



# Understanding diabetes

## What is diabetes?

Diabetes is a condition where there is too much glucose (a type of sugar) in your blood. Your blood glucose level is regulated with the help of insulin, a hormone (or chemical messenger) made in the pancreas. Insulin is the key that glucose needs to enter your body's cells so that it can be used as fuel. You use that fuel to breathe, eat, think, walk, talk, etc. Diabetes develops when the pancreas stops producing insulin (type 1 diabetes) or when your body does not respond properly to insulin (type 2 diabetes).

## Types of diabetes

**Type 1 diabetes** occurs in around one in 10 cases of diabetes. It often develops in people under the age of 30 but it can happen at any age. Only a small number of people who have the genes associated with type 1 diabetes will develop the condition. Research is still being conducted to find what triggers diabetes in susceptible people, but certain viruses or toxins are thought to be involved.

**Type 2 diabetes** is the most common form of the condition and usually occurs in people over the age of 30. However, it may develop in overweight teenagers and children with a family history of diabetes. This type of diabetes often runs in the family and can be triggered by aspects of lifestyle such as eating habits and inactivity. People with type 2 diabetes are more likely to carry excess weight around the waist and to have high blood pressure. They are also more likely to have raised cholesterol and heart disease.

**Gestational diabetes** is a temporary form of diabetes that occurs during the second half of pregnancy, when certain hormones stop insulin from working properly. It is usually detected during a routine screening test at around 28 weeks.

Gestational diabetes is usually treated with healthy eating alone, although some women may require insulin injections.

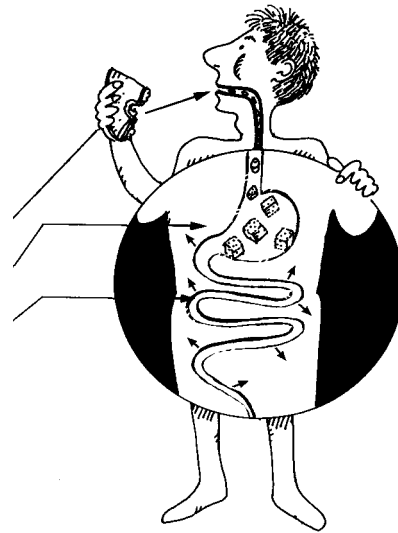
Women who have had gestational diabetes are at high risk of developing permanent diabetes later in life, so annual blood glucose checks are advised. Type 2 diabetes can often be prevented through healthy eating, physical activity and controlling weight.

## How your body controls glucose

We can get a better understanding of diabetes by looking at how the body controls glucose in people *without* diabetes:

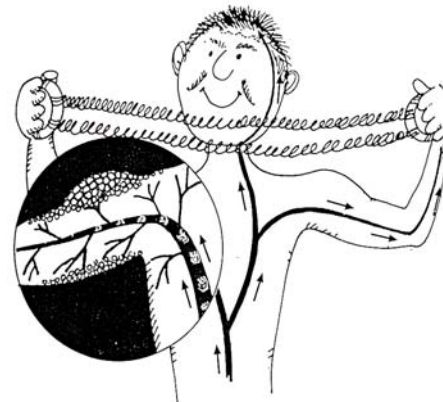
When food is eaten, it passes through your mouth, stomach and small intestine to be broken down so it is small enough to be absorbed into the blood stream.

Glucose comes from carbohydrate foods such as pasta, fruit, vegetables, bread and cereals.

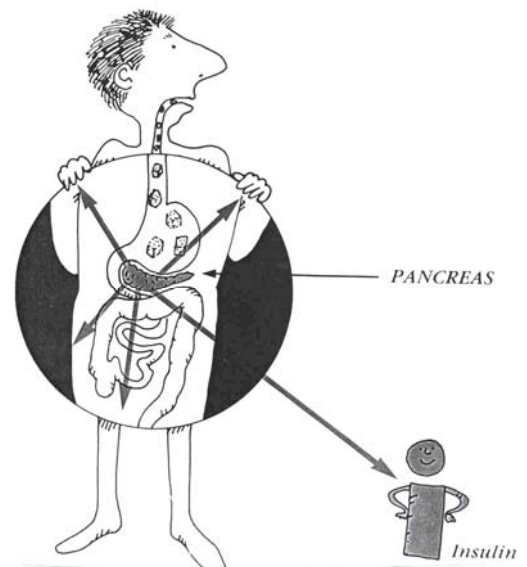


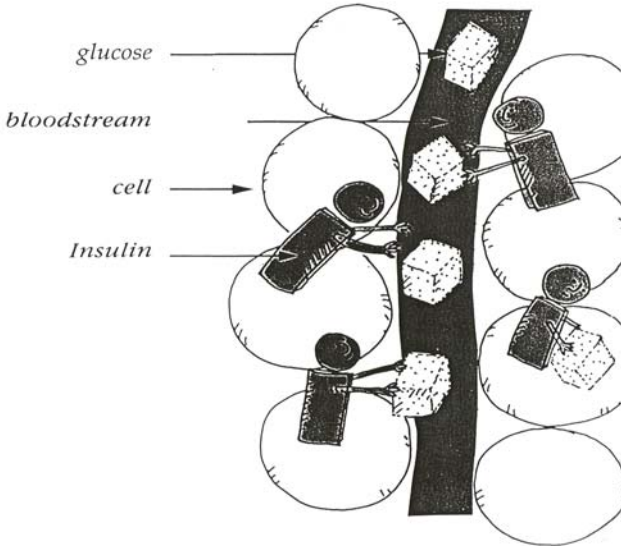
Glucose is absorbed from the small intestine into the blood stream.

