

Insulin Pens and Dosers – easy to carry, dose and use

An **insulin pen** is a convenient way to give yourself an insulin shot or injection. It looks like a large fountain pen and comes in two basic types: disposable and reusable. Disposable pens come already filled with insulin. When a pen is empty or expired, it is simply discarded.

Reusable pens have a replaceable cartridge of insulin. The cartridge is replaced when the insulin is used or expired.

Whichever type of pen you use, you will need to attach a new pen needle onto the pen with each injection and remove it after every use. The pen may be kept in your pocket or purse at room temperature while in use. The insulin should not get warm or be exposed to direct sunlight. Store unused insulin pen cartridges and pre-filled pens in the refrigerator.

Note: Pens from different manufacturer's operate differently. Check pen manufacturer's guidelines for operating instructions and insulin expiration details.



An insulin doser works like a re-useable pen. It holds a replaceable cartridge of insulin. The dose is dialed and delivered through a pen needle.

Doser



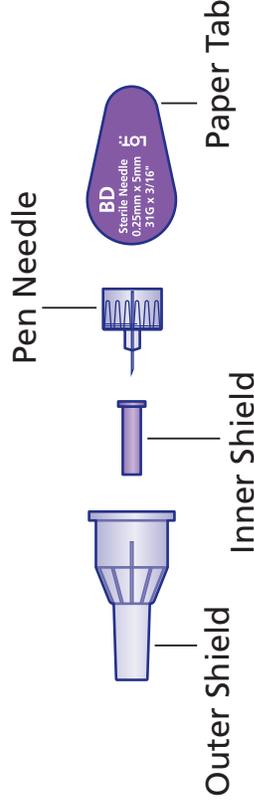
Disposable Pen



Reusable Pen



Parts of a Pen Needle



Each pen needle has an outer shield, an inner shield, and a paper tab.

How to attach the needle to a pen

1. Remove the paper tab from the outer shield.
2. Push the needle straight onto the pen and twist until it is tight.
3. Pull off the outer shield and set it aside. You will need it later to remove the needle from the pen.
4. Pull off the inner shield and prime your pen before injecting.

Always prime your insulin pen before each injection.

Dial two units on your pen and then press the button to shoot some insulin into the air to make sure it works. This is called an “air shot” or “priming” the pen. If you do not see at least two drops of insulin after repeated priming, do not use the pen. This indicates there may be

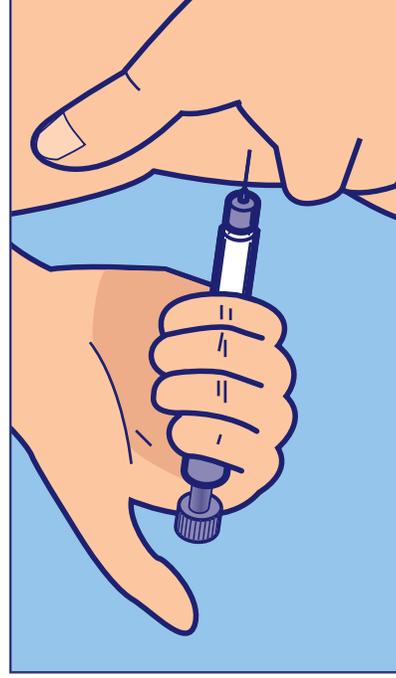
a problem. The cartridge could be empty or the pen may not be assembled correctly.



Sometimes, when you put a needle on a pen, a drop of insulin may leak out. This does not mean the pen has been primed. You will still need to perform an "air shot" before you inject.

When you inject, hold the needle in your skin until you count to 5.

Count slowly to five before removing the needle from your skin. If the needle is taken out too fast, insulin will leak out, affecting the dose that is delivered.



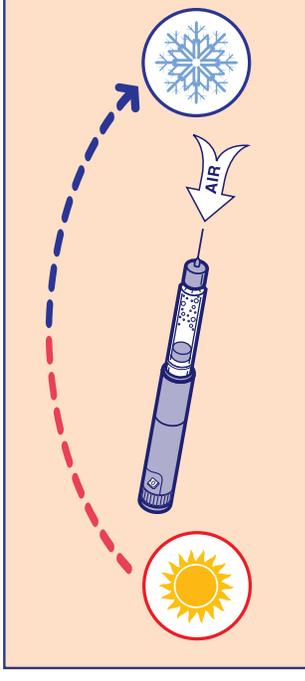
If insulin does drip from the needle after you take it out of your skin, leave the needle in your skin longer the next time, by counting to ten.



Never leave the pen needle attached between injections.

A pen needle has openings on both ends that allow for a possible exchange of insulin and air. When you leave a needle attached to your pen, changes in the environment could severely impact your dosage.

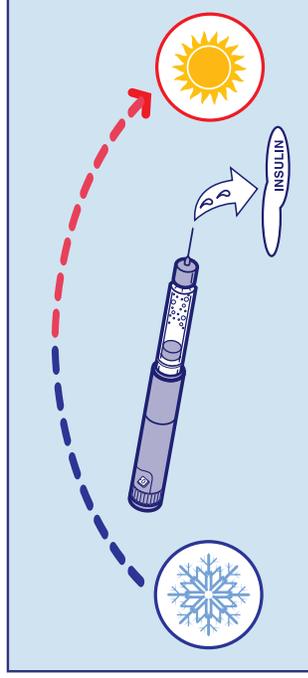
Warm to Cold Causes Compression



- Going from a warm place to a cold place causes insulin to compress or shrink.
- Air may fill the empty place in the cartridge.
- This may cause an under-dose of insulin. Up to 2/3 of the insulin may not be delivered.¹

¹ Ginsberg, B.H., J.L. Parkes, C. Sparacino: The kinetics of insulin administration by insulin pens. *Horm. Metab. Res.* 26:584-587 (1994)

Cold to Warm Causes Expansion:



- Going from a cold place to a warm place causes the insulin to expand.
- As insulin expands it may leak out through the passage way that the needle creates.
- The fluid may leak out while the insulin particles stay in, changing the concentration of insulin.
- The strength of your insulin may change, which will affect the dose administered (may overdose).

Insulin Pens and Dosers Advantages and Disadvantages

Advantages:

- Easy to use and carry
- No need to draw insulin
- Can use most types of insulin
- Doses are easily dialed
- Less waste of expired insulin if not much insulin is used
- To some people it may be less scary than a syringe

Disadvantages:

- Cannot self-mix insulins
- Modest hand strength needed to push button on pen or doser
- Takes more time to push the pen “button” than a syringe
- Slightly more expensive than insulin vials

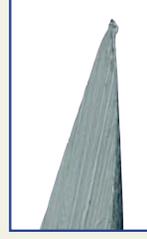
- May not be covered by some insurance companies
- Limited cartridge size

Pen Needle Disposal

- Use a pen needle once.
- Discard it right away in a “sharps” container for medical waste (to prevent anyone from getting stuck with your used pen needle).
- Check your town or county recommendations for discarding medical waste. Every location has different regulations.



For comfort and safety, use insulin needles only once.



Used
needle
magnified
370 times



Same used
needle
magnified
2000 times

Photographs showing the type of damage that can occur with needle reuse.[†]

Today’s insulin needle is thinner and more delicate for greater comfort, so needle re-use can damage the tip and cause injury. Use only once.

Needle re-use can:

- Dull or bend the tip, causing bleeding, bruising, or scarring
- Increase the risk of the needle breaking off in the skin

[†] Photographs from Dieter Look and Kenneth Strauss study: “Nadeln mehrfach verwenden?” Diabetes Journal 1998, 10: S. 31-34.

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