

## All About Counting Carbohydrates

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### What is “Carbohydrate Counting”?

Carbohydrate counting is a tool to help you manage your blood sugar (also called blood glucose). It allows you to quantify how many grams of carbohydrate you are eating based on your portion. Carbohydrate counting is not a diet; rather, it is a strategy to help you manage your blood sugar while continuing to eat your favorite foods!

### Terms to Know

**Carbohydrate Choice:** A carbohydrate choice (also called an “exchange”) is equal to 15 grams of carbohydrate. This is a standard reference for carbohydrate counting. It does not change. You may need to eat several carbohydrate choices per meal or snack (see portion below).

**Portion:** A portion will vary from person to person, and even meal to meal. For example you may need to eat 3 carbohydrate choices for breakfast, and 1 carbohydrate choice for a snack. If you are eating the same food, then your portion for breakfast will be larger than your portion for snack.

**Meal Plan:** A meal plan is a list of food groups, distributed throughout the day, developed by your registered dietitian/nutritionist (RDN). It will lay out how many carbohydrate choices you should eat per day and per meal/snack.

**Exchange List:** The exchange list is a list of foods and portions that are equal to a standard reference. For example, this will list carbohydrate foods and what portion is equal to 15 grams of carbohydrate. Your RDN may provide this list to you. This allows for flexibility in meal planning.

### Carbohydrates and Blood Sugar

All carbohydrates are converted to sugar (glucose) during digestion. They are absorbed from the intestines into the blood stream, thereby making your blood sugar rise. When you check your blood sugar with your meter, this is what you are measuring. Every cell in the body uses sugar for energy which is why you cannot completely eliminate carbohydrates from your diet. Fluctuations in blood sugar throughout the day is normal and important. However, having your blood sugar go *too high* or *too low* is undesirable and can increase your risk for complications. In order to prevent this, you need to eat the right amount of carbohydrate throughout the day. Your RDN can tell you how much is right for you. Your RDN will use information such as your weight, age, medication type, timing and amount,

activity level, and whether you are taking insulin to determine the ideal amount of carbohydrate at meals and snacks.

## Principles of Carbohydrate Counting

**Consistency.** Consistency refers to eating the same amount of carbohydrate at each meal, day-to-day. This is important if you are taking medication or insulin to manage your diabetes, and can prevent high or low blood sugars.

**Flexibility.** Carbohydrate counting allows for flexibility in eating since it acknowledges that any food can fit. Higher carbohydrate foods will have a smaller portion size, while lower carbohydrate foods can have a relatively larger portion. For those who take insulin, carbohydrate counting can give you better idea of how many grams of carbohydrates are eaten, which therefore allows more accurate insulin dosing. This can reduce the risk of high or low blood sugar and other complications.

## Foods That Contain Carbohydrates

**Grains and Starches.** Starches include bread, rice, pasta, oats, barley, potatoes, quinoa, crackers, tortillas, corn, peas, winter squash, etc. All of your starches are like long chains of sugar molecules. When they are broken down in the stomach, you are left with the simple sugar (glucose) that increases your blood sugar.

**Fruit (fresh or frozen), dried fruit and fruit juices (even 100% fruit juice).** All fruits contain a natural sugar known as fructose. Fructose is converted to glucose during digestion and makes your blood sugar rise.

**Milk and yogurt.** Milk and yogurt contain a natural sugar called lactose. Like fructose, lactose is converted to glucose during digestion and makes your blood sugar rise. Cheese contains very low levels of lactose and therefore does not cause your blood sugar to rise.

**Sweets and desserts.** Any food containing sugar or flour is going to make your blood sugar go up. Sugar has to go through little digestion since it is already in the absorbable form. Therefore, it makes your blood sugar go up very fast (spikes). These should be limited.

**Vegetables.** All vegetables contain carbohydrates, not just the starchy ones such as potatoes and corn. Broccoli, carrots, asparagus, green beans, and other non-starchy vegetables contain a lower amount of carbohydrate due to their high fiber and water content. It would take a lot of vegetables to raise your blood sugar as much as a piece of bread would.

## Determining Carbohydrate Choices

**One carbohydrate choice is equal to 15 grams of carbohydrate.** See table below for common foods and portions providing 1 carbohydrate choice:

