

**YOUR GUIDE TO
TYPE 1
DIABETES**



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CARE. CONNECT. CAMPAIGN.

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Your Guide to Type 1 Diabetes has been written by clinical advisors at Diabetes UK, and the content has been taken from current NICE guidelines, and up-to-date medical research, along with advice from diabetes healthcare professionals and people with Type 1 diabetes.

Diabetes UK companion guides are available in printed and digital forms (from Apple, Android and Kindle Fire app stores). More information about food and cooking is available in the *Enjoy Food* guide – see page 27 for more details.

YOUR GUIDE TO TYPE 1 DIABETES

Being newly diagnosed with Type 1 diabetes can come as a huge shock. Despite feeling unwell, you're not expecting to be told that you have been diagnosed with a serious condition. This can also be a confusing or even frightening experience. It's not long before you realise that there'll be some big changes in your life, which can be hard to adjust to. If you sometimes find it all a bit overwhelming, remember that there's a lot of support available to you if you need it, so please don't be afraid to ask for help.

You may want to know more about your condition, and how to manage it successfully. And, of course, you'll also want to know what treatment and support you'll get, and find out what the future holds.

In this guide we give you all the essential information you need to manage your Type 1 diabetes – including treatment, eating well, exercise and your rights at work – and signpost you to more detailed information and further sources of help and support. With the professional care you can expect for your diabetes, both now and in the future, you can look forward to living a full, long and healthy life.

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*This offer is not open to existing users of the OneTouch Verio® IQ Meter. This offer is open to those who are on insulin therapy, aged 16 or over, and resident in the UK and the Republic of Ireland, including users of meters other than OneTouch® Meters as well as users of OneTouch® Meters provided they have had their meter for 12 months or more and not received a free OneTouch® upgrade during this period. Offer closing date 31st December 2015. Only one free OneTouch Verio® Meter per person. Meters are subject to availability. This offer is limited to a maximum of 4,000 FREE OneTouch Verio® Meters. Allow 28 days for delivery.

†OneTouch Verio® Test Strips are manufactured in the UK

‡The low and high range limits you set apply to all glucose test results. This includes tests taken before or after mealtimes, medications and around any other activities that may affect blood glucose. Be sure to talk to your healthcare professional about the low and high limits that are right for you.



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With thanks to all the contributors, advisors and volunteers who helped with the production of this guide. Published January 2016 – product code 9980EINT.

Diabetes UK is the leading UK charity for people affected by and at risk of diabetes. We're here with all of the information, advice and support you might need to manage your condition well. We're here to put you in touch with others with diabetes, and campaign tirelessly for better care and improved healthcare services. Our world-class research changes lives and is bringing us closer to a future without diabetes.

For more information go to www.diabetes.org.uk, call 0345 123 2399* or email info@diabetes.org.uk

*Mon–Fri, 9am–7pm. The cost of calling 0345 numbers can vary according to the provider. Calls may be recorded for quality and training purposes.

GET INVOLVED

BECOME A MEMBER

0345 123 2399*

Join today and receive information and support to help you manage your diabetes. Your membership will also help fund ongoing research and support for everyone affected by diabetes.

RAISE YOUR VOICE

www.diabetes.org.uk/diabetesvoices

Join Diabetes Voices and make a difference to services and care by working alongside us to campaign and influence for change.

VOLUNTEER

www.diabetes.org.uk/volunteer

Whether you can spare an hour a month or a day a week, there are many ways that you can make a difference at Diabetes UK.

RAISE FUNDS

www.diabetes.org.uk/fundraising

There are many ways you can raise funds or give to Diabetes UK. Visit our website to find out how you can help us to improve the lives of people with diabetes.

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A free and confidential service offering information on diabetes and the opportunity to talk things over.

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GET SUPPORT FROM PEERS

0843 353 8600**

A helpline and email service delivered by specially trained volunteers who have first-hand experience in living with diabetes.

JOIN A LOCAL GROUP

volunteering@diabetes.org.uk

Our local support groups offer the chance to share experiences with others in your area and keep up to date with our work.

GO ONLINE

www.diabetes.org.uk

Our website offers information on all aspects of diabetes and access to our activities and services. Our Facebook  and Twitter  communities provide support and a chance to talk to others.

GET SUPPORT

ABOUT TYPE 1 DIABETES

Following your diagnosis of Type 1 diabetes, you may want to know a bit more about your condition. Here, we explain what Type 1 diabetes is, detail some of the symptoms you may have noticed and give you a quick treatment overview. There's also a brief summary of what else you'll find in this guide.

There are several different types of diabetes, which are all serious. About 10 per cent of diabetes is Type 1, which is a condition where your body doesn't produce any insulin.

Insulin is a hormone that's normally made in your pancreas, which is just behind your stomach. Insulin keeps your levels of blood glucose (also called blood sugar) under control. It does this by unlocking your body's cells to let in the glucose, where it's then turned into energy. It also stops the liver from releasing glucose. (We get glucose from stores in our liver and also from food and drinks that contain carbohydrate – see page 28.)

If your body can't produce insulin, it then can't use glucose to give you energy. Glucose can then build up in the blood, which the body tries to flush out in your urine. High levels of glucose in your blood, if not treated, can lead to serious health problems, called complications (see page 50).

CAUSES

Type 1 diabetes develops when the cells that produce insulin in the pancreas have been destroyed by the body's immune system: without insulin the body can't convert glucose to energy, so you need to get insulin from somewhere else. Nobody knows for sure why this happens and what causes it – or why some people develop Type 1 diabetes and not others. What we do know is that there's nothing you can do to prevent Type 1 diabetes. It can develop at any age, although Type 1 diabetes usually appears before the age of 40, and especially in childhood.

CASE STUDIES

"While diabetes is a challenging condition to live with, it can certainly make you stronger, and there is a great community of people out there who are in the same situation and willing to support you."

Elizabeth Rowley

"Diabetes is like having an extra full-time job – you always have to be one step ahead. Two days are rarely the same! That said, it equips you with the most wonderful organisational skills, determination and pride."

Sandi Mckechnie

SYMPTOMS

Before your diagnosis, you were probably:

- going to the toilet a lot – your body was trying to get rid of the high levels of glucose in your body by making you pass more urine
- really thirsty, drinking more and not being able to quench your thirst – you were becoming dehydrated, which causes extreme thirst
- feeling more tired than usual – your body had less energy entering its cells
- losing weight without trying to – your body started using its fat and protein stores for energy because it couldn't use the glucose from your food and drink.

You may also have noticed:

- genital itching or regular episodes of thrush – high urine sugar levels create good conditions for yeast to grow
- cuts and wounds that took a long time to heal
- blurred vision – high blood sugar levels can cause fluid to build up in the lens at the front of the eye causing the lens to swell; this usually goes away after a period of time with normal levels.

Being diagnosed and getting the right treatment for your Type 1 diabetes will bring these symptoms under control.

TREATMENT

Although Type 1 diabetes can't be cured, it can be successfully managed. You'll need to take insulin several times a day to control your blood sugar levels, and test these regularly with a blood glucose meter. You'll also learn how to control your blood sugar levels, and balance the amount of insulin you take with the food you eat and the activity you do. Your diabetes team (see page 24) will work with you to plan the best treatment for you. You can find out more about insulin on page 9.

Managing this balance can be overwhelming at times, especially when you're first diagnosed. Looking after your health and managing your diabetes will need some planning and attention, but with the right care and support – from family, friends and your diabetes team – you can still live a long and healthy life.

Q&A

Are there different types of diabetes?

Yes, there are several different types of diabetes. The most common of these are Type 1 and Type 2. Type 2 diabetes is when the body doesn't produce enough insulin, or the insulin it does produce doesn't work properly. It's the most common type of diabetes – about 85–90 per cent of people with diabetes have Type 2 – and the causes and types of treatments available are different. Type 2 diabetes isn't the 'mild' type of diabetes. Both types are serious lifelong conditions with similar long-term complications if they aren't managed well.

Can I still drive now that I have Type 1 diabetes?

Yes, you can still drive. However, if you're not aware of the warning signs of low blood sugar – known as a 'hypo' (see page 18) – or are having frequent hypos, you shouldn't be driving because of the risk to yourself and others. You must tell the DVLA or DVA (Northern Ireland) and your motor insurance company of your diagnosis and treatment. For more information about driving and diabetes, go to www.diabetes.org.uk/driving or call our Careline on **0345 123 2399**.

ACTION POINTS

In this guide we take you through:

Taking your insulin – how and where to inject – and the advantages and disadvantages of insulin pumps.

How to get your free diabetes prescriptions.

Blood sugar testing – when to test and recording your results – and testing for ketones.

How to recognise the symptoms of a 'hypo' (when your blood sugar levels drop too low) and the best way to treat it.

The essential care you can expect from the NHS and your diabetes team.

Enjoying a healthy, balanced diet, and an introduction to carb counting.

Tips and advice for maintaining a healthy weight.

The benefits of physical activity.

Sources of help and support if you'd like to talk to someone about your diagnosis or any aspect of living with diabetes.

What to do if you're ill or going into hospital.

Your rights at work, including legislation and reasonable adjustments.

Diabetes complications and how to reduce your risk.

How to take care of your feet.

If at any time you need to talk to someone about anything related to your diabetes, please call the Diabetes UK Careline on **0345 123 2399 for confidential support and information: our professional counsellors have extensive knowledge of diabetes. You can also email careline@diabetes.org.uk**

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TREATMENT

INSULIN

Taking insulin is essential to treat Type 1 diabetes and manage your condition successfully. Here, we give you a quick refresher on how and where to inject your insulin, and discuss the advantages and disadvantages of insulin pumps – plus, there's a reminder of how to get your free prescriptions. You may also want to talk to your diabetes team for more information and advice.



Insulin may be absorbed more quickly if you inject into an area you'll be using for activity, eg your leg if you're running.

As you know, with Type 1 diabetes your body doesn't produce its own insulin. So, treatment for Type 1 diabetes always involves taking insulin, by an injection or a pump. Insulin has to be given just under the skin, where it's absorbed very easily. It's a protein – like meat or fish – so you can't take insulin as a tablet, because your stomach would digest it before it could get a chance to work.

There are many different types and brands of insulin. The insulin you take can be a mix of two types and can vary according to:

- how quickly it starts working
- how long it lasts.

How often you take insulin will depend on the type you're taking. For example, you may be on a basal-bolus insulin plan, where you take insulin several times a day. Basal insulin (also called background insulin) acts over most of the day, while bolus insulin is taken to cover the rise in your blood glucose level (also called blood sugar level) when you eat and drink. Your diabetes team (see page 24) will help you work out which is the best insulin for you, though this may change over time.

CASE STUDIES

"I now use an insulin pump. It makes managing my diabetes so much more flexible and now I couldn't imagine life without it."

Sandi McKechnie

"I struggled with the whole concept of needles at first – I remember sitting on the sofa the day after I was diagnosed, psyching myself up just to prick my finger to do a test. You can imagine how long it probably took me to then actually use my insulin pen! Three years of living with diabetes, I've arrived at a place where I've realised only I am in charge of my body and my diabetes and I need to take care of myself. Needles? [They] don't phase me at all now."

Marnie Crabtree

TOP TIPS

How to inject

- 1 Make sure your hands and the area you're injecting are clean.
- 2 Eject two units of insulin into the air to make sure the tip of the needle is filled with insulin (this is called an 'air shot').
- 3 Choose an area where there's plenty of fatty tissue, such as the tops of your thighs or your bottom.
- 4 If you've been advised to, lift a fold of skin – be careful not to squeeze the lifted skinfold so tightly that it hurts or turns the skin white.
- 5 Insert the needle at a 90° angle.
- 6 Put the needle in quickly.
- 7 Inject the insulin – make sure you fully press down the syringe plunger or thumb button (pen) – and count to 10 before taking out the needle.
- 8 Release the skinfold if you've lifted one.
- 9 Dispose of the used needle safely.
- 10 Use a new needle every time. Reusing a needle will make it blunt and can make injecting painful.

Watch our video about injecting at www.diabetes.org.uk/diabetes-treatments

INJECTING INSULIN

Although by now you'll have been shown how to inject insulin – using a syringe and needle or an insulin pen and needle – here's a refresher of where and how to inject.

Where to inject

The most frequently used injection sites are the thighs, buttocks and abdomen. You may be able to inject into your upper arm, but check with your diabetes team first as this isn't always suitable.

You and your diabetes team should check your injection sites regularly for hard lumps. These lumps can develop if you continue to inject into the same area, and can affect how the insulin works (see page 11).



Rotating injection sites

If you keep injecting into the same area (and site), small lumps can build up under the skin. These make it harder for your body to absorb and use the insulin properly – and they don't look or feel very nice. To prevent getting these lumps it's important to change the site you use each time you inject.

Although your injection needles are very fine, at first they may be a little uncomfortable. This is usually because you're understandably tense or anxious. As your confidence grows, though, injections will get easier, and you'll soon get used to them. If after a while you still find injections painful, you may be able to improve your technique – ask your diabetes specialist nurse for any ideas that could help you.

INSULIN PUMPS

When you're newly diagnosed with diabetes you're likely to use an insulin pen to give yourself insulin. Later on, perhaps, you may want to think about using an insulin pump instead.

