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## Reducing Carbohydrates



University Hospitals Sussex  
NHS Foundation Trust



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Fruit contains a carbohydrate called fructose. We recommend that you have some fruit daily, but only one portion at a time - the portions should be spread out throughout the day. A portion is a small to medium fruit such as apple, a small banana, orange, or a medium bowl of berries, or the equivalent of a handful of other fruit such as grapes.

Milk contains some carbohydrate as lactose, however it brings lots of other beneficial nutrients (calcium, iodine, protein). It is recommended that you have the equivalent of  $\frac{2}{3}$  to 1 pint of milk per day. You could swap 125ml of yogurt or 25g/1oz of cheese for  $\frac{1}{3}$  pint milk for the same calcium content.

### **Foods which don't directly affect blood sugars**

The following foods do not contain carbohydrate, so will not immediately affect blood glucose levels.

**Protein** foods such as meat, fish, eggs and cheese will not make your blood glucose level rise quickly. It is important to include moderate amounts in a balanced, healthy diet. Choose lean meats and take the skin off chicken to reduce the saturated fat content. These foods can be quite filling, so if you are trying to reduce your intake of bread, rice, pasta etc, it may help to include one or two eggs at breakfast, and tuna, chicken or ham at lunch.

**Fats** such as oils, margarines and high fat foods such as cheese and fatty meats do not directly affect blood glucose. They are high in calories, and so can increase weight. Try to reduce all fats in your diet if you are trying to lose weight. Monounsaturated oils such as olive and rapeseed oil are best for heart health and your cholesterol levels, but use only a small amount of these in cooking.

**Vegetables and salads** generally do not affect blood glucose levels. These contain other beneficial nutrients, are low in calories and high in fibre. They are good foods to have lots of, especially if you are trying to reduce other higher calorie foods, because they will fill you up. A few vegetables contain a higher carbohydrate content including parsnip, mushy peas and sweetcorn. Try to have only a small portion of these.

**Drink alcohol in moderation only.** Men and women should not have more than 14 units per week and this should not be saved for one day. You should try to have several alcohol-free days a week. 1 unit = a pub measure (25ml) of spirit, half a pint of normal strength (4%) beer or a small glass (125mls) of wine.

Alcoholic drinks contain varying amounts of carbohydrate. Sweet ciders, fortified sweet wines and alcopops are high in carbohydrate and are best avoided. Spirits have no carbohydrate so would be a good option with a sugar free or diet mixer. Normal strength beers, dry white wine and red wine contain some carbohydrate, stick to moderate amounts as advised above.

### **Useful sources of information**

'Carb and Calorie Counter' by Chris Cheyette and Yello Balolia is available as a book and as an app on the [carbsandcals.com](http://carbsandcals.com) website, on Amazon and from Diabetes UK. This shows photographs of foods and the carbohydrate and calorie content of different portion sizes.

Myfitnesspal.com is a free app for phones and iPads to help in calculating carbohydrate intake and to help you increase physical activity.

The 'Cook and Count' app has good reviews, but is not free. More details at [www.healthapps.uk.com/](http://www.healthapps.uk.com/)

Carbohydrate reference tables are available from your Diabetes Specialist Dietitian, or from Diabetes UK as a free download from their website ([www.diabetes.org.uk](http://www.diabetes.org.uk)).

### **Useful contacts**

Diabetes UK Helpline: 0345 123 2399 Monday to Friday 9am-6pm

Email: [helpline@diabetes.org.uk](mailto:helpline@diabetes.org.uk)

Website: [www.diabetes.org.uk](http://www.diabetes.org.uk)

Diabetes UK is a useful source of additional information about diabetes which you can read online, order or download. They also have books to buy, details of local diabetes groups and general news/articles about diabetes.

## Other healthy tips

**Exercise** - this is a really important part of the treatment of diabetes. Aim for 30 minutes a day, five days a week. Walking briskly, taking the stairs instead of a lift, swimming, dancing, and any other exercise or activity can be beneficial.

