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PATIENT & CAREGIVER EDUCATION

# How to Use an Insulin Pen

This information describes how to give an insulin injection (shot) with an insulin pen. It also describes how to store and care for disposable insulin pens. A disposable insulin pen is an insulin pen you throw away when it's empty or after using it for a certain number of days.

If you're using an insulin pen:

- Make sure you know the exact name of the insulin medication you're using. Always tell all your healthcare providers its exact name.
- Make sure you know if you're using a concentrated insulin (medication with a lot of insulin in a small amount of liquid). You might be using a concentrated insulin if you need large doses (amounts) of insulin.
- Never use a syringe to take insulin out of an insulin pen, especially if the insulin is concentrated. Doing this could result in the wrong dose, which can be very dangerous.
- Never share an insulin pen with anyone. They're meant to be used by 1 person only. Sharing insulin pens could cause an infection.

## About Insulin Pens

An insulin pen is a device used to give an insulin injection. There are different types of insulin pens. All types have the same basic parts (see Figure 1) but with different medications in them.

- A **pen cap**. This protects the insulin when you're not using the pen.
- A **rubber seal**. This is where the pen needle connects to the body of the pen.
- An **insulin reservoir**. This holds the insulin. There's a clear plastic area that

lets you see the insulin inside the reservoir. You can use this to see about how much insulin is left in the pen.

- A **label**. This tells you the type of insulin in the pen and the expiration date.
- A **dosage selector**. This lets you dial to the right insulin dose.
- A **dose window**. This shows the number of units of insulin selected. There's an arrow pointing to the number in the middle of the dose window. This is the number of insulin units that will be injected.
- An **injection button**. You press down on this to give the injection.

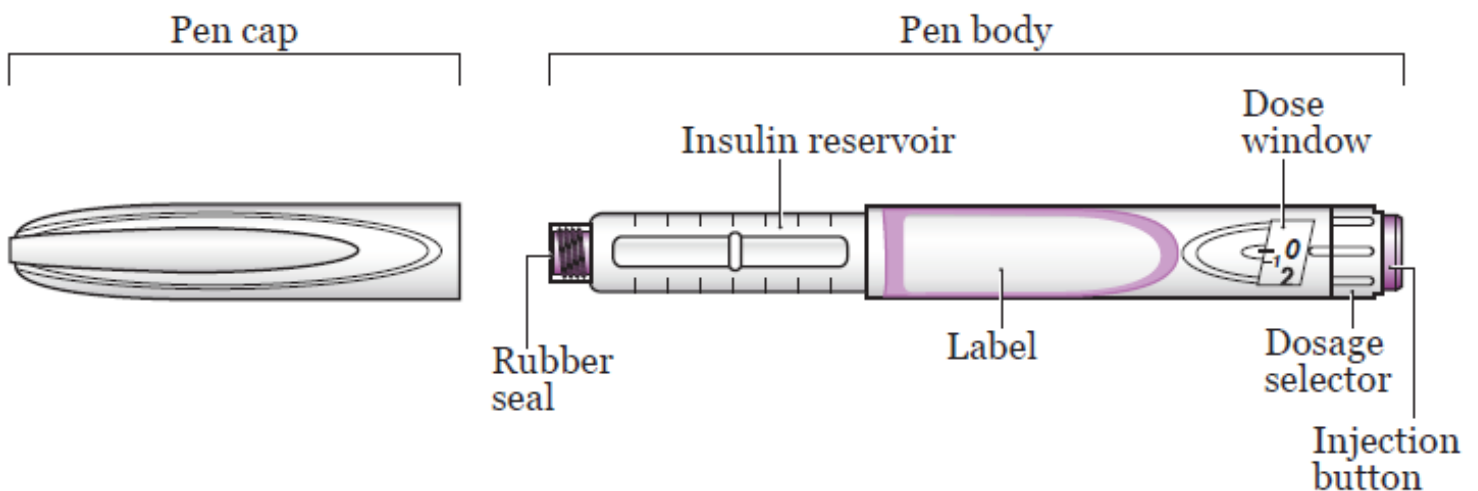


Figure 1. Parts of an insulin pen

## About insulin pen needles

**Use a new insulin pen needle each time you give yourself an injection.**

Insulin pen needles have 4 main parts (see Figure 2).

- A **protective tab**. This helps keep the needle clean. You'll need to remove this before attaching the needle to the insulin pen.
- An **outer needle cap**. This covers the needle before and after it's used.
- An **inner needle cap**. This helps keep the needle clean before it's used.
- A **needle**. This is how the injection is given into the skin.

