

# Managing Diabetes

The Diabetes Self-care Management program at Florida Hospital is a two-part program that can help people live well with diabetes.

## Part One

In the hospital, your nurse and dietitian will help you learn the basic diabetes skills you need to go home safely.

## Part Two

At the Florida Hospital Diabetes Institute, we build on the basics that you have learned so you'll have the necessary information to manage your diabetes every day.

Outpatient classes are available in English and Spanish. You may bring one family member or close friend to class if you wish. Classes are covered by most insurance plans.

*To schedule an appointment, call (407) 303-2822 or toll free to (800) 648-9040, or visit our website at [www.FloridaHospitalDiabetes.com](http://www.FloridaHospitalDiabetes.com).*

Additional information and resources can be found on Page 18.

## Before Leaving the Hospital

There are some important things you need to know:

- ▶ How to test my blood glucose levels
- ▶ Medicines I need to take and how to take them
- ▶ What to recognize when my blood glucose is too high or too low, and what to do if this happens
- ▶ When I should call the doctor



## Checklist Before Leaving the Hospital

- I have a prescription for a blood glucose monitor and for the glucose test strips.
- I have a prescription for insulin/oral medications.
- I have been given information on contacting the outpatient center.

# Understanding the Basics of Diabetes

## What is diabetes?

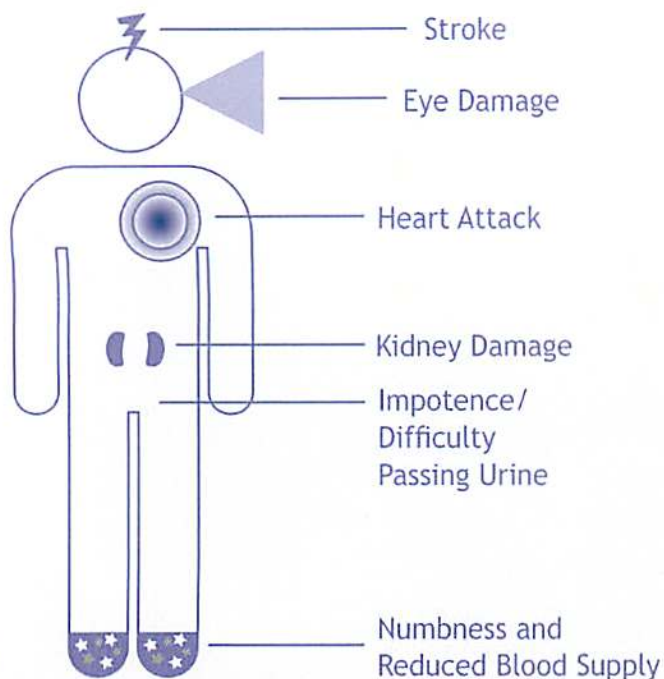
Diabetes occurs when your body makes too little or no insulin and/or does not use the insulin well, resulting in an elevated blood glucose level. Insulin is required to remove glucose from the blood for the body to turn it into energy.

There are two main types of diabetes:

- ▶ **Type 1 diabetes:** the body does not make insulin. People with type 1 need to take insulin every day.
- ▶ **Type 2 diabetes:** the body does not make enough insulin or use insulin well. People with type 2 often need to take pills or insulin. Type 2 is the most common type of diabetes.

Diabetes is a serious disease that affects almost every part of your body, but you can learn to manage it.

Taking good care of yourself and your diabetes can help you feel better and avoid health problems, such as:



# Nutrition: Eating Healthy

## Eat the Right Portions of Healthy Foods

### Carbohydrates

- ▶ **Whole grains/starches:** Choose whole grains such as whole-wheat bread, whole-wheat pasta, brown rice, oatmeal or bran cereals daily. Eat a variety of colorful, starchy and non-starchy vegetables each day.
- ▶ **Fruit:** Include a variety of colorful fruits each day.
- ▶ **Milk:** Choose low-fat milk and yogurt daily.

### Protein

Include small amounts of lean protein sources such as fish, skinless chicken breast, egg whites or light cottage cheese at each meal.

### Fat

Limit high-fat protein sources such as regular ground beef, ham, prime rib, dark chicken with skin and cheeses. Remove extra fat and skin from meats.

