

# Carbohydrate counting guide for type 1 diabetes

Nutrition and Dietetics

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Information for Patients

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## What is carbohydrate (carb) counting?

To achieve good blood glucose levels it is important to understand how many carbs there are in the food you eat. Carb counting is a method to accurately work out how many grams of carbohydrate are in the food you eat. Before we look at how to do this, let's look at how carbs affect glucose.

## How do carbs affect blood glucose?

Carbs are digested in the gut into glucose. This glucose then passes into the bloodstream and moves around the body. Insulin allows this glucose to pass from the blood into the body's cells where it can be used for energy.

It is important to try and keep blood glucose level between 4 to 7mmol/l before meals and 5 to 8 mmol/l before bed. This can be done by getting the balance right between your carbs, your insulin and your activity.

## Which foods contain carbs?

Bread	Chapattis/ Noodles	Fruit
Cereal	Rice	Yoghurt
Pasta	Flour (any food containing flour)	Honey/syrup
Potato (any type)	Sugar (any food containing sugar)	

**Whilst carbs do affect blood glucose levels they provide the body with energy and vitamins, so it is important that you do not avoid eating them.**

**Health information and support is available at [www.nhs.uk](http://www.nhs.uk)  
or call 111 for non-emergency medical advice**

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## Which foods do not contain carbs?

Vegetables	Fish	Oil
Salad	Quorn	Butter/margarine
Chicken	Tofu	Nuts
Meat	Cheese	

If these foods are eaten without added carbs they will not raise blood glucose levels.

## Are there any carbs that do not need to be considered?

Some carbs are absorbed slowly and will not have much of an effect on your glucose levels (unless eaten in larger quantities). It is not necessary to take quick acting insulin with these foods

Various beans and lentils, pearl barley	Some fruit including cherries, grapefruit, lemon, and lime.
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## Are there any carbs to avoid?

Some carbs are difficult to match with insulin and are best avoided e.g. sugary drinks including fruit juice and smoothies and jelly/ chewy sweets. These carbohydrates will raise your blood glucose levels very quickly and should only be taken to treat a hypo, if you have a blood glucose level below 4mmol/l.

## What can help to be accurate with carb counting?

To work out the carbs in your food you will need a resource to help you to do this. This could be a food label or an app such as Carbs & Cals, Lifesum, Nutracheck or MyFitnessPal.

We will look at how you work out the carbs using a food label and then each of the apps in turn.

Your diabetes team will advise on your insulin to carbohydrate ratio.

## How do you work out carbs per portion from a food label?

Most food/drinks have a food label giving the nutritional detail of that product. A label will tell you how much carbohydrate is in that food or drink.

When looking at a label it is important to look at the **'total carbohydrate'** and not the 'of which are sugars'. Usually the nutritional information on a food label is listed **per 100g** and **per portion**.

Lets look at a food label from a multipack of crisps. The food label below shows the carbs per 100g and the carbs per 25g packet.

If you were to eat 1 packet of crisps from this multipack then your carb intake would be 15.8g (this rounds up to 16g)

Nutrition Information for 6 pack of crisps (multi pack)		
	Per 100g	Per bag (25g)
Energy	456kcal	114 kcal
Fat	18.8g	4.7g
Of which are saturates	1.7g	0.4g
Monounsaturated fat	14.5g	3.6g
Polyunsaturated fat	1.8g	0.5g
Carbohydrates	63.1g	15.8g
Of which sugars	10.6g	2.7g

## How to calculate carbs when your portion is different to the portion provided on a food label.

Lets use pasta as an example. There are some foods such as pasta, rice, potato, noodles and chapattis that you will need to cook before you weigh them.

Weigh your pasta using food scales. Remember to zero your scales and ensure they are measuring food weight in grammes. Lets use a portion of 140g in this example.

To work out the carbs in your portions you will need to do some calculations using the carb information from the food label.

The food label below gives you the nutritional information about pasta. On this label the nutritional information is based on a 100g portion and a 170g portion.

Pasta nutritional information (when cooked according to instuctions)		
	Per 100g	Per 170g
Energy	748kJ	1271 kJ
	176kcal	300kcal
Fat	0.7g	1.1g
Of which saturates	0.2g	0.3g
Carbohydrates	35.7g	60.7g
Of which sugars	1.1g	1.9g

To work out the carbs in 140g of this pasta you will need to first work out the carbs in 100g pasta

In this case there are 35.7g carbs in 100g pasta.

Then you will need to work out the carbs in 1g pasta. To do this you will need to do the following:

$\text{Amount of carb} \div \text{Weight of the portion}$

$$35.7 \div 100 = 0.357g$$

Then to work out the carbs in 140g pasta do the following sum:

$$0.357 \times 140g = 49.9g \text{ (round up to 50g carbs).}$$

**140g pasta has 50g carbs**

## How to calculate carbs using the Carbs and Cals book or app.

If you do not have a food label to hand there is a resource that you can buy as a book or download from the App store called Carbs & Cals. The app icon looks like this:



There are 2 methods to calculate carbs using Carbs and Cals.

