



SURVIVAL SKILLS FOR MANAGING YOUR DIABETES

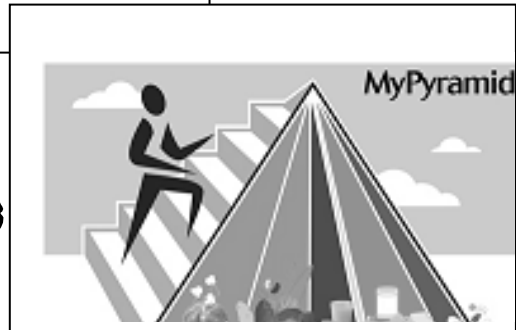


Table of Contents

<u>Topic</u>	<u>Page</u>
Your Hospital Stay	3
What is Diabetes	4
Types of Diabetes	4 & 5
The 7 Basic Skills	5
• #1 Managing your Blood Glucose	6
• #2 Managing your Diabetes Pills	7
• #3 Managing Your Insulin Plan.	8
- Types of Insulin	9
- Drawing and Injecting Insulin	10 & 11
• #4 Managing Low Blood Glucose (Hypoglycemia)	12
• #5 Sick Day Guidelines	13
- When To Call Your Doctor	14
• #6 Managing High Blood Glucose. (Hyperglycemia)	15
• #7 Managing Your Meal Plan.	16
- The Plate Method	17
“My Discharge Plan”	18
“My Insulin Treatment Plan”	19 & 20

YOUR HOSPITAL STAY

How long you stay in the hospital depends on your condition. **Diabetes** may not be the only reason you were admitted. Some conditions such as stress of illness, infection, or surgery make it difficult to manage your blood glucose levels. It is very important to keep your blood glucose under control to help your body heal well and recover. Your health care team will monitor your blood glucose levels frequently and adjust your medicine to meet your needs.

What to expect from your hospital stay:

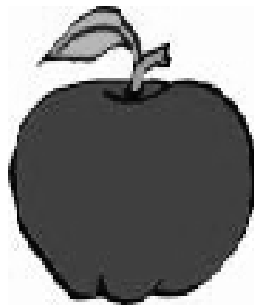
You may get an intravenous (IV) line placed in a vein to give you fluids and other medicines – this may include insulin, if needed.

You may need insulin shots during your stay. You may also need insulin shots when you go home even if you take diabetes pills. If you need insulin at home, your health care team will teach you:

1. How your body uses insulin
2. How to give insulin shots
3. The type(s) of insulin you need
4. When to take insulin in relation to meal times
5. "My Insulin Treatment Plan"

It is also important to know:

1. How to take diabetes pills if needed
2. How and when to test your blood glucose
3. "My Diabetes Discharge Plan"



What is Diabetes?

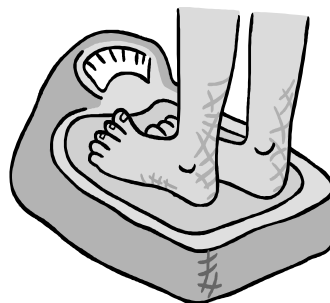
Diabetes is a self-managed condition that affects how well your body uses **glucose**. The most common types of diabetes are **type 1** and **type 2**. Both types of diabetes mean that your blood glucose is higher than normal.

When you eat foods that contain carbohydrate, your body breaks it into simple sugar called glucose. This glucose enters your blood stream. In order for your body to use glucose, it must have **insulin**. Insulin is a hormone that is made by the **pancreas** (an organ in your abdomen). Insulin carries the glucose into the muscle and fat cells that will then use it for energy production. Diabetes results when insulin is absent, reduced, or not used well by the body. As a result blood glucose levels rise above normal.

Type 2 diabetes:

With type 2 diabetes, the pancreas can make some insulin but does not use it properly. The cells of the body become **insulin resistant**, which means that the blood glucose does not enter cells as it should. This results in higher than normal blood glucose. People with type 2 diabetes usually have inherited a tendency to have the condition but lifestyle plays a very large role.

Exercise, losing excess weight, or simply eating healthier may reduce **insulin resistance** and help your body use insulin better.



