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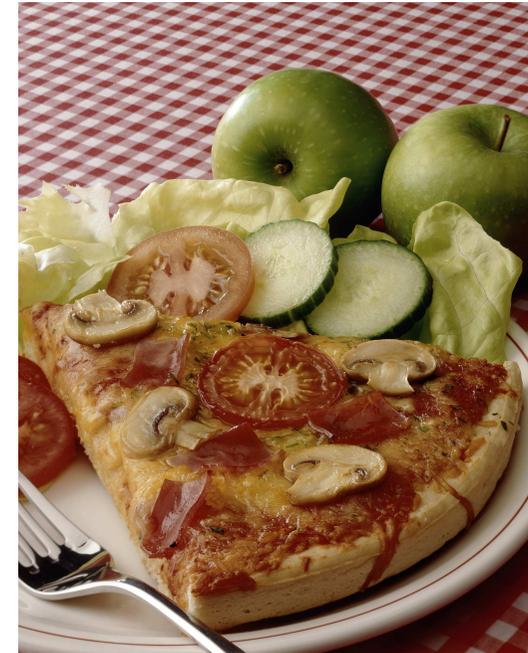
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# Carbohydrate Counting

## Nutrition and Dietetics



# Carbohydrate Counting

## A guide to carbohydrate counting for people with diabetes

Carbohydrates play an important part in healthy eating. They are found in sugars and starchy foods. These foods are broken down to glucose during digestion and are then absorbed into the blood stream.

### STARCH

Starchy carbohydrate food provides energy and other important nutrients.

The more carbohydrate eaten at a meal, the greater the effect on blood glucose will be.

### MAIN SOURCES OF STARCHY FOOD

- Bread, potatoes, rice, pasta, breakfast cereals, oats, couscous, corn, biscuits, cakes, sweet potatoes, yams, lentils, dried beans, baked beans.
- Anything made with flour – pizza, pastry, some sauces and soups, pies, sausage rolls, quiches.
- Foods that are coated with breadcrumbs or batter.
- Some meat products such as sausages.
- Vegetarian products such as Quorn steaks and lentil burgers.

**Patient:**

**Date:**

**Dietitian:**

**Contact:**

**Useful websites:**

<http://www.diabetes.org.uk/>

<http://www.runsweet.com/>

<http://www.bdec-e-learning.com/>

<http://www.carbsandcals.com/>

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### Further Information

We endeavour to provide an excellent service at all times, but should you have any concerns please, in the first instance, raise these with the Matron, Senior Nurse or Manager on duty.

If they cannot resolve your concern, please contact our Patient Experience Team on 01932 723553 or email [patient.advice@asph.nhs.uk](mailto:patient.advice@asph.nhs.uk). If you remain concerned, the team can also advise upon how to make a formal complaint.

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# FOOD DIARY

Day/Date.....

Time of day	Blood glucose	Units of insulin	Food/Drink/ Activity	Carbohydrate estimation

## SUGARS

### Sugary foods

These offer little in the way of nutrients but do increase calorie intake.

Main sources of sugary foods include sugar, honey, chocolate, sweets, sugary cakes, biscuits, sweet puddings and regular versions of soft drinks.

### Naturally occurring sugars

Fructose is a fruit sugar which will affect blood glucose levels and is present in fruit. However, fruit is a good source of vitamins, minerals and fibre.

Lactose is a milk sugar and is present in milk, yogurt, fromage frais, ice cream and custard. These foods are an important source of calcium and protein.

1 pint milk = 30gms carbs. Hard cheese and butter do not contain carbohydrate.

## VEGETABLES

The small amount of carbohydrate in green and root vegetables do not need to be counted.

## POTATOES

Baking, roasting and making chips dehydrate the potato and thus concentrates the carbohydrate. This can be confusing when calculating the carbohydrate content.

## RICE AND PASTA

Foods such as rice and pasta absorb water. The amount depends on the length and method of cooking. Again, this can be confusing when calculating carbohydrate content.

