



# Patient

## Type 2 Diabetes

Type 2 diabetes occurs mostly in people aged over 40 years. However, an increasing number of younger people, even children, are being diagnosed with type 2 diabetes.

The first-line treatment is diet, weight control and physical activity. If the blood sugar (glucose) level remains high despite these measures then tablets to reduce the blood glucose level are usually advised. Insulin injections are needed in some cases. Other treatments include reducing blood pressure if it is high, lowering high cholesterol levels and also using other measures to reduce the risk of complications.

### What is type 2 diabetes?

Type 2 diabetes tends to develop gradually (over weeks or months). This is because in type 2 diabetes you still make insulin (unlike in type 1 diabetes). However, you develop diabetes because:

- You do not make enough insulin for your body's needs; **or**
- The cells in your body do not use insulin properly. This is called insulin resistance. The cells in your body become resistant to normal levels of insulin. This means that you need more insulin than you normally make to keep the blood sugar (glucose) level down; **or**
- A combination of the above two reasons.

Type 2 diabetes is much more common than type 1 diabetes.

### Who develops type 2 diabetes?

Type 2 diabetes develops mainly in people older than the age of 40 (but can also occur in younger people).

- In England, about 1 in 10 people aged 45-54 years have diabetes and about 1 in 4 people aged over 75 years have diabetes.
- Type 2 diabetes is now becoming more common in children and in young people.
- 9 out of every 10 people with diabetes have type 2 diabetes.

The number of people with type 2 diabetes is increasing in the UK, as it is more common in people who are overweight or obese. It also tends to run in families. It is around five times more common in South Asian and African-Caribbean people (often developing before the age of 40 in this group). It is estimated that there are around 940,000 people in England with type 2 diabetes who have not yet been diagnosed with the condition. Other risk factors for type 2 diabetes include:

- Having a first-degree relative with type 2 diabetes. (A first-degree relative is a parent, brother, sister, or child.)
- Being overweight or obese.
- Having a waist measuring more than 31.5 inches (80 cm) if you are a woman or more than 37 inches (94 cm) if you are a man.
- Having pre-diabetes (impaired glucose tolerance). Impaired glucose tolerance means that your blood sugar (glucose) levels are higher than normal but not high enough to have diabetes. People with impaired glucose tolerance have a high risk of developing diabetes and so impaired glucose tolerance is often called pre-diabetes.
- Having diabetes or pre-diabetes when you were pregnant.

### What are the symptoms of type 2 diabetes?

As already mentioned, type 2 diabetes symptoms often come on gradually and can be quite vague at first. Many people have diabetes for a long period of time before their diagnosis is made.

The most common symptoms are:

- Being thirsty a lot of the time.
- Passing large amounts of urine.
- Tiredness.
- Weight loss.

The reason why you make a lot of urine and become thirsty is because blood sugar (glucose) leaks into your urine, which pulls out extra water through the kidneys.

As the symptoms may develop gradually, you can become used to being thirsty and tired and you may not recognise that you are ill for some time. Some people also develop blurred vision and frequent infections, such as recurring thrush. However, some people with type 2 diabetes do not have any symptoms if the glucose level is not too high. But, even if you do not have symptoms, you should still have treatment to reduce the risk of developing complications.

### **How is type 2 diabetes diagnosed?**

A simple dipstick test may detect sugar (glucose) in a sample of urine. However, this is not sufficient to make a definite diagnosis of diabetes. Therefore, a blood test is needed to make the diagnosis. The blood test detects the level of glucose in your blood. If the glucose level is high then it will confirm that you have diabetes. Some people have to have two samples of blood taken and may be asked to fast. (Fasting means having nothing to eat or drink, other than water, from midnight before the blood test is performed.)

It is now recommended that the blood test for HbA1c can also be used as a test to diagnose type 2 diabetes. An HbA1c value of 48 mmol/mol (6.5%) or above is recommended as the blood level for diagnosing diabetes. In many cases type 2 diabetes is diagnosed during a routine medical or when tests are done for an unrelated medical condition.

### **What are the possible complications of diabetes?**

#### **Short-term complication - a very high glucose level**

This is not common with type 2 diabetes. It is more common in untreated type 1 diabetes when a very high level of blood sugar (glucose) can develop quickly. However, a very high glucose level develops in some people with untreated type 2 diabetes. A very high blood level of glucose can cause lack of fluid in the body (dehydration), drowsiness and serious illness which can be life-threatening.

#### **Long-term complications**

If your blood glucose level is higher than normal over a long period of time, it can gradually damage your blood vessels. This can occur even if the glucose level is not very high above the normal level. This may lead to some of the following complications (often years after you first develop diabetes):

- Furring or 'hardening' of the arteries (atheroma). This can cause problems such as angina, heart attacks, stroke and poor circulation.
- Kidney damage which sometimes develops into chronic kidney disease.
- Eye problems which can affect vision (due to damage to the small arteries of the retina at the back of the eye).
- Nerve damage.
- Foot problems (due to poor circulation and nerve damage).
- Impotence (again due to poor circulation and nerve damage).
- Other rare problems.

The type and severity of long-term complications vary from case to case. You may not develop any at all. In general, the nearer your blood glucose level is to normal, the less your risk of developing complications. Your risk of developing complications is also reduced if you deal with any other risk factors that you may have, such as high blood pressure.

#### **Complications of treatment**

Hypoglycaemia (which is often called a 'hypo') occurs when the level of glucose becomes too low, usually under 4 mmol/L. People with diabetes who take insulin and/or certain diabetes tablets are at risk of having a hypo. Not all tablet medicines used for diabetes can cause a hypo.

A hypo may occur if you have too much diabetes medication, have delayed or missed a meal or snack, or have taken part in unplanned exercise or physical activity. To treat hypoglycaemia you should take a sugary drink or some sweets. Then eat a starchy snack such as a sandwich.

See separate leaflet called Dealing with Hypoglycaemia (Low Blood Sugar).

## Monitoring to detect and treat any complications promptly

Most GP surgeries and hospitals have special diabetes clinics. Doctors, nurses, dieticians, specialists in foot care (podiatrists - previously called chiropodists), specialists in eye health (optometrists) and other healthcare workers all play a role in giving advice and checking on progress. Regular checks may include:

- Checking levels of blood sugar (glucose), HbA1c, cholesterol and blood pressure.
- Ongoing advice on diet and lifestyle.
- Checking for early signs of complications - for example:
  - Eye checks - to detect problems with the retina (a possible complication of diabetes), which can often be prevented from becoming worse. Increased pressure in the eye (glaucoma) is also more common in people with diabetes and can usually be treated. Eye checks usually include taking photographs of the back of your eye (retinal photography) to see whether there are any problems.
  - Urine tests - which include testing for protein in the urine, which may indicate early kidney problems.
  - Foot checks - to help prevent foot ulcers.
  - Other blood tests - these include checks on kidney function and other general tests.

It is important to have regular checks, as some complications, particularly if detected early, can be treated or prevented from becoming worse.

## Immunisation

You should be immunised against flu (each autumn) and also against pneumococcal germs (bacteria) (just given once). These infections can be particularly unpleasant if you have diabetes.

## Further reading & references

- [Type 2 diabetes in adults: management](#); NICE Guidelines (December 2015, updated May 2017)
- [Management of diabetes](#); Scottish Intercollegiate Guidelines Network - SIGN (March 2010 - updated Sept 2013)
- [Diabetes - type 2](#); NICE CKS, July 2016 (UK access only)
- [Type 2 Diabetes Know Your Risk](#); Diabetes UK
- [Diabetes UK](#); Information prescriptions - living well.

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