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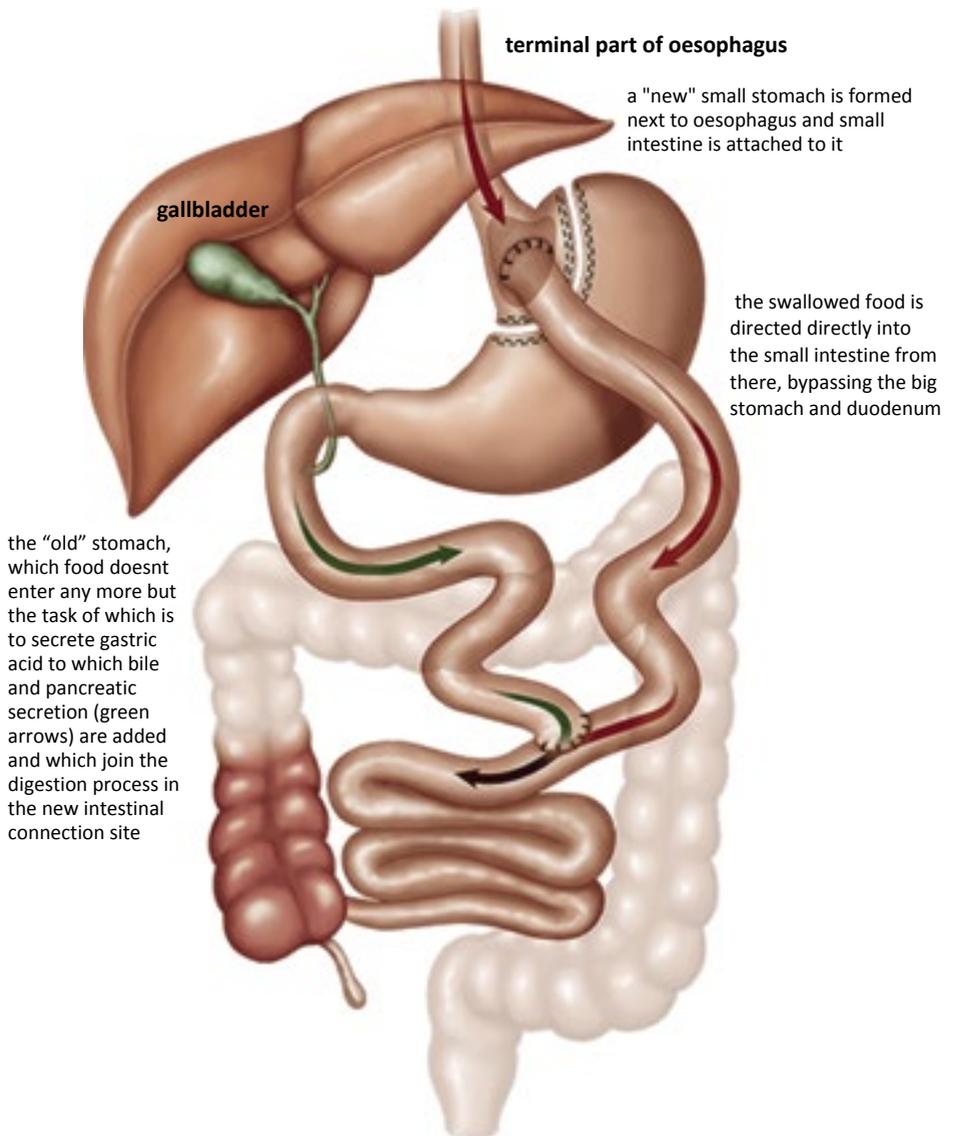
Nutrition and recovery guidelines after bariatric surgery

Roux-en-Y Gastric Bypass operation



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Gastrointestinal system after gastric bypass surgery.

Obesity is a chronic disease, the treatment of which is lifelong even after gastric bypass surgery. Nutrition and lifestyle changes should become fixed, only this allows long-term weight loss. The first 18–24 months are critical in acquiring new habits. Following the nutritional recommendations is important at any time after surgery:

- immediately after surgery this guarantees the good healing of stomach and intestine sutures and avoids over-stretching the new stomach,
- later it allows to eat wholesomely, guarantee long-term weight loss and well-being.

It is important to bear in mind that changes in nutrition are important and the body needs time for them.