An insulin pump usually has three parts:

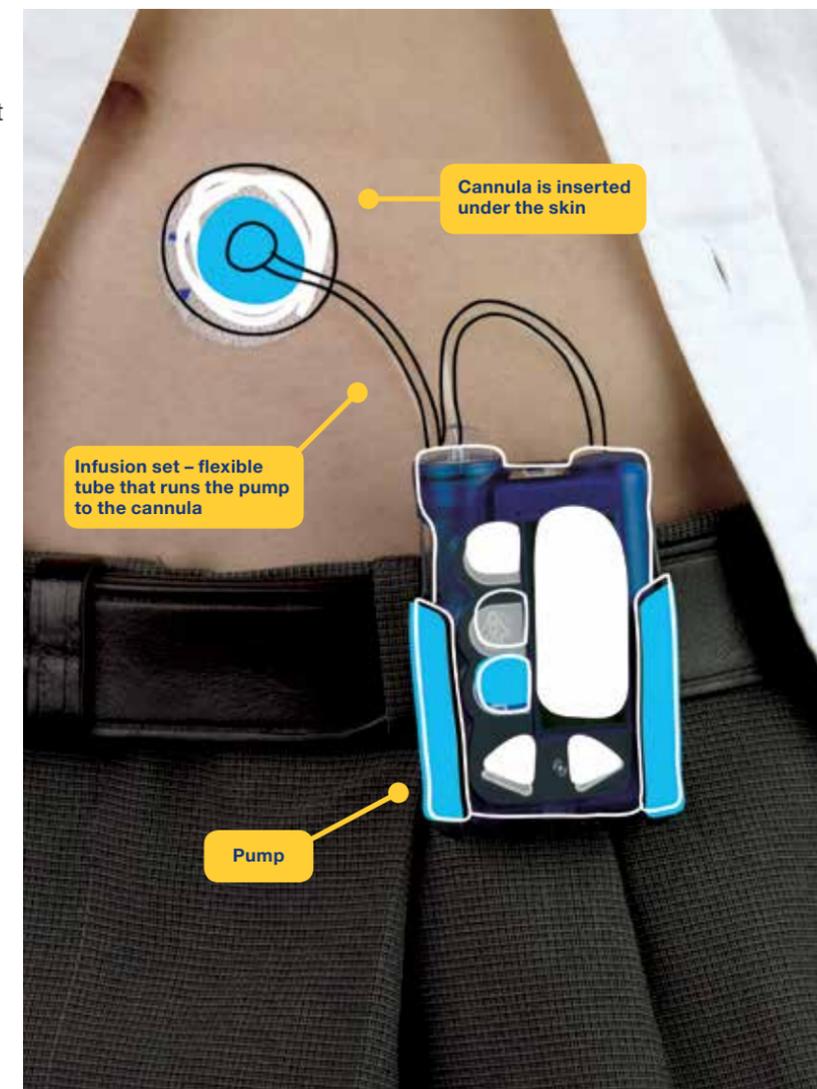
- **cannula** – a tiny flexible tube inserted under your skin, which needs to be changed every two or three days
- **infusion set** – a thin tube that runs from the pump to the cannula
- **pump** – about the size of the palm of your hand that holds a vial of insulin, a battery and the 'computer' that makes it all work.

Small amounts of insulin are delivered from the pump through the infusion set to the cannula 24 hours a day, at a rate that's pre-set to meet your needs. Then, when you have something to eat, you can give yourself an extra dose of insulin (a 'bolus dose') at the touch of a button. Your diabetes nurse and dietitian will help you learn how to work out how much insulin you need. (See page 28 for information on counting carbohydrate and adjusting your insulin dose.)

Q&A

What should I do with my needles and lancets when I've used them?

Always dispose of your needles and lancets (finger-pricking needles) in a special sharps disposal bin, not a normal rubbish bin. Sharps disposal bins and needle clippers are available free on prescription and are designed to keep you and other people safe. Check with your diabetes team about what to do with your sharps disposal bin when it's full.



Although insulin pumps are popular, they don't suit everyone. Think about what the advantages and disadvantages are for you, talk to other people who use a pump and discuss it with your diabetes team.

Pump advantages

- Better control of your blood sugar levels, with fewer highs and lows.
- More flexibility with what, when and how much you eat.
- Less risk of highs and lows when exercising.
- More predictable absorption of insulin than injections.
- Ability to change your basal (background) insulin if you're ill.
- Fewer injections.
- Greater accuracy in bringing down high blood sugar levels.
- Better management of blood sugar levels when travelling across time zones.

Pump disadvantages

- Being attached to the insulin pump 24 hours a day, with only short breaks for a shower or exercise.
- Risk of infection from the cannula.
- Bigger risk of diabetic ketoacidosis (DKA – see page 12) than with insulin injections, for example, because of blockages in the infusion set.
- More blood sugar testing.
- A lot of time needed to learn about the pump and your diabetes, especially in the beginning.

For more information about insulin pumps: Contact INPUT – www.inputdiabetes.org.uk and Insulin Pumpers – www.insulin-pumpers.org.uk

Q&A

Am I entitled to an insulin pump funded by the NHS?

You have a right, under the NHS constitution, for NHS-funded insulin pump therapy if you meet both of these requirements:

1 Your diabetes consultant recommends that you use an insulin pump: You can't get an insulin pump through your GP – only a consultant with a special interest in insulin pumps can decide if you're suitable. You need to show that you're committed to good diabetes control: for example by having at least four insulin injections a day, checking your blood sugar levels at least four times a day, counting carbohydrates and adjusting insulin doses.

2 You meet the NICE criteria (Technology Appraisal 151 (2008)) for NHS funding: You're having frequent hypos or hypos without warning (see page 18) that cause anxiety and have a negative impact on your quality of life, or your HbA1c is still 69mmol/mol (8.5%) or above, despite carefully trying to manage your diabetes.

My diabetes consultant doesn't recommend an insulin pump. What can I do?

Arrange some time with your diabetes consultant and go prepared with lots of questions, such as:

- Why don't you think I'm suitable for a pump?
- What can we do to improve my diabetes control without a pump?
- How can I avoid frequent hypos or improve my hypo warning signs?
- Is there another diabetes consultant that I can discuss the idea of insulin pump therapy with?

Be prepared to listen to your consultant's answers and consider whether their opinion may be right. You also have a right to ask for a referral to a specialist insulin pump clinic for a second opinion.

Q&A

I meet NICE criteria but funding has been refused. What can I do?

Contact INPUT, a UK charity run by insulin pump users and their families to help people access insulin pumps – www.inputdiabetes.org.uk

I don't meet NICE criteria for funding. What can I do?

Check to see if you fall under recommendations from the Association of British Clinical Diabetologists (ABCD). If so, your consultant can make a strong case for you for NHS funding. The recommendations can be found in the INPUT step-by-step guide to insulin pump access at www.inputdiabetes.org.uk/wp-content/uploads/2015/11/StepbystepNov15.pdf

ACTION POINTS

.....
If you live in England, apply for a Medical Exemption Certificate to get free prescriptions. Claiming free prescriptions without a certificate will get you a fine.
.....

.....
Get a prescription for a sharps disposal box.
.....

.....
Know the type of insulin you're using and how much you're supposed to take.
.....

.....
Learn how to inject properly, and speak with your diabetes team if you have any difficulties.
.....

.....
Rotate your injection sites.
.....

.....
Tell your motor insurance company and the DVLA or DVA (Northern Ireland) about your diagnosis and treatment.
Go to www.gov.uk/diabetes-driving

FREE DIABETES PRESCRIPTIONS

Everybody is entitled to free prescriptions in Wales, Scotland and Northern Ireland. People living in England need to pay, but certain medical conditions and financial circumstances mean you can qualify for free prescriptions. People with Type 1 diabetes living in England don't have to pay, but you **MUST** have a valid **Medical Exemption Certificate**. Otherwise, you may be fined up to £100 by the NHS Business Services Authority.

For more information and to get your certificate, go to www.diabetes.org.uk/claiming-free-prescriptions



TESTING ESSENTIALS

An essential part of managing your diabetes is frequently testing your blood sugar levels to help you avoid highs and lows – and knowing when to test for ketones. Although this testing may seem like a chore, it will soon become part of your everyday routine.

BLOOD SUGAR TESTING

When you're diagnosed, your diabetes team will give you – and show you how to use – a blood glucose meter, testing strips and a finger-pricking system (lancet device). You use these to test your blood glucose level (also called blood sugar level), so you know what it is at any given time. Blood sugar levels are measured in millimoles per litre – which is written 'mmol/l'.

It's important to always test your blood sugar – don't simply rely on how you feel, as you won't always be right. Blood sugar testing will not only help you to avoid day-to-day-highs and lows, but will also help you to prevent long-term complications of diabetes.

TOP TIPS

- 1 Wash your hands before testing, as food and drink on your hands can affect the results. Avoid using wet wipes, as these often contain glycerine that can also affect the result.
- 2 Make sure your hands are warm – if they're really cold it's hard to draw blood.
- 3 For less painful finger pricking:
 - prick the side of your finger, not the middle or close to a nail
 - vary the finger you use and use a different part each time
 - avoid the thumb and index finger.



The blood sugar targets for people with Type 1 diabetes are:

- 5–7mmol/l when waking
- 4–7mmol/l at other times of the day
- 5–9mmol/l at least 90 minutes after eating.

You may have a different personal target, especially when you're newly diagnosed and working to lower your blood sugar levels.

When to test

You need to test your blood sugar level ideally at least four times a day, including before each meal and before going to bed. You may also be asked to test at other times – perhaps during the night – to get an overall view of your diabetes control.

It's also important to check your blood sugar levels:

- When you feel unwell – at least every four hours or every two hours if ketones are present (see page 15). You should test at least four times a day and night – that's at least eight times over a 24-hour period.
- Before, during and after physical activity.
- If you feel any symptoms of a hypo (see page 18).
- Before driving and every two hours. If your level is 4.9mmol/l, eat some extra carbohydrate. However, if you have had a hypo, you should wait 45 minutes before starting to drive.

Recording your results

Knowing what your blood sugar levels are will help you to understand how your insulin, food and activity affect them. Gradually, this will give you the confidence to know what to do with the results and how to adjust your treatments.

Your diabetes team will support you to do this and will also review this with you at least once a year.

There are lots of different ways you can keep a record. You can use:

- A diary – your diabetes nurse can give you one made especially for blood sugar readings.
- Your blood glucose meter – all meters have a memory store for your blood sugar results, and many meter manufacturers provide computer software packages so you can download and review your readings. Some meters have extra functions so you can record what you eat, your insulin doses and how much activity you do. Some can even make calculations from your data and suggest changes to your insulin dose.
- Smartphone and tablet apps – there are many apps available that can help you keep track of your blood sugar, insulin, carbohydrates, calories, weight and ketones. You can then view your data in graphs to spot any trends. All this information can be shared with your diabetes team digitally.

KETONE TESTING

Ketones are poisonous chemicals that can develop if there isn't enough insulin in your body to allow enough glucose to enter your cells. If ketones are left untreated they can cause the body to become acidic – this is called diabetic ketoacidosis (DKA).

DKA can cause symptoms like abdominal pain, nausea and/or vomiting, rapid breathing and a smell of ketones on the breath (like the smell of pear drops). DKA can also cause you to become unconscious – and can even cause death.

If DKA is picked up early enough it can be easily treated, and the best way to do this is by testing for ketones in your blood or urine. You should be given urine ketone testing strips, or blood ketone testing strips if your blood glucose meter has this function.

When to test

You should check for ketones if:

- Your blood sugar level is 13mmol/l or more.
- You feel ill – being unwell is a high-risk time for developing DKA. Part of the body's response to illness and infection is to release more glucose from your liver into the blood. But you still need insulin and should never stop taking it, even if you're not eating when you're ill (see page 45).

If you have high blood sugar levels and any symptoms of DKA, seek medical help immediately. Contact your diabetes team or GP – or A&E if your diabetes team or GP aren't available. You may need to take extra insulin and drink plenty of unsweetened fluid, or be treated in hospital with a drip and insulin infusion.

Q&A

Why has my GP limited the number of test strips I can get on prescription?

Many people with diabetes have been refused a prescription for blood glucose test strips or have had their prescription reduced. The decision to reduce your test strips may have been taken as a cost-saving exercise by your local NHS provider. Monitoring your blood sugar levels is an important part of getting good diabetes control and it may have been recommended that you test up to 10 times a day or more. It's been firmly established that good blood sugar control reduces serious long-term diabetes-related complications. If your strips are being restricted and you want this to stop, download Diabetes UK's free pack which will support you through the steps to take: www.diabetes.org.uk/test-strip-advocacy-pack



CONTINUOUS GLUCOSE MONITORING

Continuous glucose monitoring (CGM) works by measuring blood sugar levels every few minutes. It measures the body's interstitial fluid (the fluid between the tissue's cells) from a sensor that you wear just under the skin. This is different from a standard meter, which measures the sugar level in the blood. The sugar levels from the interstitial fluid don't give the 'there and then' result and are slightly delayed, so it may not reflect exactly what your level is at the time. Therefore, it's still important to do blood sugar tests in combination with CGM.

CGM can be helpful to see any trends and patterns in your blood sugar levels, eg if they're going up, down or staying on target. It can be a helpful system to see patterns at certain times of day, like when you're exercising, sleeping, after you've eaten or when you're unwell.

CGM is more expensive than existing systems that monitor blood sugar, and the NHS is under no legal obligation to fund a CGM for you. But it is often available for short-term use for diagnosing problems (eg night-time hypos or hypo unawareness), so ask your diabetes team.

For more on CGM, go to www.inputdiabetes.org.uk/cgm

ACTION POINTS

.....
Make sure you know how to use your blood glucose meter.
.....

