

Basic Carbohydrate Counting

Information for Patients

Carbohydrates (car-bow-HIGH-drates) are nutrients that provide energy to the body. They are an important part of a healthy meal plan. Carbohydrates turn into glucose (sugar) after digestion. Because you have diabetes, you should have a regular moderate amount of carbohydrates at each meal, rather than avoiding them completely. Eating the right amount of carbohydrates at each meal will help your blood glucose (blood sugar) stay in a healthy range.

Eating too many carbohydrates may raise your blood glucose too high. Eating too much of any food, including

carbohydrates, can cause weight gain. This handout provides basic guidelines for counting and limiting the amount of carbohydrates in your diet. In general, these foods contain carbohydrates:

- starchy vegetables: potatoes, sweet potatoes, yams, dried beans, corn, and peas
- fruits: fresh, frozen, canned, and juice
- all breads, cereals, pasta, rice, and crackers
- milk and yogurt
- many desserts and sweets
- many snack foods

Food choices equaling one carbohydrate choice			
Starch	Fruit	Milk	Other Carbohydrates
1 slice bread	apple or orange the size of a tennis ball	1 cup (8 ounces) skim milk	2-inch unfrosted cake
2 slices light bread	17 grapes	6 ounces light yogurt	1/2 cup spaghetti sauce
1/3 cup pasta or rice (cooked)	1/3 melon	1 cup (8 ounces) soy milk	1/2 cup regular, light, or no-sugar-added ice cream
3/4 cup unsweetened cereal	1/2 grapefruit		1/2 cup sugar-free pudding
1/2 cup corn	1 small or 1/2 medium banana		3 gingersnap cookies
1/4 large or 1 small (3 ounces) baked potato	2 tablespoons raisins		5 vanilla wafers
3 cups popcorn	1/2 cup orange juice		8 animal crackers
6 saltine crackers	1/3 cup grape juice		3 graham cracker squares

**Meat, meat substitutes,
and protein**

Meat and foods high in protein do not raise your blood glucose if you do not eat too much. But meats high in fat can raise cholesterol levels and cause weight gain. It is important to make healthy food choices, so choose lean meats such as:

- fish
- skinless chicken
- turkey
- reduced-fat peanut butter
- low-fat cheese

Limit high-fat protein sources, including highly marbled beef, regular cheese, hot dogs, and processed lunchmeats (such as bologna and salami).

Rather than frying, prepare foods by baking, broiling, grilling, or steaming.

Fat

Fat does not raise your blood glucose. However, like meat and protein, fats can contribute to heart disease and weight gain. It is important that you limit the type and amount of fat you use.

- Use less regular salad dressing, mayonnaise, cream cheese, sour cream, gravy, and nuts.
- Choose reduced-fat products instead, and limit the size of your portions.
- Olive and canola oils are healthier fats for your heart. Once again, limit your portions.

Free foods you may enjoy

Non-starchy vegetables contain small amounts of carbohydrates. Try to eat at least 2 to 3 servings (1/2 cup cooked or 1 cup raw) with each meal. These foods are good for you because they are high in fiber and low in calories and carbohydrates:

- artichokes
- asparagus
- bean sprouts
- beans (green, wax, Italian)
- beets
- broccoli
- cabbage
- carrots
- cauliflower
- celery
- cucumbers
- mushrooms
- okra
- peppers
- salad greens (endive, lettuce, romaine, spinach)
- tomato
- zucchini

You can eat unlimited amounts of food and drinks that have zero carbohydrates and zero calories. These include water, diet drinks, and sugar-free gelatin.

You may eat food and drinks that have 5 grams or less of total carbohydrates per serving. You should limit yourself to 2 to 3 servings throughout the day.

(For information, read the section in this handout called, “Understanding food labels.”)

Sugar-free sweets are NOT free foods; they still may contain carbohydrates. Be careful not to eat too much sugar-free candy. For example, if 1 piece of sugar-free hard candy contains 5 grams of total carbohydrates and you eat 3 pieces at a time, you ate 15 grams of total carbohydrates.

Eat regular meals

Because you have diabetes, you should eat the same moderate amount of total carbohydrates at the same times every day. Be consistent with carbohydrate intake, and eat about the same number of carbohydrates at each meal. Follow a schedule and space meals about 4 to 5 hours apart.

Low carbohydrate products

Labels on many supermarket foods read “low carbohydrate.” Before you buy a low-carbohydrate food, be sure to look at the nutrition label.

Some low-carbohydrate products may have more calories and fat than the regular products. If so, they may not be good choices for your meal plan. Remember, there are no government guidelines for low-carbohydrate and net-carbohydrate products.