The diet after bariatric surgery is different from all other diets. Compose your own menu on the basis of these nutrition recommendations and follow these principles:

- pay attention to food diversity following nutrition recommendations, calories, protein amount and prescribed consistency of food;
- use imagination when preparing suitable food from different foodstuffs and garnishing it;
- start meal with protein-rich food as receiving protein with food is most important for you. When leaving protein food to the end of the meal it may happen that your stomach is full and you don't eat the protein-containing food at all. Divide the required protein amount between different meals of the day.

Remember that additional starving and reduction of calories is dangerous and doesn't get you any nearer to your goal.

The diet after bariatric surgery changes in different post-operative periods, there is different emphasis in each period. There are most differences in general principles during the first months and therefore we give more detailed recommendations above all for this period.

THE FIRST PERIOD

the first two weeks after surgery

During this time surgical wounds and new connection (sutures) between stomach and small intestines heal. For two weeks the sutures are fragile and large amounts of food, eating too fast or eating unsuitable food can cause a rupture of the sutures and leakage of gastric and intestinal contents into the abdominal cavity.

NB! The amount of food portion eaten at a time depends on the food and eating speed. If you feel that your stomach is full or feel pain or discomfort, stop eating for this time. The body signals you if the amount of food consumed is sufficient.

Nutrition during the first period

If you tolerate clear liquids (water, juices, tea), you can continue with liquid and mashed foods with low sugar and fat content but high protein content. Mashed foods are foods with the consistency of apple or baby puree that don't contain any solid pieces. Large pieces should not be swallowed! It is recommended that small amounts of mashed poultry or fish to be added into the puree soups.

Eat regularly 4–6 times a day, meals must be not omitted. Take your time when eating and pause for 30 seconds to one minute after swallowing each bite. Eat until you have reached a feeling of satisfaction. Learn to perceive a feeling of full stomach – a feeling of pressure behind sternum, under the ribcage and stop eating when you feel it. It is possible that feeling of full stomach occurs even after two-three mouthfuls. The signs of a full stomach are also pain in the stomach region, nausea and pain in the shoulder or upper part of the thorax. Don't overfill your stomach! Eating too much continuously will stretch the new stomach making the performed surgery useless. If at first no feeling of empty stomach occurs, eat regularly at certain times and set a reminder for example in your mobile phone.

Monitor the amount of consumed protein. Each meal should contain protein-rich food. The daily required protein an amount is 50–60 grams for women and 60–70 grams for men. This amount can be received from ordinary food. But your food amounts are much smaller and therefore protein drink or protein powder (for example *Protifar*, *Iconfit*, etc.) should be used additionally during the first month.

400–600 kcal per day should be used during the first period.

During the first period the following foods are allowed:

protein-rich foods – turkey or pork minced meat; puréed lean meat (chicken, turkey); meat-containing baby purees or puréed meat; puréed tuna, salmon, herring, white fish (e.g. cod, perch, flounder, shrimp, crab sticks); cottage cheese, soft cheese, yoghurt and pudding with low sugar content; egg yolk (not more than 1 per day) and egg white; crushed or puréed tofu; cream soups or puréed soups; thin slices of turkey breast or ham;

fruits and vegetables – mashed banana, apple puree, puréed peaches; conserved apricots or pears conserved in its own juice; orange or grapefruit pulp without solid husks as these may clog the connection between stomach and small intestine; cooked and puréed vegetables: carrots, green beans, broccoli, cauliflower, beetroot; puréed low-fat casserole with soft vegetables or stew; tomato juice, vegetable juice.

NB! At first raw vegetables and fruits may cause flatulence and feeling unwell;

other – tomato soup, mashed potatoes (this may be not suitable for you as this can cause unpleasant feeling of heaviness in stomach), pretzels, thin porridges from oat or four-grain flakes, margarine, ketchup, mustard, light or low-fat mayonnaise, fat-free or low-fat salad dressings.

NB! Avoid the following foods: yoghurt with large fruit pieces; raw, hard or tough fruits and vegetables; corn; peas, pasta foods and noodles; rice; bread; unpuréed solid foods; high-fat foods; red meat; high-sugar foods; syrups, candies and sweets; peanut butter with chunks; ice cream.

If you don't tolerate liquid and puréed foods at first, go back to clear liquids and try again one week later.

Liquid consumption during the first period

Consume sufficient quantity of liquid: drink more than 1.2 litres per day. Drink sufficiently so that your urine is pale yellow. When urine becomes cloudy, dark or foul-smelling, you should drink more!