.....
Be familiar with how and how often to quality-check your meter.
.....

.....
Remember to test more often during times of illness.
.....

.....
Make sure you have a way of testing for ketones, know when to test and what to do if you have ketones.
.....

DIABETES INSULIN MEDICINE CARRIER AND COLD CHAIN BOXES

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LOW BLOOD SUGAR

Balancing your blood sugar levels isn't always easy, and sometimes they may drop too low. If this happens you need to take quick action, so make sure you know what symptoms to look out for and what to do.

In people without diabetes the body automatically keeps blood glucose levels (also called blood sugar levels) within a normal range. If the level starts to drop too low, the body stops producing insulin and releases some of its stored glucose into the blood.

When you have diabetes, though, it's a bit more of a balancing act – it can be difficult to get the right amount of insulin for the food you eat and the activity you do. There'll be times when your blood sugar levels drop too low (below 4mmol/l) and this is called hypoglycaemia, often shortened to 'hypo'.

SYMPTOMS

Everyone has different hypo symptoms, but the most common ones include:

- feeling hungry
- trembling and shakiness
- sweating
- becoming anxious or irritable
- becoming pale
- palpitations and fast pulse
- tingling sensation of the lips
- blurred vision.

CAUSES

A hypo is caused by:

- having too much insulin for the amount of carbohydrate you've eaten
- missing or delaying a meal
- being more active than usual or doing unplanned activity (this can include sex)
- drinking alcohol, especially on an empty stomach.

Sometimes, though, you can have a hypo for no apparent reason.

TREATING A HYPO

It's essential to treat your hypo as soon as you recognise the symptoms, or have tested and found that your blood sugar levels are low. Act quickly, or the hypo may become more severe and you might become confused, drowsy or even unconscious, and have a fit.

Treat your hypo immediately with 15–20g of fast-acting carbohydrate. This can be:

- a small glass of sugary (non-diet) drink
- at least four to five glucose tablets
- four sweets, such as Jelly Babies
- a small carton of pure fruit juice
- glucose gel.

It's recommended that you retest your blood sugar after 15–20 minutes and re-treat if your levels are still less than 4mmol/l.

To stop your blood sugar levels getting low again you may need to follow your hypo treatment with a snack of 15–20g of slower-acting carbohydrate, eg a sandwich, piece of fruit, cereal, some biscuits and milk, or your next meal if it's due.

TOP TIPS

- 1 To treat a hypo, don't choose foods that are high in fat, like chocolate and biscuits – fat delays the absorption of the glucose and won't treat the hypo quickly enough.
- 2 Check your blood sugar level before driving. If it's below 5mmol/l, have something to eat before you leave.
- 3 Avoid delaying or missing meals and snacks.
- 4 Take breaks on long journeys and try not to drive for longer than two hours.
- 5 Always keep hypo treatments to hand in the car.

SEVERE HYPOS

If you have a severe hypo and become unconscious, you'll need help from someone to treat the hypo. Make sure your family and friends know that they must not give you anything by mouth if you're unconscious or unable to swallow. They should put you into the recovery position – on your side with your head tilted back and knees bent – and **CALL AN AMBULANCE IMMEDIATELY.**

If the person who finds you is confident that you've had a hypo, is trained in how to give a glucagon injection and has one to hand, then they should give you the treatment. If you haven't recovered after 10 minutes, they need to call an ambulance straightaway.

ALCOHOL AND HYPOS

The symptoms of a hypo can often be mistaken for being drunk, so make sure someone who you are drinking with knows you have diabetes and can spot the signs of a hypo.

Alcohol can even cause hypos the day after drinking. So, if you're suffering typical hangover symptoms like nausea, vomiting, shaking and sweating, check your blood sugar as you may be having a hypo. No matter how rough you are feeling it is important to treat it.

ACTION POINTS

Keep hypo treatments with you at all times – store some in handy places like your bedside table, office drawer, handbag, gym locker or glove box.

Carry diabetes ID – like an identity card, bracelet or necklace – with you at all times so that if you become unwell and can't communicate, it will then be clear that you have diabetes.

Hypos shouldn't be often, severe or come without symptoms – if you are finding they are, talk to your diabetes team, who will work to find a solution.

Q&A

What should I do if I think I'm having a hypo while driving?

Don't ignore your hypo warning signs

- 1 Stop the vehicle as soon as possible.
- 2 Switch off the engine, remove the keys from the ignition and move from the driver's seat.
- 3 Treat your hypo.
- 4 Don't start driving again until 45 minutes after your blood sugar level has returned to normal.

Should I keep my blood sugar levels high to avoid hypos?

No, definitely not. It can be harmful for you if you try to keep your blood sugar levels consistently very high. In the long term, prolonged high blood sugar levels can lead to complications, such as blindness, heart attack, stroke, kidney disease and lower limb amputations (see page 50).

How do hypos affect my blood sugar levels?

After you've had a hypo, your blood sugar may actually rise. Don't be tempted to increase your insulin dose. The rise may happen because you felt incredibly hungry during the hypo and ate to fix it. Your levels may also rise because hypos cause your body to release its own glucose stores.

What about high blood sugar (hypers)?

While you are still learning to control your diabetes, you may still have high blood sugar levels (hypers). But, once you have your diabetes under control, hypers can be caused by a number of reasons, including illness (see page 45), a missed insulin dose, stress or not taking enough insulin for the carbohydrate you have eaten. Hyper signs are the same as before you were diagnosed with diabetes, eg feeling very thirsty, passing more urine and feeling very tired. You may also have blurred eyesight, find it hard to concentrate or be irritable.

If your blood sugar levels are high for just a short time, you may be able to have a 'correction dose' of insulin, but talk to your diabetes team. They will also be able to help you if you have hypers more often. **Always check for ketones if your level is over 13mmol/l (see page 15).**

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CARE

YOUR FUTURE CARE

With Type 1 diabetes it's important to take care of your health and wellbeing. But it's not just up to you – the NHS is there to provide you with the free diabetes care, both now and in the future. Here is what care to expect

CASE STUDIES

"My New Year's resolution is to ensure that I am getting each and every one of the relevant 15 Healthcare Essentials, as some of these have been missed over the years, and to complain if I am not receiving them."

Lisa Gough

"Managing Type 1 diabetes 24/7 is a big ask for anyone, but it's important to make sure that you stay healthy to avoid complications in the future. Daily blood sugar testing is a great way to monitor your health on a daily basis, but the 15 Healthcare Essentials are key in ensuring that things we can't monitor ourselves (like kidney function and retinal screening) are checked regularly. Catching any potential problems early is the best way to ensure they are treated as soon as possible. I know how important it is to get all those checks that apply to me. I'm lucky that my healthcare team in Sheffield are great at offering me all these proactively, and I know where to go and who to speak to if I need more support."

"One of the 15 Healthcare Essentials is attending an education course, and I took part in DAFNE (see page 31) a couple of years ago. While it felt like it could have been quite intimidating, it was actually an incredibly beneficial thing for me to do. I got to spend time with other people with Type 1 diabetes, which was something I'd never done before. Being able to talk about my condition and understand that other people faced the same difficulties was reassuring for me and I learned a lot about how to best manage my own diabetes. I'd definitely recommend DAFNE to others with Type 1."

Andy Broomhead

YOUR 15 HEALTHCARE ESSENTIALS

These are the 15 checks and services that people with diabetes should receive each year, if relevant. The first seven Healthcare Essentials are tests that **everyone** should have once a year at an annual review – this is a bit like an MOT for you and your diabetes. You should also have a review with your diabetes team every four to six months.

Tick off the Healthcare Essentials you think you're getting – if any are missing, take this checklist to your diabetes team and discuss it with them.

- 1 Have your long-term blood sugar levels measured.** This is called your HbA1c blood test and shows your average results for the previous eight to 12 weeks. You should have this checked at least every three to six months. Note that if you have a type of anaemia, the HbA1c test will give you a false result, so talk to your team about a different long-term blood sugar test.
- 2 Have your blood pressure measured.**
- 3 Have your blood fats (cholesterol) measured.**
- 4 Have your eyes screened for signs of retinopathy.** This test could save your sight, because without it you can't tell if you have eye damage and the right treatment will be delayed. Screening is different to the general eye tests you have with an optician. It's important to attend both. See page 23 for what happens at your eye screening.

- 5 **Have your feet checked.** You'll be asked to take off your shoes and socks so the skin, circulation and nerve supply to your feet can be examined. You should be told if you're at risk of any foot problems, how serious they are and if you'll be referred to a specialist podiatrist or specialist foot clinic. See pages 51-53 for more information on taking care of your feet, and page 23 for what to expect at your foot check.
- 6 **Have your kidney function monitored.** There are two tests and you should have both: a urine test that checks for protein in your urine and a blood test that checks for estimated glomerular filtration rate (eGFR). These results will help to show how well your kidneys are working.
- 7 **Have your weight and waist measured** to see if you need to lose weight.
- 8 **Get support if you're a smoker**, including advice and support on how to stop.
- 9 **Receive care planning to meet your own needs at least once a year.** You and a healthcare professional from your diabetes team will work together on care planning, talking through your questions or concerns. You'll decide and agree on realistic targets and goals for you and your diabetes, and plan how you're going to achieve them. You'll get a copy of your care plan – if you don't, ask for one. You can find a video about what care planning is and what it means to you at www.diabetes.org.uk/care-planning If you live in Northern Ireland care planning is different, so talk to your diabetes team about this.
- 10 **Attend a course** to help you better understand and manage your diabetes. You should be offered a chance to attend local diabetes courses. See page 25 for more.
- 11 **Paediatric care.** This relates to children with Type 1 diabetes – you can find out more about their essential care at www.diabetes.org.uk/type-1-essentials
- 12 **Receive high-quality care if you're admitted to hospital** from specialist diabetes healthcare professionals, whether you're admitted due to your diabetes or not. See page 45 for more information about going into hospital.
- 13 **Get information and specialist care if you're a woman and planning to have a baby.** Before you start trying for a baby, your diabetes control must be tighter than normal and monitored very closely. You should also start taking a 5mg supplement of folic acid – much more than is recommended for people without diabetes and only available on prescription. Discuss your plans with your diabetes team so that you get the right care and support from preconception to after the birth. Go to www.diabetes.org.uk/pregnancy for more details.
- 14 **See specialist diabetes healthcare professionals** to help you manage your diabetes – see page 24 for more about your diabetes team.
- 15 **Get emotional and psychological support.** Being diagnosed with diabetes and living with a long-term condition can be difficult. You should be able to discuss your thoughts, feelings and concerns with specialist healthcare professionals.

Diabetes UK has created a checklist for your care, called the **15 Healthcare Essentials**. Download a copy and find out more at www.diabetes.org.uk/15-essentials – here you can also find out how to make a complaint if you aren't getting the care you should be.



Q&A

Will I have checks for any other conditions?

Thyroid (a gland in the neck) problems are more common in people with Type 1 diabetes, so you'll probably also have a blood test to check for levels of thyroid hormones. Thyroid problems can't be cured but can usually be treated with tablets.

It's important to talk to your diabetes team if you experience symptoms of stomach ache, diarrhoea or unexplained hypos. You'll then be assessed for a condition called coeliac disease, which can be common in people with Type 1 diabetes. The only treatment for coeliac disease is to permanently remove gluten from your diet – but don't start a gluten-free diet until you have a definite diagnosis, as this may give false test results.

I haven't had eye screening before – what will happen?

You will receive a letter inviting you to have your eyes screened at your GP surgery, hospital or optician practice. At your screening appointment, drops may be put into your eyes to make your pupils larger. This allows the retina (the seeing part at the back of the eye) to be seen more clearly. A special digital camera takes a photograph of the retina, and a specialist will look for changes and damage. The photograph is painless and the camera doesn't touch the eye. The drops may cause some stinging and blurred vision for two to six hours after the test. Take sunglasses to wear afterwards, as everything will appear bright, and don't drive after your appointment – use public transport or arrange a lift with friends or family. If you notice any changes between screening appointments, contact your diabetes team.

What will happen at my foot review?

Your annual foot check involves the following:

- You'll be asked to remove any footwear, including socks/stockings.
- Your feet will be examined – including looking for corns, calluses and changes in shape.
- Your feet will be tested for numbness or changes in sensation with a tuning fork or a fine plastic strand called a monofilament (this doesn't hurt).
- You'll be asked questions about your feet and diabetes management, including:

- Have you noticed any problems or changes (eg cuts, blisters, broken skin or corns)?
- Have you had any previous foot problems or wounds?
- Have you experienced any pain or discomfort?
- How often do you check your feet, and what do you look for?
- Do you have any cramp-like pains when walking?
- How well are you managing your diabetes?
- Your footwear will also be examined to make sure it's not causing any problems to your feet.

At the end of the check, you'll be told the results and your level of risk of foot problems. You'll also be given information about what your level of risk means and what to do next, including advice about how to care for your feet.

For more details, go to www.diabetes.org.uk/foot-check

See pages 51-53 for more about the day-to-day care of your feet.

Why do my HbA1c results come as two different numbers?

