Nutrition and Dietetics

Reactive hypoglycaemia: dietary advice

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Introduction

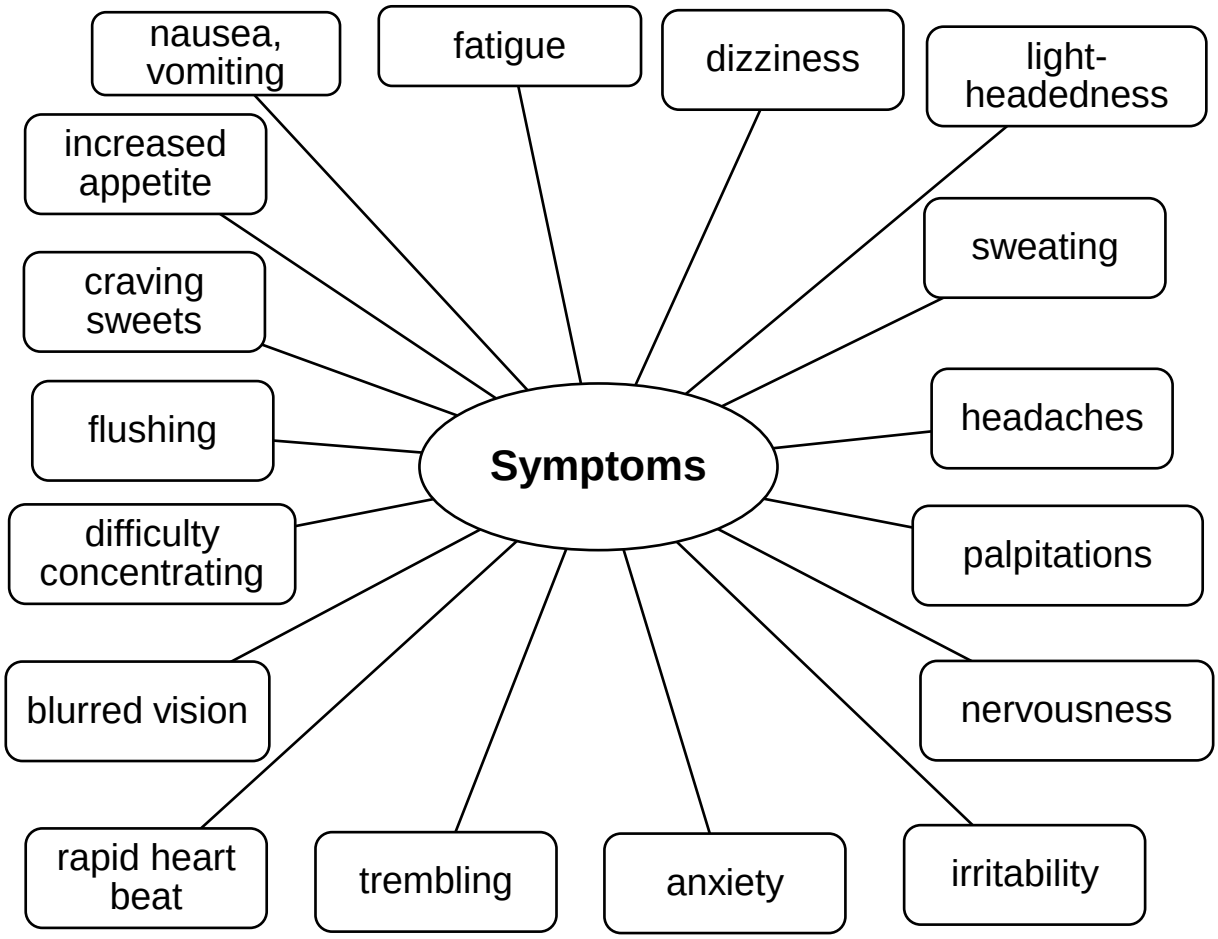
This leaflet is for those who have a diagnosis of ***reactive hypoglycaemia***. The aim is to ensure high quality nutritional intake for good health and management of symptoms. Your dietitian will be able to tailor this advice specifically for you.

What is reactive hypoglycaemia?

This is a term used to describe episodes of hypoglycaemia (aka "hypo": low blood glucose levels) typically occurring 2-4 hours after fast absorbing carbohydrate intake from food or drink. It is thought that this may be related to an exaggerated surge of insulin triggered by the carbohydrate content of the food or drink. Insulin is a hormone made in the pancreas that causes a reduction in your blood glucose level. Too much insulin relative to the carbohydrate intake will cause a hypo: a blood glucose below **3.5mmol/L**.