In addition, sugar alcohols are often found in low-carbohydrate foods. They can affect blood glucose. They also may have a laxative effect and cause bloating, gas, and diarrhea in some individuals.

Understanding food labels

In general, 1 carbohydrate choice (starch, fruit, milk, or other carbohydrate) equals about 15 grams of total carbohydrate per serving.

Examples include:

- 1 slice bread = 15 grams total carbohydrates = 1 carbohydrate choice
- 1 small apple = 15 grams total carbohydrates = 1 carbohydrate choice
- 1 cup milk = 12 grams total carbohydrates = 1 carbohydrate choice

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Review this sample nutrition label to help you understand more about counting carbohydrates.

Start with serving size. How many servings will you eat? Note the number of servings in the package. The nutrients in the list are based on the serving size listed here.

The total fat, saturated fat, and trans fat content are important. Try to keep these low.

Look at the total carbohydrate number. It is important because it includes all sources of carbohydrates. Dietary fiber, sugar, and sugar alcohols are indented under the total carbohydrate count because they are part of the carbohydrate amount. The total carbohydrate content is based on the serving size listed above. If you eat 2 servings, you must double the number of carbohydrates.

Look for a food product with more than 5 grams of fiber. Try to choose foods in which most of the total carbohydrates come from dietary fiber, not sugar.

Nutrition Facts	
Serving Size: 1 Cup (52g/1.8 ounces)	
Servings Per Container: about 8	
Amount Per Serving	
Calories 140	Calories from fat 10
% Daily Value	
Total Fat 1g	2%
Saturated Fat 0g	0%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 85mg	4%
Potassium 480mg	14%
Total Carbohydrate 20g	7%
Dietary Fiber 6g	24%
Sugars 6g	
Sugar Alcohols 8g	
Protein 13g	14%
Vitamin A	0%
Vitamin C	0%
Calcium	6%
Iron	10%
Phosphorus	20%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Calories	2,000 2,500
Total Fat less than	65g 80g
Sat. Fat less than	20g 25g
Cholesterol less than	300mg 300mg
Sodium less than	2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9	Carbohydrate 4 Protein 4

Conversion guide

Not all food products will be a perfect 15 grams of total carbohydrates. Use this conversion chart to translate your nutrition label. Be sure to check the serving size. Example: 5 large pretzels contain 26 grams of total carbohydrates, which equal 2 carbohydrate choices.

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Carbohydrate Conversion Chart

Total Carbohydrate Grams	Carbohydrate Choices
0-5	0
6-10	1/2
11-20	1
21-25	1 1/2
26-35	2
36-40	2 1/2
41-50	3
51-55	3 1/2
56-65	4
66-70	4 1/2
71-80	5
81-85	5 1/2
86-95	6

Sample carbohydrate counting menu follows.

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Sample carbohydrate counting menu

Breakfast	1 cup oatmeal	27 grams total carbohydrates = 2 carbohydrate choices
	1 cup skim milk	12 grams total carbohydrates = 1 carbohydrate choice
	$\frac{3}{4}$ cup blueberries	15 grams total carbohydrates = 1 carbohydrate choice
		TOTAL: 4 carbohydrate choices
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Lunch	1 small apple	15 grams total carbohydrates = 1 carbohydrate choice
	6 ounces light yogurt	20 grams total carbohydrates = 1 carbohydrate choice
	2 slices whole wheat bread	30 grams total carbohydrates = 2 carbohydrate choices
	2 ounces lean turkey and 1 slice low-fat cheese	
	Salad with greens, cucumbers, tomatoes, radishes, and 2 teaspoons of oil and vinegar	
	Sugar-free gelatin and sugar-free lemonade	TOTAL: 4 carbohydrate choices
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Dinner	$\frac{2}{3}$ cup brown rice or whole- wheat pasta	30 grams total carbohydrates = 2 carbohydrate choices
	$\frac{1}{2}$ cup light canned peaches with 2 tablespoons light nondairy whipped topping	15 grams total carbohydrates = 1 carbohydrate choice
	1 small whole wheat dinner roll	15 grams total carbohydrates = 1 carbohydrate choice
	4 ounces lean chicken or fish	
	$1\frac{1}{2}$ cups steamed broccoli and cauliflower	TOTAL: 4 carbohydrate choices
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Snack	3 cups low-fat/reduced-fat popcorn	15 grams total carbohydrates = 1 carbohydrate choice TOTAL: 1 carbohydrate choice

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For more advanced levels of carbohydrate counting, talk with a registered dietitian. To find a dietitian in your area, call the UPMC Referral Service at 412-647-UPMC (8762) or 1-800-533-UPMC (8762), then select option 1.

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SYS264150 JPL/JCT ORIG 7/07
Form #9138-82191-0408

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