it's not surprising that, in general, low-fat/high-carb diets tend to have higher drop out rates and produce less weight loss than high-fat/low-carb diets. However, the scientific literature certainly does not support Taubes' contention that low-fat diets have proven in clinical trials to be complete failures. In fact, he ignores findings from the National Weight Control Registry which has been tracking the success stories of people who have kept off at least a 30 pound weight loss for one year or longer (see http://www.lifespan.org/services/bmed/wt_loss/nwcr/). According to the Registry's research, 90 percent of these long term "losers" consume diets in which only 20 percent to 30 percent of the calories come from fat -- right in line with mainstream recommendations. Of course they also restrict total calories and engage in significant amounts of physical activity.

This brings up what is perhaps the most important issue to consider when evaluating any eating program: what happens over the long term?

- How long can low-carb dieters can stick to the plan?
- Do people eventually tire of its restrictive nature?
- Are early decreases in serum cholesterol (associated with weight loss) maintained on a diet that can be relatively high in saturated fat?
- Does a low-carb diet provide enough vitamins, minerals, fiber, and other potentially beneficial non-nutrients like the phytochemicals in fruits and vegetables to protect against other chronic diseases like cancer?
- Does its high protein content contribute to significant calcium losses, increasing the risk for osteoporosis?

People need to realize that we have no model for this way of eating -- there is no modern day population to which we can look for assurance. Even our Paleolithic ancestors' diet would bear little resemblance to what is being advocated today. Plus we have no way of knowing if those "cavemen" would have lived any longer than we do now if given access to the same medical advances (their average life expectancy was only about 16-25 years).

What should nutrition educators be saying about all of this? When it comes to preventing weight gain, we can still advocate use of the Dietary Guidelines and its Food Guide Pyramid. But, we must do a better job of communicating the need to limit portion size and increase the consumption of whole grains, legumes, and fruits and vegetables in place of the current diet high in refined starches and sugars. And of course, we have to help people find ways to become more physically active. Theories regarding why we eat what we do may come and go, but the bottom line will always be that calories *in* have to balance calories *out*, or weight will change for better or for worse.

Answers:

- Three regular Chips Ahoy!® have 160 calories. Three reduced-fat Chips Ahoy!® have 140 calories -- 20 fewer. That 20 calorie difference equals a little less than half of one reduced-fat cookie, given that each one is 47 calories.
- A grain serving equals one slice of bread, which equals one ounce. Today's bagels can weigh as much as 6 ounces, making each bagel equal to 6 grain servings!
- Monster Burger®: 1060 calories

- 32 ounce Coke®: 400 calories
- Bloomin' Onion®: 1690 calories (with dipping sauce: 2130)
- Milk Duds® (5 ounces): 595 calories (An 8 ounce box of Mike and Ike® equals 900 calories!)
- Large tub popcorn (20 cups): 1160 calories (with butter: 1600)

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Footnote 1: For the article, go to: <http://www.nytimes.com/2002/07/07/magazine/07FAT.html>. Log-in required. [[Return to text.](#)]

The opinions stated in this article are the opinions of the author and do not necessarily reflect the opinions of the individuals and organizations who support *The Forum for Family and Consumer Issues*.

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