

MARCH 2021

DIABETES CLINIC NEWSLETTER

A monthly newsletter by University of Illinois Extension
Serving Livingston, McLean & Woodford Counties



Understanding the Importance of Carbohydrates

What are they and why do they matter?

There are three main types of macronutrients found in food: carbohydrates, protein, and fat. Of these three, carbohydrates are the most influential in the world of diabetes because they affect blood glucose the most. When we consume foods with carbohydrates, our bodies break it down into a form of sugar called glucose. In response to the new glucose in our blood, the pancreas releases insulin to transport the glucose to cells throughout the body, which use it as a form of energy. This process is interrupted in individuals with diabetes, when the body is not able to use insulin properly. This can lead to elevated levels of glucose in the blood.

There are multiple ways to identify what the carbohydrate content will be in different foods and ways to promote diabetic-friendly dietary choices while still incorporating foods that everyone enjoys. Read on to learn about the different types of carbohydrates and how to incorporate them into a healthy diet.



**Illinois
Extension**

Types of Carbohydrates

Carbohydrates can be present in different forms from various food sources.

The three main types of carbohydrate are starch, fiber, and sugar. When looking at nutrition labels for prepackaged foods, the term "total carbohydrate" encompasses all three forms combined. Let's take a look at each type of carbohydrate in more detail:

STARCH

Plant foods contain starch, which are complex carbohydrates. Starches can be found in **whole grains**, which still have the bran and germ attached to the seed, or in **refined grains**, which only contains the soft endosperm. **Enriched grains** are those that were refined to only contain the endosperm, but had nutrients naturally present in whole grains added back into the grain.

Food sources of starch:

- Starchy vegetables such as corn, winter squash, and potatoes
- Legumes like lentils, beans, and peas
- Pasta, bread, crackers, and rice



FIBER

Plant foods such as whole grains, fruits, and vegetables contain fiber, or the indigestible portion of plants. Fiber helps us feel full longer, lower cholesterol, improve digestion, manage blood sugars, and reduce the risk of heart disease. Individuals with diabetes should consume **at least** the same amount of fiber recommended for all Americans, which is 14 grams of fiber per 1,000 calories.

Food sources of fiber:

- Fruits and vegetables
- Lentils, peas, legumes, and beans
- Nuts and seeds
- Whole grains such as quinoa, oats, whole wheat pasta, and some cereals

SUGARS

There are two main types of sugar. **Naturally occurring sugars** are found in milk (lactose) and fruit (fructose). There are also **added sugars**, which are added to foods during processing to enhance flavor, texture, or increase shelf-life. Total sugars and added sugars are both included on nutrition labels.

Sugar alcohols are an alternative to sugar that have half the calories of regular sugar. Sugar alcohols can be differentiated from other sweeteners, since many forms end in "tol" such as sorbitol or xylitol. Products labeled "sugar-free" or "no sugar added" may contain sugar alcohols or **sugar substitutes**, which are zero-calorie sweeteners that are sweeter than sugar, so they can be used in smaller amounts.

Carbohydrate Counting

Carbohydrate counting is a method of meal planning that utilizes "carbohydrate choices," or 15 gram portions of carbohydrates. Foods and drinks, such as sugar-free beverages, with fewer than 20 calories and fewer than 5 grams of carbohydrates are considered "free".



Nutrition Facts	
Serving Size 1 cup (240mL)	
Servings Per Container about 8	
Amount Per Serving	
Calories 150 Calories from Fat 70	
% Daily Value*	
Total Fat 8g	12%
Saturated Fat 5g	25%
Trans Fat 0g	
Polyunsaturated Fat 0g	
Monounsaturated Fat 2g	
Cholesterol 30mg	10%
Sodium 120mg	5%
Potassium 100mg	10%
Total Carbohydrate 12g	4%
Dietary Fiber 0g	0%
Sugars 11g	
Protein 8g	
Vitamin A 4%	Vitamin C 0%
Calcium 30%	Iron 0%
Vitamin D 25%	
*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
Potassium	3,500mg 3,500mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

Looking at this nutrition label, we focus primarily on the serving size and the total carbohydrates for each serving. Since added sugars are included in the total carbohydrate count, we don't have to account for those separately.

Remember that each "carbohydrate choice" is approximately 15 grams.

For this food, since a serving is 1 cup, and each cup has 12 grams of carbohydrate, a 1-cup serving is approximately one carbohydrate choice.

Here are some examples of 15 gram portions of carbohydrate foods:

Grains:

- 1 slice of bread, 1/4 large bagel, 6" tortilla
- 1/3 cup cooked rice or pasta
- 3/4 ounce unsweetened cold cereal
- 3 cups air popped popcorn

Dairy:

- 1 cup milk
- 1 cup low-fat or fat-free yogurt

Fruits:

- 1 small piece fresh fruit
- 1/2 medium fruit such as apple or banana
- 1/2 cup canned fruit in juice
- 1/2 cup fruit juice
- 2 Tablespoons dried fruit

Vegetables and Beans:

- 1/2 cup potato or sweet potato
- 1/2 cup cooked beans or legumes
- 1 1/2 cups cooked vegetables

Sweets and Snacks:

- 15 potato chips
- 1 ounce sweet snack such as vanilla wafers
- 1 Tablespoon sugar or honey
- 1/2 cup regular ice cream

When nutrition labels aren't available for a certain food, you can search nutrition information for foods from sources such as:

- Calorie King (www.calorieking.com)
- USDA National Nutrient Database (www.nal.usda.gov/fnic/foodcomp/search)
- MyFoodAdvisor (tracker.diabetes.org/explore)
- MyFitnessPal phone app
- My Food-a-Pedia phone app

How much do you need each day?

