

NUTRITION RECOMMENDATIONS BEFORE BARIATRIC SURGERY

Committing to bariatric surgery requires that you prepare ahead of time by eating a healthy diet and ensuring adequate levels of physical activity. Pre-surgery diet changes are needed to help you lose 10% of your excess body weight prior to surgery and to have better eating habits to help you lose weight after surgery and help you keep the weight off after surgery. Following the nutritional recommendations may help you demonstrate that you are able to make a commitment to the changes you will need to continue to follow lifelong.

Physical activity is equally important in your weight loss journey. Physical activity will help you with weight loss before surgery and will help you keep the weight off long term.

The recommended amount of physical activity is 90 minutes per day for weight loss and 60 minutes per day for weight loss maintenance. If you have not been active for some time, make sure you have your physician's approval prior to engaging in physical activity.

Start slowly and build up to at least 60 minutes 5 days per week. You can divide your physical activity routine during the day.

What weight loss surgery is not going to do for you is keep your weight off. You will need to be physically active and monitor your food intake in order to keep your weight off.

At NMCS D there is a process that all patients need to complete prior to being eligible for bariatric surgery. Among the pre-requisites all patients will need to lose 10% of their excess body weight, start being physically active, and keep off the weight they lose prior to surgery. In order to achieve this goal patient will meet with a registered dietitian at least twice and as many times as needed until the weight loss is achieved.

In order to lose weight patients will need to reduce your caloric intake to about 1200 calories per day for most women and 1500 calories per day for most men.

Two weeks before surgery patients follow an 800 calorie diet that comprises of 2 protein shakes and one meal of about 350 calories. Vegetables and one fruit are allowed for snacks.

We encourage those patients that drink a lot of caffeine containing beverages to wean themselves off at least 2 to 4 weeks before surgery.

Diet and Activity Journal

Keeping a diet and activity journal can be a learning tool and to help the patient monitor food intake, activity levels and feelings connected to eating. Write in your journal each day and note what you have eaten, how you feel after eating, and your physical activity

for that day. After surgery you can add any side effects you experience, the supplements you take and anything else that you find is helping you succeed.

You can use the following websites to help you with diet changes:

www.choosemyplate.gov

BARIATRIC NUTRITION AFTER SURGERY

Overview

Bariatric surgery reduces the size of your stomach and limits the amount of food you can eat. You may become deficient in one or more nutrients because your body is not adequately absorbing nutrients, or because you are not getting proper amounts of nutrients in your diet. The most likely nutrients that you can become deficient in include iron, vitamin B12, thiamin, calcium, vitamin D, and folate. This is why you will be required to take vitamin and mineral supplements for the rest of your life to prevent deficiencies.

Because bariatric surgeries limit food intake, a change in eating habits is necessary for success. Also a change in physical activity habit is necessary for long-term success.

At NMCS D we recommend the following:

- Multivitamin Complete with iron chewable 2 times per day: am and pm
- Calcium citrate with vitamin D 1500 - 2000mg – 3 – 4 times a day (not with MVI and iron)
- Vitamin B1(thiamine) 100mg or B -100 complex daily
- Vitamin B12 - 1000 mcg sublingual weekly
- Iron: 325 mg daily for menstruating women or with history of anemia

For the immediate period after surgery, about 3 months, we want your vitamin and mineral supplements to be liquid or chewable.

Diet Stages.

Week 1 and 2: Clear/full Liquid Diet

Once you are discharged from the hospital, your stomach needs to rest and heal from surgery. Your nutrition goals are to consume at least 70 grams protein and 48 to 64 oz. of fluids each day. Fluids include protein drinks. Adequate amounts of protein and staying hydrated are important for your healing and overall good health. You can take protein supplements that meet the following guidelines:

- At least 20 grams protein per serving
- Less than 5 grams fat per serving
- Less than 5 grams sugar per serving
- Less than 10 grams carbohydrate per serving

Once you are enrolled in the program you will be provided with a list of suggested protein supplements.

