

Type 2 diabetes

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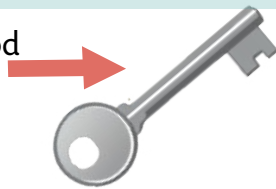
Diabetes mellitus is a group of **metabolic diseases** characterised by **high blood sugar (hyperglycaemia)** which occurs due to **insulin resistance and/or lack of insulin**.

It can lead to a wide range of **complications** and, if poorly managed, significantly **increases morbidity and mortality risk**.

Insulin is a vital hormone that regulates blood sugar levels.

When you eat, carbohydrates are broken down into **glucose (sugars)** that circulate in your blood.

This increase in blood glucose causes the pancreas to **release insulin**.



Insulin acts like a **key** to **let blood glucose into your cells**, which use the glucose as **energy**.

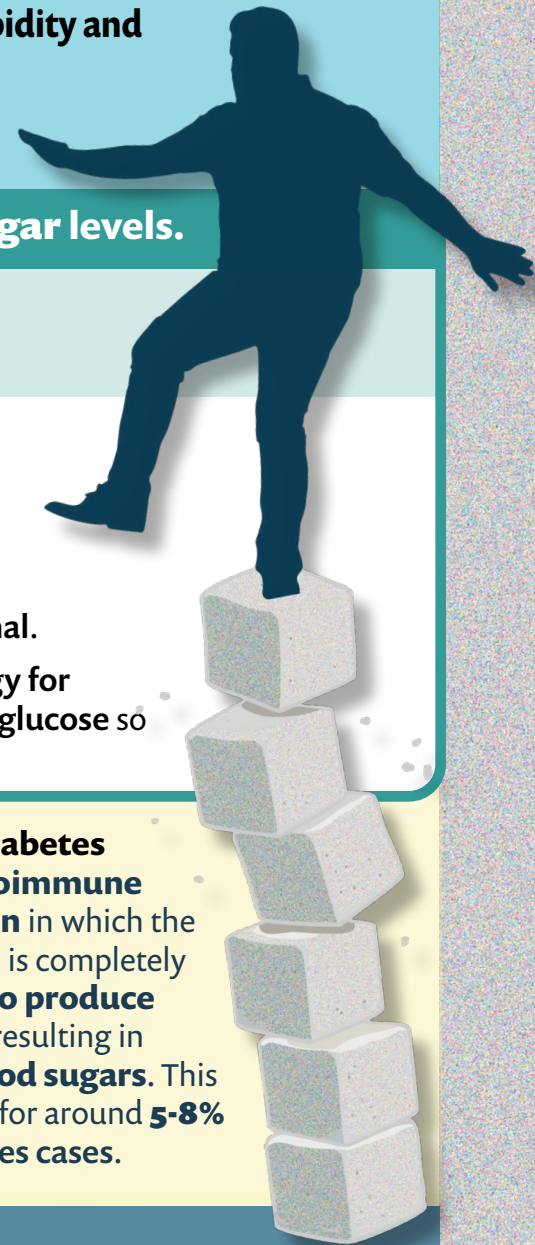
After this happens, your blood glucose levels should **return to normal**.

Insulin also signals your **liver** to **store** extra blood **glucose** as **energy for later**. If you haven't eaten recently, your liver **releases** stored blood **glucose** so **energy is always available**.

Type 2 diabetes is characterised by **insulin resistance**, where the body can **no longer respond** to increasing levels of insulin.

Over 90% people with diabetes have **type 2 diabetes (T2DM)**. This occurs as a result of **insulin resistance**, due to the **abnormal deposition of fat** in the **cells** of the **pancreas, liver** and **muscles**. As a consequence, the **body is unable to respond** to the effects of **insulin**, thus **raising blood sugar**.

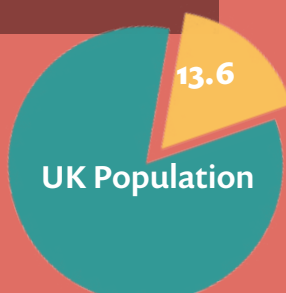
Type 1 diabetes is an **autoimmune condition** in which the **pancreas** is completely **unable to produce insulin**, resulting in **high blood sugars**. This accounts for around **5-8%** of diabetes cases.



There are other relatively rare forms of diabetes such as **monogenic diabetes**.

