



Diet, Nutrition and Bariatric Surgery

Beyond the Surgery: Eating for Long-Term Health.

Contents

Introduction	2
Importance of Nutrition	2
Protein.....	2
Fruits and Vegetables	3
Fibre.....	3
Carbohydrates	5
Eating a Balanced Meal	6
Protein.....	6
Fruit and vegetables.....	7
Carbohydrates	7
Portion Sizes	8
Managing Return of Hunger and Weight Regain.....	16
Identifying Head Hunger vs Physical Hunger	17
Fluids	21
Alcohol	21
Vitamin and Mineral Supplementation	22
Exercise	22
References.....	23

Introduction

Nutrition remains a crucial part of your long-term health and weight management after bariatric surgery. In the first 6 months following bariatric surgery, appetite and portion sizes will be reduced as people experience a decrease in hunger and increase in satiety (feeling of fullness). Most weight is lost in this first six months after surgery.

Weight loss begins to slow down around nine months after bariatric surgery. This is known as the weight stabilisation phase. During this time people can experience an increase in hunger and a reduction in satiety. This can lead to an increase in portion size of food and frequency of eating. However, for most people, body weight only increases by a small amount and there will not be a return to their preoperative weight or food intake.

During this weight stabilisation phase, it is important to remember that bariatric surgery is a tool to help with weight loss and improved dietary choices. Long term nutritional recommendations remain in line with healthy eating guidelines.

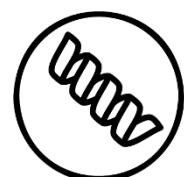
Importance of Nutrition

Good nutrition is important, not only for weight management, but also to promote and optimise health. Nutrition influences all systems in the body, providing energy and fuel for healthy skin, nails, hair and to support the immune system and wound healing. Adequate nutrition is required to prevent nutritional deficiencies, such as anaemia.

The key food groups are **protein**, **fruits** and **vegetables** and **carbohydrates**.

Protein

Protein is essential for building and maintaining muscle. During periods of rapid weight loss, such as after bariatric surgery, loss of muscle mass is also common. Ensuring you are having enough protein in your diet can help to minimise muscle loss and promote muscle gain when coupled with exercise. Protein is also important for promoting healthy skin, nails and hair.



It is recommended to have a minimum of 60-80g of protein per day. This should be spread out across the day, aiming to include some protein at each meal or snack. Due to smaller portion sizes after bariatric surgery, it can become more difficult to meet this target, therefore it is important to include 15-20g protein at main meals and 5-10g for snacks. Protein rich foods can help contribute to a feeling of fullness and promote satiety. As hunger returns, increasing protein in the diet can help to manage this increase in appetite.

Fruits and Vegetables

Fruits and vegetables have many benefits. They are typically low in calories and high in nutrients, containing many essential vitamins and minerals, such as vitamin C and potassium. They are also high in fibre, which is important to prevent constipation and promote digestive health. Higher intakes of fruits and vegetables are associated with health gains, such as reduced risk of cardiovascular disease and Type 2 diabetes.

As hunger begins to return in the months following bariatric surgery, fruits and vegetables allow you to increase volume in the diet without adding a large amount of calories. They can help to keep you full for longer between meals. Fruit and vegetables can be used to increase variety and add texture to meals.

Fibre

Constipation can be an issue following bariatric surgery. Ensuring you are getting enough fibre in the diet is the best way to promote regular bowel habits, minimise constipation and improve your gut health. Start by increasing by one extra portion per day until you have consistent soft bowel movements.

There are different types of fibre which have different functions in the body, therefore the type of fibre you eat is also important. Including a combination of soluble and insoluble fibre in your diet will help to move stool through the bowel and make it easier to pass, reducing your overall risk of constipation.

Soluble fibre absorbs water into stool, making it easier to pass. This can have a beneficial effect on reducing constipation. Soluble fibre is typically found in fruits and vegetables.

