

***“My Doctor Says I Need Insulin  
to Control My Diabetes...”***

## **How Should I Take It?**



Helping all people  
live healthy lives

**BD Getting Started™**

# **Insulin Delivery Devices**

## Why is Insulin So Important?

Insulin is a life-saving drug for people with diabetes. It helps your body cells use the glucose in the food you eat for energy. When you have diabetes you are either not making enough insulin, or your body cannot use the insulin that you do make.

A key part of diabetes care is to keep your blood glucose (blood sugar) level as normal as possible. Your healthcare provider will give you a target range for your blood glucose that is best for you. Your goal is to keep your blood glucose in that range most of the time. Insulin is one of the medications that will help you control your blood glucose and keep it inside your target goals.

## Insulin Works at Different Speeds

Insulin products are designed to act the same way insulin works in your body. Some types of insulin work very quickly and are usually given just before or right after a meal. Others take longer to work and are given in the morning, at dinner and/or at bedtime. Your doctor will suggest a type, or mix of types, that should work well for you. Your job is to learn what kind of insulin you are taking and understand how it works.

**Note:** *Never substitute one type of insulin for another unless you are instructed to do so by your healthcare provider.*

## Insulin Delivery Systems:

### Three Devices You Can Use for Taking Insulin

Did you know that it is not possible to take insulin as a pill? Insulin is a protein that would be destroyed by the



acids in your stomach! It must be taken by injection in a syringe, pen, doser or pump.

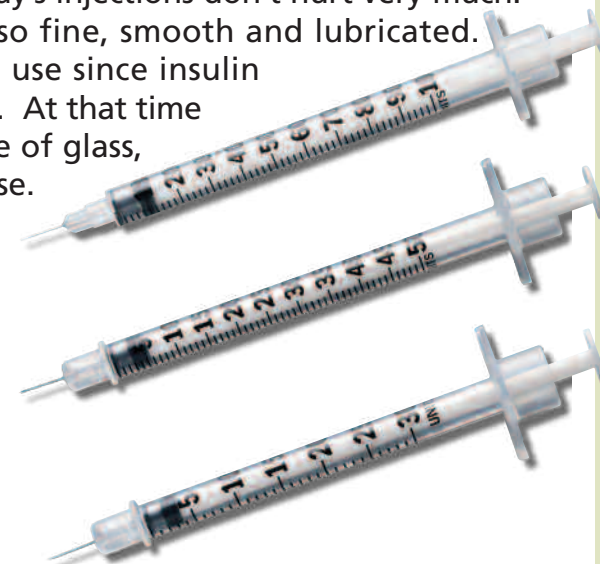
### **1. Syringe – tried and true**

*Modern comfort* – Today's injections don't hurt very much. The needles are now so fine, smooth and lubricated. Syringes have been in use since insulin was discovered in 1921. At that time they were bigger, made of glass, and more painful to use.

*Easy to measure* – In the United States all standard insulin is U-100 in strength. This means there are 100 units in 1 ml (1 cc) of insulin. Insulin is measured in units marked on the side of the syringe. This lets you measure the exact number of units that your doctor has ordered for you.

*Sizes for every dose* – Syringes come in different sizes and hold small or large doses. Your diabetes educator can help you choose the size that is best for you. Syringes are marked in 1-unit and 2-unit measures. Some have half-unit markings.

*Syringe needles come in different lengths.* You insert the needle into the fat under your skin and push the plunger down. This sends insulin into the tissue. Syringe needles are very thin and made to lessen discomfort. They come in many lengths and gauges (widths). The needles are lubricated so that they enter the skin easily with little pain. A diabetes educator will show you how to draw insulin into the syringe. A vial of insulin may be kept in your pocket or purse at room temperature while in use for up to a month.



## Syringe Disposal

- Use a syringe only once.
- Do not cap it.
- Discard it right away in a “sharps” container for medical waste (to prevent anyone from getting stuck with your used syringe).
- Check your town or county recommendations for discarding medical waste. Every location has different regulations.



## Insulin Syringes

Some Advantages	Some Disadvantages
Most widely available.	You must draw insulin into the syringe.
Dependable, easy to use.	You must carry both insulin and syringes when away from home.
Usually less expensive.	If you cannot see well, you may have trouble measuring the dose.
Disposable.	If you have trouble with hand movement it may be hard to mix and measure insulin.
Can use most types of insulin.	
Lets you mix two different types of insulin into one injection (with variable doses).	

**Note:** For more information about how to prepare insulin using a syringe, read the BD Getting Started™ brochure, “My Doctor Says I Should Learn to Use Insulin...What Do I Do Next?”

