Diabetes and Insulin

Insulin is a natural hormone made by your body that helps turn the sugar you eat from food into energy. Insulin’s main job is to help move sugar from your blood into the small cells that make up your body.

People with type 1 diabetes do not make their own insulin, and so they must take insulin shots to control their blood sugar.

People with type 2 diabetes either do not make enough insulin or the insulin their body makes does not work as well as it should. They must take pills, insulin shots, or different injectable medicines to treat their diabetes and stay healthy.

There are many different kinds of insulin. Some last a long time in the body and help to control your blood sugar when you do not eat. Other types of insulin work fast and help to control your blood sugar after a meal, but they do not last very long.

Most types of insulin need to be injected with:

- syringes and needles
- insulin pens
- insulin pumps

This chart lists the different types of insulin that can be used to treat diabetes.

<table>
<thead>
<tr>
<th>Type of insulin</th>
<th>Starts working within...</th>
<th>Highest strength in...</th>
<th>Lasts...</th>
<th>Clear or cloudy?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid/very fast-acting¹,² Glulisine (Apidra®) Lispro (Humalog®) Aspart (NovoLog®)</td>
<td>15 minutes</td>
<td>1 hour</td>
<td>2-4 hours</td>
<td>Clear</td>
</tr>
<tr>
<td>Aspart (Fiasp®)³</td>
<td>15-20 minutes</td>
<td>2 hours</td>
<td>5-7 hours</td>
<td>Clear</td>
</tr>
<tr>
<td>Inhaled (Afrezza®)¹</td>
<td>12-15 minutes</td>
<td>30 minutes</td>
<td>3 hours</td>
<td>Contained in a cartridge</td>
</tr>
<tr>
<td>Short/fast-acting¹ Regular (Humulin® R, Novolin® R)</td>
<td>30 minutes</td>
<td>2-3 hours</td>
<td>3-6 hours</td>
<td>Clear</td>
</tr>
<tr>
<td>Intermediate-acting¹ NPH (Humulin® N, Novolin® N)</td>
<td>2-4 hours</td>
<td>4-12 hours</td>
<td>12-18 hours</td>
<td>Cloudy</td>
</tr>
<tr>
<td>Long-acting Detemir (Levemir®)¹,⁴ Glargine (Basaglar®, Lantus®)¹,⁵,⁶</td>
<td>1-2 hours</td>
<td>No peak</td>
<td>24 hours</td>
<td>Clear</td>
</tr>
<tr>
<td>Glargine (Toujeo®)⁷</td>
<td>6 hours</td>
<td>No peak</td>
<td>24-36 hours</td>
<td>Clear</td>
</tr>
<tr>
<td>Degludec (Tresiba®)⁸</td>
<td>1 hour</td>
<td>No peak</td>
<td>42 hours</td>
<td>Clear</td>
</tr>
</tbody>
</table>
You may need to take the same amount of insulin every day, or you may take different amounts depending on your blood sugar results. In some cases, you may use a mixture of different types of insulin, such as both short/fast-acting and long-acting insulins.

Some types of insulin come in pre-mixed bottles or pens. Your doctor will decide the type and amount of insulin, and how often you need to take insulin.

It is important to check your blood sugar level every day using a blood glucose (sugar) meter to make sure that the insulin you take is working.

Your diet and blood sugar levels will be important in deciding if any changes are needed in your insulin dose.

**Adding Insulin to a Syringe**

1. Always add the clear insulin to the syringe first, before the cloudy insulin
2. Mix the cloudy insulin by rolling it gently between your hands before adding it to the syringe
3. Do not shake the insulin
4. Check the labels on the bottle to make sure you are using the right type of insulin

**Storing Insulin**

An open insulin bottle or pen can be kept at room temperature

If the insulin will not be used within 30 days, store it in the refrigerator

Throw away any insulin that has been kept at room temperature longer than 30 days

Never share your insulin or needles with others

Do not store insulin in the freezer or in hot places, like your car or on the windowsill, because it might lose its strength and not work as well

If clear insulin has turned cloudy or has clumps in it, throw it away

Always have an extra bottle or pen on hand for each type of insulin you use

It is important to eat regular meals when you take insulin. Taking insulin helps your blood sugar levels stay normal, but if you take too much insulin or have not eaten, your blood sugar can drop too low.

Check the drug information sheet or contact the drug manufacturer for recommended storage and use of your medicine. To avoid clogging and/or contamination of the syringe needle, do not store medicine inside the syringe.

**Ask your doctor or other healthcare provider if you have any questions about insulin.**