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. Stress and some medicines can affect how it works. And the dose of insulin and how you take it or where you inject it can also affect it.

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. This type of insulin acts most like the insulin the body makes. It is a clear liquid. You can also get it as a powder that you inhale.

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.

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 other medicines 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.

Insulin that is injected can cause side effects, such as 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.

The most common side effects from inhaled insulin are low blood sugar, cough, and sore throat. More serious side effects are possible.
### Types of insulin

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
<th>Appearance</th>
<th>When it starts to work (onset)</th>
<th>The time of greatest effect (peak)</th>
<th>How long it lasts (duration)</th>
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<tr>
<td><strong>Rapid-acting</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>insulin lispro</td>
<td>Clear</td>
<td>5 to 15 minutes</td>
<td>30 to 90 minutes</td>
<td>3 to 5 hours</td>
<td></td>
</tr>
<tr>
<td>insulin aspart</td>
<td>Clear</td>
<td>5 to 15 minutes</td>
<td>40 to 50 minutes</td>
<td>3 to 5 hours</td>
<td></td>
</tr>
<tr>
<td>insulin glulisine</td>
<td>Clear</td>
<td>5 to 15 minutes</td>
<td>30 to 60 minutes</td>
<td>3 to 5 hours</td>
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<tr>
<td>insulin human (inhaled)</td>
<td>Contained in a cartridge</td>
<td>10 to 15 minutes</td>
<td>30 to 90 minutes</td>
<td>2½ to 3 hours</td>
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<tr>
<td><strong>Short-acting</strong></td>
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<td></td>
<td></td>
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<tr>
<td>insulin regular</td>
<td>Clear</td>
<td>30 minutes</td>
<td>1½ to 2 hours</td>
<td>6 to 8 hours</td>
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<tr>
<td><strong>Intermediate-acting</strong></td>
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<td></td>
<td></td>
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<tr>
<td>insulin NPH</td>
<td>Cloudy</td>
<td>1 to 4 hours</td>
<td>4 to 12 hours</td>
<td>14 to 24 hours</td>
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<td><strong>Long-acting</strong></td>
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<tr>
<td>insulin glargine</td>
<td>Clear</td>
<td>1 to 2 hours</td>
<td>Minimal peak</td>
<td>Up to 24 hours</td>
<td></td>
</tr>
<tr>
<td>insulin detemir</td>
<td>Clear</td>
<td>2 hours</td>
<td>Minimal peak</td>
<td>Up to 24 hours</td>
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</table>