

Planning Meals

Purpose

This section is intended to provide information on choosing foods/beverages, which affect blood glucose levels and enhance overall health status.


Objectives

At the end of this section, you will be able to:

- Identify the daily number of servings for each of the 5 food groups necessary for a balanced diet using MyPlate guidelines.
- Describe the portion size for two food items in each of the 5 food groups.
- List three macronutrients which affect blood glucose levels.
- Compare the effect on blood glucose of these three nutrients.
- Identify two meal-planning approaches.

Outline

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 American Diabetes Association®	*The American Diabetes Association Recognizes this education service as meeting the National Standards for Diabetes Self-Management Education and Support.
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Nutrients in food and how they affect blood glucose levels

There are three nutrients that contain calories and have varying affects on your blood glucose levels. These same nutrients have key roles in your general health including your weight, blood lipid levels, and blood pressure.

Nutrient	Calories/ Gram	Contains Calories
Carbohydrate	4	Yes
Protein	4	Yes
Fat	9	Yes
Vitamins		No
Minerals		No
Water		No

Carbohydrates

- Carbohydrates are used by our bodies for energy.
- Insulin is required by our bodies to use carbohydrates.
- Carbohydrates are changed by our bodies into glucose.
- Carbohydrates affect your blood glucose more than any other nutrient.
- Starches and sugars are carbohydrates.
- The food groups grains/starch, fruit, and milk are carbohydrate sources.
- Vegetables are generally low in carbohydrates.

Protein

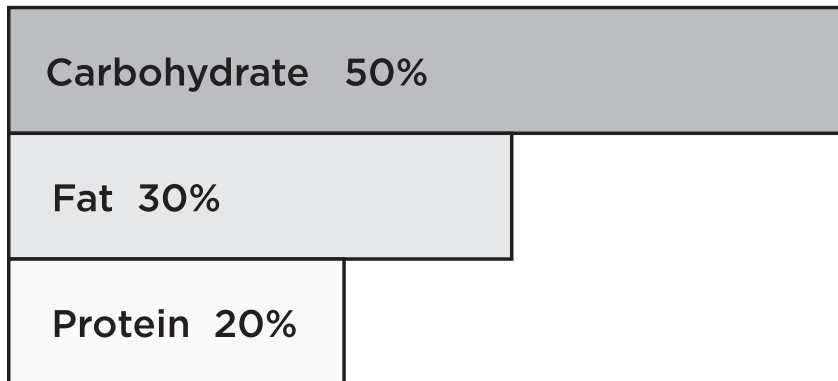
- Proteins are used to build muscles, skin, and cells in the body.
- Meat and milk are high in protein.
- Protein sources do contain calories and can be significant sources of saturated fat and cholesterol.
- Proteins can be changed to glucose and may affect blood glucose levels.
- Insulin is required for your body to use protein.

Fat

- Fat is an essential nutrient that supplies energy (calories).
- Fats carry the fat-soluble vitamins A, D, E, K.
- Insulin is required for your body to use fats.
- The food groups fat and protein are the major sources of fat.
- Types of fats are: saturated, trans fats, monounsaturated, and polyunsaturated.
- Saturated and trans fats can raise your cholesterol levels.
- High fat intake can cause high blood glucose levels to stay higher longer.

Optimal mix of carbohydrate, protein, and fats

To obtain an adequate nutrient intake include a calorie intake that is 45 to 65% from carbohydrate sources, 10 to 35% protein based calories and 20 to 35% of total calories from fat. Many studies indicate the best mixture of these nutrients is highly individualized. The mix of nutrients will vary based on factors such as personal food preferences, blood glucose, blood lipids and other medical conditions. Working together with your dietitian, you will develop a specific meal plan.



Meal planning approaches

- Carbohydrate counting
- Plate method
- General nutrition guidelines
- Food groups (exchanges)
- Sample daily meals

A yearly meeting with your dietitian is recommended to review your meal plan and make needed changes.

Selecting a meal planning approach

When choosing a meal planning approach many things need to be considered such as:

- Goals for diabetes management
- Lifestyle needs
- Cooking skills
- How often you eat out
- Family needs
- Work needs

Carbohydrate counting – approach #1

What is carbohydrate counting?

