

# STEPP-UP Instructors Manual

## SESSION 2: CARBOHYDRATE COUNTING

### Objectives

#### Goals of Class:

The purpose of this class is to provide information to patients with type 1 diabetes that will help them to learn appropriate nutrition management. Specifically, the class will address carbohydrate counting, sugars, starches and fiber. Participants will learn how to use tools for carbohydrate counting. They will learn about label reading for packaged foods, prepared foods and liquids that do not have labels. Patients' understanding of the knowledge will be translated to specific skills and they will be frequently assessed to determine their comprehension of knowledge and acquisition of skills.

#### After this session, participants will be able to:

- Describe three types of carbohydrates: sugars, starches and fiber
- Learn about tools to measure carbohydrates
- Learn how to read a food label
- Explain the difference between counting carbohydrates using grams or choices
- Identify a portion of a carbohydrate and demonstrate how to measure it out

### Materials Needed

- Sign-in sheet
- Pens, pencils, markers
- Name tags
- Flip chart - to keep track of “parking lot items” or questions, participant responses
- Measuring cups and spoons
- Calculators
- Small food scale
- Food models
- Sample food items or pictures that represent different types of food
  - Items can be empty or full boxes or cans
  - Items must have a visible food label
  - Items must have carbohydrates with fiber carbs
- Table to place sample foods or wall space for pictures
- Handouts in English and Spanish:
  1. Agenda
  2. *Guide* - How Can I Manage My Type 1 Diabetes Better? (pages 1-17)

### Before the Session

- Give all participants a reminder call the day prior to class.
  - Ask them to bring water, a snack in case of low blood sugar, and bring a pen or something to write with. Instruct them on class logistics (parking, location, floor, etc.).
- Set up the classroom with enough tables and chairs. Try to arrange it in a formation that facilitates group participation (such as a circle or U shape).

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- Prior to class, set up the food models for the activities [If you have assistants, they can set up food model activities while the discussion is taking place].

<b>Agenda</b>	<b>Estimated Time</b>
<b>I. Welcome</b>	3 minutes
<b>II. Introduction</b>	5 minutes
a. Icebreaker	
<b>III. Nutrition Session</b>	110 minutes
a. Why do I need to learn about carbohydrates?	
b. Can you tell me more about carbs?	
c. Can you tell me more about sugars?	
d. Can you tell me more about starches?	
e. Can you tell me more about fiber?	
f. Do carbs raise my blood sugar?	
g. What is carb counting? And why does it matter in Type 1 diabetes?	
h. How do I count carbs?	
i. What are some tools for carb counting?	
j. Do you have tips of how I can carb count with my hands?	
k. What are some examples of 15 grams of carbs in foods?	
l. Can you tell me the basics about food labels?	
m. Why should I learn to read food labels?	
n. How do I figure out the real amount of carbs in packaged food or liquids?	
o. What if I am going to have more than one serving of carbohydrates from packaged foods or liquids?	
p. What about the other carbs on the food labels of packaged foods and liquids?	
q. What about prepared foods and liquids that do not have labels?	
<b>IV. Closing</b>	2 minutes

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## I. WELCOME (3 MINUTES)

- A. Greet participants as they arrive, give them a nametag to fill out.
- B. Give each participant a participant notebook with handouts

## II. INTRODUCTION (5 MINUTES)

[If the space allows, set up tables and chairs in a U shape so everyone can see each other. Make the nutrition session as interactive as possible; ask questions frequently and get everyone involved.]

A. *Welcome everyone to the program. Begin* by introducing the staff and any volunteers. We are here to learn about nutrition labels, carbohydrate counting and other food related factors that will help keep your blood glucose/sugar within limits and help with your diabetes.