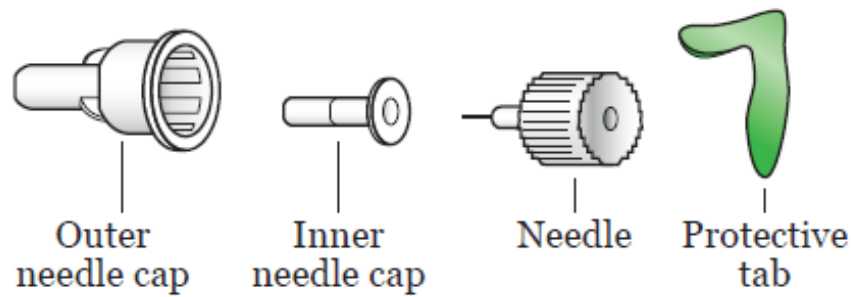


Figure 2. Parts of an insulin pen needle

## How to Store Your Insulin Pens

Too much heat, cold, or sunlight can damage the insulin in your pens. Follow the instructions below to store your insulin pens.

- Keep your new, unused insulin pens in the refrigerator door. This keeps them from being pushed to the back of the refrigerator, where they can freeze.
- Keep the insulin pen you're currently using at room temperature (below 86 °F, or 30 °C). Once you use an insulin pen the first time, never put it back in the refrigerator.
- Never freeze your insulin pens.
- When you're going out in hot weather, don't let your insulin pen get too hot. Carry it in an insulated bag, or something similar, to keep it cool.
  - If you're going to be out for a few hours, put a cold bottle of water in the insulated bag with your insulin pen. This will keep it from getting too hot for several hours.
  - If you're going to be out for a longer time, you can put an ice pack in the insulated bag with your insulin pen. Wrap the ice pack or insulin pen in a towel to keep them from touching. If the pen touches the ice pack directly, the insulin can freeze.
- Always put the pen cap back on the insulin pen after using it. This protects the insulin from sunlight.

## When to throw away your insulin pens

You'll use the same insulin pen over and over for a certain number of days. The number of days depends on the type of insulin pen you're using. The table below lists some common types of insulin pens and the number of days you can use each one. You can also read the instructions that come with your insulin pens.

<b>Insulin Type</b>	<b>Insulin Concentration</b>	<b>Insulin Action</b>	<b>Number of Days to Use a Pen</b>	<b>Insulin Color</b>
NovoLog <sup>®</sup> FlexPen <sup>®</sup> : aspart	100 units/mL	Rapid acting	28 days	Clear
Humalog <sup>®</sup> KwikPen <sup>®</sup> : lispro	100 units/mL	Rapid acting	28 days	Clear
Lantus <sup>®</sup> SoloStar <sup>®</sup> : glargine	100 units/mL	Long acting	28 days	Clear
Levemir <sup>®</sup> FlexTouch <sup>®</sup> : detemir	100 units/mL	Long acting	42 days	Clear
Humulin <sup>®</sup> N KwikPen <sup>®</sup> : NPH	100 units/mL	Intermediate acting	14 days	Cloudy

Whenever you start using a new insulin pen:

1. Count ahead the number of days you can use the insulin pen. Start from the day you first put a pen needle on that new pen.
2. Write that date on a piece of paper tape (such as masking tape) and put the tape on the pen. This will help you always easily see when you need to throw away the insulin pen and start using a new one. If you don't have paper tape, write the date on a piece of paper and tape the paper to the pen.
3. Once you get to the date written on the tape or paper, throw away the insulin pen, even if there's still insulin left. Start using a new insulin pen.

For example, if you start using a Lantus SoloStar insulin pen on January 1<sup>st</sup>, count ahead 28 days to January 28<sup>th</sup>. Write "January 28" on a piece of paper tape and put

the paper tape on the pen. Throw away the pen on January 28<sup>th</sup>, even if there's still insulin in it.

You can keep unused insulin pens in the refrigerator until the expiration date listed on the pen label. Once an insulin pen reaches the expiration date listed on the pen label, throw it away.

## When to Give an Insulin Injection

- If you're using rapid-acting (mealtime) insulin, inject it within 15 minutes before your meal. It's best to inject it just before you start eating. This helps prevent low blood sugar.
  - Most mealtime insulins work for 4 hours. Don't inject mealtime insulin more often than every 4 hours unless your healthcare provider tells you to. For example, if you eat breakfast at 8:00 AM, don't inject your next dose of mealtime insulin until 12:00 PM (noon) or later. Injecting doses too close together can cause low blood sugar, which can be dangerous.
- If you're using long-acting insulin, inject it at the same time every day. Follow your healthcare provider's instructions.
- It's okay to use rapid-acting and long-acting insulin at the same time.

