Insulin is a hormone made by the pancreas. The pancreas is a small organ that lies behind and below the stomach. Insulin allows the food you eat to go into the body's cells for energy. A person cannot live without insulin.

Your doctor may prescribe insulin to treat your diabetes because:

• Your body does not make insulin (Type 1 diabetes).
• Your body does not make enough insulin (Type 2 diabetes).
• Your body is not able to use the insulin it makes (Type 2 diabetes).
• It is the best medicine choice to control your blood sugar during pregnancy, and it is safe for your baby.

Taking insulin for diabetes

• In the United States, insulin is human insulin. It is made from harmless bacteria through DNA engineering.
• Insulin can be injected with an insulin pen, syringe or insulin pump.
• If you have Type 1 diabetes, your body's need for insulin will increase during pregnancy, especially during the first three months of pregnancy.
• If you have Type 2 diabetes and take diabetes pills to control your blood sugar, you may not be able to take them while pregnant. Your doctor may switch your medicine to insulin.

Supplies

You will need these supplies to take your insulin. Keep at least a week’s supply on hand at all times.

Injector pen:
• Insulin pen or cartridges
• Pen needles
• Alcohol swabs

NEVER reuse pen needles and NEVER leave pen needles attached to the pen. This can result in an increased risk of infection and irritation at the site of injection.

Syringe:
• Insulin vial
• Syringes with needles
• Alcohol swabs

Insulin pump:
Supplies needed to keep on hand for an insulin pump will be discussed with you.
Things to know about your insulin

1. Your doctor will choose the kind and amount of insulin you need. Check the label(s) on your insulin bottle(s) to be sure you have the right kind.

2. Learn the following information about your insulin:
   - Name: such as NPH, Regular, 70/30, 75/25, Humalog, Lantus or Novolog.
   - Strength: U-100 (most common), U-200, U-300 and U-500.
   - Brand: such as Novo-Nordisk, Eli-Lilly or Sanofi.
   - Expiration date: do not use expired insulin.

   Do not change the name, strength or brand of your insulin. Only your doctor should make these changes.

3. Travel:
   - When traveling, keep your syringes or pen needles and insulin with you in case your luggage gets lost.
   - NEVER leaves your supplies in a vehicle. You want to avoid temperature extremes.
   - Insulin needs to be refrigerated. All unopened bottles should always be stored in the refrigerator. Avoid exposing your insulin to extreme temperatures and direct sunlight.

4. Once opened, insulin can be kept at room temperature safely for:
   - 14 days for NPH.
   - 28 days for Regular, Humalog, Novolog, Apidra and Lantus.
   - 10 days for mixed insulin, such as 75/25, 50/50 and 70/30.
   - 42 days for Levemir.

5. There are four types of injectable insulin:
   - Rapid acting (meal time): Apidra, Humalog and Novolog
   - Short acting: Regular (Humulin R, Novolin R)
   - Intermediate acting: NPH (Humulin N, Novolin N)
   - Long acting (basal): Lantus, Levemir, Toujeo and Tresiba
     - Long acting insulin cannot be mixed in a syringe with other insulins

Insulin is also available in premixed combinations:
   - Premixed:
     - Novolin 70/30 or Humulin 70/30 = 70% NPH and 30% Regular
     - Humalog Mix 75/25 = 75% NPH and 25% Humalog
     - Humalog Mix 50/50 = 50% NPH and 25% Humalog
     - Novolog Mix 70/30 = 70% NPH and 30% Novolog
     - Ryzodeg 70/30 = 70% Tresiba and 30% Novolog
### Type of Insulin

<table>
<thead>
<tr>
<th>Type</th>
<th>Concentration</th>
<th>Starts</th>
<th>Works hardest / peaks</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rapid acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apidra (Glulisine)</td>
<td>U-100</td>
<td>12 to 30 minutes</td>
<td>1.6 to 2.8 hours</td>
<td>3 to 4 hours</td>
</tr>
<tr>
<td>Humalog (Lispro)</td>
<td>U-100, U-200</td>
<td>15 to 30 minutes</td>
<td>0.5 to 2.5 hours</td>
<td>Less than 5 hours</td>
</tr>
<tr>
<td>Novolog (Aspart)</td>
<td>U-100</td>
<td>12 to 18 minutes</td>
<td>1 to 3 hours</td>
<td>3 to 5 hours</td>
</tr>
<tr>
<td><strong>Short acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>U-100</td>
<td>30 minutes</td>
<td>2.5 to 5 hours</td>
<td>4 to 12 hours</td>
</tr>
<tr>
<td></td>
<td>U-500</td>
<td>30 minutes</td>
<td>2.5 to 5 hours</td>
<td>Up to 24 hours</td>
</tr>
<tr>
<td><strong>Intermediate acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPH</td>
<td>U-100</td>
<td>1 to 2 hours</td>
<td>4 to 12 hours</td>
<td>14 to 24 hours</td>
</tr>
<tr>
<td><strong>Long acting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lantus (Glargine)</td>
<td>U-100</td>
<td>3 to 4 hours</td>
<td>Nearly peakless</td>
<td>About 24 hours</td>
</tr>
<tr>
<td>Levemir (Detemir)</td>
<td>U-100</td>
<td>3 to 4 hours</td>
<td>Nearly peakless</td>
<td>About 24 hours</td>
</tr>
<tr>
<td>Toujeo (Glargine)</td>
<td>U-300</td>
<td>6 hours</td>
<td>Peakless</td>
<td>Greater than 24 hours</td>
</tr>
<tr>
<td>Tresiba (Degludec)</td>
<td>U-100, U-200</td>
<td>1 hour</td>
<td>Peakless</td>
<td>Greater than 24 hours</td>
</tr>
<tr>
<td><strong>Premixed</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humulin/Novolin 70/30</td>
<td>U-100</td>
<td>30 minutes</td>
<td>2 to 12 hours</td>
<td>18 to 24 hours</td>
</tr>
<tr>
<td>Humalog 50/50</td>
<td>U-100</td>
<td>15 to 30 minutes</td>
<td>0.8 to 4.8 hours</td>
<td>14 to 24 hours</td>
</tr>
<tr>
<td>Humalog 75/25</td>
<td>U-100</td>
<td>15 to 30 minutes</td>
<td>1 to 6.5 hours</td>
<td>14 to 24 hours</td>
</tr>
<tr>
<td>Novolog 70/30</td>
<td>U-100</td>
<td>10 to 20 minutes</td>
<td>1 to 4 hours</td>
<td>18 to 24 hours</td>
</tr>
<tr>
<td>Ryzodeg 70/30</td>
<td>U-100</td>
<td>14 minutes</td>
<td>72 minutes</td>
<td>Greater than 24 hours</td>
</tr>
</tbody>
</table>

**Take your insulin at the same time(s) each day**

- Do not vary the time of your injection by more than one hour.
- If you are taking short acting insulin, such as Regular, take your insulin 30 to 45 minutes before eating.
- If you take rapid acting insulin, such as Humalog or Novolog, take your insulin within 15 minutes of eating.
- Apidra is to be taken within 20 minutes of eating.
- Timing does NOT matter with Toujeo or Tresiba.
Talk with your nurse or doctor if you have any of these problems

Most people have no trouble giving their insulin injections. Talk with your nurse or doctor if you notice:

- Bruising
- Dimpled areas
- Redness
- Hard, lumpy areas
- Itching