



# Reactive hypoglycaemia following bariatric (weight loss) surgery)

This information is for patients who have had bariatric (weight loss) surgery and may be experiencing reactive hypoglycaemia (low blood sugar). This leaflet outlines the risks of reactive hypoglycaemia and how to manage it with diet changes.

# What is reactive hypoglycaemia?

Reactive hypoglycaemia is when your blood sugar levels drop lower than usual in response to eating certain foods. This usually occurs 2-4 hours after eating and is often referred to as 'secondary dumping', when it is linked to a bariatric surgery.

# What are the symptoms of hypoglycaemia?

The symptoms of reactive hypoglycaemia can be similar to symptoms of 'dumping syndrome', however the onset of reactive hypoglycaemia is a couple of hours after eating. It can cause some or all of the following symptoms:

- Paleness
- Trembling
- Perspiration
- Feeling of weakness
- Rapid heartbeat

- Hunger
- Agitation or anxiety / irritability
- Difficulty concentrating
- Fatigue
- Blurred vision

# What triggers reactive hypoglycaemia?

Your body produces a hormone call insulin which takes sugar out of your blood to be used around the body. For some people, after bariatric surgery the body produces too much insulin for the smaller amount of food they are eating and this takes too much sugar out of the blood, causing low blood sugar levels and the above symptoms.

# How to prevent reactive hypoglycaemia:

Carbohydrates are digested by the body to produce sugars, which are used as energy. This includes starchy foods (complex carbohydrates) and sugary foods (simple carbohydrates). To manage and prevent reactive hypoglycaemia you should focus on changing your carbohydrate intake and avoiding high sugar foods.

#### Top things to implement:

- Eat little and often; try to have 5-6 small meals or snacks a day. Try eating every 4 hours to avoid big changes to your blood sugar and insulin levels.
- Base your meals on mostly low fat protein with some high fibre complex carbohydrates. This will slow down the digestion of carbohydrate to sugar.
- Avoid / limit high sugar foods and high sugar drinks.
- Reduce intake of caffeine and alcohol. This includes caffeine in drinks like cola, tea and coffee plus caffeine in foods like chocolate.
- Be organised and prepared with suitable snacks to have between meals, e.g. keep high fibre / high protein cereal bars in your car or at work.
- Continue to take the recommended vitamin and mineral supplements for after bariatric surgery. Ask your Bariatric Team if you are unsure what these are.

#### Examples of sugary and starchy carbohydrates

AVOID –	INCLUDE small portion –
sugar foods (simple carbohydrates)	starchy foods (complex carbohydrates)
<ul> <li>Biscuits and cakes</li> <li>Sweets and chocolates</li> <li>Ice cream, full sugar jellies</li> <li>Lucozade, full sugar drinks, sports drinks and energy drinks</li> <li>Pure fruit juices and smoothies</li> </ul>	<ul> <li>Oats, Bran Flakes, Fruit and Fibre, All-Bran, Oatibix, low sugar muesli</li> <li>Granary bread, seeded breads, rye or wholegrain bread / crackers</li> <li>Sweet potatoes, new potatoes (keep the skin on)</li> <li>Buckwheat, bulgur wheat, couscous</li> <li>Basmati rice, brown rice</li> <li>Lentils, beans, pulses, e.g. low sugar baked beans, chickpeas, kidney beans</li> <li>Vegetables and fruits (keep the skin on)</li> <li>Dried fruit e.g. 2 prunes, 2 dried apricots, 1tbsp. of raisins or currants</li> </ul>

# How to treat reactive hypoglycaemia:

# The best treatment from reactive hypoglycaemia is to prevent low blood sugars in the first place, using the above advice.

If your symptoms are severe and progress quickly, you should have 15g of 'fast acting' simple carbohydrates (you can find the amount of carbohydrate on nutrition labels). Within 20 minutes you should then have a small meal or snack that contains protein and complex carbohydrates. This should bring your blood sugar levels up to a normal level and maintain them.

#### 15g of 'fast acting' simple carbohydrates

You should choose something that is mostly sugar or carbohydrates. Foods that have high fats such as chocolate and cookies do not work as quickly.

- 1-2 glucose tablets
- <sup>1</sup>/<sub>2</sub> cup of fruit juice
- 50ml of full sugar fizzy pop
- 2 tablespoons of raisins

- 1 tablespoon of honey
- 1 cup of non-fat milk
- <sup>1</sup>/<sub>2</sub> cup of low fat yogurt

#### Small meals / snacks containing protein and complex carbohydrates:

- 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 OR 2 tablespoons low fat cottage cheese
- 1 low fat/low sugar yogurt with 1 small sliced up banana.
- 2 tablespoons small whole meal pasta shells with  $\frac{1}{2}$  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 / 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
- 2 tablespoons cereal e.g. Bran Flakes OR Fruit and Fibre OR Weetabix OR cornflakes with 100-150ml of reduced fat milk.
- 1 x toast with  $\frac{1}{2}$  tin baked beans OR 1 x poached OR scrambled egg.
- Small 2 egg omelette with mushrooms and grated cheese OR tuna OR thin ham.
- Stewed apple (with sweetener) with 2 tablespoons low fat custard OR low fat yogurt OR fromage frais
- Small tin of low fat rice pudding

# What if the hypoglycaemia goes untreated?

It is important to treat hypoglycaemia quickly because if your blood sugar levels continue to drop, you might faint / black out and injure yourself. Extremely low sugar levels, that don't increase, may need treatment in hospital.

# Exercise and blood sugar

Exercise can lower blood sugar levels, but will not normally cause hypoglycaemic episodes. If you have been experiencing hypoglycaemia during sport or exercise; 1 hour before your physical activity, eat a small meal / snack containing complex carbohydrate and protein (from the above list). During intense exercise you may need to take some sugar in sports drinks such as 'Lucozade Lite', in order to keep a normal blood sugar level.

# **Medication treatment**

For some people, changes to the diet may not be enough to improve their symptoms. In this case a review by an endocrinology doctor may be needed to discuss medications. If you think this applies to you, please speak to the Bariatric Team. Medications called Acarbose and Diazoxide may help with symptom management.

# Contacting us

If you have any questions, please contact the bariatric dietitians. Telephone: 0118 322 7116 or email rbb-tr.dietitians@nhs.net

#### **Useful websites**

NHS hypoglycaemia: <u>https://www.nhs.uk/conditions/low-blood-sugar-hypoglycaemia/</u> Weight Loss Surgery Information: <u>www.nhs.uk/conditions/weight-loss-surgery/</u> NHS Better Health: <u>www.nhs.uk/better-health/</u>

To find out more about our Trust visit <u>www.royalberkshire.nhs.uk</u>

# Please ask if you need this information in another language or format.

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