Diabetes

Diabetes is a disease in which your blood glucose or sugar levels are too high. As everyone knows insulin is the hormone that helps glucose to get into cells to give them energy, thus diabetes also means that your body does not produce or use insulin properly.

What causes different types of diabetes?

Diabetes can be classified as three different types: prediabetes, type-1 diabetes, type-2 diabetes and gestational diabetes. There are also a number of risk factors, including weight, age, family history, pregnancy, smoking and alcohol.[1]

Prediabetes means that your blood sugar level is slightly higher than normal but not high enough to officially say that as diabetes. It puts you in a higher risk of getting type-2 diabetes, but if can also prevent and delay the onset of type-2 diabetes by simply changing your lifestyles, such as keeping a balanced and healthy diet and exercising regularly.

Type-1 diabetes occurs when your body does not make any insulin. It is sometimes referred as juvenile diabetes as they are more likely to be discovered in children and teenagers, rather than in adults. This is caused by immune system attacking and destroying the cells in the pancreas that make the insulin.

Type-2 diabetes are the most common among the three types in which the body does not make or use insulin as well as they should be. This means either the pancreas is not making enough insulin, or the body cells are not using insulin properly (insulin resistance). In this case, glucose build up in your blood instead of moving into the cells, leading to serious health problems, such as diabetic neuropathy (nerve damage), diabetic retinopathy (eye problems) and diabetic nephropathy (kidney damage). Adults are used to be the major group of people that suffered from it, however, the number of children that are diagnosed has been increasing recently due to oversight and obesity.

Gestational diabetes is a condition when your blood sugar levels become high during pregnancy because pancreas do not send out enough insulin. It can be grouped into two categories: A1 and A2. A1 can manage it easily through diet and exercise while those in A2 require taking insulin or other related medications. People get recovered after giving birth, but there is a possibility that it may affect the health of baby, increasing the risk of getting type-2 diabetes. Therefore, it should be treated as soon as possible.

What else?

Monogenic diabetes, such as neonatal diabetes (occurred in the first 6 months of life) and maturity-onset diabetes of the young, MODY, (diagnosed during adolescence or early adulthood) are caused by mutations in a single gene. These make the pancreas less able to make insulin.
Cystic fibrosis produces thick mucus that causes scarring in the pancreas, and therefore prevent the pancreas from producing enough insulin.
Hemochromatosis is a disorder where too much iron builds up in your body and this may damage the pancreas and other organs.

Symptoms of diabetes

Symptoms of course vary from person to person. People could find it hard to know whether they have diabetes since there are only a few symptoms in the early stages. The common symptoms are extreme hunger or thirst, frequent urine, blurry vision, fatigue, etc. People who have type-2 diabetes

may also show signs of insulin resistance, including high blood pressure and skin darkening around neck or even nausea and shortness of breath in more serious and uncontrolled cases.

How is diabetes diagnosed?

There are two types of blood sugar tests which people can do. Fast blood sugar test is done in the morning after an 8-hour fast (without any water and food intake). You will be inserted a small needle into your vein in your arm to withdraw blood. The blood will then be sent for testing. If the blood sugar level is 126mg/dL or higher indicates diabetes, and most doctors will repeat the test to reconfirm it. Random blood sugar test could be done in anytime without fasting needed. In general, if the blood glucose levels reach or exceeded 200mg/dL, it suggests there's diabetes.

In an oral glucose tolerance test, you will drink a beverage containing an accurate of 75g of glucose dissolved in water. The amount of glucose in your blood will then be measured after two hours. Having blood glucose level 200mg/dL or above shows diabetes.

A1C blood test shows figures about the average levels of blood sugar of a person over the past 3 months. 5.7% shows normal; Prediabetes is between 5.7 and 6.4%; type-2 diabetes is above 6.5%.

How is diabetes treated?

Diabetes cannot be cured but it can either be prevented or be controlled.
Exercising at least 30 minutes in most days of the week to lower your blood glucose level and maintain healthy body weight help reduce the risk of diabetes. Having a diet high in fibre, low in fat, cholesterol, salt and sugar, also helps. It is important to eat at least 3 meals per day regularly in order to make the sugar levels stable and steady as well.

If those above does not significantly control diabetes, medicine or insulin will be recommended by doctors. People who have type-2 diabetes are usually given oral medicine that allows your body to produce more insulin more efficiently. People who have type-1 diabetes or some type-2 diabetes sufferers are required to undergo insulin therapy where insulin is injected into the body through a syringe, pump or with insulin pen.

People also need to monitor their blood sugar level regularly using blood glucose meter. This involves pricking your finger for blood and put a test strip on the blood to get the results. Continuous glucose monitoring (CGM) is also a way that involves a tiny sensor inserted under your skin. It then measures glucose levels in the fluids between your body's cells every few minutes and record the changes in throughout the whole day.

Any other options?

Bariatric surgery is a metabolic surgery that help people with obesity and diabetes by losing large amount of weight and regain normal blood glucose levels. An artificial pancreas can also replace manual blood glucose testing and the use of insulin pumps. The hybrid closed-loop system is used to monitor blood sugar levels throughout the day and provide the suitable amount of insulin automatically and remotely. However, the amount needed is still manually adjusted at the moment.