- It is a meal planning method for blood glucose control.
- The amount of carbohydrates in food is counted.
- Carbohydrate counting focuses the attention on the food choices (carbohydrates) that most affect your blood glucose levels.
- Some people count carbohydrates using the grams of carbohydrate in the foods; others count carbohydrate choices.

The amount of protein and fat eaten is also important. These food groups contain important nutrients. They need to be in adequate, but not excessive amounts. Use MyPlate for help in choosing the right amount of protein and fat for yourself.

Why use carbohydrate counting?

- Allows for more ease and flexibility in food choices
- May offer better blood glucose control
- Easier to add commercial foods to your menus

What foods contain carbohydrates?

- Grains/starch: pasta, rice, bread products, cereal, crackers, granola bars, etc.
- Vegetables: starchy vegetables such as potatoes, corn, peas, sweet potatoes, legumes
- Fruit: fresh, frozen, dried, canned, juices
- Milk: milk, yogurt
- Sweets/Desserts: sugar, honey, molasses, sweetened beverages

How many grams of carbohydrate do we need?

In general, recommended carbohydrate intake is 130 or more grams every day.

Men	Women
Require 1,800 to 2,000 calories/day	Require 1,400 to 1,600 calories/day
Start with 4 to 5 carb choices (60 to 75 grams) for each meal	Start with 2 to 4 carb choices (30 to 60 grams) for each meal
Include 0 to 2 carb choices (0 to 30 grams) for snacks if needed	Include 0 to 2 carb choices (0 to 30 grams) for snacks if needed

My daily carbohydrate goal is _____ grams of carbs
_____ carb choices

.....

How do I begin counting carbohydrate choices?

- Each starch, fruit, and dairy serving counts as one carbohydrate choice.
- Each carbohydrate choice is about 15 grams of carbohydrate.
- For example, each of the foods listed below contain about 15 grams of carbohydrate, making each food choice one carbohydrate choice.
 - ½ cup orange juice
 - 1 cup milk
 - 1 slice bread
 - ½ cup corn

Your health care team will help you figure out how many carbohydrate choices you can use for your meal planning. Remember to use MyPlate for guidance as you plan your meals. You need to eat foods in each of the main food groups every day to get the vitamins and minerals you need to remain healthy.

To make sure your carbohydrate count is correct, it is important to measure or weigh the foods you eat. Keeping a food diary will help you remember what you have eaten.

How do I count foods that are not on the “Carbohydrate Counting Lists”?

Check the label!

Nutrition Facts Labels (found on most food items) will help you out. Remember the amount of total carbohydrate stated is for the serving size listed on the label. It is important to check the serving size on the food label. A carbohydrate choice is 15 grams of carbohydrate. The amount of carbohydrate in a serving may be more or less than 15 grams.

Nutrition Facts	
Serving Size 1 cup (52g)	
Servings Per Container 8	
Amount Per Serving	
Calories 148	Calories from Fat
% Daily Value*	
Total Fat 1g	2%
Saturated Fat 0g	1%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 86mg	4%
Total Carbohydrate 30g	10%
Dietary Fiber 10g	41%
Sugars 6g	
Protein 14g	
Vitamin A 1%	Vitamin C 0%
Calcium 7%	Iron 14%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

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The following chart can help you determine the number of carbohydrate choices to count based on the grams of carbohydrate in a serving.

Conversion Guide	
Total carbohydrate grams	Carbohydrate choices
0 - 5	0
6 - 10	½
11 - 20	1
21 - 25	1 ½
26 - 35	2
36 - 40	2 ½
41 - 50	3
51 - 55	3 ½
56 - 65	4
66 - 70	4 ½
71 - 80	5
81 - 85	5 ½
86 - 95	6
96 - 100	6 ½
101 - 110	7

If you count total grams of carbohydrate rather than carbohydrate choices, try to stay within 5 grams (plus or minus) of your carbohydrate goal for the meal.

What are other resources that I can use to find out the carbohydrate in foods?

- If you have used the food group method for meal planning in the past, you may be familiar with the starch, fruit, and milk food groups.
 - 1 starch choice = 1 carbohydrate choice
 - 1 fruit choice = 1 carbohydrate choice
 - 1 milk choice = 1 carbohydrate choice
 - 1 meat/protein choice = 0 carbohydrate choice
 - 1 fat choice = 0 carbohydrate



- Reference books are available to look up carbohydrate amounts in your food; ask your dietitian for more details.
- Commercial food companies often have websites listing nutrition facts for their products.

