

Single Anastomosis Duodeno-Ileal Bypass with Sleeve Gastrectomy (SADI) Handbook

Introduction and Overview of the Surgery

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This document was developed by the Toronto Western Hospital Bariatric Surgery Program and is adapted from education materials from St. Joseph's Healthcare Hamilton Bariatric Surgery Program. It is intended to be used with instruction by a bariatric program clinician (11/2024).

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Introduction

Each person considered for this surgery will meet with the bariatric team to be assessed and ensure they are safe to proceed. You will meet with different team members both before and after surgery for support to make sure that you are successful. Typically, this surgery is done the following ways:

- If you already have a sleeve gastrectomy, this surgery may be done as a 2nd stage
- For someone who has never had bariatric surgery before, this surgery is done in 2 stages. The sleeve gastrectomy is done as the first step of the process.

After about 1-2 years, you and your bariatric team will decide if you would like to go on to the 2nd stage surgery: the SADI.

You and your bariatric team work closely together to make decisions that are best for you. Each person is unique and has their own plan of care, so try not to compare yourself with others in the program.

Overview of the SADI

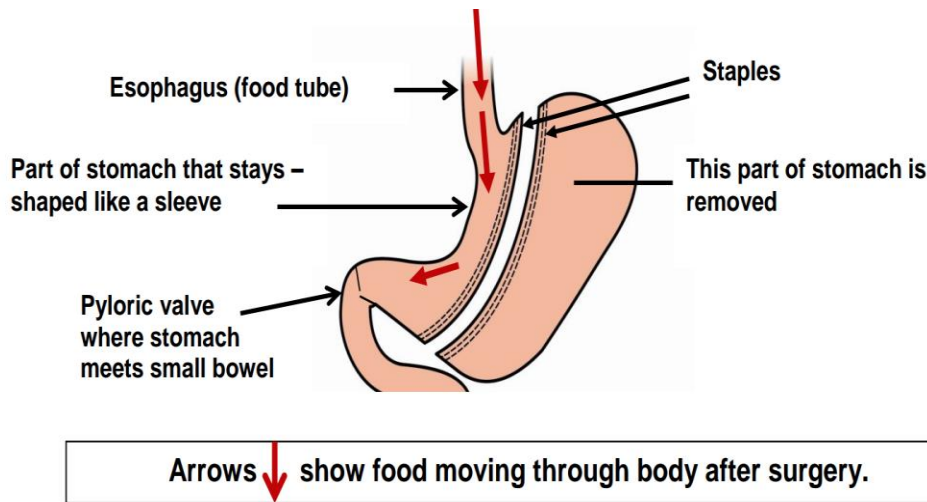
This type of surgery is both a restrictive and malabsorptive surgical procedure.

First Stage – Sleeve Gastrectomy

The restrictive part of the surgery is done first and it is called a sleeve gastrectomy. The stomach is cut creating a long pouch that connects the esophagus to the small intestine. The pouch or “sleeve” is stapled closed and 70% of the stomach is removed from the body. The size of the stomach is reduced from 4 to 6 cups before surgery to 1 to 1 ½ cups after surgery. Since the stomach is smaller, you will feel full sooner. This reduces the amount of food you can eat.

The sleeve gastrectomy also decreases the production of a hormone called ghrelin, which helps to reduce hunger. Therefore, you may eat less food, resulting in weight loss. As shown in the picture below, the way the food travels through the digestive system does not change. The nerves are left intact. The stomach is smaller, but the function stays almost the same.

Diagram of the First Stage – Sleeve Gastrectomy



Second Stage – Single Anastomosis Duodeno-Ileal Bypass (SADI)

