

## Using the Diabetes Food Pyramid

The Diabetes Food Pyramid divides food into six groups. These groups or sections on the pyramid vary in size. The largest group -- grains, beans, and starchy vegetables -- is on the bottom. This means that you should eat more servings of grains, beans, and starchy vegetables than of any of the other foods. The smallest group -- fats, sweets, and alcohol -- is at the top of the pyramid. This tells you to eat very few servings from these food groups.

The Diabetes Pyramid gives a range of servings. If you follow the minimum number of servings in each group, you would eat about 1600 calories and if you eat at the upper end of the range, it would be about 2800 calories. Most women, would eat at the lower end of the range and many men would eat in the middle to high end of the range if they are very active. The exact number of servings you need depends on your diabetes goals, calorie and nutrition needs, your lifestyle, and the foods you like to eat. Divide the number of servings you should eat among the meals and snacks you eat each day.

The Diabetes Food Pyramid is a little different than the USDA Food Guide Pyramid because it groups foods based on their carbohydrate and protein content instead of their classification as a food. To have about the same carbohydrate content in each serving, the portion sizes are a little different too. For example: you will find potatoes and other starchy vegetables in the grains, beans and starchy vegetables group instead of the vegetables group. Cheese is in the meat group instead of the milk group. A serving of pasta or rice is  $\frac{1}{3}$  cup in the Diabetes Food Pyramid and  $\frac{1}{2}$  cup in the USDA pyramid. Fruit juice is  $\frac{1}{2}$  cup in the Diabetes Food Pyramid and  $\frac{3}{4}$  cup in the USDA pyramid. This difference is to make the carbohydrate about the same in all the servings listed.

Following is a description of each group and the recommended range of servings of each group.

### Grains and Starches

At the base of the pyramid are bread, cereal, rice, and pasta. These foods contain mostly carbohydrates. The foods in this group are made mostly of grains, such as wheat, rye, and oats. Starchy vegetables like potatoes, peas, and corn also belong to



this group, along with dry beans such as black eyed peas and pinto beans. Starchy vegetables and beans are in this group because they have about as much carbohydrate in one serving as a slice of bread. So, you should count them as carbohydrates for your meal plan.

**Choose 6-11 servings per day.** Remember, not many people would eat the maximum number of servings. Most people are toward the lower end of the range.

Serving sizes are:

- 1 slice of bread
- ¼ of a bagel (1 ounce)
- ½ an English muffin or pita bread
- 1, 6 inch tortilla
- ¾ cup dry cereal
- ½ cup cooked cereal
- ½ cup potato, yam, peas, corn, or cooked beans
- 1 cup winter squash
- 1/3 cup of rice or pasta

## **Vegetables**

All vegetables are naturally low in fat and good choices to include often in your meals or have them as a low calorie snack. Vegetables are full of vitamins, minerals and fiber. This group includes spinach, chicory, sorrel, Swiss chard, broccoli, cabbage, bok choy, brussels sprouts, cauliflower, and kale, carrots, tomatoes, cucumbers, and lettuce. Starchy vegetables such as potatoes, corn, peas, and lima beans are counted in the starch and grain group for diabetes meal planning.

**Choose at least 3-5 servings per day.**

A serving is:

- 1 cup raw
- ½ cup cooked

## **Fruit**

The next layer of the pyramid is fruits, which also contain carbohydrates. They have plenty of vitamins, minerals, and fiber. This group includes blackberries, cantaloupe, strawberries, oranges, apples, bananas, peaches, pears, apricots, and grapes.

**Choose 2-4 servings per day**

A serving is:

- ½ cup canned fruit
- 1 small fresh fruit
- 2 tbs dried fruit
  
- 1 cup of melon or raspberries
- 1 ¼ cup of whole strawberries

## **Milk**

Milk products contain a lot of protein and calcium as well as many other vitamins. Choose non-fat or low-fat dairy products for the great taste and nutrition without the saturated fat.

### **Choose 2-3 servings per day**

A serving is:

- 1 cup non-fat or low-fat milk
- 1 cup of yogurt

## **Meat and Meat Substitutes**

The meat group includes beef, chicken, turkey, fish, eggs, tofu, dried beans, cheese, cottage cheese and peanut butter. Meat and meat substitutes are great sources of protein and many vitamins and minerals.