Drink your daily liquid amount slowly during the day and separately from meals – drink 30 min. before and 30 min. after the meal. During the first period only very small quantities should be drunk, not more than 2–3 tablespoonsful at a time. Then wait 5–10 min. before drinking another quantity of liquid. Don't drink more if you feel that your stomach is full. Don't drink too quickly as this may cause abdominal pain and/or nausea and/or vomiting. Drinking of small quantities is required to avoid over-stretching the new stomach and rupture of the clip line. Liquid consumption becomes easier with time.

Avoid drinking through a straw. You will swallow more air when drinking through a straw, which causes belching and may cause pain in the shoulder and upper thorax. Therefore, it is important to avoid carbonated drinks as these cause excessive gas and excessive stretching of small intestine. It is very important to avoid liquids with high sugar content (more than 20–25 grams per 240 ml) as these cause *Dumping* syndrome: nausea, dizziness, flushing, sometimes spasmodic pain. Alcohol consumption is not allowed.

Have a bottle of water with you every day. So you can drink repeatedly during the day with small sips to avoid dehydration.

During the first period the following drinks are allowed:

water, non-carbonated flavoured water, ice cubes, tea without sugar, juices diluted with water, protein-containing drinks, protein-containing fruit drinks (e.g. smoothies). Coffee can be drunk when it is warm, not hot. Drink coffee with milk and without sugar.

NB! Avoid the following drinks:

sports drinks, soft drinks and other carbonated drinks, sweet sugar drinks.

Preparation of smoothies

Smoothies contain raw fruits as the consistency of the drink is watery and the amount of fruit eaten at a time is not very large. When preparing smoothies it should be remembered that the drink should contain fruit, protein, liquid and flavourings. Protein drink may be used as the liquid – then both the protein and liquid part of the drink are ensured. If you don't want to add protein drink, milk and soymilk are good liquid choices. To increase the protein amount, 50 ml of yoghurt or Ricotta / cottage cheese could be added. All fruits are suitable, including raw, frozen and conserved fruits. Frozen fruits make the drink thicker, some ice cubes should be added to the drink made of fresh fruits. You can add flavourings and salt – starting from 1/8 of teaspoonful and gradually reaching the taste suitable for you. Try cinnamon, cardamom, ginger, dill, nutmeg, clove and parsley for flavouring – the number of possible different smoothies is unlimited.

For example:

- 25 ml of puréed frozen peaches, 50 ml of protein drink, 25 ml of vanilla-flavoured yoghurt, 1/8 teaspoonsful of cinnamon.
- 25 ml of puréed frozen berry mix, 50 ml of protein drink, 25 ml of cottage cheese, 1/8 teaspoonsful of crushed nutmeg.
- 25 ml of mashed pineapple, 25 ml of tofu, 25 ml of milk, 1/8 teaspoonsful of ginger and some ice cubes.

Physical activity during the first period

Physical activity is required as soon as possible after surgery. Go walking, increasing the load according to how you are feeling, walking up and down stairs or on uneven surfaces suits well. Take into account that due to decreased daily intake of calories the body tires more quickly. NB! Don't lift heavy objects (not more than 6 kg)!

Vitamins, minerals and medicines

Start using additional vitamins and minerals during this period:

- Multivitamin 1 tablet twice a day starting from the second post-operative week;
- B12-vitamin replacement therapy with injections – 1 injection every 3 months (first shot done at hospital before discharge);
- Omeprazole tablets during first 8 weeks. You will be issued a prescription for omeprazole;
- Clexane 0,4x1 injections for 10 days. You will be issued a prescription for Clexane.

Assortment of sample menus

1 cup = about 200 ml

Breakfast:	¼ cups of milk with protein additive
Mid-morning:	¼ cups of low-sugar and low-fat yoghurt
Lunch:	¼ cups of puréed chicken and vegetables
Afternoon snack:	¼ cups of low-fat cottage cheese
Supper:	¼ cups of puréed tuna
Later in the evening:	1 tablespoonful of fruits

Breakfast:	¼ cups of eggs crushed with fork ¼ cups of oat-flake porridge
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Liquids between breakfast and lunch:

30 minutes after breakfast ½ cups of drink rich in protein and nutrients
30 minutes later ½ cups of water or calorie-free drink

Lunch:	¼ cups of low-fat cottage cheese ¼ cups of puréed peaches
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Liquids between lunch and supper:

½ cups of drink rich in protein and nutrients
½ cups of water or calorie-free drink

Supper:	¼ cups of puréed chicken ⅓ cups of puréed green beans ⅓ cups of apple puree
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Liquids after supper:	½ cups of drink rich in protein and nutrients ½ cups of water or calorie-free drink
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Breakfast: half of hard-boiled crushed egg white
08:00 25 ml of liquid oat porridge with milk
½ teaspoons of low-fat margarine or ¼ teaspoons of butter