It is recommended to cook your own portion of rice or pasta (having weighed the dry weight) for a set time and either weigh it again or measure it in cupfuls so that next time you know the carbohydrate of the cooked portion (the longer the cooking the more water is absorbed).

## GLYCAEMIC INDEX (GI)

This is a scale that describes the speed at which carbohydrates are broken down during digestion; it ranges from 0-100.

Foods that are digested slowly have a low glycaemic index, <55.

They include granary, seeded breads, pasta, basmati rice, dried beans, baked beans, sweet potato, porridge and most fruits.

Other factors affect the speed of digestion such as fibre content, cooking technique and other foods eaten at the same time.

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## STEPS TO CARBOHYDRATE COUNTING

- Kitchen scales
- Food reference tables:
  - Carbs & Cals by Chris Cheyette & Yello Balolia – £12.99 ISBN 978-0-9564430-2-1 Also available as phone app.
  - MyFitnessPal phone app.
- Reading labels on food packaging
- Calculator
- Keeping a food diary

## CALCULATING THE CARBOHYDRATE VALUE

- Weigh the food
- Refer to the food reference tables and find the CHO content of 100g of the food
- Calculate the CHO content of the portion

### Example:

Raw jacket potato weighs 250g and the food reference table shows that 100g raw potato equals 17g CHO, so...

100g of potato = 17g CHO

Therefore, 1g of potato = 17g divided by 100 = 0.17g CHO

Then 250g potato = 0.17g X 250g = 42.5g CHO

*NB: The total meal carbohydrate content has to be calculated.*

## **CALCULATE DOSE OF INSULIN FOR MEAL**

This advice is to be discussed with the dietitian and diabetes nurse.

There is a ratio of insulin to grams of carbohydrate eaten/drunk at a meal and it varies from person to person, but will also vary from breakfast to lunch to evening meal.

**Step 1:** Calculate the amount of carbohydrate eaten at a meal, e.g. breakfast.

**Step 2:** Divide this amount of carbohydrate by the amount of fast acting insulin taken for that meal. For example, if 60g of carbohydrate is eaten and 6 units of insulin is given then divide 60 by 6, which equals 10. This means that the ratio is one unit of insulin for 10g of carbohydrate for breakfast.

**Step 3:** Check blood glucose level before the meal and again 2 hours after the meal.

- If the blood glucose level has increased by 1 to 3 mmol/l then you have given the right amount of insulin for that meal.
- If it is much higher then more insulin needs to be given. For example, if it is 5 mmol/l before the meal and rises to 10 mmol/l afterwards then more insulin is required. Try increasing the insulin by 1 to 2 units and check as before.
- If it is lower then the insulin needs to be decreased. For example if it is 5 mmol/l before the meal and falls to 4 mmol/l after then try lowering the insulin by 1 to 2 units.

*NB: One day's information might not give a true picture, so testing over several days might make it clearer. Please also remember that there might be different ratios for each meal during the day.*

## **CONSIDER PRE-MEAL BLOOD GLUCOSE AND FACTORS AFFECTING LEVELS**

Exercise, alcohol and pre-meal blood glucose level will all have a bearing on the amount of fast acting insulin given.

### **ALCOHOL**

Extra insulin is not given for alcohol, but it is important to find out how alcohol affects your blood glucose levels. Initially, alcohol can raise blood glucose levels but then it can sometimes also cause hypos (episodes of low blood sugar) later that evening, during the night or even the next morning.

### **EXERCISE**

Exercise often lowers blood glucose levels, depending on the intensity and duration of activity. Each person has to determine how exercise affects them. There is an increased risk of hypoglycaemia for up to 24 hours post exercise.

### **PRE-MEAL BLOOD GLUCOSE LEVELS**

If blood glucose levels are high before a meal then it is worth analysing why so you can take steps to avoid a similar situation in the future. Sometimes it is necessary to give a one off correction dose- please discuss this with your diabetes nurse or dietitian.