

## What Is Diabetes?

Today's bacteria are more virulent and harder to control than past years. Due to antibiotic overuse in the animal population, coupled with resistance to pesticides, it is more difficult to keep our food sources healthy and us safe. The liberal use of hand sanitizers, instead of soap and water, has affected our ability to temper food poisoning. Food poisoning is on the rise and holds higher consequences for the young, the old, those with immune disorder and those who suffer from a chronic illness such as diabetes. The bacteria, Diabetes mellitus is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin production, insulin action or both. Diabetes is a chronic, progressive disease that requires lifestyle changes, especially in the areas of nutrition and physical exercise.

## Who Is at Risk for Diabetes?

- Individuals who have family members with diabetes
- Individuals who are overweight and sedentary
- Individuals who have high blood pressure and low good cholesterol/ high triglycerides
- Individuals belonging to certain minority groups (African Americans, Hispanics, Asians, American Indian)
- Women who have had babies weighing more than 9 pounds

## Symptoms of Diabetes

Often diabetes goes undiagnosed because many of its symptoms seem so harmless. Recent studies indicate that the early detection of diabetes symptoms and treatment can decrease the chance of developing the complications of diabetes.

Some diabetes symptoms include:

- Frequent urination
- Excessive thirst
- Extreme hunger
- Unusual weight loss
- Increased fatigue
- Irritability
- Blurry vision

## Types of Diabetes

- **Type 1** diabetes was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 diabetes develops when the body's immune system destroys pancreatic beta cells, the only cells in the body that make the hormone insulin that regulates blood glucose. Type 1 diabetes is less common than type 2—about 5-10% of people with diabetes have type 1.
- **Type 2** diabetes was previously called non-insulin-dependent diabetes mellitus (NIDDM). Type 2 diabetes may account for about 90%-95% of all diagnosed cases of diabetes. It usually begins as insulin resistance, a disorder in which the cells do not use insulin properly. As the need for insulin rises, the

pancreas gradually loses its ability to produce insulin. Type 2 diabetes is increasingly being diagnosed in children and adolescents.

## Treating Diabetes

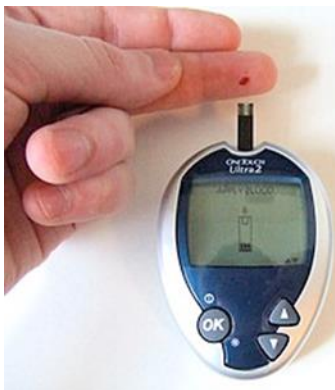
To survive, people with Type 1 diabetes must have insulin delivered by injections or a pump. Many people with Type 2 diabetes can control their blood glucose by following a careful diet and exercise program, losing weight and taking oral medications. Many people need to take medication to control their cholesterol and blood pressure. Among the people diagnosed with diabetes, 12 % take both insulin and oral medications, 19% take insulin only, 53% take oral medications only and 15% do not take either insulin or oral medications. (Statistics are constantly changing.)



## Testing Blood Glucose

Testing blood glucose levels pre-meal and post-meal can help the person with diabetes make better food choices, based on how their bodies are responding to specific foods.

The blood glucose values should be recorded with date and time and any associated signs and symptoms that were experienced at the time the specimen was obtained.



Daily periodic testing



Continual testing

A glycosylated hemoglobin (HbA1c) test, that shows the amount of sugar that attaches to the protein in the red blood cell, should be drawn on a regular basis (usually twice a year). The test shows the average blood sugar during the last three months. The high blood sugar over a long period of time causes damage to the large and small blood vessels therefore increasing the risk of complications from diabetes.

## Complications of Diabetes

Diabetes can affect many parts of the body and can lead to serious complications such as:

- Cerebrovascular incident/stroke
- Coronary heart disease
- Peripheral vascular disease/ lower limb amputations

- Kidney disease/renal failure
- Diabetic retinopathy/ blindness
- Oral lesions/gum disease

### Additional Health Education Needs

- Weight control
- Importance of smoking cessation
- Cholesterol and lipid management
- Blood pressure monitoring and control
- Dealing with depression and stress
- Skin and foot care
- Dental care

### Diet and Diabetes

#### How Food Affects Your Blood Sugar?

Whether you have Type 1 or Type 2 diabetes, what you eat affects your glucose level. Blood glucose is the main sugar found in the blood and the body’s main source of energy. Keeping the blood glucose at a healthy level will prevent or slow down diabetes problems. Each person needs to find out the healthy blood glucose level for him/her.