Intermediate snack: 50 ml of smoothie with protein drink or just protein drink

Lunch: 50 ml of puréed or ground chicken breast
12:00 (without skin, boiled, grilled or cooked)
50 ml of pudding or jelly

Intermediate snack: 50 ml of pudding or jelly or yoghurt
25 ml of puréed boiled vegetables

Supper: 25 ml of puréed chicken or ground chicken with broth
17:00 25 ml of boiled and puréed green beans
25 ml of boiled and puréed marrow
1 teaspoonful of olive oil

Intermediate snack: 50 ml of puréed cottage cheese
50 ml of fruit-vegetable juice or boiled and puréed fruits

Breakfast: 1 soft-boiled egg or ½ cups of yoghurt

Intermediate snack: ½ cups of water or calorie-free drink

Lunch: ½ cups of cottage cheese or 30–60 ml of fish

Intermediate snack: ½ cups of protein-rich and nutrient-rich drink

Supper: 30–60 ml of turkey breast
30 ml of low-fat cheese

Intermediate snack: ½ cups of water or calorie-free drink

THE SECOND PERIOD

the third and fourth week after surgery

Your stomach starts to recover but is not yet ready to digest solid food. During this period the aim of the diet is to increase the choice of foods and to prepare your stomach for solid food. The food of this period requires minimal chewing.

Nutrition during the second period

If you tolerate liquid and puréed foods, you can continue with softer solid foods. Sufficiently soft foods are tender, mashed with fork on the plate and easily chewable. There's no need to puree the food any more, but large pieces should not be swallowed! Add new foods one by one to identify possible food intolerance. If intolerance occurs try the food that caused it again after a week.

During this period start to train yourself with 3–5 small regular meals a day. Don't eat less than three times a day! Do not nibble during a day because continuous nibbling reduces weight loss and is associated with significant weight increase after surgery.

Make a habit of eating slowly, putting the fork down on the table after every mouthful. Take your time for eating, one meal could last for 20–30 minutes. Chew the food slowly and thoroughly. This is required as the connections between the stomach and small intestine may initially be narrow and so you will guarantee smooth and problem-free movement of food. Too quick eating can cause Dumping syndrome and vomiting.

Learn to perceive the development of a feeling of full stomach – a feeling of pressure behind sternum, under ribcage and stop eating when you feel it. The feeling of full stomach can occur even after two-three mouthfuls. Don't overfill your stomach! Eat only until you have reached a feeling of satisfaction. Eating too much continuously will stretch the stomach making the performed surgery useless. Remember that the only reason for eating is empty stomach. If no feeling of empty stomach occurs, eat regularly at certain times and set a reminder for example in your mobile phone.

Continue to monitor the amount of consumed protein. 60 grams of protein should be consumed per day. This is not difficult if you eat protein-rich foods during every meal. Protein additives are not essentially required but may be used between meals. If you are not sure that you get sufficient amount of protein from food and if you have problems eating protein-rich foods it is rec-

ommended to use protein additives regularly until you can get the required amount from ordinary food.

Use small plates and cups for eating and prepare your meals and take them with you when going to work. This way you can guarantee that you eat what is beneficial for you and in an amount that is suitable for you.

550–700 kcal per day should be used during the second period.

During the second period the following foods are allowed:

soft and juicy lean meat; fish, including tuna; low-fat cottage cheese; low-fat cheese; soft tofu; eggs; soft low-fat casserole with vegetables; milk; low-fat yoghurt (about 80 kilocalories per portion); fruits and vegetables without seeds and soft-boiled husks; soft fruits and vegetables conserved in own juice; soft fresh fruits; porridges prepared with milk; high-protein breakfast flakes with milk; bread products that are recommended to be toasted before eating; biscuits that should be properly chewed; pretzels.

NB! Avoid the following foods:

dry, hard and tough meat; red meat; fried eggs; chunky peanut butter; ice cream; hard fruits; raw fruits with seeds and tough skin; maize; fresh asparagus and broccoli stems; soft half-baked bread; white bread; sweets and chewing gum; sugars and fats.

If you don't tolerate softer solid foods at first, go back to liquid and puréed foods and try again one week later.

Liquid consumption during the second period

During this period you will start to understand how much you are able to swallow at a time. If you drink faster than your stomach empties, the liquid rises back to oesophagus and causes a feeling of pressure in chest.

