

Confused about carbs? This might help

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If you get cross-eyed thinking about carbohydrates, that's understandable.

They can be, quite literally, both simple and complex. They abound in snacks that nobody would call healthy but also appear in foods considered essential to good health.

"It gets a little confusing," said Andrew Odegaard, associate professor of epidemiology and biostatistics at the University of California, Irvine. Even experts disagree on some aspects of how carbohydrates function.

To understand how carbs work in your diet, it helps to know a few details.

"When people think of carbohydrates, what they're thinking of can vary a lot," said Odegaard, whose work has included studies on diet, diabetes and heart disease. But from the most basic perspective, a carbohydrate is a molecule made up of carbon, hydrogen and oxygen. When digested, carbs are converted into blood glucose, or sugar, which provide fuel for cells throughout the body.

"For most people, it's the fundamental source of energy in their diet," Odegaard said.

Carbohydrates often have been classified as either "simple"—also known as "refined"—or "complex" based on how quickly the body turns them into blood glucose.

Dietary sugars, such as glucose and fructose, are simple carbs that when broken down can be a fast source of energy. Highly processed foods such as cake, candy and sugary sodas are full of simple carbs.

Christopher Gardner, the Rehnborg Farquhar Professor of Medicine at Stanford University in California, noted that Americans get more than 40% of their calories from simple, low-quality carbs.

Complex carbs include starches, which are molecular chains of simple

sugars. They have to be broken apart before the body can use them, making them a steady, longer-lasting supply of energy. Peas, beans, [whole grains](#) and vegetables are sources of complex carbs.

Fiber is also a complex carb. Your body can't break it down, meaning it passes through the digestive system without causing spikes in blood glucose. It provides abundant health benefits along the way.

Excess blood glucose gets converted into triglycerides, a form of fat that can cause buildups within artery walls, increasing the risk of heart attack and stroke.

Odegaard said it's not necessarily the quantity of carbs in your diet that's most important; it's their quality.

Where you get your carbs matters. Yes, that doughnut and your caramel-flavored coffee drink are full of them. But fruits and vegetables also contain carbs. The difference is: Fruits and vegetables are also full of many nutritious things that are not carbs—and are considered essential to a heart-healthy diet.

This is why putting carbs into context matters. A candy bar and a banana might have similar amounts of carbs. But that banana comes with nutrients such as potassium, magnesium and [dietary fiber](#) without the [added sugar](#). By weight, you can also eat about twice as much banana as candy bar for the same amount of carbs.

Although carb talk often has focused on simple versus complex, Odegaard said many nutrition experts now emphasize the role of processing. Some even blame carbohydrates from highly processed foods for obesity, although others say it's not that simple.

But the basic premise of why processing matters is easy to grasp, he said.

If you eat an apple, you'll get carbs, but also fiber, vitamins and minerals. If that apple is turned into apple sauce, the processing might add sugar while taking out some nutrients and much of the fiber, and your body will process it into blood glucose more quickly. Process it further into apple juice, and you'll have no fiber and an even faster bump to your blood glucose, because nothing is slowing down its digestion or absorption.

"It's the same thing with oranges and orange juice," Odegaard said. And with grains.

Whole-grain foods—such as brown rice, oatmeal and some popcorn—are considered heart-healthy. When grains are milled, as with [white rice](#) or white breads, it strips out healthy fiber and other nutrients. One cup of cooked instant white rice, for example, has 44 grams of carbs but only about 1 gram of fiber. A cup of cooked brown rice has about 52 grams of carbs but more than 3 grams of fiber.

Odegaard does not think carbs are inherently villains. After all, he said, "as a species, we've evolved the ability to have our bodies metabolize what we eat and turn it into the fuel that our body needs to function," and carbohydrates are the primary way of doing that.

But the popularity of low-carb diets has demonized carbs for some people.

If you aren't eating enough carbs, your body can make blood sugar from stored fat through a process called ketosis. "Keto" diets seek to trigger fat-burning by restricting intake of not only added sugars and alcohol but also grains, fruits and legumes (such as beans and peas).

Odegaard said that discussing the value of such low-carb diets is tricky because there is no standard definition for them. "There's still lots of

questions to be answered," he said. But in April, an American Heart Association scientific statement evaluated 10 popular dietary patterns and ranked the "very low carbohydrate" category as the least aligned with AHA guidance for heart-healthy eating.

"Most evidence—the vast majority of evidence" points to consuming foods such as beans, fruits, vegetables and whole grains "as something that's probably pretty good for you," Odegaard said.

Federal dietary guidelines suggest that in a healthy adult dietary pattern, 45% to 65% of calories should come from carbohydrates.

The parameters are different for people with Type 2 diabetes, which Odegaard described as "a disease of carbohydrate metabolism."

In a healthy person, when [blood glucose](#) levels rise, the pancreas releases insulin to help cells absorb the sugar. With Type 2 diabetes, the body either can't make enough insulin or can't properly use what it makes. So, balancing carbs with activity can be an important part of life with diabetes.

A study published in 2019 in the *Journal of the American Heart Association* showed that while Mediterranean-style and other diets that emphasize fruits, vegetables, nuts and legumes lowered the risk of [heart disease](#) in older women with diabetes, "paleo"-style diets that reduced carbs by restricting grains, legumes and dairy did not.

"In people with Type 2 diabetes, the proportion of your overall dietary pattern that's carbohydrates is something you may need to pay attention to," said Odegaard, a senior author of that study. "But that's something for someone to discuss with their care provider team and figure out what works for them."

Overall, Odegaard said, the root of carb confusion is the desire for people to find "one single thing" that they can avoid in order to have a healthy diet. With carbs, he said, that can be short-sighted.

Which is why Odegaard encourages people to think about where their carbs come from more than how many they consume. "I think it's just a matter of what you emphasize within a very broad range of carbohydrate-based foods," he said. Whole grains, legumes and fresh or frozen whole fruits and vegetables are great even though they have carbs. Carb-heavy cakes, cookies and sodas can be occasional treats, at most.

Gardner, who is also a nutrition scientist at the Stanford Prevention Research Center, said the goal should be to "get rid of as many of those low-quality/simple carbs as possible." Replace some of them with healthy carbs and others with sources of high-quality unsaturated fat, such as nuts, seeds, fatty fish, avocados and olive oil.

People can adapt to what optimizes their health and what's enjoyable, Odegaard said. "You can have a very healthful diet with a large proportion of your energy intake via carbohydrates, and you can have relatively healthful diet with lower carbohydrate intake."

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