



Kaiser Permanente

healthy beginnings

DIABETES AND PREGNANCY

For Women Who Have Insulin Prescribed

WHY DO I NEED TO TAKE INSULIN?

Insulin is a hormone that is needed to convert sugar, starches, and other food into energy for daily life. The reason that a woman needs to take insulin is because the pancreas does not make enough insulin for the body to function.

Here are the reasons why insulin is needed:

- In **type 1 diabetes**, the pancreas does not produce insulin.
- In **type 2 diabetes** and **gestational diabetes**, hormones block the action of the mother's insulin in her body. This problem is called insulin resistance. Insulin resistance makes it hard for the mother's body to use insulin and to nourish the placenta and help the baby grow and develop.

How long does insulin last?

There are different types of insulin, depending on how quickly they work and how long they last.

Here are 4 common types of insulin used:

- Rapid-acting: Lispro (Humalog) and Aspart (Novolog)
- Short-acting: Regular (Humulin R, Novolin R)
- Intermediate-acting: NPH (Humulin N, Novolin N)
- Long-acting: Glargine (Lantus)

Insulin comparison:

| Type | Name | Onset | Peak | Duration |
|----------|---------------------|-----------|-----------|-----------|
| Rapid | Novolog/ Humalog | 5–15 min | 30–90 min | < 5 hrs |
| Short | Regular | 30–60 min | 2–3 hrs | 5–8 hrs |
| Intermed | NPH | 2–4 hrs | 4–10 hrs | 10–16 hrs |
| Long | Lantus | 2–4 hrs | no peak | 20–24 hrs |

Insulin has 3 characteristics:

- **Onset** is the length of time before insulin reaches the bloodstream and begins lowering blood glucose (sugar).
- **Peak** time is the time during which insulin is at maximum strength to lower blood glucose (sugar).
- **Duration** is how long insulin continues to lower blood glucose (sugar).

Novolog/Humalog (rapid-acting) insulin is usually taken 5 to 15 minutes before meals for after-meal blood sugar control.

Regular (short-acting) insulin is taken 30 minutes before breakfast and/or 30 minutes before meals for after-meal blood sugar control.

NPH insulin is used in the morning and evening. The evening NPH dose allows better insulin coverage for early morning (5 a.m. to 10 a.m.) hyperglycemia (high blood sugar) from the release of cortisol and growth hormone.

Lantus (long-acting) insulin controls blood sugar between meals and overnight.

- Usually given once daily at bedtime.
- Or can be given any time of day to suit your schedule (same time daily).
- Cannot be mixed in the same syringe with other insulin.

Things to remember about insulin:

- Store the bottle(s) you are currently using at room temperature (less than 85 degrees) for up to 1 month. Unused insulin should be discarded after that time. If the temperature is hot, place them in the refrigerator.
- Store unused bottles in the refrigerator until you begin using them.
- Mix a bottle of insulin by rolling it in your hands. Don't shake it.
- Novolog insulin and Regular insulin should always be clear. If they aren't, discard them.
- NPH insulin should appear cloudy when mixed by rolling between your hands. Do not use this insulin if particles are floating in the solution or sticking to the bottle.

GIVING INSULIN INJECTIONS

How is insulin given?

Insulin is given by injection, or shots. These shots are given using a very small needle that only goes about a half inch below the skin. Most people take 1 or 2 shots a day.

Some women are very nervous about giving themselves insulin. However, most people learn this skill quickly and easily. They find that giving insulin is not as scary or doesn't hurt nearly as much as they thought. A diabetes educator or nurse will go over all of the instructions for giving insulin until you are comfortable doing it by yourself.

Drawing up 1 kind of insulin

Here is the technique for getting the insulin into the syringe. Follow these instructions if you are taking 1 kind of insulin only:

- Wash your hands.
- Take a clean syringe from your supply.
- Take the cover off the needle of the syringe.
- With the needle pointing up in the air, pull back the plunger of the syringe until the top of the plunger is even with the line that equals the number of units of insulin you are taking. Push the needle through the rubber top of the insulin bottle.
- Push the plunger so that the air in the syringe goes into the insulin bottle.
- Without taking the needle out of the insulin bottle, turn the bottle and syringe so that the bottle is above the syringe and the tip of the needle is in the liquid.
- Pull back on the plunger of the syringe so that insulin goes into the syringe up to the line that is equal to the number of units of insulin that you are taking.
- The insulin in your syringe should not have any air bubbles that are larger than a pin-point. If you see any, tap the side of the syringe so that they float to the top. Push them out and readjust the amount of insulin in the syringe if necessary.

(continues on reverse)



- Once you are sure that you have the exact amount of insulin in your syringe, remove the needle from the bottle. You are now ready to give yourself the injection of insulin.

Drawing up 2 kinds of insulin

If you are taking both Regular and NPH insulin, you will always put the Regular insulin in the syringe first:

- Wash your hands.
- Take a clean syringe from your supply.
- Take the cover off the needle of the syringe.
- Pull back on the plunger of the syringe so that it goes to the line that is equal to the number of units of NPH (cloudy) insulin you are taking.
- Put the needle through the rubber top of the NPH insulin bottle (without the insulin).
- Push the plunger so that the air goes into the bottle. Remove the needle from the bottle (without the insulin).
- Pull back on the plunger of the syringe so that it goes to the line that is equal to the number of units of Regular (clear) or NPH (clear) insulin you are taking.
- Put the needle through the rubber top of the Regular insulin or NPH insulin bottle.
- Push the plunger so that the air goes into the bottle.
- Without taking the needle out of the insulin bottle, turn the bottle and syringe so that the bottle is above the syringe and the tip of the needle is in the liquid.
- Pull back on the plunger of the syringe so that insulin goes into the syringe up to the line that is equal to the number of units of Regular insulin that you are taking.