Continue drinking liquids with the same speed as in the previous period. You need at least 1.2–1.5 litres of liquid per day to avoid dehydration. But don't drink liquids 30 minutes before mealtime so that the stomach would be empty when eating. Don't drink liquids during a meal or there will be no space for food. Drinking while eating may fill the stomach too quickly and this may cause abdominal pain, nausea, vomiting or Dumping syndrome. Also don't drink liquids for 30 minutes after a meal to avoid too fast "flushing" the food through the stomach because this influences how you are feeling yourself and your safety after eating. Also avoid alcohol in your menu.

During the second period the following drinks are allowed:

water; sugar-free and non-carbonated flavoured water; sugar-free tea; juices diluted with water.

NB! Avoid the following drinks:

sports drinks; soft drinks or other carbonated drinks; sweet sugar drinks.

Physical activity during the second period

You should be as active as possible physically. Walk, use speed-walking, Nordic walking, ride a bicycle, etc. Add the load according to how you are feeling yourself. Three weeks after surgery you can go swimming. Don't lift heavy objects (not more than 6 kg)!

Vitamins, minerals and medicines

Use all required vitamins and minerals during this period:

- 1 tablet of multivitamin 2 times a day;
- calcium citrate in the amount of 950-1,500 mg a day divided into two doses;
- D3-vitamin 100 microgram a day;
- B12-vitamin replacement therapy with injections – 1 injection (1 mg) every 3 months;
- women in fertile age should use 100 mg of iron preparations a day to avoid iron deficiency anaemia;
- Omeprazole tablets during first 8 weeks. You will be issued a prescription for omeprazole.

THE THIRD PERIOD

starting from one month after surgery

You are feeling better and eating meat and bread becomes easier. Now it is possible to go back to usual menu. But you should remember that the main causes of your obesity were wrong eating habits and food choices. Therefore, follow the post-operative nutritional recommendations given above: the food should be protein-rich, contain sufficient amount of carbohydrates and very moderate amount of fats. Give up sweets, sweet drinks and alcohol. Changing your nutritional habits makes it possible to eat more healthily than before surgery.

During this period you may feel that eating or drinking is more difficult than during previous weeks. This is caused by the healing of the connection of stomach and small intestine. The scar developing in the connection site becomes thicker and makes the connection narrower. This is the cause of why the movement of drink and food from the stomach to the small intestine takes more time. With time the scar becomes softer and drink and food pass through the connection more easily. Remember that your stomach empties more slowly when eating solid food than when eating liquid food. Therefore, you can eat smaller amounts than in case of liquids. Remember that after bariatric operation it is very important to chew the food properly before swallowing. Make your diet more diverse using your already accumulated 4-week experience.

Nutrition during the third period

If you tolerate soft solid foods, you can continue with usual solid foods. There should be more solid foods that are easily chewable in the menu.

You can reduce the number of meals to three meals a day when eating solid foods. NB! Don't eat less than 3 times a day! The meals should be as regular as possible. Interval between meals may be 4–5 hours. Take 20–30 minutes of time for each meal. Cut the food into pieces fitting for mouthfuls and chew it steadily. Do not watch TV or read while eating, concentrate only to eating.

Pay continually attention to the development of the feeling of full stomach – a feeling of pressure behind sternum, under ribcage and stop eating when you feel it. Don't overfill your stomach! Eat only until you have reached a feeling of satisfaction. Eating too much continuously will stretch the stomach making the performed surgery useless. Remember that the reason for eating is empty stomach. Do not nibble during the day. Continuous nibbling reduces weight loss and is associated with significant weight increase after surgery.

Continue to monitor the amount of consumed protein. The amount of protein consumed per day should be 65–90 grams. Each meal should contain protein-rich food. Consume the protein-rich food in the beginning of the meal. As the amount of food you are able to eat is small after surgery, you should concentrate on consuming sufficient amount of protein at first and only after that other nutrients: fruits and vegetables, whole grain products. If you are sure that you get a sufficient amount of proteins from the food, stop the use of protein drinks. Use new foods, but remember that you should use only one new food per day. So you can understand which food didn't fit in the menu. Choose healthy and low-fat foods for eating, avoid sweet and easily absorbed carbohydrates: sweets, white rice, ordinary flour products.

Use small plates and cups for eating and prepare your meals and take them with you when going to work. This way you can guarantee that you eat what is beneficial for you and in an amount that is suitable for you.

900–1000 kcal per day should be used during the third period and until the end of the first year.

