WHAT IS DIABETES?

Diabetes is a condition where the body is unable to automatically regulate blood glucose levels, resulting in too much glucose (a sugar) in the blood.

Glucose comes from foods that contain carbohydrate (starches and sugars); for example, breads and cereals, milk and dairy foods, fruits and some vegetables and travels to the muscles and other organs where it is used as fuel. Excess glucose is detoured to the liver where it may be stored for future use. Glucose is the body's preferred source of energy and our bodies need it to work efficiently, just like a car needs petrol to run.

The 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 the body's cells so that it can be used as fuel. Diabetes develops when the pancreas stops producing insulin (Type 1 diabetes) or when the body does not respond properly to insulin (Type 2 diabetes). Insulin injections are necessary to treat Type 1 diabetes. Type 2 diabetes can usually be controlled in the first instance by regular exercise and diet. Tablets and eventually insulin injections may be needed as the disease progresses. The normal blood glucose level ranges between 3.5-7.8 mmol/l.

Over time, high blood glucose levels may damage blood vessels and nerves. These complications of diabetes can cause damage to eyes, nerves and kidneys and increase the risk of heart attack, stroke, impotence and foot problems. This damage can happen before an individual knows if they have diabetes.

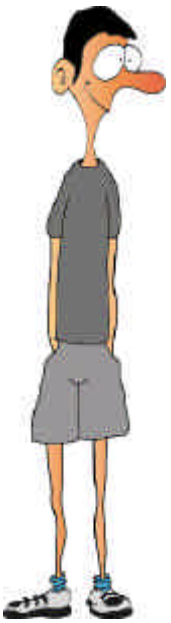
Studies have shown that if blood glucose and cholesterol levels, and blood pressure are kept within normal limits, the risk of damage to the body is reduced. Therefore, it is important to know if a person has diabetes.

The symptoms of diabetes include:

- Thirst
- Frequent urination
- Tiredness or lack of energy
- Blurred vision
- Infections (eg. Thrush)
- Weight loss (in Type 1 diabetes)

However, the symptoms of diabetes may not appear until blood glucose levels are above approximately 15mmol/l or higher. So, it is common to have diabetes without knowing about it.

In Australia, one adult in twelve has diabetes and the prevalence is increasing. Research has shown that for every person with known diabetes, there is another who has it but has not yet been diagnosed.



TYPE 1 DIABETES

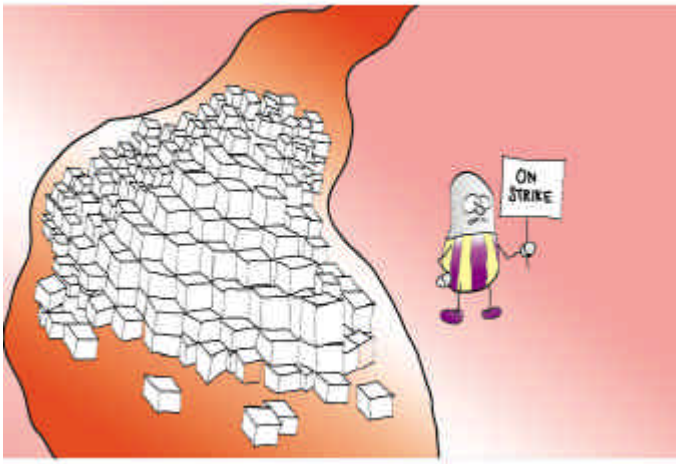
Type 1 diabetes occurs in about 10-15% of all cases of diabetes. It usually occurs in people under the age of 30, but can happen at any age.

Type 1 diabetes occurs when the body's immune system eventually destroys the cells of the pancreas that produce insulin (autoimmune response). Specific antibodies may be present in the blood during this time. This process may take several years. It is thought that a virus or chemical may trigger this reaction in people who have a genetic predisposition. Only a small number of people have this genetic risk.

What happens in the body with Type 1 diabetes?

