Low-carbohydrate diets for people with type 1 and type 2 diabetes

Key points

- There is not one best diet for managing type 1 or type 2 diabetes.
- Eating a variety of nutritious foods, in the right amounts, is crucial for good health.
- Some nutrition professionals may recommend a low-carbohydrate (low-carb) diet for people with type 2 diabetes to achieve their health goals.
- There is no strong evidence to support the use of low-carb diets for people with type 1 diabetes.
- Some people with diabetes should not use low-carb diets. This includes children, women who are pregnant or breastfeeding, anyone at risk of an eating disorder and people with kidney disease.
- The longer-term (over 2 years) effectiveness of low-carb diets for people with type 2 diabetes is currently unknown.
- When starting a new way of eating, you should seek professional advice from an Accredited Practising Dietitian (APD). An APD can make sure you are getting the right nutrition for your needs.

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What is a low-carbohydrate diet?

Definitions may vary but we define very low, low, moderate and high-carbohydrate diets by the following amounts of carbohydrates eaten per day:

- Very low ('ketogenic'): 20-50g/day
- Low: <130g/day
- Moderate: Between 130-230g/day
- High: >230g/day

View an example menu for a low-carb diet.

Goals of diabetes management

The primary goal of type 1 and type 2 diabetes management is to manage your blood glucose levels and keep them as close to target range as possible. Diabetes management also aims to protect your heart and blood vessels by making sure the fat in your blood and your blood pressure stay within healthy ranges. [1]

Treatment for type 2 diabetes can also include weight management strategies. Reducing excess weight and/or maintaining a healthy weight can help you achieve diabetes management goals.

Read more about diabetes.

Low-carb diets for people with type 2 diabetes

Research shows those who are overweight or obese may be able to follow a low-carb diet safely for up to 6 months.

Following a low-carb diet for this period can improve fasting blood glucose and 'HbA1c' (a longer-term blood glucose measure). It can also improve the blood levels of some fats such as triglycerides. [1-6]

Weight loss results

But when it comes to weight loss and low-carb diets, the research is inconsistent. Some studies show a greater reduction in bodyweight on the lower carbohydrate diet, but others show no

difference. Usually, the benefits occur in the first few months but not in the longer term. [1] This is the case whether the diet is low-carb/high-fat or low-carb/high-protein.

Weight loss is not guaranteed on a low-carb diet, especially if you don't reduce your intake of energy, or kilojoules, per day.

Other health effects

No significant differences in blood glucose levels and heart disease risk have been seen between low-carb diets and moderate to high-carb diets over the longer term (12-24 months) [1,4,5,7,8].

There is also no consistent evidence to show the health effects of low-carb diets in people with type 2 diabetes who are not overweight or obese.

Low-carb diets are not always the answer. For adults living with type 2 diabetes and overweight or obesity, different diets can achieve the same results.

When starting a new way of eating, you should seek personalised advice from an APD. An APD can make sure you are getting the right nutrition for your needs.

Low-carb diets for people with type 1 diabetes

There is currently no strong evidence to support recommending low-carb diets for the management of type 1 diabetes [9].

What do I replace the carbs with when I follow a low-carb diet?

If you choose to reduce carbs, there is not a one-size-fits-all approach. However, the two main nutrients to increase when reducing carbs are protein and fat.

Some people may choose to focus on increased fats (low-carb high-fat) and others may increase protein foods (low-carb high-protein). But balance is always recommended.

Whichever approach you take, make sure the carbs you choose are high in both nutrients and fibre.

Low-carb high-fat

When following a low-carb high-fat diet, it's important to include the right types of fats. Some examples of healthy ('poly-unsaturated' and 'mono-unsaturated') fat are unsalted nuts, avocado and oily fish such as sardines.

Eating a lot of foods high in unhealthy (saturated) fats can increase the LDL (bad) cholesterol in your blood. It can also increase insulin resistance and impact your health.

Some examples of foods high in unhealthy fats include highly processed foods like fast food, deep-fried foods, processed meats (bacon, ham, deli meats), chocolates, ready-to-eat cakes and biscuits. These foods also contain a lot of salt and/or sugar and are not recommended in large amounts.

Some low-carb high-fat diets promote fats like coconut oil, suggesting it is a more 'natural' source of fat. But coconut oil is high in saturated fats, so select a healthier option like olive oil instead.

Discover more about fats.

Low-carb high-protein

Similarly, when following a low-carb high-protein diet, select protein foods high in healthy fats over unhealthy fats.

Healthier protein foods include fish, eggs, low fat dairy, lean poultry and lean meat. Legumes such as kidney beans, lentils, split peas, soybeans and soy products like tofu are also good protein sources. Legumes contain carbs and, in the right amounts, can form part of a low-carb diet.

