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Insulin

Make sure you know which type (or types) of insulin to use, how much to inject, and what time of day to use it.

Each time you collect a prescription, check the container to make sure it is the right insulin for you.

Store unopened insulin in a refrigerator until it is needed.

About insulin

Type of medicine	Insulin
Used for	Diabetes mellitus
Also called	<p>Short-acting insulins</p> <p><i>Soluble insulin:</i> Actrapid®, Humulin S®, Insuman® Rapid, Insuman® Infusat; Hypurin® Porcine Neutral</p> <p><i>Insulin aspart:</i> NovoRapid®; Fiasp®; Trurapi®</p> <p><i>Insulin glulisine:</i> Apidra®;</p> <p><i>Insulin lispro:</i> Humalog®; Lyumjev®; Admelog®</p> <p>Intermediate and long-acting insulins</p> <p><i>Insulin degludec:</i> Tresiba®; Xultophy® (in combination with liraglutide)</p> <p><i>Insulin detemir:</i> Levemir®</p> <p><i>Insulin glargine:</i> Lantus®; Abasaglar®; Toujeo®; Semglee®; Suliqua® (in combination with lixisenatide)</p> <p><i>Isophane insulin:</i> Insulatard®, Humulin I®, Insuman® Basal, Hypurin® Porcine Isophane</p> <p>Biphasic insulins</p> <p><i>Biphasic insulin aspart:</i> NovoMixj® 30</p> <p><i>Biphasic insulin lispro:</i> Humalog® Mix25, Humalog® Mix50</p> <p><i>Biphasic isophane insulin:</i> Humulin M3®, Insuman® Comb 15, Insuman® Comb 25, Insuman® Comb 50, Hypurin® Porcine 30/70 Mix</p>
Available as	Injection – as vials, cartridges and pre-filled pens

Insulin is a hormone which is made naturally in your body, in the pancreas. It helps to control the levels of sugar (glucose) in your blood. If your body does not make enough insulin, or if it does not use the insulin it makes effectively, this results in the condition called [diabetes \(diabetes mellitus\)](#).

People with [diabetes](#) need treatment to control the amount of sugar in their blood. This is because good control of blood sugar levels reduces the risk of complications later on.

Insulin is manufactured to closely resemble our natural human insulin. It can also be derived from animals (called porcine insulin and bovine insulin), although these are rarely used nowadays. Insulin cannot be taken by mouth, as it is destroyed by digestive enzymes. It is therefore given by an injection just under the surface of the skin. It is administered using a syringe and needle or by using an injection device (such as a pre-filled pen).

There are several different types of insulin available. The types are classified according to how quickly and for how long the insulin works. Short-acting or soluble insulin works quickly and is usually injected just before meals. Intermediate and long-acting insulins take longer to work and the effects last longer. Biphasic insulin products contain both a short-acting and an intermediate or long-acting insulin. There are also many different brands of insulin - these are listed in the table above, according to their type. The type and brand of insulin that your doctor prescribes for you will be tailored to your needs. It is very important that you continue to use the same brand of insulin until your doctor or diabetes nurse tells you otherwise.

Before using insulin

Before you start using insulin make sure that your doctor knows:

- If you are pregnant, trying for a baby or breastfeeding. This is because your insulin requirements can change during pregnancy and while you are breastfeeding a baby.
- If you have any problems with the way your kidneys work or with the way your liver works.
- If you are taking any other medicines. This includes any medicines you are taking which are available to buy without a prescription, as well as herbal and complementary medicines.
- If you have ever had an allergic reaction to a medicine.

How to use insulin

- Before starting this treatment, read the manufacturer's printed information leaflet from inside the pack as well as the information you have been given by your doctor or diabetes clinic.

- Use your insulin exactly as your doctor tells you to. Your doctor or diabetes nurse will show you how to inject yourself with insulin. It is usually injected into your upper arms, thigh, buttocks or tummy (abdomen).
- Your treatment will be tailored to your needs. It may consist of one or more types of insulin and the amounts you use will be carefully chosen to suit you. Insulin doses are referred to in terms of units. Make sure you know how many units to use – ask your doctor or nurse if you are unsure.
- You will be told when to inject your doses, as different types of insulins are given at different times in relation to food. It is important that you inject your doses as you have been advised.
- Some types of insulin require mixing before you withdraw a dose. This is done by rolling the bottle slowly between your hands or by tipping the bottle upside down and then gently rotating it. Do not shake insulin because it will froth or bubbles will form in the liquid and this will cause you to measure an incorrect dose.