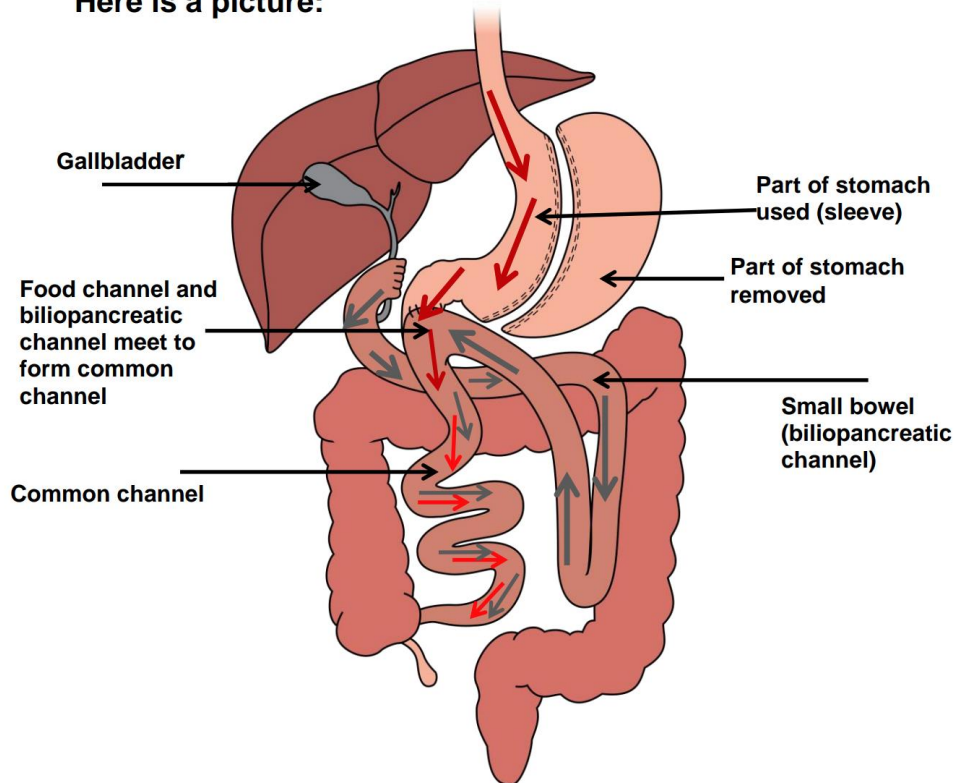
The second part of the surgery is a malabsorptive surgical procedure. The surgeon takes a loop of the small bowel and attaches it just below the pyloric valve of the sleeve gastrectomy. The loop connection is made just below the stomach. The loop connection is called an anastomosis. There is only 1 anastomosis made during this surgery, which is why the surgery is called a Single-Anastomosis Duodeno-Ileal Bypass (SADI). As a result of this surgery, the small bowel is divided into two sections. One part of the looped connection is called the **biliopancreatic channel** and the other part is called **the common channel**.

The **biliopancreatic channel** is the part of the looped small intestine that drains the digestive juices from the gallbladder and pancreas. No food passes through this part of the bowel after the procedure. It carries bile and pancreatic juices to the **common channel**, where it meets up with the food you have eaten.

The **common channel** is the part of the looped intestine where food, bile, and digestive juices are mixed and absorbed before going into the large bowel. The bile, pancreatic juices, and enzymes help your body to digest and absorb nutrients from the food you eat and drink. In this procedure, the common channel is between 250 to 300 cm (about 8 to 10 ft) long. Leaving only a short section of the small intestine to absorb calories and nutrients, which is why it is called a malabsorptive procedure.

Diagram of the Second Stage – SADI

Here is a picture:



- ↓ Food moving through the stomach and common channel.
- ↓ Bile moving through the biliopancreatic channel and common channel.

After this type of surgery, you will lose weight because:

- Your stomach is smaller and you eat less food
- The food you eat and drink bypasses most of the small bowel so less is absorbed
- Less fat, protein and carbohydrates are absorbed
- The hormones that affect your metabolism, hunger, and appetite change

Diet Before Bariatric Surgery

Medi Meal

Medi Meal is a low-calorie meal replacement shake you will be required to take for 2-4 weeks before surgery. This will reduce the size of your liver and the fat tissue in and around your liver. These changes will make the surgery easier and safer for you. The surgeon will tell you how long you will need to drink Medi Meal.

Instructions:

- Mix 1 package of Medi Meal with 1-2 cups of water. Shake or stir before drinking.
- Drink 4 packages of Medi Meal every day (ie: breakfast, lunch, dinner, snack).
- Stop drinking Medi Meal by midnight the night before your surgery.
- In addition, drink 6 to 8 cups of water or calorie-free fluids each day (ie: water, black coffee or tea with artificial sweetener, green tea, herbal tea, calorie-free drink flavours (ie: Crystal Light, Mio drops, sugar-free Kool Aid drops, etc), no sugar Jell-O, and/or chicken, beef or vegetable broth with less than 10 calories per serving.
- Do NOT eat any other food while taking Medi Meal shakes.

How to Manage Side Effects:

Hunger – Drink 4 packages of Medi Meal per day at regular mealtimes. You may want to avoid sitting with others when they eat. You will be less hungry after taking Medi Meal for 3 to 4 days.

