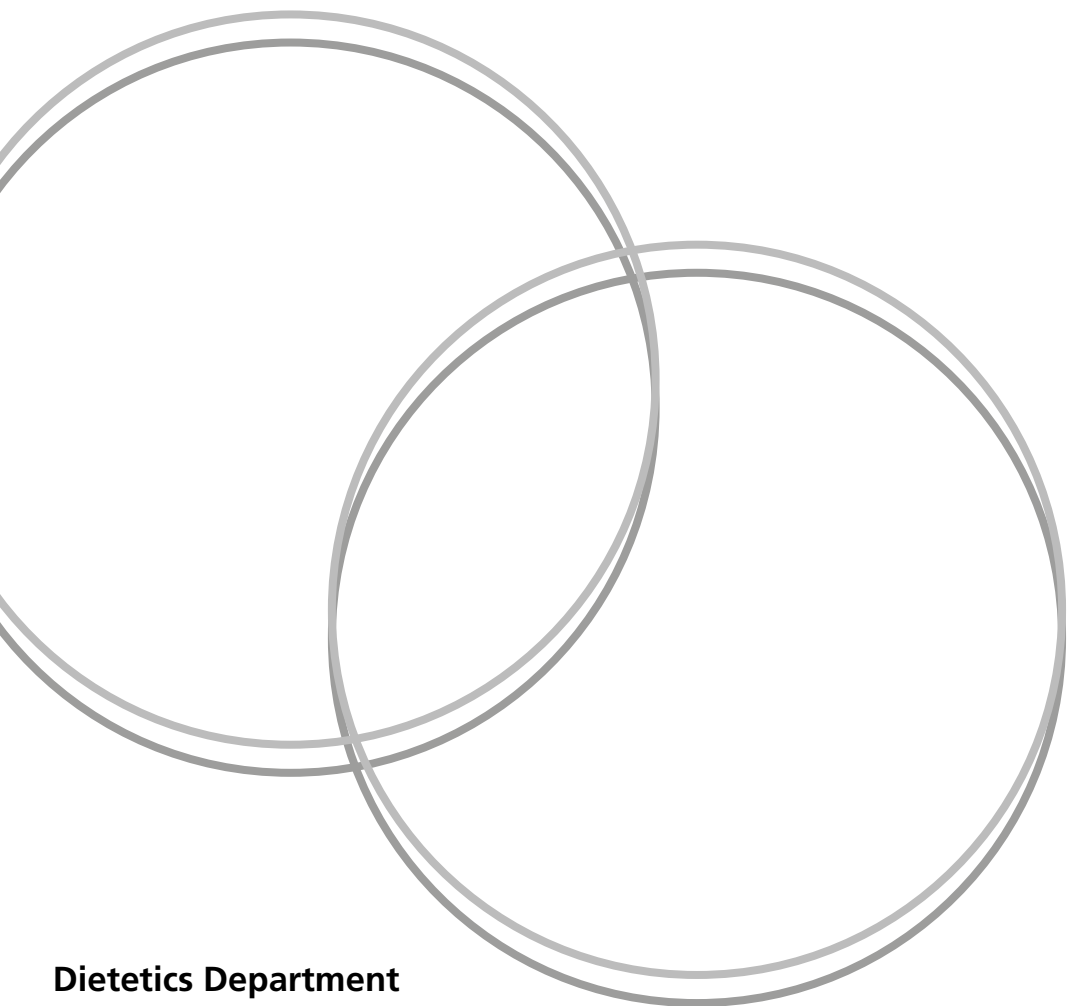




Oxford University Hospitals
NHS Foundation Trust

Dumping Syndrome following Bariatric Surgery



Dietetics Department

This leaflet is for anyone who is experiencing Dumping Syndrome following bariatric surgery.

What is Dumping Syndrome?

Dumping Syndrome is a frequent complication following bariatric surgery and can occur in up to 40% of patients after a Roux-en-Y gastric bypass or sleeve gastrectomy. It is more frequently seen in patients who have achieved a significant amount of weight loss, with BMI's approaching 27-28kg/m². It comprises a cluster of symptoms that can be sub-divided into early and late Dumping Syndrome, which can occur jointly, or separately.

The symptoms are as follows

Early Dumping occurs in the first hour after a meal and is characterised by:

- abdominal pain
- nausea and diarrhoea
- a rumbling stomach
- flushing
- palpitations
- perspiration
- tachycardia (fast heart rate)
- hypotension (drop in blood pressure)
- fatigue
- desire to lie down
- fainting (rare)

Early Dumping is caused by the rapid passage of nutrients to the small intestine, which triggers a cascade of events leading to the abdominal symptoms (nausea, diarrhoea, bloating etc). The arrival of this concentrated source of nutrients also triggers a release of several gut hormones that causes tachycardia, hypotension and fainting (rare).

Late Dumping usually occurs 1 to 3 hours after a meal and is characterised by:

- fatigue
- weakness
- confusion
- hunger
- perspiration
- palpitations
- tremor
- irritability

Late Dumping Syndrome may also be known as 'reactive hypoglycaemia' or 'post-bariatric hypoglycaemia'.

Late Dumping occurs when your blood glucose (sugar) level drops below 2.8 mmol/l. It is attributed to the rapid delivery of carbohydrates into the small intestine leading to a rise in glucose concentration. This in turn, triggers a rise in insulin, and a subsequent drop in glucose levels resulting in hypoglycaemia (blood sugar level below 2.8 mmol/l). This condition is not necessarily associated with a history of diabetes. These symptoms of hypoglycaemia usually occur 3 to 12 months after bariatric surgery.

