

Reactive hypoglycaemia following gastric bypass / sleeve gastrectomy

This information is for patients who have had gastric bypass or sleeve gastrectomy surgery and outlines the risks of reactive hypoglycaemia (low blood sugar), and what to eat or avoid to prevent it.

What is reactive hypoglycaemia?

Reactive hypoglycaemia is low blood sugar in response to certain foods. It usually occurs 2-4 hours after eating.

Carbohydrates are the body's main energy source because they are digested to produce sugar. Normally, your body will produce insulin to absorb sugar from the blood. After a gastric bypass some patients have an abnormal insulin response that can lead to very low levels of blood sugar (reactive hypoglycaemia).

If you have reactive hypoglycaemia it is important to choose foods that don't stimulate the insulin response. Try to avoid sugary foods (sugars are also called "simple carbohydrates"). Instead choose foods that contain complex carbohydrates (these are digested very slowly to produce sugars).

Examples:

Simple carbohydrates	Complex carbohydrates
<ul style="list-style-type: none"> • Biscuits and cakes • Sweets and chocolates • Ice cream, full sugar jellies • Lucozade, full sugar drinks, sports drinks and energy drinks • Pure fruit juices and smoothies 	<ul style="list-style-type: none"> • High fibre cereals: oats, Bran Flakes, Fruit and Fibre, All-Bran, Oatibix, Minibix, low sugar muesli • Granary bread, pitta breads, rye or wholegrain bread or crackers • Sweet potato/New potatoes (with the skin on) • Buckwheat/Bulgur Wheat/couscous • Basmati rice • Lentils/beans/pulses e.g. Baked beans, Chick peas, Kidney beans, • Vegetables and fruits – with the skin on. • Handful of dried fruit e.g. prunes, dried apricots, tablespoon of raisins or currants.

What are the symptoms of hypoglycaemia?

Hypoglycaemia can cause some or all of the following symptoms:

- Paleness.
- Trembling.
- Perspiration.
- Feeling of weakness.
- Rapid heartbeat.
- Hunger.
- Agitation or anxiety.
- Difficulty concentrating.
- Irritability.
- Fatigue.
- Blurred vision.

How to prevent reactive hypoglycaemia:

- Eat little and often: 5-6 small meals / snacks, every 4 hours to avoid the big fluctuations in the insulin secretion (see list below).
- Meals should be based around lean protein with some complex carbohydrates (high in fibre) combined to slow down the rate of digestion.
- Minimise / avoid high sugar foods within your diet.
- Ensure you take any vitamin and mineral nutritional supplements that you have been advised to.
- Reduce consumption of food / drink containing caffeine (e.g. tea, coffee, cola, chocolate) or alcohol.
- Be organised and prepared with suitable snacks to prevent long periods between meals e.g. keep high fibre cereal bars in your car.

How to treat reactive hypoglycaemia:

- The best treatment is **prevention** – avoid sugary foods and drinks and ensure your dietary carbohydrates are complex (see table on page 1)!
- If you have severe symptoms, consume 15g of carbohydrate rich food (see list below). A food's nutrition label will let you know how many grammes of carbohydrate it has. You should stick with something that is mostly sugar or carbohydrates. Foods that have a lot of fat as well as sugars and carbohydrates, such as chocolate or cookies, do not work as quickly to raise blood glucose levels.
- Follow this with a more substantial high protein and complex carbohydrate snack / meal within a 20 minute period.

Exercise and diet

Exercise lowers the blood glucose level but will normally not cause hypoglycaemic episodes in otherwise healthy people.

If symptoms of hypoglycaemia are experienced during sport or exercise – plan to ensure you consume a complex carbohydrate and protein based snack approximately one hour beforehand. During the exercise consume simple carbohydrates like glucose, in sports drinks such as Lucozade Lite.

Carbohydrate and protein – small meals / snacks

- 2 x wholegrain crackers with low fat cheese spread or peanut butter.
- ½ small baked potato (or sweet potato) with 1 small tin of baked beans / 2 tablespoons low fat cottage cheese.
- 1 low fat/low sugar yogurt with 1 small sliced up banana.
- 2 tablespoons small wholemeal pasta shells with ½ tin of drained tuna or 1 tablespoon lean minced meat in tomato pasta sauce.
- Half a wholemeal pitta bread with hummus for dipping and cherry tomatoes.
- 1 x wholemeal or brown toast with low fat cheese spread or peanut butter or fish paste.
- 2 tablespoons couscous or bulgur wheat with soft vegetables mixed in and ½ tin tuna or salmon mixed in.
- 2 tablespoons cereal: Bran Flakes / Fruit and Fibre / Weetabix / cornflakes with 100-150ml of reduced fat milk.
- 1 x toast with ½ tin baked beans or 1 x poached or scrambled egg.
- Small 2 egg omelette with poached mushrooms and grated cheese / tuna / thin ham.
- Stewed apple (with sweetener) with 2 tablespoons low fat custard / low fat yogurt / fromage frais.
- Small tin low fat rice pudding.

Examples of 15g carbohydrate foods

- 1-2 glucose tablets.
- ½ cup of fruit juice.
- 50ml of full sugar fizzy pop.
- 2 tablespoons of raisins.
- 1 tablespoon of honey.
- 1 cup of non fat milk.
- ½ cup of low fat yogurt.

What if the hypoglycaemia goes untreated?

It is important to treat hypoglycemia quickly because it can make you faint. Rarely, very low sugar levels will need hospital treatment.

Drug treatment

For some individuals dietary modification may not improve symptoms. In this instance a review by an endocrinologist (specialist doctor) may be requested. Medications called Acarbose and Diazoxide may help with symptom management. Acarbose slows down the rate at which carbohydrates are broken down and absorbed. This prevents a rapid rise in blood sugar levels, reducing symptoms. Diazoxide inhibits the rate at which insulin is released therefore prevents a drop in blood sugar levels.

Contact us

If you have any questions, please contact your Bariatric Dietitian: 0118 322 7116

Useful websites

British Obesity Surgery Patient Association: www.bospauk.org

Weight Loss Surgery Information: www.wlsinfo.org.uk

<http://www.nhs.uk/Conditions/hypoglycaemia/Pages/causes.aspx>

For more information about the Trust, visit our website www.royalberkshire.nhs.uk

This document can be made available in other languages and formats upon request.

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