### Eat Regular Meals

Eat three meals each day, spaced four-five hours apart. Eat about the same amount of food, especially carbohydrates, at the same times each day.

### Do Not Skip Meals

If a meal must be delayed, eat a carbohydrate serving taken from the next meal at the normal meal time.

## Food Labels

1. Note the serving size.
2. Look at the total grams of carbohydrates in the serving size.
  - ▶ On this label, the carbohydrate is 35g and would count as two carbohydrate servings.
3. Ignore the total grams of sugar because they are already included in the total carbohydrate.

### Nutrition Facts

① ▶ Serving Size 1 cup (228g)  
Servings Per Container 2

#### Amount Per Serving

Calories 250      Calories from Fat 110

#### % Daily Value\*

<b>Total Fat</b> 12g	18%
Saturated Fat 3g	15%
Trans Fat 0g	
<b>Cholesterol</b> 30mg	10%
<b>Sodium</b> 470mg	20%
② ▶ <b>Total Carbohydrate</b> 35g	14%
Dietary Fiber 5g	5%
③ ▶ Sugars 5g	
<b>Protein</b> 7g	



- ▶ Do not order breaded or fried food, and leave the cheese or cheesy sauces off.
- ▶ Ask for substitutes such as a non-starchy vegetable/salad instead of french fries.
- ▶ Stay away from offers that include “jumbo, giant, biggie-sized, or super-sized.”
- ▶ Order sandwiches with broiled meats without toppings such as rich sauces or mayonnaise—instead ask for lettuce, tomatoes, onions and mustard to add flavor.

## Eating Out

If you eat out, find ways to follow your usual meal plan as much as possible.

- ▶ Try to eat the same portion as you would at home.
  - ▶ Put extra food in a container to go.
  - ▶ Eat slowly.
  - ▶ Ask for chicken or fish without extra butter and added salt.
  - ▶ Order a baked potato plain then top it off with a teaspoon of butter or sour cream.
  - ▶ Ask for sauces, gravies and salad dressings on the side—dipping your fork into the sauce and then spearing your food will decrease the amount you use.
- 5

## Snacks

Include a small bedtime snack if you take oral medicines that increase the amount of insulin your body makes or if you take a longer-acting insulin like NPH, 70/30 or 75/25. It may also be needed if you take Lantus or Levemir insulin.

## Eating Right Begins with the Balanced (Meal) Plate Method

The plate method is an easy way to help you eat right. Each meal should include a healthy balance of carbohydrate, lean protein and other important nutrients. Portion control is the key to managing your diabetes.

Here's how to do it:

- ▶ Use a nine-inch plate
- ▶ In your mind, divide it into three parts—there should be one big part and two small parts as illustrated below
- ▶ Fill your plate as shown below
  - ▶ Half of the plate: non-starchy vegetables
  - ▶ A quarter of the plate: whole grains or starchy vegetables
  - ▶ A quarter of the plate: lean protein source
  - ▶ Side dishes: a portion of low-fat dairy and a portion fruit

## Carbohydrate Facts

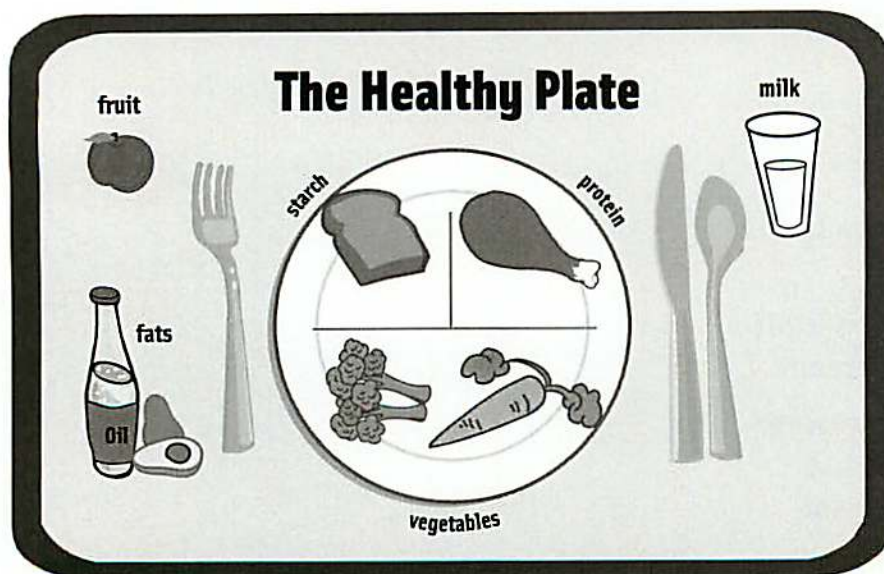
What exactly are carbohydrates, and how do they affect your blood glucose?

