

FACT SHEET:

Insulin

Insulin is a hormone that allows glucose to move from the bloodstream into the body's cells. In the cells, glucose is used for energy. When you have diabetes, your pancreas either cannot make any or enough insulin, and/or the insulin it makes does not work well. This results in too much glucose in the bloodstream.

Insulin and type 1 diabetes

When you have type 1 diabetes, your pancreas can no longer make insulin. The cells in the pancreas that make insulin have been destroyed by the immune system. Instead, you need to have insulin injections several times a day, or insulin via an insulin pump.

Insulin and type 2 diabetes

When you have type 2 diabetes, your pancreas can still make insulin but not enough to keep your blood glucose levels in the target range. When your pancreas is not making enough insulin and the insulin it makes does not work well, the blood glucose level will rise.

You can manage your type 2 diabetes with healthy eating and regular physical activity. Over time, you may need glucose-lowering medications to help keep your blood glucose levels in your target range. This medication might be a tablet. You might also need to inject your medication to keep blood glucose levels in the target range.

The medication might be insulin or other medicines that are injected.

Insulin and gestational diabetes

Gestational diabetes is a type of diabetes that can occur during pregnancy. In pregnancy, some of the hormones made by the placenta make it more difficult for insulin to work well. The pancreas then needs to make extra insulin to keep blood glucose levels in the target range. If the pancreas is unable to make enough insulin, blood glucose levels rise, and gestational diabetes develops.

Gestational diabetes is managed by following a healthy eating plan, doing regular physical activity and monitoring blood glucose levels. You may also need to use insulin injections or some other medicines until after your baby is born.

Starting insulin

Starting insulin can be a challenge. It might make you feel anxious. In the beginning, you will need to be in regular contact with your doctor, diabetes nurse practitioner and diabetes educator to help work out the right dose for you.

There are many devices that can deliver insulin, such as insulin pens, pumps and syringes.

It can also take time to adjust to using insulin and your new routine. Your diabetes health professionals and your family and friends can provide the support you need.

Types of insulin

Different people need different types of insulin. Your treatment needs to be tailored to your needs. Your doctor or diabetes nurse practitioner prescribe the insulin that is best for your lifestyle and blood glucose targets. They will talk to you about how to use your insulin.

There are many types of insulin. Some insulins work for a short time in your body and others for 24 hours or more. Insulin can be given as a basal or a bolus dose.

Basal insulin is a background insulin (also known as intermediate or long acting insulin). It supplies the insulin your body needs throughout the whole day regardless of whether you are eating or fasting.

Bolus insulin works quickly (also known as ultra-short or short acting insulin). It is given with meals. Bolus insulin allows glucose from your carbohydrate (carb) food to move from the bloodstream to enter the body's cells to use as energy.

You may need more than one type of insulin to keep your blood glucose level in your target range. This will depend on the type of diabetes you have and your diabetes care plan.

The type and amount of insulin you need can change over time and when you are unwell. It is important to have regular appointments with your doctor and diabetes health professionals to review your diabetes care plan.

Using insulin

Insulin works best when it is injected into the fatty layer just beneath the skin. It is important to inject insulin to the right depth. Use needles that are the right length for you to avoid injecting into a muscle.

Insulin is best injected in the abdomen (tummy) area. In some cases, the thigh or buttocks (bottom) may be used.

Diabetes educators can show you how to inject insulin safely. They can explain which injection sites to use and what needle length is right for you.

