



**University
Hospitals Sussex**
NHS Foundation Trust

Reducing carbohydrates

Department of Diabetes and Dietetics

Patient information

What is this information about?

This information is about how eating less carbohydrates can help you if you have diabetes and how you can do this. It explains:

- What diabetes is.
- Different ways in which you can control your blood sugar (blood glucose) levels.
- How having less carbohydrates can help you to manage your diabetes.
- What the different types of carbohydrates are.
- The types of food that you can eat which do not raise your blood sugar too much.
- How much carbohydrate you should have and how much carbohydrate there is in different foods.
- How to use using food labels to tell you how much carbohydrate there is in ready meals and packaged foods.
- What lower carbohydrate options you could try for breakfast, lunch and dinner.
- Which foods you could have for lower carbohydrate snacks.
- How to avoid getting hypoglycaemia (very low blood sugar or 'hypos') if you are having a lower carbohydrate diet.
- Other tips that can help you to stay healthy.

Please be aware that when this information mentions 'blood sugar' this means the same as 'blood glucose'.

Why have I been given this information?

You have been given this information because you have diabetes. Following the advice in this information could help you to:

- Manage your diabetes better by lowering your blood sugar levels.
- Lose weight.

What is diabetes?

If you have diabetes, it means your blood sugar levels are too high. This happens because your body cannot control your blood sugar levels well. High blood sugar can damage your body in many ways.

Insulin, a hormone from the pancreas, usually helps control blood sugar by taking sugar from your blood and letting it into cells to provide your body with energy. People with diabetes either do not make enough insulin or it does not work as it should.

How can I control my blood sugar?

You can improve your blood sugar levels by:

- Changing your diet.
- Exercising more.
- Taking any medicine or insulin prescribed for you to control your diabetes.

How can having less carbohydrates in my diet help?

Eating less carbohydrate can help control blood sugar. This means you may need less medicine or insulin. Insulin can increase hunger and cause weight gain. Carbohydrates raise blood sugar, so it is important to choose the right types and amounts.

What types of carbohydrates are there and how much of them should I have?

Sugary carbohydrates. It is best to avoid these as they raise your blood sugar quickly.

They include sweets, sugary drinks, cakes, biscuits, honey, jam, and chocolate.

Starchy carbohydrates (starch). You should eat smaller portions of these, but they are a good source of energy and nutrients.

They include potatoes, pasta, noodles, rice, bread, yam, plantain, semolina, maize and cereals as well as foods made with flour such as:

- pizza
- bread
- pastries
- pancakes.

Low glycaemic index (low GI) carbohydrates.

The glycaemic index is a way that carbohydrates in foods and drinks are ranked by how quickly they raise your blood sugar. It has replaced calling carbohydrates as 'simple' (higher GI) or 'complex' (lower GI).

Low glycaemic index carbohydrates are a good option but try to eat them in smaller portions.

They are high in fibre and raise your blood sugar slowly.

Good choices include oats, wheat pillow (Shredded Wheat), All Bran, granary bread, long grain rice, rye bread and crackers, oatcakes, and beans.

Fruit. It is good for you to have fruit.

It contains a type of carbohydrate called fructose and is a good source of fibre, vitamins and minerals.

Have one portion at a time spread out over the day.

A portion is a handful or 80g.

Milk. This is a good source of nutrients such as calcium, iodine and protein, but aim to have no more than one pint a day.

Milk contains a type of carbohydrate called lactose.

You can swap one third of a pint of milk for 125ml yoghurt or 25g cheese.

Which types of food can I eat that do not change my blood sugar levels much?

Protein:

Eat moderate amounts of protein foods such as fish, eggs cheese and meats. Choose lean meats.

Fats:

Use small amounts of unsaturated oils such as vegetable, rapeseed and olive oil rather than saturated fats such as butter. These are best for your heart health.

Be aware

Fats are high in calories so may make you gain weight. Grill, steam, or bake food instead of frying.

Vegetables and salad:

Eat plenty of these. They are low in calories and high in fibre, vitamins and minerals.

Be aware

Some vegetables such as parsnips, mushy peas and sweetcorn contain more carbohydrate, so you should have small amounts of these.

How much carbohydrate should I have a day?

Aim for 120 to 150g of carbohydrate a day. This includes 30 to 40g of carbohydrate for each meal.

An easy way to estimate a 30 to 40g carbohydrate portion is to have up to a quarter of a plate of starchy carbohydrate (starch) per meal:

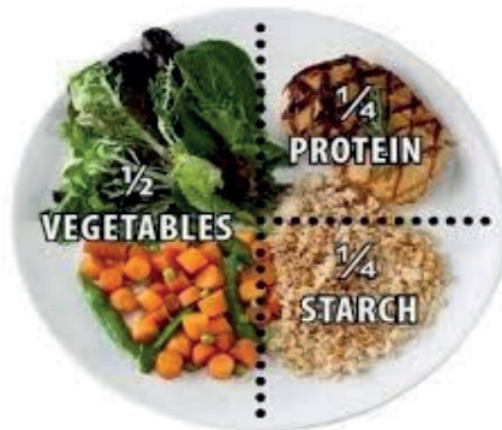


Illustration showing a healthy portion (quarter of a plate) of starchy carbohydrate (starch).