Starches	Fruit and Juice	Milk/Yogurt	Sweets/Snacks/Desserts
<ul style="list-style-type: none"> <li>• 1 slice whole wheat OR white bread (1 oz.)</li> <li>• ½ hamburger or hotdog bun</li> <li>• ¼ large bagel</li> <li>• ½ English muffin</li> <li>• ½ cup mashed potatoes or corn</li> <li>• 1/3 cup cooked rice or pasta</li> <li>• ½ small baked potato</li> <li>• ½ cup corn</li> </ul>	<ul style="list-style-type: none"> <li>• 1 small apple or orange (4 oz.)</li> <li>• 2 tangerines</li> <li>• ½ large banana</li> <li>• ¾ cup berries</li> <li>• ½ cup 100% fruit juice (4 fl. oz.)</li> <li>• ½ cup canned fruit, drained</li> <li>• 2 tbsp. raisins</li> </ul>	<ul style="list-style-type: none"> <li>• 1 cup milk (8 fl. Oz.)</li> <li>• 5 oz. plain yogurt (~1/2 cup or 1 individual portion container)</li> <li>• 1 cup unsweetened soy milk</li> </ul>	<ul style="list-style-type: none"> <li>• ¾ oz snack foods (i.e. pretzels, 4-6 crackers)</li> <li>• 8 baked chips (potato, pita)</li> <li>• 1 oz. sweets (2 Oreos, 5 vanilla wafers)</li> <li>• 1 tbsp. sugar, honey, maple syrup or agave nectar</li> <li>• ½ cup regular ice cream</li> </ul>
<p><b>Non-starchy vegetables:</b> ½ cup cooked, canned, or frozen vegetables OR 1 cup of raw or fresh vegetables provides 5 grams of carbohydrate. <i>To reach 1 carbohydrate choice, one would have to eat 1.5 cups cooked OR 3 cups raw vegetables before it would affect blood sugar the same as 1 slice of bread.</i></p>			

## Carbohydrates to Choose and Those to Limit

While it is important to control the *amount* of carbohydrate consumed, it is also necessary to consider the *type* of carbohydrate. Carbohydrates that are higher in fiber are going to have less of an impact on blood sugar than lower fiber foods. Foods high in fiber include:

- 100% whole wheat bread products
- Other whole grains, including oatmeal, brown rice, farro, quinoa, bulgur, whole-wheat pasta, and wheat berries
- Whole fruits and vegetables (fresh or frozen)
- Beans and legumes
- A variety of vegetables, including broccoli, leafy greens, squash, etc. (Most vegetables are going to be a high-fiber choice)

Lower-fiber choices include sweets and desserts, sugar-sweetened drinks (including 100% fruit juice) and refined grain products. Refined grain products include white bread and white rice, crackers, pretzels, “enriched” products, and “wheat” products (those lacking the word “whole”) on the ingredient list.

## Reading Food Labels

Looking at a food label can help you determine how many carbohydrate choices the food contains.

1. **Look at the serving size and servings per container.** This will help you determine how many servings you intend to consume. If you realize you are consuming 2 servings, then you will have to double the amount of nutrients listed on the label.
2. **Locate the “Total Carbohydrate” heading.** This includes the total amount of carbohydrate found in 1 serving of food, including the sugar. You do not need to count the sugar separately.
3. **Look at the amount of carbohydrate, in grams.** Multiply this number by the number of servings eaten to determine how many grams of carbohydrate are in your portion.
4. **Determine carbohydrate choices.** Divide the total amount of carbohydrates eaten by 15 or refer to the chart below. Remember: 15 grams is equal to 1 carbohydrate choice.

<b>Nutrition Facts</b>	
Serving Size 2/3 cup (55g)	
Servings Per Container About 8	
Amount Per Serving	
<b>Calories</b> 230	Calories from Fat 40
% Daily Value*	
<b>Total Fat</b> 8g	<b>12%</b>
Saturated Fat 1g	<b>5%</b>
<i>Trans Fat</i> 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 160mg	<b>7%</b>
<b>Total Carbohydrate</b> 37g	<b>12%</b>
Dietary Fiber 4g	<b>16%</b>
Sugars 1g	
<b>Protein</b> 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily value 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

Carbohydrate Grams per Portion	Corresponding Carbohydrate Choices
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

## How Much to Eat

Your RDN can provide guidance on how many grams of carbohydrate to eat in a day and how to distribute among your meals and snacks. *It is important to have a consistent amount at each meal.*

Therefore, if you plan to have 45 grams at breakfast, you should also have about 45 grams at lunch and dinner. For weight loss, women should generally have 2-3 carbohydrate choices per meal (30-45 grams), while men should have 3-4 carbohydrate choices per meal (45-60 grams). The amount will vary based on height and weight, age, medication, weight goals, and activity level, among other factors.

Your RDN will help you balance your carbohydrate intake throughout the day, while keeping in mind the principles of a healthy diet. These principles include a dietary pattern rich in whole fruits and vegetables, whole-grains, lean proteins such as beans and legumes, nuts, seeds, skinless poultry, and fish, and heart-healthy fats and oils. It is limited in refined carbohydrates and red, processed, and fatty meats and dairy products.

## My Individual Carbohydrate Goals

Meal	Carbohydrate Choices	Grams of Carbohydrate
Breakfast		
Snack		
Lunch		
Snack		
Dinner		
Snack		