Low Carb and Carb Free Snacks for Persons with Diabetes

Snacks with less than 5 grams carbohydrate

Vegetables/Fruit

- 3 celery sticks with 1 Tbsp peanut butter or light cream cheese
- 5 baby carrots or grape tomatoes
- ½ cup raw vegetables (red, green or yellow peppers, carrots, broccoli, cauliflower, cucumber, tomatoes plus 1 Tbsp light ranch dressing, guacamole, or dijon mustard)
- 1 cup salad greens, raw vegetables with 1 - 2 Tbsp oil and vinegar-based dressing
- ¼ of a whole avocado
- ¼ cup berries
- 4 oz vegetable juice¹
- 5 green olives¹
- 8 black olives¹
- 2 dill pickles¹

¹Watch portions - can be high in sodium



Protein

- 1 hard-boiled egg
- ½ cup tuna, egg, or chicken salad (made with light mayo) in a lettuce leaf
- ½ cup cottage cheese
- 1 piece string cheese¹
- 1 oz luncheon meat¹
- 1 oz beef jerky¹
- 2 Tbsp nuts or seeds¹



Grains

- 2 - 3 whole wheat crackers
- 1 cup light popcorn¹

Other

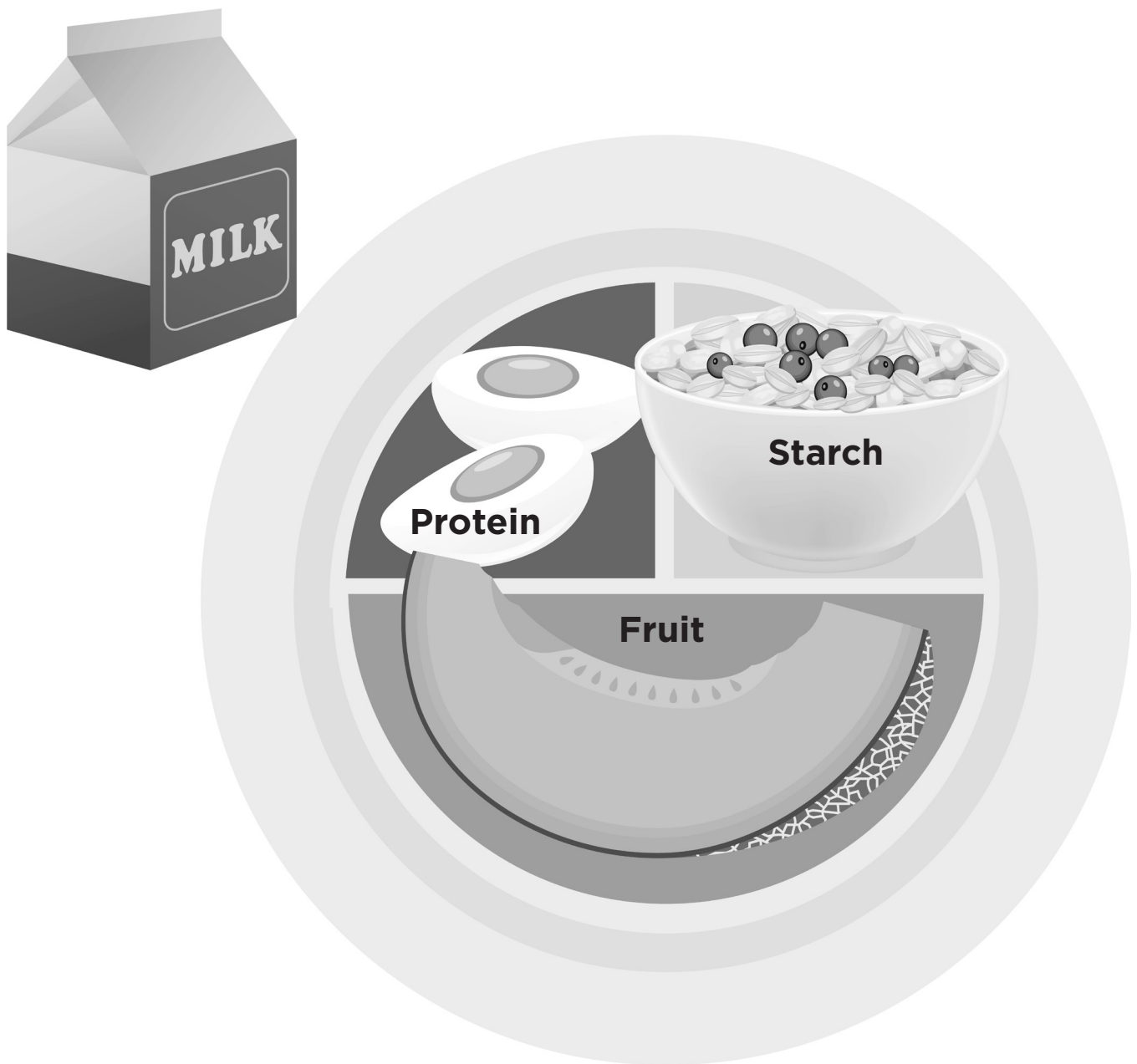
- Sugar-free gelatin (plain or with 2 Tbsp whipped topping)
- Sugar-free popsicle
- 2 sugar-free hard candies
- Sugar-free beverages (Sugar-free Kool-Aid[®], Crystal Light[®], etc.)
- Broth¹

