

Insulin: Essential for Life

WHAT IS INSULIN?

Insulin is a hormone made by the pancreas. It helps carry sugar from the blood into the cells. The cells use the sugar as energy for the body to work. If you have type 1 diabetes (T1DM), your body makes very little or no insulin. That's why you need to take insulin. If you have type 2 diabetes (T2DM), your body makes too little insulin or can't use the insulin it makes properly. You must take insulin if you have T1DM. You may need to take insulin to help better manage your blood sugar levels if you have T2DM.

INSULIN RESISTANCE VS. INSULIN SENSITIVITY

more insulin needed

risk factors

- Overweight and obesity
- Lack of exercise
- High blood sugar levels
- High triglyceride levels
- Acute illnesses
- High blood pressure
- Inflammation and genetics

less insulin needed

positive lifestyle changes

- Eat a heart-healthy diet
- Be active and exercise
- Reduce your stress
- Get enough quality sleep each night

WHICH TYPE IS WHICH?

The type of insulin you take is based on three factors: how long it takes to start working (**onset**), when it is at its strongest action (**peak**), and how long it lasts (**duration**). Some types of insulin are called **basal insulins**. These last longer and give you a steady dose of insulin throughout the day and night. Other types are called mealtime, rapid, or **bolus insulins**. These usually last a shorter time but give you a greater amount of insulin to handle the spikes in blood sugar after a meal.

	BASAL		BOLUS		
	Intermediate-acting	Long-acting	Short-acting	Rapid-acting	Fast-acting
ONSET	2 to 4 hrs	30 to 90 mins	30 mins	15 mins	3 mins
PEAK	4 to 12 hrs	No peak	2 to 3 hrs	30 to 60 mins	30 to 60 mins
DURATION	12 to 18 hrs	18 to 26+ hrs	3 to 6 hrs	2 to 4 hrs	3 to 5 hrs

Premixed Insulin

Premixed insulin combines bolus and basal insulins in one dose. It helps keep blood sugar under control between and after meals. These are usually used twice daily before breakfast and dinner.

STOP THE STACKING

Checking your blood sugar levels is a key part of managing your diabetes. If your level is high, you need to correct it with a bolus dose of a rapid-acting insulin. But be careful. You might be tempted to take more insulin if your blood sugar isn't coming down as fast as you would like. **Taking bolus doses within a few hours of each other is called insulin stacking.** Overcorrecting high blood sugar with insulin too often creates stacking. This sets up a vicious cycle that can lead to low and high blood sugar, like a roller coaster. That's because the first dose of insulin is still working when you take the next dose.



TIPS TO CORRECT THE OVERCORRECTING

- Always check your blood sugar levels before taking a bolus dose.
- Know the onset, peak, and duration times for your rapid-acting insulin.
- Remember that most rapid-acting insulins don't work as fast as you would like them to act.
- Know your insulin to carb ratio. Talk with your provider about what it should be to figure out your correction dose.
- Be patient. Wait 3 to 4 hours before you try to re-correct a high blood sugar level.
- Try other ways to help lower your blood sugar, such as taking a walk or being more active.
- Think about using a continuous glucose monitor, which can give you information about blood sugar trends.

START THE CONVERSATION

Managing your insulin requires a joint effort between you and your healthcare providers. Here are some questions to ask your provider to get the conversation started.

- ✓ What type of insulin is best for me?
- ✓ Do I need basal insulin? Bolus insulin? Or both?
- ✓ How often should I use insulin?
- ✓ What is my target blood sugar range?
- ✓ What should my insulin to carb ratio be?
- ✓ What insulin correction factor should I use?
- ✓ What should I do if my blood sugar is still high after taking a bolus dose?
- ✓ How long should I wait before taking a second bolus dose of insulin?

Moving patients from educated to engaged, visit hormone.org today!