## How to Choose an Injection Site

Insulin should be injected into the fatty tissue just under your skin. Avoid injecting insulin into your muscle. Choose one of the following injection sites (see Figure 3):

- Your abdomen (belly), except for the 2-inch (5-centimeter) area around your belly button. If you're injecting rapid-acting insulin, this is the best site to use.
- The upper and outer part of your thighs. If you're injecting long-acting insulin, this is the best site to use.
- The upper outer part of your buttocks (butt).
- The back part of your upper arms.
  - Only use this injection site if someone else is giving you the injection. If

you're giving yourself the injection, it's too hard for you to reach the correct area at the back of your arm.

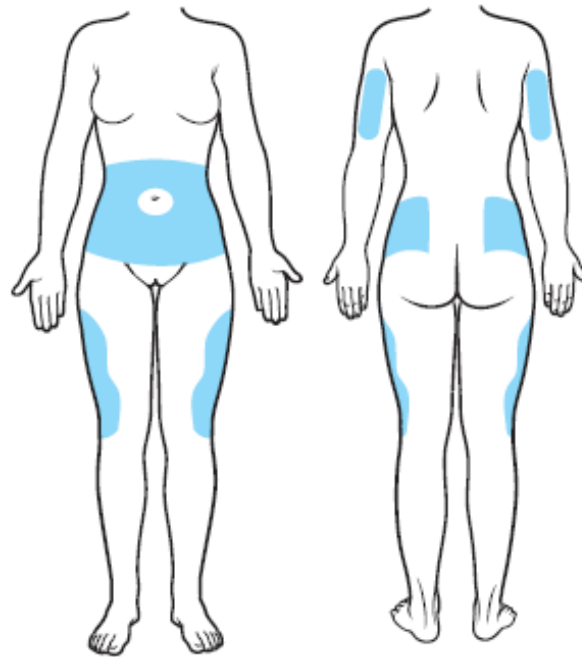


Figure 3. Injection sites

Keep track of the injection site you use. Be sure to rotate (change) the injection sites with each injection. Within each injection site, always inject 1 to 2 inches (2.5 to 5 centimeters) away from the last place you injected. This can help you avoid soreness and scar tissue.

Make sure to inject at least 2 inches (5 centimeters) away from any incisions (surgical cuts), scars, or stretch marks.

Don't inject into an area that's tender, red, bruised, or hard.

## How to Give an Insulin Injection

1. Clear off a clean, flat tabletop to work on.
2. Gather the following supplies:
  - Your blood glucose monitor and related supplies
  - The insulin pen
  - A new, unused pen needle

- 2 alcohol swabs
  - A trash can
  - Your home sharps container, such as an empty laundry detergent bottle. For information about choosing a sharps container, read the section “How to Store and Dispose of Your Home Medical Sharps” at the end of this resource.
3. Clean your hands with soap and warm water. To do this, wet your hands and apply soap. Rub your hands together well for 15 to 20 seconds, then rinse. Dry your hands with a paper towel and use that same towel to turn off the faucet.
  4. Check your blood sugar. It’s important to do this before every insulin injection.
    - Often, you’ll need to know your blood sugar level to know how much rapid-acting insulin to inject before a meal. To figure out your insulin dose, use the insulin sliding scale your healthcare provider gives you.
    - Even if you’re injecting a set dose of insulin that doesn’t change based on your blood sugar level, you still need to check your blood sugar. It’s important to make sure that your blood sugar level isn’t too low before you give any insulin.
    - Write down your blood sugar and the amount of insulin you’re going to take on the blood glucose log your healthcare provider gave you.
    - Place the lancet you use to test your blood sugar in your home sharps container.

## **Get the insulin pen ready**

5. Check the label on the insulin pen to make sure you have the right insulin pen for the right time. For example, if you’re eating, make sure you have your rapid acting insulin pen.
6. Pull the pen cap off the insulin pen (see Figure 4). Place the pen cap on the table.



Figure 4. Pull the pen cap off the insulin pen

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7. If you're using a cloudy insulin (such as the HUMULIN N KwikPen), mix the insulin by gently rolling the pen between your hands 10 times and then tipping the pen up and down 10 times. The insulin should look evenly white and cloudy with no lumps or particles. Keep mixing it until you don't see any clumps.
8. Wipe the rubber seal at the top of the insulin pen with an alcohol swab. Throw the alcohol swab away.
9. Take the protective tab off the new pen needle (see Figure 5). Throw the tab away.