Insoluble fibre, which is found in whole grain carbohydrates, is not digested or broken down by the body. As a result, insoluble fibre



adds bulk to the stool, which can promote regular bowel movements. Insoluble fibre can also help to move food through your gut as it is digested by the microorganisms in your gut. The digestion of insoluble fibres by these microorganisms results in the production of gas, which can cause some bloating and discomfort. For this reason, it is recommended to gradually introduce insoluble fibre into the diet. Examples of soluble and insoluble fibre:

Soluble	Insoluble
<ul style="list-style-type: none"> • Kiwi • Rhubarb • Orange • Ripe banana • Raspberry • Strawberry • Kale • Spinach • Broccoli • Carrot • Beetroot • Oat bran • Oats • Quinoa • Linseed • Chia Seeds • Peanut • Walnut 	<ul style="list-style-type: none"> • Prunes / Prune juice • Figs • Mango • Pear • Apple • Blackberry • Peas • Brussel sprouts • Avocado • Rye Bread • Whole-wheat bread • Whole-wheat pasta • Lentils • Chickpeas • Black bean/kidney bean/ butter bean • Almond • Cashew • Pistachio

Source: Adapted from Why You Can't Go. Lorraine Cooney, 2024.

Carbohydrates

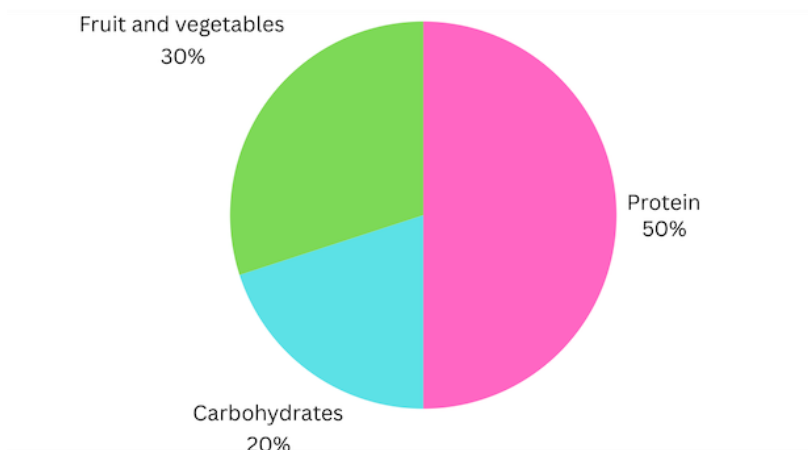
Carbohydrates act as a fuel source for the body. It includes bread, pasta, rice and potatoes, as well as sugars. Following bariatric surgery, refined carbohydrates, such as white bread, cereals or cakes should be limited in the diet. When reintroducing carbohydrates, choose whole grain varieties, such as granary bread, oats or brown rice and pasta. These wholegrain carbohydrates can also be an important source of dietary fibre.



Eating a Balanced Meal

A balanced diet contains foods from each of the 3 key food groups. This will ensure that a meal will contain a variety of nutrients. It is important to include a wide range of foods to establish a well-rounded diet.

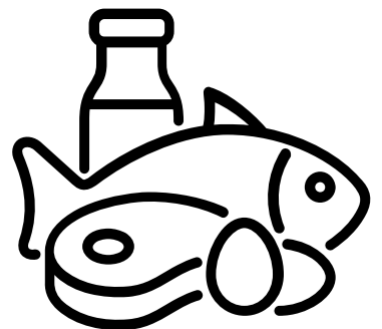
A well balanced meal after bariatric surgery should look like this:



Protein

Continue to prioritise your protein. Ensure you are including a protein rich food at every meal. Eat the protein element of your meal first, before you become too full. Meat is often easier to eat if it is minced or thinly sliced. Slow cooking meat until it is tender can also improve tolerance. Make healthier choices when buying meat and fish by choosing fresh, lean cuts of meat over processed meat (eg. sausages, burgers, and chicken nuggets). Some meat, especially processed meat can be high in fat, particularly saturated fat and should be limited in the diet. Chicken or turkey are examples of meat that is typically lower in fat. White fish are very low in fat and are usually well tolerated due to their naturally soft texture.

Eggs and dairy are also helpful for contributing towards protein targets. Choose low fat dairy products to reduce overall fat in the diet. You could opt for cheese and yogurts as a convenient on-the-go high protein



snack. Eggs are easier to digest when scrambled, poached or as an omelette. Boiled eggs can be tough and may stick, unless finely cut.

Plant sources of protein include beans, lentils and pulses. As well as a source of protein, these foods are low in fat and high in fibre. In some cases, their high fibre content can make them difficult to digest. Choosing pulses without the skins, or as puree (e.g. hummus) can improve tolerance.

Fruit and vegetables

Fruit, vegetables or salad should make up the second largest component of your meal. Fruits and vegetables can be fresh, frozen or tinned (in natural juices), without impacting their nutritional values. Take caution around dried fruits, as the sugars become more concentrated following the drying process and could contribute to dumping syndrome.