#### What Should Glucose Levels Be?

For most people, the target blood glucose levels are:

Before meals	90 to 130
1 to 2 hours after the start of a meal	less than 180

#### How Can a Person Keep His/Her Blood Glucose at a Healthy Level?

- Eat the same amount of food each day.
- Eat meals and snacks at about the same time each day.
- Do not skip meals or snacks.
- Take medications at the same times each day.
- Exercise at about the same time each.

#### What Are the Signs of Low Blood Sugar (hypoglycemia)?

- Feeling weak
- Dizziness
- Sudden change in heartbeat
- Feeling hungry

## What to Do If Hypoglycemia Occurs?

If blood sugar is 70 or less, eat one of the following immediately:

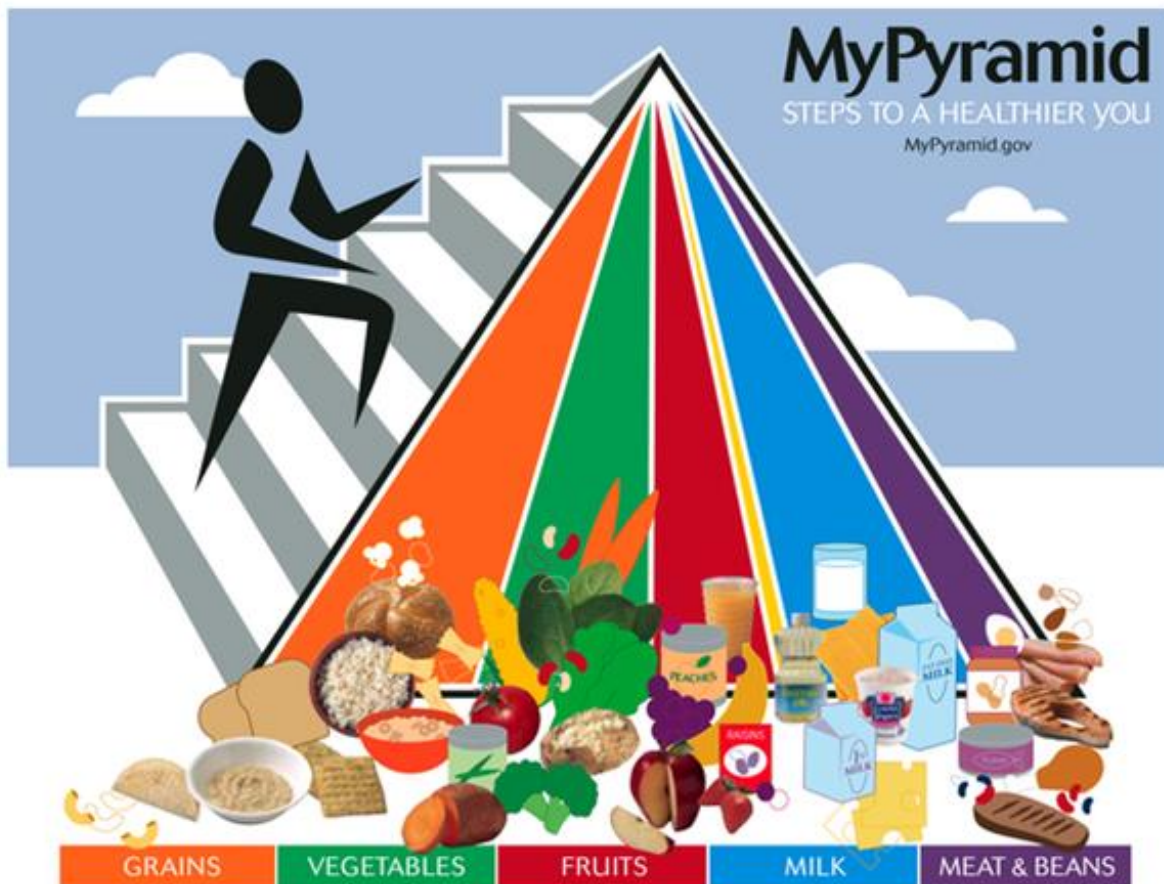
- 2 to 3 glucose tablets
- ½ cup (4 ounces) of any fruit juice
- ½ cup (4 ounces) of a regular soft drink (not diet)
- 1 cup (8 ounces) of milk
- 5 to 6 pieces of hard candy
- 1 to 2 teaspoons of sugar or honey

## What Types and Amounts of Food Should Be Eaten Daily?

People with diabetes need to maintain a healthy diet consisting of multiple servings of fruit, vegetables, whole grains, low fat dairy products, fish, lean meats and poultry.

The person's physician or diabetes teacher will develop the correct meal plan. This plan is based on the individual's appetite, preferred foods, usual schedule of food intake, activities and cultural preferences. Determination of caloric needs varies considerably among individuals and is based on present weight and current level of energy. Emphasis should be placed on maintaining a consistent day-to-day carbohydrate intake at meals and snacks. It is the carbohydrates (found in starches and grains) that have the greatest impact on glycemia.

