

## Diabetes: Insulin



Insulin is a hormone that helps sugar enter your cells, where your body uses it for fuel. When your body does not make enough insulin, your blood sugar gets too high. This happens when you have diabetes. You may need to take extra insulin.

Each type of insulin acts over a specific amount of time. Many things can affect how long it works. These include exercise, how you eat, and if you are sick. Some medicines, stress, the dose of insulin, and where you inject it can also affect how it works.

Insulin is made by different companies. When you refill your insulin prescription, make sure that you get the same type of insulin each time.

### Different types of insulin

**Rapid-acting insulin** works over a narrow range of time that you can predict. It is a clear liquid. Insulin lispro is a quick-acting insulin that lasts only a short time. Insulin aspart can be used in

insulin pumps. Insulin glulisine can be used 15 minutes before a meal. Or you can use it 20 minutes after you start a meal. Rapid-acting insulin acts most like the insulin the body makes.

**Short-acting insulin** quickly drops the blood sugar level and wears off more quickly than intermediate- or long-acting insulin. It is a clear liquid.

**Intermediate- and long-acting insulin** both work over a long time. Some look milky white, but some are clear. Insulins glargine and detemir are given as one dose with the evening meal or at bedtime. Some people need to split their doses into two smaller doses taken morning and night instead.

### Side effects of insulin

The major side effect of insulin can be a dangerously low blood sugar. This is called severe hypoglycemia. A very low blood sugar level can happen within 10 to 15 minutes with fast-acting insulins. Low blood sugar may be more common when insulin is combined with some pills used to treat diabetes.

Insulin can cause you to gain weight. This may happen even more in people with type 2 diabetes who already are overweight. But regular exercise can help you keep your weight lower so you will need less insulin.

Other possible side effects are losing fatty tissue where you give the insulin shot. In rare cases, some people have allergic reactions that cause swelling. A mild allergic reaction would cause swelling and itching around the shot. A severe reaction could cause a rash on parts of your body and make it hard for you to breathe.

## Types of insulin

Type	Examples	Appearance	When it starts to work (onset)	The time of greatest effect (peak)	How long it lasts (duration)
<b>Rapid-acting</b>					
	insulin lispro	Clear	5 to 15 minutes	30 to 90 minutes	3 to 5 hours
	insulin aspart	Clear	5 to 15 minutes	40 to 50 minutes	3 to 5 hours
	insulin glulisine	Clear	5 to 15 minutes	30 to 60 minutes	3 to 5 hours
<b>Short-acting</b>					
	insulin regular	Clear	30 minutes	1½ to 2 hours	6 to 8 hours
<b>Intermediate-acting</b>					
	insulin NPH	Cloudy	1 to 4 hours	4 to 12 hours	14 to 24 hours
<b>Long-acting</b>					
	insulin glargine	Clear	1 to 2 hours	Minimal peak	Up to 24 hours
	insulin detemir	Clear	2 hours	Minimal peak	Up to 24 hours