What portion sizes of different foods contain 30 to 40g of carbohydrate?

Bread:	<ul style="list-style-type: none">• 2 medium cut slices from a large loaf.• 1½ thick slices from a large loaf.• 1 wrap or tortilla, approx. 26cm / 10 inches.• 1 medium pitta bread (60g).• 1 mini size naan bread (round, 60g).• 1 ½ x 10 inch cooked chapatti (65g).
Potatoes:	<ul style="list-style-type: none">• 5-6 egg-sized boiled new potatoes (180g).• 180g mashed potatoes (with milk or butter).• 3-4 egg sized roast potatoes (120g).• 150g mashed sweet potato.• 1 small jacket potato (150g cooked).• 7-10 deep fried chips (80g).• 10-15 oven chips (100g).
Rice and grains cooked:	<ul style="list-style-type: none">• 3 tablespoons or 100g cooked rice.• 3 tablespoons or 100g cooked couscous.• 4-5 tablespoons or 170g cooked quinoa.• 5 tablespoons or 200g cooked bulgar wheat.• 4-5 tablespoons or 195g cooked polenta.
Pasta cooked:	<ul style="list-style-type: none">• 3 tablespoons or 100g cooked.
Noodles cooked:	<ul style="list-style-type: none">• 3 tablespoons or 80g cooked egg noodles.• 4 tablespoons or 100g cooked rice noodles.

Breakfast cereals:

- Small bowl (220g) porridge 27g oats made with milk.
- Large bowl (365g) porridge 45g oats made with water.
- 35g or 3 tablespoons Bran Flakes, malted wheats, no added sugar museli, special flakes with berries.
- 2 wheat biscuits.
- 2 oat biscuits.
- 2 wheat pillows.

How can food labels help me to know how much carbohydrate there is in ready prepared or packaged food?

On the food label look at:

- The 'Carbohydrate' or 'Total Carbohydrate' content for the serving size you are going to eat. This can be different to the recommended serving size on the packet.
- The 'Of which sugars' line of the label. This shows how much of the carbohydrate is sugar. Higher amounts of sugar will make your blood sugar levels rise more quickly.
 - 5g or less sugar per 100g is low in sugar.
 - More than 22.5g sugar per 100g is high in sugar.

Choose low sugar foods and avoid those high in sugar.

What could I have for breakfast, light meals and main meals when I am trying to have less carbohydrates?

The meals suggested in the tables below will help you to eat less carbohydrates and are nutritious.

Be aware

The weights (g) below refer to the total weight of the food and not the carbohydrate content.

Breakfast

- **Carbohydrate:** 25g porridge oats or 35g Bran Flakes.
 - **Protein:** 1/3 pint milk.
 - **Vegetables, salad or fruit:** 1tbsp fresh or frozen berries.
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- **Carbohydrate:** 2 medium slices bread from a large loaf.
 - **Protein:** 1 to 2 eggs.
 - **Vegetables, salad or fruit:** ½ tin tomatoes (or 2 fresh tomatoes), 4 mushrooms.
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- **Carbohydrate:** 1 thick slice of granary or seeded toast.
 - **Protein:** 150ml natural or Greek yoghurt.
 - **Vegetables, salad or fruit:** Handful berries and 1 tbsp. chopped nuts or seeds.

Light meals

- **Carbohydrate:** 2 medium slices bread from a large loaf.
 - **Protein:** 75g sliced ham, 50g cheese or 2 eggs.
 - **Vegetables, salad or fruit:** 2 cupped hands of salad.
-
- **Carbohydrate:** Egg or rice noodles, 80g-100g cooked weight.
 - **Protein: choose one from:** 70g chicken, 150g Quorn or 80g tofu.
 - **Vegetables, salad or fruit:** Half plate of vegetables.
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- **Carbohydrate:** 1 tortilla wrap or 3 tbsp. couscous.
 - **Protein:** ½ tin 70g tuna or 60g hummus.
 - **Vegetables, salad or fruit:** 2 cupped hands of salad.

Main meal

- **Carbohydrate:** 5 small egg-sized new potatoes (180g).
 - **Protein:** 100g grilled or roast chicken, fish or meat.
 - **Vegetables, salad or fruit:** ½ plate of boiled or steamed vegetables.
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- **Carbohydrate:** 3 tbsp. cooked spaghetti or pasta (100g).
 - **Protein:** 100g mince, bolognaise, chicken, Quorn, tofu or soya mince.
 - **Vegetables, salad or fruit:** ½ plate roast vegetables.
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- **Carbohydrate:** 3 heaped tbsp. cooked rice (100g) or 1-2 chapattis (65g).
 - **Protein:** 200g chicken, prawn or egg curry or dahl.
 - **Vegetables, salad or fruit:** ½ plate salad or vegetables.