### Method 1

If you plan to work out the carbs manually using information from the images, the process is similar to what has been outlined on Pages 4 and 5. We will go through this step by step. Lets use corn flakes as an example.

#### Step 1

Weigh out the portion of cornflakes you would like. In this case our portion weighs 65g.

#### Step 2

Using the book, select the food closest to yours. In this case it is corn flakes.

#### Step 3

Select any 1 of the 6 images. You will use nutritional information from the image you have selected.

#### Step 4

Use the same steps as on page 3. You will need to work out the amount of carb in 1g of cornflakes. To do this you need the following information:

To work out the carbs in 1g:  $\text{Amount of carb} \div \text{Weight of your food}$

#### Step 5

Now you will need to do a further sum to work out the carbs in the weight of your food

$\text{Amount in 1g of carbs} \times \text{weight of your food}$

In this instance:  $0.83 \times 65\text{g} = 53.95\text{g carbs}$

There is 53.95g carbs in the portion of cornflakes.

## How to calculate your carbs using Carbs & Cals

**Step 1:** Download the app. The icon looks like this

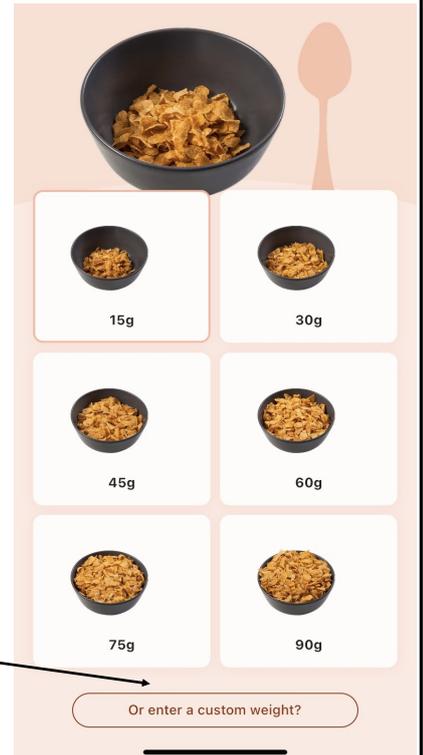


**Step 2:** Open up your Carbs & Cals app.

**Step 3:** Using the search box select a food or a meal option such as breakfast, lunch, dinner or snack options and type in the name of the food most similar to what you plan to eat.

**Step 4:** You will see six images of the same food appear. Below the 6 images there is an option to enter custom weight.

You can type in the weight of your carb portion in the 'custom weight' section and the app will work out the nutritional information for you.



## How to calculate your carbs using Lifesum

**Step 1:** Download the app. The icon looks like this:



**Step 2:** Open up the Lifesum app.

**Step 3 :** Select the breakfast, lunch, dinner or snack option to search for a food.

**Step 4 :** Type the name of the food into the search bar and select the food type most similar to what you plan to eat.

**Step 4 :** Click on the box with the suggested portion size and then select grammes.

**Step 5 :** You can then type in the weight of your meal portion in the box that's says '1' and the app will work out the carbs and other nutritional information for you. This will give you the exact amount of carbs in your portion of food.

## How to calculate your carbs using MyFitnessPal

**Step 1** : Download the MyFitnessPal app. The icon looks like this:



**Step 2** : Press the '+' button at bottom of the page. First select the food option and then select the breakfast, lunch, dinner or snack option.

**Step 3** : Then type in the name of the food most similar to what you plan to eat and press the '+' button on the right hand side of the screen. Alternatively you can scan the bar code of the food if you have the packet to hand.

**Step 4** : Where it says 'serving size' change this to 1 gram. Then in the box titled 'Number of servings' add the weight of your meal portion. The app will then accurately work out the carbs and other nutritional information for you.

## How to calculate your carbs using Calorie Counter (Nutracheck)

**Step 1** : Download the Calorie Counter app (Nutracheck). The icon looks like this:



**Step 2** : Type your food into the search bar at the top of the screen or select any one of the the meal options and type in the name of the food most similar to what you plan to eat. Alternatively you can scan the bar code of the food if you have the packet to hand.

**Step 3**: Then add the weight of your portion into the section labelled 'enter specific weight'. Press done.

**Step 4** : Select 'view nutrition info'. This will give you the exact amount of carbs in your portion of food.

## Contact details

If you need further support then please speak with your Diabetes Specialist Nurse or Diabetes Specialist Dietitian.

You can also call the Diabetes Helpline Number on 0116 258 4919 Monday to Friday from 9.00am to 3.30pm.

You will need to leave a message leaving your name, hospital number (if you have it) and someone will come back to you as soon as they can.

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