The blood stream carries the glucose all parts of the body where it is used for energy

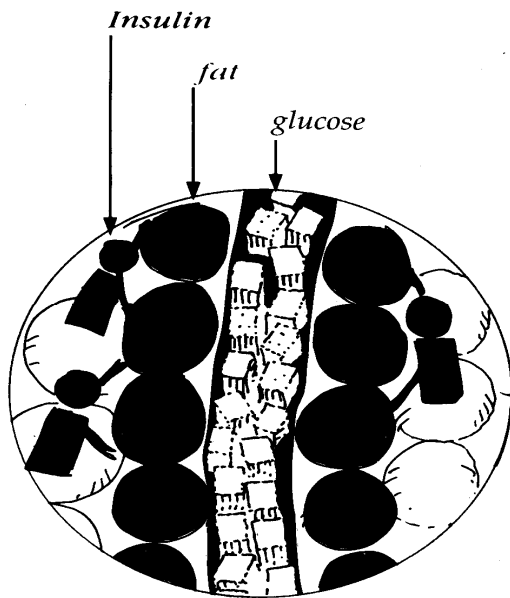


Glucose can only enter most body cells with the help of insulin, which is made in the pancreas.

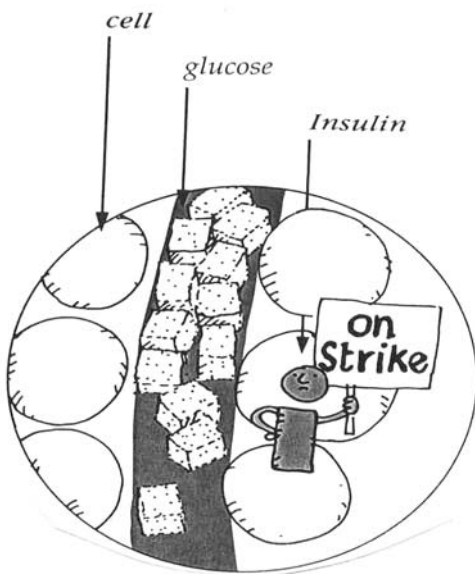




As the blood glucose level rises after eating, the pancreas releases insulin into your blood. Insulin allows glucose to enter your cells where it is used for energy. This lowers the blood glucose level.



People with type 2 diabetes have **insulin resistance**, where insulin is present but the cells of the body don't respond properly to insulin, in order to take up glucose. Later on, there can also be a problem with insulin production



**Type 1 diabetes** occurs when the body's immune system eventually destroys the cells in the pancreas that make insulin

## How do you know if you have diabetes?

Unless blood glucose levels are very high, symptoms may not occur. That's why it is common for people to have diabetes and not know it. Blood glucose levels (BGL) are measured in millimols per litre (mmol/L). The normal BGL is between 3.5 and 7.8 mmol/L. If the blood glucose level reaches about 15 or more, symptoms of diabetes may occur, including:

- thirst
- frequent urination
- tiredness or lack of energy
- blurred vision
- slow healing
- infections (eg thrush)
- weight loss (in type 1 diabetes)

Diabetes is diagnosed by measuring the level of glucose in the blood. This should be performed by a pathology laboratory. Blood glucose meters used for monitoring are not accurate enough for diagnosing diabetes. Fasting glucose levels over 7 mmol/L or a random level over 11 mmol/L indicate that diabetes is present.

## Understanding diabetes complications

Diabetes can cause problems to many parts of the body. These complications usually do not occur until many years after diabetes develops, although sometimes they can be present at the time of diagnosis of type 2 diabetes, if it has been undetected for some time. Complications of diabetes include:

- damage to eyes (retinopathy), nerves (neuropathy) and kidneys (nephropathy)
- heart disease (angina or heart attack), stroke and circulation problems
- impotence (sexual difficulties)
- foot ulcers or infections resulting from circulation and nerve damage

Not everyone with diabetes will develop complications, and we are not entirely sure why some people develop more problems than others. The length of time living with diabetes, persistently high blood glucose levels, genetic make-up, smoking, high cholesterol and blood pressure are factors that can increase the likelihood of developing complications. If blood glucose, cholesterol and blood pressure levels are kept within the normal range, the risk of damage to your body is reduced.

### Tips for staying well with diabetes

- Be physically active and eat healthy foods
- Control your weight
- Take your medication regularly
- Don't smoke
- Have regular medical checks, including blood pressure, eyes, kidneys and feet
- Monitor your blood glucose control
- Early treatment can help to prevent or slow down the progress of complications.