**Limit the amount of fat you eat, especially saturates.** Where possible choose unsaturated fats or oils, especially monounsaturated fat e.g. olive oil and rapeseed oil in place of saturated varieties e.g. butter, lard and ghee. All fats and oils contain calories and should not be eaten in large amounts if trying to lose weight.

- Grill, steam or oven bake instead of frying or cooking with oil or other fats.
- Choose lower fat dairy foods such as milk, yogurts and cottage cheese.
- Reduce your intake of fried foods, pastries, fatty meats and meat products, and remove the skin from chicken.

**Aim for at least two portions of oily fish a week.** Oily fish include mackerel, sardines, salmon, trout and pilchards – fresh, frozen or tinned. Fresh tuna is also an oily fish when fresh or frozen, but not when it is tinned.

**Reduce salt** especially if your blood pressure is high. Reduce salt added at the table and only add a pinch to cooking – try using herbs/spices to flavour foods instead. Eat less processed foods especially tinned/packet foods, stock cubes, gammon/salty meat and fish, and salty snacks such as crisps and salted nuts.

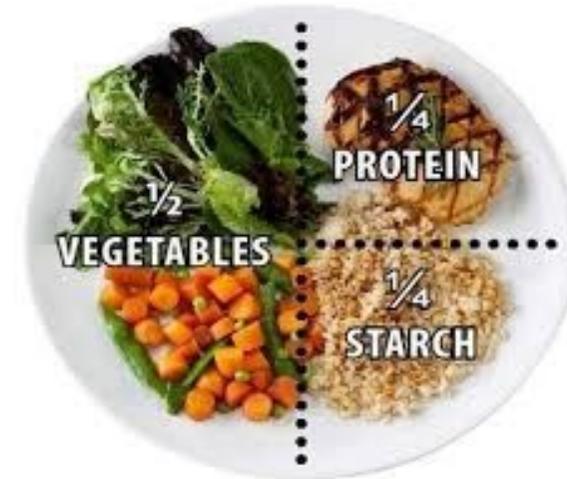
**Don't be tempted by diabetic foods or drinks** as they often contain just as much fat and calories as the ordinary versions, can have a laxative effect and they may still affect your blood glucose levels.

**5-a-day:** We recommend that you have at least five portions of fruit and vegetables each day. Have unlimited vegetables and salad, but only two to three portions of fruit a day because these contain fructose, which is a carbohydrate.

**Drinks** such as sugar free and diet squash, and plain or sparkling water do not contain carbohydrate and will not affect blood glucose. Tea and coffee with a small amount of milk will also have very little effect on blood glucose.

## How much carbohydrate?

Consider the amount of carbohydrate you eat. Aim to have approximately 30-40g carbohydrate at each meal. This target guideline, with the inclusion of some small snacks, would total about 120-150g per day. An easy way to estimate carbohydrate portion is to have just  $\frac{1}{4}$  of a plate of starchy carbohydrate at a meal:



To judge which food portions contain 30g of carbohydrate, use our suggested portion sizes, or look at food labels.