B. Today you will learn about:

- Reading a food label
- Carbohydrate counting using the “Choice” method
- Carbohydrate counting using grams of carbohydrates
- The difference between sugars, starches and fiber
- How fiber effects blood glucose levels
- Different tools to help count carbohydrates

C. *Set some initial ground “rules.” [Have these already written out on the flipchart, with space to add additional rules. These can be referred to throughout the program if necessary. If there are no new people, just remind everyone about the rules.]*

1. Everyone is to respect each other.
2. One person talks at a time.
3. Please refrain from using your cell phone and texting. If you need to make or receive a call, please step out of the room.
4. Confidentiality—everyone should respect each other’s privacy by not talking about one another outside of the program.
5. Note that some people prefer to say blood glucose and others blood sugar. Have your audience decide which terminology they prefer.

*Ask the group if there are any other rules they would like to suggest.*

Finally, we encourage all questions. NO question is a stupid question. Sometimes you might ask a question that we do not know the answer to right away. When this happens, we will write it down on this flip chart to remind us to find out the answer.

*-Ask if there are any other rules they would like to add.*

*-Ask if everyone in the group can agree to all of the rules.*

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D. **Icebreaker:** *Form a circle and have each person introduce himself or herself and tell the group their favorite fruit they enjoy eating. You can use a ball to facilitate the process. For example: Jackie has the ball and states: "My name is Jackie, and I enjoy mango." Jackie would then toss the ball to someone else, and it is then that person's turn. Repeat until everyone has had a chance to introduce themselves and state an activity they enjoy.*

## III. NUTRITION SESSION (110 MINUTES)

### A. **Why do I need to learn about carbohydrates?**

*(Fast paced, keep this to 3 minutes or less)*

- When you have type 1 diabetes your body does not make insulin. So, you must give yourself insulin. The amount of insulin you give yourself depends on your blood sugar level and the food you eat.
- Most of the insulin you give goes to helping your body use carbohydrates. A carbohydrate is called a carb for short. Carbs give you energy. They also keep your brain and muscles working. You need insulin and carbs to stay alive and healthy!
- The problem with carbs is that people do not eat the same thing every day. One day you may eat rice. The next day you may eat potatoes. One day you may eat more, the next day less. That means you need to give a different amount of insulin before the meal to keep your blood sugar level normal.

### 1. **Can you tell me more about carbs?**

*(Fast paced, keep this to 3 minutes or less)*

All food is made up of three parts:

- a. Fat
- b. Protein
- c. Carbs

Carbs are the main source of energy for our bodies. Carbs become sugar in our blood stream. Carbs are considered either simple carbs or complex carbs. The difference is how quickly the carb is digested and enters the blood stream.

There are three types of carbs:

- a. Sugars – Simple carbs
- b. Starches – Complex carbs
- c. Fiber - Complex carbs

Some food we eat fit in to one of the carb categories but many foods can fit in two or all three categories.

### 3. **Can you tell me more about sugar carbs?**

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*(Fast paced, keep this to 5 minutes or less)*

Sugars are simple carbs. Your stomach absorbs sugars very quickly. Then they go into your blood stream. Even your mouth absorbs sugars. So, if you suck on a piece of candy, the sugar goes straight from your mouth into your blood stream. That means these simple sugar carbs are great for treating low blood sugar. But if you eat too much, they can also cause high blood sugar levels. Sugar carbs comes in many forms. There are over 25 kinds of sugars. Can you tell me some common names for sugar?

Allow participants to respond and write their answers on board/paper.

Key concepts to add to participant response if not given.

- Some common names for sugar are table sugar, corn syrup and honey.
- Simple carbs include:  
(Show some of these items)

- Honey
- Milk
- Syrup
- Table sugar and anything with sugar added to it
- Fruit
- Juices
- Regular sodas

## 4. Can you tell me more about starches?

*(Fast paced, keep this to 10 minutes or less)*

Starches are called complex carbs. They take longer to digest. They may raise your blood sugar levels for a long time after you eat them.

There are many types of complex starch carbs. Can you tell me some complex starch carbs?

Allow participants to respond and write their answers on board/paper. Key concepts to add to participant response if not given.