Improving your food choices to include more healthy fats and protein is another way an APD can help you get the right balance. As fats are rich in energy, an APD can help work out how much of each food type to include in your daily diet to meet your energy and nutrient needs.

Find a dietitian for diabetes management



Getting the balance right

There is no single diet for everyone living with diabetes. There are many ways to eat well and manage your health. [1]

While low-carb diets may play a role in diabetes management for some people, carbohydrates are an important part of a healthy diet. They are a source of essential vitamins and minerals, fibre, energy for your body, and fuel for your brain.

The best carbohydrates to include are foods that are high fibre and filled with nutrients, like wholegrains, legumes, and a variety of fruit and vegetables. Most vegetables are very low in carbohydrates but packed with essential vitamins and minerals.

In contrast, other sources of carbohydrates including cakes, biscuits, desserts and soft drinks are highly processed and low in essential nutrients. These foods should be limited.

It's important to get the balance right for your individual needs. An APD can help by working with you to create sustainable eating habits that address your:

- health goals
- personal and cultural preferences
- nutrition status and any illnesses you have
- ability to access healthy options
- motivation and readiness to change.

APDs can also help improve your cooking and food preparation skills, especially if you want to try including or preparing unfamiliar foods.

Can my type 2 diabetes go into remission with a low-carbohydrate diet?

Some people with type 2 diabetes can achieve remission [10]. However, it is not possible for everyone.

Recent research has shown in some circumstances, some people can achieve remission after following a low-carb diet for 6 months. This is even without weight loss.

In these cases, it is likely remission will only continue for as long as the low-carb diet is maintained. [11]

The effectiveness of following a low-carb diet in the longer term, however, has not been extensively examined. Some studies show poor health outcomes after 12 months [13]. Therefore, an individualised approach with regular reviews and support from health professionals is important.

Losing 10-15% of total body weight in people who are overweight or obese is considered the most effective way to achieve remission. This can be done by following a low- or higher carb diet as long as total energy intake is reduced and exercise is increased. Bariatric surgery can also result in remission.

It is important to say that remission is not possible for everyone. It is most common in people who were recently diagnosed (within 5 years) and who are not taking insulin. [9]

View Diabetes Australia's Position Statement (2021) on type 2 diabetes remission.

Who should not follow a low-carbohydrate diet?

You should always check with your healthcare team to make sure your diet choice is the right one for you.

Low-carb diets can affect growth in children and are not recommended, regardless of their diabetes status. [9]

Low carb diets, in particular ketogenic diets, are also not recommended for the following groups:

- women who are pregnant or breastfeeding
- people who are at risk of an eating disorder
- people with kidney disease
- anyone taking medications with SGLT-2 inhibitors (for example, Forxiga, Qtern, Jardiance, Glyxambi) should avoid a ketogenic diet. [12] Check with your doctor if you're not sure what type of medication you're taking.

Does a low-carb diet affect my medication?



For people using certain glucose lowering medications or insulin, there is a high risk of blood sugar levels falling too low (a state called 'hypoglycaemia') when following a low-carb diet. [1]

If you choose to follow a low-carb diet, you will need to get the support of your healthcare team such as your GP or endocrinologist. This is to ensure your diabetes medications are at the right doses and to adjust them if needed.

Example of low carbohydrate menu*

Breakfast: 2 soft-boiled eggs with spinach, avocado and feta on 1 piece of wholegrain toast

Morning tea: Handful mixed nuts, small skim milk flat white coffee

Lunch: Tuna salad (mixed green leaves, avocado, green peppers, tomato and mozzarella cheese, with olive oil and vinegar dressing), 1 slice of wholegrain bread

Afternoon tea: 1 cup low fat Greek yoghurt and berries or 1 cup chia pudding

Dinner: Baked chicken with Brussels sprouts, carrots and a medium boiled potato (or baked pumpkin, zucchini, carrots and onion)

Alternative snack options: nuts, carrot and celery stick with hummus, berries, an egg

*For illustrative purposes only

When to see a dietitian



We recommend seeing a dietitian if you:

- have been diagnosed with diabetes, and want to understand how to manage your symptoms with dietary strategies
- need advice to help make sure you're meeting your nutrient needs when making changes to reduce diabetes symptoms

- want advice and support from a professional who can help you stay as healthy as possible as you navigate diabetes.

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 the same amount of carbohydrates from day to day and evenly distribute across the day.
- Focus on carbohydrates from vegetables, legumes, fruits, whole grains - all high in the fibre you need - and dairy (milk and yoghurt).
- Include healthy ‘unsaturated’ fats, found in avocado, extra virgin olive oil, nuts and seeds in your diet in moderation.
- Reduce unhealthy ‘saturated’ fat intake, limiting cakes and biscuits, fried foods, butter, cream, and excess fat on meats.

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