- The insulin in your syringe should not have any air bubbles that are larger than a pinpoint. If you see any, tap the side of the syringe so that they float to the top. Push them out and readjust the amount of insulin in the syringe if necessary. Pull the needle out of the bottle.
- Put the needle through the rubber stopper of the NPH insulin bottle. Hold the bottle and syringe so that the bottle is above the syringe and the tip of the needle is in the liquid.
- Pull back on the plunger of the syringe to the line that equals the total combined dose of insulin.
- Pull back slowly so that you have the least chance of having air bubbles in the insulin.
- Once you are sure that you have the exact amount of insulin in your syringe, remove the needle from the bottle. You are now ready to give yourself the injection of insulin.

GIVING YOURSELF AN INJECTION OF INSULIN

The abdomen is the best spot on your body to inject the insulin. This may seem strange to you since you are pregnant. Just remember the needle only goes a short distance under the skin so there is no chance of hurting the baby. Arms are a second choice for insulin injections. Your thighs are another choice for the injections. Walking will cause insulin to be absorbed faster if it is injected into your thigh. This may cause rapid changes in your blood sugar level.

You should inject insulin in a slightly different spot each time. Think of the area as a checkerboard. Use a different square of the checkerboard each time you give yourself a shot. By the time you have used all of the squares, start back at the beginning.

Here are the steps in giving an injection:

- Put the insulin into the syringe as previously described.
- Place your thumb and index finger on each side of the area you have cleaned.
- Press your 2 fingers together slightly so you have “pinched up” the skin a little bit.
- Pick up the syringe with your other hand.
- With a quick, firm motion of your hand and wrist, push the needle straight into the skin. Now let your 2 fingers go, so that the skin relaxes.
- Push in the plunger of the syringe, so that all of the insulin is injected under the skin.
- Pull the needle and syringe out and lay it aside.
- If there is any fluid on top of the skin, blot it off with a clean tissue or piece of gauze. Don't rub the area.
- Congratulations, you did it!

Disposing of used lancets, syringes, and needles

Check with your waste management company to find out if they have a preferred way for disposal of these items.

You can purchase the sharps disposal container from your local pharmacy to contain your dirty needles.

Are there any side effects of insulin?

If there is more insulin than your body needs, your blood sugar can drop too low. This is called “hypoglycemia.” It is caused by:

- Too much insulin (or oral medication, such as Glyburide for gestational diabetes).
- More exercise or activity than usual after taking insulin.
- Skipping or delaying meals or snacks, or eating less food than usual after taking insulin or oral medicine like Glyburide.

The signs of hypoglycemia are:

| | | |
|-----------------|------------------|----------|
| Slurred speech | Nervousness | Sweating |
| Rapid heartbeat | Tingling of lips | Weakness |
| Hunger | Headache | Shaking |
| Confusion | | |

You can help to prevent hypoglycemia:

- Don't skip meals or snacks.
- Carry snacks and glucose tablets with you at all times.
- Be sure to include a protein at meals and bedtime snack.

What to do if you have these symptoms:

Test your blood sugar.

Treatment of hypoglycemia—rule of 15

Follow the rule of 15 to treat hypoglycemia by eating 15 grams of carbohydrate, then recheck blood sugar in 15 minutes and expect to see a rise of 15 points minimum.

If blood sugar is > 50 and < 70 with symptoms:

1. Drink 8 oz nonfat milk. Recheck blood sugar in 15 minutes.
2. Repeat milk if still < 70 with symptoms.
3. Repeat blood sugar check every 15 minutes until blood sugar > 70.
4. When blood sugar > 70, eat a snack (half sandwich).

Use 4 oz. juice if you have a milk allergy.

If blood sugar is < 50 with symptoms:

1. Drink 4 oz of juice.
2. Recheck blood sugar in 15 minutes. If > 50 with symptoms, drink 8 oz of nonfat milk.
3. Repeat blood sugar check every 15 minutes until blood sugar > 70.
4. When blood sugar > 70, eat a snack (half sandwich).

If found unconscious, especially for type 1 diabetes:

Inject glucagon 1 mg immediately.

Important note:

- Remember to check blood sugar as often as recommended by your health care team.

What if I am sick and not eating as usual?

Being sick can cause problems with your diabetes control. If you are not able to eat as usual, follow these guidelines:

- Keep in contact with your doctor or nurse to get guidance and advice about treating your illness.
- Check your blood sugar every 2 to 4 hours. If it is high, let your doctor or nurse know. If it is low, try to drink some juice, soda, or milk.
- Check your temperature several times a day.
- If you are able to still eat food, be sure to also drink plenty of calorie-free liquids all day long.
- If you cannot eat solid food, drink juice, milk (or 7-Up if very nauseated). Replace meals with foods that appeal to you and are easy to digest, such as crackers, toast, soup, hot cereal, rice, and so on.
- All patients do not need to check ketones daily—only if instructed by your health care provider. Call your doctor if they are moderate or high.
- Take your usual dose(s) of insulin.