

Insulin

- Synthesized to be an analogue of the human insulin hormone (made of proteins)
- No oral version because it cannot survive in the digestive tract
- Administration = pens, vial/syringe, pump, inhaled
- Indications
 - o Quickly bring high A1C down to safer range
 - o Used in conjunction with other meds for difficult to control blood sugars

What does insulin do?

- Made by the beta cells in the pancreas
- Most of the time the pancreas releases a small, steady stream of insulin to regulate sugars in the blood stream to a certain level (basal insulin)
- After a meal, your pancreas releases a burst of insulin to help return blood sugar to safe level (bolus insulin)
 - If you eat a high carb meal, the pancreas releases a big burst
 - A lower carb meal will release a smaller burst

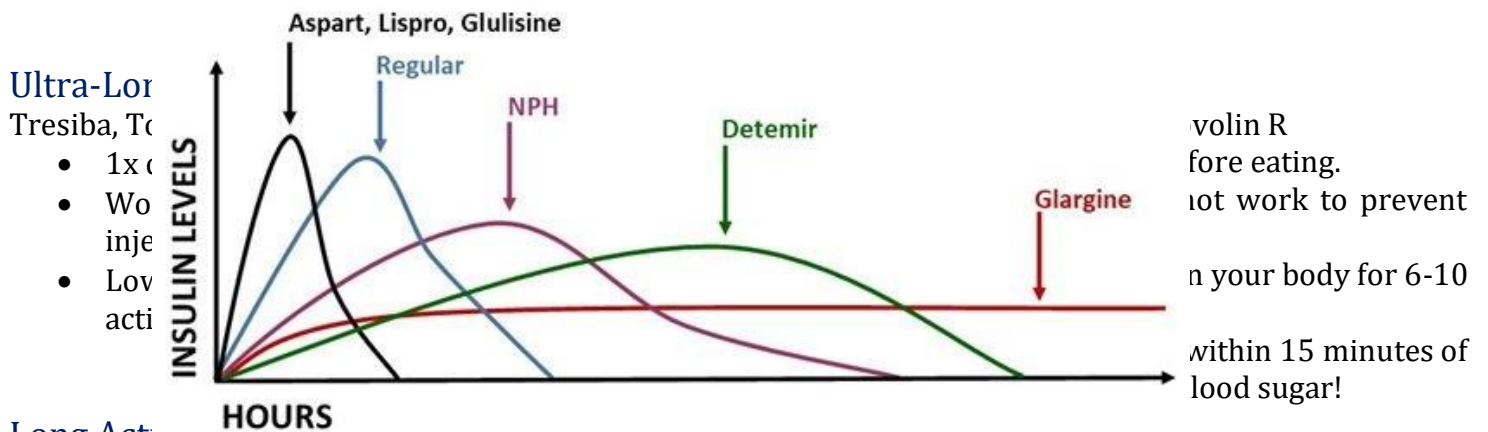
Drawbacks

- May cause weight gain
- Requires injection
- Cost could be high
- Requires more supplies
- Can cause low blood sugar if dose and timing is not matched
- Most require precise timing

Different Ways to Inject Insulin



TYPES OF INSULIN:



Ultra-Long Acting

Tresiba, Toujeo

- 1x daily
- Works for up to 36 hours
- Lower risk of hypoglycemia

Novolin R
before eating.
Do not work to prevent

insulin in your body for 6-10

hours. Take insulin within 15 minutes of eating food sugar!

Long Acting

Long acting = Lantus, Levemir, Basaglar, Semglee

- Mimics the constant, steady release of insulin
- Works for up to 24 hours after injecting
- Prescribed 1-2X a day, often at bedtime
- Lower risk for low blood sugar due to slow action

Rapid Acting

Novolog, Humalog, Apidra, Fiasp

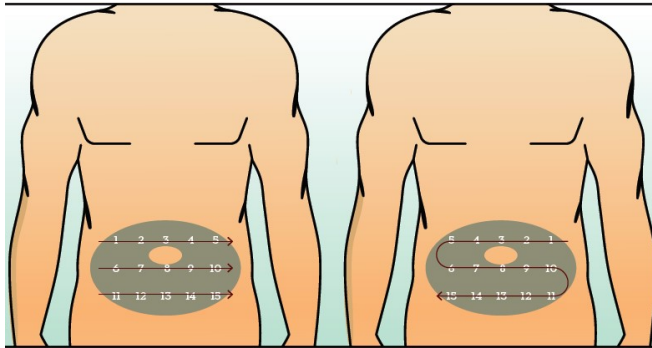
- Controls the rise in blood sugar that happens after a meal
- Rapidly enters bloodstream within 5-15 minutes
- Take 5-15 minutes before eating. You must begin eating within 15 minutes of taking to prevent low blood sugar!