Some people with type 2 diabetes need diabetes pills that help the body use insulin better or help the pancreas make more insulin. Others may also need insulin shots to meet their needs. Diabetes pills and insulin shots can be taken together, if needed, for blood glucose control.

Type 1 diabetes:

This condition is caused when the body's immune system attacks the insulin producing cells (beta cells) of the pancreas. As a result, people with type 1 diabetes do not make any insulin and require daily lifelong insulin injections (shots). The dose must be carefully balanced with carbohydrate intake and exercise.

There is no cure for diabetes. To manage diabetes you need to take special care of yourself and keep blood glucose in a safe range.

*****Managing Your Diabetes with the 7 Basic Skills*****

Basic Skill #1: Managing your **Blood Glucose**

Basic Skill #2: Managing your **Diabetes Pills**

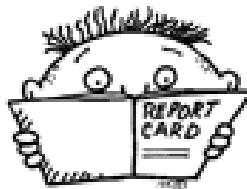
Basic Skill #3: Managing your **Insulin Plan**

Basic Skill #4: Managing **Low Blood Glucose (Hypoglycemia)**

Basic Skill #5: Managing **Sick Days**

Basic skill #6: Managing **High Blood Glucose (Hyperglycemia)**

Basic Skill #7: Managing Your **Meal Plan**



Basic Skill #1: Managing Your Blood Glucose

The most important way to manage diabetes is to test your blood glucose levels. There are 2 types of tests to measure blood glucose control. The first is a fingerstick test using a glucose meter. The second is a laboratory blood test called a hemoglobin A1c or "A1c" which measures the average blood glucose during the past 3 months.

The target blood glucose range is:

- 70 to 130 mg/dl before meals
- Under 180 mg/dl at 1 to 2 hours after meals and all other times

What is the Hemoglobin A1c or "A1c" Blood Test?

The **A1c** is a lab blood test that measures your blood glucose control over the past 3 months. **The recommended goal is between 6.5 to 7%* which is equal to an average blood glucose of 140 to 154 mg/dl.** This test result will tell if your average blood glucose is out of range. This result will give you and your diabetes team a good idea of how well your diabetes treatment plan has been working.

Ask your doctor for a hemoglobin A1c test at least twice a year. If your blood glucose stays high or if you take insulin, you should get the test every three months. Your meal plan, medicine, and exercise plan can be changed to help lower your results.

A1c level	Average blood glucose mg/dL
12%	298
11	269
10	240
9	212
8	183
7*	154
6.5*	140



Basic Skill #2: Managing Your Diabetes Pills

Diabetes pills can be used to help decrease blood glucose levels if you have type 2 diabetes. There are several types of diabetes pills that work in different parts of your body to help control blood glucose. Some of the pills help your pancreas release more insulin or slow down the release of glucose by the liver. Others help your body's insulin work better. Your doctor will prescribe the diabetes pill that is right for you. Ask your nurse for specific information related to the diabetes pill(s) that your doctor prescribes.

Things to Remember if you take Diabetes Pills

- Check the label on the pill bottle for the expiration date and instructions about when and how much to take.
- Some diabetes pills can cause **hypoglycemia** (low blood glucose). It is important to know what these symptoms are and how to treat low blood glucose.
- Call your doctor if you experience any other side effects that your diabetes pill(s) may cause.
- Ask your doctor about stopping your diabetes pills before and after medical tests or surgery.
- You should not take diabetes pills if you become pregnant or are breast-feeding. Tell your doctor right away if you become pregnant.



Basic Skill #3: Managing your Insulin Plan

If your doctor prescribes insulin this is to replace the insulin that your body must have but is unable to make. Insulin is given by shots and is used to treat people with all types of diabetes to control blood glucose. Insulin is a hormone released by the pancreas to lower blood glucose levels. Insulin is needed to move all glucose made from food, from your blood into your muscles for energy.

Important Tips for taking Insulin

- Check the label on the insulin bottle for expiration date and do not use it if the expiration date is passed.
- Keep an extra supply of insulin and syringes on hand. Unopened insulin bottles should be stored in the refrigerator.
- After an insulin bottle is opened, use it for only 28 days, and then discard.
- Do not use insulin that appears thick, discolored or has clumps in it.
- Wear a medical identification (bracelet or necklace), or carry a diabetes identification card in case of emergency.