Foods that may be difficult to tolerate:

hard or cartilaginous meat; red meat; whole milk; ice cream; apples; grapes; fruits with tough skin; dried fruits; fruits with hard skin and many seeds; soft bread that can become soggy while eating; fruit bread; grain breads containing nut pieces and fruits; potato peels; rice; noodles; chewing gum; sweets; condensed milk; popcorn; nuts; chilli or very spicy foods.

Foods that should be limited or avoided to achieve the biggest weight loss:

fried or covered with breadcrumbs meat products; fried eggs; chocolate milk; condensed milk; whole milk; ice cream; fruits with added sugar; fried or covered with breadcrumbs vegetables; sweet breads; Danish pastries; donuts; delicatessen; fast noodle foods; fast foods; fried salty snacks; high-fat cream soups.

If you don't tolerate usual solid foods at first, go back to softer solid foods and try again one week later.

Liquid consumption during the third period

Continue drinking liquids as during the previous period. You need at least 1.2–1.5 litres of liquid per day to avoid dehydration. Don't drink for 30 minutes before mealtime so that the stomach would be empty when eating. Don't drink during a meal or there will be no space for food. Drinking together with eating may fill the stomach too quickly and this causes abdominal pain, nausea, vomiting and Dumping syndrome. Also don't drink for 30 minutes after a meal to avoid too fast "flushing" the food through the stomach because this influences how you are feeling yourself and your safety after eating. Also avoid alcohol in your menu.

During the third period the following drinks are allowed:

water; sugar-free and non-carbonated flavoured water; sugar-free tea; juices diluted with water.

NB! Avoid the following drinks:

sports drinks; soft drinks or other carbonated drinks; sweet sugar drinks.

Physical activity during the third period

Develop a regular exercise program. It is recommended to walk at least 1.5 hours every day. Restriction of physical exertion and lifting of weights ends 4 weeks after surgery. Exercise helps to burn more calories and to build up muscle. Physical activity and protein-rich food reduce the loss of muscle mass. The more muscle mass you have the more calories you burn, in such way you lose weight more easily.

Vitamins, minerals and medicines

Continue to use the recommended vitamins and minerals during this period:

- 1 tablet of multivitamin 2 times a day;
- calcium citrate in the amount of 950-1,500 mg a day divided into two doses;
- D3-vitamin 100 microgram a day;
- B12-vitamin replacement therapy with injections – 1 injection (1 mg) every 3 months;
- women in fertile age should use 100 mg of iron preparations a day to avoid iron deficiency anaemia;
- Omeprazole tablets during first 8 weeks. You will be issued a prescription for Omeprazole.

FURTHER RECOMMENDATIONS

- Eat regularly 3–5 times a day – 3 main meals and 2 intermediate snacks.
- Eat slowly for 20–30 minutes, chew the food thoroughly.
- Monitor the amounts of food and pay attention to the development of the feeling of satisfaction/full stomach to avoid stomach overstretching.
- For safe weight loss you have to eat healthy and well-balanced food to get as much as possible valuable nutrients with each meal. Choose low-calorie and protein-rich foods.
- Starting from the second year after surgery you should use 1200–2000 kcal per day. The exact amount of calories depends on the need for continuing weight-loss and your physical activity.
- While eating you should focus preferably on covering the protein requirement, only after that eat other foods: fruits and vegetables, whole grain products.
- Avoid foods that are difficult to chew, large pieces should not be swallowed.
- Avoid sugar-rich and fat-rich foods.
- Drink sufficiently liquid during a day (more than 1.2 litres), drink separately from meals, keep an interval of at least 20 minutes.
- When drinking, remember that now you have a very small stomach – drink slowly, by sips.
- Avoid carbonated drinks.
- Be physically active, continue exercising, exercises with the intensity of 150–300 minutes of Nordic walking or bicycling per week are suitable.
- The surgery may also be useless and your weight may increase again if you stop following these instructions; Continuous eating, drinking liquid during meals or consumption of calorie-rich foods, also regular consumption of alcohol and low physical activity increase the weight again and make the performed surgery useless.
- Use the prescribed vitamins and minerals.
- Visit the bariatric nurse or family doctor for regular postoperative check-ups.
- After surgery careful monitoring of concomitant diseases (especially in diabetics and hypertonics) and if required, treatment adjustment are required.