Aim for three portions of fruit and vegetables per day in the first six months after bariatric surgery and gradually increasing to five portions per day as tolerated after that.

Carbohydrates

Carbohydrates can be reintroduced in moderation in the months following bariatric surgery. Carbohydrate intake should be limited to one portion per meal, as they can fill you up quickly, displacing nutrition from other foods.



Portion Sizes

This leaflet is your guide to understanding healthy portion sizes following bariatric surgery. Learn how to eat appropriately to support your ongoing weight management and nutritional needs.



Protein - what is a portion?

Make sure to include a source of protein in every meal. If you find it difficult to get 60-80 grams of protein daily from your main meals, consider adding 10-gram protein snacks or drinks to help you reach your target.

Type of food	Portion Size	Amount of protein (approx.)	What does this look like?
Animal Protein			
Cooked meat (beef, pork, lamb, mince, chicken, turkey)	90g	25g	A deck of cards
Cooked white fish	140g	25g	Palm of hand
Cooked oily fish (salmon, mackerel, sardines)	140g	30g	Palm of hand
Eggs	50g	6g	One medium

Plant Protein			
Baked Beans	112g/225g	5g/10g	Half tin/full can
Beans (kidney beans, butterbeans, black eyed beans)	120g	8g	Half can
Pulses (lentils, chickpeas)	120g	10g	Half a can
Soya/tofu/plant-based meat alternative	100g	13-20g	Varies with different brands.
Unsalted nuts or nut butter	30g	5g	One handful or 2 tablespoons

Milk and dairy foods

Low-fat dairy also helps you meet your protein needs. Make sure to include at least three servings of low-fat dairy in your daily diet. Each serving offers around 100 calories and 7-10 grams of protein. Since yogurt calories can differ significantly, always check food labels. Protein content is usually around 4-6 grams per serving.

Type of food	Portion size
Skimmed milk	300ml
Soya milk	300ml
Low fat dairy milk	200ml
Avonmore protein milk	200ml
Cottage cheese	75g
Half fat crème fraiche	10ml (2 teaspoons)
Edam, Brie, feta, Half Fat cheddar	30-35g
Glenisk natural 0% fat high protein yogurt or 0% fat greek yogurt	100g
Skyr Natural yogurt	100g
Standard yogurt	150g

<p>5-10g protein</p>	<p>200ml low fat cow's milk</p> <p>75g cottage cheese</p> <p>50g low fat soft cheese</p> <p>100g Half fat crème fraiche</p> <p>30-35g Edam, Brie, feta, Half Fat cheddar</p> <p>150g standard yogurt (check food labels as calories vary considerably in yogurts, typically 4-6g protein)</p>
<p>10g protein</p>	<p>200ml Avonmore Protein Milk</p> <p>100g Glenisk natural 0% fat high protein yogurt or 0% fat greek yogurt (10g protein)</p> <p>100g Skyr Natural yogurt e.g. Arla, Lidl, Light and Free (10g protein)</p> <p>25g skimmed milk powder (10g)</p>
<p>25g protein</p>	<p>500mls protein milk</p>

Fruit and Vegetables

Aim at least 3 servings of fruit and vegetables daily. Guidance for the five a day may be difficult to achieve early on post-surgery. Prioritize vegetables in your meals.

Type of food	Portion size
Apple/pear/orange/banana	One medium (size of clenched fist)
Grapes	10-12 or handful
Berries	15-20 or cupped hand
Plum/apricot/kiwi/satsuma	Two fruits
Dried fruit	Small handful/one tablespoon
Peas/carrots/sweetcorn/mixed vegetables	Three heaped tablespoons
Celery	3 sticks
Cherry tomato	7 tomatoes
Mango	Half

Dried fruit	A small handful/one tablespoon
-------------	--------------------------------

Carbohydrates

Limit these foods, especially in the first six months post-surgery, due to potential digestive issues. If you eat them, have just one small portion at main meals. Control your portion sizes overall and choose wholegrain or granary when you can. A portion is roughly 100 kcal and 2-4g protein.

