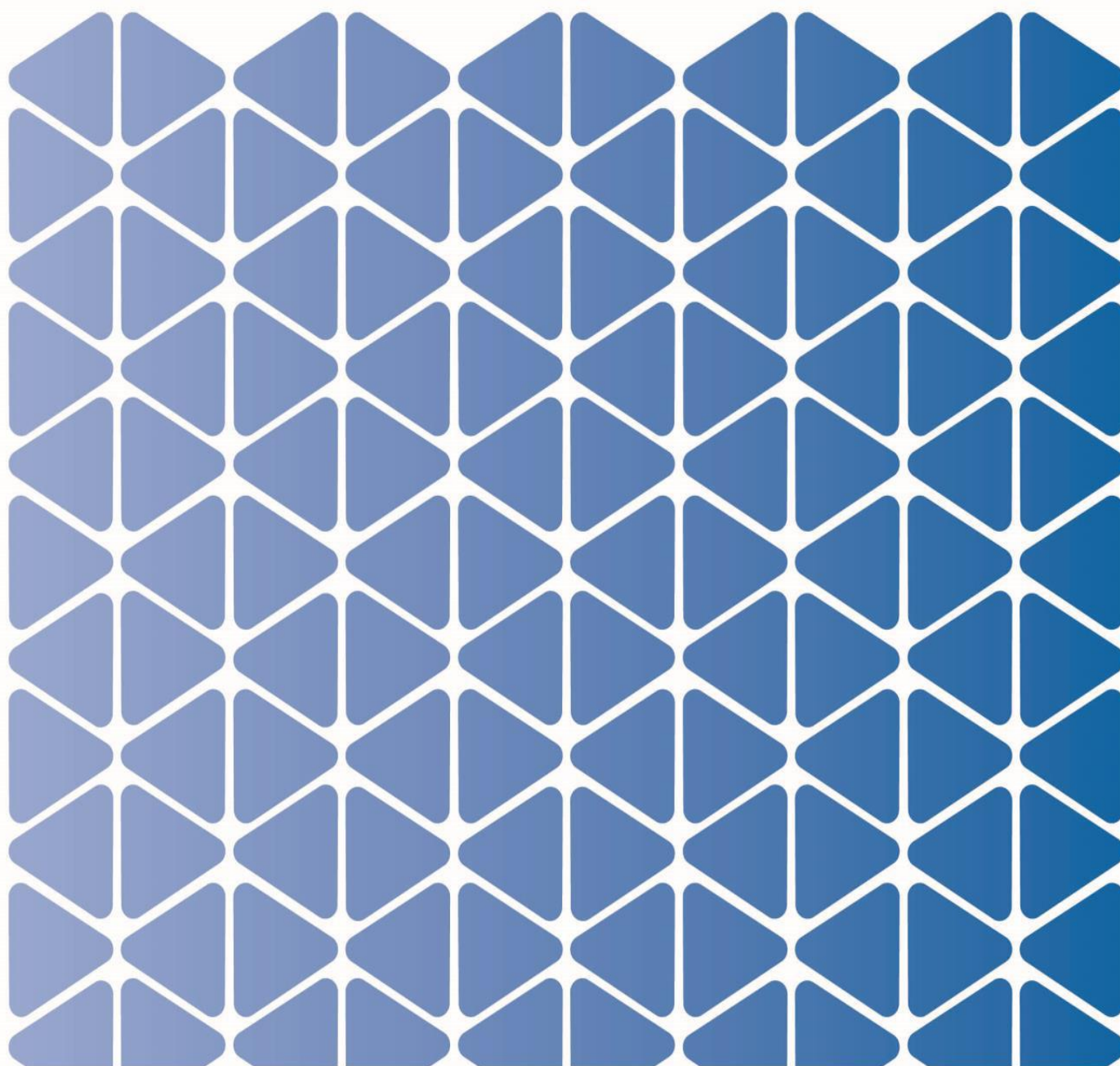


PATIENT INFORMATION**CARBOHYDRATE AWARENESS FOR
PEOPLE WITH DIABETES**

What is carbohydrate?

Foods contain a mixture of nutrients including carbohydrate, protein, fat, vitamins and minerals.

All carbohydrate foods are broken down by the body into glucose, where insulin moves it into the cells to be used as fuel to provide energy.

Which foods contain carbohydrate?