Anything made with flour like:

Show some of these items (food models)

- Breads
- Pastas
- Tortillas
- Cereals
- Cookies
- Whole grains and food made from them, such as oatmeal, 100% whole-grain pasta, and 100% whole-grain breads are better choice to consider

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Starchy vegetables:

- Potatoes
- Sweet potatoes
- Corn
- Pumpkin
- Beans
- Lentils
- Peas

Starchy fruits

- Plantains
- Bananas
- Dried fruits - apricots, figs, raisins

Complex carbs include all:

- Green veggies

## **4. Can you tell me more about fiber?**

*(Fast paced, keep this to 1 minute)*

Fiber is a form of carbohydrate that does not go into your blood stream. It comes from plants. Your body cannot digest it. Fiber adds bulk to your diet. It is very important for keeping your intestines healthy. Since fiber carbs do not go into your blood stream, you do not have to count them the way you do sugar and starch carbs. We will talk about that more a little later.

## **6. Do carbs raise my blood sugar level?**

*(Fast paced, keep this to 1 minute)*

In most cases, carbs do raise your blood sugar levels. Simple carbs do it more quickly than complex carbs. So, you use simple carbs to treat low blood sugar levels. Complex carbs may make your blood sugar levels go up slowly over time.

Eating carbs along with protein and fat can slow down how quickly you absorb the carbs. It can cause higher blood sugar levels over a number of hours.

## **B. What is carb counting? And why does it matter in type 1 diabetes?**

*(Fast paced, keep this to 2 minutes or less)*

Carb counting means learning how many carbs you eat in a meal or snack. This is so you can give just the right amount of insulin for the carbs you are eating.

If you give the right amount of insulin for the carbs you eat, then your blood sugar levels will not go too high. They should also come back down to normal in a few hours.

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If you do not give enough insulin for the carbs you eat, your blood sugar levels will go too high. If you give too much insulin, they can go too low.

Many years ago, we used to tell people with diabetes that they needed to eat the same amount of carbs at each meal. We had people take the same amount of insulin with each meal. We had them eat the same amount and the same type of food. This made people with diabetes unhappy because they could not eat freely, like other people. Experts came up with the idea of carb counting and giving different amounts of insulin based on the carbs in the meal to fix this problem.

## 1. How do I count carbs?

*(Fast paced, keep this to 10 minutes or less)*

To carb count you need to learn how to read food labels. You also need to learn how to find the amount of carbs in the foods you are eating.

Carbs are counted in grams. One serving of carbs is 15 grams. A food that has 15 grams of carbs is “one carb serving”.

One carb serving = 15 grams

To learn about carb counting, it is best to work with a dietitian. She or he can help you with carb counting your basic foods. You can also use a book or an app to figure out how many carbs are in a food.

Often it helps to measure and weigh the food. This works well if you are at home. In time, you will learn how to guess how many grams of carbs are in the foods you eat.

**[Show a serving of 15 grams of carbohydrates using the food models and refer back to guide pages 9-13.]**

## 2. What are some tools for carb counting?

*(Fast paced, keep this to 4 minutes or less)*

An important part of carb counting is knowing how much of a certain food you are eating. **Measuring cups** and a **scale** are helpful tools for this. When you measure, it helps give you a good visual idea of how different servings look like on a plate, in a bowl, or in a glass.

**[Show measuring cups and scale]**

For instance, measure 1/3 cup of rice onto your plate when you are eating at home. 1/3 cup rice is equal to 15 grams of carbs. After you have done this a number of times, you will know what a 1/3 cup serving looks like on a plate. Then you will be able to estimate a 1/3 cup serving size without having to measure each time.

1/3 cup serving of rice = 15 grams of carbs.

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[Show what a serving of rice -15 grams of carbohydrates looks like on a plate]

### 3. Do you have some tips of how I can carb count with my hands? (15 minutes including practice)

Your hands can also help you estimate portion sizes. This is helpful when you are eating away from home. **Remember, this is just an estimate and depends on the size of your hand.** For instance, if your hand is large, your fist may be equal to more than a cup. [Refer to page 8 of the How Can I Manage My Type 1 Diabetes Better?]

