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## For Consumers

### Insulin

Insulin helps to take the sugar in your blood to other parts of your body. Diabetes affects how your body makes or uses insulin. Diabetes can make it hard to control how much sugar is in your blood.

#### There is hope!

There are different kinds of insulin that people with diabetes can use every day to help them stay healthy. This booklet gives some basic facts about insulin. Use this booklet to help you talk to your doctor about the kind of insulin that you are taking.

#### Do not wait. Diabetes is a serious illness.

Diabetes can cause a heart attack, stroke, blindness, kidney disease, nerve damage and other serious health problems. This is why it is so important for you to get treatment for your diabetes. Treatment can help prevent or slow some of these serious health problems. Exercise, eat a balanced diet, and take your diabetes medicines. You can do it.

### Insulin Safety Tips

- Never drink insulin.
- Do not share insulin needles, pens or cartridges with anyone else.
- Talk to your doctor before you change or stop using your insulin.
- Do not inject your insulin in the exact same spot each time.
- Throw away needles in a hard container that can be closed like a laundry detergent bottle.
- Check the expiration date on the insulin before you use it.
- Make a plan about how to handle your insulin when you travel and during an emergency.

Check the FDA website to learn more about Women and Diabetes: [www.fda.gov/womens](http://www.fda.gov/womens)<sup>1 2</sup>

### My Insulin Guide

#### Ask your health care provider these questions before you start using your insulin.

- How often should I use my insulin?
- Can you show me the right way to inject the insulin?
- Will the insulin affect my other medicines? What about my birth control?
- What are the side effects? What do I do if I start having side effects?
- What is my target blood sugar level?

Before Meals \_\_\_\_\_

1-2 Hours After Meals \_\_\_\_\_

Bedtime \_\_\_\_\_

- How often should I check my blood sugar?

- What should I do if I am pregnant, planning to get pregnant, or breastfeeding?
- How should I store my insulin?

**Write down the facts about your insulin the next time you talk to your doctor, nurse, or pharmacist.**

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

Doctor: \_\_\_\_\_

Pharmacy: \_\_\_\_\_

My Glucose Meter: \_\_\_\_\_

My Insulin Device: \_\_\_\_\_

| Name of Insulin | How Much Do I Take | When Do I Take It | What I Should Know |
|-----------------|--------------------|-------------------|--------------------|
|-----------------|--------------------|-------------------|--------------------|

#### Do I need insulin?

Some people with diabetes need to use insulin every day. Some people can take other diabetes medicines. Your health care provider can tell you if you need to use insulin.

#### Type 1 Diabetes

People with type 1 diabetes make very little or no insulin in their bodies. They must take insulin every day to stay alive.

#### Type 2 Diabetes

People with type 2 diabetes do not make enough insulin or do not use it well enough. Some people with type 2 diabetes can use pills or other medicines that are injected into the body. Other people with type 2 also need insulin to help control their diabetes.

#### Gestational Diabetes

Some women develop diabetes for the first time when they become pregnant. This is called gestational (jes-Tay-shun-ul) diabetes. Some women with gestational diabetes need to use insulin to control their blood sugar.

#### How often should I inject my insulin?

Each person is different. Some people need to inject insulin one time each day. Others need to inject insulin more often. Many things affect how much insulin you need each day:

- Type of Insulin You Use
- What You Eat
- Your Activity Level
- Your Other Health Conditions

**Your doctor will tell you how often you should inject your insulin.****Types of Insulin**

There are many different types of insulin. The type lets you know how fast the insulin starts working or how long it lasts in your body. Your health care provider will help you find the insulin that is best for you.

- **Rapid-Acting** - This insulin starts working within 15 minutes after you use it. It is mostly gone out of your body after a few hours. It should be taken just before or just after you eat.
- **Short-Acting** - This insulin starts working within 30 minutes to 1 hour after you use it. It is mostly gone out of your body after a few hours. It should be taken 30-45 minutes before you eat.
- **Intermediate-Acting** - This insulin starts working within 2-4 hours after you use it. It reaches its highest level in your blood around 6-8 hours after you use it. It is often used to help control your blood sugar between meals. Some people use this type of insulin in the morning, at bedtime, or both.
- **Long-Acting** - This insulin starts working within 2 to 4 hours after you use it. It can last in the body for up to 24 hours. It is often used in the morning or at bedtime to help control your blood sugar throughout the day.
- **Pre-Mixed** - This is a mix of two different types of insulin. It includes one type that helps to control your blood sugar at meals and another type that helps between meals.