Because the body turns carbohydrates into glucose, eating carbohydrates makes blood glucose levels rise. But that doesn't mean you should avoid them if you have diabetes. Carbohydrates are a healthy and important part of a nutritious diet.

Why count grams of carbohydrates?

The amount of carbohydrates you eat at meals and snacks affects how high your blood glucose level rises afterwards. Eating the same amount of carbohydrate at meals and snacks helps your diabetes medicines work correctly, so your blood glucose does not become too high or too low.

- ▶ Most women need three-four carbohydrates at meals.
- ▶ Most men need four-five carbohydrates at meals.
- ▶ One-Two carbohydrates are reasonable for a snack for women and men.
- ▶ A carbohydrate portion is 15 grams.



Balanced Meal (Plate) Method

# Medicines to Control Your Diabetes

## Oral Medicines for Diabetes

Oral diabetes medicines are used for type 2 diabetes and are not a substitute for eating right, exercising or losing weight.

### How They Work

Oral diabetes medicines work to either lower the blood glucose by helping the pancreas to make insulin or by keeping the liver from making extra glucose. Oral diabetes medicines can also work by helping insulin work better in the body.

### Common Medicines Used for Diabetes Management

ORAL MEDICATION	NOTES
Amaryl, Glucotrol/Glipizide, Glucotrol XL, Micronase/Glyburide/Diabetia, Prandin, and Starlix	help the pancreas make more insulin take at the start of the meal-EXCEPT Glucotrol (plain) should be taken 30 minutes before the meal Glucotrol XL should not be cut, broken or crushed
Glucophage/Metformin/Glumetza/Riomet/Fortamet	keeps the liver from making too much glucose
Avandia and Actos	help the muscles to use insulin better
Januvia, Onglyza	Increases release of insulin in response to food and decreases glucose made by the liver
Glucovance/Avandamet/Actoplus Met/Avandaryl/Janumet/Metaglip/Duetact/Prandimet/Kombiglyze	Pills that combine two of the common medicines in one pill

INJECTABLES	NOTES
Victoza	non-insulin once-daily medication that helps improve blood sugar levels
Byetta	non-insulin twice- a-day medication that helps improve blood sugar levels
Symlin	Non-insulin medication that is used with insulin and taken at meals to help improve blood sugar levels

# Medicines to Control Your Diabetes

## Types of Insulin

Insulin comes in different types that work for shorter or longer periods of time.

BRAND NAMES	GENERIC NAMES	HOW THEY WORK	APPEARANCE
Novolog® Humalog® Apidra®	Lispro Aspart Glulisine	Fast acting. Starts working in about 15 minutes, reaches full effect in 30 to 90 minutes, and lasts for three to four hours. Those taking this type of insulin need to be sure they eat their meal within 15 minutes after taking their insulin.	Clear in the bottle
Novolin R Humulin R	Regular	Short acting. Starts working in 30 minutes, reaches full effect in two to four hours, and lasts six to ten hours.	Clear in the bottle
Novolin N Humulin N	NPH	Longer acting. Starts working in one to two hours, reaches full effect in six to eight hours, and lasts 12 to 18 hours.	Cloudy in the bottle
Lantus® Levemir®	Glargine Detemir	Very long acting. Released at a relatively constant rate for 24 hours and is given at the same time each day, usually at bedtime. Lasts up to 24 hours. NEVER mix Lantus® or Levemir® in the same syringe with any other insulin.	Clear in the bottle

