

Eating well with Type 1 diabetes



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Introduction

This booklet aims to offer general guidance about suitable food choices for all those affected by Type 1 diabetes. Whether you have the condition, or know or care for somebody with Type 1 diabetes, we hope you will find this information helpful.

Balancing your diet when you have Type 1 diabetes can be challenging but it is important. Making sensible food choices and adapting your eating habits will help you manage your diabetes and protect your long-term health. The good news is that you should still be able to enjoy a wide variety of food.

In this booklet, you will find out about the importance of carbohydrate in your diet and how knowing how much carbohydrate you eat, can be an effective way of managing your diabetes.

Taking steps to balance your diet is also good for your overall health so you'll also find more general information about healthy eating in this booklet.

You're likely to have lots of questions about your diet and we've tried to answer the most common ones. A registered dietitian should be able to answer any further questions.

Diabetes UK recommends that everyone with diabetes should see a registered dietitian at diagnosis, and then have regular reviews for specific advice on their eating habits.

Your diet and diabetes

What is Type 1 diabetes?

Diabetes is a common, life-long condition where the amount of glucose in the blood is too high as it cannot be used properly by the body. Glucose comes from digesting carbohydrate from various foods and drinks, and from the liver which makes glucose.

Insulin is vital for life. It is a hormone produced by the pancreas, that helps glucose to enter the cells where it is used as fuel by the body. Type 1 diabetes develops when the insulin-producing cells (beta cells) in the pancreas have been destroyed and so no insulin can be produced. Usually it appears before the age of 40 and especially in childhood. It is treated either with insulin by injection or pump, a healthy diet and regular physical activity.

Good blood glucose control is important in the management of diabetes. Because of the link between eating carbohydrate and blood glucose levels, we have answered some of the most common questions about carbohydrate below.

What is carbohydrate?

Carbohydrate is a nutrient that is an important source of energy in the diet. All carbohydrates are broken down into glucose, which is used by the body's cells as fuel. Carbohydrate can be classified in a number of different ways, but essentially there are two main types, starchy carbohydrates and sugars.

Starchy carbohydrates include foods like bread, pasta, chapattis, potatoes, yam, noodles, rice and cereals.

Sugars include table sugar (caster, granulated etc), and can also be found in fruit (fructose), and some dairy foods (lactose). They can often be identified on food labels as those ingredients ending with -ose.

Another type of food that can affect blood glucose levels are nutritive sweeteners, including polyols. If you are unsure what these are, they tend to end in -ol, eg sorbitol, maltitol, xylitol and mannitol.

Why is carbohydrate important?

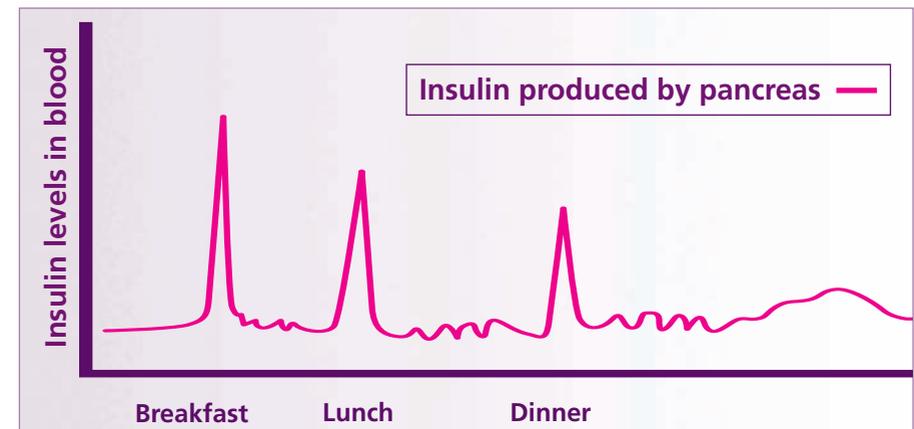
Since all carbohydrate is converted into glucose, some people with diabetes wonder if it would be better not to have any carbohydrate in their diet to keep their blood glucose levels under control. This is not recommended as:

- glucose from carbohydrate is essential fuel for the body, especially the brain
- high fibre carbohydrates, such as wholegrain and fruit also play an important role in the health of the gut
- some carbohydrates may help you to feel fuller for longer after eating.

