

Understanding Type 2 diabetes

This guide aims to answer some of the most common questions asked about Type 2 diabetes. It is intended to support the advice you have received from your doctor or nurse. If you have any concerns or worries about your diabetes, please let them know and they will be able to help you.

What is diabetes?

Diabetes mellitus is a condition where the level of sugar (glucose) in your blood is too high because the body cannot use it properly.

After eating starchy foods, e.g. bread, fruit, rice and potatoes, the digestive process releases glucose into the bloodstream, which is then carried all over the body where it's converted into energy to help keep us active.

Normally, the amount of glucose in our blood is carefully regulated by a hormone called insulin, which is made in the pancreas. Insulin helps the cells in the body to absorb glucose where it is used as fuel.

There are two types of diabetes

In **Type 1 diabetes**, the pancreas is no longer able to make the insulin needed to transport glucose to the cells that need it. This means you will need to take insulin every day to help manage your blood glucose levels. Type 1 diabetes generally occurs in people under 40 and is most common in children and teenagers.

Type 2 diabetes occurs when the pancreas does not make enough insulin, or the body is unable to use insulin properly (insulin resistance). Type 2 diabetes is often linked to being overweight and is usually diagnosed later in life. However, there has recently been an increase in Type 2 diabetes in teenagers and young adults.

Who gets Type 2 diabetes?

Diabetes can affect anyone, at any age, although Type 2 diabetes often starts as you get older – usually over the age of 40.

No-one really knows why some people are affected and others are not, but you are more likely to get Type 2 diabetes if:

- It runs in your family
- You are overweight
- Your family has Asian or African-Caribbean origins
- You had diabetes during pregnancy

There are over 3 million people with confirmed diabetes in the UK of which Type 2 accounts for between 85–95%.

Type 2 diabetes is more common in older people.

If you do not have diabetes

In a person who does not have diabetes, insulin is released from an organ in the gut region called the pancreas to help remove the excess glucose from the blood and store it in the muscles for future use.

So, after a meal, when blood glucose levels rise, insulin is produced to deal with it, and when glucose levels fall, such as when you're exercising, the level of insulin also falls. In this way, insulin helps control blood glucose levels by keeping them within a narrow range.

If you have Type 2 diabetes

In a person with Type 2 diabetes, such as yourself, your pancreas may not produce enough insulin. Either that, or your body does not respond fully to the insulin which is produced.

Not responding to the insulin is sometimes called 'insulin resistance' because the cells in your body become 'resistant' to the effect of the insulin. No one really knows why this happens, but it may be related to being overweight or simply the ageing process.

Because your body is not producing or able to use insulin normally you will have too much glucose in your blood. This is called 'hyperglycaemia'.

Hyperglycaemia can cause health problems in the long-term, such as problems with your eyes, feet, heart or kidneys. Taking insulin can help to lower your blood glucose level and avoid hyperglycaemia.

Too much glucose in your blood may eventually lead to health problems.

What can I do?

- Your doctor or nurse will discuss how you can help to lower the amount of sugar in your blood – also referred to as your 'blood glucose' level
- By learning how to lower your blood glucose level, you can keep your diabetes under control and help prevent future health problems
- Diet and exercise are part of your diabetes treatment. You may need to change what you eat and the amount of exercise or activity you do every day
- Good blood glucose control comes from finding a balance between the amount of glucose you take in as food and how much glucose you use through exercise
- The more active you are, the more glucose your body uses up, lowering your blood glucose
- Eating more will increase your blood glucose
- If you are overweight, you will need to try and control your weight, either by eating less or becoming more active, or both

Good blood glucose control comes from balancing your food and activity along with your diabetes treatment.

Treatments for Type 2 diabetes

Type 2 diabetes usually develops slowly. In fact, many people don't realise anything is wrong to begin with. There is a long process during which the pancreas produces less and less insulin. As a result, doctors tend to change the treatments for Type 2 diabetes as the disease develops.

When first diagnosed, people with Type 2 diabetes can often manage their condition by eating a carefully considered diet and taking regular exercise to make sure they don't become overweight.

Gradually, as diabetes develops, these measures may no longer be sufficient and doctors will prescribe tablets to help control the levels of glucose in the bloodstream.

There are a number of different types of tablets that help control diabetes and they work in different ways.

Please contact your doctor or nurse for more information on treatments for Type 2 diabetes.

Blood glucose control

Why is it important to monitor my blood glucose level?

The cells in your body need energy to work properly and the 'fuel' that's used as a source of this energy is glucose. To distribute sufficient glucose to all the cells in your body, glucose is constantly circulated by your blood system.

Your glucose level needs to be carefully controlled.