Keep in mind that there are a variety of ways to deliver insulin. Some use bottles and syringes, and some use insulin pens which are preloaded insulin. Others use insulin pumps for continuous delivery of their insulin. Talk to your health care team about what may be best for you. Your team will give you a schedule of the type and amount of insulin to take after you leave the hospital.

Needle Disposal

Used needles, syringes and lancets cannot be thrown in regular trash. They must be discarded in a puncture-proof container. Write on the container, **DO NOT RECYCLE: Medical Sharps**. When the container is full, cap it, seal it with strong tape and put it into your home trash.



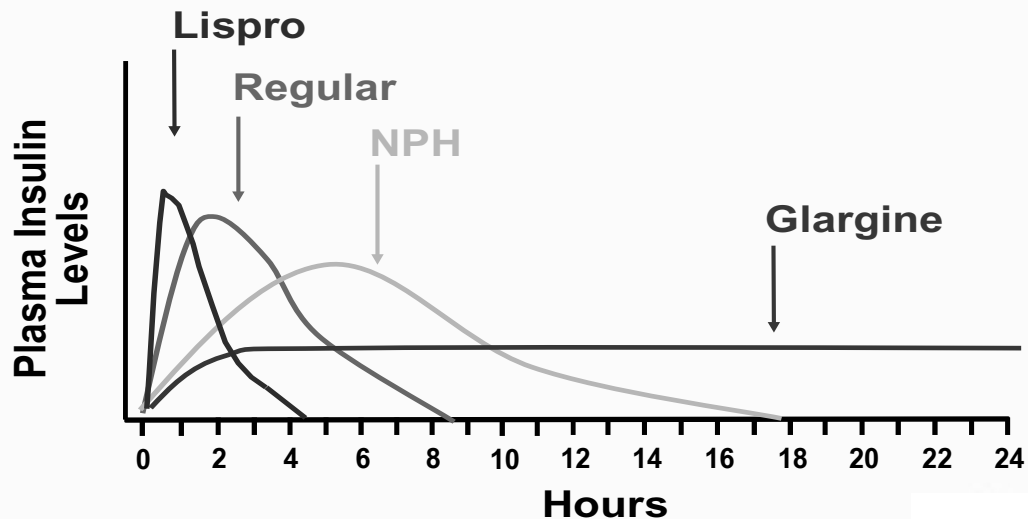
The different types of insulin have varying action times. The action times may differ from person to person. The time periods listed in the following chart are general guidelines. This chart will help you understand the action and timing of your insulin shots. Insulin has a starting time, a point where it works the strongest and an end point when it is no longer working.

TYPES OF INSULIN

Name of Insulin	Start Time	Works Strongest	Ends
Rapid-acting Apidra® (glulisine) Humalog® (lispro) Novolog® (aspart)	5 minutes	1 to 2 hours	3 to 4 hours
Short-acting Regular	30 minutes	2 to 3 hours	4 to 8 hours
Intermediate-acting NPH	1 to 2 hours	4 to 8 hours	10 to 16 hours
Long-acting Lantus® (Glargine)	1 to 2 hours	No peak	24 hours
Long-acting Levemir® (Detemir)	1 to 3 hours	8 to 10 hours	18 to 24 hours
Pre-mixed Insulin Humalog Mix 75/25 NovoLog Mix 70/30	5 to 15 minutes	1 to 2 hours	10 to 16 hours
70/30 NPH & Regular (Humulin or Novolin)	30 to 45 minutes	2 to 3 hours (R) 4 to 8 hours (N)	10 to 16 hours

International Diabetes Center @ Park Nicollet. [My Diabetes Plan](#) (2008)

