

Low Carbohydrate Diet Plan for People with Type 2 Diabetes

Nutrition and Dietetic Service

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Contact No:



Date of review: May 2022

Cambridgeshire and Peterborough NHS Foundation Trust: providing services across
Cambridgeshire and Peterborough
Leaflet produced May 2020

What is diabetes?

Diabetes is a condition that causes a person's blood sugar (glucose) level to become too high.

Glucose comes from dietary carbohydrates and is transported around the body via the blood stream and should enter the body's cells to be used for energy.

Insulin is a hormone made in our body in a gland called the pancreas. It helps the body transfer glucose from the blood into the cells and keep the blood sugar at the right level.

There are 2 main types of diabetes:-

Type 1 diabetes – where the body's immune system attacks and destroys the cells that produce insulin.

Type 2 diabetes – is a serious condition where the body does not produce enough insulin and/or the body cannot use the insulin it makes properly. The risk of the insulin not working well is much higher in people who are overweight.

This leaflet is for people with Type 2 Diabetes.

Good control of Diabetes is very important, as such high sugar levels in the blood causes harm and can result in blindness, kidney damage, damaged or infected feet (which may lead to amputation), heart attacks or stroke

Controlling blood glucose

After eating or drinking a food or drink that contains carbohydrate, the blood glucose level starts to rise. The more carbohydrate that is consumed, the higher the blood glucose level will go. Some carbohydrate is important for a healthy balanced diet and it is therefore not recommended that all carbohydrates are cut out of the diet. However, in most cases, changing the frequency, amount and type of carbohydrate consumed, can result in better blood glucose control, with less medication.

Further Support

Diabetes Education Sessions

Type 1 Diabetes

- > DAFNE (Dose Adjustment for Normal Eating), available in Huntingdon and Cambridge
- > PDAC (Peterborough Dose Adjustment Course), available in Peterborough
- > Carbohydrate Counting Refresher Course, available in Peterborough

Type 2 Diabetes

- > DESMOND (Diabetes Education and Self-Management for Ongoing and Newly Diagnosed), available across Cambridgeshire & Peterborough
- > iCan (Information on Carbohydrates and Nutrition), available across Cambridgeshire & Peterborough

Diabetes UK Support Groups, for all people with Diabetes

[Search for your local group via the Diabetes UK website or ask your Dietitian](#)

Diabetes UK 'Type 2 Together' Support Groups

https://www.diabetes.org.uk/how_we_help/local_support_groups/type-2-together/cambridgeshire-and-peterborough

EveryOne Health / Healthy Peterborough

<http://www.everyonehealth.co.uk>

0333 005 0093

<https://healthypeterborough.co.uk>

0800 376 5655

Psychological Wellbeing Service

0300 300 0055

<http://www.cpft.nhs.uk/services/pws/psychological-wellbeing-service.htm>

Keep Your Head (Cambridgeshire & Peterborough Adult Mental Health) Website

<https://www.keep-your-head.com/adults>

NHS Choices Moodzone Website

<https://www.nhs.uk/conditions/stress-anxiety-depression>

Every Mind Matters

<https://www.nhs.uk/oneyou/every-mind-matters/>

This information was developed by the Nutrition & Dietetic service at Cambridge-shire and Peterborough NHS Foundation Trust. If you would like to be seen by a dietitian please ask to be referred.©

Details of news and events, such as, Diabetes Week can also be found via our social media pages:

Facebook - <https://www.facebook.com/NutritionandDieteticsCPFTNHST>

Twitter - <https://twitter.com/idietitians>

Instagram - https://www.instagram.com/cpftnutrition_dietetics

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Notes:

Additional Advice

Further guidance on Diabetes and/or healthy eating/physical activity can be accessed via the following organisations:

British Dietetic Association	https://www.bda.uk.com
British Heart Foundation	https://www.bhf.org.uk 0300 330 3322
Carbs and Cals	https://www.carbsandcals.com
Diabetes UK	https://www.diabetes.org.uk 0345 123 2399
ExCarbs (Activity)	https://excarbs.com
NHS Choices	https://www.nhs.uk
Info in Other Languages	https://www.diabetes.org.uk/other_languages