Learn more here: https://www.nhs.uk/conditions/low-blood-sugar-hypoglycaemia/

Symptoms of reactive hypoglycaemia



What are the main dietary principles?

Some individuals may find that changing their diet can relieve the symptoms of reactive hypoglycaemia to an extent. Current advice focuses on the following:

- Small, regular meals: lower in carbohydrate (this is explained below)
- Choose low glycaemic index (GI) foods (GI explained in more detail *page 4*)
- Avoid or limit foods that are particularly high in sugar: sweets/sugary drinks etc.
- Avoid or limit alcohol (especially alcohol that contains sugar).
- Add fibre to foods and choose fibre rich foods – e.g. beans/pulses/legumes into stews/curries/bolognaise sauces. You may also try fibre supplements: “Benefiber”; Optifibre (Nestle); psyllium husk powder and glucomannan (konjac) powder.
- Keep a food and symptom diary to identify patterns and relationship between foods eaten and symptoms experienced – **this will assist your dietitian to further help you to identify problem areas**
- If your BMI (body mass index) is high or have been told you have prediabetes/impaired glucose tolerance, aim to lose weight. BMI calculator: https://www.nhs.uk/live-well/healthy-weight/bmi-calculator/

What is carbohydrate and where do I find it in my diet?

All foods that contain carbohydrate **will cause your blood sugar levels to rise**.
Examples of foods containing carbohydrate are listed below:

Carbohydrates

Starchy	Added / "free" sugar	Naturally occurring sugar
Tubers: Potato, sweet potato, cassava, yam, taro etc.	Chocolate/biscuits*/cake*/ desserts*/puddings*	Milk
Wheat: pasta; bread; cous cous; pastry (savoury and sweet)	Ice cream	Fruit
Rice (all varieties)	Sugary drinks	Honey
Noodles (wheat, rice, potato etc.)	Sugar / golden syrup / maple syrup / treacle	Fruit syrups/maple syrup
Grains and cereals: breakfast cereals; oats; buckwheat; millet; barley, bulgur wheat, quinoa etc.	Sweet pastry*	
	Yoghurt (contains varying levels of "added sugar" from none to a lot)	
	Jams, fruit juice (may have additional added sugar)	

*also contains starch as well as sugar

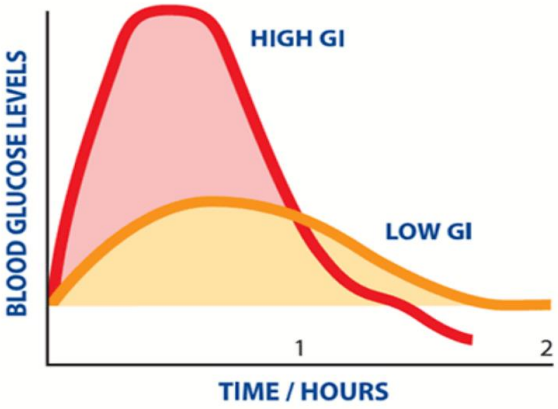
Carbohydrates provide us with an **essential source of energy** for our body, so it is important that you have these in your diet. We digest and absorb carbohydrate into a form of sugar called glucose into our blood and subsequently our blood glucose/sugar levels rise.

Glycaemic index (GI): what type of carbohydrate should I be eating?

It is not just about the amount of carbohydrates, but the type too!

Carbohydrates are digested and absorbed at different rates depending on a variety of factors. The term used to describe this is **g**lycaemic **i**ndex (**GI**); it is a way of measuring the effect individual carbohydrate foods have on blood glucose levels. **Not all carbohydrates affect blood glucose in the same way.**

High GI: absorbed quickly
Low GI: absorbed slowly



*****The faster carbohydrates are absorbed, the faster and higher your blood sugar rises, therefore increasing your risk of having a hypo*****

Foods are given a GI number according to their impact on blood glucose levels. The GI of a food is determined by how quickly it is digested, which is influenced by many things. Processed and cooked foods tend to have a higher GI (faster absorption). Some types of fibre will lower the GI of foods, and high fat foods/meals are more slowly absorbed and therefore have a lower GI.

Foods with a high GI are not necessarily unhealthy foods. For example potato crisps have a medium GI but a baked potato has a high GI. Despite this, a baked potato is better for your health than potato crisps, which are higher in fat and salt. As well as this, lower GI foods are not necessarily always healthy – chocolate and ice cream have a low to medium GI rating. So, the key is to use GI in the context of balanced eating.