GUIDELINES AFTER LEAVING THE HOSPITAL

- Remember how many days have passed from surgery and monitor the changes in the body occurring in this period.
- You should not have high fever, nighttime sweating or chills, breathing should be free and without pain, you should not cough up sputum or blood.
- You should have normal heart rate – it should be under 100 bpm after a 10-minute rest. Heart rate over 120 is worrisome, contact your doctor.
- Clear or bloody liquid may be secreted from the operation wounds, change the bandages/patches. In case of purulent discharge, redness or wound pain, contact your doctor.
- You can wash yourself in shower, the wounds may become wet and you don't have to cover them with patches. After washing dry the wounds with clean towel and cover with patches.
- You will be never able to eat so large amounts of food as before the gastric reduction surgery.
- When you try a new food, take one mouthful at first and see if it is suitable for you.
- We recommend using protein drinks during the first month after gastric bypass surgery or until you will get sufficient amount of proteins from the food.
- You will have to take the recommended vitamins and mineral additives every day for the rest of your life.
- Following the recommended diet helps you to achieve the wished weight decrease and maintain it.
- Your devotion to diet, physical exercises and lifestyle changes is the basis of your success after surgery.
- Keep a diary about food and physical exercises if required. Write down the times of meals, consumed food, amounts, preparation method and amount of calories.
- You should not have dizziness during standing and walking. Try to be mobile during the whole day. When you are active during the day you should sleep well at night. If you get more tired in the beginning than before surgery, then gradually the activity periods become longer than rest periods.
- You may experience diarrhoea after surgery, usually this resolves within 7–10 days.
- Visit the bariatric nurse or family doctor for regular postoperative check-ups.

POSSIBLE PROBLEMS AFTER SURGERY

Dumping syndrome can occur after any type of gastric surgery. The symptoms are discomfort after drinking or eating; mild, moderate or severe and spastic abdominal pains; feeling of full stomach; fast heart rate; diarrhoea; dizziness; sweating; even nausea and vomiting. This is caused by the fact that usually sugar and other carbohydrates are broken down already in the stomach, but this doesn't happen in the reduced stomach and therefore fermenting occurs in the intestine and this causes the complaints. More simply the cause is fast movement of food into the small intestine, from this originates the recommendation not to use liquid during meals and around meals. Dumping syndrome may develop 15–30 minutes after eating sugar-containing foods and reoccur 1–2 hours after eating.

Recommendations to avoid dumping syndrome:

- eat 3–5 small meals during the day, eat slowly and chew well;
- consume also proteins and fats with carbohydrates;
- be careful with liquids and foods containing sugar and eat protein-rich food;
- avoid sugar, sweets and desserts;
- change the content and amount of food to find most suitable for you;
- drink small amounts at a time to reduce the amount of liquid passing into the intestine.

Usually the signs and symptoms disappear during 3 weeks to 3 months.

When *dumping* syndrome develops, relax, lie down for 15 minutes after the meal to slow the passing of food from the stomach to the small intestine.

Nausea is general during the first days after surgery. In rare cases nausea may be so severe that it doesn't make it possible for you to consume the required amount of liquid. In such case go to hospital where you will receive liquids intravenously. Sometimes medicines against nausea may be helpful. As the operation changes the balance of hormones, women may benefit from oestrogen replacement therapy.

Dizziness may be caused by insufficient liquid consumption. Dizziness is temporary as liquid consumption increases and the body gets accustomed to the new situation. Have a water bottle with you so that you can consume liquid between meals during the day. Add salt to your foods.

Lactose or milk-sugar intolerance develops when the body doesn't produce enough enzyme that would help to digest milk products. To find out if you have developed lactose intolerance start using milk and milk products carefully. The symptoms of lactose intolerance are flatulence, abdominal cramps and diarrhoea. In case of lactose intolerance you can use lactose-free or soy products instead of usual products.

Food intolerance is variable in people. The food that is suitable for one person may not be suitable for another. Therefore it is important to try different foods. When food intolerance develops, courage should not be lost. Wait for one or couple of weeks and try again. Maybe your "new" stomach just wasn't ready for this food.

Constipation during the first month after surgery is general, but can be avoided. Constipation should resolve when you start eating more solid and fibre-rich foods: fruits and vegetables, whole grain products. Drink 6–8 cups of liquid per day. Be active and move around sufficiently. For troubling constipation the amount of fat in the food should be increased a little, also a teaspoonful of oil (olive oil, cold-pressed linseed oil, avocado oil or hemp oil) or a piece of fatter red fish could be helpful. Mild laxatives, e.g. Microlax, Duphalac, can be obtained from pharmacy. Laxatives increasing the volume of digestive tract are not suitable for you. If constipation persists, contact your doctor.