Online Learning Packages / Useful Diabetes Apps:

British Sign Language Video	https://www.diabetes.org.uk/other_languages/information-in-british-sign-language
Carbs & Cals App	Available on both iPhone & Android
Diabetes UK Diabetes and Me	https://www.diabetes.org.uk/diabetes-and-me
Diabetes UK Learning Zone	https://learningzone.diabetes.org.uk
The Low Carb Programme	https://www.lowcarbprogram.com/

Carbohydrate

Carbohydrate is a nutrient found in a variety of foods and drinks. We often refer to these as 'starchy', 'sugary' or 'both'.

Starchy

- Bread, rice, pasta, potatoes, crisps, savoury pastries and some plain breakfast cereals e.g. porridge oats
- Some protein foods e.g. beans & pulses
- Most vegetables also contain a small amount of carbohydrate

Foods containing added sugar

- Table sugar, jams and marmalades, honeys and syrups
- Sugary drinks
- Sweets, chocolates & ice-cream
- Some sauces e.g. ketchup
- Some alcohols e.g. beers and ciders

Food containing natural sugars

- Fruit, fruit juice & smoothies
- Milk and yoghurts

Both

- Cakes, biscuits, sweet breads & pastries, puddings and most breakfast cereals

Foods which do not directly affect blood glucose levels

Proteins: Foods such as meat, quorn, soya, fish, eggs & cheese will not directly affect your blood glucose levels. For a balanced diet try lean varieties with fat/skin removed. Protein can be quite filling so if you are trying to reduce your carbohydrates including a portion at meal times may be helpful.

Vegetables & Salad: These foods generally do not affect blood glucose levels and contain lots of other beneficial nutrients. They are good if you are trying to lose weight as they are also low in calories and high in fibre, so will fill you up. You can eat lots of these foods.

Fats: These do not directly affect your blood glucose levels but can have an affect on your heart health so it is important to choose 'monounsaturates' or 'polyunsaturates' such as vegetable oils & spreads

Why try low carb?

In the short term, i.e. less than 12 months, low-carbohydrate diets have been shown to be effective in managing weight, improving glycaemic control and reducing cardiovascular risk, in people with Type 2 diabetes (Diabetes UK 2018). However, more research is needed to determine the longer-term effects.

What is 'Remission' in Diabetes?

Some people, who lose a significant amount of weight, around 15kg, can achieve remission. This is where they control their blood glucose levels very well and bring them back into the normal range. However this does not mean their diabetes is 'cured' and their blood glucose levels can go back up if they do not continue to follow the lifestyle changes they have made and regain weight.

How much carbohydrate?

Low-carbohydrate diets can be defined as diets containing between 50g and 130g carbohydrate. Start at 130g and lower if blood glucose levels and/or weight is not decreasing.

How to count carbs?

The first step in counting carbohydrates is to identify the foods that contain carbohydrate and those which don't. As a general guide, the following foods contain very little or no carbohydrate and therefore can be disregarded for counting:

- Meat
- Fish
- Eggs
- Cheese
- Nuts & seeds
- Butters, spreads and oils
- Non-starchy vegetables and salad items

For all other foods that contain carbohydrate you can either use the food label or a reference book/app to work out the carbohydrate content.

Notes:

Goals and Recommendations:

1.

2.

3.

What to consider before starting?

Weight:

If you do not need to lose weight you may need to increase your intake of protein and/or healthy fats

Cost:

Following a low carb diet may be expensive, unless you are able to increase your intake of plant-based foods e.g. bean & pulses, vegetables, nuts and seeds.

General Side Effects:

Some people may experience the following side effects when following a low carbohydrate diet;

- Constipation or diarrhoea
- Headaches
- Tiredness / fatigue
- Light-headedness
- Halitosis (bad breath)
- Increases in LDL (bad) cholesterol

These side effects may be avoided or lessened by ensuring that you are well-hydrated and following a healthy balanced diet.