Liquids

Initially liquids may be all that is tolerated. If this is the case, a high protein liquid should be taken every two hours until tolerance builds. This may take up to two weeks. Herbal tea, broth and electrolyte drinks are also allowed. However, due to the stimulatory effects, beverages containing caffeine, such as coffee, are not. Lactose- and soy-free, low calorie drinks are recommended.

Week 3 - 4 – Pureed/ soft Diet

For the next three weeks, you should follow a pureed/soft diet. Your nutrition goals are at least 70 grams protein and at least 64 oz. of fluids each day. Fluids include protein drinks. Your pureed diet will consist of blending lean beef, pork, poultry and seafood, and scrambled eggs and other protein foods. Do not cook your protein foods in any fats. Other protein choices are cottage cheese, non-fat yogurt, tofu, and non-fat or low-fat dairy products. Foods must be blended, mashed or pureed to a consistency that is similar to baby food. You must eat protein foods first. Next, eat your vegetables and fruits. Only if you are still hungry then you can have starches. Since you will only be able to eat small portions, it is critical that you eat your foods in this order to ensure you get important nutrients first.

Soft foods such as eggs, yogurt and cottage cheese are added slowly, along with continued intake of high protein liquids. New foods are added one at a time to give the body time to adjust. Sticky foods such as peanut butter, bread and cheese are avoided, along with high fat foods such as mayonnaise and butter.

At this time you also start taking your daily vitamin and minerals as prescribed.

You are also physically active for 60 minutes at least 5 days per week.

Week 4 to 6 - Soft Meal Diet

Your nutritional goals for the next 4 weeks are still at least 70 grams of protein and at least 64 oz. of fluids each day including protein drinks. At this stage it is recommended you eat only cooked or processed meals. No **raw foods** except applesauce or canned fruits in their own juice as raw foods can be harder to digest. Sip fluids between meals and do not sip fluids with meals. Do not use straws. If you drink fluids with your meals, you will fill up on fluids and will not be able to eat the rest of your soft meal that provides important nutrients. You should still eat protein foods first, then your vegetables and fruits and lastly, your grains. Chew your food slowly and well to recognize when you are starting to feel full. Continue taking vitamins and minerals and be physically active for at least 60 minutes daily.

Week 7 to 9 - Regular Diet

You can now begin a “regular” diet. It is recommended you avoid foods with tough skins. It is also recommended to avoid raw vegetables for 4 to 6 months. Chew your food slowly and carefully. Continue to eat your protein first, vegetables then fruit, and then grains and starches last. We suggest a daily intake of at least 70 grams of protein. At this time you can eat three small meals and snacks as needed. Continue to ensure fluid intake of at least 64 fl oz per day which includes protein supplement. You should also be taking your vitamins and minerals and be physically active for at least 60 – 90 minutes daily.

Eat Slowly

The brain needs time to signal the body that it is full. Eat slowly to prevent overeating. Depending on the weight loss surgical procedure, the body may only be able to hold 4 oz. to 6 oz. of food each meal. Eating more than the amount that the body can comfortably hold may result in stomach pains, nausea and vomiting. It can take up to nine months for the stomach to stretch and adjust to a new size.

Tips

To assist in the success of your weight loss surgery follow-up, avoid high fat and fried foods, as well as drinks that contain a lot of sugar. Limit fluids during meals and 30 minutes prior to eating. Chew your food well, at least 25 times before swallowing. Prevent dehydration by drinking enough fluids between meals. Stop eating immediately when your body signals satiation.

Foods to Avoid

You should avoid foods high in sugar, fat and fiber and foods without protein. You may need to avoid foods with lactose in them if you were sensitive to lactose before surgery.

To avoid blocking the stomach opening, you should stay away from foods that stick together in clumps, such as soft bread, peanut butter, sticky rice and foods that are hard to chew like nuts and seeds, raw vegetables and tough meat.