Insulin Action Times

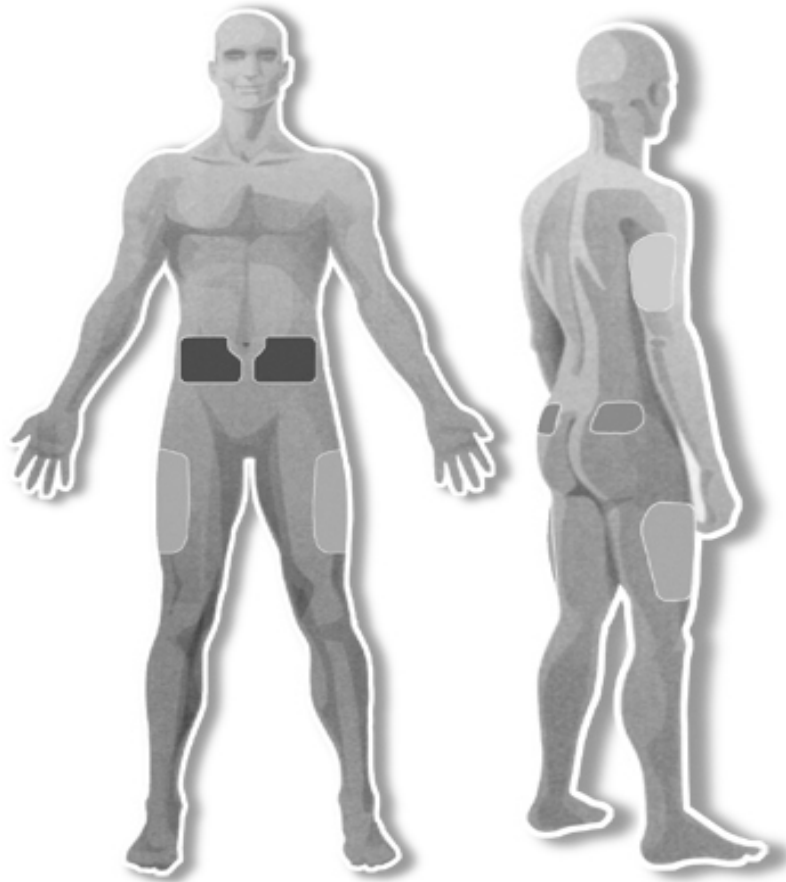


Drawing and Injecting Insulin

- Wash your hands. Wipe bottle top with alcohol.
- If the insulin is cloudy, roll the bottle in your hands to mix it.
- Remove the needle cover.
- Pull the plunger to draw air into the syringe equal to your insulin dose.
- Put the needle into the bottle stopper and push the air into the bottle.
- Turn the bottle and syringe upside down and make sure the needle tip is in the insulin.
- Pull down on plunger to suck insulin into the syringe equal to your insulin dose.
- Inspect the syringe for air bubbles. If you find bubbles, push all the insulin back into the bottle and try again. This will help clear the air bubbles.
- Insulin is injected into fat under the skin.
- **The stomach area is an easy place to inject. Insulin is absorbed best from this area.**
- Inject at least 1 inch away from your last shot. Inject straight into your skin.

*****See Insulin Injection Site Diagram on the next page*****

Insulin Injection Areas



Look at the shaded areas on these pictures to find areas of the body where insulin is injected. **Inject insulin into fatty tissue under the skin into:**

- the **abdomen**, but at least 2 inches from the belly button. The abdomen is the best place to inject insulin because your abdomen area can absorb insulin most quickly and consistently.
- the top outer area of the **thighs**. Insulin usually is absorbed more slowly from this site, unless you exercise soon after injecting insulin into your legs.
- the upper outer area of the **arms**.
- the buttocks (only recommended if other sites are not available).

Basic Skill #4: Managing Hypoglycemia (Low Blood Glucose)

One of the potential problems from diabetes medicines is hypoglycemia or low blood glucose. **This occurs at 70 mg/dl or less** and becomes more dangerous the lower the blood glucose drops. Some of the causes of hypoglycemia are too little food, too much insulin and/or diabetes pills and increased activity or exercise.

Symptoms:

- Sweating
- Shakiness
- Dizziness
- Weakness/ fatigue
- Impaired vision
- Hunger
- Tingling sensations around the mouth
- Irritability
- Difficulty paying attention, or confusion

Treatment: The Rule of 15

Eat or drink 15 grams fast acting carbohydrates in one of the following choices.

- ½ cup (4 oz.) juice
- 5 - 6 pieces of hard candy
- 1cup (8 oz) skim or low-fat milk
- 4 glucose tablets
- ½ cup (4 oz.) regular soda, not diet!

