

Humalog 50/50 Kwikpen

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Insulin Lispro Injection, Suspension³ For the Treatment of Diabetes

- 50% Insulin lispro (Short-acting)
- 50% Insulin lispro protamine (Intermediate-acting)

Pharmacological Class

■ Insulin – Regulation of glucose metabolism

Major Side Effects/Adverse Reactions

- Hypoglycemia (Low Blood Sugar)
 - Headache, hunger, sweating, fatigue, irritability.
- Hypokalemia⁷ (Low Potassium Levels)
 - Abnormal heart rhythm, constipation, fatigue, numbness.

Diabetes:

Humalog is designed for the treatment and control of diabetes mellitus. It is used to control the blood glucose levels, and suppress the signs and symptoms of diabetes. Humalog improves the quality of life by regulating blood glucose, and allowing the body to seem like it's functioning normally.

Excipients:^{2,8}

- m-Cresol [3.15 mg/ml] (Anti-microbial)
- Glycerol (Co-solvent)
- Dibasic sodium phosphate. 7H₂O (Buffering Agent)
- Zinc oxide (Anti-Bacterial)
- Water (For injections)
- Hydrochloric acid and sodium hydroxide (Buffers 7.0-7.8)

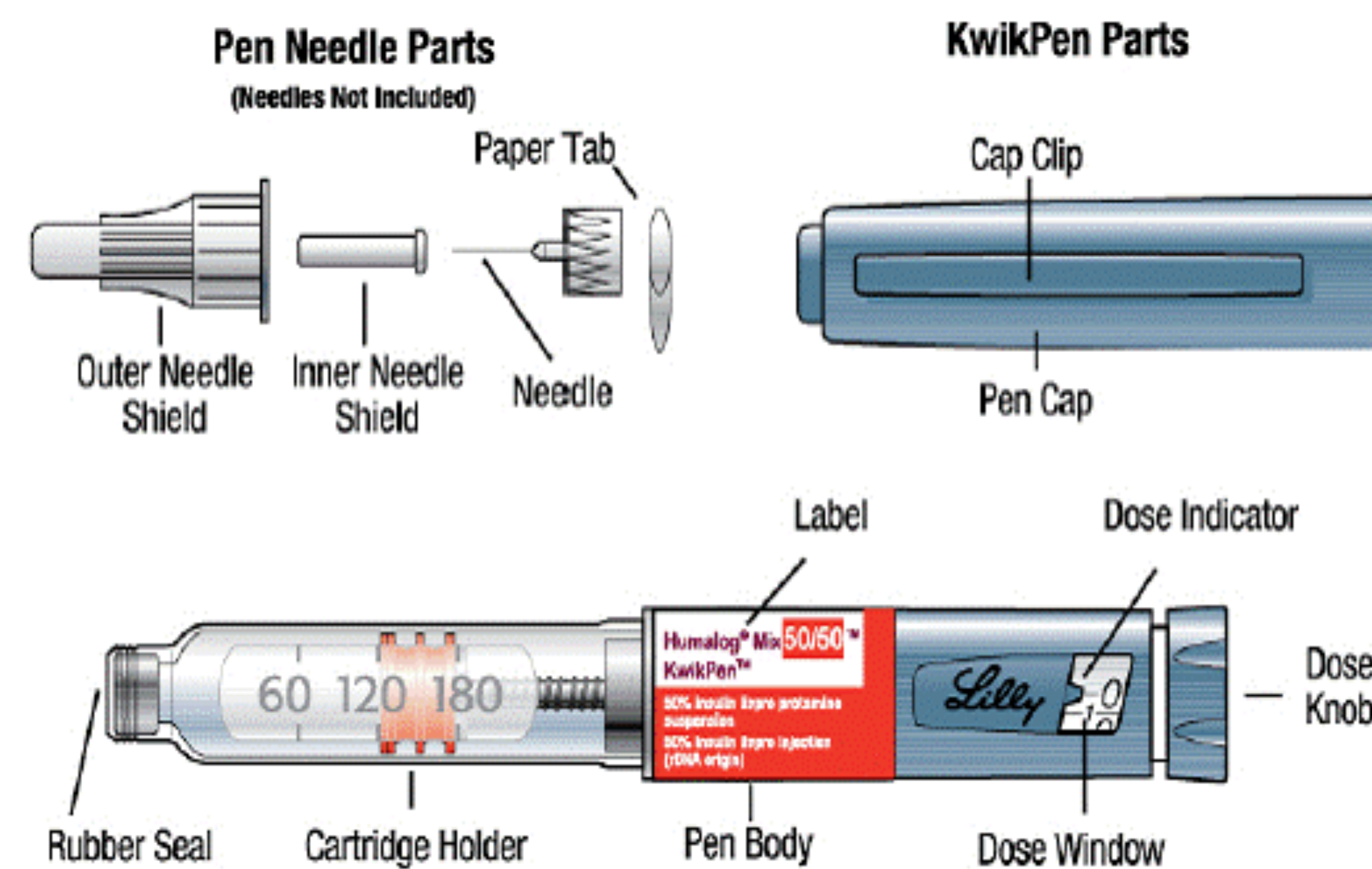
The Pathophysiology behind Humalog 50/50¹