Too little glucose in your blood is called hypoglycaemia (often called a 'hypo') and can make you feel very unwell.

But too much glucose (hyperglycaemia) can eventually cause health problems such as damage to your eyes or kidneys.

How can I keep my blood glucose level down?

When you are first diagnosed, your doctor or nurse will discuss with you what type of treatment you need.

It is normal for your treatment to change as time passes, to keep your blood glucose under control.

Many people will be able to control their blood glucose level by eating a balanced diet and keeping active. Some people will use tablets as well.

After a while, you may well find that your treatment does not work as well as it did. Your blood glucose level may start to go up again. This may be a sign that you need to change your treatment by adding different tablets or starting insulin.

You can monitor the situation by learning how to check your blood glucose level. Ask your doctor or nurse for more information on how to monitor your blood glucose levels.

It's normal for your diabetes treatment to be changed from time to time.

Remember...

Hypoglycaemia – low blood glucose

Hyperglycaemia – high blood glucose

What is 'good' blood glucose control?

'Good' control means a blood glucose level in the 'normal' or 'target' range. There are slightly different opinions as to the ideal range to aim for, as this range tends to be individual to each person. So it's best to be guided by your doctor or nurse.

Important Information



However, the following is a general guide of the target ranges for people with Type 2 diabetes.

Good blood glucose control: Between 4 and 7 mmol/L

Low blood glucose: Risk of a 'hypo' below 4 mmol/L

High blood glucose: Risk of hyperglycaemia above 8.5 mmol/L two hours after a meal

Checking your blood glucose levels

It's a good idea to check your blood glucose level regularly – both before and after meals – to check your control. If your control is poor, you will need to improve it by changing what you eat, the amount of exercise you take, and possibly altering your medication.

It is important to learn how different activities and foods affect your blood glucose level, and testing your blood glucose level should help you to do this.

Why does monitoring matter?

A special blood test called haemoglobin A1c (HbA_{1c}) is used to measure your average blood glucose level over a period of 2–3 months.

Every 3 months or so, you will need to go back and see your doctor or nurse. You will usually be asked to have a blood test beforehand, so that the results are ready when you go for your appointment.

You and your doctor or nurse will also look at the readings in your diary to see whether your blood glucose control has been good.

If it has been good, you will continue your insulin dose as normal. If it has not, you may need to alter your insulin dose.

Make a note of the target blood glucose levels you have agreed with your doctor or diabetes nurse here:

My target blood glucose level before meals is _____ mmol/L

My target blood glucose level two hours after meals is _____ mmol/L

My target HbA_{1c} level is _____ %

Making adjustments

Your doctor or nurse will be able to discuss with you how to change what you eat, or your exercise, so that they balance each other.

What works for one person may not be right for everyone, so you will need to find the right balance for your own exercise and eating patterns.

It may sound a bit complicated at first, but you will soon learn how your own body adapts.

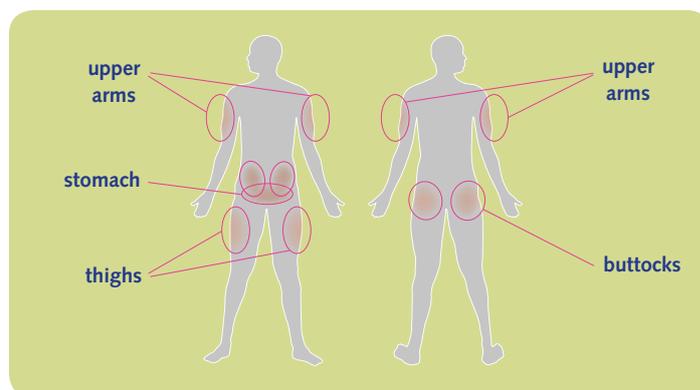
This doesn't mean you have to stop doing the things you enjoy – you may just need to plan ahead for them.

You control your diabetes – don't let it control you.

Where to inject

Insulin injections are an important part of controlling your blood glucose level. Your doctor or nurse will have given you information about where and how to inject your insulin.

You can inject your insulin in various places on your body. These include your upper arms, the tops of your thighs, and your stomach. It's a good idea to inject your insulin in a different place each time. This will not only help ensure that your insulin is absorbed properly, but can also prevent your skin from becoming damaged.



Healthy eating

Being diagnosed with diabetes will mean that you need to make some changes in your life – often to what you eat. You should start to eat a more healthy, balanced diet – for example, by cutting down on fat and eating more fresh fruit and vegetables. It doesn't mean you can never again have chocolate or a cream cake – but you will need to watch what you eat.

