

# solving the carb puzzle



This quick guide to carbohydrate will help you piece together a healthy eating plan.

BY **Hope S. Warshaw, R.D., CDE** PHOTOS BY **Scott Little**

**A**long with the diagnosis of diabetes comes a new vocabulary. “Carbohydrate” is one of the most frequently used—and misunderstood—terms. “Confusion about carbohydrate still reigns,” says Johanna Burani, R.D., CDE, author of *Good Carbs, Bad Carbs: Lose Weight and Enjoy Optimum Health by Eating the Right Carbs* (Da Capo Press, 2004). “People I counsel are surprised to learn milk, yogurt, and fruits contain carbohydrate and are convinced that pasta, bread, and ice cream ‘turn to sugar’ and shouldn’t ever pass their lips again.”

Yet experts say that foods with carbohydrate are essential for good diabetes nutrition. Come along as we unscramble the carb puzzle.

## What’s carb counting?

Carb counting is a method of diabetes meal planning. It doesn’t prescribe a certain amount of carbohydrate but is a way to include healthful foods, plan meals that contain sufficient carbohydrate to fuel your body, and fit in a wide variety of foods you enjoy while you control blood glucose levels.

The carbohydrate in foods is the nutrient with the most impact on blood glucose, especially shortly after you eat. A key ingredient in achieving blood glucose control is having adequate insulin. The balance between the carbohydrate you eat and the available insulin—made by your body or that you take as medication—most impacts blood glucose levels and diabetes control.

Carb counting gained support in the United States when it was used successfully in the Diabetes Control and Complications Trial in the 1980s, says Karen Bolderman, R.D., CDE, PWD type 1, coauthor of *Practical Carbohydrate Counting: A How-to-Teach Guide for Health Professionals*, second edition (American Diabetes Association, 2008).

## Basic carb counting

“Most people with type 2 diabetes who don’t take insulin can use what dietitians call basic carb counting,” Bolderman says. “You learn the foods that contain carbohydrate and how much carb to eat each day.” You want to eat enough carbohydrate to fuel your body and provide it with needed nutrients.

## Advanced counting

“Advanced carb counting helps people who take insulin several times a day (with multiple daily injections or a pump) learn to adjust

# Foods that contain carbs

This display shows more of some healthful carbohydrate sources—fruit, vegetables, whole grains, low-fat dairy, and legumes—and less of the refined carb sources everyone should eat in moderation—sweets, desserts, and drinks with added sugar.

**Starches:** Pasta, cereal, oats, bread, rice, bagels, crackers, whole grains

**Candy/sweets:** gumdrops, chocolate, regular soda

**Fruits**

**Legumes:** beans

**Nonstarchy vegetables:** broccoli, green beans, spinach, lettuce, sweet and hot peppers, tomatoes

**Desserts:** ice cream, cake, pie, cookies

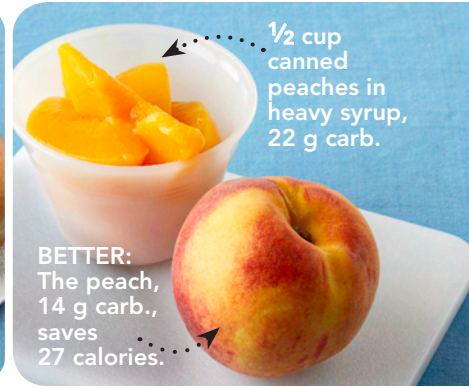
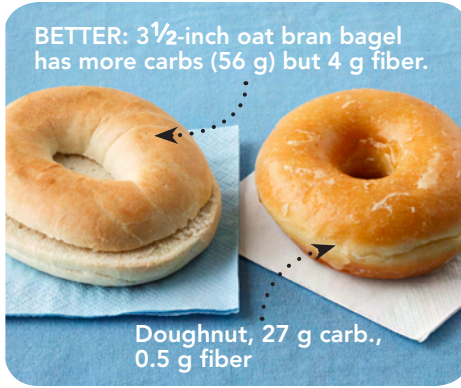
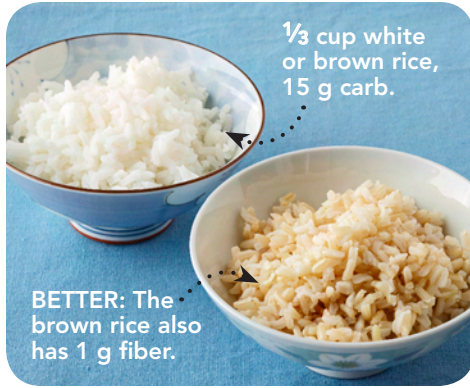
**Dairy:** milk, yogurt, cottage cheese

**Starchy vegetables:** potatoes, corn, peas

**Fruit juices**



Carb-containing foods in similar serving sizes may surprise you with their carb grams and nutrition counts:



their premeal rapid-acting insulin dose based on their blood glucose level and amount of carb they're going to eat," Bolderman says.