Getting the most from your treatment

- Treatment for diabetes is usually lifelong. It is important that you keep your regular doctor's and clinic appointments so your progress can be monitored. You will need regular check-ups with an eye clinic and a foot clinic as well as with your doctor and diabetes clinic.
- You must test for the amount of sugar (glucose) in your blood regularly to make sure that you are using the right dose of insulin. Your doctor or diabetes nurse will show you how to do this and you will also be told how to use the results of the test.
- It is important that you regularly change the site where you inject the insulin on your body. This is to help prevent skin problems and difficulties in injecting.
- Check with your doctor if you develop an infection or a high temperature, as you may need to adjust your dose if you are unwell. If you get unusually thirsty, pass urine more frequently, and feel very tired, you should also let your doctor or diabetes nurse know straightaway. These are signs that there is too much sugar in your blood and your treatment may need adjusting.

- Each time you collect your prescription, check you have been given the right type of insulin. Getting the wrong insulin by mistake may lead to your blood sugar being too high or too low. If anything looks different from what you have had before, ask your pharmacist to check the prescription for you. If you have been given an insulin 'Passport', show this to your pharmacist to confirm the type of insulin you use.
- Make sure you know what it feels like if your blood sugar is low. This is known as **hypoglycaemia**, or a 'hypo'. The first signs of hypoglycaemia are: feeling shaky or anxious, sweating, looking pale, feeling hungry, having a feeling that your heart is pounding (palpitations), and feeling dizzy. If these happen you should eat or drink something containing sugar or have a snack, straightaway.
- Do not drink alcohol, as it can affect the control of your blood sugar. Ask your doctor if you need further advice about this.
- If you are a driver, you must let the Driver and Vehicle Licensing Agency (DVLA) know that you are being treated with insulin. (There may be an exception to this if you are using insulin for a short time only - but you must check this with your doctor.) If you are permitted to continue driving, always have a supply of something sugary with you in the vehicle and take special care on long journeys. You should check your blood sugar level just before you start your journey, and then every two hours during the journey. If your blood sugar is low, stop the car in a safe place and switch off the engine, then eat or drink something sugary. Wait until 45 minutes after your blood sugar has returned to normal before you continue on your journey.
- If you have been given advice by your doctor about changes to your diet, stopping smoking or taking regular exercise, it is important for you to follow the advice you have been given.
- Check with your doctor before taking up any new physical exercise, as this will have an effect on your blood sugar levels and you may need to check your levels more regularly.
- If you are due to have an operation or dental treatment, you should tell the person carrying out the treatment that you have diabetes and that you are using insulin. If you go into hospital and you are unable to keep your own insulin, don't be afraid to ask the hospital staff for your insulin when it is needed.

Can insulin cause problems?

Apart from hypoglycaemia (see above) insulin has very few side-effects. You may feel some lumpiness at the site of the injection but regularly changing the area of skin that you inject will help to prevent this.

How to store insulin

- Keep all medicines out of the reach and sight of children.
- Store unopened insulin in a refrigerator until you are ready to use it. Do not freeze insulin.
- Once your insulin is in use you can keep it for a few weeks at room temperature, as long as you keep it below 25°C and away from direct heat and sunlight. Check the label for details of how long it can be kept unrefrigerated and do not use it after this time.

Important information about all medicines

If you buy any medicines, always check with a pharmacist that they are safe to take with your other medicines.

Never take more than the prescribed dose. If you suspect that you or someone else might have taken an overdose of this medicine, go to the accident and emergency department of your local hospital. Take the container with you, even if it is empty.

This medicine is for you. Never give it to other people even if their condition appears to be the same as yours.

Do not keep out-of-date or unwanted medicines. Take them to your local pharmacy which will dispose of them for you.

If you have any questions about this medicine ask your pharmacist.

Report suspected side effects to medicines, vaccines, e-cigarettes, medical device incidents, defective or falsified (fake) products to the Medicines and Healthcare products Regulatory Agency to ensure safe and effective use.

Further reading

- [Medicines Complete BNF 88th Edition](#); British Medical Association and Royal Pharmaceutical Society of Great Britain, London.
- [Manufacturer's PIL, NovoRapid® FlexPen \(insulin aspart\)](#); Novo Nordisk Limited, The electronic Medicines Compendium. Dated October 2022.

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Authored by:	Peer Reviewed by: Sid Dajani	
Originally Published: 24/02/2024	Next review date: 10/01/2024	Document ID: doc_3267

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