



# Diabetes & Diet: Myths/Facts

Healthy Eating Tip of the Month  
April 2009

*Diabetes is a serious medical condition that affects millions of Americans. Proper education on diabetes and diet is important in treating diabetes and preventing complications. There are numerous misconceptions about diabetes and diet; therefore, it is important to be able to separate fact from fiction in order to optimize diabetes management. This website is designed to educate the public on basic diabetes concepts and dispel common diabetes & diet myths.*

## What is diabetes?

Diabetes is a disease that affects the body's ability to produce or use insulin properly. Insulin is a hormone that provides the body with glucose, which is the body's main source of energy. Diabetes results when insulin is not available to take the glucose from the blood into the cells and a build up of glucose in the blood occurs.

There are three major types of diabetes including type 1, type 2, and gestational diabetes. In type 1 diabetes, the body is unable to produce insulin. Type 1 diabetes usually affects children and young adults, and is formally known as juvenile diabetes. In type 2 diabetes, the body is unable to use insulin effectively. Type 2 diabetes is the most common form of diabetes. In gestational diabetes, pregnant women who have never been diagnosed with diabetes develop high blood glucose levels during pregnancy. Diabetes is a chronic medical condition that can be treated with diet and lifestyle changes.

## How prevalent is diabetes?

There are 23.6 million people in the United States (8% of the population) who have diabetes. Of the 23.6 million people in the United States who have diabetes, 17.9 million people have been officially diagnosed with diabetes while the other 5.7 million people remain undiagnosed. Approximately 12 million men in the United States over the age of 20 have diabetes, although, 1/3 of them do not know it; and approximately 11.5 million women in the United States over the age of 20 have diabetes, although, 1/4 of them do not know it. The prevalence of diabetes is 2 to 4 times higher among non-Hispanic Black, Hispanic/Latino American, American Indian, and Asian/Pacific Islander women than among non-Hispanic white women.

Diabetes was the seventh leading cause of death listed on U.S. death certificates in 2006; however, diabetes is likely underreported as a cause of death. Overall, the risk of death for people with diabetes is about twice that of people the same age without diabetes.

## How is diabetes diagnosed?

Health care providers can perform a fasting plasma glucose test or an oral glucose tolerance test in order to diagnose diabetes. Diabetes can be either diagnosed with a fasting plasma glucose test of 126 mg/dl or higher, or a glucose tolerance test of 200 mg/dl or higher.

## What are the risk factors for developing diabetes?

- Family history of diabetes
- Overweight
- Inactive
- Over 45 years of age
- African American, Asian American, Native American, or Pacific Islander heritage
- History of gestational diabetes or having a baby weighing over 9 pounds
- High cholesterol and/or high blood pressure
- Autoimmunity or environmental factors (type 1 diabetes)

## What are the symptoms of diabetes?

- Frequent urination
- Increased thirst
- Increased appetite
- Weight loss
- Tiredness
- Blurred vision
- Slowly healing infections or wounds
- Pain, numbness, or tingling in the feet

## What are the complications of diabetes?

- Heart Disease: Heart disease is the leading cause of death for people with diabetes. People with diabetes are 2 to 4 times more likely to have heart disease than people without diabetes. People with diabetes tend to have other risk factors for heart disease including high blood pressure, obesity, and hardening of the arteries.
- Blindness: High blood sugar levels over time can damage the blood vessels in the retina of the eye, which can lead to blindness. It is important, therefore, for people with diabetes to have yearly eye exams.
- Kidney Failure: High blood sugar levels over time can damage the kidneys, which can eventually lead to kidney failure requiring either dialysis treatment or kidney transplantation.
- Foot Ulcers: People with diabetes are at risk for foot injuries related to numbness caused by nerve damage and decreased blood flow to the legs and feet. The most serious foot injury is a foot ulcer, which can become infected and may not heal properly. When a foot ulcer cannot heal properly, amputation may be required.

## How is diabetes treated?

- Glucose monitoring
- Meal planning
- Physical activity
- Medications (pills or insulin)

## Why should I monitor my blood sugar?

Monitoring your blood sugar can help you take better control of your diabetes. Checking your blood sugar can help you learn how your body responds to food, exercise, and medication. It is important to

talk to your health care provider and/or dietitian about when and how often you should test your blood sugar.

### What should my blood sugar levels be?

Target blood sugar levels for people with diabetes:

Before Meals	70-130 mg/dl
1-2 Hours After Start of Meals	Less than 180 mg/dl



### How can I keep my blood sugar level at a healthy level?

- Eat about the same amount of food each day.
- Eat meals and snacks around the same time each day.
- Avoid skipping meals or snacks.
- Take your medications at the same time each day.
- Exercise at the same time each day.