Choose from lean meats, poultry and fish and cut all the visible fat off meat. Keep your portion sizes small. Three ounces is about the size of a deck of cards. You only need 4-6 ounces for the whole day

### **Choose 4-6 oz per day divided between meals**

Equal to 1 oz of meat:

- ¼ cup cottage cheese
- 1 egg
- 1 Tbsp peanut butter
- ½ cup tofu

## **Fats, Sweets, and Alcohol**

Things like potato chips, candy, cookies, cakes, crackers, and fried foods contain a lot of fat or sugar. They aren't as nutritious as vegetables or grains. Keep your servings small and save them for a special treat!

Serving sizes include:

- ½ cup ice cream
- 1 small cupcake or muffin
- 2 small cookies

The Diabetes Food Pyramid makes it easier to remember what to eat. For a healthy meal plan that is based on your individual needs, you should work with a registered dietitian (RD) with expertise in diabetes management.

## The Diabetes Food Pyramid: Grains & Starches

The message today: Eat more whole grains! Whole grains and starches are good for you because they have very little fat, saturated fat, or cholesterol. They are packed with vitamins, minerals, and fiber. Yes, foods with carbohydrate -- starches, vegetables, fruits, and dairy products -- will raise your blood glucose more quickly than meats and fats, but they are the healthiest foods for you. Your doctor may need to adjust your medications when you eat more carbohydrates. You may need to increase your activity level or try spacing carbohydrates throughout the day.

On average Americans eat around 40-45% of our calories as carbohydrate. This is a moderate amount of carbohydrate, not high. Currently some controversy about carbohydrates is raging due to a few new diet books. These books encourage a low carbohydrate, high protein and moderate fat intake. These diets are not in synch with the American Diabetes Association nutrition recommendations, which are based on years of research and clinical experience. In addition, these trendy diets are hard to follow year after year.

A way to see how carbohydrates affect your blood glucose is to monitor your blood 1½ to 2 hours after meals. Checking your blood glucose at this point tells you how high your blood glucose went from the carbohydrates you ate. For good diabetes control, keep your after-meal blood glucose levels at 180 or below.

Easy ways to include whole grains, beans, and starchy vegetables into your meal plan:

- In a meatloaf or meatball recipe, substitute some grain, such as oatmeal, bulgur or brown rice, for some of the meat.
- Add noodles, peas, or beans to a vegetable soup.
- Prepare a hearty bean or pea soup. Eat some and divide the rest into individual portions; store the soup in the freezer for a quick meal.
- When you're cooking grains, make enough for extra servings. Then toss them on salads, into soups or casseroles, or reheat them as leftovers.
- Eat whole grain cold cereal as a snack and pack the small boxes for snacks on the run.
- Open a can of garbanzo beans (chickpeas) or kidney beans and add them to a salad, tomato sauce or a three bean salad.
- Treat yourself to great tasting whole grain bread with meals, for a snack or as the main course at breakfast.
- Add crunch to a salad or casserole with fat-free tortilla or potato chips.
- Have pretzels or light (in fat) popcorn for a snack.
- Buy breads with at least 2 to 3 grams of fiber and hot and cold cereals with at least 4 grams of fiber per serving.

## The Diabetes Food Pyramid: Vegetables

When it comes to vegetables, people with diabetes, should eat at least three servings a day. Vegetables are healthy, chock full of vitamins and minerals, and some give you much needed fiber. The best part: vegetables are naturally low in calories -- if you are careful not to top them with butter, sour cream, cream soups, or cheese sauces.

Remember, non-starchy vegetables such as spinach, broccoli, lettuce, greens, carrots, chilies, peppers and tomatoes (those in this food group) do contain a small amount of carbohydrate -- 5 grams per serving.