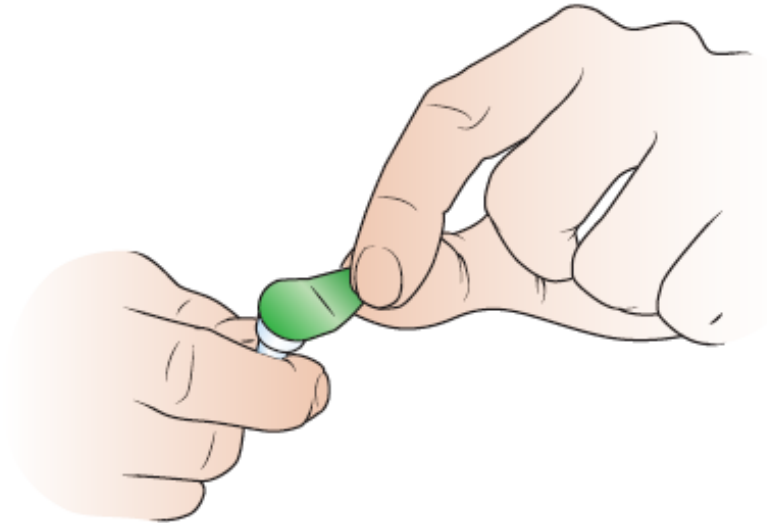


Figure 5. Take off the protective tab

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10. Twist the pen needle onto the top of the insulin pen until it stops turning (see Figure 6). Make sure to keep the pen needle straight as you twist it on.

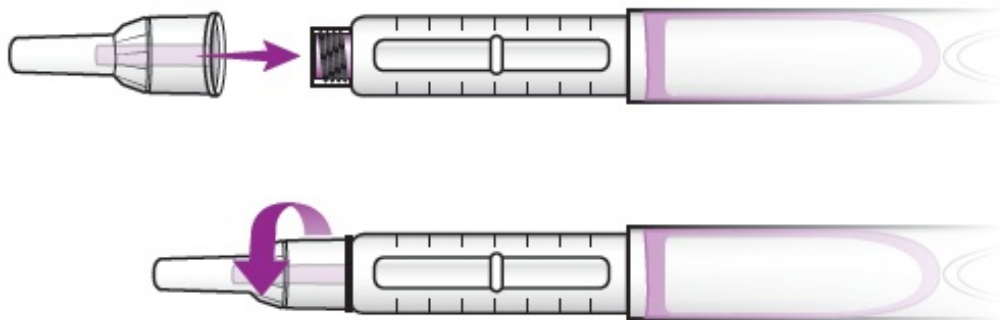


Figure 6. Twist the pen needle onto the insulin pen

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11. Take off the outer needle cap (see Figure 7). Place it on the table.

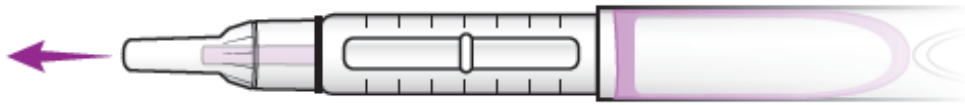


Figure 7. Take off the outer needle cap

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12. Pull off the inner needle cap (see Figure 8). Throw it away.

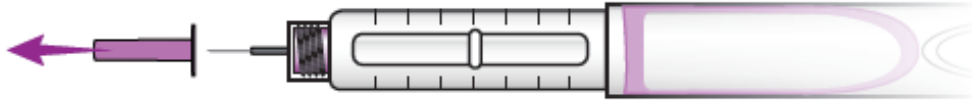


Figure 8. Take off the inner needle cap.

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## Do a safety test (prime the pen)

It's important to do a safety test before every insulin injection. The safety test makes sure the insulin pen and needle are working correctly. It also removes air bubbles and fills the needle with insulin so you get your full dose.

13. Hold the insulin pen so you can read the name of the insulin. Looking at the dose window, dial to 2 units by turning the dosage selector forward (see Figure 9). The arrow in the middle of the dose window should line up exactly to the dose you're giving. If you dial past 2 units, turn the dosage selector back until you're at 2 units.