How are Dumping Syndrome and carbohydrates related?

- Carbohydrates are broken down by the body to form glucose. This is absorbed into the bloodstream and triggers an insulin response.
- It is important to understand the relationship between carbohydrates and how insulin responds so that you can choose foods that do not stimulate a large insulin response.
- Some carbohydrates can cause a bigger insulin response than others. This is because different carbohydrates are digested at different rates, which will affect how quickly the blood glucose level will rise.
- Glycaemic Index (GI) is the ranking system used to show the speed at which different carbohydrates impact blood glucose levels after eating. The lower the GI the smaller the impact of the carbohydrate on blood glucose levels.
- Aim to make sure that blood glucose levels do not fluctuate dramatically.
- Therefore, choose foods that have a lower GI, as these foods take longer for your body to break down, and so give a gradual rise in blood glucose levels.

Glycaemic Index of Common Foods

Food	Low GI (< 55) (try to opt for these when possible)	Medium GI (56 - 69)	High GI (> 70)
Bread	Multigrain e.g. granary, rye or seeded bread		All wholemeal, brown and white bread including French bread and naan bread
Breakfast cereals	All-Bran, Special K, muesli and porridge	Bran cereals e.g. Bran Flakes, Bran Buds, Sultana and Raisin Bran	All other cereals e.g. cornflakes, Rice Krispies, Shredded Wheat, Weetabix, sugared cereals
Potatoes	Sweet potato, yams	New potatoes, crisps	Old potatoes – boiled, baked, mashed, roast and chips
Pasta and rice	All types of pasta, egg noodles	Basmati rice, rice noodles	Brown and white rice, rice pasta
Vegetables	Pulses e.g. lentils, kidney beans, baked beans, all peas and sweetcorn		

Glycaemic Index of Common Foods (continued)

<p>Fruit</p>	<p>Apples, pears, stoned fruit e.g. peaches, cherries, apricots; citrus fruits e.g. oranges and satsumas; strawberries, raspberries</p>	<p>Tropical fruit e.g. pineapples, mangos, bananas and grapes</p>	
<p>Dairy products</p>	<p>All milk – full-fat, skimmed and semi-skimmed and yogurt</p>	<p>Ice cream</p>	
<p>Cakes and biscuits</p>	<p>Plain sponge cake, fruit and malt bread</p>	<p>Digestive biscuits, Rich Tea, crackers</p>	<p>Doughnuts, scones</p>
<p>Savoury snacks</p>	<p>Maize or corn chips, cashew and peanuts, whole grain crackers, oat cakes</p>	<p>Crisps</p>	<p>Extruded potato snacks e.g. Quavers, potato hoops and pretzels</p>

How to minimise Dumping Syndrome?

- Follow a 'little and often' meal pattern i.e. 5-6 small meals or snacks, eaten every 2-3 hours.
- Meals and snacks should be based around protein (75% of the plate or more) with a small portion of low GI carbohydrates (25% of the plate or less).
- Avoid high sugar food and drinks e.g. cola, fruit juice, chocolate and sweets, cakes, biscuits and desserts. Choose foods with less than 10g sugar per 100g/ml.
- Chew foods thoroughly and take time to eat each meal.
- Choose foods with a low glycaemic index, ideally less than 70.
- Be prepared with suitable snacks to have between meals e.g. carry an apple or a high protein shake in your bag.
- Allow 20-30 minutes between eating and drinking, as fluids can speed up the passage of nutrients in to the stomach.
- Avoid alcohol and caffeine rich drinks.

How do you treat Dumping Syndrome?

- The best treatment is to **prevent** this from occurring using the tips above!
- However, if you have severe symptoms of late dumping syndrome (i.e. when blood sugar levels drop below 2.8mmol), then we recommend you consume 15g of a carbohydrate rich food such as:
 - 1-2 glucose tablets
 - ½ cup of fruit juice (100ml)
 - 1 tablespoon of honey
- Ensure not to exceed these portions as too much could lead to further reactive hypoglycaemia.
- Then follow this with a high protein and complex carbohydrate snack 15-20 minutes after such as:
 - Cheese triangle/ slice of cold meat/peanut spread with 1 crispbread
 - Hummus with vegetable sticks
 - High protein yoghurt with a tablespoon of dried fruit.

Snack and meal suggestions

- Meat or low fat cheese sandwich on wholegrain/granary bread – soy and linseed bread is a good choice
- Yogurt and fruit – avoid tinned fruits in syrup and 'over ripe' fruit.
- Cottage cheese and whole grain crackers/oatcakes
- Salad made up with beans, pulses or lentils, with feta cheese or avocado
- Peanut butter on celery sticks with whole grain crackers
- Bean soup with whole grain bread
- Jumbo oat porridge with milk and added nuts/seeds/berries
- Whole grain toast with poached egg and grilled tomato

Contact details

If you wish to speak with one of the bariatric team further please use the following contact details:

Bariatric Dietitians

Tel: **01865 235 419**

Bariatric Specialist Nurses

Tel: **01865 227 078**

Secretary to Bariatric Consultants

Tel: **01865 235 158**

Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

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Oxford University Hospitals NHS Foundation Trust
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