¹Watch portions - can be high in sodium

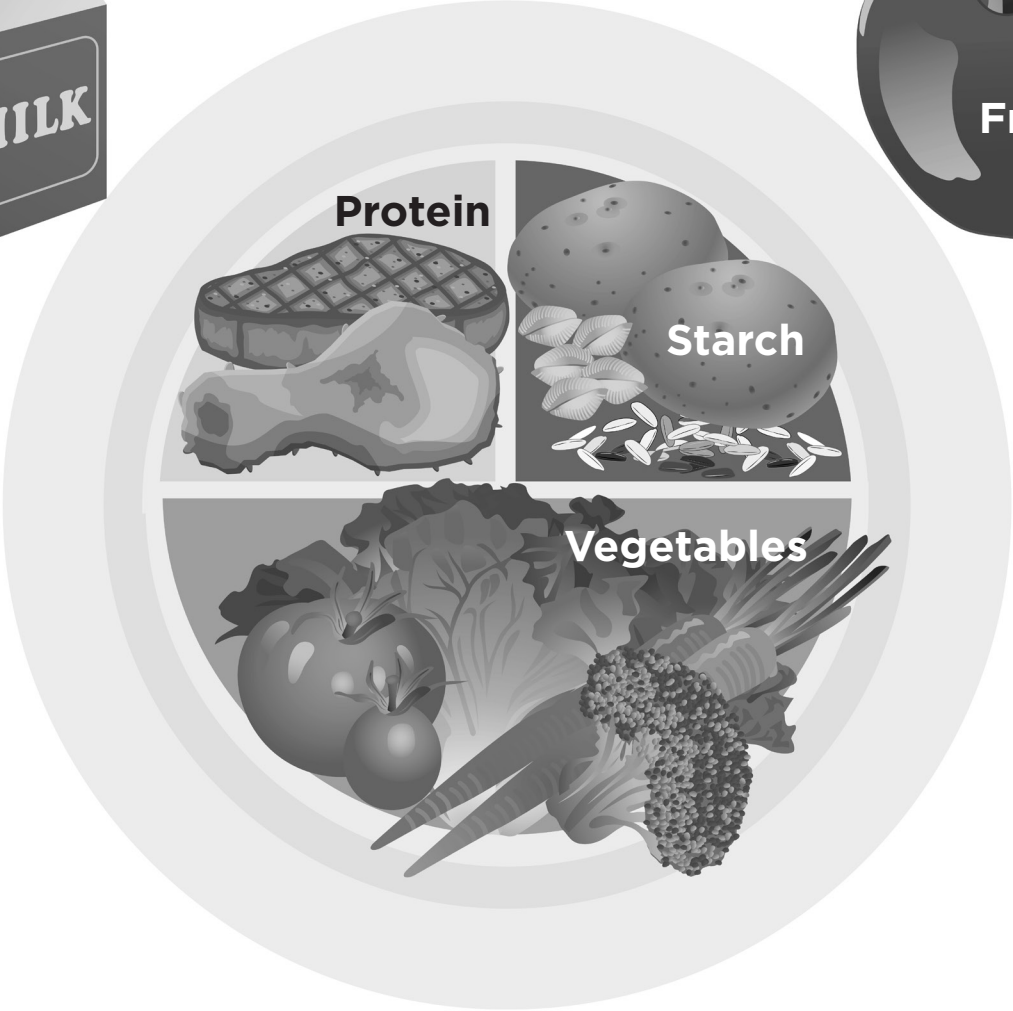
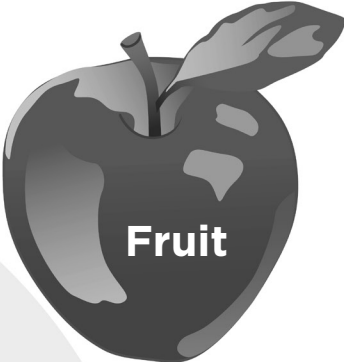
Diabetes plate method – approach #2