Good oral hygiene is also important regarding halitosis.

If you experience any of the above mentioned side effects, which do not settle after a few days and you are concerned you should seek medical advice.

You will not know whether your cholesterol levels have changed, unless you have had a blood test to check. This should be checked at least yearly, at your diabetes annual review.

However, if you are making changes to your diet and or activity, you should inform you Diabetes Specialist Nurse, Consultant, GP or Practice nurse, as they may want to repeat your blood tests more frequently.

What to consider before starting? (continued)

Medication:

When lowering your intake of carbohydrates, losing weight and/or increasing your physical activity, you are likely to need less medication to control your diabetes.

If you are on a medication which actively lowers your blood glucose levels, you may be more likely to have a low blood glucose level (also called hypoglycaemia or a hypo).

Medications which can cause hypos include:

Insulin, Sulphonylureas & Meglitinides. Examples of these include;

- Glibenclamide (brand name Daonil)
- Gliclazide (brand name Diamicon or Diamicon MR)
- Glipizide (brand name Glibenese or Minodiab)
- Glimepiride (brand name Amaryl)
- Tolbutamide (brand name Tolbutamide)
- Nateglinide (brand name Starlix)
- Repaglinide (brand name Prandin)

Medications which can cause ketoacidosis:

This is where acidic substances called ketones build up to dangerous levels in your body. There is a higher risk of this occurring if you are on a SGLT2 inhibitor. Examples of these include;

- Canagliflozin (brand name Invokana)
- Dapagliflozin (brand name Forxiga)
- Empagliflozin (brand name Jardiance)
- Ertugliflozin (brand name Steglatro)

It is therefore extremely important that you seek advice on reducing / stopping your medication(s) from your Diabetes Specialist Nurse, Consultant, GP or Practice nurse before starting a low carb diet.

Additional tips and ideas:

Lower carb mealtime alternatives

- Carrot, Swede or turnip mash
- Celeriac—cut into wedges or 1cm cubes and roast in a little oil/boil and mash
- Cauliflower rice—blitz cauliflower in a food processor (or chop into small pieces) then microwave or steam until tender
- Vegetable noodles/spaghetti—use a spiralizer or peeler with courgette, carrot, or other vegetables

Low carb / carb free snacks

- Eggs
- Olives
- Lean meats
- Unsalted nuts & seeds
- Sugar free jelly / ice-lollies
- Vegetables e.g. tomatoes

Diabetes UK also have meal plans which you can find on their website:

<https://www.diabetes.org.uk/guide-to-diabetes/enjoy-food/eating-with-diabetes/meal-plans-/low-carb>

Other Factors to Consider:

Salt

Salt contains sodium and high sodium intakes can increase the risk of heart disease. Try flavouring your food with herbs and spices, lemon juice or vinegar instead. All salt contains sodium, therefore switching from table salt to sea salt or rock salt is not beneficial. 'Low salt' is high in potassium and may therefore not be suitable for some people. The best option is to not add salt when cooking or at the table and to avoid processed foods where possible.

Diabetic products

These are not recommended as they are usually higher in fats and therefore have the same number of calories. They can have a laxative effect and may still affect your blood glucose levels.

Alcohol

Both men and women should not regularly exceed more than 14 units per week. This should also be spread out, with several alcohol free days per week.

Physical Activity

Alongside reducing carbohydrates it is very important to increase physical activity to improve blood sugars long term. It is best to discuss with your GP, nurse or dietitian before suddenly increasing your physical activity.

Current guidelines are 150 mins of moderate activity or 75 mins of vigorous activity per week as well as two strengthening activities. It is also really important to minimise any sedentary behaviours.

If you are unsure where to start or have other health concerns, you could discuss how best to increase your activity with your GP.

Often there are also activities/health trainers available locally, for example, through exercise on referral schemes or group walks, which may be organised by your council. Again, if you are unsure you can discuss with your GP surgery.

What to consider before starting? (continued)

If you are adjusting your insulin doses based on your carbohydrate intake you do not need to count the carbohydrates in certain foods. Discuss this with your healthcare team if you're unsure.