How does carbohydrate affect my diabetes?

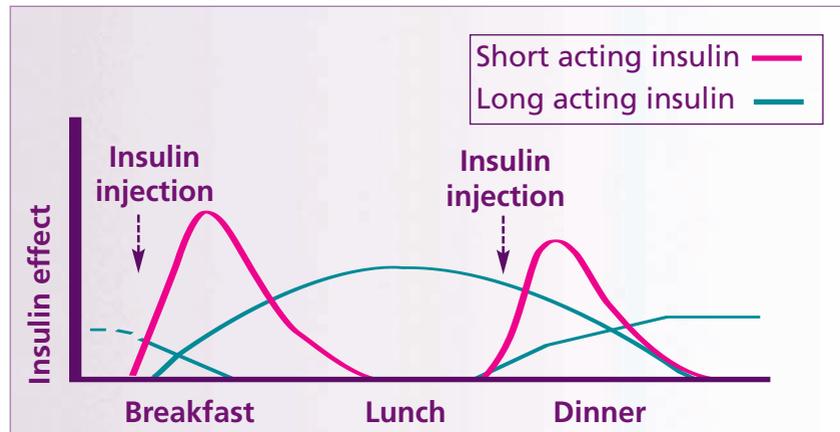
All carbohydrate is converted into glucose. In someone without diabetes the glucose level in the blood would be matched by insulin produced by the pancreas as shown below:

Normal insulin release:



In Type 1 diabetes the same principle applies but instead of the pancreas producing insulin, the carbohydrate is matched by insulin injections or an insulin pump. Most people follow twice daily or basal bolus insulin regimes as explained in the following section.

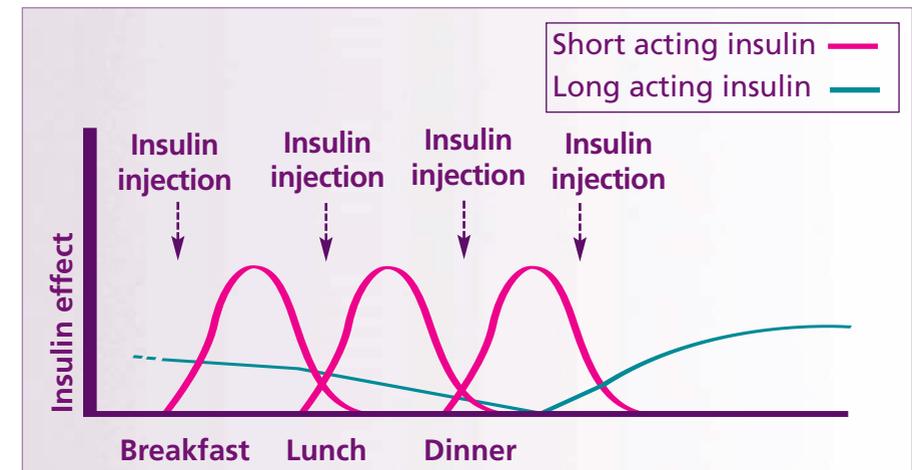
Twice daily insulin:



If you are taking two injections a day, knowing the amount of carbohydrate you are eating can help you balance it with your insulin so that your blood glucose levels stay under control. You should eat roughly the same amount of carbohydrate at similar times each day. For example, for your main meal try to fill about a third of your plate with starchy carbohydrate.

More carbohydrate than usual can cause blood glucose levels to go too high and less than usual can cause a hypo (low blood glucose levels).

Basal bolus insulin:



If you are using a basal bolus insulin regime or pump, you can be much more flexible in adjusting the timings of and the amount of insulin you take with the amount of carbohydrate you eat and drink. This can be done by 'counting carbohydrates'. See 'What is carbohydrate counting?'– page 8. If you prefer fixed times and doses of insulin, it may be better to follow the principles for the twice daily insulin regime (left page).

How much do I need?

The actual amount of carbohydrate that the body needs varies depending on your age, weight and activity levels, but it should make up about half of what you eat and drink over the course of a week. For good health most of this should come from starchy carbohydrate, fruits and some dairy foods, with a small amount of your total carbohydrate to come from added sugar or table sugar. (see pages 15 -17 for a clearer guide).

What is carbohydrate counting?