Wait 15 minutes and recheck your blood glucose. If still below 100 mg/dl, repeat 15 grams of carbohydrates.

Follow treatment with a light snack (½ meat sandwich and ½ cup milk) and recheck blood glucose within 30 minutes.

The goal of treatment for low blood glucose is to increase your glucose to a safe level of 100mg/dL or more.

Basic Skill #5: Sick Day Guidelines

Work out a sick day plan with your doctor or diabetes educator BEFORE you become ill. Whenever you become sick from a cold, flu or other illness it will disrupt your regular daily routine. Feeling “out of sorts”, vomiting, diarrhea, or running a fever may cause you to lose your appetite. You can expect your blood glucose levels to be more unstable during illness. You will need to monitor your blood glucose closely and follow the tips below.

SICK DAY MANAGEMENT TIPS:

- Never omit insulin or your diabetes pills even if you can't eat. You may need extra insulin, but do not take more diabetes pills.
- Test your blood every 3 to 4 hours.
- If you have type 1 diabetes, test your urine for ketones every 4 hours.
- Drink sips of liquid (at least ½ cup every hour) and eat light foods if you can.
- Rest. Do not exercise during an illness.



"Do you know your sick day rules?"

SUGGESTED LIQUIDS & FOOD CHOICES IF YOU CANNOT EAT YOUR USUAL MEALS:

In order to keep your blood glucose as stable as possible with stress or illness, it is important to stay well hydrated. If your blood glucose is low, eat or drink 15 g of soft or liquid carbohydrate foods as you can tolerate.

Some suggestions are: ½ cup fruit juice, ½ cup regular soda (caffeine free), 1 cup Gatorade, ½ cup frozen yogurt, 6 saltine crackers, ½ cup ice cream, 1 slice toast, ¼ cup regular pudding, 1 cup sugar free yogurt, ½ cup cooked cereal, ¼ cup sherbet, ½ cup regular jello

If your blood glucose is high, drink mostly sugar-free liquids, such as water, caffeine free tea, sugar free sodas, or broth. Staying hydrated is very important to prevent extremes in blood glucose.

WHEN TO CALL YOUR DOCTOR:

- You are ill for more than 24 hours.
- You have a fever greater than 101 degrees.
- You are unable to eat or drink fluids.
- You have diarrhea for 24 hours.
- You have shortness of breath, chest pain or discomfort.
- You have blood glucose higher than 250 mg/dl for 24 hours.
- You have blood glucose lower than 70 mg/dl for 2 or more times in 24 hours.
- You have moderate or large ketones in your urine.
- You have any signs of infection.
- You have questions about how to adjust your insulin or diabetes pills.



SEEK IMMEDIATE MEDICAL HELP BY CALLING 911 OR GO TO AN EMERGENCY ROOM IF:

- You are having trouble breathing, rapid or labored breathing.
- Long lasting vomiting, diarrhea or stomach pain.
- You are having difficulty thinking clearly.
- Feel sleepier than usual or have difficulty staying awake.
- Are unsure that you can take care of yourself.

Basic Skill #6: Managing High Blood Glucose (Hyperglycemia)

Causes of high blood glucose:

- Too much food
- Too little insulin or medication
- Illness, infection or stress



Symptoms:

- Extreme thirst
- Frequent urination
- Blurred vision
- Dry skin
- Hunger
- Drowsiness
- Decreased healing
- Frequent infections

Treatments:

- Drink water unless otherwise restricted
- Take your insulin or diabetes medication as prescribed
- If blood glucose is greater than 250 mg/dL for 24 hours - call your doctor

People with type 1 diabetes should check urine for **ketones** every four hours. Call your doctor immediately if you have moderate or large ketone test result and blood glucose over 250 mg/dL.

Basic Skill #7: Managing Your Meal Plan



Healthy eating is the foundation for blood glucose control. Your blood glucose is affected by what you eat, when you eat, and how much you eat. So, learning to make healthy food choices is very important.