**Handful** = ½ cup (120 ml) - 1 oz. snack food (nuts or pretzels)

**Fist** = 1 cup (240 ml) - 3 servings of pasta or 45 g carbohydrates

**Thumb Tip** = 1 tsp. (5 ml) - A serving of low fat mayonnaise or margarine

**Palm** = 3 oz. (85 g) - A cooked serving of meat

**Thumb** = 1 oz. (30 g) or 1 - Tablespoon like a piece of cheese

#### **\*\*Activity\*\***

Food items should be placed on the table. Demonstrate estimated portions using hands and food models. Have the participants practice with different food items and their hands to make a serving size. Also have them practice with measuring cups and spoons. See how close they are when comparing hands, cups and spoons.

### 4. What are some examples of 15 grams of carbs in foods? (5 minutes or less)

[See List of foods provide in guide (How Can I Manage My type 1 Diabetes Better? Pages 9-13)]

This is a list of food items you can use for carb choices. Work with a dietitian to help you with your meal planning until you get the hang of it. Have any of you tried this method of carb counting before? Was it helpful? Why or Why not?

Remember, 15 grams = one carb serving

### C. Can you tell me the basics about food labels? (5 minutes)

[Refer to page 14 of the guide]

All packaged foods and liquids have a **nutrition label**. Can anyone tell me was information the can find on a food label?

Nutrition Facts	
Serving Size 2 oz (56 g)	
Amount Per Serving	
<b>Calories</b> 100	Calories from Fat 25
%	
Total Fat	3.5 g 7%
Total Carbohydrate	27g 46%
Dietary Fiber	6g 12%
Protein	3g 6%



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Allow participants to respond and write their answers on board/paper. Key Concepts to add to participant response if not given.

The label includes:

- How much a **serving size** is
- How many **calories** in a serving size
- How much **fat** is in a serving size and if the fat is a **saturated** or a **trans fat**
- How much **cholesterol** is in a serving size
- How much **sodium** is in a serving size
- How many **grams of carbs** are in a serving size
- How much **fiber** is in a serving size
- How much **sugar** is in a serving size
- How much **protein** is in a serving size
- How much **nutrients** such as vitamin A, vitamin C, calcium, and iron.

## 6. Why should I learn how to read food labels?

*(15 minutes including activity)*

With diabetes, it is important to learn how to read food labels so you can figure out the **real amount of carbs** in the packaged food or liquid.

### **\*\*Activity\*\***

**Set food items on a table. Make sure all items have a readable label and that the label has fiber carbs. Participants should also have a pencil, paper and a calculator.**

**Have all of the participants pick a packaged item off the table to practice reading a food label. Have them locate the following parts of a label. Make a special note to understand how much a serving size is for the item they are viewing (servings per package vs. serving size). Ask people to tell you how many carbs they would have if they ate just one serving. Ask participants to identify the carbohydrates on the package and ask if there are any with fiber carbs. Ask if anyone made an adjustment to the amount of carbs they would eat due to the item having fiber carbs.**

There is a trick to figure out the “real” amount of carbs in packaged foods and liquids. It has to do with **Dietary Fiber** on the label. Who thinks if there is dietary fiber in a food the amount of carbs are actually higher? Who thinks lower? The answer is lower.

## 7. How do I figure out the real amount of carbs in packaged foods or liquids?

*(15 minutes including activity)*

So of course determining the “real” amount of carbs in packaged food and liquids has to try and trick you. You may have to do some math if there is Dietary Fiber on the label.

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The body cannot digest dietary fiber. Fiber helps to move food through your body. Fiber can also reduce the amount of carbs you are eating. To find out the amount of carbs you need to give insulin for, you need to **subtract** the dietary fiber from the total carbohydrates listed on the food label if the fiber carbs are 5 grams or more.

**Remember** - Only do this if the dietary fiber is 5 grams or more. If the dietary fiber is 4 grams or less, **do not** subtract the dietary fiber.

### **\*\*Activity\*\***

Have an example food label to demonstrate. Have participants relook at the food label for the item they chose. Have participants find the total carbohydrates and write the number down on their paper. Next have them find fiber carbs and write that down. Ask them to subtract the fiber carbs and write the “real” amount of carbs. Volunteers can assist participants. Provide an example:

Here is an example.

Let’s say you will eat one serving of the pasta for the label on page 14. In that label, the total carbohydrates are 39 grams. The dietary fiber is 6 grams.