Statistics in the UK

13.6 million people are at **increased risk** of **type 2 diabetes** in the UK (Diabetes UK)



1 in 3 UK adults has **pre-diabetes** and **1 in 10** people over the age of **40** has a **diagnosis of type 2 diabetes**.



£££££
£££££

The NHS spends around **£10 billion** a year on diabetes – around **10 percent** of its entire budget.

Type 2 diabetes



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Criteria for diagnosing type 2 diabetes in the UK:



HbA_{1c} of 48 mmol/mol (6.5%) or more.
The haemoglobin A_{1c} (HbA_{1c}) test measures the amount of **blood sugar (glucose)** attached to your haemoglobin over the **past two to three months.**

Fasting glucose level of 7.0 mmol/L or more.

Random glucose of 11.1 mmol/L or more in the presence of symptoms or signs of diabetes.

Risk factors for type 2 diabetes

Carrying **excess body weight**, especially around the **midsection**



If you have **Polycystic Ovary Syndrome (PCOS)**

People of **South Asian, African, African-Caribbean, or Hispanic descent**

Dietary patterns high in ultra-processed foods, animal foods and refined carbohydrates such as **white flour and white rice**



A history of gestational diabetes

Sedentary lifestyle



Family history of T2D



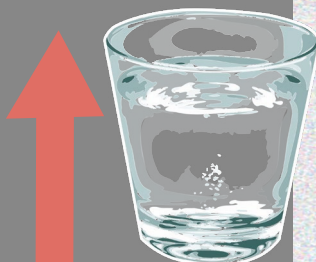
The use of certain medications

Symptoms of diabetes

People with T2DM may be asymptomatic or experience only mild symptoms.

Common symptoms include:

- increased thirst
- increased urine production
- blurred vision
- unintended weight loss
- recurrent infections
- fatigue



Complications of diabetes

Diabetes affects every system in the body, impacting both mental and physical health.

Some of the **health risks of T2DM** include:

Vision loss and blindness

Heart disease and stroke

Increased risk of other chronic health issues such as certain cancers

kidney failure

Increased risk of miscarriage and stillbirth

Sexual dysfunction

Foot problems such as sores and infection. This can lead to amputations if untreated.

Nerve damage (loss of feeling and pain)

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What should you eat for diabetes?

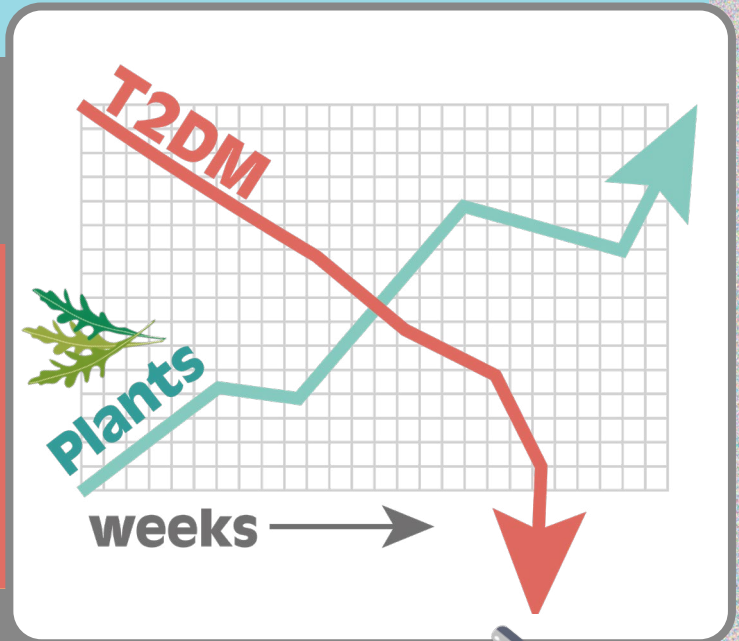
Whether you have diabetes or simply wish to **reduce your risk**, the goal should be to **eat a healthy, plant-rich diet**. The diet should be **low in saturated fat** and **high in fibre**.

Numerous studies show that plant-based diets are **highly effective** in **treating insulin resistance** and **improving outcomes** and **management of T2DM**.

