



Diabetes and insulin

For direct distribution by healthcare professionals
to users of Novo Nordisk insulin and devices only.

Novo Nordisk
DIABETES SERVICES

INFORMATION ABOUT DIABETES AND INSULIN TREATMENT

Who is this booklet for?

This booklet is for people with diabetes who need to take insulin.

You may have just found out that you have diabetes and need to take insulin.

Or, you may have had diabetes for a few years and now need to change from tablets to insulin.

Either way, this booklet can help answer some of the questions you may have about diabetes and its treatment.

If you need more information, or have any worries, your Doctor or Diabetes Specialist Nurse will be happy to help.

Remember – diabetes should not stop you enjoying life

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What is diabetes?

- Diabetes is a long-term disorder characterised by a raised level of glucose (or sugar) in the blood

Blood glucose and blood sugar are the same thing

Where does glucose come from?

- Your body uses glucose (a type of sugar) for energy
- Glucose comes from food, particularly starchy and sugary foods (called carbohydrates)
- Digestion breaks down the carbohydrates in your food into glucose which goes into your blood



- Some foods provide glucose very quickly, e.g. jams, sweets and fruit juice
- Other foods provide glucose slowly, e.g. potatoes, bread and rice

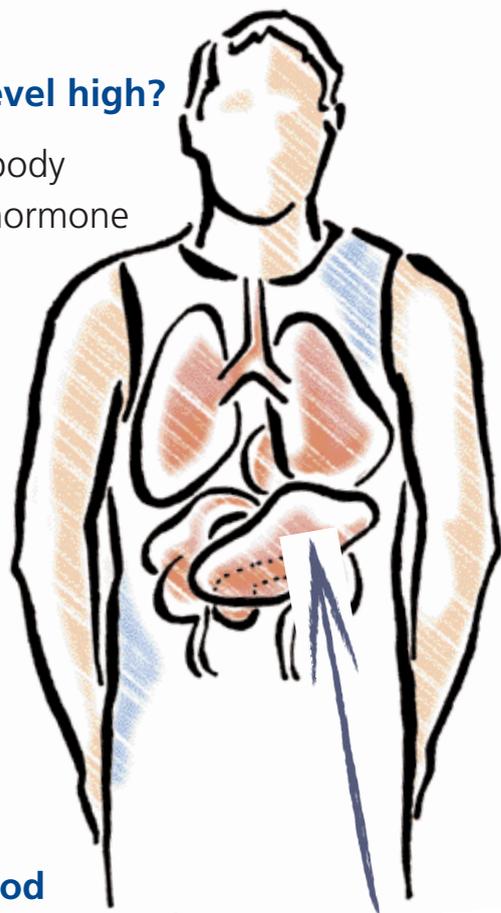


Why is my blood glucose level high?

- The *pancreas* (a gland in the body near your stomach) makes a hormone called *insulin*
- Insulin is very important – it helps glucose move from the bloodstream into the parts of your body which need it to make energy

When you have diabetes your body doesn't make enough insulin. Without insulin there will be too much sugar left in your blood (high blood glucose)

Insulin unlocks the door to your cells to let the glucose in



pancreas



Are there different

There are three main types of diabetes

Type 1 diabetes

- Is when your body can't make insulin
- Most of the insulin-producing cells have been destroyed
- Insulin injections are always needed

Type 2 diabetes

- Is when your body can't make enough insulin or when the body can't use the insulin it makes properly
- Usually occurs later in adult life
- May be treated with diet and exercise or tablets at first
- Sometimes people take insulin and tablets



types of diabetes?



Gestational diabetes

- Occurs in some women during pregnancy
- Insulin injections may be given
- After childbirth blood glucose levels usually return to normal



Are there different

Yes

All types of insulin lower blood glucose.

Your Doctor or Diabetes Specialist Nurse will help you decide which is the best type of insulin for you.