BASIC HEALTHY EATING GUIDELINES:

- Eat a variety of foods
- Select high-fiber foods, whole grains, vegetables, and fruit every day
- Space meals throughout the day; Avoid skipping meals
- Control portion sizes
- Eat the same amount of food (especially carbohydrate) at meals and snacks
- Eat less fat and sodium

CARBOHYDRATE:

Carbohydrate is the main component of food that affects blood glucose levels. Foods that contain carbohydrate include starches, fruits, milk, beans, and sweets.

CONSISTENT CARBOHYDRATE INTAKE:

Following a regular eating schedule and eating well-balanced meals will help keep your blood glucose controlled. Since carbohydrate foods affect blood glucose the most, meals should be consistent in carbohydrate amount. Generally, **most people should eat 3 to 4 servings of carbohydrate with each meal.** However, this may not work for everyone. It is best to work with your dietitian to develop a meal plan that is right for your lifestyle.

Examples of one serving of carbohydrate are listed below:

1 slice bread, 1/2 hamburger bun, 1/2 English muffin, 1 small roll

1/3 cup cooked rice or pasta

3-oz potato

1/2 cup cooked starchy vegetable

(corn, peas, beans, mashed potatoes)

1/2 cup cooked cereal, such as oatmeal

One small piece of fruit

1 cup fresh fruit or 1/2 cup canned fruit

1/2 cup fruit juice

1 cup of lowfat/nonfat milk, 6-oz Yogurt, 1/2 cup ice cream

2 small cookies

1 Tablespoon of syrup or jelly



Each serving of carbohydrate = 15 grams of carbohydrate

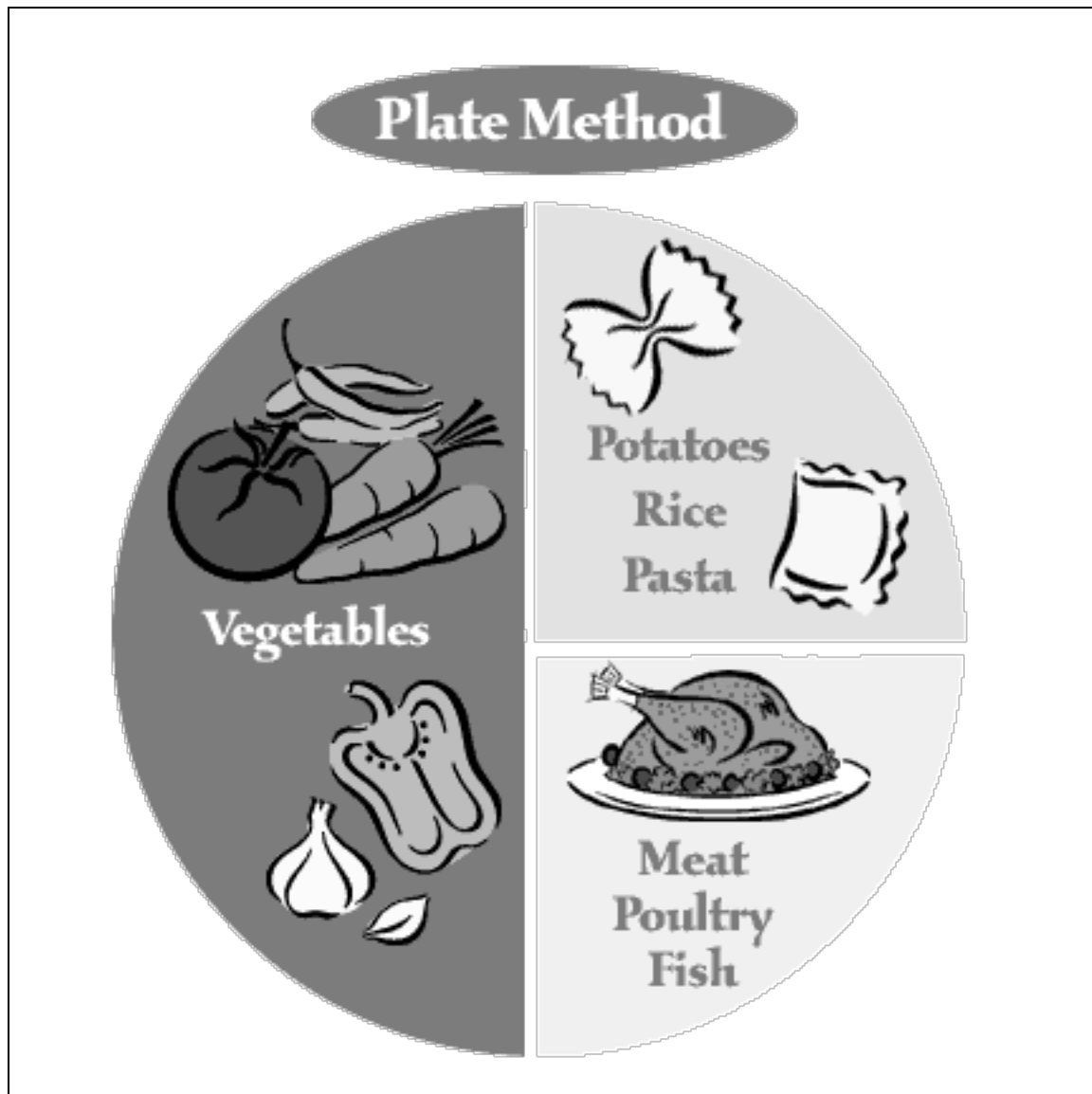
THE PLATE METHOD

The plate method is an easy way to plan well-balanced meals that are consistent in carbohydrate and low in fat.

Visualize your meals on the plate below. Imagine a line down the middle of your plate, and plan your meals to include the following:

- 1/2 of your plate with non-starchy vegetables
- 1/4 of your plate with 3 to 4 ounces of lean protein
- 1/4 of your plate with your starchy food choice

Then, on the sides of your plate you can have 1 to 2 more carbohydrate servings, depending on your personal goals, for example: 8 oz. milk and 1/2 cup of fruit.



My Diabetes Discharge Plan

- Take your medicines as instructed by your diabetes team. Missing or delaying medicine can result in uncontrolled blood glucose.
- Follow the meal plan you have worked out with your dietitian.