Premixed insulins, such as 70/30, 75/25, 50/50, have a fast-, short- or longer-acting insulin that has already been mixed in certain combinations. They are cloudy/white in the bottle. Sometimes you will need to mix different kinds of insulin in a syringe yourself before you give an injection. *If your insulin looks different, discolored, lumpy, the glass bottle looks 'frosted' or it is past its expiration date, do not use it.*

# Measuring and Administering Insulin

## Measuring One Insulin

### INSTRUCTIONAL STEPS 1-4



1. Roll cloudy insulin to mix



2. Wipe top of bottle

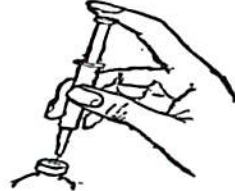


3. Take cap off needle

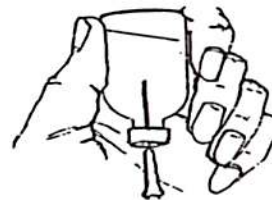


4. Pull air into syringe to match your dose

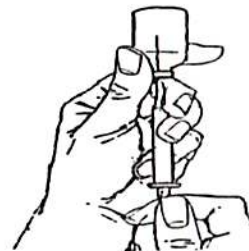
### INSTRUCTIONAL STEPS 5-7



5. Push air into bottle



6. Turn bottle upside down



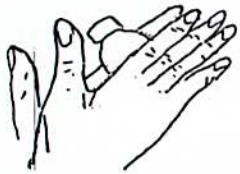
7. Pull syringe plunger back to your dose

**Check for air bubbles  
(air takes the place of insulin)**

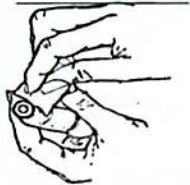
Push back until there are no air bubbles, then pull plunger back to your dose.

# Mixing Two Insulins

## INSTRUCTIONAL STEPS 1-7



1. Roll cloudy insulin to mix



2. Wipe top of bottle



3. Take cap off needle



4. Pull air into syringe to match your dose of cloudy insulin



5. Push air into bottle of cloudy insulin



6. Take needle out—do not draw insulin

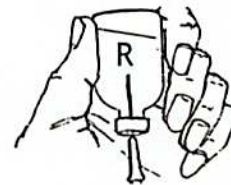


7. Pull air into syringe to match your dose of clear insulin

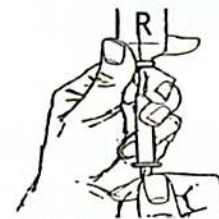
## INSTRUCTIONAL STEPS 8-13



8. Push air into bottle of clear insulin



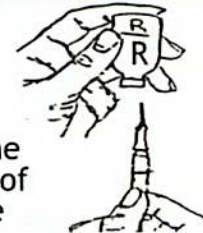
9. Turn bottle upside down



10. Pull syringe plunger back to your dose of clear insulin.

**Check for air bubbles  
(air takes the place of insulin)**

Push back until there are no air bubbles, then pull plunger back to your dose of clear insulin.