- ✓ Including more foods with a low GI in meals can reduce post meal peaks in blood glucose levels and help keep blood glucose more even over the day.
- ✓ Low GI foods keep you fuller for longer so this can help when trying to lose weight.
- ✓ Although many vegetables and some fruits have little effect on blood glucose levels, the fibre in them will reduce the GI of any foods they are eaten with.

Low GI suggestions

Breakfast: No added sugar muesli or oat based cereal (30-40g), All Bran (30g), porridge
Sweeten with a dessert spoon of dried fruit (less if you feel this amount gives you symptoms) or you can use artificial sweetener
Bread: multigrain, granary, rye, seeded, oat, wholewheat pitta, sourdough
Fruits: berries, cherries, avocado, plums, apples, pears etc.
No added sugar yoghurt

If you struggle with mid-morning hypos, you may need to split your breakfast into two small breakfasts: a smaller breakfast plus a small mid-morning snack

Lunch: Add reduced sugar baked beans/cheese to jacket potato
Add beans and pulses to food, e.g. lentils, butter beans, haricot beans etc
Small portion (handful) of fruit, low sugar yoghurt, sugar free jelly
Wholegrains: barley, pastas (see below), wholegrain breads, sourdough bread, quinoa, amaranth, spelt, millet, bulgur wheat, rye
Have salad / vegetables

Main Meal: See **wholegrains** above
Basmati rice, new potatoes, sweet potato
Pasta (try high fibre/protein/lentil/green pea/buckwheat/spelt pastas) – avoid overcooking
Add beans and pulses to food, e.g. lentils, butter beans, haricot beans etc
Eat plenty of vegetables

Snacks: Handful of fruit
Protein shake (no added sugars)/no added sugar soya milk (good for protein)
Yoghurts (diet varieties contain less sugar; try Skyr/natural/Greek yoghurt)
Crudités (vegetable sticks) with a dip such as hummus
1-2 oatcakes
Vegetable crisps
Low sugar hot chocolate: e.g. Cadbury's Highlights / Ovaltine Options
Carb free: egg/seafood/nuts/seeds/meats/cheese/vegetables such as tomato and carrots/avocado/olives/sugar free jelly

www.glycemicindex.com is a useful website to visit for further information

GI reference table

High GI	Medium GI	Low GI
Dates (103)	Cheerios (74)	Crisps* (54)
Cooked Parsnips (97)	Puffed Wheat (74)	Sweet potato (54)
French baguette (95)	Bagel (73)	Banana (54)
Jasmine Rice (89)	Sultana Bran (71)	Kiwi Fruit (53)
Instant mash potato (83)	White bread (71)	Chocolate* (49)
Cornflakes (83)	Weetabix (70)	Jam (49)
Baked potato (83)	Mashed potato (70)	Baked beans (48)
Rice Krispies (82)	Wholemeal bread, Shredded Wheat, crumpet and Special K (69)	Multi-grain bread (48)
Broad beans (79)	Croissant* (67)	Fruit Loaf (47)
Rice Cakes (77)	Gnocchi(67)	Noodles (47)
Doughnut* (76)	Instant Porridge (66)	Rye Bread (46)
Waffles (76)	Pineapple (66)	Sponge cake* (46)
Breakfast Bars (76)	High fibre rye crispbreads (65)	Grapes (46)
Oven Chips* (75)	Cous cous (65)	Oranges (44)
	Shortbread (64)	Custard (43)
	Sucrose (64)	Peaches (42)
	Mars Bars* (64)	Porridge (42)
	Raisins (64)	All-bran (42)
	Hamburger Bun (61)	Plums (39)
	Cereal Bars (61)	Apples (38)
	Pizza* (60)	Pears (38)
	Digestives (59)	Pasta (35)
	Pastry* (59)	Yoghurt (33)
	Just Right (59)	Basmati Rice (33)
	Honey (58)	Milk (30)
	Pitta bread (57)	Beans (30)
	New Potatoes (57)	Peas (30)
	Muesli (56)	Lentils (30)
	Rice (56)	Grapefruit (25)
	Popcorn (55)	Barley (25)
	Oatmeal Biscuits (55)	Cherries (22)