Women:

- Most women need 3-4 carbohydrate choices (45-60 grams) at each meal

Men:

- Most men need 4-5 carbohydrate choices (60-75 grams) at each meal

Source: Academy of Nutrition and Dietetics

Questions?

Contact Jenna Smith, Nutrition & Wellness educator and registered dietitian, at 309-663-8306 or jesmith6@illinois.edu.

The Plate Method

Another way to create meals is through the use of specific portions, which can create a healthy balance of non-starchy vegetables, protein, and carbohydrate without counting carbs. For general reference, use a 9-inch diameter plate.

1. Fill half your plate with non-starchy vegetables

Non-starchy vegetables are lower in carbohydrates so they will not impact blood sugar as much as other foods. They also contribute high levels of vitamins, minerals, and fiber to promote a healthy diet.

Examples of non-starchy vegetables:

- Celery
- Carrots
- Mushrooms
- Green beans
- Broccoli or cauliflower
- Leafy greens such as lettuce, spinach, kale
- Tomatoes

2. Fill one quarter of your plate with lean protein-rich foods

Most animal protein foods contain saturated fat, which can increase the risk of heart disease. Lean proteins have lower amounts of fat and can be a healthier choice. Some plant-based protein foods such as legumes are also high in carbohydrates.

Examples of protein-rich foods:

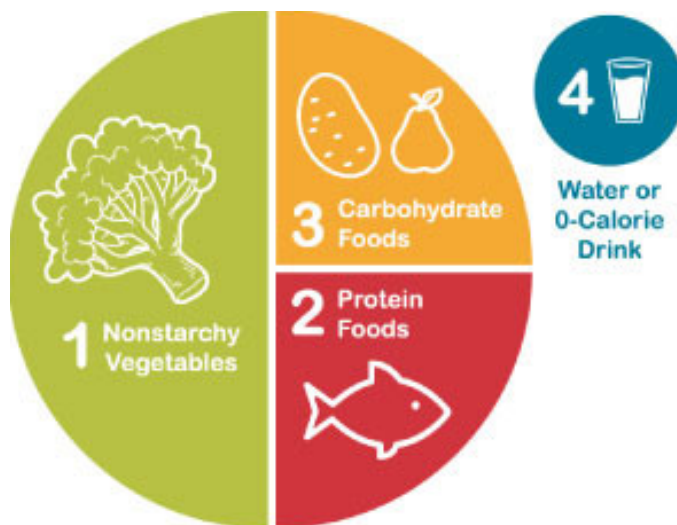
- Poultry and eggs
- Fish and shellfish
- Lean beef and pork
- Cheese
- Beans, lentils, and hummus
- Tofu and tempeh

3. Fill one quarter of your plate with carbohydrates

Foods rich in carbohydrates have the greatest impact on blood sugar and should be limited to one quarter of the plate to prevent blood sugar spikes.

Examples of carbohydrate foods:

- Whole grains such as brown rice, oats, quinoa, bread, and pasta
- Starchy vegetables such as peas, potato, and pumpkin
- Beans and legumes
- Fruit and fruit juice
- Dairy products such as milk and yogurt



Picture sourced from American Diabetes Association
<https://www.diabetesfoodhub.org/articles/what-is-the-diabetes-plate-method.html#:~:text=The%20Diabetes%20Plate%20Method%20is,you%20need%20is%20a%20plate>

4. Choose water or a low-calorie drink

Water is a great choice because it has no calories and no carbohydrates, meaning there is no impact on blood sugar levels.

Other low-calorie, low-carbohydrate drink options can include:

- Unsweetened tea
- Unsweetened coffee
- Sparkling water
- Flavored water with no added sugar
- Diet soda

Source: American Diabetes Association

Questions?

Contact Jenna Smith, Nutrition & Wellness educator and registered dietitian, at 309-663-8306 or jesmith6@illinois.edu.

Chicken Zoodle Soup

Yield: 3 servings



- 2 Tablespoons olive oil
- 1 small white onion, chopped
- 1/3 cup diced celery
- 1 fresh garlic clove
- 1/4 pound chicken breast, cut into bite-sized pieces
- 2 cans (14.5 oz.) low-sodium chicken broth
- 1 large zucchini squash, spiralized into noodles
- 1 1/2 large carrots spiralized into noodles
- 1/4 teaspoon dried oregano
- 1/4 teaspoon dried thyme
- 1 pinch black pepper

Instructions: Wash hands with soap and water. Heat the olive oil in a large pot over medium-high heat. Sauté onion, celery, and garlic in hot oil until just tender (around 4 minutes). Add chicken and cook partially (around 8 minutes). Add chicken broth, zucchini and carrot noodles, basil, oregano, thyme, and pepper. Bring the broth to a boil, reduce heat to medium-low, and simmer mixture until the vegetables are tender (around 25 minutes).

Nutrition Facts (per serving): 200 calories, 11 grams fat, 140 milligrams sodium, 14 grams carbohydrate, 3 grams fiber, 13 grams protein

COLLEGE OF AGRICULTURAL, CONSUMER & ENVIRONMENTAL SCIENCES

University of Illinois | United States Department of Agriculture | Local Extension Councils Cooperating
University of Illinois Extension provides equal opportunities in programs and employment.

If you need reasonable accommodation to participate in this program, please contact us.
Early requests are strongly encouraged to allow sufficient time for meeting your access needs.