Carbohydrate is found in many different foods. We can separate them into the following groups:

<u>Starchy Carbohydrates</u>	<u>Added sugars</u>	<u>Natural sugars</u>	<u>No carbohydrates</u>
Bread	Sugar	Fruit	Meat
Potatoes	Fizzy drinks	Fruit juice	Fish
Rice	Sweets	Milk	Seafood
Pasta	Biscuits	Yoghurt	Butter, spreads
Noodles	Cake	Honey	Oils
Breakfast cereals	Chocolate		Nuts
Foods containing flour*	Jam		Mayonnaise, Cream
Chapatti	Ice cream		Cheese
Naan			Eggs

*Be aware that foods in batter, breadcrumbs or pastry are made with flour and therefore will contain carbohydrate.

If you eat a large amount of beans, pulses or starchy vegetables then these will affect your blood glucose levels. Ask your dietitian if you want more information.

How do carbohydrates affect my blood glucose levels?

All carbohydrates, whether starchy or from sugars, break down into glucose and raise your blood glucose levels. Therefore, if you eat a lot of carbohydrates at a meal then your blood glucose levels may rise too high (hyperglycaemia). If you take certain diabetes medications and eat very little carbohydrate, then your blood glucose levels may drop too low (hypoglycaemia).

As a general rule:

10g of carbohydrate will raise blood glucose levels by 2-3 mmol/l.

How much carbohydrate should I eat?

130g of carbohydrate daily is often quoted as the minimum amount we need but the body can adapt to less.

The Reference Intake for adults is 260g of carbohydrate daily.

The amount to aim for is variable depending on your activity levels, weight, dietary habits and tolerance.

Between 130g and 200g is generally a good amount of carbohydrate to have each day if you have Type 2 diabetes, although some people prefer to have less than this.

Reducing your carbohydrate intake may help you reduce your diabetes medication and weight as well as help control your blood glucose levels.

It can be useful to assess your current carbohydrate intake to see how much you are currently eating and what reductions need to be made. The following pages will guide you with how to assess this.

What do I look for on food labels?

When looking at food labels, always look at the amount of **total carbohydrate** in the food or drink and not just the amount of sugars. Remember, all carbohydrate in your food or drink will break down to glucose and affect your blood glucose levels.

For example, the food label below shows that there is 20g of carbohydrate per slice of bread. However, if you consume two slices that would be 40g (i.e. 2 x 20)

Nutrition				
Typical values	100g contains	Each slice (typically 44g) contains	% RI*	RI* for an average adult
Energy	985kJ 235kcal	435kJ 105kcal	5%	8400kJ 2000kcal
Fat	1.5g	0.7g	1%	70g
of which saturates	0.3g	0.1g	1%	20g
Carbohydrate	45.5g	20.0g		
of which sugars	3.8g	1.7g	2%	90g
Fibre	2.8g	1.2g		
Protein	7.7g	3.4g		
Salt	1.0g	0.4g	7%	6g
This pack contains 16 servings				
*Reference intake of an average adult (8400kJ / 2000kcal)				

What is carbohydrate awareness?

All people with diabetes should be aware of carbohydrate foods and how this should be balanced with their medication.

Tablets, once daily or mixed insulin

If your diabetes is managed with tablets or if you are taking once daily or mixed insulin then it is beneficial to eat consistent amounts of carbohydrate throughout the day.

For example, if you consume the following foods your blood glucose levels would be more stable as your carbohydrate intake is consistent.

Breakfast: 2 x wheat biscuits = 30g
 100mls milk = 5g
 35g

Lunch:	Ham sandwich (2 medium slices bread)	= 30g
	1 x diet yoghurt	= 10g
		<u>40g</u>

Evening meal:	Steak	= 0g
	4 medium new potatoes	= 40g
	Salad	= 0g
		<u>= 40g</u>

However, if you decided to eat a large serving of chips for evening meal instead of the new potatoes then your carbohydrate intake could be 70-80g at that meal. This means your blood glucose will rise more after evening meal, compared to the rest of the day.

Multiple Daily Insulin Injections

If you are on a multiple daily insulin injections then you can adjust your quick acting insulin according to your carbohydrate intake.

Carbohydrate counting is identifying and counting the amount of carbohydrate that you eat to help you calculate your insulin dose and control your blood glucose.

This approach gives more flexibility around the amount and timing of food eaten.

Can I get more information on carbohydrate amounts?

Books and phone apps of carbohydrate content are available from:
www.diabetes.org.uk or www.carbsandcals.com

Should I still eat a healthy diet?