Type of food	Portion size
Bread	1 medium slice
Bagel/bread roll/pitta bread	Half
Crispbread	4 (30g)
Cereal or raw porridge	Three tablespoons (30g)
Weetabix	One biscuit
Crackers	3

Tortilla	1
Potatoes	1 ½ egg size potato 1 medium jacket potato
Sweet potato	One medium potato (120g)
Pasta	Two to three tablespoons (75g)
Rice	Two to three tablespoons (30g uncooked or 75g cooked weight)
Noodles	One clenched fist (30g uncooked or 160g cooked weight)
Couscous and polenta	Fistful (30g uncooked or 90g cooked)
Oatcakes	2 oatcakes (25g)
Popcorn	3 cups (20g)

Fats and oils

Aim to include 1-2 servings of these foods in your daily meals. Where you can, choose options that are lower in saturated fat or overall fat. If cholesterol lowering is a goal, think about using brands like Flora Proactiv or Benecol. When cooking, try to use just one teaspoon of oil per person, such as rapeseed, vegetable, olive, or sunflower oil. Remember that the portion examples provided are roughly 80-100 calories.

Type of food	Portion size
Butter	2 level teaspoons
Peanut butter	2 teaspoons
Mayonnaise (full fat)	3 teaspoons (15g)
Mayonnaise (reduced fat)	5-6 teaspoons (30g)
Reduced fat (25% fat) spread	6 teaspoons
Sour cream	40g
Fresh cream	55g
Salad cream	5 teaspoons (25g)



Managing Return of Hunger and Weight Regain

Hunger typically begins to return around six to nine months after bariatric surgery. To manage the return of hunger, you should establish a regular meal pattern and avoid prolonged periods without eating. Going long periods of time without eating can make hunger more difficult to satisfy and can increase your risk of overeating later on. If this happens, you are more likely to reach for quick or convenient foods, which are often high in fat or sugar. Including a high protein or high fibre snack between meals can help to promote better food choices by keeping hunger at bay and regulating energy intake.

Snack	Nutrition
Yoghurt	125kcal, 5g protein
Babybel Light	42kcal, 5g protein
Apple and peanut butter	150kcal, 5g protein
Carrot sticks and hummus (reduced fat)	140kcal, 4g protein
3 oatcakes with reduced fat cottage cheese	185kcal, 10g protein
Glass of milk (low fat) and a banana	200kcal, 8g protein
Cheese (reduced fat) and 3 crackers	200kcal, 8g protein
Boiled egg	70kcal, 6g protein
Handful of nuts (25g)	150kcal, 5g protein
Sugar free jelly	9kcal

Limit your intake of slider foods. Slider food are foods which are easy to eat following bariatric surgery, for example, crisps, chocolate, ice cream. These foods are typically high

in calories, fat, salt and sugar and low in nutrients. These foods can contribute to weight regain, as they don't satisfy hunger, making it easy to consume a large volume.

Ensure to eat mindfully by taking some time before your meal to consider how you are feeling. Taking time to enjoy a meal and being aware of what you consume can increase satisfaction. Avoid distractions while you are eating, such as watching TV or using mobile phones. Distractions at meal times can lead to eating too quickly or to eating a larger volume of food than is comfortably tolerated. Taking time to chew each bite of food thoroughly or putting your knife and fork down between mouthfuls can also help to slow down your eating pace. Slowing down the rate at which you eat can help to prevent overeating by allowing the body to recognise when it is feeling full. Before you eat, take a moment to consider:

- Are you actually hungry?
- Are you being mindful or are you distracted?
- Are you eating beyond fullness?
- Are you craving certain foods when stressed (emotional eating)?



Identifying Head Hunger vs Physical Hunger

Physical hunger starts to occur about two to four hours after your last meal. Symptoms of physical hunger include stomach rumbling and a feeling of emptiness or low energy. This type of hunger is your body's way of giving you the signal that it is time to eat. Head hunger, on the other hand, can occur at any time. This is the urge to eat without physical hunger. It can be easy to mistake head hunger for physical hunger, however the signals from your body are different. Head hunger can be driven by emotions, such as stress or boredom. Wanting to eat while watching television or being bored is head hunger. Grazing also is head hunger.

Using a hunger scale can help you to identify whether you're experiencing physical hunger or head hunger. Take time to check in on how you are feeling, ignoring other factors such as time of day or when you last ate. On a scale of 0-5, with 0 being very full and 5 being very hungry, how is your body feeling?

It can be difficult to determine your hunger levels after years of dieting, but tuning into signals from your body can help you to establish your own hunger scale. Are you feeling dizzy or lightheaded? Is your stomach rumbling? Are you feeling tired or lacking in concentration? These may be signs that you are physically hungry. You can create your own hunger scale based on signs or feelings your body gives you at each stage of hunger.

