

Insulin: How it helps keep you healthy



If you have type 2 diabetes, it is very important to keep your blood sugar (glucose) levels in a healthy range. Here are answers to questions people often ask about taking insulin.

How does insulin help with diabetes?

Insulin is an important hormone. Your body needs it in order to get sugar out of the blood and into your cells to be used as energy. When you have type 2 diabetes, your pancreas may no longer make enough insulin. It may also be hard for the cells in your body to use insulin. Without enough insulin you will have high amounts of sugar in your blood and that can cause health problems. Some of these problems can become serious complications that affect your heart, your kidneys, and your eyesight. Many people with type 2 diabetes may need to take insulin in addition to pills in order to get their blood sugar into a healthy range.

What kinds of insulin are there?

There are two main kinds of insulin: **Mealtime insulin** – Aspart (Novolog), Lispro (Humalog), Glulisine (Apidra) or Regular. These medicines help lower blood sugar when you eat a meal or snack.

Background insulin – NPH, Glargine (Lantus) or Detemir (Levemir). These medications provide a constant level of insulin throughout the day and overnight.

You can find out more about insulin on our web site at kp.org/medications or on the product information sheets you will get with your prescription.

Your health care team may ask you to use mealtime and background insulin together. These are called pre-mixed or combined insulins. You can mix most kinds of insulin in one syringe when you give yourself an injection. **Glargine (Lantus) and Detemir (Levemir) are the exceptions.** You cannot mix these with any other insulin.

When should I take insulin?

The kind of insulin you use will determine when you need to take your insulin.

Mealtime insulin is taken with meals as noted above.

Background insulin works for about 18 to 24 hours. If you use this kind of insulin, you will usually inject it at night before bed or in the morning.

How do I take insulin?

Doses are measured in units. Insulin syringes, which you use to give yourself an injection, come in 3 sizes, which contain either:

- 30 units (1/3 cc)
- 50 units (1/2 cc)
- 100 units (1 cc)

The needles on the syringes are very small and thin. They are much smaller than the lancets you use to prick your finger when you test your blood sugar.

When you give yourself an injection it is important to use a spot or site on your body that has fatty tissue. Your abdomen (lower stomach) is the best place to inject insulin because it absorbs quickly and at the same rate. Each time you inject insulin, move at least two finger-widths away from your last injection site. Don't inject near your belly button (navel) or close to any scars.

What problems could I have taking insulin?

Since insulin is a natural hormone, there are no side effects. You might feel a little burning at the injection site, but this is rare. Sometimes there is a bigger problem if you take too much insulin. When that happens, it lowers your blood sugar too much. This is called hypoglycemia or low blood sugar. It can happen if you skip a meal, if you exercise more than usual, or if you take too much diabetes medicine. After starting insulin, you'll need to track your blood sugar carefully. Call your healthcare team if your blood sugar levels **before you eat** are between 70 mg/dL and 90 mg/dL three (3) or more times a week.

When should I treat a low blood sugar?

For most people a blood sugar level below **70 mg/dL** is too low. Signs of low blood sugar may include feeling shaky, sweaty, nervous, hungry, angry, or light headed. If you feel any of these symptoms, test your blood sugar right away (if possible).

Use the **15/15** rule to treat a low blood sugar. Eat or drink one of the following carbohydrate sources, which absorb quickly. Each is equal to **15 grams** of carbohydrate:

- 3 - 4 glucose tablets
- 1 tube glucose gel
- 1/2 cup fruit juice
- 1 cup low-fat or fat free milk

Wait **15** minutes and test again. If your reading is still less than 70 mg/dL, eat or drink another **15** grams of carbohydrate. Repeat one more time if blood sugars are still less than 70 mg/dL. If your blood sugars are back in the normal range, eat a small meal such as a half of a sandwich with a glass of milk to keep your sugar in a good range.

If your blood sugars are still low after following the 15/15 rule, call your health care team right away. Always carry a source of carbohydrate like the ones listed above so that you can treat a low blood sugar as soon as it happens.

Wear medical identification at all times. For more information call 1-888-633-4298 or go to MedicAlert.org.

How will I know if the medication is working?

Regular home blood sugar testing is the easiest way to see how your medicine is working.

- Ask your healthcare team how often to test your blood sugar at home.

- Write down your results. This can help you see what eating, activity or medication changes you may need to make to keep your blood sugar in a healthy range.
- A three-month average blood glucose, like the A1C test (hemoglobin A1C), is another important way to track your diabetes control over time. For most people with diabetes, the goal is to have a three-month average blood glucose of 155mg/dL or less. This means you have an A1C of 7 percent, which shows good control. Good control means you'll have less risk of complications.

Additional resources

To learn more about diabetes, visit your physician's Home Page at kp.org/mydoctor, where you can:

- Find health education classes near you and more.
- Access health and drug encyclopedias.
- Access secure features on kp.org.
- Review the diabetes "Featured health topic."
- View videos or listen to podcasts.
- Connect to our members.kp.org Web site.

For more information, you can also:

- Check your *Kaiser Permanente Healthwise Handbook*.
- Visit your facility's Health Education Department for books, videos, classes, and additional resources.

This information is not intended to diagnose or to take the place of medical advice or care you receive from your physician or other health care professional. If you have persistent health problems, or if you have additional questions, please consult with your doctor. If you have questions or need more information about your medication, please speak to your pharmacist. Kaiser Permanente does not endorse any brand name: any similar products may be used.