Headache – In addition to 4 packages of Medi Meal, drink 6 to 8 cups of water or calorie-free fluids. If your headache continues, speak to your pharmacist about over-the-counter pain relief medications.

Diarrhea – Make sure you drink 6 to 8 cups of water or calorie-free fluids, in addition to your 4 servings of Medi Meal. You can also add 1 teaspoon of sugar-free fiber supplement (i.e.: Clearly Fibre) to each package of Medi Meal you drink.

Constipation - Make sure you drink 6 to 8 cups of water or calorie-free fluids, in addition to your 4 servings of Medi Meal. You can drink a glass of warm water or herbal tea with each Medi Meal. You can also add 1 teaspoon of sugar-free fiber supplement (i.e.: Clearly Fibre) to each package of Medi Meal you drink

Diet After Bariatric Surgery

Day 1 - Clear Fluid Diet

Slowly sip 15mL of clear fluids every 15 minutes. Clear fluids include water, juice diluted with equal parts water, broth, tea, no sugar added Jell-O. Even if you don't feel like drinking anything, it is important to start sipping fluids to make sure your digestive system is working properly. Do NOT consume carbonated beverages.

Day 2 – Clear Fluid Diet

Slowly sip 30mL of clear fluids every 15 minutes. Clear fluids include water, juice diluted with equal parts water, broth, tea, no sugar added Jell-O. Even if you don't feel like drinking anything, it is important to start sipping fluids to make sure your digestive system is working properly. Do NOT consume carbonated beverages.

******* DID YOU KNOW? *******

Weight Loss Expectations

On average people lose 30-40% of their weight after the SADI. For example, if your highest weight is 350 lbs, your total weight loss after having both the two-step sleeve and SADI would be 105 - 140 lbs. Keep in mind, some people lose more and some people lose less.

For most people, the scale does not reflect all the positive changes that occur after bariatric surgery. For example, you may find that your health improves, you feel better overall, have more energy, or become more active. Keeping a journal can help you reflect on these positive changes.

Lastly, your body needs time to adjust to all the changes and it may take 1-2 years to reach your new weight. It is also important to understand that a small amount of weight regain is normal. This does not mean that you will regain all of your weight. For best results, follow the bariatric nutrition guidelines, keep active, and ask your bariatric team for support if you need it.

Weeks 1 & 2 – Liquid Diet

Instructions:

1. Start taking your chewable vitamin and mineral supplements (see page 11).
2. **Aim for 100 grams protein daily.** Drink 2-4 protein shakes daily. Refer to the Protein Shake handout or ask your Dietitian.
3. Add unflavoured protein powder to your liquids 1 to 3 times daily.
4. Drink 4 to 6 cups of water or calorie-free fluids daily.

Eat/drink only the liquid items listed below

- Tomato juice
- Unsweetened apple sauce
- Cream of wheat
- Oatmeal (less than 10g sugar)
- Soup – strained or smooth texture only
(ie: tomato, butternut squash, strained cream of mushroom)
- Cottage Cheese
- Yogurt (smooth, no sugar added, high protein options)
- Milk (skim or 1%)
- Lactose-free milk
- Soymilk
- Protein shakes
- Protein powders
- Water and/or calorie-free beverages

Reminders:

1. Eat slowly. Your meals should take 30-40 minutes.
2. Eat or drink 1 tbsp every 3-5 minutes.
3. Stop eating if you feel any discomfort or pain.
4. Keep water nearby and slowly sip all day.

***** HYDRATION TIP! *****

Homemade popsicles are a great way to help meet your fluid and protein needs. Add unflavoured protein powder to your favourite zero-calorie sports drink, mix well, then pour into a popsicle mold, and freeze! Other options to try include homemade yogurt pops or protein shake popsicles!

Weeks 3 & 4 – Pureed Diet

Instructions:

1. Continue taking your chewable vitamin and mineral supplements (see page 11).
2. **Aim for 100 grams protein daily.** Drink 2-3 protein shakes daily. Refer to the Protein Shake handout or ask your Dietitian.
3. Add unflavoured protein powder to your food 1-3 times daily.
4. Drink 6 to 8 cups of water or calorie-free fluids daily.