11. Take the needle out of the bottle



12. Put needle in the bottle of cloudy insulin  
Turn bottle upside down

13. Pull plunger back to your total dose of insulin



clear insulin  
+ cloudy insulin  
-----  
total dose of insulin

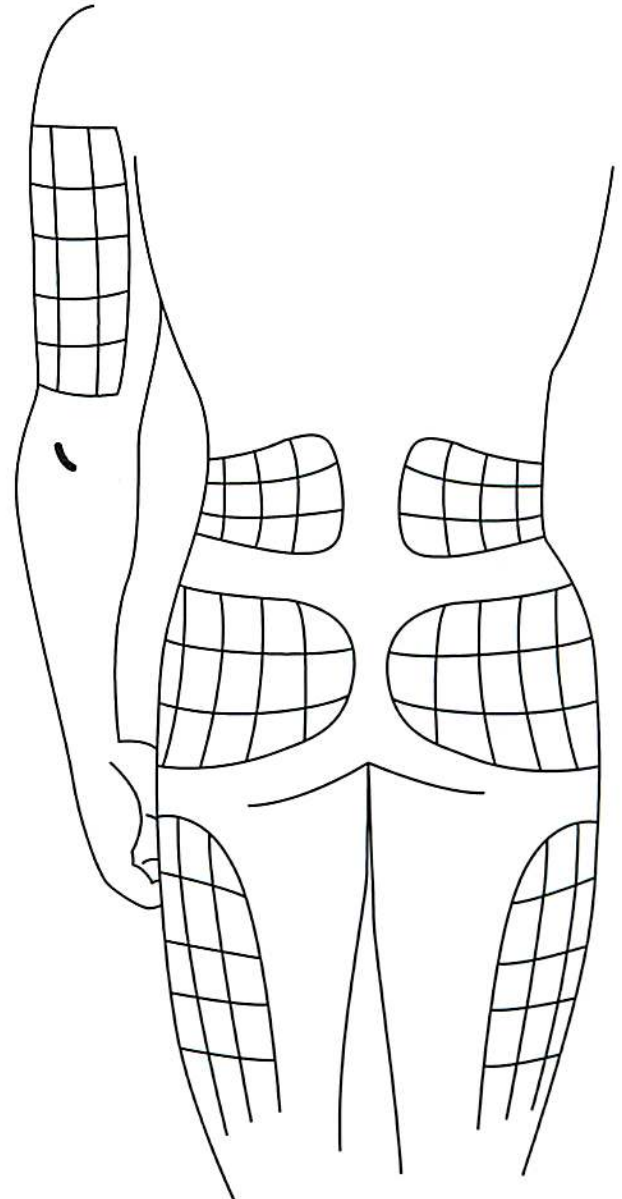
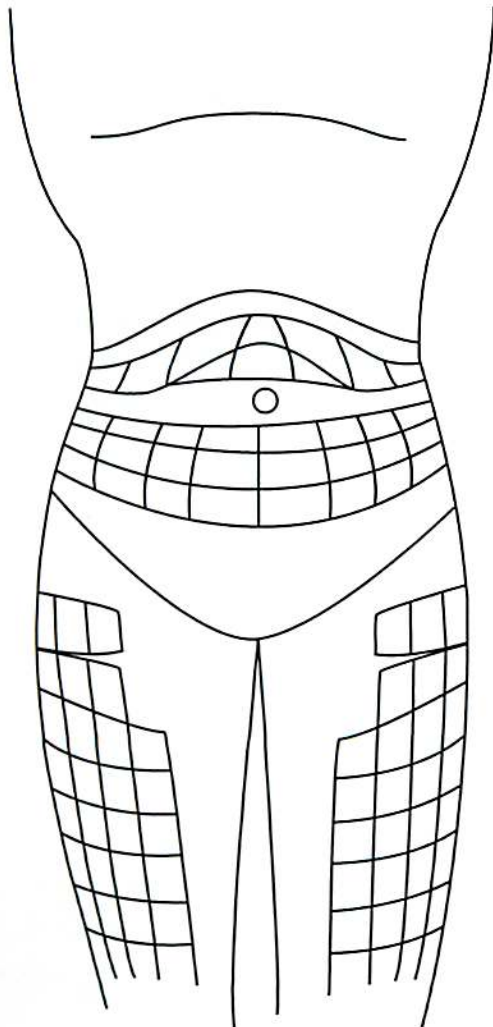


# Measuring and Administering Insulin

## Injection Sites

Site rotation is different for every person, but here are the basics:

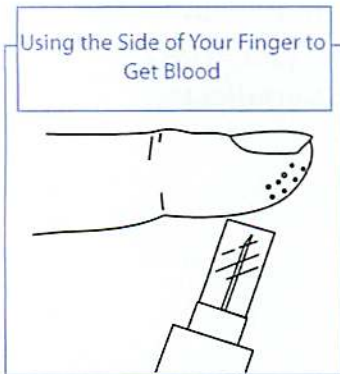
- ▶ Do not inject in the same spot every time. Move about a finger-width away from your last shot each time you rotate.
- ▶ Don't inject too close to moles or scars.
- ▶ Some people rotate only within a certain body area, like the abdomen. Others may use the abdomen for morning injections and the thigh or some other area for evening injections. Talk to the doctor or diabetes educator about the best options for you.
- ▶ If you inject in the arm, use only the outer back area of the upper arm (where the most fat is). Otherwise, you run the risk of injecting into a muscle.
- ▶ If you inject in the thigh, use only the top and the outside area (where the most fat is). Stay away from the inner thighs due to the blood vessels there.
- ▶ If you inject in the abdomen, stay at least one to two inches from the navel. The tissue there is tougher and makes the insulin absorption less predictable.