One is a % and the other is mmol/mol. In 2011, the measurement used was changed from a percentage (%) to millimoles per mole (mmol/mol). The Department of Health followed the International Federation of Clinical Chemistry (IFCC) recommendation that the same measurement should be used worldwide, making it easier for international laboratories and research trials to compare results. Over time you're less likely to see the % number. The important figure to note is the mmol/mol – this table shows you how the two results compare:

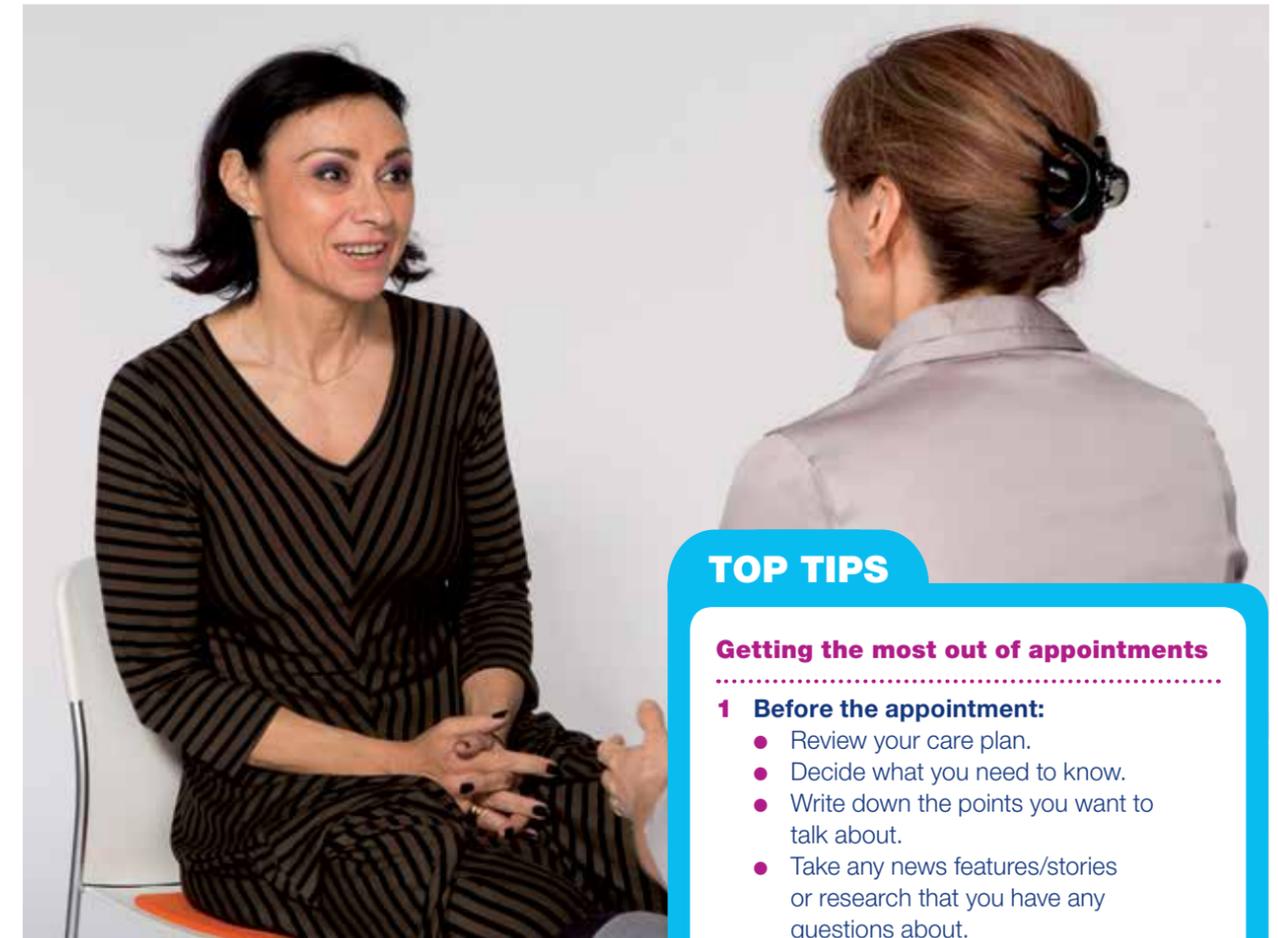
(%)	(mmol/mol)
6.0	42
6.5	48
7.0	53
7.5	58
8.0	64
9.0	75

YOUR DIABETES TEAM

There are many people who may be part of your diabetes healthcare team. It's important to:

- find out who the members of your team are
- agree the name of the person who will be your main contact – usually the person you see most often
- understand what each team member does so you know the right person to call when you have a concern, see below:

Team member	Their role	Your team member's name and contact details
GP	The doctor with the overall responsibility for the care you receive. If they have a special interest in diabetes or are an expert they may play a bigger role in your care. If not, they may refer you to a diabetes clinic.	
Practice nurse	A nurse based at your GP surgery who may support your diabetes care, depending on their specialist knowledge.	
Diabetes specialist nurse (DSN)	A nurse with a special expertise in diabetes who will usually provide advice and support between your appointments with things like blood sugar testing and adjusting your insulin.	
Diabetologist	A doctor specialising in diabetes who is usually based in a hospital clinic or specialist diabetes clinic. Diabetologists are sometimes based at your GP surgery or clinic.	
Registered dietitian	An expert in food and nutrition, who will give you information and support to help you make changes to your eating habits, if needed. Everyone with diabetes should see a registered dietitian when they are diagnosed and for regular review.	
Registered podiatrist	An expert in feet and legs. They may be asked to check for – and manage – problems related to diabetes.	
Ophthalmologist	A doctor who specialises in conditions that affect the eye. They will be involved with your retinal screening review and treatments, if necessary.	
Pharmacist	Based in pharmacies or chemist shops. As well as giving you your prescription supplies, they may also provide you with a review of your medication and offer lifestyle advice.	
Psychologist	An expert who will provide counselling to help you deal with any difficulties you're facing, especially with managing the effects and impact that diabetes has on your life.	



LEARNING MORE

A large part of your future care relies on you becoming the expert in managing your own diabetes. While your diabetes team is there to help and support you, you're the person who knows the most about your diabetes and how it affects you.

One of the best ways to learn more is to attend a course about diabetes, which is one of your 15 Healthcare Essentials. You should be offered a course six to 12 months after diagnosis and, ideally, on a regular basis after that. Courses will vary in length and subject matter, but should be free of charge, as well as having a proven benefit. They're likely to include information about treatments, food, activity and monitoring, as well as practical aspects of living with diabetes like driving, what to do when you're ill, or if you're planning to have a baby. Courses can vary in how they deliver the information – eg in a group, one-to-one sessions or online – so choose what's best for you. Although a course may take up a lot of your time, it will make a big difference to your life.

If group education isn't for you, then you should be offered an alternative way to learn more about your diabetes.

TOP TIPS

Getting the most out of appointments

1 Before the appointment:

- Review your care plan.
- Decide what you need to know.
- Write down the points you want to talk about.
- Take any news features/stories or research that you have any questions about.
- Take your blood glucose meter and results with you.
- Check to see if you need any tests before your appointment.
- Check to see if you need to bring anything with you, like a urine sample.

2 During the appointment:

- Listen actively – ask questions, give feedback and ask for clarification if you're unsure of anything.
- Make notes to help you remember what's been said.
- Consider taking someone with you who can help with questions or remember what's been said.
- Check you've covered the points you wanted to talk about.

3 After the appointment:

- Review what's been said and agreed, including when your next appointment is.
- Make a note of anything you need to do before your next appointment.



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Got a question about food and diabetes?
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enjoyfood@diabetes.org.uk

EATING WELL

ALL ABOUT FOOD

If you think your diagnosis means you now have to follow a boring and restrictive diet, think again. With Type 1 diabetes you can eat more or less anything you like. Here, we run through foods to eat – and a few to avoid – and explain carbohydrate counting, which is a very effective way to manage your diabetes.

Choosing healthier foods, which are lower in saturated fat, sugar and salt, will also help to:

- control your blood fats
- control your blood pressure
- maintain a healthy weight (see page 35).

In turn, this can help to reduce your risk of diabetes complications, including heart disease and stroke (see page 50). As with any lifestyle changes, if you make gradual and realistic changes over a long period of time you're more likely to stick to them.

WHAT TO AVOID

It's a good idea to avoid sugary drinks and fruit juices as a way of quenching your thirst. These usually raise blood glucose levels (also called blood sugar levels) very high, very quickly – which is why they're a useful treatment for hypos (low blood sugar). Instead, drink water, sugar-free and diet soft drinks. Tea and coffee are OK to drink, too.

Avoid foods labelled 'diabetic' or 'suitable for diabetics'. These foods contain similar amounts of calories and fat, and they can still affect your blood sugar levels. They're usually more expensive and can have a laxative effect, so save your money and stick to your usual foods. For an occasional treat just choose what you normally would, and watch your portion sizes.

WHAT TO EAT

With Type 1 diabetes, the biggest consideration in controlling day-to-day blood sugar levels is carbohydrate – without it, your insulin may cause levels to drop too low, and without enough insulin your levels will rise too high.

When using a twice-daily insulin it's very important to eat at roughly the same times – your diabetes team can advise when is best for you. If you're taking fixed amounts of insulin twice a day, it may help to have consistent amounts of carbohydrate on a day-to-day basis, and eat roughly the same amount of carbohydrate at similar times each day. More carbohydrate than usual can cause blood sugar levels to go too high, and less than usual can cause a hypo.

CASE STUDIES

"I am now in a great position where I can eat whatever suits me and have the knowledge to give the correct dosage of insulin and avoid any lows whatsoever."

Darren Coleman

"I decided to go on a week's course to learn more about my diabetes. I learnt about carb counting, side effects and read many different stories of amazing people who live extraordinary lives with diabetes. I realised that just because I had diabetes didn't mean I had to be different from anyone else. Not long after returning from my course, I started to change my lifestyle, I began to eat and take my insulin regularly, I exercised and slept sufficiently, as well as reducing my alcohol intake."

Rebecca

One of the first questions people ask when they're first diagnosed with diabetes is 'what can I eat?' The answer is 'anything'. This may come as a surprise, but it's fine to eat all kinds of food when you have Type 1 diabetes. In the past, people were expected to follow a very restrictive diet plan, because the insulin available and the types of insulin treatment were limited. As insulin treatments are now much more flexible, the days of 'dos and don'ts' are long gone. Nowadays the aim is to fit your diabetes and insulin around the same healthy, balanced diet that's recommended for everyone.

If you're using a basal bolus insulin plan (see page 9), you can be much more flexible when and how much carbohydrate you eat and drink – it's less important to eat at the same times because it's usually recommended that you inject just before, during or just after eating. Most people following this plan will count the carbohydrate that they eat and drink and then calculate how much insulin they need to take. The amount of insulin will change depending on how much carbohydrate they eat, as well as other factors. So this insulin plan offers much greater flexibility with food choices and timings of meals without compromising your blood sugar control.

Courses and training can help you understand how to manage the amount of carbohydrate you eat and the insulin you take to help control blood sugar levels more effectively. It can take some time and effort, but in the long run things will be much easier.

CARBOHYDRATE COUNTING

Carbohydrate is an important source of energy. Carbohydrate-containing foods include bread, pasta, chapatti, potatoes, yam, noodles, rice, cereals, fruit, some dairy products, sugar, sugary foods and drinks, glucose syrup and honey. All carbohydrate that you eat and drink is broken down into glucose, your body's essential fuel. The amount of carbohydrate you need depends on your age, weight and activity level.

Carbohydrate counting is an effective way of managing Type 1 diabetes – it means that insulin can be individually matched to the amount of carbohydrate you eat and drink. Although it needs a great deal of time and effort, once you master carb counting it can lead to better blood sugar control and greater flexibility in the times and amount of carbohydrate you eat – plus special occasions and treats can be more easily incorporated and insulin adjusted to match.

Before you start carb counting it's important to get the dose of your basal (background) insulin right. This insulin deals with the glucose released by your liver. Talk to your diabetes team about how to do this.

Carbohydrate can be counted in two ways – in grams or as carbohydrate portions (CP). One CP is usually equal to 10g of carbohydrate. It's important to find the method that works best for you.

Once you've got to grips with calculating the amount of carbohydrate you're going to eat and drink, you need the insulin-to-carbohydrate ratio for your bolus insulin (the insulin you take to cover the rise in your blood sugar level when you eat and drink). Insulin-to-carbohydrate ratios vary from person to person, so you'll have your own personal ratio depending on your age, weight, activity levels and how long you've had

diabetes. Your diabetes team will help you work it out, and eventually you may even have a different insulin-to-carbohydrate ratio for each meal.

If you know how many grams of carbohydrate are in a meal and your insulin-to-carbohydrate ratio, then you can work out the number of units of bolus insulin you need to take. For example, if you're planning to eat 70g of carbohydrate at your meal and your insulin-to-carbohydrate ratio is 1 unit of bolus insulin for every 10g carbohydrate, then you'll need to take 7 units of bolus insulin.

The amount you actually take will also depend on other factors, like your current blood sugar level, illness or planned activity.



HOW TO COUNT THE CARBOHYDRATE YOU EAT AND DRINK

1 Food labels – using the carbohydrate per portion value.

Chicken pasta bake ready meal



Typical values	100g contains	Each oven baked meal (317g) contains
Energy	433kJ (103kcal)	1372kJ (325kcal)
Fat	1.7g	5.4g
Saturates	0.9g	2.9g
Carbohydrate	14.1g	44.7g
of which sugars	2.0g	6.3g
Fibre	1.2g	3.8g
Protein	7.1g	22.5g
Salt	0.4g	1.3g

If you eat the whole of this ready meal, the amount of carbohydrate you'll count is 44.7g. It's important to count the total amount of carbohydrate and not the 'of which sugars' value. When using the 'per portion' value, be sure that this is the actual portion you're planning to eat.