1. Very fast-acting (analogue) insulin

- Works very quickly after injection but doesn't last long
- Can be injected just before, or soon after, a meal
- Gives flexibility in planning meal times

2. Short/rapid-acting insulin

- Works quickly after injection but doesn't last long
- Usually injected half an hour before a meal



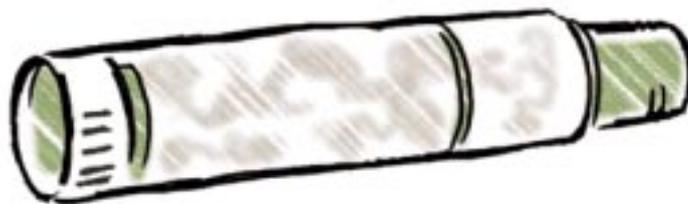
types of insulin?

3. Longer-acting insulin

- Works slowly after injection
- Lasts for a long time
- Usually taken just before bedtime

4. Insulin mixtures

- Contains a short-acting and longer-acting insulin
- Usually two injections/day

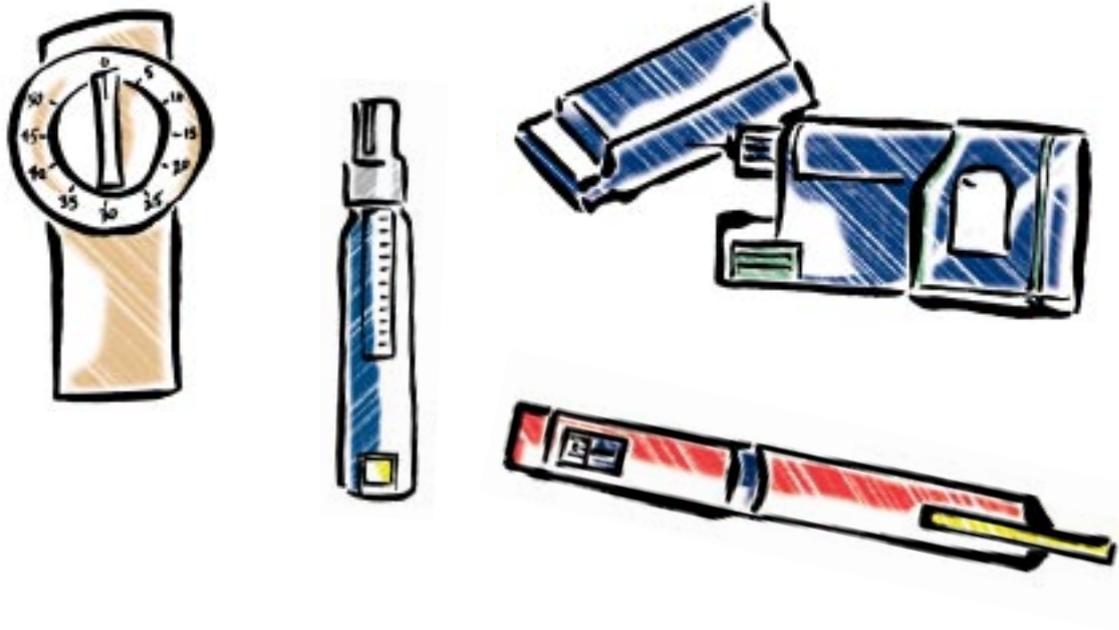


You may inject insulin once, twice or four times a day depending on your diabetes and which routine best suits your lifestyle.

