

Insulin Pumps

Insulin pumps are small computerized devices that deliver insulin in two ways:

- In a steady measured and continuous dose (the "basal" insulin)
- As a surge ("bolus") dose, at your direction, around mealtime.

Doses are delivered through a flexible plastic tube called a catheter. With the aid of a small needle, the catheter is inserted through the skin into the fatty tissue and is taped in place.

The insulin pump is not an artificial pancreas (because you still have to monitor your blood glucose level), but pumps can help some people achieve better control, and many people prefer this continuous system of insulin delivery over injections.

Pumps can be programmed to releases small doses of insulin continuously (basal), or a bolus dose close to mealtime to control the rise in blood glucose after a meal. This delivery system most closely mimics the body's normal release of insulin.

You'll want to check with your insurance carrier before you buy a pump and supplies. Most carriers cover these, but some don't.

- See more at: <http://www.diabetes.org/living-with-diabetes/treatment-and-care/medication/insulin/insulin-pumps.html#sthash.tqZlXam5.dpuf>

How Do Insulin Pumps Work?

If you have been diagnosed with diabetes, you may feel overwhelmed by all the new information you have learned and will continue to learn about managing your diabetes.

You already know your main goal should be to get your blood glucose (sugar) levels under control in order to increase your chances of a complication-free life. Many people know this, but need to know how to

achieve good diabetes management, while balancing the day-to-day demands of diabetes with other life demands.

An insulin pump can help you manage your diabetes. By using an insulin pump, you can match your insulin to your lifestyle, rather than getting an insulin injection and matching your life to how the insulin is working.

When you work closely with your diabetes care team, insulin pumps can help you keep your blood glucose levels within your target ranges. People of all ages with type 1 diabetes use insulin pumps and people with type 2 diabetes have started to use them as well.

How They Work

Insulin pumps deliver rapid- or short-acting insulin 24 hours a day through a catheter placed under the skin. Your insulin doses are separated into:

- Basal rates

- Bolus doses to cover carbohydrate in meals

- Correction or supplemental doses

Basal insulin is delivered continuously over 24 hours, and keeps your blood glucose levels in range between meals and overnight. Often, you program different amounts of insulin at different times of the day and night.

When you eat, you use buttons on the insulin pump to give additional insulin called a bolus. You take a bolus to cover the carbohydrate in each meal or snack. If you eat more than you planned, you can simply program a larger bolus of insulin to cover it.

You also take a bolus to treat high blood glucose levels. If you have high blood glucose levels before you eat, you give a correction or supplemental bolus of insulin to bring it back to your target range.

Placing the Pump

Knowing how an insulin pump works is one thing. But you may be wondering where you are supposed to put it. You can buy a pump case or it can be attached to a waistband, pocket, bra, garter belt, sock, or underwear. You can also tuck any excess tubing into the waistband of your underwear or pants.

When you sleep, you could try laying the pump next to you on the bed.

You could even try wearing it on a waistband, armband, legband, or clip it to the blanket, sheet, pajamas, stuffed toy, or pillow with a belt clip.

Showering and bathing are other instances when you should know where to put your insulin pump. Although insulin pumps are water resistant, they should not be set directly in the water. Instead, you can disconnect it. All insulin pumps have a disconnect port for activities, such as swimming, bathing, or showering. Some pumps can be placed on the side of the tub, in a shower caddy, or in a soap tray. There are also special cases you can buy. You can hang these cases from your neck or from a shower curtain hook.

No matter what you may think, you can still have fun when you are using an insulin pump. When you exercise or play sports, you can wear a strong elastic waist band with a pump case. You can also wear it on an armband where it is visible. Women can tape the insulin pump to the front of their sports bra.

Some coaches do not allow any devices to be worn because getting the pump knocked into you or falling on it can be painful. In this case, you may just need to take the insulin pump off.

When You Have to Disconnect

When you disconnect your pump, you are stopping all delivery (basal and bolus) by the pump.

Here are some important tips to remember when disconnecting your pump.

1. It is important for you to remember that if you stop your pump while it is in the middle of delivering any bolus -- it will NOT be resumed. You may need to program a new one.
2. Be sure to bolus to cover the basal rate you will miss. If your blood glucose level is under 150, you can wait an hour to bolus.
3. Do not go longer than one to two hours without any insulin.
4. Monitor your blood glucose every three to four hours.

Now that you know how the insulin pump works and how to wear it, take a look at some of the facts to see if this is right for you.

- See more at: <http://www.diabetes.org/living-with-diabetes/treatment-and-care/medication/insulin/how-do-insulin-pumps-work.html#sthash.wwm1jKuA.dpuf>

Advantages of Using an Insulin Pump

Some advantages of using an insulin pump instead of insulin injections are:

- Using an insulin pump means eliminating individual insulin injections
- Insulin pumps deliver insulin more accurately than injections
- Insulin pumps often improve A1C
- Using an insulin pump usually results in fewer large swings in your blood glucose levels
- Using an insulin pump makes delivery of bolus insulin easier
- Insulin pumps allow you to be flexible about when and what you eat
- Using an insulin pump reduces severe low blood glucose episodes
- Using an insulin pump eliminates unpredictable effects of intermediate- or long-acting insulin

- Insulin pumps allow you to exercise without having to eat large amounts of carbohydrate
- See more at: <http://www.diabetes.org/living-with-diabetes/treatment-and-care/medication/insulin/advantages-of-using-an-insulin-pump.html#sthash.3NtRNMzK.dpuf>

Disadvantages of Using an Insulin Pump

Although there are many good reasons as to why using an insulin pump can be an advantage, there are some disadvantages.

The disadvantages of using a pump are that it:

- Can cause weight gain
- Can cause diabetic ketoacidosis (DKA) if your catheter comes out and you don't get insulin for hours
- Can be expensive
- Can be bothersome since you are attached to the pump most of the time
- Can require a hospital stay or maybe a full day in the outpatient center to be trained

There are pluses and minuses to using a pump. Even though using an insulin pump has disadvantages, most pump users agree the advantages outweigh the disadvantages.

- See more at: <http://www.diabetes.org/living-with-diabetes/treatment-and-care/medication/insulin/disadvantages-of-using-an.html#sthash.r6oJUUGZ.dpuf>