*High Fat – avoid if trying to lose weight

Long periods without food

You may notice that if you do not eat for extended periods of time, you may find that you are more prone to hypoglycaemia. This is all the more important if you expect to do exercise. You may find you can avoid this by eating small, low GI **carbohydrate containing** snacks as follows:

- 1 pot yoghurt
- 1 digestive/hob nob etc.
- 1-2 oat cakes
- 2 wholegrain crackers/rye crackers with peanut butter or low-fat spread
- 1 slice seeded/granary toast with peanut butter or low-fat spread
- ½ crumpet
- ½ malt/fruit loaf
- 1x health/protein rich bar – e.g. Fibre One 90 10g protein; Kind snack bar; Tribe protein bar
- 1 portion of fruit e.g. ½ medium banana, 1 apple, 1 orange

Remember to look at food labels – aim for lowest in sugar and no more than 20g Carbs in a snack.

Alcohol

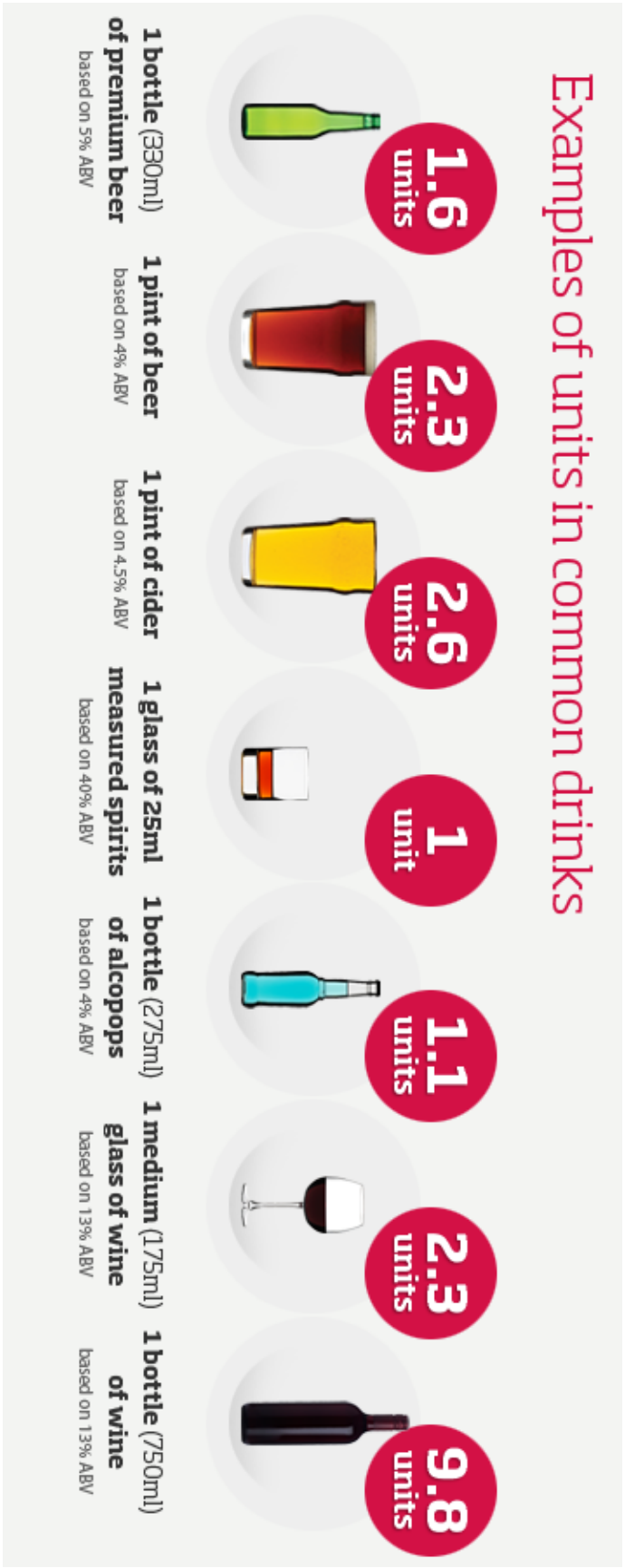
The current recommendations for alcohol are now the same for men and women.