Carbohydrate counting is a method of matching your insulin requirements with the amount of carbohydrate you eat and drink. For many people with diabetes, it is an effective way of managing the condition that, once mastered, will lead to better blood glucose control, greater flexibility and freedom of lifestyle. It is an approach that requires a great deal of time and effort with guidance from a diabetes healthcare professional. To do it successfully you will need to learn all about carbohydrates, learn how to adjust your insulin and be dedicated to monitoring your blood glucose levels frequently.



How can I learn more about carbohydrate counting?

You will need the support of healthcare professionals either in the form of your diabetes healthcare team or through one of the structured carbohydrate-counting courses. Talk to your diabetes healthcare team about courses available in your area. It is important that the course you attend meets certain criteria. Although there is no formal accreditation scheme, you can find courses that have met criteria set by the Diabetes Education Network – see: www.diabetes-education.net



Courses don't suit everyone so if this isn't for you, talk to your nurse and dietitian about arranging some one-to-one education. Also see www.diabetes.org.uk/carb-counter

Ten steps to eating well

Although balancing carbohydrate and insulin is the most important task in managing your diabetes, eating a healthy balanced diet plays a vital role in benefiting your health by keeping your weight, blood fats and blood pressure under control.

1 Eat three meals a day. Avoid skipping meals and space out your breakfast, lunch and evening meal over the day. This will help control your appetite and your blood glucose levels, especially if you are on twice daily insulin.

2 At each meal include starchy carbohydrate foods such as bread, pasta, chapattis, potatoes, yam, noodles, rice and cereals. The high fibre varieties of starchy foods will also help to maintain the health of your digestive system and prevent problems such as constipation. The amount of carbohydrate you eat is important in controlling your blood glucose levels.



3 Cut down on the fat you eat, particularly saturated fats, as a low-fat diet is better for your health. Choose unsaturated fats or oils, especially monounsaturated fat (eg olive oil and rapeseed oil) as these types of fats are better for your heart. As fat is the greatest source of calories, eating less of it will help you to lose weight if you need to. To cut down on the fat you eat, here are some tips:

- Use less saturated fat by having less butter, margarine and cheese.
- Choose chicken, turkey, lean meat and fish as low-fat alternatives to fatty meats.
- Choose lower fat dairy foods such as skimmed or semi-skimmed milk, low fat or diet yogurts, reduced fat cheese and lower fat spreads.

- Grill, steam or oven bake instead of frying or cooking with oil or other fats
- Opt for tomato-based sauces instead of creamy sauces and dressings.

4 Eat more fruit and vegetables. Aim for at least five portions a day to provide you with vitamins, minerals and fibre to help you balance your overall diet. One portion is, for example: a banana or apple, a handful of grapes, a tablespoon of dried fruit, a small glass of fruit juice or fruit smoothie, three heaped tablespoons of vegetables or a cereal bowl of salad.



5 Include more beans and lentils such as kidney beans, butter beans, chickpeas or red and green lentils. These don't have a big impact on your blood glucose levels and may help to control your blood fats. Try adding them to stews, casseroles and soups, or to a salad.



6 Aim for at least two portions of oily fish a week. Examples include mackerel, sardines, salmon and pilchards. Oily fish contains a type of polyunsaturated fat called omega 3 which helps protect against heart disease.



7 Limit sugar and sugary foods. This does not mean you need to eat a sugar-free diet. Sugar can be used in foods and in baking as part of a healthy diet. Using sugar-free, no added sugar or diet fizzy drinks/squashes instead of sugary versions can be an easy way to reduce the sugar in your diet. Sugary drinks are best used as a treatment for hypos.

8 Reduce salt in your diet to 6g or less a day – more than this can raise your blood pressure, which can lead to stroke and heart disease. Limit the amount of processed foods you eat (as these are usually high in salt) and try flavouring foods with herbs and spices instead of salt.

9 Drink alcohol in moderation only – that's a maximum of 2 units of alcohol per day for a woman and 3 units per day for a man. For example, a single pub measure (25ml) of spirit is about 1 unit or half a pint of lager, ale, bitter or cider has 1- 1 ½ units. Over the years the alcohol content of most drinks has gone up. A drink can now contain more units than you think – a small glass of wine (175ml) could contain as much as 2 units. Never drink on an empty stomach, as alcohol can make hypoglycaemia (low blood glucose levels) more likely to occur. Remember, alcohol contains extra calories so think about cutting back further if you are trying to lose weight.