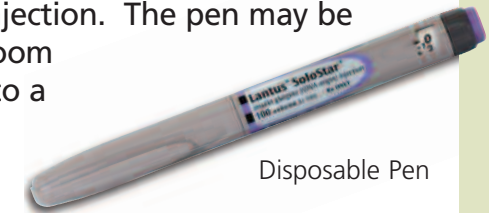
## 2. Insulin Pens and Dosers – easy to carry, dose and use

An insulin pen looks like a large fountain pen. There are two basic types: disposable and reusable. Disposable pens come already filled with insulin. When a pen is empty, expired, or has been open for a month, it is simply discarded. Re-useable pens have a replaceable cartridge of insulin.



Reusable Pen

Whichever type you use, you will need to screw a new pen needle onto the pen with each injection. The pen may be kept in your pocket or purse at room temperature while in use for up to a month. The insulin should not get warm or be exposed to direct sunlight. Store unused insulin pen cartridges and pre-filled pens in the refrigerator.



Disposable Pen

**Dosers** are larger than insulin pens and as a result are easier to handle. They were designed for people with poor vision and poor hand control. An insulin doser works like an insulin pen. It holds a cartridge that may be pre-filled or re-filled with a cartridge of insulin. The dose is then dialed and delivered through a pen needle. Dosers had clear, readable dials and easy-to-grip shapes.



Doser

### How to use an insulin pen or doser

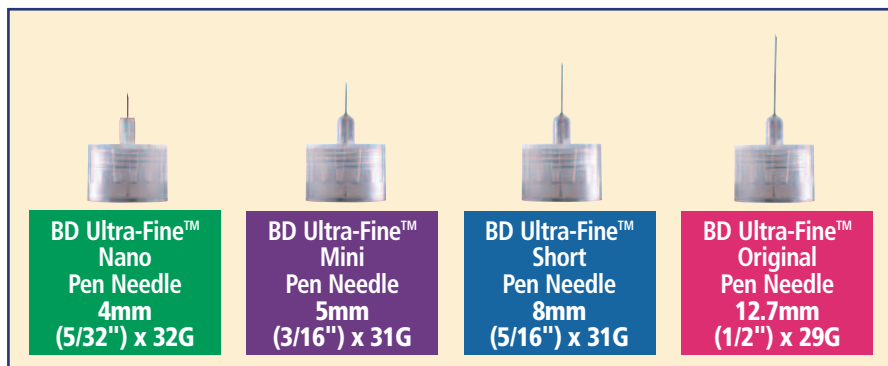
There are many insulin pens and dosers in use today, and they work slightly different from each other. These are the general steps to follow to send the correct dose of insulin through the pen needle into your body:

- Remove the cover – you will see up to 300 units of insulin in the glass cartridge.

- Attach the pen needle onto your insulin pen or doser.
- Dial the dose to the number of units of insulin you need.
- Insert the pen needle into the layer of fat under the skin (just as with a syringe).
- Press the button at the top of the pen or doser.

Insulin pen needles are thin and come in a variety of lengths and gauges (widths) to help prevent discomfort. The needles are lubricated so that they enter the skin easily. Some pen needles are even shorter than the needles found on insulin syringes. Lean people and children may find the shorter needles more comfortable. Pen needles are disposable and should only be used once.

- Always attach a new pen needle before each injection. Never leave the pen needle attached between injections.
- If you leave a needle on the insulin pen you may get air in the insulin cartridge or the fluid may run out and the insulin strength will change. This will not allow you to get the correct dose of insulin with your next insulin dose.
- Take the pen needle off right after you use it and dispose of it properly.



### Pen Needle Disposal

- Use a pen needle only once.
- Discard it right away in a "sharps" container for medical waste (to prevent anyone from getting stuck with your used pen needle).
- Check your town or county recommendations for discarding medical waste. Every location has different regulations.

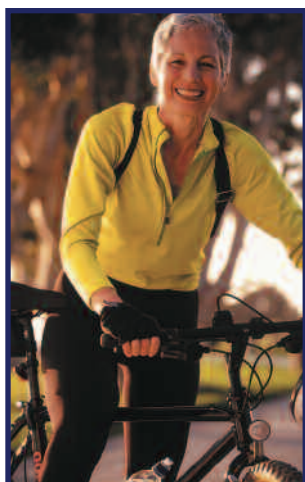
Insulin Pens and Dosers	
Some Advantages	Some Disadvantages
Easy to use and carry.	Cannot mix different kinds of insulin together in a prescribed dose (although you can buy two types already mixed in a pen in certain concentrations such as 70/30, 50/50 or 75/25).
No need to draw an insulin dose.	Modest hand strength is required to push button on pen or doser.
Can use most types of insulin.	Takes more time to push the pen "button" than a syringe.
Dosers are easily dialed.	No longer available.
Less waste of expired insulin if not much insulin is used in a month.	Some people may not feel confident that they are receiving all of their prescribed insulin because they cannot see the insulin move through the cartridge as they can with a syringe.
To some people it may be less scary than a syringe.	