2 Food labels – using the carbohydrate per 100g value.

Basmati rice



Typical values	As sold 100g contains
Energy	1515kJ (360kcal)
Fat	1.0g
Saturates	0.2g
Carbohydrate	77.4g
of which sugars	0.2g
Fibre	1.8g
Protein	8.5g
Salt	<0.01g

When using the per 100g value, calculate the carbohydrate for the actual amount that you're going to eat or drink. For example, if you're planning to cook and eat 80g of this rice, the amount of carbohydrate you'll count is 61.9g, not 77.4g. It's worth investing in a good set of flat-based digital scales that can be zeroed. It's also important that your scales are accurate to within 5g. The cooked weight of foods like pasta, rice and potatoes will vary from the raw or pre-cooked weight, so check which values you're using.

3 Reference lists and visual guides

But what should you do when food doesn't have a nutrition information label or you're eating out? Although this is more challenging, reference lists and visual guides will help you estimate carbohydrate. These list the amount of carbohydrate in handy measures, such as '1 bread roll', '1 medium banana' or '1 scoop of ice cream'. Some guides also contain pictures for comparing (see right and page 31 for more information).



4 Recipe nutrition information

Using the Diabetes UK recipe finder takes the hard work out of calculating the carbohydrate content of hundreds of recipes. Take a look at our recipe finder at www.diabetes.org.uk/recipes

And, there's no need to throw out your favourite recipes and cookbooks. Working out the carbohydrate values of your day-to-day meals helps you build up a personal handy reference list that you can use again and again.



5 Restaurant and snack bar nutrition information: often found online

Bacon breakfast roll



Typical values	Per 100g	Per 114g serving
Energy	1381.6kJ	1575kJ
Energy	328.1kcal	374kcal
Fat	19.2g	21.9g
of which saturates	6.8g	7.8g
Carbohydrate	22.2g	25.3g
of which sugars	1.4g	1.6g
Fibre	1.3g	1.5g
Protein	15.8g	18g
Salt	3.07g	3.5g

Many restaurants and cafes now provide nutrition information on their menus: the nutrition information for this bacon breakfast roll is found in seconds after a quick search on the internet. Bear in mind, though, that these values are average values and the dish that you're served may vary in size and ingredients – you still need to use your judgement and experience.

Three ways to start carb counting

Ever heard the phrase 'don't run before you can walk'? This certainly applies to carb counting. Your first step is to learn the basics (see below), but there's no harm in laying the foundations for building a new way to manage your diabetes.

- 1 Do you know which of your food and drink contain carbohydrate? Stop, think and make a mental note of which food and drink you need to count.
- 2 Get label savvy – scrutinise the nutrition labels on your food and drink. Take it all out of your kitchen cupboards and find out just how much information you have to hand.
- 3 Make carbohydrate your specialist subject. Practise estimating the carbohydrate content of your meals – use reference lists to check your accuracy.

Interested and want to know more?

To carb count successfully, you need a lot more information. You need to learn all about carbohydrate, learn how to adjust your insulin and be dedicated to monitoring your blood sugar levels frequently. You also need the support of professionals, either a member of your diabetes team or from one of the education courses available (see below). You can find out about courses available in your area from your diabetes team.

Courses

- DAFNE (Dose Adjustment for Normal Eating) is a nationally run course at www.dafne.uk.com but most centres will run a similar course. Talk to your diabetes team.

Online learning

- BERTIE (Bournemouth Type 1 Diabetes Education Programme) at www.bdec-e-learning.com

Books

- *Carbs Count e-book – An introduction to carbohydrate counting and insulin dose adjustment.* Available as a PDF e-book, you can download *Carbs Count* to use on your computer, laptop, tablet or smartphone. You can also test your knowledge by working through the examples featured throughout the 10 chapters.
<https://shop.diabetes.org.uk/go/carbs-count>

Reference lists

- *Carbs Count – Carbs reference list.* A downloadable file designed to use in conjunction with the Carbs Count e-book.
<https://shop.diabetes.org.uk/go/carbs-count>
- *Carbs & Cals.* A book with over 1,700 photos of food and drinks and their carbohydrate content. Also available as an app.
www.carbsandcals.com
- *Carb Counter: A Clear Guide to Carbohydrates in Everyday Foods* (Collins Gem). A handy guide with clear tables. Also available as an e-book.
www.amazon.co.uk/Carb-Counter-Carbohydrates-Everyday-Collins/dp/0007176015
- *DAFNE Carbohydrate Portion Booklet.* Provides the carbohydrate content of a range of common foods. www.dafne.uk.com/374.html

ACTION POINTS

Refer to food labels when carb counting.

Double check whether the value you are using is per 100g.

If it is per portion or serving, what is the portion or serving size?

The amount of carbohydrate you should count is the 'total carbohydrate' rather than the 'of which sugars'.

Check the ingredients list to get a sense of how much of these foods are in the product.

Consider what ingredients make up the product you are looking at. If it is a food that contains a lot of very slowly digested carbohydrates, such as beans or tomatoes, you wouldn't count this carbohydrate, but the carbohydrate value will include them.

Check whether the amount of carbohydrate is for the raw or cooked product, especially with foods containing pasta or rice.

Q&A

Can I still enjoy eating out?

Definitely! If you learn how to carb count and are confident, you'll be able to change the amount of insulin you inject to fit in with the food you eat. Any changes in meal times can have a big impact on the timing of insulin injections. If you're going to eat a meal later than usual, you can generally delay your insulin until you're about to eat. But if you're on twice-daily insulin injections and eating lunch later than usual, you may need to have a snack before you go out or have some bread as soon as you arrive. This will help you avoid a hypo.

When you're dining out, it's easier to eat foods that are higher in fat than you normally would – and to eat over a longer period of time. Fat slows down the absorption of carbohydrate into the bloodstream, which means that dishes like pizza, curry and fish and chips may take hours to affect your blood sugar levels. This can mean that when you take your bolus insulin, it may have finished working before all the carbohydrate has been absorbed – so you may need to alter how you take your insulin, such as by splitting your dose.

What about low-carb diets?

Some people with Type 1 diabetes follow a low-carb diet. Diabetes UK does not recommend this as there is no long-term research into the safety of this diet.

My friend wants to cook me a meal – what shall I tell them to cook?

Other people can panic about what they can and can't serve you. Tell them not to go to any trouble and reassure them that you're no different to anyone else. If it's a party rather than a meal, don't take it for granted that there'll be food – check beforehand or eat before you go.

How can I make my recipes healthier?

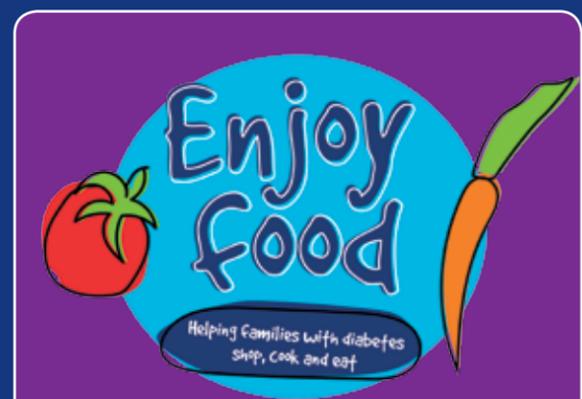
Whether it's your favourite homemade pudding or a comforting casserole, you'll still want to enjoy your tried-and-tested recipes. There are a number of simple ways to make them healthier – cutting down the sugar, fat and salt in your cooking, while keeping the flavour. Go to www.diabetes.org.uk/enjoyfood for lots of tips and ideas.

There's so much information on a food label, what should I be looking for?

Food labels can be found on the front and back of products. 'Back of pack' labelling is mandatory and gives you detailed information about the ingredients, nutritional composition, known allergens, 'best before' and 'sell by' dates and the weight of the product/pack.

'Front of pack' labelling is meant to help us understand quickly and easily what's in the food we buy, helping us to make informed choices based on how healthy a product is. Diabetes UK has campaigned for clear, consistent food labelling on the front of packs, and the government supports a front-of-pack labelling scheme, which includes traffic light labels. While front-of-pack labelling is a voluntary scheme, all major supermarkets and most large food and drink manufacturers have signed up. For more on food labelling, go to

www.diabetes.org.uk/food-labels



Our free *Enjoy Food* guide features great recipes, advice and expert diabetes nutritional information online and in print – see www.diabetes.org.uk/enjoyfood or go to <https://shop.diabetes.org.uk/go/Enjoy-food> to order your copy.

TOP TIPS

For eating well

1 Eat regular meals

Spacing meals evenly throughout the day will help control your appetite and blood sugar levels – especially if you're on twice-daily insulin.

2 Include carbohydrate

Healthier sources include wholegrain starchy foods. All carbohydrate affects blood sugar levels, so be aware of the amount that you eat.

3 Cut the fat

Eat less fat – particularly saturated fat. Try:

- unsaturated fats and oils, especially mono-unsaturated fats like extra virgin olive oil and rapeseed oil, as these are better for your heart
- using skimmed or semi-skimmed milk and other low-fat dairy products
- grilling, steaming or baking foods instead of frying.

4 Try to eat five a day

Aim for at least five portions of fruit and vegetables every day to give your body all the vitamins, minerals and fibre it needs.

A portion is:

- 1 piece of fruit, like a banana or apple
- 1 handful of grapes
- 1 tbsp dried fruit
- 1 small glass of fruit juice or fruit smoothie
- 3 heaped tbsp vegetables.

5 Eat plenty of beans

Beans, lentils and pulses are all low in fat, high in fibre and very cheap. They don't have a big impact on blood sugar and may help to control blood fats, like cholesterol. Try kidney beans, chickpeas, green lentils and even baked beans:

- hot in soups and casseroles
- cold in salads
- in baked falafel, bean burgers, and low-fat hummus and dhals.

6 Eat more fish

All types of fish are healthy provided they're not coated in batter or fried, but oily fish such as mackerel, sardines, salmon and trout are particularly good for you. They are rich in

omega-3 (polyunsaturated fat), which helps protect against heart disease. Aim to eat two portions of oily fish a week, ideally from a sustainable source.

7 Cut back on sugar

This doesn't mean you need to eat a sugar-free diet. You can include some sugar in foods and baking in a healthy, balanced diet – just aim to use less and don't overdo it. Remember, sugary drinks are an excellent treatment for hypos. You can also use sweeteners as an alternative to sugar. Some easy ways to cut back on your sugar intake are:

- choosing sugar-free, no-added-sugar or diet/light drinks
- buying tinned fruit in juice rather than syrup
- reducing, or cutting out completely, sugar in tea and coffee.

8 Reduce your salt

Too much salt can raise your blood pressure, which increases your risk of heart disease and stroke. Reduce salt in your diet to 6g or less a day. Try:

- cutting back on processed foods, which account for 70 per cent of our salt intake
- flavouring foods with herbs and spices instead of salt.

9 Drink sensibly

The recommended daily alcohol limit for women is 2–3 units and 3–4 units for men. Remember:

- 1 unit is a single measure (25ml) of spirits, ½ pint (284ml) of lager, beer or cider or ½ glass (175ml) of wine.
- alcohol is high in calories. To lose weight, consider cutting back.
- never drink on an empty stomach as alcohol can make hypos more likely to happen.

10 Avoid 'diabetic' foods

These products offer no benefit to people with diabetes and may still affect your blood sugar levels. They contain as much fat and calories as ordinary versions, can have a laxative effect and are expensive.

WEIGHT

MANAGING YOUR WEIGHT

Help us to change diabetes – take part in our research

Novo Nordisk, a world leader in diabetes care, is passionate about bringing innovative treatment to people with diabetes.

If you have diabetes and volunteer for our research into new medicines, treatments and devices, you may:

- learn more about your condition
- help us develop medicines that could benefit you and others
- get access to future treatments.

Please get in touch today for more information:
 Freephone **0808 169 6666**
 Text **INFO** to **62277*** and we'll call you back. Or visit changingdiabetesresearch.co.uk

*Texts charged at your service provider's standard rate.

TOGETHER WE CAN CHANGE DIABETES

SUE HEYWOOD, United Kingdom
 Sue has type 2 diabetes

Some people with diabetes can find it challenging to maintain a healthy weight. With the help of our quick guide, and with the support of your diabetes team, we hope you can reach a healthy weight – and stay there.

Before you were diagnosed, you may have lost lots of weight without trying to. Without insulin to turn the glucose in your blood to energy, this energy (calories) was lost in your urine when you went to the toilet. To get energy without insulin your body broke down your fat and muscle, and this was the cause of your weight loss.

Now that your diabetes is diagnosed and you're taking insulin, your body can use this glucose. You may find that you feel hungrier and eat more, which helps you regain any weight lost. Although you may be glad that you've gained weight, some of you may worry that this will carry on. But unless you're taking in more calories than your body needs, you won't continue to gain weight. With the right advice and support, many people find that their weight gain levels off and they stay at a healthy weight.