Eating properly and maintaining a good diet is an essential part of staying healthy when you have diabetes in order to keep glucose levels well-controlled. It's also important to keep to a healthy weight. Even when you are taking insulin to control your diabetes, being overweight and not keeping to a good eating plan makes it almost impossible to keep to the correct glucose levels.

Tips for healthy eating

- More high-fibre foods, such as bread, pasta, potatoes, wholemeal chapati
- Less fatty food – try to avoid butter, cakes and fried food
- More fruit and vegetables – at least five helpings a day
- Avoid sugary foods and drinks
- Use less salt – try herbs and spices to add flavour instead
- Avoid 'diabetic' foods – they are expensive, high in fat and you don't need them

Healthy eating is good for everyone – whether you have diabetes or not. You may find that it helps if other people in your household follow the same advice about food – and you all change your eating habits together. If you would like more advice about healthy eating, your doctor or nurse can arrange for you to see a dietician, a specialist in foods and eating.

A dietician will be able to give you advice about meals and suggest recipes.

Eating out

If you are going out for a meal, try to book for about half an hour or so before you need to eat. This should allow enough time for you to have a drink and a chat before your first course is served.

Bear in mind that you will probably eat more than you would at home – so you may need to increase your insulin dose. Have some bread if you are drinking alcohol or if the restaurant is busy, in case your food takes longer to arrive than you had planned.

Choose dishes you enjoy, but don't be afraid to try something different. If you are unsure, check to see if you can order a side serving of a starchy food such as potatoes or poppadoms.

Finally, check your blood glucose level when you get home. Your doctor or nurse will be able to give you advice on changing your insulin dose according to different sizes of meals.

Bear in mind that you might eat more than usual if you go out for a meal – and increase your insulin dose to allow for this.

Cooking tips

You don't need a new set of cookery books now that you have diabetes. Your favorite recipes can easily be adapted by following a few simple suggestions.

Adapting your own recipes

- Use olive oil instead of butter
- Use low-fat dairy products, such as fromage frais or crème fraîche, instead of cream; replace full-fat milk with semi-skimmed milk
- Flavour with lemon juice, mustard or herbs as a healthy alternative to salt
- Reduce the amount of sugar. You may find that low-sugar dishes don't keep for as long, because sugar acts as a natural preservative
- Grill or bake instead of frying, whenever you can

Dried fruit can be used to sweeten desserts, instead of sugar, while pulses (such as lentils) and beans can be used to thicken casseroles and stews.

Eating a healthy, balanced diet and keeping your weight under control helps you to look after your diabetes.

Looking after yourself

Keeping active and playing sport

Try to keep fit. If you have diabetes, it's especially important to take regular exercise, either by playing sports or just keeping active.

Regular exercise has two essential benefits:

- It helps to control weight
- It is good for the heart and reduces the risk of heart disease, especially in later life

For younger people, playing football or swimming are good forms of exercise, but older people should try to keep active as well. Even simple things such as walking to the shops rather than using public transport, gardening, or regularly taking your dog for a walk, are all beneficial. Regular, everyday activity of this sort, in fact, brings more long-term benefits than joining a gym or health club.

Looking after your eyes

If your blood glucose level is too high, you may find that your vision becomes blurred. If this is not corrected, it could eventually damage your eyes and affect your eyesight.

Permanent damage can be avoided if changes are picked up and treated at an early stage. It is, therefore, very important that you have an eye check-up every year.

Your doctor or nurse will be able to tell you more about eye testing in your area. Eye checks are free if you use insulin to control your diabetes.

Taking care of your eyes can help prevent damage to your sight in the future.

Looking after your feet

Diabetes can affect your nerves and circulation.

If the nerves from your feet are not working properly, you may not realise that you have a sore place on your foot. And, if the blood circulation to your feet is also poor, a simple cut or blister could get badly infected.

To avoid such problems, it is important to look after your feet very carefully.

Looking after your feet

- Check your feet every day for redness, irritation or broken skin
- Before you put on your shoes or slippers, check that there are no loose stones inside
- Make sure your shoes are comfortable and fit well – that they don't pinch or rub
- If your feet get cold, don't put them on anything hot to warm them up, like radiators, hot water bottles or hot foot baths
- Don't walk about in bare feet – even at home – and especially on the beach
- Have regular check-ups with a chiropodist (foot specialist)

If you find it difficult to check your feet yourself, you could use a small mirror to examine your soles or ask a family member to look at them for you.

Problems with the circulation in your feet can cause ulcers and, in some cases, permanent damage which can affect your ability to walk.

You need to have regular check-ups with a chiropodist who will be able to pick up any problems early and treat them. Your doctor or nurse will be able to tell you more about the foot care services available in your area.