### 3. Insulin Pumps – designed to allow a more flexible lifestyle

An insulin pump is about the size of a pager. The pump continuously delivers rapid-acting insulin through a catheter (small tube). It is inserted into fat under the skin with a needle. The needle is removed and the catheter stays in place. The catheter is attached to tubing, which is then connected to the pump. The catheter is placed in the stomach, leg or hip areas. Each pump holds up to 300 units of insulin. The pump is worn all of the time. The catheter, tubing, insulin and syringe that contains insulin are changed every two to three days.

The pump catheters are easy to change and comfortable to wear. They are taped in place and removed in the same way you would take off a bandage. Pumps also provide a continuous flow of “basal rate” insulin. Basal insulin helps body cells perform their regular functions all day and night. In addition, the pump can deliver a pulse or burst of insulin called a “bolus” (given to cover food intake or to correct a high blood glucose reading).



Most people who use a pump have type 1 diabetes, but some have type 2 diabetes. The newer pumps can be programmed with information about a person's insulin needs. This can guide the user to the proper dose of insulin. This advance in technology has allowed better matching between insulin, food and exercise. The result is greater freedom in food choices and timing of meals.

### Insulin Pump Therapy

Some Advantages	Some Disadvantages
Designed to allow a more flexible lifestyle.	Breakdowns in equipment can occur.
Eliminates injections.	Cost and maintenance is usually more expensive.
Better matches insulin to food, exercise and lifestyle.	Insulin delivery can be stopped by a leak in tubing; a crimp in the catheter; or a blocked needle. This requires immediate attention to avoid ketoacidosis.
Allows insulin to be given discreetly.	More advanced diabetes education and skills are required to properly use.
Delivers insulin in tiny amounts as much as 1/10 to 1/20 unit – important for people receiving small doses of insulin.	Requires a lot of work in daily care (diet, dose adjustments, checking blood glucose).
Often results in better blood glucose control.	Always attached to pump.

### Helping You To Understand How You Should Take Insulin

The best insulin delivery system for you may include one or more devices. Think about what is easiest and keeps your blood glucose levels in the best control.

#### **You should consider:**

1. Your diabetes control.
2. The demands of your lifestyle.
3. What you have learned in this brochure.

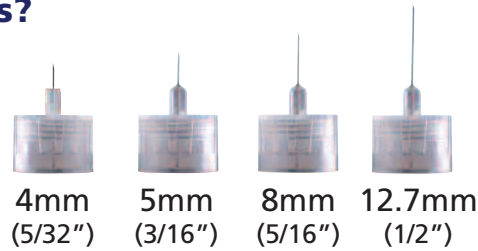
Then talk to your diabetes care team about what appealed to you and what did not.

## Some People Use a Combination of Devices

You might take your insulin with a syringe when you are at home. However, when you are in public you might prefer to use a pen.

### Nervous About Needles?

Do you remember painful shots you got as a child? These memories could make you afraid of daily injections. Relax! Today's modern needles are short, lubricated, smooth and comfortable to use.



### Knowing More than One Way

Even if you decide to take insulin with a pump, your diabetes educator may also show you how to use an insulin syringe or pen to cover emergencies.

#### Examples:

1. *Your insulin pump stops working.* You can usually replace it in 24 hours, but until then you still need insulin.
2. *You are sick or having surgery.* Your doctor asks you to take injections for the moment because you may need more insulin or smaller dose adjustments.
3. *You have trouble getting a pump, in time of an emergency.* You must continue to take your insulin.
4. *You are traveling and forget, lose or break your usual device.* You still need your insulin.



## Diabetes Management should be Flexible

Your treatment plan may change over time, as your body's need for insulin and your lifestyle changes. You may need to use different insulin delivery devices in the future than you use today.

#### Examples:



1. *Robert's lifestyle changed.* Robert was taking all of his injections at home using insulin syringes. His job changed and he needed to take insulin at work during the day. He decided to use a pen for some or all of his insulin doses.
2. *Ricardo's strict diabetes routine interfered with his social life.* Ricardo was taking 5 or 6 injections a day. It became hard to go out with friends because he was so tied to his schedule. His diabetes educator showed him how to use an insulin pump to give him more freedom and flexibility.

### The Way you Take Insulin is Important

Insulin is a life-saving medication for many people with diabetes. Now you know more about the types of insulin devices – insulin syringe, pen, doser, and pump. It is time to discuss the choices with your diabetes care team. Together with your team, you can choose the delivery system that is right for you.



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