Easy ways to eat your vegetables:

- Keep frozen and canned vegetables on hand to know you always have vegetables at the ready.
- Make double and triple portions; at a serving one day and have one ready-to-go for the next.
- Blanch (quick cook and chill) a head of broccoli or cauliflower, break it into pieces, place in a plastic container and have a ready supply for the week, hot or cold.
- Keep a bag of pre-cut or baby carrots around -- grab a handful as a snack, pack them with lunch, throw them into stew, or microwave for a quick vegetable.
- Microwave or sauté onions and peppers to put more vegetables into a tomato sauce.
- Toss extra sautéed vegetables on a frozen pizza.
- Make a big salad to last a few days, store in the refrigerator in a plastic container.
- Add vegetables into sandwiches -- not just the old lettuce and tomato, try alfalfa sprouts, sliced red onion, sliced cucumbers, sliced yellow squash or zucchini, red peppers, or leftover grilled vegetables.
- Add vegetables to an omelette or scrambled eggs -- sauté onions, peppers, mushrooms, tomatoes and add some fresh herbs.
- Drink tomato juice, V-8 or Bloody Mary mix as a vegetable.
- In a tomato sauce, cut the amount of meat you use in half, and add more vegetables -- onions, peppers, mushrooms, eggplant, zucchini or others.

*Adapted from the book **Diabetes Meal Planning Made Easy**. Written by Hope S. Warshaw, MMSc, RD, CDE, a nationally recognized expert on healthy eating and diabetes.*

## The Diabetes Food Pyramid: Fruit

Questions about fruit keep coming up. Will fruit juice increase blood glucose levels more quickly than a piece of fruit? Should you avoid fruit in the morning because your blood glucose might be higher than at other times in the day? Is it better to eat fruit with meals rather than snacks?

All carbohydrates, whether rice, potatoes or fruit juice, raise blood glucose about the same. In general, an equal amount of carbohydrate (15 grams) such as 1/2 cup grapefruit juice or 4 slices of Melba toast, should raise blood glucose at about the same speed and about the same amount.

However, that varies based on several factors -- whether you eat a piece of fruit after a high-fat meal or sip fruit juice on an empty stomach, what your blood glucose is when you eat the fruit, whether the fruit is cooked or raw, how much diabetes medication you have in your body, etc.

Also, people have individual differences. So, your challenge is to find out how fruit works in your body. Does eating fruit in the morning make it more difficult to keep your blood glucose controlled through the day? Does one particular kind of fruit send your blood glucose soaring? Or does a piece of fruit as an afternoon snack give you just enough carbohydrate to last until dinner? Use blood glucose monitoring to answer your questions about how fruit works in your body.

Eat some fruit each day for vitamins, minerals, and fiber. Be honest with yourself about your serving sizes. It is easy to drink a few extra ounces of fruit juice or to call a huge piece of fruit 1 serving when it is at least 2. The steps to take to track your response to fruit are: Check the serving size, eat your fruit, and check your blood glucose level about 1½ to 2 hours later.

Easy ways to eat more fruit:

- Put slices of banana or peaches on cold cereal.
- Add dry fruit (such as raisins, apricots, or apples) when cooking hot cereal.
- Keep a plastic container full of cut up fruit -- have some at breakfast or for a snack topped with plain or fruited non-fat, sugar-free yogurt (to get a bit more calcium).
- Take one or two pieces of fruit from home each day to eat with lunch and as an afternoon snack or on your way home to knock the edge off your ravenous appetite.
- Keep dried fruit, raisins, figs, apricots, peaches, pears, etc., around. Use it for a snack, try it as fuel for long hikes or bike rides, or stash in your desk or locker.
- Toss a few raisins, pieces of apple, dried apricot, or pineapple chunks on a salad.
- Have canned or jarred fruit in the pantry -- applesauce, peaches, pears and pineapple for starters.
- Toss fruit into entrees -- pineapple in stir-fry or on make-your-own-pizza; fresh or dried cranberries or peaches in chicken, or apricots or apples in pork dishes.

- Combine fruit with vegetables -- crushed pineapple in coleslaw, raisins in carrot salad, make a Waldorf salad with apples, raisins, walnut and celery.
- Serve fruit with the main course -- applesauce with pork chops or roast, pineapple with ham, low-sugar cranberry sauce with chicken.
- Grill fruit on skewers and serve as dessert with a few ginger snaps or vanilla wafers or serve as part of the main course.

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## The Diabetes Food Pyramid: Protein

People with diabetes have no less or more need for protein than the general public. Plus, they have a greater risk of heart disease earlier in life. One of the most important nutrition guidelines to follow is "eat less saturated fat." A quick way to do that is to cut down on animal protein foods -- meats, whole milk dairy foods, and high-fat cheeses (such as cheddar, brie, or American). If you cut down on animal protein, you can be pretty sure you will cut down on saturated fat and cholesterol as well.