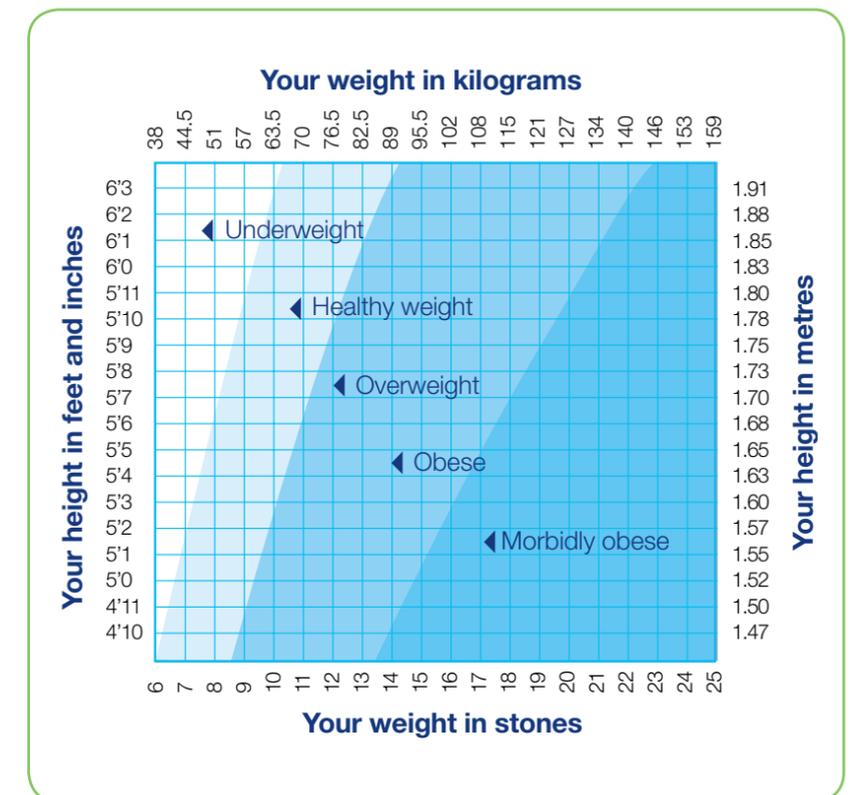
MONITORING YOUR WEIGHT

At your annual review your diabetes team can assess whether your weight is right for you. They will:

- Calculate your BMI (Body Mass Index), which shows your weight in relation to your height (see chart below).
- Measure your waist circumference, which shows the amount of weight you carry around your waist. If you need to lose weight, reducing your waist size will help to improve your blood glucose (also called blood sugar) control and reduce your risk of developing long-term health problems, like heart disease and stroke.

Waist measurement targets

- White and Black men: below 94cm (37in).
- South Asian men: below 90cm (35in).
- White, Black and South Asian women: below 80cm (31.5in).





BEING A HEALTHY WEIGHT

More and more of us are becoming increasingly overweight, and people with Type 1 diabetes are no different. Although we know Type 1 diabetes is definitely not caused by being overweight, being a healthy weight will certainly benefit your overall health. Research shows that if you're carrying any extra weight, losing just a small amount will be of enormous benefit to your health, including improved blood pressure and cholesterol levels.

Knowing how much weight to lose

If you're trying to lose weight, setting yourself goals to achieve a BMI in the healthy range can be extremely motivating. If you have a lot of weight to lose, though, this can seem daunting and impossible – you may

prefer to set an initial weight loss target that improves your BMI.

GETTING THERE

It goes without saying that a healthy, balanced diet and active lifestyle is key in helping you reach a healthy weight and staying there – whether you have diabetes or not.

Some people find it easier than others to keep to a healthy weight, and having diabetes can bring extra challenges. But, with the right help and support, you can hopefully achieve the right balance of eating healthily and being active.

Snacking

If you're worried about hypos, you may be taking in more calories than you need without even realising it, due to snacking or over-treating hypos. Your diabetes team will work

with you to make sure that you have the right insulin plan to reduce your risk of hypos, which will reduce your need for snacks. Your team should also give you advice on the appropriate treatment of hypos, healthy snacks and portion sizes.

Skipping insulin

Skipping insulin to lose weight can lead to the potentially fatal condition diabetic ketoacidosis (see page 12), as well as increasing your chances of developing serious long-term complications in the future. This pattern of behaviour has been called diabulimia and can be seen as a type of eating disorder: it's thought to affect at least one in three women under the age of 30 with Type 1 diabetes – and some men, too.

If you're stuck in a cycle of skipping insulin and can't break

out of it, it's really important to get help. Speak to a family member or friend who you know will support you. Your diabetes team will also have experience of this issue and can get you specialist support.

- Diabetics with Eating Disorders is a registered charity that provides support and advocacy for people with diabetes and an eating disorder – go to www.dwed.org.uk
- You can also call the Diabetes UK Careline on **0345 123 2399**.

Crash diets

Although it may be tempting, drastically reducing the amount of food you eat, or cutting out whole food groups, isn't a good idea. Not only are you in danger of missing out on vital nutrients, it's also much harder to control your blood sugar levels.

Instead, aim for a safe and achievable target of 0.5–1kg (1–2lb) a week weight loss. Setting small, achievable targets means you're more likely to stick to them.

Q&A

What's the best diet for someone with Type 1 diabetes?

Most of the research looking at diets hasn't involved people with Type 1 diabetes, so there's not enough evidence to say that one particular diet is better than another. Nor is 'one size fits all' the best approach – finding a diet that works for you and fits in with your lifestyle means you're more likely to stick to it. Talk to your dietitian, who can support you in deciding on an approach that's right for you and a diet that you can follow safely.

What if I am underweight and struggle to gain weight once my diabetes is under control?

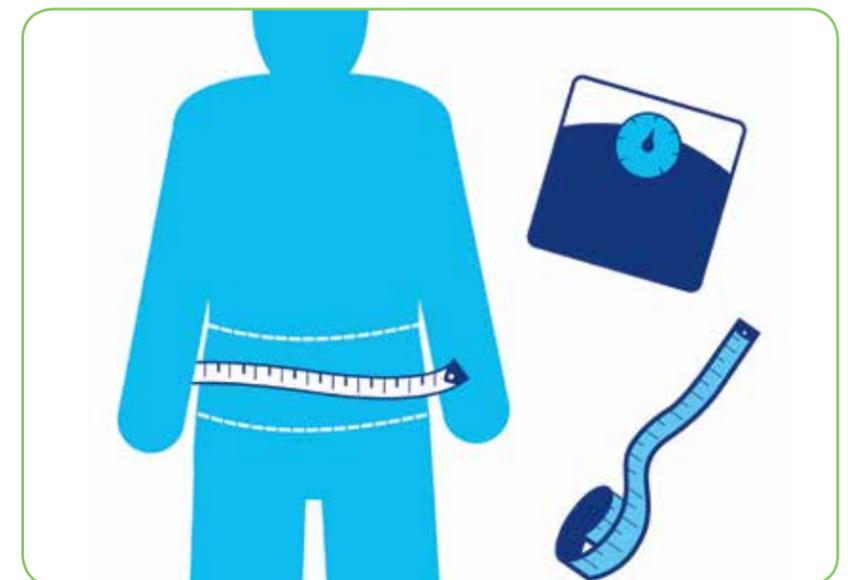
If you find that you are underweight, talk to your dietitian. They may suggest ways you can gain and/or maintain weight, such as:

- Have smaller meals, more often. You'll find this easier than three large meals and it will also help to increase your appetite.
- Use full-fat dairy products like milk, cream, cheese and yogurt.
- Add unsaturated fats to your food where you can, such as avocado, nuts, seeds, and spreads and oils, including olive, rapeseed, safflower and peanut. Unsaturated fats are still high in calories, but better for your heart than saturated fats.
- Serve vegetables with melted butter, margarine or grated cheese.
- Add cream or milk to foods like mashed potato or soups.
- Have nourishing drinks like smoothies and milky drinks.

If you are underweight or have unexplained weight loss, you should be offered tests for coeliac disease (see page 23).

TOP TIPS

- 1 Keep an eye on your BMI and waist measurement at home. Weigh yourself and measure your height. Then, use the chart on page 35 to work out your BMI. To measure your waist, find the bottom of your ribs and the top of your hips. Measure around your middle at a point midway between these (for many people this is the tummy button).





PHYSICAL ACTIVITY

KEEPING ACTIVE

While we all know that being active is good for our health – both physical and emotional – it’s important to think about the benefits of physical activity for diabetes, too – and with care you can manage how much exercise you do and how long for.

ACTIVITY AND DIABETES

Being active increases the amount of glucose your muscles use for energy. At first this comes from your body’s stores of glucose, but as you continue to exercise the glucose is taken from your blood. This means that your blood glucose levels (also called blood sugar levels) will go down. If you’ve taken too much insulin, this increases your chances of having a hypo – either during activity or up to 24 hours afterwards. Test your blood sugar levels more often, particularly before, during and hourly after activity. This will help you build a picture about how physical activity affects your levels.

CASE STUDIES

“I enjoy hiking, the outdoors and travelling, for which my diabetes has only supported rather than restricted. A year after my Type 1 diagnosis, I set myself a challenge of climbing to Everest Base Camp. I have also run a half marathon, completed my PADI scuba qualification, and travelled around Nepal and Central America.”

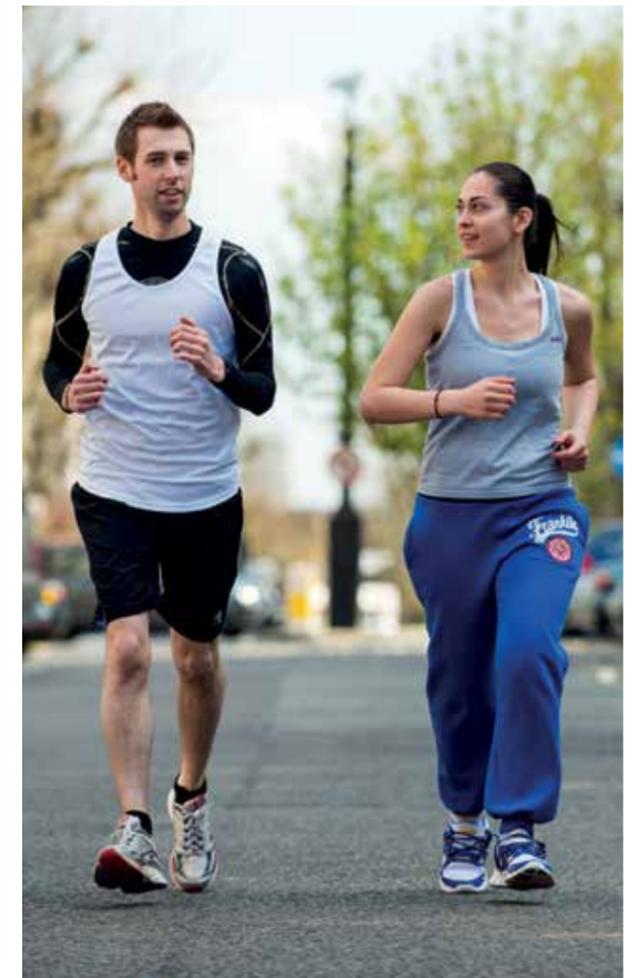
Tom Stevenson

“In the four years since being diagnosed with Type 1, I’ve run seven half-marathons and completed three long-distance hikes, one of them being a 500-mile pilgrimage. I completed this two months after my diagnosis. I regularly go hiking at the weekend, as well as eating and drinking out. My doctor was right – having Type 1 hasn’t stopped me doing anything.”

Sarah Blake

“I had always kept fairly active at the gym, but once I was diagnosed it gave me a kick-start to get going properly. I go three times a week and now I am able to run 5km. Don’t get me wrong, it was very hard to start with. I knew I had put a bit of weight on and the diagnosis gave me a short, sharp shock to kick-start myself into shape and lose weight.”

Diane



PHYSICAL ACTIVITY

DO YOU HAVE A QUESTION ABOUT DIABETES?

TALK TO US.

Call or email the Diabetes UK Careline with any of your questions, concerns or feelings about living with Type 1 diabetes.

0345 123 2399*

careline@diabetes.org.uk

9am–7pm, Monday–Friday

DIABETES UK
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AVOIDING HYPOS

If your blood sugar levels are below 7mmol/l before the activity, have extra carbohydrate. Always carry hypo treatment and medical ID, and teach those with you about how to recognise and treat hypos. If you're exercising on your own, make sure someone knows where you are. Be aware that you can absorb insulin more quickly if you inject into an area that you'll use for the activity, like your leg if you're running.

By planning ahead and reducing your insulin, or having more carbohydrate, you can reduce the risk of a hypo. If you're trying to lose weight, it's probably best to reduce your insulin doses in advance rather than increasing the amount of carbohydrate you eat or drink. Speak to your diabetes team for guidance on how to do this.

If you're doing unplanned activity, you'll probably need to have more carbohydrate.

The tables below give you guidance on how to do this:

Activity level

Short duration, low intensity

eg 30 minutes of yoga, walking or cycling leisurely



Blood sugar level before activity

Less than 5mmol/l
Add 10–20g carbohydrate before activity

5–10mmol/l
No adjustment needed

10–14mmol/l
No adjustment needed

Activity level

Moderate duration, high intensity

eg 30–60 minutes of running, high impact aerobics or kickboxing



Blood sugar level before activity

Less than 5mmol/l
Add 20–30g carbohydrate before activity

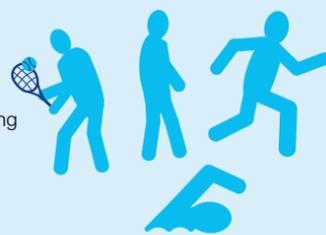
5–10mmol/l
Add 10–20g carbohydrate before activity

10–14mmol/l
No adjustment needed

Activity level

Moderate duration, moderate intensity

eg 30–60 minutes of walking vigorously, playing tennis, swimming or jogging



Blood sugar level before activity

Less than 5mmol/l
Add 10–20g carbohydrate before activity

5–10mmol/l
Add 10–20g carbohydrate for a blood sugar level of 5–7mmol/l. No adjustment needed for a blood sugar level of 7.1–10mmol/l

10–14mmol/l
No adjustment needed

Activity level

Long duration, moderate intensity

eg 60 minutes or more of playing team sports, golfing, cycling or swimming (retest your blood sugar level after each hour of activity and add carbohydrate according to that blood sugar level)



Blood sugar level before activity

Less than 5mmol/l
Add 10–20g carbohydrate per hour of activity

5–10mmol/l
Add 10–20g carbohydrate per hour of activity

10–14mmol/l
After first hour of activity, check blood sugar and add 10–20g carbohydrate if levels have fallen

ACTION POINTS

Test your blood sugar levels more often before, during and after any physical activity.