Type of food	Foods you can eat	Foods to Avoid
Fruit and vegetable	Tomato Juice Unsweetened apple sauce Cooked pureed vegetables Cooked or canned pureed fruit	Seeds and tough skins Dried fruit Raw fruits and vegetables
Grain and starch	Cream of wheat Oatmeal (less than 10 grams of sugar) Cold cereal (not sugar coated) soaked in milk until soft Soda crackers Melba toast	Bread Pasta Rice All other cereal
Soup	All soups, pureed	All other
Beverages	Calorie-free clear fluids Water Juice diluted in half with water Low fat meat or vegetable broth Decaf tea or coffee	Carbonated beverages Caffeinated beverages Full strength juice Alcohol
Desserts and sweets	No sugar added pudding No sugar added ice cream No sugar added Jell-O®	All other
Protein sources	Protein powder Protein shakes Milk (skim or 1%) Lactose free milk Natural/Plain soy beverage Cottage cheese Ricotta cheese Cream cheese No sugar added yogurt (high protein options) Fish (moist and mashed with a fork) Soft poached egg Hummus Pureed chicken, beef, pork	Peanut butter Nuts and seeds Eggs (unless poached) Hard cheeses 2% or homogenized milk Cream

Weeks 3 & 4 – Pureed Diet (continued)

Reminders:

1. **Eat slowly.** Your meals should take 30-40 minutes.
2. **Separate your liquids and solids.** Stop drinking 30 minutes before a meal. Wait 30 minutes after eating to start drinking again
3. Choose foods from all food groups. Make sure everything is pureed or blended.
4. Do not worry if you cannot finish your meals.
5. Stop eating if you feel any discomfort or pain.
6. Keep water nearby and slowly sip all day.

Example: Pureed Diet (110 - 125g protein)

	Name of Food	What is in it
Breakfast	Cream of Wheat	1/2 cup cream of wheat ¼ to ½ cup milk ½-1 scoop protein powder
	Fruit	2 tbsp pureed fruit
Morning Snack	Protein Shake	1 protein shake
Lunch	Egg	1 soft poached egg
	Melba Toast	1-2 pieces Melba Toast
Afternoon Snack	Yogurt	1 small container no sugar added greek yogurt
Dinner	Meat or Fish	¼ to 1/2 cup pureed meat or mashed fish
	Mashed potato	2 to 4 tbsp mashed potato ½-1 scoop unflavoured protein powder
	Carrots	2 to 4 tbsp pureed carrots
Evening Snack	Protein Shake	1 protein shake

Weeks 5 to 9 – Soft Diet

Instructions:

1. **Switch to pill form vitamin and mineral supplements.** You can cut or break them into smaller pieces if needed. Refer to your Vitamin & Mineral handouts or ask your Dietitian (see page 11).
2. Ensure your food is moist, tender, and soft texture (i.e.: foods cooked with low fat sauces/gravies, in crockpot or slow cooker).
3. **Aim for 100-120 grams protein daily.** Drink 1-2 protein shake daily or add unflavoured protein powder to your food. Refer to the Protein Shake handout or ask your Dietitian.
4. Drink 6 to 8 cups of water or calorie-free fluids daily.

Foods you can now start to incorporate into your Soft Diet
<ul style="list-style-type: none">✓ Ground meat/poultry or diced meat/poultry cooked in a chili, stew, or curry✓ Cheese – all types in 30g or 1 inch cube portions✓ Legumes – soft and cooked, in a sauce (ie: beans, lentils, chickpeas)✓ Eggs – cooked with little or no fat (ie: boiled eggs, scrambled eggs)✓ Well-cooked fruit and vegetables (ie: boiled broccoli, canned green beans, canned fruit)✓ Soft fruit (ie: mango, banana, peeled apple)✓ Pita bread, tortilla wraps✓ Bread – thin sliced, well toasted✓ Cereal – high fiber, low sugar✓ All soups✓ Peanut, almond or cashew butter

Reminders:

1. **Eat slowly.** Your meals should take 20-40 minutes.
2. **Separate your liquids and solids.** Stop drinking 30 minutes before a meal. Wait 30 minutes after eating to start drinking again
3. **Eat 3 meals and 2-3 snacks per day.** Avoid going more than 4 hours without eating.
4. Cut food into small pieces, the size of a pea.
5. Eat the high protein foods first.
6. Stop eating before you feel full.
7. Aim for 100-120 grams protein every day, use 1-2 protein shakes daily to help meet protein goal.