10 Don't use diabetic foods or drinks. They offer no benefit to people with diabetes. They will still affect your blood glucose levels, contain just as much fat and calories as the ordinary versions, can have a laxative effect and are expensive.



Your questions answered

Q Can I still have some sugar in my diet?

A Yes. Eating sugar doesn't cause diabetes and people with diabetes do not need to have a sugar-free diet. It's okay to have foods like chocolate and cakes occasionally alongside a healthy diet. Remember, some sugary drinks and glucose tablets are a good first treatment for a hypo.

Q I'd like to use a sweetener instead of sugar in my tea but I've heard that they aren't safe. Is this true?

A All sweeteners have to undergo rigorous safety tests before they can be sold in the UK. The government sets safe limits and surveys groups of individuals to see whether they are exceeding these limits. At the moment there is no evidence to suggest that the general public is exceeding these safe limits, but if you are at all concerned then you can minimise any risk by using a variety of sweeteners.

Q Is it true that I shouldn't eat bananas or grapes?

A No. All fruit is good for you. Eating more fruit can reduce the risk of heart disease, some cancers and some gut problems. Eat a variety of different fruit and vegetables for maximum benefit.

Q Does a smoothie count towards my fruit and veg target?

A Yes, a smoothie can be an easy way to notch up a portion of fruit. The good news is that if, for example, you put two whole pieces of fruit into a homemade smoothie then it can count as two portions. Remember that some smoothies contain added sugar, honey, yogurt or milk that can bump up the calories, fat or sugar content so check the ingredients label.

Q Can people with diabetes follow a vegetarian diet?

A Yes, although, following a vegetarian diet does not automatically mean a healthier diet. You still need to have a good balance of different foods. To make sure you are following a healthy balanced vegetarian diet contact The Vegetarian Society (details on page 22).

Q Is it ok for me to take a vitamin supplement now that I have diabetes?

A Diabetes UK does not recommend that people with diabetes take a supplement. If your diet is deficient in some nutrients then you may benefit from taking one, but this should be decided in conjunction with your doctor and/or dietitian. **(Note: Women with diabetes should take a prescribable supplement of 5mg of folic acid when planning pregnancy and continue to take it until the end of the 12th week of pregnancy.)**

Q What's the best way to lose weight?

A Making realistic and achievable changes to your diet and activity levels will mean that you are more likely to stick to them in the long term. A dietitian can help with giving you more specific, personalised advice. If you are making adjustments to your diet and/or activity levels you may need to also adjust your insulin doses. Talk to your diabetes team for more advice on how this will best suit you.

Q I've heard there is a link between Type 1 diabetes and coeliac disease. How can I find out more?