### What is low blood sugar or hypoglycemia?

Low blood sugar, or hypoglycemia, occurs when blood sugar levels are less than 70 mg/dl. Symptoms of low blood sugar include shakiness, sweatiness, increased heartbeat, anxiety, hunger, blurred vision, weakness, dizziness, and/or confusion.

### What causes low blood sugar levels?

- Missing meals or snacks
- Taking too much insulin or oral medications
- More physical activity than usual
- Drinking too much alcohol

### How do I treat low blood sugar levels?

Low blood sugar levels are treated by consuming 15 gm of carbohydrate (4 glucose tablets or 4-6 ounces of fruit juice). If your blood sugar level is very low, less than 50 mg/dl, consume 30 gm of carbohydrate. It is important to wait 15 minutes after consuming the carbohydrate and test your blood sugar again to make sure it has normalized.

## How can I plan my meals?

People with diabetes have the same nutrition needs as people without diabetes. They should follow a healthy diet that is low in fat, modest in salt and sugar, with meals consisting of whole grain foods, vegetables, and fruit. It is important, however, for people with diabetes to keep track of the amount of carbohydrates they consume. The amount of carbohydrates a person requires varies depending on age, gender, size, activity level, and medications. People with diabetes should consume a consistent amount of carbohydrate daily to help keep blood sugar levels as normal as possible.

## What are carbohydrates?

Carbohydrates, or carbs, are the sugars, starches, or fiber in your diet. Sugars in your diet can be either natural or added. Natural sugars are found in fruits, milk, and vegetables while added sugars are found in desserts, sweetened beverages, and candies. Starches are grains, breads, pastas, cereals, and starchy vegetables including potatoes, peas, and corn. Fiber is found in all plant foods including vegetables, fruits, and beans. Whole grains including brown rice, oats, barley, whole wheat breads, and whole-wheat pasta also contain fiber.

## What are some food sources of carbohydrates?

- Breads, grains, cereal, rice, pasta
- Milk and milk products
- Starchy snacks – chips, popcorn
- Some sugar-free foods
- Fruit and fruit juices
- Legumes (dried beans)
- Sweets – candy, ice cream, cookies
- Starchy vegetables – corn, potatoes



## What are complex & simple carbohydrates?

Complex carbohydrates are chains of three or more single sugar molecules linked together. Complex carbohydrates are found in fruits, vegetables, nuts, seeds, and grains. Foods that contain complex carbohydrates include bread, cereal, pasta, potatoes, corn, rice, and carrots. The majority of your diet, about half of your daily calorie needs, should come from complex carbohydrates.

Simple carbohydrates, on the other hand, are made up of one or two sugar molecules linked together. Foods that contain simple carbohydrates include ice cream, cookies, and candies. A very small amount of your daily calorie needs should come from simple carbohydrates. Milk and fruit also contain simple carbohydrates, but they occur naturally and provide essential vitamins and minerals.

### **How many carbohydrates should people with diabetes eat?**

The amount of carbohydrates people with diabetes should eat depends on age, gender, size, activity level, and medications. One serving of a carbohydrate-containing food has 15 gm of carbohydrate. Most adult women require 3-4 servings of carbohydrate at each meal or 45-60 gm of carbohydrate daily. Most adult men require 4-5 servings of carbohydrate at each meal or 60-75 gm of carbohydrate daily. Whole grains, milk, beans, vegetables, and fruit all contain high quality carbohydrates.

### **How do carbohydrates affect blood sugar levels?**

When carbohydrates are eaten and digested, they are converted to glucose or sugar. The key to managing diabetes is controlling the amount of sugar circulating in the blood. It is important for people with diabetes to eat the same amount of carbohydrate daily to help keep blood sugar levels as normal as possible. Checking blood sugar levels before you eat, and two hours after meals, can help you determine the amount of carbohydrate needed to maintain optimal blood sugar control.

### **How many carbohydrates are in foods?**

Reading food labels for carbohydrate content is important in controlling diabetes. When reading food labels, it is important to pay close attention to the serving size and fiber content and adjust the carbohydrate content accordingly. For example, if there is more than one serving, you will need to multiply the number of servings by the total carbohydrate content. Similarly, if there is more than 5 gm of fiber in a serving, you will need to subtract the grams of fiber from the total carbohydrate content. This will give you the amount of carbohydrate that will affect your blood sugar. See the sample food label below:

