

# Is Everyone Really on a Low-Carbohydrate Diet? Consumer Perceptions of Carbohydrates and Sugars

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## ABSTRACT

Public perception and consumer opinions are major drivers of shifts in dietary trends, as has been demonstrated most recently by the increased attention paid by consumers to low-carbohydrate eating patterns and concerns about added sugars. It is important for nutrition and food industry professionals to understand the factors that determine food intake and purchasing behaviors and observe how and why these behaviors, attitudes, and beliefs change over time. The International Food Information Council (IFIC) Foundation has administered its annual Food & Health Survey since 2006, which has yielded relevant, applicable information on public perceptions and purchasing drivers of nationally representative samples of the U.S. adult population. In this article evolving public perceptions of carbohydrates and sugars are illustrated by highlighting findings from IFIC Foundation consumer research, correlating perception with actionable behavior changes, and discussing new food and diet trends. Consumer education efforts are an important component in public understanding of evidence-based information on carbohydrates and added sugars. These efforts are discussed using the updated Nutrition Facts label as an example of a critical opportunity for engaging with consumers.

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As both a food-loving and food-phobic society, Americans have grown accustomed to obsessing over certain foods and diet trends—vilifying them after they lose their allure and championing them anew when they return to favor. Some of these shifts are driven by emerging research or a reframing of the science; however, public perception and consumer opinions are a major driver of these transitions. The evolution of perceptions surrounding dietary fats is a classic example of this phenomenon. In the 1980s and 1990s, no- and low-fat products occupied valuable real estate on grocery store shelves. “Eating fat makes you fat” became a message—however misleading—that a large swath of Americans had a hard time letting go of (7). Even after extensive scientific research clarified the health impacts of a variety of dietary fatty acids by the mid-2000s, it took more than a decade for public acceptance to really gain momentum (5).

By tracking consumer views on dietary trends and food choices over the last 12 years, the International Food Information Council (IFIC) Foundation has documented the pendulum swing of public opinion toward a more positive outlook on dietary fats, while at the same time observing shifts in consumer perspectives on carbohydrates, particularly sugars, which are now under a bright spotlight of public scrutiny (10). These evolving viewpoints raise a number of interesting questions. For example, are these opinions indicative of measurable changes in dietary intake? What nutritional risks are posed by limiting carbohydrate

and sugar intakes? Finally, are as many people following a low-carbohydrate diet as it seems?

Nutrition and food industry professionals can maximize their impact on the health and wellness of the public by understanding the factors that determine food intake and purchasing behaviors and observing how and why these behaviors, attitudes, and beliefs change over time (2). In this article, evolving public perceptions of carbohydrates and sugars are illustrated by highlighting findings from IFIC Foundation consumer research, correlating perception with actionable behavior changes, and discussing new food and diet trends, with full recognition of their cyclical nature.

## Consumer Research on Carbohydrates: Where Are We Now?

Capturing population-level dietary intake data is like tracking a moving target. Agencies and programs funded by the federal government, such as the National Center for Health Statistics (NCHS) and the long-running National Health and Nutrition Examination Survey (NHANES), are critical for assessing and understanding the dietary patterns, health statistics, and epidemiologic trends of representative samples of the U.S. population. However, the most recently available results from national health surveys are typically two to three years old, at best, due to the time needed for data collection, analysis, and interpretation. Consumer research fills an important gap by providing current assessments of attitudes, eating patterns, and health behaviors, while complementing the research performed by the aforementioned institutions. The IFIC Foundation has conducted its annual Food & Health Survey since 2006, yielding relevant, applicable information on public perceptions and purchasing drivers of nationally representative samples of the U.S. adult population.

The longest-running question in the annual Food & Health Survey has been, “What source of calories is the most likely to cause weight gain?” In 2011, “sugars” was added as a response option to this question, and since that time consumers have increasingly shifted blame to sugars as the primary culprit for weight gain, reaching a new high of 33% of responses in 2018. One in four respondents placed the blame on carbohydrates in general—a statistically significant increase of 5 percentage points since 2017 (10). The shifting trend in consumer opinion surrounding sugars and carbohydrates is consistent with prevalent media headlines alleging their role in obesity and other chronic health conditions. Interestingly, the proportion of individuals responding that “all calorie sources contribute equally” to weight gain (i.e., a calorie is a calorie, no matter what the source) has steadily declined, along with the number of people who responded that they are “not sure” (10).