| <b>Brand Name</b>                         | <b>Other Names</b>                                       | <b>Type of Insulin<br/>(How Fast Insulin Works)</b> |
|---|--|---|
| Apidra<br>Apidra Solostar                 | Insulin Glulisine  | Rapid Acting  |
| Humalog<br>Humalog Pen<br>Humalog Kwikpen | Insulin Lispro   | Rapid Acting  |
| Novolog                                   | Insulin Aspart   | Rapid Acting  |
| Humulin R<br>Humulin R Pen                | Regular Human Insulin                                    | Short Acting  |
| Novolin R                                 | Regular Human Insulin                                    | Short Acting  |
| Humulin N                                 | NPH Human Insulin<br>(Human Insulin Isophane Suspension) | Intermediate Acting                                 |
| Novolin N                                 | NPH Human Insulin<br>(Human Insulin Isophane Suspension) | Intermediate Acting                                 |

|  |   |                               |
|--|---|-------------------------------|
| Lantus   | Insulin Glargine  | Long Acting                   |
| Levemir  | Insulin Detemir   | Long Acting                   |
| Humalog Mix 75/25<br>Humalog Mix 75/25 Pen     | 75% Insulin Lispro Protamine Suspension<br>25% Insulin Lispro Injection | Intermediate and Rapid Acting |
| Humalog Mix 50/50<br>Humalog Mix 50/50 Pen     | 50% Insulin Lispro Protamine Suspension<br>50% Insulin Lispro Injection | Intermediate and Rapid Acting |
| Humulin 70/30<br>Humulin 70/30 Pen             | 70% NPH Human Insulin<br>30% Regular Human Insulin Injection            | Intermediate and Short Acting |
| NovoLog Mix 70/30<br>NovoLog Mix 70/30 FlexPen | 70% Insulin Aspart Protamine Suspension<br>30% Insulin Aspart Injection | Intermediate and Rapid Acting |
| Novolin 70/30                                  | 70% NPH Human Insulin<br>30% Regular Human Insulin Injection            | Intermediate and Short Acting |

**Insulin Tip:** Do not store your insulin in a place that is very hot or very cold.

### Insulin Side Effects

Insulin affects each person differently. Insulin can sometimes cause side effects. The side effects will depend on your body and the type of insulin you are taking. Follow these tips to help you learn how to handle side effects.

- **Get the facts.** Ask your health care provider for the side effects, warnings, and other facts for your insulin. This booklet does not give all facts for each kind of insulin.
- **Speak up.** Tell someone about any problems you may be having with your insulin. Your doctor may change your prescription or give you tips to help you deal with the side effects.
- **Check the FDA website.** You can find up-to-date safety information about your insulin at: [www.fda.gov](http://www.fda.gov)
- **Report serious problems with your insulin or device.** You or your doctor can tell the FDA about serious problems with your medicines.

Call FDA at 1-800-332-1088 to report serious side effects.

Learn more about reporting problems to the FDA at: [www.fda.gov/Safety/MedWatch/HowToReport/ucm053074.htm](http://www.fda.gov/Safety/MedWatch/HowToReport/ucm053074.htm)

**Insulin Tip:** Talk to your doctor before you change or stop taking your insulin.

## Know the Warning Signs

### Low Blood Sugar

Diabetes medicines can sometimes cause your blood sugar to go too low. This condition is called hypoglycemia (HY-poh-gly-SEE-mee-uh). It happens when there is too much insulin and not enough sugar (glucose) in your blood.

### Ask your health care provider to tell you all of the signs and symptoms of low blood sugar.

Some of the signs and symptoms are:

- Headache
- Fast Heartbeat
- Feel Irritable
- Feel Dizzy
- Feel Drowsy
- Sweating
- Feel Hungry
- Feeling Confused
- Feel Weak
- Feeling Jittery

### Many factors can cause your blood sugar to go too low:

- The Medicines You Take
- Not Eating Enough
- Too Much Exercise
- Drinking Alcohol

### What You Can Do

- Talk to your doctor or nurse.
- Eat or drink foods high in carbohydrates like fruit juice, sugar candy or regular soda (not diet) or take some glucose tablets when your blood sugar is too low.
- If your blood sugar is very low, you may need to have someone give you a glucagon injection or you may need to seek emergency medical help.

### High Blood Sugar

People with diabetes can sometimes have too much sugar (glucose) in their blood. This condition is called hyperglycemia (HY-pur-gly-SEE-mee-uh). It happens when your body is not making enough insulin or is not using insulin well.

### Ask your health care provider to tell you all of the signs and symptoms of high blood sugar.

Some of the signs and symptoms are:

- Feel Tired

- Feel Thirsty
- Go to the Bathroom a Lot
- Vision is Blurry
- Lose Weight Without Trying

**Many factors can cause your blood sugar to get too high:**

- Stress
- Eating Too Much
- Being Sick
- Having an Infection
- Not Taking Your Diabetes Medicines

**What You Can Do**

- Talk to your doctor or nurse.
- Ask if you should change your medicines or what you eat.

**Insulin Devices**

There are many different ways to inject your insulin. Some people use a needle and syringe to inject their insulin. Others use insulin pens, jet injectors, or pumps. Read the information in this section about the different kinds of insulin devices. Then, talk to your doctor, nurse or pharmacist about the kind that is best for you.

**Insulin Needles and Syringes**

Needles and syringes are used to inject insulin under the skin. Insulin needles come in different sizes. Most needles have a special coating to help them go through the skin with as little pain as possible.

- Do not share your needles or syringes with others.
- Ask your health care provider which kind of needle is right for you.