Weeks 5 to 9 – Soft Diet (continued)

Example: Soft Diet (110 - 125g protein)

	Name of Food	What is in it
Breakfast	Omelette	1-2 whole egg 2 tbsp – ¼ cup diced ham 1 tbsp shredded low fat cheese
	Whole wheat toast	½ slice whole wheat bread well toasted
Morning Snack	Protein smoothie	1 protein shake blended with ¼-½ cup frozen or fresh fruit
Lunch	Chili	¾-1 cup chili
	Cheese	30 grams cheese
Afternoon Snack	Canned tuna	½ tin canned tuna
	Crackers	4-5 whole wheat crackers
Dinner	Fish	3oz baked fish
	Mashed potato	¼ cup
	Green beans	½ cup well-cooked green beans
Evening Snack	Greek yogurt	1 small container SF greek yogurt
	Fruit	¼ cup of chopped canned, frozen or fresh fruit

***** DID YOU KNOW? *****

Fluids After Bariatric Surgery

After Bariatric Surgery it may be difficult to drink enough fluids, due to the small size of your new stomach. You will need to take small sips all day. You may also find that some fluids, including water, cause discomfort. If so, try warm herbal tea or add lemon or sugar-free flavour enhancers to your water. Remember to call or email your Bariatric Dietitian if this persists.

Week 10 & Beyond – Healthy Well-Balanced Diet

Instructions:

1. Continue to take your vitamins and minerals for life.
2. Aim for 120 grams protein daily, use 1 protein shake a day or as needed to meet protein goal.
3. Drink 6 to 8 cups of water or calorie-free fluid every day.
4. Eat 3 meals and 2-3 snacks every day. Avoid going more than 4 hours without eating.
5. Remember to include high protein and high fibre foods at each meal and snack (see chart below).
6. Try new foods one at a time. If you do not tolerate it right away, try it again in a few weeks.
7. Include healthy fats (e.g. nuts, seeds, nut butters, salmon, avocados, canola or olive oil, eggs, dairy products) in your diet to help absorb fat soluble vitamins such as vitamin A, D, E and K.
8. Measure your food. Meals will vary between 1.5 to 2.5 cups, depending on the texture and composition.
9. Plan ahead. Try to think about your week and pre-plan meals for busy days. For example, try cooking a large pot of chili and portioning it out into 1 cup reusable containers to pack for work.

High Protein Food Examples:	High Fibre Food Examples:
<ul style="list-style-type: none">• Beef, chicken, pork, fish, seafood• Ground beef, ground turkey• Lentils, chickpeas, kidney Beans, edamame• Chili, split pea soup, lentil soup• Eggs, cheese, milk, soymilk• Greek / Skyr yogurt, cottage cheese, ricotta• Nuts, peanut butter, almond butter• Tofu, tempeh, textured vegetable protein• Protein bar, protein shake, protein powder	<ul style="list-style-type: none">• Fresh, frozen, canned vegetables• Fresh, frozen, canned fruit (packed in water)• Brown rice, quinoa, barley, bulgar, freekeh• Whole grain or whole wheat bread• Whole grain or whole wheat crackers• Whole grain or whole wheat pasta• Lentils, chickpeas, kidney beans, edamame• Sweet potato, potato, carrots, beets• High fibre cereal, oatmeal, bran flakes

***** TEXTURE TIP! *****

Introduce new foods one at a time and make note of how you feel after eating. If a certain food makes you feel sick, then stop eating it for now and try again in 1-2 months. For example, if baked chicken breast sits heavy in your stomach, then try making chili with ground chicken instead. Moist food is tolerated better than dryer, tougher meats.

Vitamins and Minerals After Bariatric Surgery

When you get home from the hospital you will start taking your chewable vitamins and minerals. Alternatively, you can crush pills or cut open gel caps and mix with apple sauce or yogurt. After 4 weeks, you can switch to whole pill form. Please follow the recommended schedule below after surgery, unless advised otherwise by your doctor or bariatric team. For recommended products, please refer to the vitamin and mineral handouts that were emailed to you or ask your bariatric dietitian.

Sample Vitamin Schedule

Time	Option 1: Bariatric Advantage (USA)	Option 2: Over-the-counter products
Breakfast	ADEK Multivitamin x 1	Prenatal Multivitamin x 2 Vitamin A 10,000 units B12 1000 mcg
AM Snack	Calcium Citrate 600 mg	Calcium Citrate 600 mg Vitamin D 1000 units
Lunch	Calcium Citrate 600 mg	Calcium Citrate 600 mg Vitamin D 1000 units Vitamin E 400 units
PM Snack	Calcium Citrate 600 mg	-
Dinner	ADEK Multivitamin x 1	Calcium Citrate 600 mg Vitamin K 300 mcg
Bedtime	Iron 45mg	Iron (as per bloodwork)

