

Diabetes Factsheet

What is diabetes?

Diabetes is a fairly common condition, with around 4 million diagnosed cases in the UK and an estimated 850,000 cases which are undiagnosed. This is around 6% of the UK population.

Diabetes occurs where the body is unable to use glucose properly and therefore builds up excess levels of glucose in the blood stream. This is caused by the pancreas not producing insulin (or producing insufficient amounts of insulin). Insulin is the hormone that lets glucose enter the body's cells and turn to energy.

Glucose is created by digesting carbohydrates as well as being produced by the liver. We get carbohydrates from many types of food and drink, most notably in starchy foods like bread and potatoes; as well as sugary sweet foods.

In cases of diabetes, the body cannot use the glucose properly and therefore builds it up in the blood stream as opposed to turning it into the body's fuel.

Type of diabetes

There are two types of Diabetes:

Type 1 Diabetes occurs where the body is unable to produce insulin. People with Type 1 have to inject insulin into their body. Most people with Type 1 Diabetes are healthy when they develop the disease and it is a disease that can affect children as well as adults.

Type 2 Diabetes is more common than Type 1. Type 2 Diabetes occurs where the body becomes insulin resistant - because the cells are unable to properly use the insulin produced and/or the body creates less insulin. When someone's blood sugar levels are higher than expected, but lower than the levels found in Type 2 diabetes, they are classed as having pre-diabetes. The challenge for people with pre-diabetes is to manage their

blood sugar levels so as to avoid escalation of their condition to Type 2 diabetes.

Signs of diabetes

The three main signs of diabetes are:

- The need to urinate often
- Increased thirst
- Increased appetite

These signs tend to develop quickly for Type 1 Diabetes but can be much harder to detect and develop slower in cases of Type 2 Diabetes.

Symptoms of Type 1 Diabetes

There are a number of symptoms which are most commonly observed in cases of Type 1 Diabetes including:

- Excessive thirst. A regular and unusual feeling of being very thirsty
- Unusually high levels of urination
- Feeling tired all the time
- Loss of muscular bulk and weight loss
- Regular thrush
- Itchiness around the penis or vagina
- Blurring of vision (caused by dryness of the eyes)
- Unexpected cramping
- Feeling constipated

Symptoms of Type 2 Diabetes

These differ slightly from those seen in Type 1 and include:

- Frequent urination to an excessive level
- Constantly feeling thirsty
- Constantly feeling tired
- Vision blurring
- Itching of the skin, particularly around genitals
- Sudden weight change

Causes of diabetes

Type 1 Diabetes

In type 1 diabetes, the cells in the pancreas that make insulin are destroyed, causing a severe lack of insulin. This is usually thought to be the result of the body attacking and destroying its own cells in the pancreas, known as an autoimmune reaction.

It isn't clear why this happens, but a number of explanations and possible triggers have been proposed. These include:

- Infection with a specific virus or bacteria
- Exposure to food-borne chemical toxins
- Exposure as a very young infant to cow's milk, where an as yet unidentified component triggers the autoimmune reaction

However, these are only hypotheses and are not proven causes.

As with other autoimmune diseases, an underlying genetic disposition seems to play a part, leaving some people more vulnerable to these triggers.

In rare cases, damage to the pancreas by tumours, toxins or injury (including surgery), can also lead to type 1 diabetes.

Type 2 Diabetes

Development of type 2 diabetes is usually a result of several factors. The most important of these is genetics.

The following risk factors increase the chances of someone developing type 2 diabetes:

- Increasing age
- Obesity
- Physical inactivity

Rarer causes of type 2 diabetes include:

- Certain medicines
- Pregnancy (gestational diabetes)

- Any illness or disease that damages the pancreas and affects its ability to produce insulin, such as pancreatitis

Diagnosis

The first stage is to contact your GP. Often, they will diagnose Type 2 Diabetes by observing the symptoms of diabetes (especially excessive urination and thirst).

- They may also use one of three potential screening tests:
- Random blood glucose tests
- Fasting blood glucose tests
- Oral glucose tolerance tests

Treating Diabetes

The good news is that diabetes can be managed. A healthcare team can help you set a regime to manage the disease.

Such regimes will aim to keep the blood sugar levels at 'normal' levels (or as close as possible).

For both types of diabetes, such regimes are likely to consist of:

- A healthy diet
- A regular exercise routine
- Insulin injections
- Home blood sugar tests several times a day

However, the extent to which each of the 'management' levers are used will vary from person to person.

Medication

There are a wide range of medications used for diabetes. These fall into seven main categories of drugs:

- **Biguanide:** helps to stop the liver producing new glucose & helps to overcome insulin resistance by making insulin carry glucose into muscle cells more effectively.

- **Sulphonylureas:** stimulates the cells in the pancreas to make more insulin.
- **Alpha glucosidase inhibitor:** slows down the absorption of starchy foods from the intestine.
- **Prandial glucose regulators:** stimulates the cells in the pancreas to produce more insulin.
- **Thiazolidinediones (glitazones):** reduces insulin resistance and improves insulin sensitivity, allowing the insulin that the body produces to work more effectively.
- **Incretin mimetics:** increases the levels of hormones called 'incretins'. These hormones help the body produce more insulin only when needed and reduce the amount of glucose being produced by the liver when it's not needed. Also reduce the rate at which the stomach digests food and empties, and can also reduce appetite.
- **DPP-4 inhibitors (gliptins):** blocks the action of DPP-4, an enzyme which destroys the hormone incretin. Incretins help the body produce more insulin only when it is needed and reduce the amount of glucose being produced by the liver when it is not needed.

Practical ways to manage diabetes

Lifestyle advice for people with diabetes is similar to that offered to most people, though its arguably more important for people with diabetes.

- Eat food high in fibre and with a low glycaemic index (where energy is released slowly). Examples include porridge, brown rice, lean meat, fish and vegetables.
- Take regular exercise. It only has to be moderate exercise: a 20 minute walk several times a week should be plenty.