### Make Protein S-t-r-e-t-c-h

A way to make small servings of protein appear larger is to incorporate them into an entree such as low-fat ground beef or turkey sausage in a tomato sauce served over pasta. For ideas, take lessons from cultures that have long practiced making a small amount of protein feed many mouths -- Chinese stir-fry, Mexican burritos, or Japanese sukiyaki. This accomplishes several pyramid goals -- less meat, less fat, more starches and more vegetables. From time to time, take these recipes one step further and eliminate meat all together.

### Easy ways to eat less protein

- Split a sandwich with a friend in restaurants by asking for extra pieces of bread or additional rolls. Share a salad plate, for example tuna or chicken salad, and request bread or rolls be served on the side.
- In fast food restaurants, order single, regular, or junior size sandwiches and stay away from the doubles and triples.
- Order a take-home container (doggie-bag) if you order an entrée with a serving of meat that is more than 6 ounces. Split the serving when your plate is set before you. Take it home for lunch or dinner tomorrow.
- Make your own sandwiches with less protein and more vegetables.
- Take up more room on your plate with whole grains, starches, and vegetables. Leave room on the side for meat. The meat portion should take up only 1/4 of your plate. Think of meat as a side dish, not the main course.
- Buy smaller quantities (just what you need for the purpose) so you eat less.
- Load sandwiches with raw vegetables (easier with pita bread because you can stuff the pocket).
- Start the day without a serving of meat at breakfast. Try a bowl of cereal, a small bagel, or an English muffin.
- Gather recipes that use less meat and more grains, beans and vegetables -- try to make a new one each week or two.

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## The Diabetes Food Pyramid: Fat

The total amount of fat you eat should be based on the foods you like and your goals for eating healthy and blood lipid (blood fats) and glucose control. You need an individualized eating plan. For example, a young athlete with type 1 diabetes might need 4,000 calories a day during football season. He probably needs to eat 40% of his calories from fat, just to get all those calories. Even though he is eating a higher number of calories as fat, he still should choose foods with less saturated fat and cholesterol and more monounsaturated fat (such as olive oil, canola oil, avocado, [nuts](#), or olives).

Conversely, a small woman with type 2 diabetes who needs to lose some weight, may need to keep the amount of fat she eats at about 25% of calories or below to achieve her nutrition and diabetes goals.

One of the most important diabetes nutrition guidelines is to hold saturated fat to less than 7% of calories. Why? Because saturated fat raises blood cholesterol. High blood cholesterol is a risk factor for heart disease. People with diabetes have more frequent heart disease. Limiting saturated fat could lower your risk for this diabetes complication. Also, some people with abnormal blood lipids (fat) and a high triglyceride might benefit from increasing the amount of monounsaturated fats they eat. As for cholesterol, keep it to 200 mg or less each day. Some foods high in cholesterol are egg yolks and organ meats (liver or kidney).

### How To Cut Down On Saturated Fat

Concentrate on decreasing the amount of:

#### Meats

- Purchase lean cuts.
- Cut off all visible fat prior to cooking.
- Use preparation methods that get rid of more fat, such as grilling.
- Eat 2-3 ounce portions (cooked). This serving is about the size of the palm of your hand, a deck of cards, or a mayonnaise jar lid.

#### Poultry

- Take off the skin either before or after cooking.

#### Seafood

- Prepare with small amounts of fat.
- Eat 2-3 ounce portions (cooked).

#### Cheese

- Limit the amount you eat.
- Buy part skim, or reduced fat cheeses.

### **Butter**

- Use tub margarine.
- Use butter on occasion, maybe in a recipe.

### **Milk/Yogurt**

- Use the fat-free (skim) varieties.

### **Processed Foods**

- Read the labels of processed foods and check for tropical oils (such as palm or coconut), and see how far down on the ingredient list they fall. Ingredients are listed in descending order of predominance in the product. The ingredient used in the greatest quantity is listed first, and the ingredient used in the smallest quantity is listed last.

### **How to tank up on monounsaturated fats**

- Monounsaturated fats are known as the good guys. Monounsaturated fats offer the benefit of lowering cholesterol, while not decreasing the body's good cholesterol (HDL).
- Stock canola and/or olive oil in your cupboard. Use these oils to sauté, cook, prepare salad dressing or bake.
- Throw a few [nuts](#) on foods -- salads, desserts, stir-fries.
- Use a slice or two of avocado on a salad, to garnish a casserole, or for guacamole as a Mexican topping.
- Use a few olives on a relish plate, to toss in a salad, as a garnish.
- Buy canola or olive oil-based commercial salad dressings, canola-based margarine and mayonnaise or make your own with olive or canola oil.