# Monitoring Your Blood Glucose Levels

## How

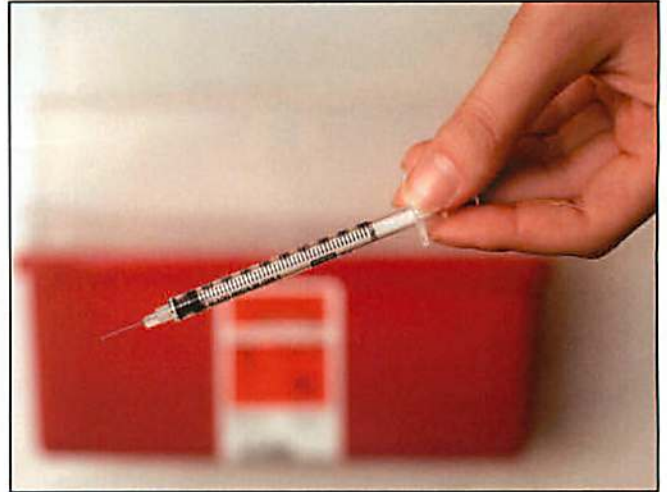
- ▶ Your nurse will instruct you on the use of your blood glucose meter.
- ▶ Use a new lancet for each finger stick—do not reuse them due to risk of infection.
- ▶ Write results down in the logbook on Page 13. See Page 19 for an additional lookbook.



## Why check blood glucose at home?

- ▶ To know what your blood glucose level is
- ▶ To see changes in your blood glucose and learn what causes them
- ▶ To help you and your doctor choose a meal plan and the right medicine
- ▶ Research shows better control with frequent testing
- ▶ Ask your doctor how often to test and at what time of the day
  - ▷ Before meals, one to two hours after meals, bedtime
- ▶ Ask your health care provider to establish what your goals should be
  - ▷ Your level should usually be 70 to 130 before meals and less than 180 after meals
- ▶ Use a new lancet for each finger stick—do not reuse them due to risk of infection

# Disposing of Sharps



- ▶ Throwing out syringes and lancets is a little more complicated than throwing them in the nearest trash can. Needles can accidentally cut whoever takes out the trash or collects your family's garbage. To protect others, it's important to dispose of syringes carefully.
- ▶ Each county has rules about what container to use and where to take or put used "sharps". Call your county Health Department if you have questions.
- ▶ Until you obtain a sharps container, used syringes and lancets should be put in a puncture-resistant container such as a heavy-duty plastic or metal container with a tight-fitting lid (coffee can or capped detergent bottle).
- ▶ Do not put any container with sharps out for regular trash pick up.
- ▶ Most local disposal sites will only take a sharps container.
- ▶ Many places offer sharps containers and disposal free of charge:
  - ▷ Orange and Seminole County Fire Departments (not city fire departments)
  - ▷ Polk County Health Department
  - ▷ Osceola County Fire Department, Health Department

# Keeping Track of Your Diabetes

Week of: \_\_/\_\_/\_\_ to: \_\_/\_\_/\_\_

My blood sugar goals are:

Name: \_\_\_\_\_

\_\_\_\_\_ mg/dL to \_\_\_\_\_ mg/dL before meals

Doctor \_\_\_\_\_

\_\_\_\_\_ mg/dL to \_\_\_\_\_ mg/dL 2 hours after meals

Phone \_\_\_\_\_

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		Time / Result	Time / Result	Time / Result	Time / Result	Time / Result	Time / Result	Time / Result
Breakfast	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
Lunch	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
Dinner	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
Bedtime	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
2 AM/3 AM		/	/	/	/	/	/	/
Comments								
NOTES								

# Low Blood Glucose

Hypoglycemia is when the blood glucose is less than 70.

