

# what is diabetes?

**Diabetes is the name given to a group of different conditions in which there is too much glucose (sugar) in the blood. The pancreas either cannot make insulin or the insulin it does make is not enough and cannot work properly. Without insulin doing its job, glucose builds up in the blood leading to high blood glucose levels which can lead to complications.**

## Here is what happens

- The body needs a special sugar called glucose as its main source of fuel or energy. The body gets glucose from foods containing carbohydrate such as breads, breakfast cereals, rice, pasta, potatoes, milk, yoghurt and fruit.
- The glucose is carried around the body in the blood – the level should not go too high or too low. When the glucose goes above a certain level, some has to move out of the blood and into the body tissues to supply the energy the cells need to keep your body working properly. Some glucose is also stored in the liver (like you would store food items in the kitchen pantry) so that it can be used later if needed. When the glucose level drops too low, some of the glucose stored in the liver is released into the blood to bring the level back up again.
- Insulin is a hormone made by the pancreas, a gland sitting just below the stomach. Insulin is like a key that opens the “doors” (glucose channels) of the body cells and allows the glucose to move from the blood into the cells where it can be used for energy. This process is called glucose metabolism.
- In diabetes, the pancreas either cannot make insulin or the insulin it does make cannot work properly.
- Without insulin doing its job, the glucose channels are shut. Glucose builds up in the blood leading to high blood glucose levels which can lead to complications from diabetes.

**There are two main types of diabetes. Type 1 is less common usually affecting children and young adults but it can occur at any age. Type 2 accounts for 85–90% of all diabetes and can be affected by lifestyle choices. It usually occurs in adults but younger people and even children are now developing the condition.**



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## Are there different types of diabetes?

There are two main types of diabetes – type 1 and type 2.

### Type 1

This used to be called insulin dependent diabetes or juvenile diabetes. However this was confusing as many people with type 2 diabetes also need insulin to manage their diabetes.

While type 1 diabetes can and does occur at any age, it's usually diagnosed in children and young adults. Type 1 diabetes is the less common form of diabetes, affecting just 10–15% of all people with diabetes.

In type 1 diabetes, the pancreas cannot produce enough insulin because the cells that make the insulin have been destroyed by the body's own immune system. This insulin must be replaced. Therefore people with type 1 diabetes must have insulin every day to live. At present insulin can only be given by injection or by infusion via an insulin pump, but other methods of getting it may be possible in the future.

### Who is most likely to develop type 1 diabetes?

We don't yet know the exact cause of type 1 diabetes but we do know it has a family link. However it can only occur when something such as a viral infection triggers the immune system to destroy the insulin-making cells in the pancreas. This is called an autoimmune reaction.

While the cause of type 1 diabetes has nothing to do with lifestyle, a healthy lifestyle is very important in helping to manage the condition.

### Can type 1 diabetes be prevented or cured?

While a great deal of research is being done, at this stage nothing can be done to prevent or cure type 1 diabetes.

## Type 2

This used to be called non-insulin dependent diabetes or mature-age onset diabetes. It is by far the most common form, occurring in 85–90% of all people with diabetes.

While adults are usually affected, more and more younger people, even children, are now developing type 2 diabetes.

Lifestyle choices can contribute to the development of type 2 diabetes. It is strongly associated with high blood pressure, abnormal blood fats and the classic 'apple shape' body where there is extra weight around the waist.

People with type 2 diabetes are usually insulin resistant. This means that their pancreas is making insulin but the insulin is not working as well as it should. The pancreas responds by working harder to make more insulin. Eventually it can't make enough to keep the glucose balance right and blood glucose levels rise.

Adopting a healthy lifestyle may delay the need for tablets and/or insulin. However it is important to know that if you do need tablets and/or insulin, this is just the natural progression of the condition. By taking tablets and/or insulin as soon as they are needed, the risk of developing complications caused by diabetes can be reduced.

### **Who is most likely to develop type 2 diabetes?**

While there is no single cause for developing type 2 diabetes, there are well known risk factors. Some of these can be changed and some cannot.

#### **RISK FACTORS WHICH CANNOT BE CHANGED**

People who are most likely to get type 2 diabetes often have these risk factors:

- A family history of diabetes
- Age – the risk increases as we get older
- Are from Aboriginal or Torres Strait Islander background
- Are from ethnic backgrounds more likely to have type 2 diabetes such as Melanesian, Polynesian, Chinese or people from the Indian sub-continent.
- Women who have:
  - > given birth to a child over 4.5kg (9lb) or had gestational diabetes when pregnant
  - > a condition known as Polycystic Ovarian Syndrome (PCOS).

#### **RISK FACTORS WHICH CAN BE CHANGED**

- Lifestyle
  - > level of physical activity
  - > the type of food we eat
- Weight
  - Blood pressure
  - Cholesterol
- Smoking

### **Can type 2 diabetes be prevented?**

People at risk of type 2 diabetes can delay and in some cases even prevent it by following a healthy lifestyle. This includes regular physical activity, making healthy food choices and achieving a healthier body weight, especially if they have been told that they have risk factors for diabetes.

## What are the conditions linked to an increased risk of type 2 diabetes?

Impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) – often referred to as pre-diabetes – are conditions in which blood glucose levels are higher than normal but not yet high enough to diagnose diabetes. Another common condition linked to an increased risk of type 2 diabetes is gestational diabetes.

