Diabetes

Key points

- Diabetes is a condition where your body doesn't produce any insulin, doesn’t produce enough insulin, or doesn’t respond effectively to the release of insulin from the body.
- There are two main types of diabetes: type 1 and type 2. For people with type 1 diabetes, insulin is not produced. For people with type 2 diabetes, insulin is only produced in small amounts, or does not work as well as it should.
- If you have diabetes, daily management of your condition can help reduce your risk of complications. Complications include heart disease, kidney disease, stroke, and circulation problems.
- Diabetes is often managed with insulin and/or oral medication to prevent long-term complications.
- If you develop insulin resistance, your risk of developing type 2 diabetes and heart disease increases.
- A healthy diet is an essential part of diabetes management. It can help manage blood glucose (sugar) levels and achieve a healthy weight.

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What is diabetes?

Diabetes is a serious health condition that comprises two main but different conditions: type 1 diabetes and type 2 diabetes.

If left unmanaged diabetes can impact your quality of life and life expectancy. While there currently isn't a cure, you can manage diabetes by understanding and treating the condition.

If you have diabetes, your body can't maintain a healthy level of blood glucose (a type of sugar). Glucose is your body's main source of energy and fuel. Having too little or too much in your blood can lead to short and long term health complications.

Carbohydrate from food is broken down into glucose in your blood. When your blood glucose rises, your pancreas releases a dose of insulin. Insulin transfers this glucose from your blood into your liver and muscle cells, to use as energy for your body.

For people with type 1 diabetes, insulin is not produced. For people with type 2 diabetes insulin is only produced in small amounts, or the insulin produced does not work as well as it should.

This means that the food you eat cannot be converted into energy. And so the glucose hangs around in your blood, causing high blood glucose levels.

Higher levels of glucose in your blood can damage your blood vessels and nerves. Small blood vessels, like those in your kidneys and eyes, are particularly vulnerable to damage if diabetes is not managed.

Diabetes symptoms include:

- unintentional weight changes
- excessive thirst
- excessive urination
- feeling tired or lethargic
- blurred vision
- constant hunger
- slow healing of wounds
- mood swings
- dizziness
- headaches
- leg cramps.

Daily management of diabetes can help reduce your risk of complications, including:

- heart disease
- kidney disease
- stroke
- eye problems
- foot problems
- circulation problems.

Type 1 diabetes

Type 1 diabetes is an autoimmune condition, where your immune system destroys the cells in the pancreas which produce insulin.

This means your pancreas can no longer produce any insulin on its own.

The cause of type 1 diabetes is unknown and it's not linked to any lifestyle factors. Although there is a lot of research on type 1 diabetes, at this stage there is no cure or prevention.

Around 10-15% of all diabetes cases are type 1. The condition usually begins quickly, often with unexplained weight loss, and occurs most often in people aged under 30 years.



Management of type 1 diabetes

People with type 1 need to inject insulin several times each day or use an insulin pump to replace the insulin their body isn't producing. They need to balance their insulin dosages with their food intake and physical activity.

They also must check their blood glucose levels through finger pricking a few times a day to make sure their levels are within a healthy range. They can also use a continuous glucose monitor (CGM) device.

The key to preventing short and long-term complications of type 1 diabetes is keeping blood glucose levels in target range. This can be achieved by matching your insulin dose to the amount of carbohydrate you eat (carbohydrate counting).

People with type 1 diabetes need lifelong check-ups with their specialist diabetes medical team.

Type 2 diabetes

Type 2 diabetes is a progressive condition, often beginning with insulin resistance. In type 2 diabetes, the body becomes resistant to insulin or slowly stops producing enough insulin to maintain healthy blood glucose levels. This means blood glucose levels are elevated.

Often over a long period of time, where insulin becomes ineffective at keeping blood glucose levels stable, the pancreas overcompensates by producing too much insulin. The cells producing the insulin cannot keep up and are unable to continue making enough of the hormone.

Some people have a greater risk of developing type 2 diabetes than others. Risk factors include:

- having insulin resistance
- carrying excess weight or fatty tissue
- being inactive or not exercising regularly
- having a family history of diabetes
- having had gestational diabetes during pregnancy
- having high blood pressure
- having polycystic ovarian syndrome (PCOS).

You can reduce your risk of getting type 2 or delay the onset of symptoms with lifestyle modifications. These include improving your diet, being more active and losing excess weight if needed.

We don't know exactly what causes type 2 diabetes, but there are strong genetic and family-related risk factors. Weight gain is a major risk factor.

85-90% of people with diabetes have type 2. It usually develops in adults over 45 years but is occurring more in younger people too.



Management of type 2 diabetes

A combination of regular exercise, healthy eating, stress management and maintaining a healthy weight is key to managing type 2 diabetes. Over time, many people will also need medication and/or insulin injections to prevent long-term complications.

Insulin resistance

Insulin resistance occurs when your muscles and liver don't respond effectively to the hormone insulin. Your body begins producing more insulin in an attempt to stabilise the glucose levels in your blood. This keeps happening until your pancreas gets exhausted from overwork.

Over time, high blood glucose levels can damage your blood vessels. This increases your risk of:

- heart disease
- stroke
- kidney disease
- vision problems
- nerve problems.

High blood pressure and cholesterol often occur along with insulin resistance.

The risk factors for insulin resistance are the same as for type 2 diabetes. But certain ethnic backgrounds and those from Aboriginal and Torres Strait Islander backgrounds are more susceptible.