## The Food Pyramid



## How Much Should Be Eaten Each Day?

Eat a variety of food to get the vitamins and minerals needed.

Have about **1,200 to 1,600 calories a day** if you are:

- A small woman who exercises
- A small or medium woman who wants to lose weight
- A medium woman who does not exercise much

Choose these many servings from these food groups to have  
**1,200 to 1,600 calories per day:**

6 starches/grains	2 milk or yogurt
3 vegetables	2 meat or meat substitute
2 fruit	up to 3 fats

Have about **1,600 to 2,000 calories a day**  
if you are:

- A large woman who wants to lose weight
- A small man at a healthy weight
- A medium man who does not exercise much
- A medium to large man who wants to lose weight

Choose these many servings from these food groups to have  
**1,600 to 2,000 calories per day:**

8 starches/grains	2 milk and yogurt
4 vegetables	2 meat or meat substitute
3 fruit	up to 4 fats

Have about **2,000 to 2,400 calories a day**  
if you are:

- A medium to large man who does a lot of exercise or has a physically active job
- A large man at a healthy weight
- A large woman who exercises a lot or has a physically active job

Choose these many servings from these food groups to have  
**2,000 to 2,400 calories per day:**

11 starches/grains	2 milk and yogurt
4 vegetables	2 meat or meat substitute
3 fruit	up to 5 fats

## Measuring the Food

To measure food servings, make sure to have measuring cups, measuring spoons and food scale available. Also, the Nutrition Facts label on food packages tells how much of that food is in one serving. Portion size is critical to maintaining the proper menu plan.

These tips will help you choose the right serving sizes:

- Measure a serving size of dry cereal or hot cereal, pasta or rice and pour it into a bowl or plate. The next time you eat that food, use the same bowl or plate and fill it to the same level.
- For one serving of milk, measure 1 cup and pour it into a glass. See how high it fills the glass. Always drink milk out of that size glass.
- Meat weighs more before it is cooked. For example, 4 ounces of raw meat will weigh about 3 ounces after cooking. For meat with a bone, like a pork chop or chicken leg, cook 5 ounces raw to get 3 ounces cooked.
- One serving of meat or meat substitute is about the size and thickness of the palm of your hand or a deck of cards.
- A small fist is equal to about ½ cup of fruit, vegetables or starch like rice.
- A small fist is equal to a small piece of fresh fruit.
- A thumb is equal to about 1 ounce of meat or cheese.
- A tip of a thumb is equal to about 1 teaspoon.

## Starches/Grains

### *Examples of Starches/Grains and Serving Size:*

Bread – 1 slice	Potatoes – 1 small	Tortillas – 1 small
Pasta – ½ cup	Rice – 1/3 cup	Beans – ½ cup
Corn – 1 small ear	Yams – ½ cup	Crackers – varies with type

### *What Are Healthy Ways to Eat Starches/Grains?*

Remember it is the carbohydrates that have the biggest impact on glycemia (blood sugar).

- Buy whole grain breads and cereals.
- Eat fewer fried and high fat starches such as regular tortilla chips and potato chips, french fries, pastries or biscuits. Try pretzels, fat-free popcorn, baked tortilla or potato chips, baked potatoes, or low-fat muffins.
- Use low-fat or fat-free yogurt or fat-free sour cream instead of regular sour cream on a baked potato.
- Use mustard instead of mayonnaise on a sandwich.
- Eat cereal with fat-free or low-fat 1% milk.

## Meats and Meat Substitutes

### *Examples of Meats and Meat Substitutes and Serving Size:*

Lean meat – 2-3 ounces	Egg – 1
Chicken (skinless) – 2-3 ounces	Tofu 4 ounces – (1/2 cup)
Fish – 2-3 ounces	Peanut Butter – 2 tablespoons
Cheese – varies with type	

### *What Are Healthy Ways to Eat Meat or Meat Substitutes?*

- Buy cuts of beef, pork, ham and lamb that have only a little fat on them. Trim off extra fat.
- Eat chicken or turkey without the skin.

- Cook meat or meat substitutes in low-fat ways: Broil, Roast, Steam, Grill, Stir-fry, Stew
- To add flavor, use vinegars, lemon juice, soy or teriyaki sauce, salsa, ketchup, barbecue sauce, herbs and spices.
- Cook eggs with cooking spray.
- Limit the amounts of nuts, peanut butter and fried chicken that you eat. They are high in fat.
- Choose low-fat or fat-free cheese.

## Vegetables

Vegetables give you vitamins, minerals and fiber, with very few calories.