### **Easy ways to spare and skim the fat**

- Use fat-free or no more than 1% milk.
- Take advantage of light and reduced fat cheeses. Find out which products you like best. Sometimes you just need to use less of the regular to get the taste you enjoy.
- If a recipe calls for cheese and you want to use a regular type, buy a sharp variety and use a smaller quantity. The sharper taste gives more flavor with a smaller amount.
- Buy the low-fat, light, and fat-free products that taste good to you. You might have to experiment with several -- margarine, butter (or blends), cream cheese, cottage cheese, mayonnaise, and sour cream. Remember, these products are

not calorie-free. Be sure to read the [Nutrition Facts Label](#) to learn more about the product.

- Buy the low-fat, reduced-calorie or fat-free salad dressing that has the taste you like. No matter what salad dressing you use, don't pour on too much. Remember a 1/4 of a cup can contain as many carbohydrates as a slice of bread.
- Use low or no sugar jelly or jam instead of margarine or cream cheese on bagel, toast, or muffins.
- Use plain, fat-free yogurt or fat-free sour cream instead of regular sour cream -- add herbs and seasonings to make it tasty. Use it on baked potatoes, vegetables, chicken and fish.
- Always keep fresh lemon and lime on hand to squirt on vegetables and fish at the table instead of adding more fat (such as sauces, butter or margarine).
- When you buy meats, buy lean cuts; trim off excess fat; prepare in low fat and moist ways.
- Marinate meats and vegetables in wine, vinegars, seasonings and spices to add flavors without adding fat.
- Consider using applesauce, prune puree or other dried fruit puree to replace fat in baked goods recipes. Check the back of boxes for some recipes or write to the manufacturer to request recipes.

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## The Diabetes Food Pyramid: Sugar

Research studies show that, gram for gram, sugars, like table sugar, do not raise blood glucose any more quickly than do other carbohydrates, like potatoes, rice or pasta. This research holds true for people with type 1 and type 2 diabetes.

A variety of factors influence how quickly food is digested. A meal with a large amount of fat or fiber, and lots of raw foods takes more time to digest. The blood glucose level at the time you eat and how much diabetes medication is in your body has a major impact, too.

### It's Not A Sugar Free-For-All

If and when you choose to eat sweets, according to your individual diabetes and nutrition goals, substitute these foods for other carbohydrates in your meal plan. Recall the nutrition message for all Americans, it is the same for people with diabetes -- Choose a diet moderate in sugars.

To determine the amount of sugars and sweets to eat, answer these questions:

1. Is your blood glucose in good control and your hemoglobin A1C at a desirable level?
2. Are your blood fats in your target range -- total cholesterol, LDL, HDL and triglycerides?
3. How much do you enjoy sugars and sweets, and how often do you want a small serving to help you stay on track with your eating plan?

Get sugar-wise:

- Keep the healthy eating guidelines top of mind.
- Prioritize your personal diabetes goals. Which comes first -- blood glucose control, weight loss, or lower blood fats. Your priorities dictate how you strike the balance with sugars and sweets.
- Choose a few favorite desserts and decide how often to eat these in light of your personal diabetes goals -- maybe twice a week, just when dining out, or only at a special celebration.
- Note the calories, total fat, saturated fat, and cholesterol of the desserts you prefer. Make your choices with these numbers and your diabetes goals in mind.
- Quench your sweet tooth with a small portion of your favorite sweet.
- Split a dessert in a restaurant (ask your server for one serving and four spoons).
- Take advantage of smaller portions when options present themselves, such as at an ice cream or frozen yogurt shop.
- Substitute a sugar-free sweetened food for the regular -- hot cocoa or an ice pop.

- Use the [Nutrition Facts panel on food labels](#) to determine the number of grams of carbohydrate per serving size. This will let you know how to swap a sugary or sweet food in your meal plan for a starch, fruit, or milk.
- Check blood glucose and observe the affect of different sugars and sweets. Let this information help you decide what sweets to eat.
- Keep a watch on hemoglobin A1c and blood fats to see if eating more sweets leads these number on an unhealthy up swing.

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