Talk to your diabetes team about how to adjust your insulin and/or the amount of carbohydrate you eat or drink, to avoid high and low blood sugar levels.

AVOIDING HIGH BLOOD SUGAR LEVELS

Be careful when your blood sugar level is more than 13mmol/l, because activity can raise it higher rather than lower it. If this happens, it's probably because you don't have enough insulin circulating in your body. You'll also need to check for ketones (see page 15). If ketones are there, avoid doing any activity until they've gone. Think about injecting an extra dose of bolus insulin (correction dose) – talk to your diabetes team about how to do this.



TOP TIPS

- 1 Wear suitable footwear for your activities.
- 2 Check your feet before and after any activity, and dry your feet properly after exercise. Drying the skin well, especially between the toes, will help prevent infections like athlete's foot.
- 3 Wear diabetes ID – like a bracelet or necklace – or carry a card.
- 4 Drink fluids regularly to avoid dehydration.
- 5 Eat or drink extra carbs if you need to before, during or after exercise.
- 6 Think about changing your insulin dose if needed – talk to your diabetes team for advice.

EMOTIONAL SUPPORT

After the initial shock, you may find it challenging to come to terms with your diagnosis, and the fact that you'll be living with a serious condition for the rest of your life. If you sometimes find it all a bit overwhelming, remember that there's a lot of support available if you need it, so please don't be afraid to ask for help.

CASE STUDIES

"I felt so alone when I was diagnosed, I didn't know where to go or who to turn to. I really don't know how I would be controlling my condition without social media."

Kelly Carden

"I rarely spoke to another person with diabetes during my first 40 years with the condition – the online community has now changed all this."

Lis Warren

"On the day I was diagnosed with Type 1, I was promised that diabetes wouldn't stop me doing anything. I don't think my parents quite realised that I would strongly live by this motto. I hope that other people with the condition take this motto on as their own – that diabetes can be seen sometimes as a negative, but there are ways to turn it back around."

Cerys Bennett

"It took me around two months to accept it. It was while surfing on the internet that I realised that diabetes is not the end of the world. It was this quote that helped me – 'diabetes is not a death sentence but a lifestyle'. I realised I was now living a healthier lifestyle and getting fit with exercise."

Christian Aquilina



Being diagnosed with Type 1 diabetes is often very sudden and unexpected. Despite feeling unwell, you're not expecting to be told that you have been diagnosed with a serious condition. This can often come as a shock, and can also be a confusing or even frightening experience. You're

introduced to a whole new world – needles, clinics, possible complications – and your life can seem to change both quickly and completely. Friends and family – or even health professionals – though they mean well, may encourage you to deal with things and move on quickly.

All this may mean that you don't have the time to think or talk about your feelings. Talking about the lead-up to your diagnosis, how you were diagnosed and how you feel now can be a relief – even if you were diagnosed years ago. Talking to other people who have Type 1 diabetes may also help.

Diabetes can take a lot of effort to manage, and at times you may wish that you could just take a break from it. But if you find that your feelings are stopping you from properly managing your diabetes, it's time to seek extra support – you don't need to go through this difficult time alone.

WAYS OF COPING

We all have different ways of coping with things – often learned as we face the particular challenges of our own life. Some people may cope by denying a difficult reality, ignoring it or putting it to one side. Others may prefer to take a positive approach, however difficult the situation. Others like to focus on practical issues and show that they're coping well. Whatever your approach, it's important that you don't ignore the way you feel.

TALKING TO FAMILY AND FRIENDS

Talking to those around you about your health issues can be difficult. It's understandable that you may not look forward to telling people about your diabetes – initially they may know very little about it and how it affects your daily life.

Most people, though, find they get more support and are able to cope better once they open up about their diabetes. Friends and family can give you valuable support and encouragement when your diabetes is new or when you're struggling to manage it. Sharing any issues will help them understand how they can help while you're adjusting to your new way of life.



MORE INFORMATION

At times you may need more detailed information or advice about how diabetes can affect your life – for example, if you're thinking about contraception, planning a pregnancy or travelling abroad. Our website – www.diabetes.org.uk – has a wealth of information on these and many other subjects.

You can also keep regularly updated about diabetes and managing your condition by becoming a member of Diabetes UK. You'll receive *Diabetes Balance* magazine, the definitive resource for all things diabetes, packed with the latest news, information, dietary advice and exclusive recipes. Go to www.diabetes.org.uk/join to find out more.

FINDING SUPPORT

- 1 Our Careline provides confidential support and information to all people affected by diabetes. Call **0345 123 2399** or email careline@diabetes.org.uk for contact with professional counsellors who have extensive knowledge of diabetes.
- 2 Use the Diabetes UK confidential peer support service: Talk to someone with diabetes. Our volunteers have all been affected by diabetes and include people who have experience of living with Type 1. So, whatever's on your mind, there's a good chance one of our peers has been through the same thing. They have been specially trained to listen and offer support, or just simply give you the chance to talk to someone who's been there themselves. Find out more at www.diabetes.org.uk/peer-support
- 3 Join a local Diabetes UK group which offers you a chance to share experiences, while providing essential guidance on all aspects of diabetes. Groups are run entirely by local volunteers. Find out more at www.diabetes.org.uk/groups
- 4 Get involved and support each other with Diabetes UK's online communities, which let you chat, find support and discuss issues with other supporters, as well as discover more about our campaigns, information and activities. Our biggest communities are on Facebook and Twitter, and you can also find us on other networks, including Instagram and LinkedIn. We've also got a dedicated blog site and YouTube channels with regular posts from people living with diabetes. Go to www.diabetes.org.uk/communities for more details.



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Sign up today as a mobile member to get expert advice on diabetes sent straight to your phone.

For just £3 a month, you'll receive tailored, expert advice to your phone and you'll be supporting our vital research into diabetes care, cure and prevention.

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- Monthly text messages tailored to your needs whether you have Type 1 diabetes, Type 2 diabetes or are a parent of a child with diabetes.
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It takes seconds to sign up, there is no long form to fill out and your £3 monthly donation will be deducted directly from your phone bill.

**What are you waiting for?
Become a Type 1 mobile member today.**

Text **MANAGE to **70002** to give £3 a month and get monthly expert advice about Type 1 diabetes.**

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If you're a parent of a child with diabetes, text **FAMILY to **70002****

For further details please go to www.diabetes.org.uk/mobile-member or call **0345 123 2399***

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ILLNESS

Like everyone else, there may be times when you become ill or have to go to hospital. Take care when you feel unwell, and keep a close eye on your blood sugar levels to make sure you don't develop anything more serious.

Having diabetes doesn't mean you're likely to get ill more often than anyone else. But if your diabetes isn't well managed, you may be more prone to infections.

When you're unwell, your blood glucose levels (also called blood sugar levels) may rise even if you're not eating. This is your body's defence mechanism for fighting infections and illness.

Some of the illnesses that may cause high blood sugar levels include:

- colds and flu
- chest infections, like bronchitis
- urinary tract infections, like cystitis
- vomiting and diarrhoea
- skin infections, like boils and abscesses.

It's essential that you know what to do if you become unwell to make sure you don't develop any serious problems, like diabetic ketoacidosis (DKA) (see page 15).

GOING INTO HOSPITAL

If you're having a planned operation or procedure in hospital, discuss at your pre-assessment appointment how your diabetes will be managed in hospital. You should get information about what will happen before, during and after your procedure.

If you want to manage your diabetes yourself while in hospital, make sure you bring your own insulin, hypo treatment and equipment (including blood sugar testing kit). If you don't have everything you need, ask the hospital staff if they can provide it. If you're admitted unexpectedly, ask someone to bring in your insulin and testing kit for you.

Speak to the hospital staff if you have any concerns about your diabetes care – they can contact your diabetes team if necessary.

When you're discharged, if any changes have been made in how your diabetes is managed, both you and your diabetes team should be informed.

TOP TIPS

- 1 Always take your insulin dose, even if you don't feel like eating.
- 2 Test your blood sugar levels more often – at least every four hours.
- 3 If your blood sugar levels are consistently over 13mmol/l, check for ketones. You may need to increase your insulin dose. Talk to your diabetes team about how much extra insulin to take.
- 4 If you don't feel like eating, or you're feeling sick, replace meals with snacks and drinks containing carbohydrate, which will provide energy. Sip sugary drinks or suck on glucose tablets.
- 5 Drink plenty of sugar-free drinks. Aim for at least 2.5–3.5 litres (4–6 pints) per day.
- 6 If you have uncontrolled vomiting or any signs of DKA (abdominal pain, nausea or rapid breathing), get urgent medical help.

ACTION POINTS

If you're admitted to hospital for something other than your diabetes, make sure everyone treating you knows you have Type 1 diabetes.

Get to know the signs that mean you should seek medical advice, and make sure that a close friend, family member or your carer knows them too.

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Drink more water, naturally!

New natural & delicious liquid water enhancer

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CASE STUDIES

"Diabetes has never hampered my work. I've never let it stop me doing anything at all."

Lis Warren

"I've always been really lucky wherever I've worked that my colleagues have been very understanding about what having Type 1 means on a day-to-day basis. I've been open about testing my blood sugar in the office and people have understood the need to occasionally snack in a meeting if my levels are dropping a bit low."

"It's important to not feel like you have to hide your diabetes from anyone else. It's part of who you are and I don't think anyone should be in a position where they have to hide such an important part of themselves. As with all aspects of your life post-diagnosis, there are some adjustments, but it shouldn't mean you can't continue working in the same way as you have done previously."

Andy Broomhead

Discrimination legislation, reasonable adjustments – what does it all mean? Whether you're already in a job or looking for one, it's important to know your rights at work now that you have diabetes. We also point you in the right direction for further support if you need it.

Thanks to discrimination legislation, blanket bans on the recruitment and retention of people with diabetes in employment should be a thing of the past. People with diabetes do sometimes face discrimination, but fortunately, discrimination legislation offers a number of protections.

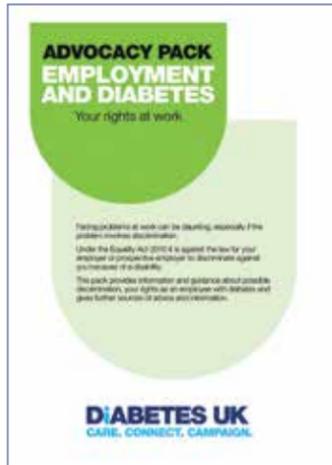
LEGISLATION

Although people with diabetes don't normally class themselves as disabled, having Type 1 diabetes means that you're protected by the Equality Act 2010 (England, Wales and Scotland) and the Disability Discrimination Act 1995 (Northern Ireland) (DDA). This means that it's against the law for an employer to discriminate against you because of your diabetes. The UK armed forces are the only employer exempt from these Acts.

The Equality Act states that an employer must not treat you unfavourably and put you at a disadvantage because of your diabetes. This protection applies to every stage of the employment process: recruitment, your terms and conditions, opportunities for promotion or training, and selection for redundancy or dismissal.

LIVING WELL

Some jobs, though, especially those involving safety-critical work, will have legitimate health requirements and therefore stricter medical standards that may exclude people with particular medical conditions and on certain medication, including diabetes. The most common reason for people with diabetes not meeting medical standards is the risk of hypos. In most jobs a hypo doesn't pose a risk to others, but in some situations it could.



REASONABLE ADJUSTMENTS

Both the Equality Act and the DDA state that employers have to make reasonable adjustments (changes to the way they would normally do things) to prevent you from being placed at a disadvantage. Reasonable adjustments can take many different forms

and, for many people, a few minor adjustments may be all that's needed. Depending on the circumstances, examples of reasonable adjustments might include altering duties or working hours.

For more on the Equality Act and reasonable adjustments, download our pack from www.diabetes.org.uk/advocacy

TELLING PEOPLE AT WORK

You're not obliged to tell anyone at work about your diabetes, so it's up to you who you tell and don't tell. It does make sense, though, to tell your colleagues how to recognise and treat a hypo if you have one. You could also talk to your first-aider about your diabetes and make sure they know what to do in an emergency.

Telling your employer about your diabetes will help to make sure that they support time off for your diabetes-related healthcare appointments and courses. It's good for them to know that you take your health seriously and that you want to keep well. If you haven't told them about your diabetes, you may not be covered by the Equality Act or DDA.

SOURCES OF HELP

For more information on employment and diabetes, go to www.diabetes.org.uk/work

For help with an employment discrimination issue, contact the Advisory Conciliation and Arbitration Service (ACAS) helpline. Their advisors can give information on your rights and help you decide on your next steps – go to www.acas.org.uk or call **0300 123 1100**.