### *Examples of Vegetables and Serving Size:*

Lettuce – 1 cup	Green beans – ½ cup
Broccoli – ½ cup	Peppers – ½ cup
Vegetable juice – ½ cup	Tomato sauce – ½ cup
Carrots – ½ cup	Greens – ½ cup

### *What Are Healthy Ways to Eat Vegetables?*

- Eat and cooked vegetables with little or no fat, sauces or dressing.
- Try low-fat or fat-free salad dressing on raw vegetables or salads.
- Steam vegetables using a small amount of water or low-fat broth.
- Mix in some chopped onion or garlic.
- Use a little vinegar or some lemon or lime juice
- Add a small piece of lean ham or smoked turkey instead of fat to vegetables when cooking.
- Sprinkle with herbs and spices. These flavorings add almost no fat or calories.
- If you do use a small amount of fat, use canola oil, olive oil, or soft margarines (liquid or tub types) instead of fat from meat, butter or shortening.

## Fruits

### *Examples of Fruit and Serving Size:*

Apple – 1 small	Banana – 1
Fruit juice – ½ cup	Strawberries – 1 ¼ cups whole berries
Grapefruit – ½	Orange – 1 small

### *What Are Healthy Ways to Eat Fruit?*

- Eat fruits raw or cooked, as juice with no sugar added, canned in their own juice, or dried.
- Buy smaller pieces of fruit.
- Eat pieces of fruit rather than drinking fruit juice. Pieces of fruit are more filling.
- Drink fruit juice in small amount.
- Save high-sugar and high-fat fruit desserts such as peach cobbler or cherry pie for a special occasion.

## Milk and Yogurt

### *Examples and Serving Size:*

Fat-free or low-fat yogurt – 1 small container
Skim or 1% milk – 1 cup

### *What are Healthy Ways to Have Milk and Yogurt?*

- Drink fat-free or low-fat 1% milk

- Eat low-fat or fat-free fruit yogurt sweetened with a low-calorie sweetener.
- Use low-fat plain yogurt as a substitute for sour cream.

## Fats

Limit the amount of fats you eat. They have calories, but not much nutrition. Some contain saturated fats and cholesterol that increase your risk of heart disease. Limiting these foods will help you lose weight and keep your blood glucose and fats under control.

### *Examples of Fats and Serving Size:*

Bacon – 1 strip	Light mayonnaise – 1 tablespoon
Oil – 1 teaspoon	Soft margarine – 1 teaspoon
Avocado – ¼	Regular salad dressing – 1 tablespoon
Olives – varies with type	Light salad dressing – 2 tablespoons

### *What Are Healthy Ways to Have Fats?*

- Use canola oil, olive oil instead of oils from meat, butter or shortening.
- Select light or fat-free salad dressings.
- Try turkey bacon.
- Use cooking spray when possible.

## Sweets

Remember, fat-free and low sugar foods still have calories!

### *Examples of Sweets and Serving Sizes:*

Cookies – 1 3-inch cookie	Maple syrup – 1 tablespoon
Doughnut – 1 plain cake	Ice Cream – ½ cup
Candy – 4 chocolate kisses	

### *How Can You Satisfy a Sweet Tooth?*

- It's okay to have sweets once in a while but not daily.
- Try having sugar-free Popsicles, diet soda, fat-free ice cream or frozen yogurt.
- Reward yourself with a cup of sugar-free hot cocoa.
- Share desserts in a restaurant.
- Order small or child-size servings of ice cream or frozen yogurt.
- Divide homemade desserts into small servings and wrap each individually. Freeze the extras.
- Don't keep dishes of candy in the house or at work.

## How to Find Help

**Diabetes Teachers** (nurses, dietitians, pharmacists and other health professionals)

- To find a diabetes teacher near you, call the American Association of Diabetes Educators toll-free at 1-800-TEAMUP4 (1-800-832-6874) or see [www.diabeteseducator.org](http://www.diabeteseducator.org) and click on "Find a Diabetes Educator."

**Recognized Diabetes Education Programs** (teaching programs approved by the American Diabetes Association)

- To find a program near you, call toll-free 1-800-DIABETES (1-800-342-2383) or see [www.diabetes.org/education/edustate2.asp?loc=x](http://www.diabetes.org/education/edustate2.asp?loc=x).



**National Diabetes Information Clearinghouse**

- Address: 1 Information Way, Bethesda, MD 20892-3560
- E-mail: [ndic@info.niddk.nih.gov](mailto:ndic@info.niddk.nih.gov)

**If you have any questions about this topic, please reach out to CompassionLink at [info@compassionlink.org](mailto:info@compassionlink.org). We will be happy to answer your questions.**

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