Can I still drink alcohol?

Provided you only drink in moderation, there's no reason why you should have to give up alcohol just because you have diabetes.

Try to drink less than 2 units a day if you're a woman or 3 units a day if you're a man and avoid drinking every day.

One unit is approximately

½ pint of ordinary strength beer, lager or cider

1 pub measure (125 ml) of wine

1 pub measure (25 ml) of spirit

Be careful though – the strength of many drinks has crept up over the years; some premium lagers are the equivalent of 3 units a pint and a small glass of table wine can be 2 units. You should also be aware that measures at home or at someone else's house may be much larger than in a pub or restaurant.

Drinking responsibly

- Never drink alcohol on an empty stomach
- Combine spirits with sugar-free mixers
- Bear in mind that alcohol is high in calories
- Remember that alcohol can lower your blood glucose level

Alcoholic drinks also contain quite a lot of calories, so if you need to watch your weight keep your drinking to a minimum and make sure that mixer drinks are of the 'diet' or sugar-free variety.

Can I still smoke?

Giving up smoking is good advice for anybody.

But if you have diabetes, remember that smoking substantially increases the long-term risks associated with the condition – so it's even more important to quit.

Smoking encourages the build-up of deposits in arteries making them narrower in places, which can reduce the blood supply to the organs of your body or encourage the formation of clots, which could break off and travel to the heart or brain causing a heart attack or stroke. It also increases your blood pressure.

Smoking is bad for your health, but especially so for people with diabetes.

Smokers quit in different ways. What helps one person to stop smoking successfully may not work for another, because the psychological and physical reasons for addiction vary.

These methods include everything from prescription medicines and nicotine replacement therapy to hypnotherapy and simple will-power or determination.

Your doctor or nurse will be able to tell you more about other ways to help you give up smoking.

For more information

Contact the free NHS Smoking Helpline on: 0800 022 4332 or visit the website at: www.smokefree.nhs.uk

Driving and diabetes

Just because you have diabetes doesn't mean that you won't be allowed to drive a car.

If you haven't applied for a driving licence yet, you will be asked on the application form whether you have certain medical conditions – including diabetes.

If you already have a driving licence but have just been diagnosed with diabetes and need medication to help control your diabetes, you should check with your doctor or nurse, or check on the website below.

www.gov.uk/diabetes-driving

You should not drive if you have difficulty recognising a hypo, as this could be dangerous for you and for others.

Ask your doctor or nurse for further information or contact the DVLA directly:

Drivers Medical Enquiries

DVLA

Swansea

SA99 1TU

www.gov.uk/diabetes-driving

Phone 0300 790 6806 for car or motorcycle enquiries

0300 790 6807 for bus, coach or lorry enquiries

Helpful words

Blood glucose level	The amount of sugar in your blood
Chiropodist	Member of the medical profession who looks after feet (sometimes known as a podiatrist)
Dietician	Someone who gives advice about foods and eating
Digestion	Process of breaking down food into sugar
Glucose	Sugar – form in which food can be used as fuel by the body
HbA_{1c}	Blood test to check your average blood glucose reading over the last three months
Hyperglycaemia	High level of glucose in the blood
Hypoglycaemia	Low level of glucose in the blood, commonly known as a 'hypo'
Insulin	Hormone produced during digestion, to lower blood glucose
Insulin resistance	When the body does not respond fully to the insulin which is produced (because it is 'resistant' to insulin)
Pancreas	Part of the digestive system that produces insulin

My contacts

Diabetes nurse

Name: _____

Tel: _____

Diabetes specialist doctor

Name: _____

Tel: _____

GP

Name: _____

Tel: _____

Dietician

Name: _____

Tel: _____

Chiropodist/Podiatrist

Name: _____

Tel: _____

Community nurse

Name: _____

Tel: _____

Pharmacist

Name: _____

Tel: _____

Other

Name: _____

Tel: _____

Some contacts you might find useful

Diabetes UK

www.diabetes.org.uk

Tel: 0845 120 2960

Driving with diabetes

DVLA

www.gov.uk/diabetes-driving

Tel: 0300 790 6806

Healthy living

NHS support in giving up smoking

www.smokefree.nhs.uk

Tel: 0800 022 4332

This fact sheet is part of a series that helps to provide information about diabetes. Each of these fact sheets can be downloaded from www.diabetesmatters.co.uk and pre-printed booklets may be ordered from the website, or your doctor or nurse might have copies to give to you.

www.diabetesmatters.co.uk

Freephone 24-hour Sanofi Diabetes care-line

08000 35 25 25

Sanofi, One Onslow Street, Guildford, Surrey GU1 4YS