## Causes of Low Glucose Levels

- ▶ Too little food
- ▶ Delayed meal
- ▶ Too much insulin or diabetes medicine
- ▶ More exercise than usual
- ▶ Alcohol use

## Symptoms of Low Blood Glucose

-  **BLURRED VISION**
-  **HEADACHE**
-  **SWEATING**
-  **DIZZINESS**
-  **FAST HEARTBEAT**
-  **SHAKING**
-  **ANXIETY**
-  **WEAKNESS/FATIGUE**
-  **IRRITABILITY**
-  **HUNGER**



## What to Do

- ▶ Test your blood glucose. If your blood glucose is lower than 70—**YOU NEED TO TREAT IT!**
- ▶ Take a fast-acting carbohydrate - half a cup of fruit juice or regular soda, one cup of low fat milk, 3-4 glucose tablets, or four hard candies.  
Do NOT use chocolate.
- ▶ Wait 15 minutes then retest your blood glucose:
  - ▶ If blood glucose is normal (70 mg/dl or greater), then eat a snack of carbohydrate and protein if it's more than one hour until next meal.
  - ▶ If blood glucose is less than normal (less than 70 mg/dl), continue to take a fast-acting carbohydrate and retest your blood glucose every 15 minutes until your blood glucose is within normal limits.
- ▶ Eat a snack of carbohydrate and protein if it's more than one hour until your next meal.

*Call your doctor if you have low blood glucose for which you needed help to treat, or if you have*

# High Blood Glucose

*low blood glucose more than one time per week.*

Hyperglycemia is blood glucose greater than 180.

## Causes of High Glucose Levels

- ▶ Too much food - portion sizes too large or extra snacks
- ▶ Too many servings of carbohydrates in a meal
- ▶ Not taking enough insulin or diabetes medicine
- ▶ Skipping doses
- ▶ Taking less than prescribed
- ▶ Sick days or emotional stress
- ▶ Not getting enough exercise

There are warning signs for high blood glucose. The diagram here shows some of the common side effects that occur when experiencing high blood glucose.

## Symptoms of High Blood Glucose



**BLURRED VISION**



**HEADACHE**



**EXTREME THIRST**



**NAUSEA**



**HUNGER**



**FEELING DROWSY**



**DRY SKIN**



**GOING TO THE BATHROOM A LOT**

## What to Do

- ▶ Drink eight ounces of water per hour. Drinking water will help prevent dehydration caused by high blood glucose and will make it easier for insulin to lower the blood glucose. It is important that you drink something that does not contain sugar.
- ▶ If your blood glucose is greater than 250 and you have type 1 diabetes, your doctor may ask you to check your urine for ketones.
- ▶ Keep taking your insulin or medicines.
- ▶ Test your blood glucose at least four times per day.
- ▶ Contact your health care professional if your blood glucose is over 180 for four tests in a row, over 180 at the same time of the day for two days in a row, over 300 at any time or if you have ketones in your urine.
- ▶ Do not exercise if:
  - ▶ Type 1 diabetes - blood glucose is greater than 250 and ketones are present
  - ▶ Type 2 diabetes - fasting blood glucose is greater than 300

Exercise at these blood glucose levels can increase, instead of decrease, blood glucose levels.

# Sick-Day Plan

It happens to all of us: the common cold, fever, nausea, vomiting and diarrhea. For people with diabetes, these common illnesses can raise your blood glucose levels. A sick-day plan can help you manage your blood glucose levels and get you back on your feet sooner. Ask your doctor about flu and pneumonia vaccines to help keep you healthy.



- ▶ Follow your meal plan. Your body needs energy to heal. If you have nausea or vomiting, choose liquids or soft foods such as soup, popsicles, crackers or toast to eat. These are easier on your stomach.
- ▶ Take your temperature if you have fever or chills.
- ▶ If you have vomiting or diarrhea, drink salty liquid such as broth or bouillon. These will help to prevent dehydration.
- ▶ Take all of your diabetes medicines or insulin as scheduled; do not omit doses. Call your doctor if you cannot keep oral diabetes medicine down.
- ▶ Test your blood sugar levels at least every four hours.