Intermediate Acting

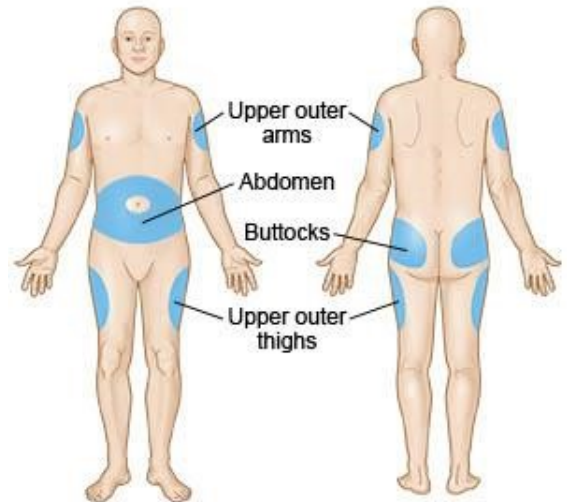
- NPH, Humulin N, Novolin N (cloudy, white solution)
- Gently and thoroughly mix before use by rolling between palm several times
- Prescribed 1-2 times daily
- Will stay in the system for 10-18 hours
- Important to eat regular meals to avoid low blood sugar!

Where to Inject

- Rotate injection site, injecting into the same spot over and over can cause skin problems and impair the absorption of insulin.
- Use a new needle each time
- Stay a few inches away from the belly button

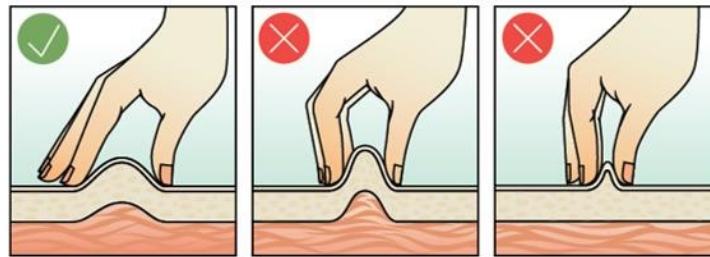
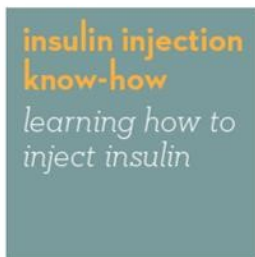


Insulin Injection Sites

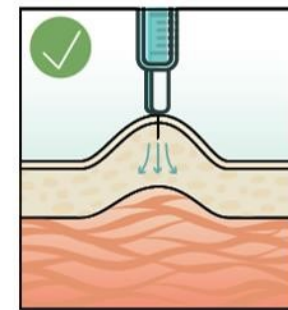


How to Inject

- Let go of the skin pinch before you inject.
- Push the plunger at a moderate steady pace. If using a syringe, keep needle in 5 sec
- If using a pen, keep the needle in for 10 seconds.
- Take out needle at 90-degree angle
- Press injection site with your finger for 5-10 seconds to keep insulin from leaking out



Correct (left) and incorrect (right) ways of performing the skin fold.



The correct angle of injection when lifting a skin fold is 90°

Storage

- Insulin breaks down gradually when exposed to warm temperature
- Keep unopened insulin and other injectables in the refrigerator
- Once you open a vial/pen, it can be kept at room temperature
- Never put pens/vials in the freezer, direct sunlight or in a car

Disposal

- Used needles are a health hazard
- Store in shatterproof container
 - Empty detergent or bleach bottle
 - Store bought sharps container
- Ask local sanitation department
- **Do not** put in recycling bin.