**What foods have carbohydrate?**  
Think of foods as packages of various nutrients. "No one food has all the nutrients your body needs, which is why eating a variety of foods helps you meet your nutrition

needs," Burani says. The three main nutrients are carbohydrate, fat, and protein. Most of the calories in the foods shown, *opposite*, are from carbohydrate. Some of these foods contain good or healthful carbs, and others less-healthful carbs.

**What makes a healthful carb?**  
Carb-containing foods rich in vitamins, minerals, and fiber—foods that help you avoid empty calories from added sugars—are the good guys. Similar-size servings of related foods may surprise you nutritionwise (see above).  
For example,  $\frac{1}{2}$  cup of orange juice with pulp (fiber) and enhanced with calcium offers more nutrition than  $\frac{1}{2}$  cup of orange drink, which gets most of its calories from corn syrup. Swapping healthful carbs for less-healthful carbs is smart eating.

How much carb to eat?

The following starting points for daily carb grams or choices and how to divide them among meals can work for many people with diabetes. Don't limit carbohydrate to control blood glucose—low-carb eating often leads to eating too much heart-harming fat and may not necessarily improve blood glucose or weight control over time.

Body size/ gender	Carb grams/day	Carb grams/meal	Carb choices*/day	Carb choices*/meal
Smaller woman	135	45	9	3
Larger woman	180	60	12	4
Smaller man	180	60	12	4
Larger man	225	75	15	5

\*1 carb choice = 15 grams of carbohydrate

Carb-counting tips

- Tried-and-true suggestions:**
- Check the carb count on the nutrition facts label** against the serving size. Is this the amount you eat? "When I began to focus on portion control, I realized my portions were huge." —*Kelly Cupp, 44, PWD type 2, who has lost 50 pounds*
  - Visualize, visualize, visualize.** "At home, weigh and measure the common items you eat—potatoes, rice, dry or cooked cereal. Then you'll better recognize the right portions at home and when you eat out." —*Karen Bolderman, R.D., CDE, PWD type 1*
  - Be predictable and buy the same products—at least at first.** You'll learn their carb counts and the ways they affect your blood glucose. —*Joan Wilson, 66, PWD type 2*

**Account for the sauce.** Add 5–10 grams of carbohydrate for Asian dishes, thick sauces, and gravies. They likely have cornstarch or other sources of carbohydrate.

**Estimate mixed dishes.** Count 30 grams of carbohydrate for 1 cup of a starch- or starch-and-veggie-base casserole or hearty soup, such as chili with beans. —*Marion Franz, R.D., CDE*



## A sampling of healthful carbs

Sources such as these have fiber, vitamins, and minerals; little (or no) added sugar.



### Portions matter

Each of these dinner plates looks satisfying, yet they have different carb counts. The weight of the sweet potato, type of roll, and amount of dried cranberries on the spinach salad contribute to the carb count. Tip: Weigh and measure foods often at first to become a carb-estimating pro. With experience, you'll get better at eyeballing amounts.

75 g carb.

60 g carb.

45 g carb.



## Carbohydrate Q & A

**Q:** If foods that contain carbohydrate raise blood glucose, why should I eat them?

**A:** Foods that contain carbohydrate (see list on page 66) provide essential calories (energy), vitamins, and minerals important for both short- and long-term health. These foods are your main sources of dietary fiber—a weight-control, hunger-dampening, and blood glucose-friendly nutrient most Americans lack. Even more important, “research studies show that when people with diabetes cut back on carbohydrate, they eat more fat, often the unhealthy saturated fat, which has been shown to contribute to insulin resistance and less-well-controlled diabetes,” says Marion Franz, R.D., CDE, a nutrition and diabetes consultant from Minneapolis. Weight loss studies also discount low-carb diets (under 135 grams of carbohydrate daily). The food plan shown to truly work for weight control is eating less fat and getting about half of your total daily calories from carbohydrate.

**Q:** Can following a low-carb diet control my blood glucose and prevent me from needing blood glucose-lowering medications?

**A:** Doubtful, simply due to the natural progression of both pre-diabetes and type 2 diabetes. By the time most people are diagnosed with type 2, they’ve been losing insulin production progressively for five to 10 years and less than half

of their insulin-producing cells are working. Eating fewer carbs does nothing to halt this process, and eventually blood glucose-lowering medications are required. In fact, the American Diabetes Association (ADA) now recommends that people diagnosed with type 2 diabetes begin taking medication right away. To avoid complications, immediate and continued control of blood glucose levels is key.