Hair loss you can notice only several months (usually 3–6 months) after surgery. Physiological stress due to surgery and weight loss causes the movement of nutrients to more important organs in the body, like heart and brain, and the cosmetic function in the form of nice hair is not important for the body at this moment. Therefore, the growth phase of hair stops and 30–40% of hair follicles are sacrificed. Usually 7–9 months after the surgery the body gets accustomed to function on a new level, weight loss and nutrition stabilise and hair stops to fall out. Sufficient protein use can reduce (but not always avoid) alopecia. If protein consumption doesn't help, attention should be paid to iron reserves of body. Continuing loss of hair more than 9 months after surgery may be a sign of zinc deficiency.

Meteorism may be caused by changed digestion process but also by swallowed air while eating. This isn't dangerous but causes pain and inconvenience. To alleviate this you should monitor your menu and find out which foods cause most gas for you and then try to avoid them. Also you should focus on eating and drinking so that no air will be swallowed.

EXERCISE AFTER SURGERY

Everyday exercise helps your body to use more calories. If you follow the diet you will limit the amount of calories your body appropriates every day. With exercise you will increase the difference between consumed and spent calories even more and this helps you to lose even more weight. When you have achieved the desired weight, exercise has an important role in its maintenance.

Regular exercise helps you to improve the condition of your heart and vascular system. The durability of your heart and lungs increases and this helps to reduce the risk of hypertension, diabetes, myocardial infarction or stroke.

Exercise and everyday activities have not the same effect. Many people think that if they are active during the day, they don't have to exercise regularly. Increasing the daily activity by leaving your car farther from the mall or using stairs instead of elevator increases the amount of used calories but if you don't perform an activity repeatedly during a certain time, you don't exert enough load to your heart and lungs.

The difference between exercise and daily activities lies in the fact that during training an exercise is performed repeatedly during a certain time, at the same time a daily activity is performed during a short time. When you have found a suitable exercise for you, it should be performed repeatedly for at least 10 minutes. When the durability of your heart and lungs increases, you can perform the exercise continuously for at least 20–30 minutes.

We recommend to walk at least 8000 steps per day or train 150-300 minutes per week (swimming, Nordic walking, bicycling, fines) but not less than 3 days per week.

Change your lifestyle!

- Don't eat when reading or watching TV!
- Prepare a suitable amount of food and put the rest back in the refrigerator!
- Avoid buying tempting foods!
- Don't go to the grocery store on an empty stomach!
- Make a list of required things before going shopping and follow it!
- Use smaller plates and bowls!
- Keep healthy foods at hand!
- Focus on other things, not eating!
- Brush your teeth after a meal or when you want to eat!
- Don't eat standing up during parties or at a buffet!
- Offer to bring healthy food to parties yourself!
- Park your car farther away from the target!
- Stand up and go to the TV to change the channel, don't use the remote control!
- Take the stairs instead of an elevator!
- Keep a diary about food and physical activity!

1200 kcal diet

protein 60-80 g/p

protein 20-25%

***g/p – grams in a portion**

carbohydrates 130-150 g/p

carbohydrates ~45%

fat max. 40 g/p

fat max. 30%

Daily amounts	Foodstuffs	Portion/g	Protein an amount in portion/g	Recommendations	
4 portions	Chicken	60	15–19	Avoid fat meat	
	Beef	60	15–20		
	Pork	60	13–19		
	Fat fish	Fat fish	60	13–18	Fat fish about 3 times a week
		White fish	85	16–23	
	Cheese	Cheese	50	11–13,5	Prefer low-fat. Monitor Ca++ content.
		Milk	140	4–5	
		Yoghurt	115	4–7	
	Legumes (lentils, beans, soy)	Legumes (lentils, beans, soy)	80	6–8	Combine with grains
Egg		50 (bigger)	6		
2–3 portions	Low-sugar fruits	140	1	Prefer low-sugar.	
1 portion	High-sugar fruits	70	0,75		
2–3 portions	Vegetables	85	1–3		
1 portion	Rice, pasta	90	2–5	Prefer whole-grain products.	
1 portion	Breakfast cereals, muesli, bread, white bread	30	2–4		
1 portion	Potato	85	2–4		
2–3 portions	Vegetable oils	6 (1 tl)	0		

BARIATRIC NUTRITION PYRAMID



* prepared weight

The text was compiled by bariatric nurse Kristel Janvest, RN, MSc.

Photos: Zoran Grojic

<http://weightwise.com/gastric-bypass-surgery-oklahoma>

Moizé VL, Pi-Sunyer X, Mochari H, Vidal J. Nutritional pyramid for post-gastric bypass patients. *Obes Surg.* 2010 Aug; 20(8)

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