Plant-based diets are also **effective** at treating and, **in some cases, putting T2DM into remission**. It can take a few weeks or months to see a **dramatic improvement**, depending on factors including **how insulin resistant you are** as well as the **dietary and lifestyle changes you make**.

This type of diet, sometimes called a **whole food plant-based diet**, has a number of benefits:

- Helps maintain a healthy body weight as it is low in energy density and high in healthy nutrients
- Reduces fat in the cells of the muscle, pancreas and liver, thus improving insulin sensitivity
- Promotes healthy gut bacteria, important for regulating blood sugar
- Increases the level of the gut hormone GLP₁, which helps you feel satisfied and full
- Reduces inflammation
- Maintains healthy blood lipid (fat) levels and blood pressure and hence reduces the risk of heart disease and stroke



Is eating fruit ok?



Eating fruit is associated with a **lower risk of developing type 2 diabetes**.

When we eat **whole fruits**, the generally small amount of fruit sugar (fructose) comes **packaged with fibre, vitamins, minerals, antioxidants, and other protective plant nutrients**.

National and international guidelines **recommend the consumption of fruit for people with diabetes**. Due to the **high fibre** content of **whole fruit**, it would be **difficult to consume fruit in excess**.



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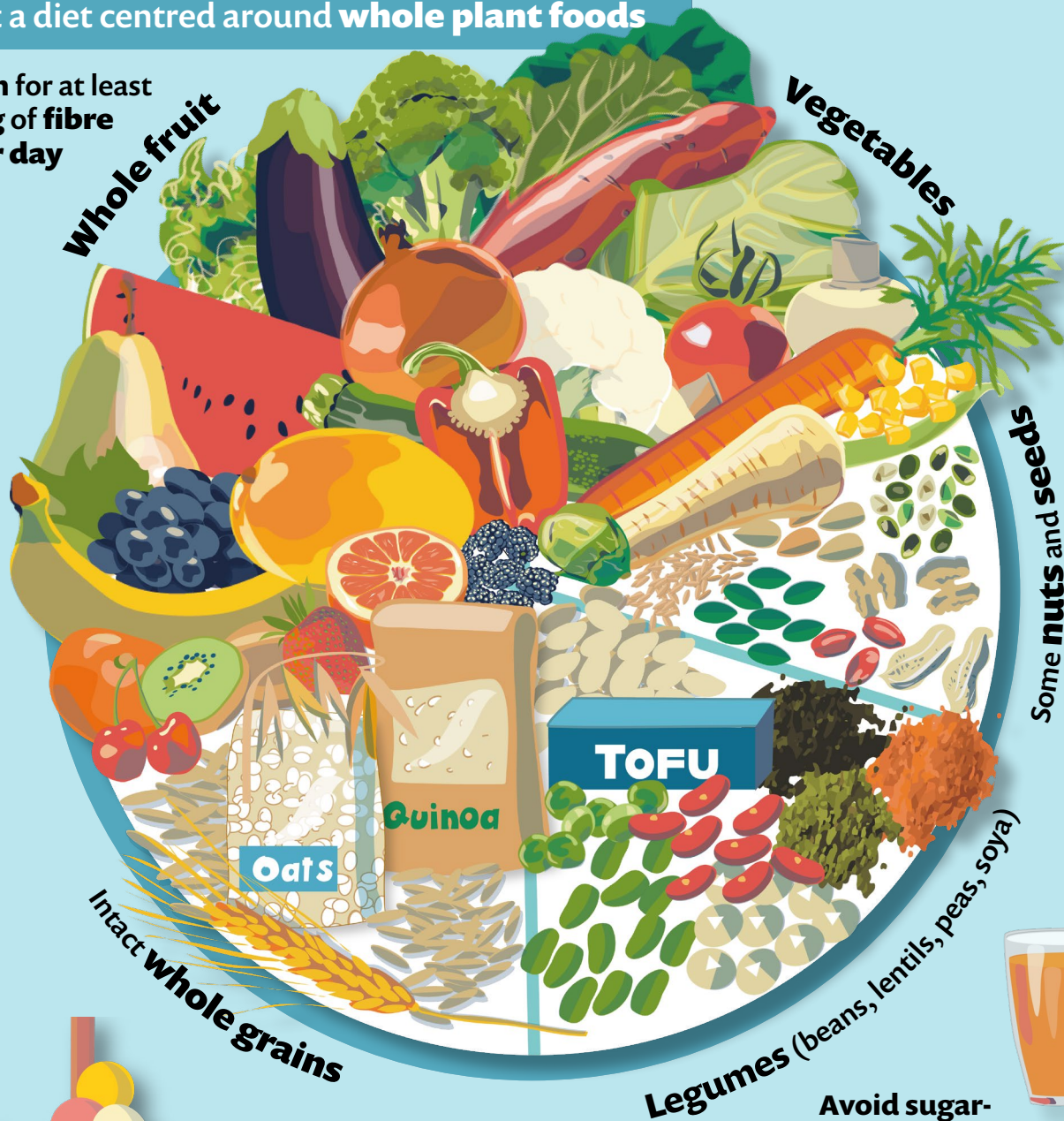
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Top tips to reduce your risk of type 2 diabetes