- Test and record your blood glucose as instructed. Bring your blood glucose log book to your doctor and diabetes educator so this information can be reviewed.
- Exercise regularly once you are cleared to do so by your doctor.

Remember that you are more than your diabetes. If you are feeling like diabetes is ruling your life, get help and support**. You can take control of your diabetes – not the other way around!

Diabetes Resources

For additional education about managing your diabetes, please call:

UVA Outpatient Diabetes Education & Management Program. . 434-243-4620

**UVA Diabetes Support Group 434-243-2460

UVA Inpatient Diabetes Services 434-243-9767

Internet Web Sites:

American Diabetes Association (ADA) 800-342-2383
www.diabetes.org

National Diabetes Education Program (NDEP) 888-693-6337
www.ndep.nih.gov/diabetes/diabetes.htm

National Institute of Diabetes, Digestive & Kidney Diseases (NIDDK) 800-860-8747
www.diabetes.niddk.nih.gov

American Dietetic Association 800-877-1600
www.eatright.org

My Insulin Treatment Plan

Breakfast

- Test and record your blood glucose result.
- Take _____ units of _____ insulin.
- Take _____ units of _____ insulin.
- Take correctional insulin using the chart on page 2.
- Take your insulin _____ minutes before you eat.

Lunch

- Test and record your blood glucose result.
- Take _____ units of _____ insulin.
- Take correctional insulin using the chart on page 2.
- Take your insulin _____ minutes before you eat.

Dinner

- Test and record your blood glucose result.
- Take _____ units of _____ insulin.
- Take _____ units of _____ insulin.
- Take correctional insulin using the chart on page 2.
- Take your insulin _____ minutes before you eat.

Bedtime

- Test and record your blood glucose result.
- Take _____ units of _____ insulin.
- Eat a snack (15 gms of carbohydrates) if your blood glucose is below 110 mg/dL.

My Correctional Guide for Insulin, type: _____

- Take only before meals
- Also take it at bedtime
- Call your doctor if blood glucose stays over 300 mg/dL for 24 hours.

If your blood glucose is:	Take this amount of insulin:
101 to 150 mg/dL	_____ units
151 to 200	_____ units
201 to 250	_____ units
251 to 300	_____ units
301 to 350	_____ units
351 to 400	_____ units
Over 400	_____ units

Other instructions