Your Doctor will tell you how often you need to inject insulin

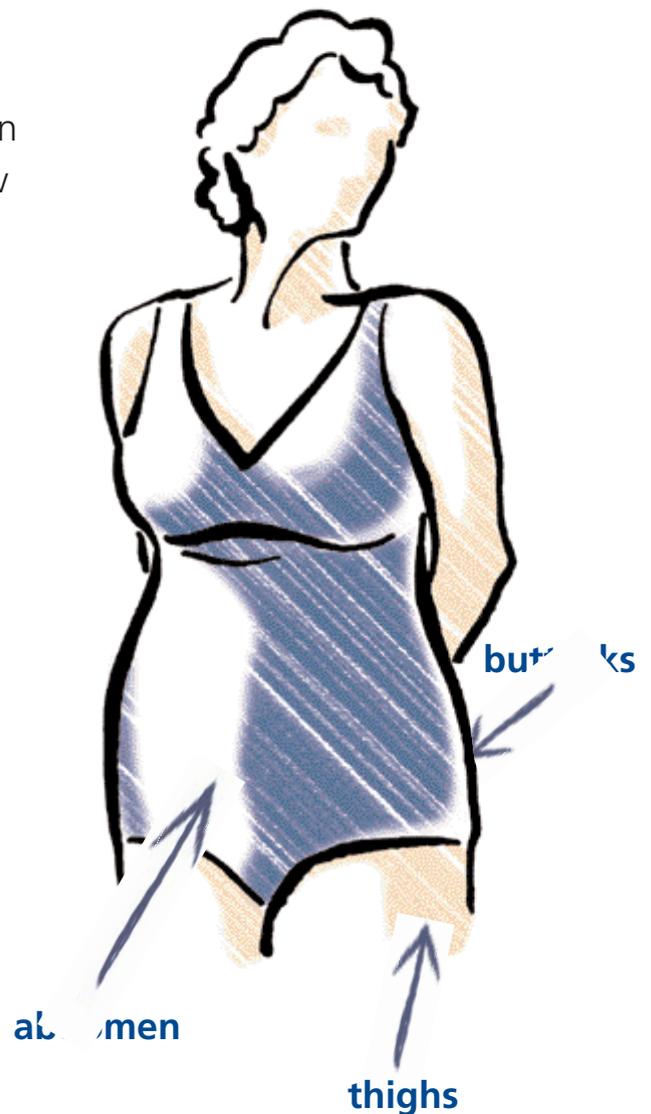
How do I inject insulin?

- Insulin is available in a range of different injection devices and can also be given by syringe
- Novo Nordisk durable injection devices have a three or four year warranty
- Should you need a spare or replacement device it may be useful to know that Novo Nordisk devices are available on prescription from your GP
- Alternatively, contact your Diabetes Specialist Nurse



Where do I inject insulin?

- The best place to inject is into the fatty areas of your abdomen, buttocks or thighs
- **Don't worry** – injecting insulin is easy, you will be shown how by your Doctor or Diabetes Specialist Nurse
- Don't inject in the same spot all the time as it can cause lumps in your skin. These lumps stop the insulin from working properly
- You will be given more advice on:
 - Injection techniques
 - Rotating injections
 - Adjusting your insulin dose
 - Disposing of the needles



Where do I store my insulin?

Do

- ✓ Store insulin you are not using in the fridge
- ✓ If travelling, keep your spare insulin in a cooler bag or vacuum flask

Don't

- ✗ Freeze your insulin
- ✗ Keep your insulin in direct sunlight, e.g. on a window sill
- ✗ Keep your insulin in a hot place, e.g. above a radiator
- ✗ Use insulin that is lumpy or a strange colour
- ✗ Use insulin after the expiry date

Why should I test my blood glucose?

- You can check if your glucose level is too high or too low – *and take action*
- Your Doctor or Diabetes Specialist Nurse will teach you how and when to test your blood glucose
- You will be given a home monitoring diary to record the results
- You may need to change your insulin dose depending on the results



**Good control of your diabetes helps
keep you healthy**

What should my blood glucose level be?

- Blood glucose is measured in millimoles per litre (mmol/l)
- In general, you should aim to keep your blood glucose level between 4 and 8mmol/l
- You may be given your own range depending on your treatment and control
- Your Doctor and Diabetes Nurse can use a more precise test called an HbA_{1c} test that gives an indication of your blood glucose control over the previous few weeks

Is good control of my blood glucose important?