### 1. Impaired Fasting Glucose

This condition is diagnosed when the fasting\* blood glucose level (usually blood is taken from the arm) is higher than normal but after a sweet drink containing 75 grams of glucose (Oral Glucose Tolerance Test) the level is not high enough to be called Impaired Glucose Tolerance or diabetes.

### 2. Impaired Glucose Tolerance

This condition is diagnosed when the results of an Oral Glucose Tolerance Test show a blood glucose level of 7.8mmol/L to 11mmol/L two hours after having the sweet drink.

#### **Who is most likely to get these conditions?**

These conditions are most common in people who have a family history of type 2 diabetes, are inactive and overweight. People who carry excess weight around the waist are at the greatest risk.

### 3. Gestational diabetes

Gestational diabetes occurs during pregnancy and usually resolves after the baby is born. In pregnancy, the placenta makes hormones that help the baby to grow and develop. Gestational diabetes occurs because these hormones also block the action of the mother's insulin. This is called insulin resistance.

The pregnant woman needs extra insulin so the glucose can get from the blood into the cells where it is used for energy. When a woman is pregnant, she needs 2 or 3 times more insulin than normal. If the body is unable to produce this extra insulin, diabetes develops. When the pregnancy is over and the woman's insulin needs return to normal, the diabetes usually resolves but often returns later in life.

#### **Who is most likely to get gestational diabetes?**

From 5 to 11% of all pregnant women will develop gestational diabetes most commonly around the 24th to 28th week of pregnancy. Those most at risk include women over 30 who have a family history of type 2 diabetes and are overweight. Women of Aboriginal or Torres Strait Islander background are at increased risk as are women from certain ethnic groups including Indian, Vietnamese, Chinese, Middle Eastern, Polynesian/ Melanesian and African women.

Refer to the *Gestational Diabetes* information sheet.

\* *Fasting* means having nothing to eat or drink for eight hours before the test is done. Refer to the *Pre-diabetes* information sheet.

## What are the main symptoms of diabetes?

In type 1 diabetes, symptoms are often sudden and can be life-threatening, therefore it is usually diagnosed quite quickly. In type 2 diabetes, many people have no symptoms at all, while other signs can go unnoticed because they are seen as part of 'getting older'. Therefore, by the time symptoms are noticed, complications of diabetes may already be present.

### Common symptoms include:

- Being more thirsty than usual
- Feeling tired and lethargic
- Having cuts that heal slowly
- Blurred vision
- Weight changes
- Headaches
- Pain or tingling in the legs or feet
- Going to the toilet more often, especially at night
- Always feeling hungry
- Itching, skin infections or rashes
- Unexplained weight loss (type 1)
- Mood swings
- Feeling dizzy

## How is diabetes managed?

In type 1 and type 2 diabetes, the aim of diabetes management is to get your blood glucose levels as close as possible to recommended target ranges.

For people with type 1 diabetes: insulin injections every day plus leading a healthy lifestyle.

For people with type 2 diabetes: healthy eating and regular physical activity may be all that is required at first, although adding tablets and/or insulin is commonly required later on.

Keeping blood glucose levels as close to recommended target ranges as possible will help prevent the short term effects of very low or very high blood glucose levels as well as the possible long term complications from diabetes. These can affect the eyes, kidneys and nerves. Refer to the *Blood Glucose Monitoring* information sheet.

Keeping your blood pressure and cholesterol within recommended ranges also helps to prevent cardiovascular complications from diabetes like heart attack and stroke.

## What blood glucose target ranges do I aim for?

	Type 1 diabetes	Type 2 diabetes
General blood glucose target ranges	4–6mmol/L before meals Less than 10mmol/L after meals*	6–8mmol/L before meals 6–10mmol/L after meals*

\* 2 hours after starting a meal.

It is recommended you talk to your doctor and diabetes care team about your individual target ranges.

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## Who will help?

A lifelong condition like diabetes is best managed with the support of a diabetes care team, of which you are the most important member. Other members include your doctor, credentialed diabetes educator, accredited practising dietitian and registered podiatrist. Depending on your needs, the team may also include medical specialists, accredited exercise physiologists and counsellors.

Your team will help you to learn all you need to know about your diabetes.

They will be there to support you and with their guidance you will soon become confident about making day-to-day decisions for a fit and healthy life.

## Basic guidelines for looking after your diabetes

There are many steps you can take to care for your diabetes. Here are some tips:

- Link up with the diabetes team in your area. In some cases, your doctor may need to refer you.
- Test your blood glucose levels regularly.
- If you need diabetes medication always take it as prescribed by your doctor.
- If your doctor gives you tablets to help manage your diabetes, blood pressure and/or cholesterol, be sure to take them as prescribed.
- Be as active as you can as often as possible.
- Follow a healthy eating plan.
- Achieve and maintain a healthier body weight and shape (refer to the *Less Weight, Healthier Shape* information sheets).
- Keep a positive mental attitude.
- Don't be afraid to ask for help as soon as you feel you need it.

### Would you like to join Australia's leading diabetes organisation?

- > Dietary services
- > Free magazines
- > Children's services
- > Educational literature
- > Product discounts
- > Support groups

For more information phone **1300 136 588** or visit your State/Territory Organisation's website:

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