Normally, the pancreas would produce the hormone, insulin, which acts as a key to unlock the cells' ability to uptake and use glucose.

With Diabetes, either there is a lack of this hormone insulin, or there could be **Insulin Resistance**.

- This is the inability of the cell to bind insulin correctly, or as easily.

The **Humalog 50/50 Kwikpen** is a biphasic insulin injection, meaning it delivers insulin as short-acting quantities, and as intermediate-acting quantities to mimic that of human insulin release.



<http://pi.lilly.com/us/humalog5050-kwikpen-um.pdf>

Delivery of Drug:³

Subcutaneous injection

- A subcutaneous injection with Humalog gives a more rapid acting and shorter duration of insulin treatment as compared to normal insulin. Once the drug is administered subcutaneously, it diffuses from the subcutaneous tissue into the systemic circulation, delivering insulin to the cells.
- It should be administered in the abdomen, buttocks, upper thigh, or upper arm.
 - Be sure to use a different injection site each time you inject.
 - Do not inject in the same spot twice in a row.

Advantages:

- The subcutaneous injection is more rapid acting than normal human insulin.
- The subcutaneous injection does not need to be administered by a physician or healthcare professional. (Self Injection)
- As compared to the FlexPen, a similar device, a study done by Debra Ignaut, Michael Opincar, and Sheila Lenox showed the Kwikpen to be more ergonomically correct. It is shorter than the FlexPen, making it easier to push the "dose" button with your thumb when injecting.⁵

Disadvantages:

- Without insurance the drug can cost \$350⁴
- With pen injections, the dose button can be difficult to press for disabled and elderly populations.

Instructions for use:⁶

- ❖ Refrigerate, but do not freeze.
 - ❖ Should be injected 15 minutes before a meal.
1. Remove cap, and wipe the rubber seal with an alcohol swab.
 2. Gently roll and invert the pen 10 times.
 - Should appear white and cloudy, with no clumping.
 3. Remove the paper tab from the outer needle shield
 4. Push the capped needle onto the pen, and turn until tight.
 5. Remove the outer and inner needle shield, throwing away the inner shield while keeping the outer needle shield.
 6. You must prime before each injection.
 - This ensures the insulin comes out in a steady uniform manner and removes air.
 - Set to 2 units, point up and tap the cartridge holder to send air bubbles to the top. Now hold the dose knob for 5 seconds to achieve a uniform dose.
 7. Turn the dose knob to select your dose.
 8. Choose your injection site. (**Subcutaneously**)
 - Abdomen, buttocks, upper thigh, or upper arm
 9. Wipe injection site with alcohol swab, and insert needle.
 10. Press and hold dosage knob for 5 seconds, then retract the needle.

Discard:⁶

1. Carefully replace the outer needle shield, unscrew, and throw away the needle into an FDA-approved sharps disposal container.
2. Replace the pen cap and place in refrigerator.

Patient Concerns:⁶

- The Humalog 50/50 Kwikpen must be refrigerated due to the insulin being prefilled.
- Prior to injection, it should be rolled and inverted to ensure a uniform dose.
- For safety, always keep the outer needle shield on the needle with exception to injection time.
- The cash price for a box of 5 Kwikpens is roughly \$350⁴