**Refried Beans/Frijoles**  
canned

Nutrition Facts		
Serving Size: 1/2 cup		
Amount Per Serving		
<b>Calories</b> 140	Calories from Fat 27	
	% DV*	
<b>Total Fat</b> 3g	5%	
Saturated Fat 0g	0%	
<b>Cholesterol</b> 0mg	0%	
<b>Sodium</b> 480mg	20%	
<b>Total Carbohydrate</b> 23g	8%	
Dietary Fiber 6g	24%	
<b>Protein</b> 8g	16%	
<b>Unofficial Pts 2</b>		
*Percent Daily Values (DV) are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:		
Nutrient	2,000 Calories	2,500 Calories
Total Fat	less than 65 g	80 g
Saturated Fat	less than 20 g	25 g
Cholesterol	less than 300 mg	300 mg
Sodium	less than 2400 mg	2400 mg
Total Carbohydrates	300 g	375 g
Fiber	25 g	30 g
<b>1 g Fat = 9 calories    1 g Carbohydrate = 4 calories</b>		
<b>1 g Protein = 4 calories</b>		
Percent of Calories from:		
<b>Fat-19.3%</b>	<b>Carb-65.7%</b>	<b>Protein-22.9%</b>
(Total may exceed 100% due to rounding)		

← Determine serving size

← Determine grams of carbohydrate

← Subtract grams of fiber if there are more than 5 grams in a serving

.....

In 1/2 cup of this product 23g of carbs minus 6g of fiber equals 17 total grams of Carbs

**How many carbohydrates are in foods without labels?**

Determining the carbohydrate content of foods without a label can be challenging. Ask your dietitian for a carbohydrate content list or visit a reputable website that provides the carbohydrate content on various foods.

The chart below shows the carbohydrate content of different foods and the serving size that would provide 15 gm of carbohydrate (one serving of carbohydrate).

<b>Foods</b>	<b>15 gm Carbohydrate (1 Serving)</b>
Pasta, Rice, Beans	1/3 cup
Bread	1 slice (1 ounce)
Milk	1 cup
Cookies	2 small
Ice Cream (vanilla, chocolate, strawberry)	1/2 cup
Fresh Fruit	1 medium

## What are some healthy snacks for people with diabetes?

Healthy snacking is important for people with diabetes. Snacking helps prevent hunger and low blood sugar levels. Snacks should be eaten 3-4 hours after a meal and the carbohydrates should be incorporated into the meal plan.

### Healthy Snack Ideas (15 grams of Carbohydrates):

- 1 small fruit
- 1 low-fat Granola Bar
- $\frac{3}{4}$  cup unsweetened cereal
- 3 graham crackers
- 15 mini pretzels
- 8 animal crackers

## What types of medications treat diabetes?

People with type 1 diabetes, and some people with type 2 diabetes, require insulin. Many people with type 2 diabetes require oral diabetes medications such as sulfonylureas, meglitinides, biguanides, thiazolidinediones, and alpha-glucosidase inhibitors. These different oral diabetes medications work differently to lower blood sugar levels.

## Why is it important for people with diabetes to exercise?

- Increases sensitivity to insulin
- Lowers blood pressure
- Lowers blood sugars
- Lowers heart rate
- Helps maintain proper body weight
- Lowers cholesterol
- Increases energy
- Helps decrease stress

\*It is important for people with diabetes to check with their health care provider before starting an exercise program



Here are some examples of various exercises and the amount of calories burned:

Light Activity	Calories/hour	Calories/minute
Light housework	150	2.5
Strolling, 1.0 mile/hour	150	2.5
Golf, using power cart	175	3.0
Level walking, 2.0 miles/hour	200	3.5

Moderate Activity	Calories/hour	Calories/minute
Cycling, 5.5 miles/hour	210	3.5
Gardening	220	3.5
Canoeing, 2.5 mile/hour	230	4.0
Cleaning	240	4.0
Lawn mowing, power mower	250	4.0
Lawn mowing, hand mower	270	4.5
Walking, 3.0 miles/hour	275	4.5
Bowling	300	5.0
Golf, pulling cart	300	5.0
Scrubbing floors	300	5.0
Rowboating, 2.5 miles/hour	300	5.0
Swimming, .25 miles/hour	300	5.0
Cycling, 8 miles/hour	325	5.5
Golf, carrying clubs	350	6.0
Badminton	350	6.0
Horseback riding, trotting	350	6.0

Moderate Activity	Calories/hour	Calories/minute
Square dancing	350	6.0
Volleyball	350	6.0
Roller skating	350	6.0
Doubles tennis	360	6.0
Calisthenics and ballet exercise	360	6.0