- Easy to use
- Fewer details and counting
- Useful when eating out

Example: Breakfast (Adjust portion sizes based on calorie needs)



Example: Lunch and Dinner (Adjust portion sizes based on calorie needs)



<p style="text-align: center;">Grains Make half your choices whole grains</p>	<p style="text-align: center;">Vegetables Vary your veggies</p>
<ul style="list-style-type: none"> • Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day • 1 oz. is about 1 slice of bread, 1 cup of breakfast cereal, or ½ cup of cooked rice, cereal, or pasta 	<ul style="list-style-type: none"> • Eat more dark-green veggies like broccoli, spinach, and other dark leafy greens • Eat more orange vegetables like carrots and sweet potatoes • Eat more dry beans and peas like pinto beans, kidney beans, and lentils
<p style="text-align: center;">Fruits Focus on fruits</p>	<p style="text-align: center;">Dairy Get your calcium-rich foods</p>
<ul style="list-style-type: none"> • Eat a variety of fruit • Choose fresh, frozen, canned, or dried fruit • Go easy on fruit juices 	<ul style="list-style-type: none"> • Go low-fat or fat-free when you choose milk, yogurt, and other milk products • If you do not or can not consume milk, choose lactose-free products or other calcium sources such as fortified foods and beverages
<p style="text-align: center;">Protein Go lean with protein</p>	<div data-bbox="933 1094 1373 1499" data-label="Image"> <p style="text-align: center;">Choose MyPlate.gov</p> </div>
<ul style="list-style-type: none"> • Choose low-fat or lean meats and poultry • Bake it, broil it, or grill it • Vary your protein routine-choose more fish, dried beans and peas, nuts, and seeds 	

Food groups (exchanges) – approach #3

What are the food groups? (exchanges)

- Foods are divided into three main groups:
 - Carbohydrates
 - Meats and meat substitutes
 - Fats
- Foods are further divided into subgroups.
- Each subgroup is called a food group or exchange list.
- A food group (exchange list) is a listing of measured or weighed foods of about the same food value.
- This meal planning approach works well for those people interested in managing calories and exact fat intake, as well as carbohydrate portions.

Food groups – nutrient summary

This table shows the general nutrient content of each food group (exchange).

Food Group	Carbohydrate (gm)	Protein (gm)	Fat (gm)	Calories
Carbohydrates				
Grains/starch	15	0 – 3	0 – 1	80
Fruit	15	0	0	60
Milk				
Fat-free (skim-1%)	12	8	0 – 3	100
Low-fat (2%)	12	8	5	120
Whole	12	8	8	160
Other carbohydrates	15	Varies	Varies	Varies
Vegetables (non-starchy)	5	2	0	25
Meat/meat substitutes				
Lean	0	7	0 – 3	45
Medium-fat	0	7	4 – 7	75
High-fat	0	7	8+	100
Plant-based proteins	Varies		Varies	Varies
Fat	0	0	5	45
Alcohol	Varies	0	0	100

Refer to “Choose Your Foods: Exchange Lists for Diabetes”

Sample daily meals - approach #4

- If you are interested in preplanned meals, talk with your dietitian.
- A variety of preplanned menu resources are available to purchase.
- This meal planning approach has limited flexibility.