Figure 9. Dial the dosage selector

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14. With the needle pointing up, press the injection button firmly against the table or with your thumb. Look for drops of insulin to come out the tip of the needle.
1. If no insulin comes out, dial to 2 units and press the injection button again.
  2. If insulin still doesn't come out, dial to 2 units and press the injection button once again.
  3. If insulin still doesn't come out, put the outer needle cap back on the needle. Twist the needle off the insulin pen and put it in the sharps container.

4. Put a new needle on the insulin pen and repeat steps 8 to 14.

## Set the insulin dose

15. Make sure the dose window shows zero. If it doesn't, turn the dosage selector back until it shows zero.
16. Turn the dosage selector forward to dial to the dose you're giving. The arrow should be lined up exactly to the dose you're giving.
  - If you can't dial to the number of units you need, the insulin pen is probably almost empty. Throw it away and get a new one from the refrigerator so you can inject the full dose at once. **Do not inject partial doses or split the dose into 2 injections.**

## Give the insulin dose

17. Use a new alcohol swab to gently clean your skin at the injection site.
18. Hold the insulin pen in your fist with your thumb on the injection button (see Figure 10). Be careful not to push down on the injection button before you push the needle into your skin.

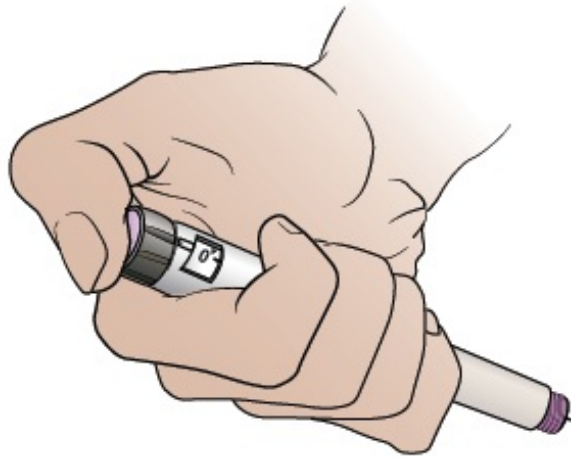


Figure 10. Holding the insulin pen

19. Gently pinch up your skin at the injection site. In one smooth, quick motion, push the whole needle into your skin at a 90-degree (straight up and down) angle. Push gently so you see a small dimple in your skin around the tip of the pen.

20. Push the injection button down firmly, being careful not to press the pen into your skin more. Once you press the button all the way down, keep holding it down and slowly count to 10. This gives the insulin time to come out of the pen. You should also see the numbers in the dose window go back to zero.
21. After you count to 10, take your thumb off the injection button and pull the needle straight out of your skin.
  - Never rub the injection site after the injection. This can make the insulin work too fast.
  - If you see a drop of blood after the injection, press the area lightly with your finger or a tissue.

## After the injection

22. Put the large outer needle cap back on the needle. **Don't put the small inner cap back on.**
23. Unscrew the needle from the insulin pen. Twist it off in the opposite direction you put it on.
24. Put the needle in your sharps container.
25. Put the pen cap back on the insulin pen.
26. Store the insulin pen at room temperature away from too much heat, too much cold, and direct sunlight.

## How to Store and Dispose of Your Home Medical Sharps

Don't throw your medical sharps (lancets and pen needles) directly into the trash or flush them down the toilet. Put them into a sharps container. You can use an empty, hard, opaque (not see-through) plastic container that has a screw-on cap, such as a laundry detergent bottle. Don't store sharps in glass bottles, soda bottles, milk jugs, aluminum cans, coffee cans, or paper or plastic bags. For more information, read the resource *How to Store and Dispose of Your Home Medical Sharps* ([www.mskcc.org/pe/store\\_dispose\\_sharps](http://www.mskcc.org/pe/store_dispose_sharps)).

Stop using your sharps container when it's a little more than half full. Wrap the lid or cap with strong tape to create a more secure seal and keep it from leaking. Label the bottle by writing on it "**Home Sharps: not for recycling.**"

If you live in New York City, you can place the sealed container in with your regular trash for collection. Don't put it with your recyclables. If you live in a different county of New York or another state, check with your local department of health. You can also use the resources below to find more information specific to your area.

- **Safe Needle Disposal**

[www.safeneedledisposal.org](http://www.safeneedledisposal.org)

800-643-1643

[info@safeneedledisposal.org](mailto:info@safeneedledisposal.org)

- **How to Get Rid of a Sharps Container**

[www.fda.gov/media/82396/download](http://www.fda.gov/media/82396/download)

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit [www.mskcc.org/pe](http://www.mskcc.org/pe) to search our virtual library.

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