## Carbohydrate foods – suggested portion size for 30g carbohydrate

Food	Amount which provides 30g carbohydrate
Bread	<ul style="list-style-type: none"> <li>• 2 medium cut slices from a large loaf</li> <li>• 1½ thick slices from a large loaf</li> <li>• 1 wrap or tortilla, approx. 26cm / 10 inches</li> <li>• 1 medium pitta bread (60g)</li> <li>• 1 mini size naan bread (round, 60g)</li> <li>• 1 ½ x 10 inch cooked chapatti (65g)</li> </ul>
Potatoes	<ul style="list-style-type: none"> <li>• 5-6 egg-sized boiled new potatoes (180g)</li> <li>• 180g mashed potatoes (with milk or butter)</li> <li>• 3-4 egg sized roast potatoes (120g)</li> <li>• 150g mashed sweet potato</li> <li>• 1 small jacket potato (150g cooked)</li> <li>• 7-10 deep fried chips (80g)</li> <li>• 10-15 oven chips (100g)</li> </ul>
Rice & Grains (cooked)	<ul style="list-style-type: none"> <li>• 3 tablespoons or 100g cooked rice</li> <li>• 3 tablespoons or 100g cooked couscous</li> <li>• 4-5 tablespoons or 170g cooked quinoa</li> <li>• 5 tablespoons or 200g cooked bulgar wheat</li> <li>• 4-5 tablespoons or 195g cooked polenta</li> </ul>
Pasta (cooked)	<ul style="list-style-type: none"> <li>• 3 tablespoons or 100g cooked</li> </ul>
Noodles (cooked)	<ul style="list-style-type: none"> <li>• 3 tablespoons or 80g cooked egg noodles</li> <li>• 4 tablespoons or 100g cooked rice noodles</li> </ul>
Breakfast Cereals	<ul style="list-style-type: none"> <li>• Small bowl (220g) porridge 27g oats made with milk</li> <li>• Large bowl (365g) porridge 45g oats made with water</li> <li>• 35g or 3 tablespoons Bran Flakes, Malted Wheats, no added sugar Museli, Special Flakes with berries</li> <li>• 2 wheat biscuits</li> <li>• 2 oat biscuits</li> <li>• 2 wheat pillows</li> </ul>

- 2 oatcakes covered with low fat cream cheese, add marmite for a stronger taste, cucumber for crunch or smoked salmon for luxury.
- 1-2 seeded or wholemeal crackers e.g. oatcakes or Ryvita with cream cheese, salad, cherry tomatoes
- 25g (4 squares) of dark chocolate (85% cocoa solids).

### Avoid

- Cakes, biscuits, pies, milk chocolate and sweets are very high in carbohydrate and best avoided if you are aiming to limit your meals to 30g of carbohydrate.
- Salted and roasted peanuts are difficult to resist and we can easily over indulge so try to avoid, especially if you are trying to lose weight. They are also higher in carbohydrate than other nuts.
- Alcohol is high in calories. Cider, beer, lager, alcopops, liqueurs and sweet wines also contain carbohydrates. Limit the amount of alcohol you drink.

### Beware of Hypos

If you are on insulin injections or a medication called Gliclazide or Glibenclamide or Glimepiride, there is a strong chance that you will need to reduce the dose of your diabetes medication when you reduce your carbohydrate intake. You should test your blood glucose levels regularly.

Normal blood glucose levels are between 4.0 - 7.0 mmol/L. Monitoring is especially important if you drive, and you must ensure that your blood glucose reading is over 5 mmol/L before you drive. **This is a legal requirement.**

Please contact your Dietitian, Diabetes Specialist Nurse, Diabetes Practice Nurse or GP if you are concerned about an increasing number of blood sugar readings which are less than 5 mmol/L.

## Low carbohydrate snacks

These snack suggestions contain very little carbohydrate and will have a minimal effect on your blood glucose.

- Soup without potato, croutons or pasta. Check the label and choose the lower carbohydrate types.
- Lean meat, such as a chicken drumstick, or slice of ham, or a bag of chicken nibbles.
- Fish, e.g. crab, fish sticks or tinned fish.
- Egg, could be boiled, poached or made into an omelette with herbs and cheese.
- Baked soya nuts (otherwise known as Edamame beans) are a good filling snack (no more than 25g a day) and are available widely in supermarkets.
- Roast chickpeas, or Chana.
- Nuts contain very little carbohydrate and can be a useful snack. Limit to a palm full (25g) of fresh, unsalted nuts as they are high in calories.
- 20-25g Cheese stick, or a Babybel or Dairylea cheese.
- 1/4 avocado and 6 cherry tomatoes. Limit to 1/4 serving as avocados are high in calories.
- Raw veggie sticks such as red pepper strips, celery, cucumber, radish with a tasty dip (~50g) e.g. hummus, salsa, guacamole or low fat cheese spread, cheese and chive dip.
- 50g Olives or 8 large pickled gherkins.
- Small pot (100-125g) natural yoghurt sprinkled with 1tbsp chopped nuts or flaked almonds. A few fresh or frozen berries could be added.