With amplified attention on carbohydrates, primarily sugars, one could assume that measurable concern over their consumption would have increased significantly in the last 10 years. From 2006 to 2015, the data demonstrate that consumer concerns over

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types and amounts of carbohydrates remained relatively stable (47 and 51% in 2006 versus 51 and 52% in 2015, respectively), while concerns regarding sugars grew (53 and 63% in 2006 versus 64 and 71% in 2015, respectively) (4,8). The Food & Health Survey also measures intent to consume or avoid certain carbohydrates. From 2012 to 2016, the percentage of respondents stating that they were attempting to consume whole grains, both complex and refined carbohydrates, sugars in general, and high-fructose corn syrup stayed relatively constant. This was also true for respondents stating they were attempting to consume and avoid fiber, as well as those trying to avoid sugars in general. Trends toward avoiding whole grains, both complex and refined carbohydrates, and high-fructose corn syrup showed more movement (Table I) (6–9).

It is important to understand whether these stated concerns and attempts to consume or avoid dietary components translate into modification of eating patterns. Consumer research coupled with epidemiologic data suggests a branch point between carbohydrates and sugars in this respect. 2013–2014 NHANES data for adults show that carbohydrate intake has consistently accounted for approximately 50% of total calories consumed in both men and women (12). Trends for absolute intakes of specific sources of carbohydrates, however, have increased (whole grains), declined (vegetables, refined grains, added sugars), and remained stable (fruits) (13). On the other hand, consumption of added sugars as a percentage of total calories has decreased over the past two decades, although mean energy intake from added sugars still remains above national targets (1).

### Is Everybody on a Low-Carbohydrate Diet?

Although dietary intake data collected by federal agencies do not show a reduction in total carbohydrate consumption, many popular diets have gained notoriety for their promotion of the benefits of severely restricting carbohydrate intake. Paleolithic and ketogenic diets are perhaps the most topical low-carbohydrate diets in 2018, although Google Trends data demonstrate that searches for “low-carbohydrate diet” in general have increased by 50% over the past two years (3). It is difficult to say

what impact these popular diets will have on population-wide trends in carbohydrate and sugar intakes (as well as downstream effects on health outcomes), especially since personal definitions of low-carbohydrate diets are highly variable and difficult to quantify, both in terms of adherence and total intake. One in three respondents in the 2018 Food & Health Survey reported following a specific eating pattern in the past year. However, only 16% of these individuals followed a low-carbohydrate diet (defined as a paleo, low-carbohydrate, ketogenic, or high-protein diet), amounting to 5.7% of the total survey population (10). This suggests that while it may appear that a large proportion of the population is following some kind of low-carbohydrate diet, in reality far fewer people are actually making this commitment.

As the food industry, nutrition and health professionals, and food scientists grapple with the consequences of trends surrounding carbohydrate intake, it must also be acknowledged that American diets have historically been deficient in many food groups and nutrients that are known to be beneficial to health. Consumption of whole grains, fruits, and vegetables is well below recommendations in the United States and has been so for decades (13). Many of these high-carbohydrate foods are rich in other essential nutrients, such as calcium, potassium, iron, vitamin C, B vitamins, and fat-soluble vitamins. They also provide key carbohydrate components such as dietary fiber. As a result, their avoidance has major implications for the healthfulness of a diet.

### Where Do We Go from Here? Educational Opportunities Abound

With the barrage of information faced by consumers every day, it is not surprising that confusion surrounding food and nutrition seems to continually increase. It is not possible to compare the most recent iterations of perception surveys like the Food & Health Survey with epidemiologic research from the same time frame because these data are still years from being made public. However, a key value of current consumer data is the ability to quickly identify gaps in public knowledge and behavior. Providing a deeper understanding of these gaps can inform novel edu-

**Table I. Responses to International Food Information Council (IFIC) Foundation Food & Health Survey question: “To what extent do you try to consume or avoid the following?”**

Response Food Category	2012 (%) (N = 1,057)	2013 <sup>a</sup> (%) (N = 1,006)	2014 (%) (N = 1,005)	2015 (%) (N = 1,007)	2016 (%) (N = 1,003)
Try to limit or entirely avoid					
Complex carbohydrates	11	13	16	21 <sup>b</sup>	NA <sup>c</sup>
Refined carbohydrates	19	20	24 <sup>b</sup>	26	NA
Fiber	1	2	2	4 <sup>b</sup>	4
Whole grains	3	2	4 <sup>b</sup>	5	7 <sup>b</sup>
Sugars in general	51	58	50 <sup>d</sup>	55	52
High-fructose corn syrup	44	51	48	48	53 <sup>b</sup>
Try to get as much as I can or at least a certain amount of					
Complex carbohydrates	11	12	10	9	NA
Refined carbohydrates	3	3	3	4	NA
Fiber	56	62	53 <sup>d</sup>	55	60 <sup>b</sup>
Whole grains	57	62	53 <sup>d</sup>	56	59
Sugars in general	4	4	5	6	4 <sup>d</sup>
High-fructose corn syrup	1	1	1	3 <sup>b</sup>	1 <sup>d</sup>

<sup>a</sup> Statistical analysis comparing 2013 with 2012 data was not conducted due to a change in survey administrator.