0	
1	
2	
3	
4	
5	

Eating without physical hunger can lead to grazing dietary patterns or overeating. It is important to remember that just because you are not very full, does not mean that you are hungry. If you get the urge to eat without physical hunger, distract yourself in other ways, for example, taking up a new hobby such as knitting, doing puzzles or phone a friend. Avoid keeping foods which may tempt you in the house. If the food is not accessible, you can't eat it. Accessibility and availability of foods can have a dramatic impact on your food choices. Surrounding yourself by more nutritious options will make you more likely to consume those food types. Being prepared will make it easier for you to make the right choices.

Behaviours around eating will also have an impact on your response or satisfaction from food. Being aware of what you are consuming will help you to make better food choices, but also promote satisfaction from your food. Dedicate time to your meal or snack by sitting at a table and avoiding distractions while eating. Eating while you are distracted can lead to consuming a greater volume of food than realised and can reduce your satisfaction from food, as you are less aware of what you have eaten. Avoid grazing or picking, as this is an easy way to get calories in without leading to fullness to satiation. It is important to distinguish 'little and often' from grazing. A simple way to avoid grazing is to portion out a set amount of food and put the leftovers away. Avoid an 'all or nothing' mindset, and instead aim to make steps in the right direction and work towards a realistic goal – just because you have a small slip up does not mean your whole plan is ruined.

Fluids

It is recommended to aim for 1.5 – 2L of fluids per day. Due to the smaller stomach volume after bariatric surgery, it becomes more difficult to take in large volumes of fluids at once, therefore, it is recommended to sip on fluids throughout the day to reach your targets.



Tips to increase your fluid intake:

- Making water more accessible makes you more likely to drink it, for example carrying a water bottle to work.
- Depending on your preferences, adding ice or hot water can make it more tolerable.
- Using flavour drops or sugar free squash to add flavour can make water more palatable.
- Using fluid rich foods can also contribute to your hydration, such as soups, fruit eg melon, cucumber.

Alcohol

It is recommended to avoid alcohol for 6 months after bariatric surgery. Alcohol will be absorbed more rapidly after bariatric surgery, and so you may feel the effects after a smaller volume of alcohol. Alcoholic beverages or mixers which contain gas may cause discomfort. Alcohol is also high in calories, and so alcohol consumption may have an impact on your weight loss. There is an increased risk of alcohol dependency after bariatric surgery. If you have any concerns about your alcohol intake, it is important that you contact your team.

Vitamin and Mineral Supplementation

Following bariatric surgery, supplementation with vitamins and minerals is an important part of a healthy balanced diet. Due to smaller portions sizes after bariatric surgery, you will consume less vitamins and minerals, as the amount of food consumed is reduced. Bariatric surgery, particularly Gastric Bypass can also affect your absorption of nutrients. This is because the part of the bowel responsible for most of our absorption is bypassed. It is recommended to take an A-Z multivitamin twice daily, along with an iron, calcium and vitamin D supplement.



Following bariatric surgery, it is important to have an annual nutritional blood check. This will allow your team to review the appropriateness of your vitamin and mineral supplementation and guide any changes which may be required.

Exercise

It is recommended to include 150 minutes of moderate intensity physical activity per week or 30 minutes of physical activity 5 times per week. Moderate intensity exercise is exercise which raises your heart rate and you become slightly out of breath, however you should still be able to maintain a conversation. This physical activity goal can be accumulated throughout the day, in 10-15 minute segments. For example, take the stairs instead of the lift, park your car further away from the door, get off the bus at a stop early and walk. Finding an activity you enjoy will make you more likely to stick with it.



During periods of rapid weight loss, weight loss is made up of fat loss and muscle loss. After bariatric surgery, we want to minimise muscle loss. Incorporating strength and conditioning into your routine can help to maintain your muscle strength and even promote muscle gain.

References

Denise Ratcliffe. Living with Bariatric Surgery. 2018. Routledge.

Lorraine Cooney. Why You Can't Go. 2024. Gill Books.

The Counterweight Programme. Adult Weight Management. Counter Weight

Elina Akalestou, Alexander D Miras, Guy A Rutter, and Carel W le Roux (2022)

Mechanisms of Weight Loss After Obesity Surgery. Endocr Rev. 2022 Feb; 43(1): 19–34.