What lower carbohydrate replacements for starchy foods could I try?

- **Carrot and swede or turnip** mash instead of mashed potatoes.
- **Celeriac:** Cut into wedges or 1 cm cubes and roast in a little oil, or boil and then mash.
- **Cauliflower rice:** blitz a cauliflower in a food processor (or chop it into rice sized pieces with a knife), then microwave or steam until tender (180g).
- **Vegetable noodles:** use a spiralizer to make 'noodles' from courgette, carrot or other vegetables.

Can I have some low carb snacks as well as my meals?

Yes. You could have up to two snacks a day containing 10 to 15g carbohydrate. Try these low carb snack ideas:

- 150g strawberries, raspberries or blueberries.
- 10 grapes, 2 small plums, 3 dried apricots, 2 satsumas or half a mango.
- 1 medium apple, pear, banana, peach, nectarine or orange.
- 1 low sugar yoghurt (less than 5g sugar per 100g).
- 50g olives or 8 large, pickled gherkins.
- Veggie sticks such as red pepper, celery, cucumber or radish and a 50g hummus, salsa, guacamole or cheese dip.
- A quarter of an avocado and 6 cherry tomatoes.
- 20 to 25g cheese, or a Babybel or DairyLea cheese.
- 25g unsalted nuts.
- 25g edamame beans or soya 'nuts'.
- 1 boiled egg.
- 2 oatcakes with low fat cream cheese and or marmite.

- 1 to 2 seeded or wholemeal crackers with cream cheese or pate.
- 25g (4 squares) of dark chocolate (85% cocoa solids).
- Slice of ham, chicken drumstick or bag of chicken nibbles.
- Soup without potato, croutons or pasta.
- Tinned fish or crab sticks.

What might I need to do to reduce my chance of having a hypo (hypoglycemia) while I am having less carbohydrates?

A hypo is a blood glucose level below 4mmol/L.

Early warning signs of a hypo are feeling hungry, trembling or shakiness, and sweating.

In more severe cases, you may also feel confused and have difficulty concentrating. In very severe cases, a person having a hypo can lose consciousness.

Be aware

If you are on insulin injections, gliclazide, glibenclamide, or glimepiride you may need to reduce your dose when you have less carbohydrates so that you do not have hypos.

A hypo is a blood glucose level below 4mmol/L.

- You should test your blood glucose levels regularly. Normal blood glucose levels are 4 to 7mmol/L.
- If you drive, the law says your blood glucose level must be over 5mmol/L before you drive.
- Please contact your diabetes practice nurse, diabetes specialist nurse or GP if you are concerned about having more blood sugar readings that are less than 5mmol/L.

What other tips can help me control carbohydrates and my blood sugar?

- **Exercise.** Aim for 30 minutes a day, 5 days a week. Activities like walking, swimming, and dancing all count.
- **Avoid 'Diabetic' Foods.** Foods which are advertised or labelled as 'diabetic' can still raise your blood sugar and may have lots of calories.
- **Drinks.** Choose no added sugar or low sugar (less than 5g sugar per 100ml) drinks, such as water, squash, tea, herbal tea and coffee.
- **Alcohol.** Limit alcoholic drinks high in carbohydrate such as cider, sweet wines, alcopops and beer. For any alcohol, you should not have more than 14 units per week.

One unit is a pub measure (25ml) of spirit, half a pint of normal strength (4%) beer or a small glass of wine (125ml). Limit alcoholic drinks high in carbohydrate such as cider, sweet wines, alcopops and beer.

You can find further general advice on diet and healthy living on the NHS '**Live Well**' site. <https://www.nhs.uk/live-well/>

What else could I use to help me to follow a low carb diet?

These books, apps and websites may help:

- 'Carb and Calorie Counter' book and app
- Myfitnesspal.com app for tracking carbs and activity
- The 'Cook and Count' app
- Diabetes UK website 'carbohydrates and diabetes' pages.
<https://www.diabetes.org.uk/living-with-diabetes/eating/carbohydrates-and-diabetes> These include advice, a CarbCount book which you can download as a pdf and carbohydrate reference tables.

Ask your local Diabetes Specialist Dietitians if you would like a printed copy of our carbohydrate reference tables leaflet, which tells you how much carbohydrate there is in many foods and drinks.

Who can I contact if I would like further information or support after I have read this information?

Contacts

Diabetes UK Helpline:

0345 123 2399

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Dietitians, St Richard's Hospital:

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in Worthing and Chichester St.Richard's hospital.**

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