Strenuous Activity	Calories/hour	Calories/minute
Vigorous dancing	320-500	5.5-8.5
Cycling, 10miles/hour	400	6.5
Ice skating, 10miles/hour	400	6.5
Wood chopping or sawing	400-600	6.5-10.0
Walking, 5miles/hour	420	7.0
Cycling, 11miles/hour	420	7.0
Singles tennis	420	7.0
Water-skiing	480	8.0
Hill climbing, 100 feet/hour	490	8.0
Downhill skiing	550	9.0
Running, 5.5miles/hour	600	10.0
Squash and handball	600	10.0
Cycling, 13 miles/hour	660	11.0
Running, 6-10 miles/hour	660-900	11.0-15.0
Cross-country skiing	600-1200	10.0-20.0

## What are some common diabetes & diet myths/facts?

**Myth:** People with diabetes cannot eat sweets or chocolate.

**Fact:** People with diabetes can incorporate sweets or chocolate into their meal and exercise plans. These types of foods are no more restricted to diabetic people than they are to people without diabetes. These types of foods, however, should be eaten sporadically.

**Myth:** Eating too much sugar causes diabetes.

**Fact:** Diabetes is NOT caused by eating too much sugar. The exact cause of diabetes is still unknown, but genetic and lifestyle

factors, such as obesity and lack of routine physical activity, appear to play major roles.

**Myth: People with diabetes should avoid or limit starchy foods.**

**Fact:** Starchy foods are part of a healthy, well-balanced diet. It is important to keep track of portion sizes when choosing these types of foods. Most people with diabetes can consume 3-4 servings of starchy foods daily. Whole grain breads, cereals, pasta, rice, and starchy vegetables like potatoes, peas, and corn can be included in the meal plan. Consuming whole grain starchy foods also provides fiber, which can help promote bowel regularity.

**Myth: People with diabetes should eat special diabetic foods.**

**Fact:** People with diabetes should follow a healthy diet that is low in fat, modest in salt and sugar, with meals consisting of whole grain foods, vegetables, and fruit. Diabetic versions of sugar-containing foods have no benefits. These special diabetic foods can still raise blood sugar levels, are often expensive, and can have a laxative effect if they contain sugar alcohols.

**Myth: Fruit is a healthy food that can be eaten in unlimited amounts.**

**Fact:** It is true that fruit is a healthy food as it contains fiber and many vitamins and minerals, but fruit also contains carbohydrates. People with diabetes need to discuss with their dietitian how much fruit should be incorporated into their meal plans.

**Myth: Diabetes is contagious.**

**Fact:** Diabetes is NOT contagious. It cannot be caught from another person like the common cold or flu. Diabetes is a disease that appears to be linked to genetic and lifestyle factors, but the exact cause of diabetes is still not known.

**Myth: People with diabetes should avoid carbohydrates.**

**Fact:** Carbohydrates should NOT be avoided as they are the body's preferred source of energy. A healthy diet should consist



of about 50-60% of total calories coming from carbohydrates. It is important for people with diabetes to balance carbohydrate intake with medication and exercise in order to achieve optimal blood glucose control.

**Myth: Insulin cures diabetes.**

**Fact:** Insulin cannot cure diabetes. Insulin removes glucose from the blood and moves it into the body's cells. It can help keep blood sugars under control, but it does not correct the underlying problem.

**Myth: People with diabetes can tell whether their blood sugar levels are high or low.**

**Fact:** Some people with diabetes experience symptoms like extreme thirst, weakness, or fatigue if their blood glucose levels are high or low, but other people may have no symptoms at all. The only way to tell if blood glucose levels are high or low is to test them.

**Myth: People with A1C levels less than 8 percent do not need to make changes to their diabetes regimens.**

**Fact:** Achieving optimal glucose control is extremely important. Aiming for close to the normal A1C range (less than 6 percent) lowers your chance of developing diabetes complications.

**Myth: Diabetes is not as serious if you are taking pills instead of insulin for treatment.**

**Fact:** Diabetes is a serious medical condition no matter what kind of medication you are taking for treatment. Poorly controlled diabetes can lead to other health complications such as heart or kidney disease. Every 10 seconds a person dies of diabetes-related causes.





**For more information on diabetes & diet, visit  
the following websites:**

<http://www.diabetes.org>

<http://www2.niddk.nih.gov>

<http://www.nlm.nih.gov/medlineplus/diabetes.html>

<http://www.med.umich.edu/diabetes/patients/educate.htm>

<http://ndep.nih.gov>

**Visit the University of Michigan Hospital cafeteria and look for the Healthy Eating Tip of the Month bulletin board.**

**While there, you can enter to win a Stick Me Pocket!**



Stick Me Pockets are diabetes meter testing supply bags that are fresh and functional.

Stick Me Pockets have a key ring attached so you can keep keys handy or attach it to your favorite bag or handbag. Sturdy enough to keep your supplies safe, and stylish enough to disguise its' contents.

Each Stick Me Pocket is specifically designed to keep your supplies safe and at hand. Constructed with a protective padding that shields your supplies from everyday travels.

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