Diabetes: Flexible Insulin Regimens for People with Type 1 Diabetes

What is insulin?

Insulin is a hormone that controls the level of sugar (also called glucose) in your body. When you have type 1 diabetes, your body doesn't make enough insulin. This causes sugar to build up in your blood. Over time, high blood sugar levels can cause serious health problems, such as blindness, kidney problems, and damage to the nerves in your legs and feet.

It's very important for you to keep your blood sugar level as close to normal as possible. If you do this, you can avoid or delay many of the serious health problems caused by diabetes.

How do I use insulin?

Types of insulin

Rapid-acting, such as insulin lispro (brand name: Humalog); this insulin starts to work very quickly (within 15 minutes) and lasts for 3 to 4 hours. A similar kind of insulin is insulin aspart (brand name: Novolog).

Short-acting, such as Regular (R) insulin; this insulin starts working within 30 minutes and lasts about 6 to 8 hours. It reaches its peak in 2 to 4 hours.

Intermediate-acting, such as NPH (N) or Lente (L) insulin; this insulin starts working in 1 to 3 hours and lasts 16 to 24 hours.

Long-acting, such as Ultralente (U) insulin; this insulin doesn't start to work for 4 to 6 hours but lasts 24 to 28 hours. It reaches its peak in 8 to 10 hours. A new insulin, called insulin glargine (brand name: Lantus), lasts for 24 hours but has no peak.

Because your body doesn't make enough insulin, you must give yourself insulin with injections, an insulin pen or an insulin pump. There are different kinds of insulin (see box at right). They all start working and keep working at different speeds. Your doctor will talk with you about what insulin to use. Your doctor might want you to use more than one kind of insulin every day. Some insulins can be mixed together.

What is a flexible insulin regimen?

A flexible insulin regimen lets you adjust when you take insulin and how much you use. With a conventional regimen, you take insulin at set times and have to follow a strict schedule. A flexible regimen allows for changes in your schedule and lets you adjust your insulin dose as needed. For example, you might increase the dose of insulin if you eat a meal with a lot of carbohydrates. Or you might lower your insulin dose if you're going to exercise. A flexible regimen also may help you keep tighter control over your blood sugar level.

A flexible insulin regimen has benefits, but it means you'll have to make some extra effort. You must check your blood sugar level regularly and keep track of what you eat (this means counting the grams of carbohydrates you eat). You must also learn how your body reacts to insulin and how to adjust your dose. Too much insulin can give you a condition called hypoglycemia (blood sugar level is too low). Too little insulin can give you hyperglycemia (blood sugar level is too high). Both of these conditions can be dangerous to your health.

When should I take insulin?

Your doctor or the health care team will talk with you about when to take insulin. Remember that some insulins start working faster, while others keep working longer. It's important to pay attention to the time between taking insulin and eating a meal. For example, regular insulin has to be taken 20 to 30 minutes before eating. Insulin lispro starts working faster, so it should be taken no more than 15 minutes before eating a meal.

Why should I count carbohydrates?

Carbohydrates are the main nutrients that affect your blood sugar level. For this reason, they can change the amount of insulin you need to take. Your doctor or someone in your diabetes care team can teach you how to count grams of carbohydrates and how to adjust the amount of insulin you take, depending on what you eat.

(Created 9/00)
(Updated November 2001)