### Foods containing 10-15g carbohydrate:

- A bowl of strawberries, raspberries or blueberries (150g)
- 10 (80g) grapes or 2 x small (55g) plums or 3 dried apricots or 2 satsumas, or half a mango.
- 1 medium apple, pear, banana, peach, nectarine, orange etc.
- Diet or light yoghurt (Checked the label for added sugars).

## Food labels

These can be useful when choosing a ready prepared or packaged food. Look at the 'Carbohydrate' or 'Total Carbohydrate' content for the serving size you are going to eat. N.B. This could be very different from the suggested serving size on the packet. The 'of which sugars' part shows how much of the carbohydrate is sugar, and thus indicates the speed at which the blood glucose levels will rise. The total amount of carbohydrate is most important, as the starch component of the food will also raise blood glucose levels so portion sizes are crucial.

A product that is 5g or less sugar per 100g is low sugar, whilst a product that is 22.5g or more per 100g is high sugar.

## Nutrition

	Per 100g of product	Per average slice (45.8g)
<b>Energy—kJ</b>	1263 kJ	578 kJ
<b>- kcal (Calories)</b>	300 kcal	137 kcal
<b>Protein</b>	12.3g	5.6g
<b>Carbohydrate</b>	39.7g	18.2g
<b>Of which sugars</b>	3.2g	1.5g
<b>Fat</b>	8.9g	4.1g
<b>Of which saturates</b>	1.9g	0.9g
<b>Mono-unsaturates</b>	3.3g	1.5g
<b>Polyunsaturates</b>	2.6g	1.2g
<b>Fibre</b>	6.0g	2.7g
<b>Sodium</b>	0.39g	0.18g
<b>Salt</b>	0.98g	0.45g

## Examples of breakfast, light meals and main meals

The weights [g] below, refer to the total weight of the food, not the carbohydrate content.

### Breakfast

Carbohydrate	Protein	Vegetables, salad or fruit
25g porridge oats or 35g Bran Flakes	1/3 pint milk	1tbsp fresh or frozen berries
2 medium slices bread from a large loaf	1-2 eggs	1/2 tin tomatoes (or 2 fresh tomatoes), 4 mushrooms
1 thick slice of granary or seeded toast	150ml natural or Greek yoghurt	Handful berries and 1 tbsp. chopped nuts or seeds

### Light meal

Carbohydrate	Protein	Vegetables, salad or fruit
2 medium slices bread from a large loaf	~75g sliced ham ~50g cheese or 2 eggs	2 cupped hands of salad
Egg or rice noodles, 80g-100g cooked weight	~70g chicken ~150g Quorn or ~80g tofu	Half plate of vegetables
1 tortilla wrap or 3 tbsp. couscous	1/2 tin 70g tuna or ~60g hummus	2 cupped hands of salad

### Main meal

Carbohydrate	Protein	Vegetables, salad or fruit
5 small egg-sized new potatoes (180g)	~100g grilled or roast chicken, fish or meat	1/2 plate of boiled or steamed vegetables
3 tbsp. cooked Spaghetti or pasta (100g)	~100g mince, bolognaise, chicken, Quorn, tofu or soya mince	1/2 plate roast vegetables
3 heaped tbsp. cooked rice (100g) or 1-2 chapattis (65g)	~200g chicken, prawn or egg curry or dahl	1/2 plate salad or vegetables

### Lower carbohydrate alternatives for starchy foods

- Carrot and swede or turnip mash
- Celeriac – Cut into wedges or 1 cm cubes and roast in a little oil, or boil and then mash
- Cauliflower rice – blitz a cauliflower in a food processor (or chop it into rice -sized pieces with a knife), then microwave or steam until tender (~180g)
- Vegetable noodles – use a spiralizer with courgette, carrot or other vegetables

**Snacks** – during the day, you could have 2 snacks of up to 10-15g carbohydrate each, or choose from the low carbohydrate snacks list below.