Eat a diet centred around **whole plant foods**

Aim for at least **30g of fibre per day**



Limit ultra-processed foods such as crisps, biscuits, cheese, pies and pastries, which tend to be high in sugar, oil and salt



Avoid red and processed meat

Avoid sugar-sweetened beverages



Maintain a healthy weight and body composition (BMI between 18.5 and 24.9, or 18.5-23 for Asians)

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Maintain an active lifestyle

with at least 150 minutes moderate intensity exercise per week (30 minutes, at least 5 days a week).



Aerobic exercise

Strength training

This includes activities such as **cycling, dancing** and **brisk walking**. Ideally aim for **an hour a day** with a **mix** of **aerobic exercise** and **strength training** (bodyweight exercises such as **lunges** and **squats** and **lifting weights**).

Regular movement, ideally throughout the day, improves insulin sensitivity.

Manage stress

spending time in nature and with your loved ones.

Try **breathwork, mindfulness, meditation, yoga, journaling,** or other practices that activate the **parasympathetic nervous system**

Aim to get **7-9 hours of restful and restorative sleep**

Avoid tobacco

Limit (no more than 1 drink per day) or ideally **avoid alcohol consumption**

What are some practical tips to reduce insulin resistance?

- Focus on **balanced meals**, with a **substantial breakfast**. This will help you avoid constant snacking and keep mealtimes consistent. **Fibre** and **protein** help to **regulate blood sugar levels**.
- Consider **increasing** the amount of **plant protein** (e.g. tofu, beans) in your diet as protein can help you **feel full**. When coupled with **resistance training**, this can also help **improve body composition**.
- A short **moderate intensity walk** of around 15 minutes straight **after finishing a meal** or **snack** helps to **regulate blood sugar**.
- Pair **carbohydrate-rich foods** with **plant protein** and **some healthy fats**. For example, add tofu (protein rich) to stir-fries with rice (carbohydrate rich) or add pea protein powder and soya milk (protein rich) to a bowl of porridge (carbohydrate rich).
- **Cook, then chill** your **potatoes, rice, or pasta** before eating to lower the glycaemic response. This method increases the amount of beneficial **resistant starch**.
- Enjoy **desserts** as **occasional treats** at the **end of a meal** rather than on an empty stomach.

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Example meals

Breakfast



Tofu scramble with colourful vegetables and a slice of wholegrain bread

Bowl of oats with unsweetened soya milk, flaxseed, pea protein powder and berries



Chia pudding with fruit

Green smoothie made with pea protein powder and soya milk



Main meals



Tofu-stir fry with colourful vegetables and small amount of brown rice

Baked sweet potato with hummus and salad



Legume based pasta (e.g. yellow pea pasta) with tomato sauce and nutritional yeast



Colourful quinoa salad with seeds and half an avocado



Lentil vegetable soup topped with parsley / coriander leaves



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What can I eat?

Snacks



Apple with peanut butter or a small handful of nuts

Blueberries and unsweetened soya yoghurt



Homemade popcorn



Hummus and crudité's

Drinks



Herbal tea

Regular tea and coffee with unsweetened soya milk



Sparkling water with slice of lemon



Dietary supplements

Please refer to our [Plant-Based Eatwell Guide](#) for guidance on what supplements we advise you take if you are eating an exclusively or predominantly plant-based diet.

Note

We advise **speaking with your doctor** before making significant changes to your diet, especially if you are currently **taking medications** such as insulin. **Diet changes without guidance can cause harm.**



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