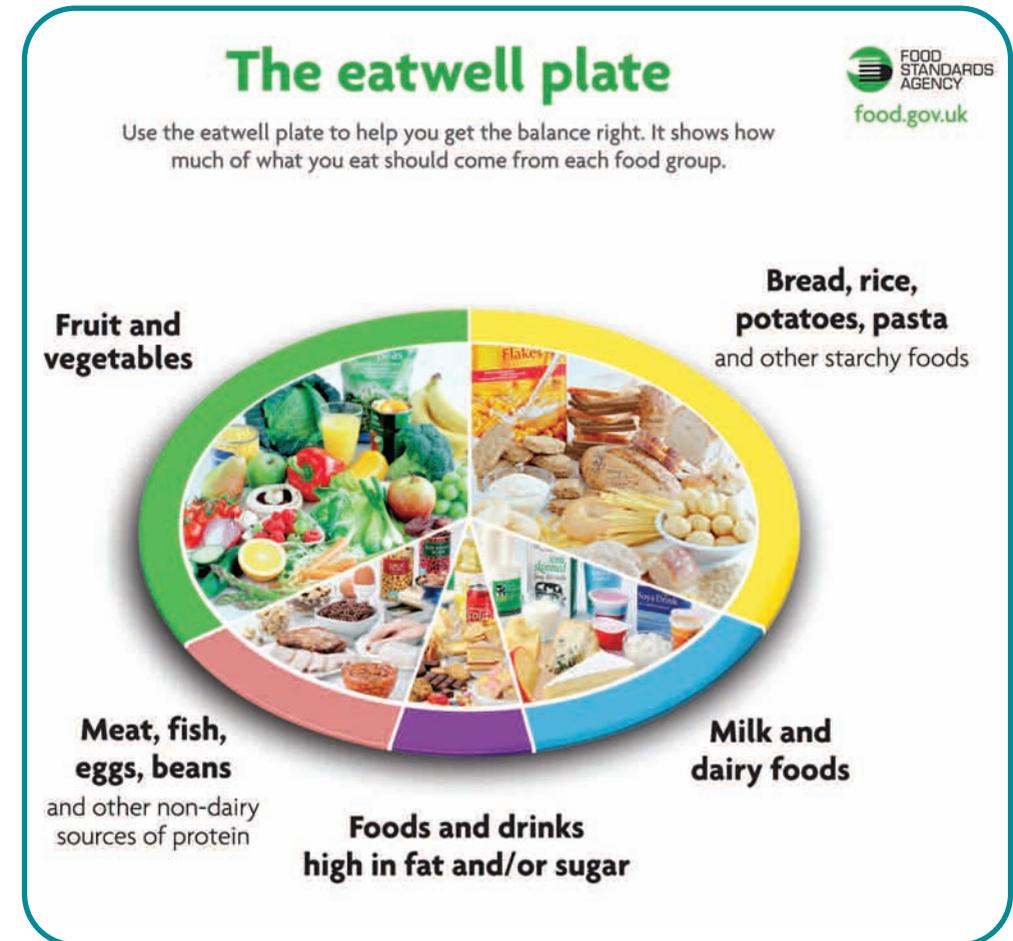
A If you have Type 1 diabetes then you are much more at risk of developing coeliac disease because it is thought that they are both caused by an autoimmune response (when the body destroys its own cells). Diabetes UK recommends that everyone with diabetes sees a registered dietitian. This is particularly important if you have coeliac disease too. Coeliac UK can also provide lots of useful information on a gluten free diet (details on page 22).

Top tip...

Ask your doctor to refer you to a registered dietitian who can answer any specific questions you may have.

A healthy balance

Foods can be divided into five main groups. To enjoy a balanced diet we need to eat foods from these groups in the right proportions. Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.



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Getting the balance right

A good way to see whether you are achieving the right balance, is to think about how many portions of each of these foods you normally eat and see how it compares to the table below. Remember, everyone's nutritional needs are different and you may need more or less portions than those suggested.

Remember...
If you are trying to lose weight, the sizes of your portions may need to change. Speak to your dietitian for more specific advice.

Food groups and what's in a portion	How many portions do you eat in a day?	How many portions should you eat in a day?
<p>Bread, cereals, rice, pasta and potatoes. One portion is equal to:</p> <ul style="list-style-type: none"> • 2–4 tbsp cereal • 1 slice of bread • half a small chapati • 2–3 crispbreads or crackers • 2–3 tbsp rice, pasta, cous-cous, noodles or mashed potato • 2 new potatoes or half a baked potato 		<p>7–14 Include starchy foods at all meals.</p>
<p>Fruit and vegetables. One portion is equal to:</p> <ul style="list-style-type: none"> • a banana or apple • a slice of melon • 2 plums • a small glass of fruit juice or smoothie • a handful of grapes • a cereal bowl of salad • 3 heaped tbsp of vegetables 		<p>5 or more Choose a wide variety of foods from this group, including fresh, frozen, dried and tinned.</p>
<p>Meat, fish and alternatives. One portion is equal to:</p> <ul style="list-style-type: none"> • 2–3 oz (60-85g) meat, poultry or vegetarian alternative • 4–5 oz (120-140g) fish • 2 eggs • 2 tbsp nuts • 3 tbsp beans, lentils or dahl 		<p>2–3 Choose the lower fat alternatives whenever possible and eat more beans and pulses.</p>
<p>Milk and dairy foods. One portion is equal to:</p> <ul style="list-style-type: none"> • 1/3 pint milk • small pot yogurt • 2 tbsp cottage cheese • 1 1/2 oz cheese (40-45g, matchbox size) 		<p>3 Choose lower fat versions of milk and dairy foods.</p>
<p>Fatty and sugary foods. One portion is equal to:</p> <ul style="list-style-type: none"> • 2 tsp spread, butter, oil, salad dressing • half a sausage • rasher of bacon • 1 mini chocolate bar • 2 tsp sugar, jam or honey • 1 scoop ice cream or 1 tbsp cream • half pack of crisps 		<p>0–4 Cut down on sugary and fatty foods.</p>

Know your labels

Making sense of food labelling isn't always easy. Both 'Traffic light' labelling and Guideline Daily Amounts (GDAs), on food and drink labels, can be a starting point to help you to see how healthy or unhealthy your food or drink is. They also allow you to compare differences between brands.