- Not to exceed 14 units per week
- Evenly spread the 14 units per week over 3 days or more
- Have 2-3 alcohol-free days in the week

Important considerations for alcohol

- Beer, lager, cider, alcopops and liqueurs all contain carbohydrate and can initially cause blood sugars to rise.
- Wine, spirits and champagne have minimal carbohydrate and therefore have little to no effect on blood glucose levels at the time of drinking
- Alcohol prevents the liver from releasing sugar to maintain blood glucose levels. This means that blood glucose levels can continue to fall for several hours (up to 24hrs) after alcohol has been consumed (depending on the quantity of alcohol you have had to drink). You may also find that you are more prone to hypoglycaemia the following morning after a night of drinking alcohol and may need to ensure you have a mid-morning snack.
- Have a drink with or close to food. Never drink alcohol on an empty stomach.
- Avoid drinking after exercise.
- Low alcohol beer and wine can be high in sugar and raise blood glucose levels.
- Use ‘diet’ mixers, which are sugar free to prevent a rapid rise in blood sugars that may prompt a reactive hypoglycaemic episode.
- Alcohol is high in calories and so it is best avoided or kept to a minimum when trying to lose weight.

Alcoholic drinks may initially cause a rise in blood glucose levels, but ultimately they cause a fall in blood glucose levels and can result in unpleasant symptoms associated with low blood glucose levels


Examples of units in common drinks
1.6 units
1 bottle (330ml) of premium beer
based on 5% ABV
2.3 units
1 pint of beer
based on 4% ABV
2.6 units
1 pint of cider
based on 4.5% ABV
1 unit
1 glass of 25ml measured spirits
based on 40% ABV
1.1 units
1 bottle (275ml) of alcopops
based on 4% ABV
2.3 units
1 medium (175ml) glass of wine
based on 13% ABV
9.8 units
1 bottle (750ml) of wine
based on 13% ABV

How to treat a reactive 'hypo'?

When you have a hypo, symptoms such as shaking/sweating (page 2) will occur. These will typically occur at blood sugar levels below 3.5mmol/L (although this can vary from person to person).

If glucose is less than 3.5mmol/L

***Immediately* take 10-15g of**

Fast Acting CARBOHYDRATE

- 3-4 dextrose tablets
- 2-3 jelly babies
- 100-150mls orange juice - no bits/pulp

Don't treat your hypos with foods containing fat (such as chocolate/biscuits) because the fat will delay the absorption of the glucose and won't treat the hypo quickly enough

Wait 10-15 minutes, recheck glucose

If glucose **is not** above 3.5mmol/L

Take a **further 15g fast acting carbohydrate**

If glucose **is** above 3.5mmol/L

Follow this with **your next meal if due or 10g slow acting carbohydrates**

- 1 slice of granary toast
- 1 piece of fruit
- 1 digestive/Hob Nob®
- 2 rich tea biscuits

The choice of 'hypo' treatment is up to you, so you'll need to decide how much and which treatment works best for you. ***Remember: always keep 'hypo' treatment with you!***

Physical Activity

Regular physical activity is great for good health. It can help keep your blood glucose levels better controlled, help reduce high blood pressure and blood fats such as cholesterol and aid weight loss which in turn can reduce your insulin resistance

- All forms of activity such as brisk walking, cycling, swimming, tennis or football, gardening, cleaning are beneficial.
- Being more physically active at a level which slightly increases the breathing rate, has a significant beneficial effect. Aim to sustain this level of physical activity for longer than 10 minutes at a time. If you are unable to achieve this, remember any increased activity will be beneficial.
- Some individuals may find that exercise makes them more prone to hypoglycaemia, especially if exercising soon after a meal when circulating insulin levels can be high. This means they may need to delay the exercise for 1-2 hours (this will vary from person to person) or have a small low GI carbohydrate containing snack before, during and after the exercise depending on how strenuous it is.

☞ ***Check with your doctor before taking up any new exercise.***

Food and Symptom Diary

Day/ Meal	Food / Drink	Amount	Symptoms	Blood glucose
EXAMPLE	Ham sandwich Cherry yoghurt	2x slices bread and low fat spread 1x (19g sugar)	4 hours after – shaky and sweaty	

Day	Food / Drink	Amount	Symptoms	Blood glucose

Day	Food / Drink	Amount	Symptoms	Blood glucose

Food and symptom diary can be returned to:
Box 119, Nutrition and Dietetics,
Cambridge University Hospitals NHS Foundation Trust
Addenbrooke's Hospital Cambridge Biomedical Campus
Hills Road
Cambridge
CB2 0QQ

Contact Dietitian: (01223) 348369 (leave a voice message)

Dietitian name:_____

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Other formats:

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https://www.cuh.nhs.uk/contact-us/accessible-information/

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