Yes

High levels of glucose in your blood over a long time can cause problems with your:

- Eyes
- Kidneys
- Heart
- Nerves
- Blood circulation
- Legs and feet



But don't worry – taking insulin will help you avoid these problems.

Eye tests are free for people with diabetes

What if I have a high

Hyperglycaemia is the medical word for high blood glucose.

How will I feel?

You may have high blood glucose and not know it.

Other times you may feel, or have, one or more of the following:

- Tired
- Thirsty
- Blurred vision
- Pass a lot of urine

These symptoms may develop slowly over hours or even days.

What causes hyperglycaemia?

- Not enough insulin
- Too much of the wrong kind of food
- Not enough exercise
- Sickness
- Stress
- Weight gain

blood glucose level?

What should I do?

- Don't panic
- It is normal for your blood glucose level to go up and down in a day
- Never miss your insulin injection
- If you have high blood glucose levels for a few days in a row, or you feel unwell, see your Doctor or Diabetes Specialist Nurse
- Test your urine for ketones if you have been instructed to do so by your Doctor or Diabetes Specialist Nurse

Emergency situations

Contact your Doctor, Diabetes Specialist Nurse or dial 999 if:

- Vomiting and unable to hold down fluids *and/or*
- Your breath is acetone (sweet-smelling)
- If you have a high blood sugar and ketones in your urine



What if I have a low

Hypoglycaemia is the medical word for low blood glucose.

Hypoglycaemia is often called a '**hypo**'.

How will I feel?

When your blood glucose level drops you may feel:

- Dizzy
- Sweaty
- Hungry
- Cold
- Faint
- Tired
- Confused
- Irritable
- A pounding heartbeat
- Occasionally you may pass out (lose consciousness)

A 'hypo' can develop quickly within minutes.

blood glucose level?

What causes hypoglycaemia?

- Too much insulin
- Not enough food
- Exercise without eating
- Alcohol
- Stress
- Hot weather



What should I do?

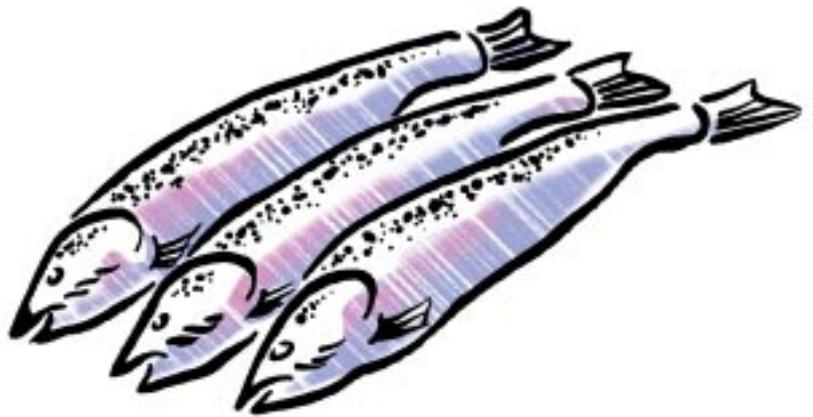
- Eat or drink something immediately containing sugar, e.g. sweets, glucose tablet, sugary drink (but not a diet drink)
- You should feel better after 5-10 minutes, if not have some more sugar
- Eat a normal meal as soon as you can
- Your Doctor or Diabetes Specialist Nurse can give your friends and family advice on severe 'hypos' and what to do if you become unconscious

What about diet

Healthy living is important for all people, especially for those with diabetes.

Eat healthy food

- Foods that are good for people with diabetes are good for everyone



Remember:

- ✓ Avoid fatty foods
- ✓ Eat mostly vegetables, fruit, cereals, rice and pasta
- ✓ Eat only small amounts of refined sugar e.g. jam and sweets
- ✓ Keep to sensible amounts of alcohol

What else should I do?