Traffic light labelling

The traffic light colours, on the front of some packs, tell you whether the product has low, medium or high amounts of fat, saturated fat, sugars and salt. Examples of how these may look are shown:



Red means high – keep an eye on how often you are choosing these foods. Choose them less often or eat them in smaller quantities.

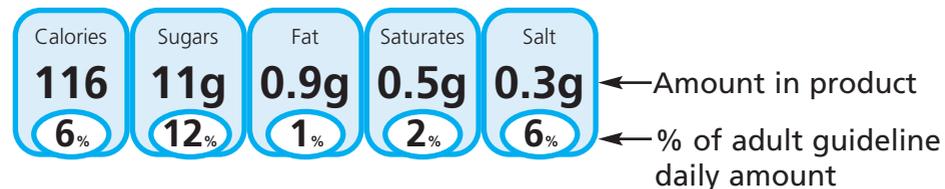
Amber means medium – it's okay to have some of the time but when you have a choice, try to go for green.

Green means low – a healthier choice.

Most foods will have a mix of coloured lights so try to choose more products with green and amber and less with red. You don't need to avoid all foods high in fat, sugar or salt - it's the overall balance of your diet that counts. Eaten occasionally, or in small amounts, red foods won't significantly affect your overall diet. If the traffic light label doesn't tell you enough, check the back of packs for detailed information.

Guideline Daily Amounts

Not all manufacturers use the traffic light system so you may see a Guideline Daily Amount (GDA) label on some of the foods you buy such as the example below:



This label provides information on the amount of sugar, fat, saturated fat and salt as well as the number of calories in each portion of the product. The percentages refer to the proportion of the total amount of the nutrient that is recommended for an average adult per day. These figures are based on GDAs for women, to encourage people who need less energy to consume fewer calories.



This system requires a greater level of interpretation than the traffic light system.

For further information about food labelling, see Diabetes UK's useful credit card-sized, fold out leaflet, *Know your labels* (code 7402).

Foods labelled as 'healthier' choices

Most supermarkets are now offering their own 'healthy-eating' ranges. Although they can help you find healthier options, you still have to think about how that food fits into your diet. It's important not to rely on foods marked as healthy-eating options as a healthy diet is made up of a variety of foods. Some products may be labelled as low fat but still be high in sugar, and vice versa.

Products labelled 'low' contain less of that nutrient (ie fat, salt, sugar etc) than those labelled 'reduced' - but whether a food is labelled 'diet', 'light', 'low' or 'reduced', all of them are a healthier choice than standard versions of the same food. But beware, the calorie, fat or sugar savings made by choosing these versions may not be as great as you think – especially foods which are high in fat and/or sugar anyway, eg cakes, biscuits and crisps.

Also, bear in mind that some foods are naturally low in fat, sugar or salt, or high in fibre. Starchy foods like cereals and pasta are always low in fat, yet some brands are sold with the claim 'low-fat food'.

Ingredients

By checking the ingredients list, you can really get to grips with the food's nutritional value. Remember, the ingredients are listed from the highest ingredient first to the lowest ingredient last.

Carb counting

Food labels can be a useful and convenient way of finding out the carbohydrate content of foods and drink. Over the years food labels have become a lot more detailed. Here are some tips to help you use the food label to count carbohydrate:

- Double check whether the value you are using is per 100g. If it is per portion or serving, what is the portion or serving size?

- The amount of carbohydrate you should count is the 'Total carbohydrate' rather than the 'of which sugars'.
- Check whether the amount of carbohydrate is for the raw or cooked product, especially with foods containing pasta or rice.
- Consider what ingredients make up the product you are looking at. If it is a food that contains a lot of very slowly-digested carbohydrates, such as beans or tomatoes you would not count this carbohydrate. But the carbohydrate value will include them. Check the ingredients list to get a sense of how much of these foods are in the product.