The pancreas no longer makes insulin and so the glucose cannot enter the muscle and other body cells, resulting in a rapid build up of glucose and ketones in the blood stream. The kidneys attempt to wash this excess glucose out of the body so there is an increase in urine produced, and the person becomes very thirsty.

If glucose cannot be used by the cells, the body breaks down fat as an alternative energy source. By-products of fat breakdown are chemical called ketones. If too many ketones accumulate in the blood stream they can cause serious illness, and is a medical emergency.



The onset of Type 1 diabetes may be quite sudden and often the person has rapid and unplanned weight loss over several weeks. In adults it may appear more slowly.

How is Type 1 diabetes treated?

Replacement of insulin via injections (usually several times a day), balanced with healthy eating and guided by regular monitoring of blood glucose levels.

Regular visits to the doctor and other health care professionals (diabetes nurse educator, dietitian and podiatrist.)

TYPE 2 DIABETES

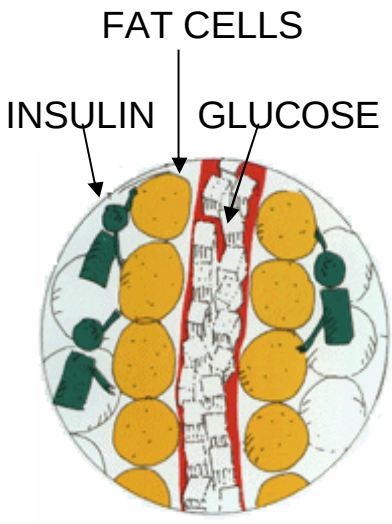
The majority of people with diabetes have Type 2 diabetes. This type of diabetes usually occurs in people over 30 years of age but it may occur in overweight teenagers and children with a family history of diabetes. Diabetes often runs in the family and can be triggered by aspects of lifestyle such as overweight 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. This is called the "metabolic syndrome"

What happens in the body with Type 2 diabetes?

Initially insulin is still produced by the pancreas, but is less effective than normal. This is called **insulin resistance** and is an inherited characteristic made worse by carrying extra body fat**.** Because insulin is necessary for glucose to move from the blood stream into the body cells and the liver, excess glucose remains in the blood stream resulting in higher than normal blood glucose levels (BGLs).

After several years of diabetes, the pancreas may become "exhausted" and produce less insulin.



How is Type 2 diabetes treated?

The aim of treatment is to control blood glucose levels and to prevent long term problems associated with diabetes such as heart disease.

Healthy eating and physical activity are the first steps to getting blood glucose levels and blood pressure under control. If blood glucose levels are not well enough controlled with diet and exercise, anti-diabetic tablets may be necessary. Many people with Type 2 diabetes will also require insulin injections at some stage to manage their diabetes.

SUMMARY

- Diabetes is a condition in which the level of glucose in the blood is elevated.
- Diabetes can cause damage to many parts of the body, resulting in heart attack, stroke, foot problems, impotence, kidney and eye damage. Treatments are available, but prevention is preferred.
- Insulin (made in the pancreas) allows glucose to enter the cells to be used as energy.
- Type 1 diabetes occurs when the body destroys its own insulin producing cells in the pancreas (an autoimmune response). The pancreas no longer makes insulin therefore glucose cannot enter the cells, so it stays in the bloodstream. The blood glucose level becomes too high and symptoms occur.
- Treatment for Type 1 diabetes involves multiple daily insulin injections together with healthy eating.
- Type 2 diabetes occurs when insulin does not work effectively (insulin resistance). Physical activity and healthy eating are necessary to keep blood glucose levels within normal. Tablets or insulin may be necessary if diabetes is not well controlled.
- Unless the blood glucose levels are very high, symptoms may not occur, so many people with Type 2 diabetes may not be aware they have diabetes.
- If symptoms occur, there may be thirst, tiredness and/or frequent urination. Some people experience other symptoms, such as blurred vision, thrush infection, and weight loss.

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