How to inject insulin

- Use a new pen needle tip or syringe every time. This helps to reduce the risk of bruising and developing scars.
- Check you are giving the right type and dose of insulin prescribed by your doctor or diabetes nurse practitioner.
- If you are using a cloudy insulin, gently mix it before injecting. Do this by gently tipping and rolling the insulin 10 to 20 times until it has no flakes or lumps.
- If you are using a pen, you need to check that it is working before you inject the insulin. You do this by starting the flow of insulin until you see a small amount coming out of the needle. This removes air from the needle and is known as an 'air shot'.
- If you are using a syringe, follow your doctor, diabetes nurse practitioner or diabetes educator's instructions.
- Insert the needle at 90 degrees (a right angle), unless advised otherwise by your doctor, diabetes nurse practitioner or diabetes educator.
- After injecting the insulin, hold the needle under the skin for 10 seconds to make sure you get the full dose.
- Choose a different place on your abdomen (tummy) to inject insulin each time to avoid developing fatty lumps.
- If using an insulin pen, remove the needle from the pen after each injection and put the pen lid on.

What not to do

- Do not use the insulin after the expiry date shown on the label.
- Do not use the insulin if it does not look the way it should. For example, if the insulin is a different colour, has lumps or flakes, or your clear insulin has turned cloudy.
- Do not use insulin if it has been frozen or exposed to extreme heat.
- Do not shake cloudy insulin. Instead, gently mix insulin as explained above.
- Avoid injecting in areas where there are scars, stretch marks or lumps.
- Do not inject through your clothes.

Storing insulin

It is important to store insulin correctly.

- Store your unopened insulin in the fridge (away from the freezer/chiller section). Do not let your insulin freeze.
- Insulin that you are using can be safely stored at room temperature (below 25 degrees Celsius) for up to 28 days.
- It is fine to keep your current insulin pen in your handbag or bag unless the temperature is above 25 degrees Celsius.

- Do not keep insulin in a place where it might get hot, like in your car or in direct sun light.
- Special insulated packs are available to help keep your insulin at the right temperature if it is too hot or when travelling.
- Label the insulin with the date you started using it. Once open, throw it out after 28 days.

Community 'sharps' disposal

A sharp is any syringe, pen needle, needles used in the finger pricker, needles used for insulin pumps and sensors for continuous glucose monitoring (CGM) and flash glucose monitoring (Flash GM) devices.

- Handle your sharps safely.
- Make sure you always place your used sharps in Australian-standard approved plastic containers. These containers are available from a NDSS Access Point (usually a community pharmacy).
- Do not use glass or cardboard containers, tins or plastic bottles.

You can take your used sharps containers to some public hospitals, participating pharmacies, community sharps disposal bins and some councils.





More information and support

- Go to [ndss.com.au](https://www.ndss.com.au) to access the Carb Counting online program and to search for other NDSS programs and services in your state or territory, or online.
- Call the NDSS Helpline on **1800 637 700** and ask to speak to a diabetes educator or go to [adea.com.au](https://www.adea.com.au) to find a diabetes educator.
- Go to [healthdirect.gov.au](https://www.healthdirect.gov.au) to find diabetes health professionals near you.
- For more information about community sharps disposal, go to [diabetesaustralia.com.au/resources/safe-sharps](https://www.diabetesaustralia.com.au/resources/safe-sharps).
- For more information about your insulin, talk to your pharmacist, call the National Prescribing Service on the Medicine Line **1300 636 424** or go to [nps.org.au/medicine-finder](https://www.nps.org.au/medicine-finder).



Top tips

- Make an appointment to see a diabetes educator. Diabetes educators can show you how to inject insulin safely. They can explain which injection sites to use and what needle length is right for you.
- Check you are giving the right type and dose of insulin prescribed by your doctor or diabetes nurse practitioner.
- Place your used sharps in an approved sharps container.
- Follow the instructions for storing and handling your insulin carefully.

Notes

The NDSS and you

Whether you have just been diagnosed with diabetes, or have been living with diabetes for a while, the NDSS provides a range of support services, information, and subsidised products to help you manage your diabetes, stay healthy and live well. For access to more resources (including translated versions), or to find out more about support services, go to [ndss.com.au](https://www.ndss.com.au) or call the NDSS Helpline on **1800 637 700**.

This information is intended as a guide only. It should not replace individual medical advice and if you have any concerns about your health or further questions, you should contact your health professional.