<sup>b</sup> Statistically significant increase versus previous year ( $P = 0.05$ ).

<sup>c</sup> NA = not applicable; question sets about complex and refined carbohydrates were not asked in the 2016 survey.

<sup>d</sup> Statistically significant decrease versus previous year ( $P = 0.05$ ).

cational campaigns designed to improve public health. The inconsistencies in intentions, concerns, and actions surrounding carbohydrates and added sugars illustrate that there is a critical need for improved consumer education. Innovative strategies need to be developed to inform the public using evidence-based research with scientifically sound conclusions. Social media influencers and advertisers are increasingly able to reach consumers and impact their perceptions with messaging that may not be backed by credible science. It is critical that researchers, health professionals, and science communicators break through this media noise.

The newly updated Nutrition Facts label offers a significant opportunity for educating and engaging with the public. Perhaps the most definitive change to the new label is the addition of specific labeling of added sugars. The intent of the added information is to increase consumer awareness of the amount of added sugars in foods, thus aiding Americans in continuing to reduce intake of added sugars and meet the recommendations in the U.S. Department of Agriculture *Dietary Guidelines for Americans* (14). Separate consumer research projects conducted by both the IFIC Foundation and the U.S. Food and Drug Administration have highlighted the need for improving consumer knowledge and translation of the Nutrition Facts label (11,15). If conducted effectively, outreach efforts could have lasting impacts on public understanding and decision-making concerning intake of carbohydrates and sugars, as well as other important food groups and nutrients. When opportunities like this arise, it is vital that unified, consistent, and fact-based messaging extend across all food and nutrition stakeholders in order to build trust and improve public health and well-being.

#### Conflicts of Interest

A. Dostal Webster and K. Sollid are staff members of the International Food Information Council (IFIC) and IFIC Foundation, which are primarily supported by the broad-based food, beverage, and agricultural industries. The IFIC Foundation, a 501(c)(3) nonprofit, nonpartisan, public educational foundation, commissions and funds the annual Food & Health Survey.

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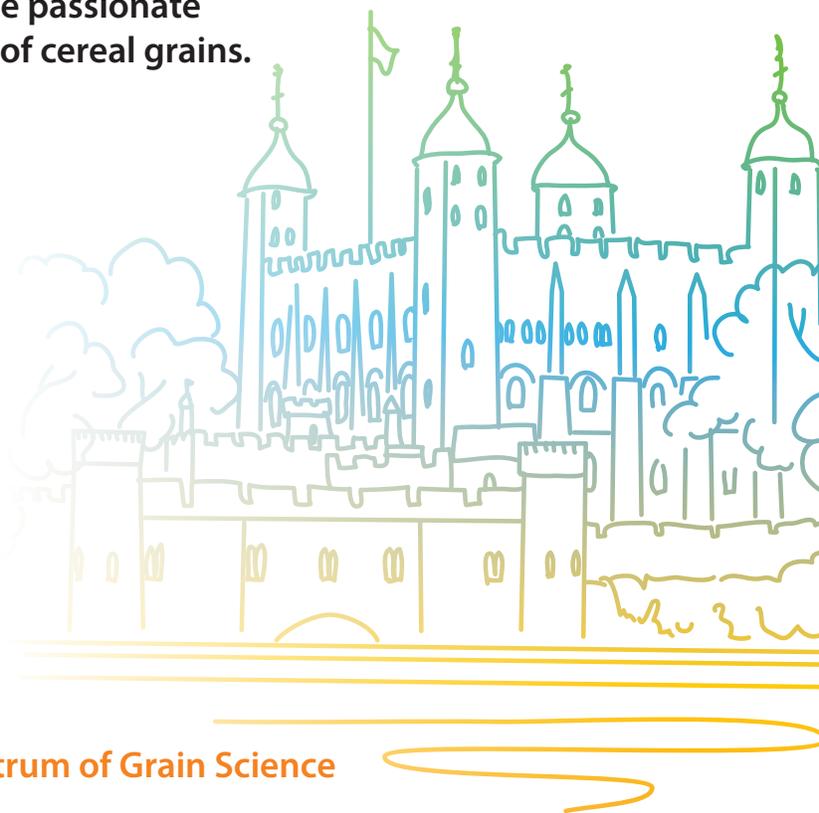
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