Eating a healthy low fat, low sugar, high fibre diet is still beneficial for long term health. However, it is the carbohydrate in your food that directly affects your blood glucose level.

Amounts of carbohydrate in foods

The following list should give you a rough idea of how much carbohydrate there is in some foods:

Carbohydrate food

Amount of carbohydrate

Bread & starchy foods

1 slice medium thickness bread	15g
1 medium bread roll	25g
1 pitta bread / wrap	40g
1 cup (100g) cooked pasta	30g
2/3rd cup (100g) cooked rice	30g
1 medium (180g) jacket potato (oven baked)	55g
1 medium portion (180g) boiled potatoes	30g

Breakfast cereals

1 medium bowl branflakes (45g)	35g
1 medium bowl porridge with milk (220g)	30g
1 shredded wheat or wheat biscuit	15g

Dairy foods

200ml (1/3 pint) milk	10g
1 diet/light yoghurt	10-15g

Fruit & vegetables

1 apple	15g
1 medium banana	20g
2 tablespoons raisins	15g
150ml fruit juice	15g

Biscuits and cakes

1 digestive biscuit	10g
1 scone or teacake	30g
1 American muffin	45g
1 Mars bar (65g)	45g
1 Cornetto/ magnum	30g
Crisps (30g packet)	15g

What is the Glycaemic Index?

The Glycaemic Index (GI) is a ranking of carbohydrate foods based on how quickly they raise blood glucose levels. High GI foods will raise glucose levels very quickly, and low GI foods will raise glucose levels more slowly. If you have diabetes, it has been shown that by choosing more healthy low GI foods you may be able to reduce your HbA1c by 5mmol/mol.

Lower GI foods include fruit and vegetables, nuts, seeds, porridge, muesli, bran-based cereals, multigrain or granary bread, pasta, new potatoes in their skins, sweet potatoes, basmati, long grain or brown rice.

However, remember that the **amount** of carbohydrate you consume will have more impact on your blood glucose than changing the GI of your foods.

Managing Hypoglycaemia

If you are on diet alone or taking metformin tablets you should not experience hypoglycaemia.

If you take insulin or Sulphonylurea tablets you may have a hypo if you do not have enough carbohydrate to match your medication. If you choose to reduce your carbohydrate you will also need to reduce your insulin or tablets. Your diabetes team can advise you about this.

If you experience blood glucose lower than 4 mmol/l you must treat it immediately with 15-20g of rapid acting carbohydrate eg. 200ml orange juice or 3-4 jelly babies.

After 10-15 minutes retest your blood glucose and repeat the treatment with rapid acting carbohydrate if your blood glucose is still below 4mmol/l. Once above 4mmol/l you may need a longer acting carbohydrate snack such as a piece of fruit or a biscuit.

If your symptoms or condition worsens, or if you are concerned about anything, please call your GP, 111, or 999.

Patient Experience

We know that being admitted to hospital can be a difficult and unsettling time for you and your loved ones. If you have any questions or concerns, please do speak with a member of staff on the ward or in the relevant department who will do their best to answer your questions and reassure you.

Feedback

Feedback is really important and useful to us – it can tell us where we are working well and where improvements can be made. There are lots of ways you can share your experience with us including completing our Friends and Family Test – cards are available and can be posted on all wards, departments and clinics at our hospitals. We value your comments and feedback and thank you for taking the time to share this with us.

Patient Advice and Liaison Service (PALS)

If you have any concerns or questions about your care, we advise you to talk with the nurse in charge or the department manager in the first instance as they are best placed to answer any questions or resolve concerns quickly. If the relevant member of staff is unable to help resolve your concern, you can contact the PALS Team. We offer informal help, advice or support about any aspect of hospital services & experiences.

Our PALS team will liaise with the various departments in our hospitals on your behalf, if you feel unable to do so, to resolve your problems and where appropriate refer to outside help.

If you are still unhappy you can contact the Complaints Department, who can investigate your concerns. You can make a complaint orally, electronically or in writing and we can advise and guide you through the complaints procedure.

How to contact PALS:

Telephone Patient Services: 0300 123 1732 or via email at: wah-tr.PALS@nhs.net

Opening times:

The PALS telephone lines are open Monday to Friday from 8.30am to 4.00pm. Please be aware that you may need to leave a voicemail message, but we aim to return your call within one working day.

If you are unable to understand this leaflet, please communicate with a member of staff.