**Do NOT take gummies or extended time release vitamins or minerals.*

Choosing your vitamins and minerals:

Vitamin & Mineral Pills	What to look for...
Multivitamin	100% Daily recommended intake of all Vitamins & Minerals At least 18 mg Iron 1mg of copper
Calcium	Calcium Citrate Aim for 1800 mg daily, divided into 3 doses
B12	1000 mcg daily OR 1000 mcg injection monthly
Vitamins ADEK	Choose a bariatric specialty MVM that contains vitamins ADEK OR Take vitamins ADEK separately with 2 Prenatal MVM pills

How to Manage Nausea, Vomiting and Stomach Pain

You may have nausea, vomiting, and stomach pain after bariatric surgery. Here are some tips to help you feel better. If your symptoms persist, please call the Bariatric Clinic (see page 2).

Possible cause of nausea, vomiting or stomach pain	Possible solution...
Eating too much	Measure your food (ie: max. 1 – 1.5 cups)
Eating too fast	Put your fork down between bites. Time your meals (ie: 20-40 minutes)
Not chewing enough	Chew your food 20 to 30 times for each bite
Food too dry or too tough	Use a slow cooker, choose chili or stew, add sauce to moisten your food
Taking bites that are too large	Cut your food into the size of a pea or pencil eraser
Eating and drinking at the same time	Separate your food and fluids by 30 minutes before and after your meal
Swallowing air	Do not drink carbonated beverages. Do not use a straw
Dehydration	Drink 6 to 8 cups of water or calorie-free fluids every day.

Food Intolerances

Some foods may be more difficult to digest after surgery but often resolve over time. Consider avoiding these foods for 1 to 2 months and then trying them again. In the meantime, here are some tips to help manage these food intolerances.

Common Intolerances	Try this instead...
Dry, tough meat (ie: chicken breast, well done beef)	Dark chicken meat Ground beef or ground chicken in chili or with tomato sauce Cut chicken or beef into small cubes and cook in a hearty soup or stew Add low calorie sauces/gravies to your meal
Bread	Whole grain crackers (ie: Melba toast, Wasa, Ryvita) Flat bread (ie: pita, tortilla wraps, rusks) Toasted whole grain or whole wheat bread
Pasta	Whole wheat or whole grain pasta Chickpea or lentil pasta Spaghetti squash, spiralized zucchini, hearts of palm pasta
Rice	Brown rice, Quinoa, Couscous, Barley, Freekeh, Bulgar
Candy or chocolate	Sugar-free candy or sugar-free chocolate

*******MANAGING LOOSE STOOLS*******

After the SADI, people may have loose stools 2 to 5 times daily. It is important to stay hydrated and optimize fibre intake during this time. Aim for 6 to 8 cups (1.5 to 2 L) of calorie-free fluids daily and choose a high fibre food with each meal and snack. Foods high in soluble fibre help slow transit time and encourage stool bulking. Try to include foods high in soluble fibre in your diet daily. For example: oatmeal, chia seeds, All Bran Buds, barley, quinoa, black beans, chickpeas, sweet potato, avocado, apples, mango, nuts and seeds. You can also talk to your nurse or dietitian about taking fibre supplements.

Mental Health

Living well after bariatric surgery involves balancing physical and mental health. Just like you keep track of your vitamins, blood sugar levels, and your physical health, it is also important to check on possible changes to your mood or development of unhelpful coping mechanisms. It can sometimes be challenging to detect changes in your mood, inquiring with friends and/or family members can be a helpful method to recognize change.

Many patients notice that their overall mood improves after bariatric surgery, especially during the first year. Other patients notice that their mood symptoms are worse. This can happen for many reasons, such as medical complications, weight loss goals not being met, stressful life events, and relationship conflicts, problems with absorbing psychiatric medications, or poor vitamin and nutrient levels.

Mental health challenges can make it harder to follow guidelines for staying healthy after surgery. This may lead to weight regain. It is important to pay attention to any changes in your mood and talk with health care providers about any concerns you have so that you can get the help you need.

What can I do to stay mentally and emotionally healthy?

- Take care of your physical health by eating healthy foods, taking your vitamins, getting enough sleep and physical activity, and limiting your use of alcohol and drugs.
- Be kind to yourself when coping with stressors and conflict. Write in a journal, read a book, or share your feelings of being stressed, anxious or depressed with a friend or family member.
- Spend time with people whose company you enjoy.
- Take up or revisit a hobby or a new activity that interests you.
- Ask for help from your health care providers or support systems when you are feeling overwhelmed.