For information about your grocery shopping visit the Diabetes UK store tour www.diabetes.org.uk/storetour

You may also be interested in reading these other related Diabetes UK resources:

Diabetes UK publications

Understanding diabetes (free) (code 8002)

Weight creeping up on you? (free) (code 7500)

Know your labels (free) (code 7402)

To order, telephone: 0800 585 088



Sources of support and information

Diabetes UK Careline

Our careline service is here to help. Call 0845 120 2960 for support and information (although we are unable to provide individual medical advice). BT calls from landlines cost no more than 4p per minute; calls from other providers and mobiles may vary.

Diabetes UK website

For an online store tour of Diabetes UK's information guide to food shopping, and menu planning visit www.diabetes.org.uk

Diabetes UK Publications Tel:0800 585 088

Diabetes Education Network www.diabetes_education.net

Food allergies

Coeliac UK, Suites A-D Octagon Court, High Wycombe, Bucks, HP11 2HS

Tel: 0870 444 8804 www.coeliac.co.uk

Allergy UK, 3 White Oak Square, London Road, Swanley, Kent, BR8 7AG

Tel:01322 619898 www.allergyuk.org

Anaphylaxis Campaign, PO Box 275, Farnborough, GU14 6SX

Tel: 01252 542029 www.anaphylaxis.org.uk

Special diets

The Vegetarian Society, Parkdale, Dunham Road, Altrincham, Cheshire, WA14 4QG

Tel: 0161 925 2000 www.vegsoc.org

The Vegan Society, Donald Watson House, 21 Hylton Street, Hockley, Birmingham B18 6HJ

Tel: 0845 458 8244 www.vegansociety.com

Weight management

Weight Concern, Brook House, 2-16 Torrington Place, London, WC1E 7HN

Tel: 020 7813 6636 www.weightconcern.com

About Diabetes UK

Diabetes UK is the charity for people with diabetes, their family, friends and carers. Our mission is to improve the lives of people with the condition and work towards a future without diabetes.

Diabetes UK stands up for the interests of people with diabetes by campaigning for better standards of care. We are one of the main funders of diabetes research in the UK which includes research into cause and prevention, care and treatment and finding a cure. We provide practical support and information to help people manage their diabetes.

How can you help?

You can be actively involved in the work Diabetes UK does.

Become a Supporting Member

call free on 0800 138 5605

Diabetes Campaigners Network

for details call 020 7424 1000

Email dcn@diabetes.org.uk www.diabetes.org.uk/campaigns

Fundraising ideas and events

call 020 7424 1000 Email events.fundraising@diabetes.org.uk
www.diabetes.org.uk/fundraise

Make a donation

call 020 7424 1010 www.diabetes.org.uk/donate

Feedback

We welcome any feedback you may have on this leaflet or on any of our information. Email: infofeedback@diabetes.org.uk

Diabetes UK

National and regional offices

	Telephone
Central Office	020 7424 1000
Diabetes UK Cymru	029 2066 8276
Diabetes UK Northern Ireland	028 9066 6646
Diabetes UK Scotland	0141 245 6380
Diabetes UK Eastern	01376 501 390
Diabetes UK Midlands	0115 950 7147
Diabetes UK London	020 7424 1116
Diabetes UK Northern & Yorkshire	01325 488606
Diabetes UK North West	01925 653281
Diabetes UK South East	01372 720 148
Diabetes UK South West	01823 324007

Visit www.diabetes.org.uk/in_your_area/ for email addresses

Useful contacts

Become a Supporting Member	0800 138 5605
Supporter Services	0845 123 2399
Advocacy Service	020 7424 1840/1847
Publications orderline	0800 585 088

Diabetes UK Careline is here to give support and information about diabetes: careline@diabetes.org.uk or call **0845 120 2960** (please check the costs of calls to 0845 numbers with your phone provider). Or call 020 7424 1000 and ask to be transferred to the Careline.



The charity for people with diabetes

Macleod House, 10 Parkway, London NW1 7AA

Telephone 020 7424 1000 **Fax** 020 7424 1001

Email info@diabetes.org.uk

Website www.diabetes.org.uk

A charity registered in England and Wales (no. 215199) and in Scotland (no. SC039136). © Diabetes UK 2010

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