The Equality Advisory Support Service (EASS) can advise on what the Equality Act says and how it may apply in your situation – go to www.equalityadvisoryservice.com or call **0808 800 0082**.

If you're a member of a trade union you can get help from your union representative. You can also contact the Diabetes UK Advocacy Service – call **0345 123 2399** or go to www.diabetes.org.uk/advocacy



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LOOKING AFTER YOUR LONG-TERM HEALTH

By looking after yourself and keeping your diabetes under control, you can reduce the risk of long-term complications and stay healthy. There are steps you can take to look after yourself at home, and there are times you'll need more support from your diabetes healthcare team.

Once you learn how to manage your diabetes you should be able to live your life just as anyone else. But it's important to keep your diabetes under control, otherwise you could develop further health issues, called complications, which can be extremely serious. Here, we run through the possible diabetes complications, and give you some advice on how best to avoid them.

DIABETES COMPLICATIONS

Your 15 Healthcare Essentials (see page 21) include tests that should monitor and reduce your risk of developing diabetes complications. Contact your diabetes team immediately if you have any concerns.

Complications can include:

- heart attack
- stroke
- angina
- foot and leg amputation
- loss of vision and blindness
- nerve pain or numbness in the hands, arms, feet and legs
- kidney disease
- impotence
- sexual problems for women – loss of desire, arousal and orgasm, as well as pain during sex
- gut problems, like bowel control
- muscle weakness, wasting, twitching and cramps.

You can find out more about diabetes complications and how they're treated at www.diabetes.org.uk/complications

You and your diabetes team can help to reduce your risk of diabetes complications by keeping to your personal target ranges:

- blood glucose levels (also called blood sugar levels)
- blood fat levels
- blood pressure
- weight.

TOP TIPS

You can keep well and avoid complications by:

- 1 Learning more about your diabetes to help you manage it.
- 2 Eating a healthy, balanced diet.
- 3 Being physically active.
- 4 Stopping smoking, if you smoke.
- 5 Regularly monitoring your diabetes.
- 6 Having blood tests, screening tests and attending medical appointments.
- 7 Taking care of your feet.
- 8 Taking medication as prescribed.
- 9 Joining support networks.
- 10 Getting help if your mood is affecting how you look after your diabetes.

FEET FIRST

10 STEPS TOWARDS HEALTHY FEET

Take the first step towards healthy feet for life by putting your feet first.

- 1 **MAKE SURE THAT YOU ATTEND YOUR ANNUAL FOOT REVIEW** (For 12 years old +) where your bare feet will be examined by an appropriately trained person.
- 2 **KNOW YOUR RISK** At the end of your annual foot review, you should be told your risk of developing foot problems and if you will be referred.
- 3 **ARE YOUR FEET AT INCREASED OR HIGH RISK?** If so, make sure you have been referred to a specialist for expert advice.
- 4 **CHECK YOUR FEET EVERY DAY** for any signs of redness, pain, damage to the skin, swelling or build-up of hard skin. **Look for any changes in the shape of your feet.**
- 5 **BE AWARE OF ANY LOSS OF SENSATION IN YOUR FEET** Don't go barefoot and avoid extremes of temperature if you think you have lost feeling in any part of your feet.
- 6 **TOUCH THE TOES TEST** Ask a family member or friend to assess the feeling in your toes by doing a quick, easy test at home.
- 7 **LOOK AFTER YOUR TOENAILS** Don't cut down the sides of your nail as this could lead to ingrowing toenails. If you have any difficulty with your foot-care, ask to be put in touch with your local podiatrist (chiroprapist). *Note: you may have to pay for a nail cutting service.*
- 8 **AVOID USING CORN-REMOVING PLASTERS OR BLADES** of any kind as these may damage your skin.
- 9 **ALWAYS WEAR WELL-FITTING SHOES** that protect and support your feet and whenever possible don't wear shoes with bare feet.
- 10 **MAINTAIN GOOD GLUCOSE CONTROL** Good glucose control can prevent foot problems in the future by keeping the nerves and blood vessels that serve the feet healthy.

www.diabetes.org.uk/putting-feet-first

If you have any concerns about your feet, it is important that you contact your diabetes healthcare team as soon as possible.

Keep useful numbers handy and know who to call at the first sign of any new problem with your feet.

For more information visit www.diabetes.org.uk/putting-feet-first

PUTTING FEET FIRST

Taking care of your feet can make a real difference in reducing your risk of foot problems related to diabetes. Start with day-to-day footcare, including checking your feet and practising general hygiene.

CHECK YOUR FEET DAILY

People with diabetes are at much greater risk of developing problems with their feet, due to the damage high blood glucose levels (also called blood sugar levels) can cause to sensation and circulation. If left untreated, these problems can cause foot ulcers and infections – and at worst may lead to amputation. However, most foot problems are preventable with good, regular footcare.

Be aware of these issues with your feet, as they may indicate damage to your nerves:

- a tingling sensation
- pins and needles pain (burning)

- sweating less
- feet that are red and hot to the touch
- changes to the shape of your feet
- hard skin
- loss of feeling in your feet or legs.

Also be aware of these issues, as they may indicate damage to your blood supply:

- cramp in your calves (at rest or when walking)
- shiny, smooth skin
- loss of hair on your legs and feet
- cold, pale feet
- changes in the colour of your feet
- wounds or sores that won't heal
- painful or swollen feet.

If you notice any of these things, or have concerns about your feet, tell your GP or diabetes team immediately – don't wait until your yearly foot check.

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Take a look online at our wonderful selection of gifts for children and adults.

Remember, by buying from our shop you are helping us to improve the lives of people with diabetes. Shopping with us also raises valuable funds for over 130 active research projects to help reach our goal of a future without diabetes.



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DiABETES UK
CARE. CONNECT. CAMPAIGN

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ACTION POINTS

Check your feet every day.

Know who to call at the first sign of a foot problem.

Have a foot review with your diabetes team at least once a year, and find out your risk of foot problems.

Do the quick, easy 'Touch the toes test' in between appointments – go to www.diabetes.org.uk/touch-the-toes-test

HYGIENE

Wash your feet every day. Use soap and warm water, and check the temperature of the water before you put your feet in. Dry your feet carefully, especially between the toes. There's no advantage in soaking your feet: this just makes the skin soggy and increases the risk of damage.

Skin

Use an emollient cream – one that will soften and moisturise – to avoid dry skin. Most creams shouldn't be applied between your toes as this will make the area too moist and can lead to infections, like athlete's foot.

If you use talc between your toes, be careful not to use too much – it can clog and allow an infection to develop. A pumice stone may help with areas of hard skin, but use it with care. Never use a blade to remove hard skin. If you have a lot of hard, thick skin, get professional advice from a podiatrist. Never use corn-removal plasters as they contain acid, which can cause the skin to break down.

Nails

Remember, your nails are there to protect your toes. You need to cut them regularly, but don't cut them down the sides or too short. Trim your nails with a pair of nail clippers and use an emery board to file the corners. If it's difficult to care for your nails, get help from a podiatrist (you may have to pay for this service).

If your nail is rubbing on your shoe, it may be that the shoe is too short, rather than that the nail is too long.

Never clean the edges and sides of your nails using the sharp point of nail scissors – this is very dangerous. If your nails need clearing of dirt, simply use a nailbrush or an old toothbrush.

FOOTWEAR

Although you probably won't need to buy special or expensive shoes, it's important to choose the right footwear. Follow these guidelines and you should still be able to buy your footwear on the high street, and not spend too much.

Buy shoes that:

- are broad fitting
- have a deep and rounded toe area
- are flat or low-heeled
- are fastened by a lace or buckle to keep the heel in the back of the shoe, so your foot can't slide forward and crush your toes.



Shoes that don't fit well, even those that feel comfortable, can cause corns, calluses, ingrowing toenails, blisters and ulcers. If you have nerve damage or poor circulation, wearing unsuitable shoes can make even simple foot problems worse.

You can still wear fashionable shoes, trainers and boots: just make sure your feet aren't squashed, there are no rough edges inside the shoes and – if you're wearing high heels – that you don't wear them for too long.

TOP TIPS

Footcare

- 1 Don't use corn-removing plasters or blades, as these can damage healthy skin.
- 2 Always check the inside of your shoes for sharp objects or stones before putting them on, and replace ruffled innersole linings.
- 3 Avoid socks, stockings or tights with wrinkles or prominent seams. Also avoid garters, stockings or socks with elastic tops, because they may restrict your circulation.
- 4 Never wear socks with darned areas or holes.
- 5 Use a mirror to check the soles of your feet – or get someone else to do it for you.

Basal insulin

(bay-sul)

Also called background insulin, the insulin you take that works over most of the day.

Blood glucose levels

(Also called blood sugar levels), a measure of how much sugar is in the blood.

Blood glucose meter

A device that measures your blood sugar levels and stores the results of your blood glucose tests.

BMI

Body Mass Index, which shows your weight in relation to your height.

Bolus insulin

(bow-lus)

The insulin you take to cover the rise in your blood sugar level when you eat and drink.

Carbohydrate

The body's preferred source of energy, which is broken down into glucose.

Carbohydrate (carb) counting

A very effective way of managing diabetes by matching your insulin to what you choose to eat.

Cholesterol

(kol-est-er-rol)

A type of fat found in your blood: there are good types (HDL) and bad types (LDL).

Coeliac disease

(see-lee-ack)

A common autoimmune disease caused by a reaction to eating gluten, which damages the lining of the small intestine.

Complications

Health problems those with diabetes are at risk of developing in later life: these include damage to the kidneys, eyes and nerves, and heart disease.

Continuous glucose monitoring (CGM)

Measures blood sugar levels every few minutes using a sensor worn just under the skin.

Diabetes specialist nurse (DSN)

A nurse with a special expertise in diabetes who will usually provide advice and support between your appointments with things like blood sugar testing and adjusting your insulin.

Diabetic ketoacidosis (DKA)

(key-toe-ass-ee-doh-sis)

Where a build-up of ketones (poisonous chemicals) causes the body to become acidic: if not treated it can cause unconsciousness – and even death.

Diabetologist

(die-a-bet-ol-a-jist)

A doctor who specialises in diabetes and is usually based in a hospital clinic or specialist diabetes clinic. Diabetologists are sometimes based at your GP surgery or clinic.

Diabulimia

(die-a-bull-ee-me-a)

A type of eating disorder where you skip insulin to lose weight.

Dietitian

(die-a-tish-an)

An expert in food and nutrition, who will give you information and support to help you make changes

to your eating habits, if needed.

Everyone with diabetes should see a registered dietitian when they are diagnosed and for regular review.

Estimated glomerular filtration rate (eGFR)

(glow-mehr-you-lar)

A test to measure how well the kidneys are working.

Glucose

The main sugar in the blood, which the body uses for energy: the essential fuel for the body.

GP

The doctor with the overall responsibility for the care you receive. If they have a special interest in diabetes or are an expert, then they may play a bigger role in your care. If not, they may refer you to a diabetes clinic.

HbA1c test

A fingertip blood test or blood sample from the arm that measures your long-term sugar levels.

Hyperglycaemia (hyper)

(hy-per-gly-see-me-a)

When blood sugar levels are too high.

High Density Lipoprotein (HDL)

The 'good' type of cholesterol in your blood.

Hypoglycaemia (hypo)

(hy-poe-gly-see-me-a)

When your blood sugar levels drop too low (below 4mmol/l).

Insulin

The hormone that keeps the levels of glucose in your blood under control.

Insulin-to-carbohydrate ratio

The ratio used to calculate how much insulin you need to take for the amount of carbohydrate you're going to eat and drink.

Interstitial fluid

(in-ter-stish-ul)

The liquid found between the cells in the body.

Ketones

(key-tones)

Poisonous chemicals that can develop if there isn't enough insulin in your body to allow enough glucose to enter your cells: can lead to diabetic ketoacidosis (DKA).

Lancet

A finger-pricking needle used for getting a drop of blood to test blood sugar levels.

Low Density Lipoprotein (LDL)

The 'bad' type of cholesterol in your blood.

Millimoles per litre (mmol/l)

A measurement of the concentration of a substance in a given amount of liquid: expresses the amount of sugar in the blood.

NICE

The National Institute for Health and Care Excellence: this body decides the criteria for NHS funding, standards and services.

Ophthalmologist

(oph-thal-mol-a-jist)

A doctor who specialises in conditions that affect the eye. They will be involved with your retinal screening review and treatments, if necessary.

Pharmacist

(farm-a-sist)

Based in pharmacies or chemist shops. As well as giving you your prescription supplies, they may also provide you with a review of your medication and lifestyle advice.

Podiatrist

(poe-die-a-trist)

An expert in the foot and leg, and will check for – and manage – problems related to diabetes.

Practice nurse

A nurse based at your GP surgery and may support your diabetes care, depending on their specialist knowledge.

Psychologist

(sy-kol-a-jist)

An expert who will provide counselling to help you deal with any difficulties you're facing, especially with managing the effects and impact that diabetes has on your life.

Reasonable adjustments

The changes an employer must make to the way they would normally do things at work to allow for your diabetes.

Retinopathy

(ret-in-op-a-thee)

A condition where there's damage to the retina – the 'seeing part' of the eye.

Triglycerides

(try-gly-suh-rides)

A type of fat found in your blood.

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**Maran A et al.: Use of an integrated strip-free blood glucose monitoring system increases frequency of self-monitoring and improves glycemic control: Results from the ExAct study. *Journal of Clinical and Translational Endocrinology* 1 (2014) 161-166. DOI: 10.1016/j.jcte.2014.08.003.

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