If you are diagnosed with insulin resistance, following a healthy lifestyle can reduce your chances of developing type 2 diabetes. Focus on healthy eating and losing excess weight, if necessary, to reduce your risk. Lifestyle changes can be as effective as medication in treating insulin resistance.

Aim to exercise for at least 30 minutes most days. All exercise, including strength training, can help make your muscles more sensitive to taking up glucose. This can help you manage the condition.

Find a dietitian for diabetes management

Diabetes and diet

A healthy diet can help to manage diabetes and prevent other health complications. The Australian Dietary Guidelines provide guidance on which foods make up a healthy diet and how much to aim for. Avoid energy dense refined foods and instead eat whole foods such as fruit, vegetables, whole grains and legumes. Learn more about the Australian Dietary Guidelines.

Weight gain can make it harder to manage your blood glucose levels, so a healthy diet is important to help you maintain or achieve a healthy weight.

People with diabetes will benefit from help developing a personal eating plan, tailored to their individual preferences and needs. An Accredited Practising Dietitian (APD) is best qualified to offer this assistance.

Carbohydrates

To maintain a healthy diet and blood glucose levels, you should include carbohydrates with each meal, preferably from whole foods such as fruit, vegetables, dairy, whole grains and legumes. The amount and type of carbohydrates needed is different for each person.

There are different types of carbohydrates - sugars, starches and some types of dietary fibre. Packaged and processed foods contain refined carbohydrates and added sugars. This includes foods like potato chips, baked goods and takeaways. If you have diabetes or want to eat healthy, you should reduce these foods in your diet.

Whole foods, such as oats, legumes, and wholegrain breads are high in fibre as well as carbohydrates. Carbohydrate-rich foods that are also high in dietary fibre have the potential to increase fullness, lower heart disease risk, and improve after-meal blood glucose levels compared to highly processed carbohydrates such as white bread, cornflakes, and white rice.

The glycaemic index is a way to rank carbohydrates based on how quickly they are digested and their impact on blood glucose levels. Foods with a low glycaemic index (GI) have less

impact on blood glucose levels, so provide the best blood glucose level control.

- Low GI foods: less than 55
- Intermediate GI: between 55 and 70
- High GI foods: greater than 70

Examples of low GI foods include beans, fruit, porridge and lentils. You can find the GI of foods by searching the GI database.

As with type 1 diabetes, people with type 2 diabetes should understand what carbohydrate foods are and how much they should be eating at each meal and snack. An APD can provide this information and may use books and mobile apps to help work out the amount of carbohydrate in food and drinks.

Read more about Low-carbohydrate diets for people with type 1 and type 2 diabetes.

Fats

Excess fats, even healthier fats, can contribute to weight gain. As a result, it is important to keep track of both the type and amount of fat that you eat.

Foods containing unsaturated fats are a healthier choice than foods high in saturated fats.

Discover more about fats.

When to see a dietitian

All people with diabetes should see an Accredited Practising Dietitian (APD).



You should see a dietitian if you:

- have been diagnosed with diabetes or insulin resistance, and want to understand how to manage your symptoms with changes to your diet

- want to know how much carbohydrate you need each day, and how to count the amount of carbohydrate in food and drink
- would like a personalised eating plan to reduce your risk of diabetes or to treat insulin resistance, based on your age, activity levels, food preferences and medications
- want advice and support from a professional as you navigate diabetes, and help to prevent complications such as heart disease
- want to know how to treat a low blood sugar event (hypoglycaemia)
- want to understand more about the condition, and the risk factors that can increase your chance of developing diabetes.

Accredited Practising Dietitians (APDs) are university-trained nutrition experts. They can help you with personalised, easy-to-follow and evidence-based advice.

APDs are Australia's most trusted dietetics professionals.

Find a dietitian

Top tips

- A healthy weight, exercise and following a healthy diet rich in whole foods can help to manage diabetes.
- Eat smaller portions and less energy-dense foods if you're overweight.
- Aim for at least 5 serves of vegetables and 2 serves of fruit daily.
- Include whole grains in your diet every day such as high-fibre cereal, multigrain bread, oats or barley. The fibre in these foods can help stabilise blood glucose levels.
- Enjoy legumes (dried peas, beans and lentils) regularly.
- Include low glycaemic index (GI) foods such as grainy bread, eggs and fruit. Many low GI foods can help by slowing the rate of absorption of glucose into the bloodstream, so not as much insulin is needed.
- Include unsaturated fats, found in avocado, extra virgin olive oil, nuts and seeds in your diet in moderation.
- Reduce saturated fat intake, limiting cakes and biscuits, fried foods, butter, cream, and fatty meats.
- Reduce refined carbohydrates and focus on carbohydrates from whole food sources. This includes starchy vegetables, legumes, fruits, dairy (milk and yogurt), and whole grains.
- Eating the same amount of carbohydrate from day to day, evenly distributed across the day, can help prevent low or high blood glucose levels.
- Don't skip meals. This can cause fluctuations in your blood glucose levels, leaving you feeling dizzy and unwell.

- Eat plenty of fibre each day. Fibre can make meals more filling. Evidence suggests that soluble fibre (found in foods such as beans, fruit and oats) may help to control blood glucose levels.
- Aim to exercise for at least 30 minutes per day.

This health advice page was peer-reviewed by an Accredited Practising Dietitian (APD) in June 2022.