- ✓ Eat at regular intervals – don't skip meals
- ✓ Don't over eat – watch your weight
- ✓ If you smoke – **STOP**

and exercise?



Keep fit

Why?

- ✓ Improves your blood glucose control
- ✓ Helps you lose weight
- ✓ Makes you feel better

What sort of exercise?

- ✓ Any kind of movement that you enjoy, e.g. swimming, walking, dancing, tennis, football, even housework!
- ✓ If you are new to insulin, start your exercise slowly with advice from your Doctor or Diabetes Specialist Nurse

How often should I exercise?

- ✓ Aim for 20-30 minutes at least three times a week

What else should I do?

- ✓ Wear well-fitted, cushioned shoes or trainers
- ✓ Carry glucose tablets in case of 'hypos'
- ✓ Check your blood glucose level is normal before and after exercise

Most of all – have fun

What about sick days?

When you feel ill or stressed your blood glucose level can rise.

What should I do?

- ✓ Never stop taking your insulin
- ✓ Test your blood glucose at least 4 times a day
- ✓ Drink plenty of liquids
- ✓ Rest
- ✓ Eat your regular food if you are able
- ✓ Test your urine for ketones

When should I call my Doctor?

- ✓ Continuous diarrhoea or vomiting
- ✓ You can't eat for 24 hours
- ✓ If you have a high temperature
- ✓ If you continue to have high blood sugar
- ✓ If you have ketones in your urine
- ✓ If you are not feeling better in 2-3 days



Can I drive a car?

Yes – if you have passed your test!

But, by law, you must inform the following you have diabetes and take insulin:

- Insurance company
- Vehicle Licensing Authority (DVLA) at Swansea

DVLA
Oldway Centre
Orchard Street
Swansea
SA99 1TU

- The DVLA will issue you a restricted driving licence for a car which must be renewed either every year or every three years

As you're taking insulin you cannot hold a licence for a:

- Large Goods Vehicle (LGV)
- Passenger Carrying Vehicle (PCV)
- However it is possible to apply for a special licence for certain vehicles in some circumstances



Can I travel or go on holiday?

Yes – just plan ahead.

Tell your GP or Diabetes Specialist Nurse at least two weeks before you go for more information.

REMEMBER – items you may need

- ✓ Spare insulin, needles and pen or syringes
- ✓ Finger pricker, blood glucose test equipment
- ✓ Diabetic identification, e.g. a card or bracelet/necklace
- ✓ Health insurance (form E111 for European Union Countries available from the Post Office)
- ✓ Travel insurance which covers diabetes
- ✓ Doctor's written prescription for insulin
- ✓ Letter from your Doctor verifying that you need to carry needles/medical equipment in case you get stopped by customs
- ✓ Food supplies for the journey, e.g. snack bars, fruit



Checklist

- ✓ Always take your insulin
- ✓ Test your blood glucose regularly
- ✓ Carry glucose tablets in case of 'hypos'
- ✓ See your Doctor or Diabetes Specialist Nurse regularly to check your diabetes and general health
- ✓ Have your eyes tested
- ✓ Eat a healthy diet
- ✓ Don't smoke
- ✓ Keep to sensible amounts of alcohol
- ✓ Exercise
- ✓ Watch your weight
- ✓ Check your feet daily
- ✓ Wear comfortable shoes
- ✓ Inform your motor insurance company and the DVLA
- ✓ Carry diabetic identification

Now go out and enjoy life – don't let diabetes stop you

Novo Nordisk Customer Care

0845 600 5055

Calls charged at local rate.

Calls may be recorded for training purposes.

Office hours: 08.30 - 17.30



For more information on diabetes visit our website
where Novo Nordisk booklets are available
in a downloadable format:

www.novonordisk.co.uk

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