**Q:** How much carbohydrate do you need to get your essential vitamins, minerals, and fiber?

**A:** Both the ADA and the U.S. Dietary Guidelines suggest you eat 45–65 percent of your calories from carbohydrate sources. (Most Americans eat about 50 percent, but too much of that comes from refined, low-fiber, and added-sugar foods.) If you eat less carbohydrate, especially if you eat fewer than 1,500 calories daily, you won’t get the nutrients you need.

Johanna Burani, R.D., CDE,

encourages people to eat unrefined, nutrient-rich foods containing carbohydrate—whole grain, unprocessed, and fiber-filled foods—rather than refined starches and sugar-added foods and drinks, which contain few nutrients and lots of calories.

**Q:** Should I count carb grams or carb choices?

**A:** They’re essentially the same. The concept of carb choices morphed from the diabetes exchange system, which recommends a balanced eating plan using all food groups. In that system, one serving of starch, fruit, or milk is, on average, 15 grams of carbohydrate. Most people, however, read food labels and use nutrient databases (see “Carb-Counting Resources,” page 70) to count carb grams. Counting grams is more accurate—particularly important if you’re determining doses of rapid-acting insulin.

### The nutrient debate

Research on low-carb diets has revealed no benefits for controlling weight, blood lipids, or blood glucose, especially when followed for longer than six months. Still, there’s much debate about carbohydrate’s role in diabetes eating plans.

**The bottom line:** “Research and recommendations from respected health authorities, such as the American Diabetes Association, reinforce the importance of zeroing in on an amount of carbohydrate that is healthy and meshes well with your food preferences and eating style for the long haul,” says Marion Franz, R.D., CDE, a *Diabetic Living* advisory board member. It’s difficult to stick with restricted food choices and that’s likely to make control inconsistent.



# Carb-counting resources

Your best carb-count source depends on how and where you eat. If you're like Joan Wilson, 66, PWD type 2, who rarely dines out, general counts of your favorite 100 or so foods may suffice. If you're like Rainey Edwards, 27, PWD type 1, who enjoys restaurant foods, you'll need a deeper database:

## Books

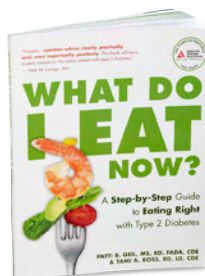
Popular dining chains:  
*Guide to Healthy Restaurant Eating*, fourth edition  
(American Diabetes Association, 2009) by Hope S. Warshaw, R.D., CDE



Branded products and general counts:  
*The CalorieKing Calorie, Fat & Carbohydrate Counter* (Family Health Publications, 2010)



Helpful eating plan overview: *What Do I Eat Now?* (American Diabetes Association, 2009) by Patti Geil, R.D., CDE, and Tami Ross, R.D., CDE



## Nutrition facts labels

The most accurate information is at your fingertips—and it's free. Read the food package for the total carbohydrate grams (grams of sugars are already factored into the grams of carbohydrate). **Tip:** When comparing the nutrition facts labels of two food products with similar calories, fat, sodium, and carbohydrate per serving, opt for the food with more fiber.



## Online sources

- Search the U.S. Department of Agriculture's nutrient database of 8,000 foods: [nal.usda.gov/fnic/foodcomp/search](http://nal.usda.gov/fnic/foodcomp/search)
- Enter one day's worth of food and analyze it for diet quality, plus find links to nutrient information: [www.mypyramidtracker.gov](http://www.mypyramidtracker.gov)
- Search a database of more than 50,000 foods: [calorieking.com/foods](http://calorieking.com/foods)
- Find more-healthy substitutes for favorite foods in the 5,000-food database from the American Diabetes Association: [diabetes.org/myfoodadvisor](http://diabetes.org/myfoodadvisor)
- See which restaurants offer better-for-you menu items: [healthydiningfinder.com](http://healthydiningfinder.com)



## On-the-go applications

- Track3 is a diabetes-focused, 50,000-food database on a handheld device (\$80): **track3DMD.com**; buy at **dmd.coheso.com**
- Food & Fitness Tracker iPhone food, calorie, and exercise tracker (free): **sparkpeople.com**; download at **itunes.com**
- Lose It! iPhone weight loss application (free): **fitnow.com**; download at **itunes.com**
- Tap & Track iPhone calorie, weight, and exercise tracker (\$2.99): **nanobitsoftware.com**; buy at **itunes.com**

*Diabetes helpers: food databases and trackers for your cell phone.*



We've translated carb counts into balanced menu plans. See 19 dinner menus at **DiabeticLivingOnline.com/menus**

With practice, carb counting is a skill you can master.