# Call your doctor:

- ▶ If you are unable to keep liquids or medicine down, experience abdominal pain, weight loss of three pounds in one day or, temperature greater than 101 degrees
- ▶ If an illness lasts longer than 48 hours or if nausea/vomiting or diarrhea lasts longer than six hours
- ▶ If your blood glucose levels are higher than 180:
  - ▷ For more than 24 hours (four tests)
  - ▷ Two tests in a row
  - ▷ Two days in a row at the same time of day
- ▶ If you see moderate to large ketones in your urine
- ▶ If your blood glucose level gets higher than 300 at any time
- ▶ If you have blood glucose levels lower than 70:
  - ▷ For no known reason
  - ▷ You need help to treat
  - ▷ You find low blood glucose, but have no symptoms
  - ▷ More than one time a week
- ▶ If you have a sore that is not healing

# How to Stay Healthy

## ABCs of Managing Diabetes

### A is for the A1c Test

This test shows how well your blood glucose has been controlled over the last three months. It should be checked at least twice a year. \*The goal for most people is less than seven (glucose average of 154). High blood glucose levels can harm your heart, kidneys, feet and eyes.

### B is for Blood Pressure

The blood pressure goal for most people is below 130/80. High blood pressure makes your heart work too hard. It can cause heart attack, stroke and kidney disease.

### C is for Cholesterol

Bad cholesterol, or LDL, can build up and clog your blood vessels. It can cause a heart attack or a stroke. The LDL goal for most people is less than 100.

\*American Diabetes Association, 2009.



## How often should you have tests?

TEST	TARGET	FREQUENCY
A1C (Glucose Avg)	Below 7	At least twice a year
Blood Pressure	Below 130/80	At every visit
Cholesterol	Below 100	At least once a year

## Tips to Help You Stay Healthy

### Reach Your ABC Goal

- ▶ Follow your food plan
- ▶ Get 30 to 60 minutes of activity on most days
- ▶ Stay at a healthy weight
- ▶ Stop smoking
- ▶ Check your blood glucose and keep levels at or near goal

### Keep Your Diabetes ABCs Under Control

- ▶ Work with your health care provider to develop a plan
- ▶ Don't be too hard on yourself—work toward a healthy future
- ▶ Complete comprehensive diabetes education as an outpatient—*Call 407-303-2822 or toll free to (800) 648-9040 for an appointment.*

# Support Groups and Resources



Join us for a diabetes support group session where you can exchange information, feelings and ideas. Groups offer open discussion, questions-and-answer sessions and other activities, free of charge.

## Support Groups -- Florida Hospital Orlando

(407)-303-2822, Option 3

## Support Groups -- Florida Hospitals Celebration Health and Kissimmee

(407)-303-2822, Option 3

## Some helpful websites:

<http://www.floridahospitaldiabetes.com>

<http://www.diabetes.org>

<http://www.americanheart.org>

## Completing Your Diabetes Education

During your hospital stay, you completed Part One of your diabetes education—basic diabetes skills. Part Two of your education—diabetes self-management for daily living—takes place as an outpatient at the Florida Hospital Diabetes Institute. There you will attend education classes taught by registered nurses and registered dietitians certified in diabetes education (CDEs). These classes build on the basics so you'll have the information necessary to manage your diabetes every day and decrease the risk of diabetes complications throughout your life.

Classes are offered at multiple locations throughout Central Florida and are available in both English and Spanish. The cost of education and supplies are covered by most insurance plans.

*For an appointment or more information, call Florida Hospital Diabetes Institute at (407) 303-2822 or toll-free (800) 648-9040.*



# Keeping Track of Your Diabetes

Week of:   /  /   to:   /  /  

Name: \_\_\_\_\_

Doctor \_\_\_\_\_

Phone \_\_\_\_\_

My blood sugar goals are:

\_\_\_\_\_ mg/dL to \_\_\_\_\_ mg/dL before meals

\_\_\_\_\_ mg/dL to \_\_\_\_\_ mg/dL 2 hours after meals

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
		Time / Result	Time / Result	Time / Result	Time / Result	Time / Result	Time / Result	Time / Result
Breakfast	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
Lunch	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
Dinner	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
Bedtime	Before	/	/	/	/	/	/	/
	After	/	/	/	/	/	/	/
Medicine/Comments								
2 AM/3 AM		/	/	/	/	/	/	/
Comments								
NOTES								



**FLORIDA HOSPITAL**

DIABETES INSTITUTE

*The skill to heal. The spirit to care.*

Florida Hospital Diabetes Institute | [www.floridahospitaldiabetes.com](http://www.floridahospitaldiabetes.com)