# What is diabetes?

Diabetes is a chronic metabolic medical condition that can affect the entire body and occurs when there is a partial or complete failure to maintain blood sugar (glucose) levels within the normal range. One of the main factors is an absolute or relative lack of insulin in the body and/or lack of effectiveness of insulin (insulin resistance). Insulin is a hormone secreted by special cells (Islets of Langerhans) in the pancreas that helps glucose from food enter the cells to be used for energy and for excess glucose to be stored away for use later.

**What symptoms could I or someone I know have with diabetes?**

Diabetes can lead to a multitude of symptoms as it can affect multiple parts of the body. Typically, people presenting with diabetes which is undiagnosed can have symptoms such as increased fatigue, feeling more thirsty and drinking more and needing the toilet more often to pass urine ('3 Ts'- Tired, Thirsty, Toilet). Other symptoms may include unexpected weight loss, blurred vision, tingling in the feet, muscle cramps, and recurrent infections (especially urinary infections and thrush or skin infections).

**How can I check if I or someone I know has diabetes?**

For some forms of diabetes such as Type 2 diabetes, a risk calculator may be helpful such as the Leicester Diabetes Risk Score. If diabetes is suspected, then it is advisable to speak to a doctor or your local pharmacist to organise fasting blood glucose checks and blood tests which can help rule out or confirm the diagnosis.

**What are the types of diabetes?**

There are several types of diabetes but 2 types of diabetes (Type 1 and Type 2) account for the majority of cases:

- **Type 1 diabetes**
  - Cause: It is an autoimmune disorder where the immune system attacks and destroys the insulin-producing cells in the pancreas.
  - Age of onset: Typically develops in childhood or adolescence, but can occur at any age.
  - Symptoms: Frequent urination, extreme thirst, hunger, weight loss, fatigue, and blurred vision.
  - Treatment: People with Type 1 diabetes need to take insulin daily for life, either through injections or an insulin pump. Lack of insulin can be life threatening.
- **Type 2 diabetes**
  - Cause: Typically, due to one or both of the following - body's resistance to insulin and less insulin being produced compared to need. The exact cause is still being studied, but lifestyle factors like diet, exercise, and genetics play a role.
  - Onset: Often develops in adulthood, though it is becoming more common in children due to rising obesity rates.
  - Symptoms: Similar to Type 1, but may be less noticeable in the early stages. Often includes fatigue, increased thirst and urination, and slow-healing wounds.
  - Treatment: May be managed through lifestyle changes (diet and exercise), weight loss if carrying extra weight, oral medications, and sometimes insulin.

By **Dr Rajeev Raghavan** MD FRCP

- **Type 3 and other types of diabetes**
  - There are many other types of diabetes which can occur due to disease in the pancreas or due to genetic reasons. These can lead to Diabetes associated with pancreatic insufficiency or with genetic syndromes such as MODY Diabetes (Maturity Onset Diabetes of the Young). See https://www.diabetesgenes.org/ for more information on MODY. Latent Autoimmune Diabetes (LADA) is another type of diabetes which is related to autoimmunity but develops much more slowly compared to Type 1 Diabetes.
- **Gestational diabetes – diabetes during pregnancy**
  - Cause: Occurs during pregnancy when the body cannot produce enough insulin to meet the needs of both the mother and baby.
  - Onset: Develops during pregnancy and usually disappears after childbirth, though it increases the risk of developing Type 2 diabetes later in life and some women may go on to develop Type 1 Diabetes.
  - Treatment: Usually managed with dietary changes, exercise, and sometimes insulin.

**Risk factors**

- Type 1 Diabetes: Genetic factors and autoimmune conditions.
- Type 2 Diabetes: Obesity, physical inactivity, age (over 45), family history, poor diet, and certain ethnic backgrounds (e.g., South-Asian, African American, Hispanic, Native American).
- Gestational Diabetes: Being overweight or having a family history of diabetes can increase the risk.

**Complications**

- Immediate complications
  - Hyperglycaemia: Very high glucose levels can cause acute deterioration in health and lead to serious illness such as diabetic ketoacidosis (DKA) and hyperosmolar hyperglycaemic syndrome (HHS) which require urgent management in hospital.
  - Hypoglycaemia: Low glucose levels are usually a consequence of treatments used for diabetes and is usually easily recognised and treated but can sometimes lead to sever episodes including fainting, coma and seizures which need urgent treatment.
- Delayed complications of diabetes include the following:
  - Ischaemic Heart disease from furring of arteries in the heart
  - Heart failure
  - Kidney damage (nephropathy)
  - Nerve damage (neuropathy)
  - Retinopathy (damage to the eyes, potentially leading to blindness)
  - Foot problems (due to poor circulation and nerve damage) including loss of limb
  - Increased risk of infections
  - Stomach motility disorders
  - Periodontitis

**Management**

Diabetes can often be managed effectively with proper treatment, regular monitoring of blood sugar, a healthy diet, exercise, and in some cases, medications or insulin. Early detection and lifestyle changes are key to preventing or managing the disease and avoiding complications. In some cases of type 2 diabetes, significant dietary and lifestyle modification and planned weight loss can help reverse diabetes (diabetes remission) for a variable period of time.