

How to inject insulin

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What is insulin?

Insulin is a hormone that helps keep blood glucose at normal levels (usually 3 to 8 mmol/L in people who do not have diabetes). People with diabetes often do not have enough insulin or it does not work very well. Injecting insulin replaces or tops up what your body would normally produce.

If insulin is taken by mouth, it is destroyed in the gut. It needs to be given by injection, usually in the fatty layer of the abdomen but sometimes in other areas of the body.

Types of insulin and timing of injections

Your doctor or diabetes educator will discuss with you the most appropriate type of insulin for your diabetes. The available insulins are listed in the Table below.

Equipment

There are many syringes, pens and other devices that can make injecting insulin easier:

- syringes – available in different sizes depending on your needs
- pens and similar devices – can be disposable or reusable (insulin is available in a cartridge that can be changed).

The fine needles used with the syringes and pens are also available in different sizes.

Ask to see the range of equipment so you can choose the injection device that best suits you.

If you use an insulin pen or a similar device, you should also know how to use a syringe in case your injector is lost or not working.

This handout provides a guide to the procedure of injecting insulin.



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Table. Available insulins

Type of insulin	Trade name	Appearance	Timing of injection
Very quick acting (also known as analogue rapid acting insulin)	Humalog, NovoRapid	Clear	Immediately before a meal
Quick acting (also known as short acting insulin)	Actrapid, Humulin-R	Clear	30 minutes before a meal
Intermediate acting (also known as isophane insulin)	Humulin NPH, Protaphane	Cloudy	At bedtime, breakfast or the evening meal
Long acting (also known as analogue basal insulin)	Lantus, Levemir	Clear	Does not need to be given with food
Premixed insulin Mixed quick acting and intermediate acting insulins	Humulin 30/70, Mixtard 20/80, 30/70 and 50/50	Cloudy	30 minutes before a meal
Mixed very quick acting insulins*	Humalog Mix25 and Mix50, NovoMix 30	Cloudy	Immediately before a meal

* Biphasic formulations with the rapid onset of action of the very quick acting insulins but a duration of action similar to that of the intermediate acting insulins.

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Giving the injection

It is important that you receive instruction on the technique of injecting insulin from someone who is familiar with the equipment you have chosen. Your local diabetes service can give you advice.

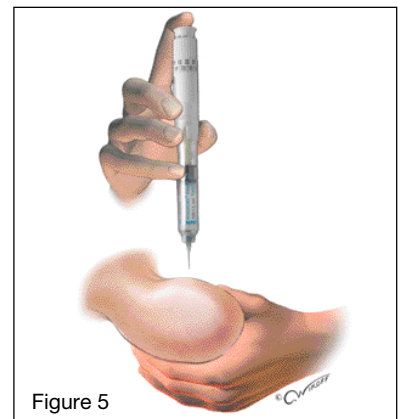
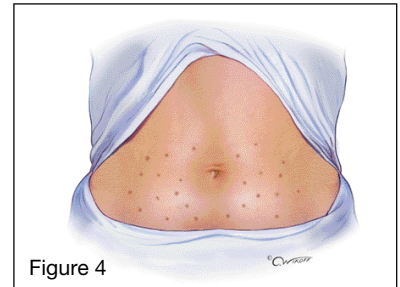
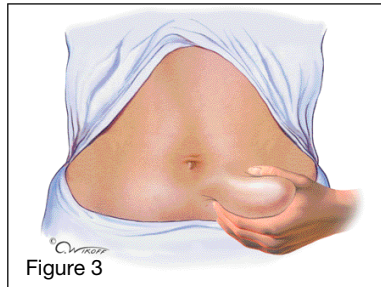
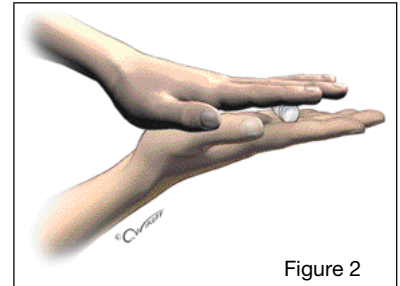
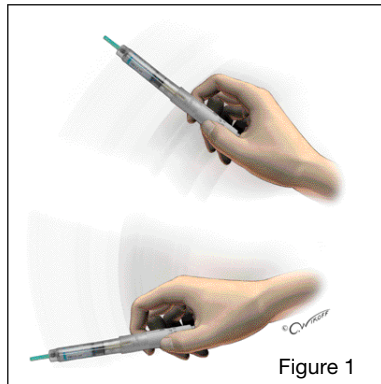
The general method of injecting insulin by pen or syringe is outlined below. Remember to use a new needle each time you inject. Each type of insulin pen has specific instructions on its proper preparation and handling. If you are using a pen, follow the instructions provided with it.