How to ensure a balanced diet?

It is important to maintain a healthy, well balanced diet whilst following a low carb plan, in order to ensure that you meet your nutritional requirements for, for example, vitamins & minerals, fibre, healthy fats and fruits and vegetables.

What to cut out:

The following foods have little or no nutritional benefits and make your blood glucose levels go up, so best cut out. These include Carb-based snack foods and refined sugars, for example;

- Table sugar, brown sugar, demerara sugar
- Jams, marmalades, honeys and syrups
- Sweets and chocolates
- Cakes, biscuits, puddings, sweet breads & pastries
- Refined breakfast cereals that contain added sugars
- Sweet sauces e.g. ketchup
- Crisps and coated snacks e.g. coated nuts
- Sweet drinks e.g. full sugar pops, squashes & cordials
- Fruit juice / smoothies
- Some alcohol also contains carbohydrate e.g. beer, cider, sweet wines, liqueurs

What to reduce and good options:

Starchy carbohydrates can be consumed in small amounts but it is really important to choose those which are less processed & higher in fibre as these break down into glucose (sugar) more slowly. For example;

- Sweet potato or new potatoes
- Granary bread, pittas, wraps, wholemeal chapatti
- Brown basmati rice and wholemeal pasta and couscous
- Quinoa and oats

How to ensure a balanced diet?

What to include:

Vegetables, Salad & Fruit

Vegetables, salad and fruit are naturally low in calories and high in fibre. They can therefore be helpful to fill up on when trying to lose or maintain a healthy weight. There is also evidence that they provide protection against heart disease, strokes and some cancers, as well as, better management of diabetes

A portion is 80g and we should aim to eat a minimum of 5 portions per day. In general, fruit contains more carbohydrate than vegetables/salad, therefore **try to limit fruit intake to 2 portions a day and choose more vegetables/salad**

Protein foods

- Eggs & Meat: *try to choose leaner cuts and to consume less red and processed meats*
- Milk and milk products, including cheese: *try to use lower fat options and aim for 2-3 portions per day to ensure you have enough calcium*
- Fish: *aim for at least 2 portions of oily fish per week*
- Plant based options and alternatives e.g. beans & pulses, nuts & seeds, soya & tofu: *try to include these more regularly*

High intakes of red and processed meats have been linked with an increased risk in developing certain cancers.

If you are exceeding the UK average intake of red meat (70g/day) or processed meat (50g/day) it is recommended that you reduce your intake. This can be beneficial for both the environment and our health.

How to ensure a balanced diet? (continued)

Healthy Fats

All fat is high in calories so it is not a 'free food' but it does not need to be highly restricted. However, try to ensure that you are choosing healthier, unsaturated fats, such as olive oil and rapeseed oil, as opposed to, saturated fats, which are usually found in animal products and processed foods, such as butter, cakes, biscuits and ready meals. There are also two plant-based saturated fats which are coconut oil and palm oil. Also be careful of how much 'trans' or 'hydrogenated' fat you consume. These are created when oils are reheated e.g. from using deep fat fryers.

Fibre

The general recommendations for adults is 30g of fibre per day. Most fruits and vegetables contain approximately 3g of fibre or less per portion. In order to meet your fibre requirements it is therefore important to include other plant-based foods, such as beans and pulses, within your diet. Some of the less processed starchy carbohydrates are also good sources of fibre. If your current fibre intake is low, consider increasing it slowly, in order to allow time for your body to adjust.

Fluid

It is important to make sure that you are well hydrated. Most adults require 6-8 glasses of fluid per day.

Vitamins and minerals

If you have a balanced diet, you should be meeting your requirements, with the possibly exception of vitamin D. It is now recommended that all adults should consider taking a daily Vitamin D supplement, of 10 micrograms, especially during autumn/winter. If you are concerned that you may not be meeting your vitamin & mineral requirements, you could try a multivitamin and mineral supplement. **If you are unsure whether these are suitable for you to take please consult your GP or Pharmacist.**