**Insulin Pens**

Insulin pens are devices that look like regular pens with a fine short needle on the tip. The pens have enough insulin in them for a few injections. Some pens have a case filled with insulin that you change when it is empty. Other pens are thrown away when the case is empty.

- Put a new needle on the tip of the pen each time you give yourself an injection (shot).
- Make sure that you use the type of insulin and needle for your kind of pen.
- Do not share your insulin pen or cartridge with others.

**Insulin Jet Injectors**

Insulin jet injectors use strong air pressure to spray insulin through the skin.

- Insulin jet injectors do not use needles.
- Ask your health care provider to show you how to safely use your jet injector.

**Insulin Pumps**



Insulin pumps are worn on the outside of your body. The pump is connected to your body by a flexible tube that has a tip that sticks under your skin. A cartridge of insulin is put in the pump. The insulin flows through the tube into your body.

- The pump controls how much insulin goes into your body.
- The pump can give you insulin 24 hours a day.

**Insulin Tip:** There are tools called injection aids that can make it easier for you to inject your insulin. There are tools to help people that have problems seeing and people with physical disabilities. Ask your doctor about tools to help you inject your insulin.

## Tips for Insulin Devices

Each insulin device is different. This page lists some basic tips about insulin devices. Talk to your health care provider to learn everything you should know about your insulin device.

### General Tips

- Never share insulin needles (syringes) or devices.
- Ask your doctor or nurse to show you how to inject your insulin.
- Always wash your hands before you inject your insulin.
- Do not inject your insulin in the exact same spot on your body each time.
- The skin may get thick or thin if you use the same spot.
- Inject in the same general area of your body.
- Do not use your insulin if it looks cloudy or looks like something is floating in it. Take it back to the drug store for a new one.
- Do not use insulin needles (syringes), pens, and injectors after the expiration date printed on the label or on the box.

### How to Throw Away Used Devices

- Follow the directions on when to throw away the needles, pens or injectors.
- You should throw away your used needles in a hard container like an empty laundry detergent bottle or a metal coffee can.
- Make sure the needles cannot poke through the container.
- Put a label on the container to warn people that it is dangerous.
- Keep the container where children cannot get to it.
- Always put a lid or top on the container.

## Learn More About Insulin and Diabetes

Resources from the FDA (U.S. Food and Drug Administration)

- **Information on Women and Diabetes**

[www.fda.gov/womensdiabetes](http://www.fda.gov/womensdiabetes)<sup>3</sup>

- **Report a Serious Problem with Your Medicines**

[www.fda.gov/Safety/MedWatch/HowToReport/ucm053074.htm](http://www.fda.gov/Safety/MedWatch/HowToReport/ucm053074.htm)<sup>4</sup>  
1-800-332-1088

- **FDA Diabetes Information on WebMD**

[www.webmd.com/fda/diabetes/default.htm](http://www.webmd.com/fda/diabetes/default.htm)<sup>5</sup>

#### Other Resources

- **National Diabetes Education Program**

[www.ndep.nih.gov](http://www.ndep.nih.gov)<sup>6</sup>

1-888-693-6337

- **National Diabetes Information Clearinghouse**

[www.diabetes.niddk.nih.gov](http://www.diabetes.niddk.nih.gov)<sup>7</sup>

1-800-860-8747

- **American Diabetes Association**

[www.diabetes.org](http://www.diabetes.org)<sup>8</sup>

1-800-DIABETES

This booklet should not be used in place of talking to your doctor or reading the label on your medicine. The drug and risk information in this booklet may change. Check the FDA website for the latest facts on each product. [www.accessdata.fda.gov/scripts/cder/drugsatfda/](http://www.accessdata.fda.gov/scripts/cder/drugsatfda/)<sup>9</sup>

#### You Can Control Your Diabetes

- Make a plan. Work with your doctor, nurse, or diabetes educator to plan how you will manage your diabetes.
- Check your blood sugar. Use your glucose meter to test your blood glucose (sugar) level.
- Watch what you eat. Work with your health care team to come up with a meal plan just for you.
- Use medicines wisely. Ask your health care provider when and how to safely use your diabetes medicines.
- Be active and get exercise. Dance, take a walk, or join an exercise class. Check with your doctor about safe ways to be more active.
- Know your ABC's:

A - A-1-C blood test measures your blood sugar level over the last 3 months. The A-1-C number should be less than 7 for most people.

B - Blood Pressure

C - Cholesterol

- Monitor your overall mental and physical health. Work with your health care team to keep your feet, eyes, heart, and teeth healthy.

This booklet was developed by the U.S. Food and Drug Administration (FDA) Office of Women's Health. To download free copies of this booklet and other diabetes materials visit: [www.fda.gov/womens](http://www.fda.gov/womens)<sup>10</sup>

#### Take Time To Care about Diabetes

JUNE 2010



**Contact FDA**

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Fax:301-847-8604  
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10903 New Hampshire Avenue  
WO32-2333  
Silver Spring, MD 20993

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[Email FDA](#)



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