If you are using an insulin pen, follow these steps:

1. Ensure your hands are clean.
2. If you have been prescribed a cloudy insulin, mix it completely before each use. Don't shake the pen – instead, rock it backwards and forwards end to end, and then roll it between your hands (Figures 1 and 2).
3. Attach a new needle.
4. Dial up 3 units on the pen and push up the plunger to expel any air in the needle – look for a steady stream of insulin, not just drops.
5. Dial up your dose of insulin.
6. Pinch up an area on your abdomen, choosing a different site each time (Figures 3 and 4).
7. Put the needle into the pinched-up area at 90° – this is straight (Figure 5).
8. Press the plunger to inject the insulin and then hold the needle in place for 5 seconds.
9. Withdraw the needle.
10. Release the pinched up area.
11. Dispose of the needle as recommended.

If you are using insulin in a syringe:

1. Ensure your hands are clean.
2. If you are using a cloudy insulin, mix it in the bottle as for a pen (step 2 above).
3. Remove the cover from the syringe needle and pull the plunger back to draw up an amount of air equal to the required dose of insulin.
4. Holding the insulin bottle upright, push the needle through the rubber stopper. Keeping the tip of the needle above the insulin, inject the air into the bottle by pressing the plunger.
5. Turn the insulin bottle and syringe upside down. Now the needle should be in the insulin. Pull the plunger back to draw the required amount of insulin into the syringe. Withdraw the needle from the bottle.
6. Inject the insulin as described in steps 6 to 11 above.



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Disposal of syringes and needles

Used syringes and pen needles must be disposed of safely. Discard the syringe or needle into a puncture proof (strong plastic) container with a lid. Contact your local diabetes service, council or pharmacy for information about disposal facilities in your area – some provide special containers and arrange disposal. Never place used syringes in household garbage, and never leave an unused syringe unattended.

Storage of insulins

Store unopened insulin bottles and cartridges on their side in the fridge (between 2 and 8°C). Do not allow insulin to freeze; if it has frozen, it needs to be discarded because it may not work effectively.

Store opened insulin bottles and insulin pens loaded with insulin cartridges away from direct sunlight in a cool place, not in the fridge. Insulin is damaged by heat and so must not be kept in the car glove box or where the temperature exceeds 25°C, whether opened or unopened. Insulin must be used within 28 days of opening. Unopened bottles can be stored in the fridge until the expiry date; throw them away once they have expired.

Supply of insulin

You need a prescription from your doctor to obtain insulin. A spare bottle or cartridge of insulin or a spare prefilled pen should be kept on hand. Always check that the pharmacy and doctor have given you the correct type of insulin and that it is within its expiry date – check before leaving the pharmacy.

Supply of syringes

Register with the National Diabetes Services Scheme, administered by Diabetes Australia, for your supply of syringes and/or pen needles. Registration forms are available from your local doctor or State branch of Diabetes Australia (phone 1300 136 588; website www.diabetesaustralia.com.au).

My insulin

Keep a record of your insulin in the box below:

Name	Dose (units)	Time
<i>Name of insulin</i>	<i>20</i>	<i>Before bedtime</i>

Remember to wear a medical alerting device such as a bracelet or necklace and to carry a card stating that you have diabetes and listing your medication.



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