The math looks like this:

Total carbohydrates per serving are 39 minus 6 grams of dietary fiber = 33 grams.

$$39 - 6 = 33$$

So, 33 grams is the real amount of carbs you will eat.

Then you would use 33 grams to figure out a carb bolus. A carb bolus is the dose of insulin you give before you eat. You can also use 33 grams to see if you are eating the right amount of carbs for your meal or snack.

8. What if I am going to have more than one serving of carbohydrates from packaged foods or liquids?

*(15 minutes including activity)*

If you are going to have more than one serving, figure out the real amount of carbs based on how many servings you are going to have.

### **\*\*Activity\*\***

Have an example food label to demonstrate.

Let’s say you are going to have 2 servings of pasta from the label on page 14. In other words, each serving is 2 ounces. And you are going to have 4 ounces because 2 servings times 2 ounces equals 4 ounces.

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The math to figure out the real carb amount looks like this:

Total carbohydrates per serving are 39 grams x 2 servings = 78 grams of carbohydrates.

Dietary fiber per serving is 6 grams x 2 servings = 12 grams of dietary fiber

So, total carbs are 78 grams minus 12 grams of fiber = 66 grams

Then 66 grams is the real amount of carbs you will eat with 2 servings.

Now you try. Pass the food item you have to the person to your left. Figure out your real carbohydrates if you are going to have 2 servings of that item.

## 9. What about the other carbs on the labels of packaged foods and liquids?

*(5 minutes)*

There are other types of carbs listed on the labels. They include sugars, such as sugar alcohols. Sugar alcohols sweeten foods. They do not raise the blood sugar levels as much as natural sugars do. Talk with your diabetes team members to learn how to count these in your diet. In most cases, they will not raise your blood sugar levels much. But they can have an impact. [Show participants some products that contain sugar alcohols]

## 10. What about prepared foods and liquids that do not have labels?

*(5 minutes)*

When food does not have a label, carb counting is hard. This can be because you are cooking food at home. Or it can be because you are eating take-out food or food in a restaurant.

At home, have a small scale or measuring cups. This is so you can weigh or measure your food. In time, you will learn to figure out carbs from experience.

When you eat out, it is often harder. Some restaurants can give you nutritional information about the food they serve. So be sure to ask.

One problem with restaurants is that they often give you very big portions. So be sure to count all the carbs you are eating. If you use shots and end up eating more carbs than you plan to, be sure to give another shot of insulin to cover it. This might happen if you add a dessert or a piece of bread. If you are using a pump, you can enter the carbs into the pump and give the carb bolus dose it suggests.

[Show participants samples of restaurant menus and the carbohydrate count. They can get them at the restaurant or on line. Some restaurants have them on the actual menu. Demonstrate how to go about getting the carbs from a home-style recipe.]

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## IV. Wrap Up (5 MINUTES)

Remind everyone that we will be meeting again in two week, same time and place.  
Topics for next week: **Insulin Self-Adjustment.**

# STEPP-UP Handouts

Agenda	Estimated Time
<b>I. Welcome</b>	3 minutes
<b>II. Introduction</b> b. Icebreaker	5 minutes
<b>III. Nutrition Session</b>  r. Why do I need to learn about carbohydrates? s. Can you tell me more about carbs? t. Can you tell me more about sugars? u. Can you tell me more about starches? v. Can you tell me more about fiber? w. Do carbs raise my blood sugar? x. What is carb counting? And why does it matter in Type 1 diabetes? y. How do I count carbs? z. What are some tools for carb counting? aa. Do you have tips of how I can carb count with my hands? bb. What are some examples of 15 grams of carbs in foods? cc. Can you tell me the basics about food labels? dd. Why should I learn to read food labels? ee. How do I figure out the real amount of carbs in packaged food or liquids? ff. What if I am going to have more than one serving of carbohydrates from packaged foods or liquids? gg. What about the other carbs on the food labels of packaged foods and liquids? hh. What about prepared foods and liquids that do not have labels?	110 minutes
<b>IV. Closing</b>	2 minutes