Long-Term Nutritional Needs

Bariatric surgery patients must adhere to a healthy diet to achieve maximum weight loss. As you heal, your body may be able to tolerate foods that were not allowed in the early stages of recovery from surgery. It is important to continue vitamin and mineral supplementation and ensure that you consume enough protein in your diet. You will be able to add fruits and vegetables and meat back into your diet slowly and in modified forms. For example, fruits and vegetables will need to be pureed at first; then you can progress to cooked soft and mushy, then to normal texture as long as you chew it well. How quickly you return to foods with normal texture depends on the type of bariatric surgery, any complications that occur and the advice of your medical team. **You will always need to limit high calorie, high fat foods, as these foods will result in decreased weight loss and can result in weight gain if abused. You will also need to be physically active every day for at least 60 minutes to maintain weight loss. You will need to take vitamin and mineral supplements for life.**

During All Phases

During all phases post surgery, you should avoid popcorn, nuts, carbonated beverages, stringy vegetables, and tough meats. These foods can irritate the stomach or get stuck at the incision sight. It is also important to keep meals small, and drink only between meals, not during meals, so that the stomach is not overloaded.

Foods that may be Difficult to Tolerate

- Bread products
- Cow milk products
- Pasta products
- Fatty foods and fried foods
- Candy, chocolate, any sugary foods and beverages
- Carbonated beverages
- Bran cereal and other bran products
- Corn, whole beans, and peas
- Dried fruits and skins of fresh fruit
- Coconut

Registered Dietitian/ Nutritionist Follow-Up

About 10 percent of bariatric surgery patients fail to lose enough weight or regain the weight after an initial loss, according to the Weight-Control Information Network. Frequent snacking, eating high-calorie foods and lack of exercise contribute to these problems. A registered dietitian or nutritionist can provide valuable education and

assessment that may help prevent or correct nutritional issues before and after surgery. Nutritional care begins before surgery by assessing the patient's intake, health status, nutritional knowledge and readiness for change. By assessing the whole person, the dietitian can identify potential challenges and strengths. Education about postoperative food plans and nutrition supplements begins early in the process and continues after the procedure. Typical follow-up visits might include assessing intake and compliance with the plan; addressing symptoms such as nausea, vomiting and diarrhea; suggesting ways to add nutrient-rich foods; and assessing weight loss progress.

PREGNANCY AFTER BARIATRIC SURGERY

Women of childbearing age who wish to become pregnant after weight loss surgery should wait 18 to 24 months, because this is when the rapid weight loss occurs. At NMCS D we recommend patients wait 24 months prior to trying to conceive.

It can be challenging to meet nutritional needs during this time without the added concerns of pregnancy. Such rapid weight loss may deprive a developing fetus of the nutrients it needs to grow and thrive.

Most surgeons advise that women of childbearing age who undergo bariatric surgeries use reliable contraception during the waiting period. As the unwanted pounds come off, pregnancy can become a very real possibility. Women who are overweight or obese may have difficulty getting pregnant, but weight loss increases fertility. In fact, infertility issues linked to obesity are often resolved as hormones return to more natural levels. Be careful. Use a method of birth control that does not require absorption from the gut. Thus birth control pills are NOT recommended.

LIFESTYLE CHANGES

Weight loss surgery is not a guaranteed cure for obesity or the disabilities that may occur as a result of obesity. Instead, the surgery helps diet and exercise to finally work, by controlling your appetite and making you feel full with smaller amounts of food. Because obesity may have affected your psychological well-being, you will be referred for counseling to help you adjust to life after surgery.

With so many changes in your life, you may need assistance in managing your relationship with food, handling changes in your relationships or career, and increasing your ability to perform daily activities.

The secret to success after bariatric surgery may be as simple as following your surgeon's instructions, a new survey shows. After bariatric surgery, patients are advised

to exercise, change their eating habits, receive nutritional counseling and psychological support, keep a food diary, go to patient support groups and see their surgeon or doctor regularly.

You may find the following tips helpful:

- ***High calorie foods, beverages and snacks are omitted.*** Between meals snacking or “grazing” on small amounts of food throughout the day will sabotage your weight loss and result in the inability to lose an adequate amount of weight.
- ***Foods need to be thoroughly chewed*** to prevent obstruction of the stomach opening, about the size of a dime.
- ***Your new pouch can only hold a few tablespoons of food after surgery;*** eventually it will be able to hold ½ cup to 1 cup of solid food.
- ***Eat only at meal times.*** 3 small meals per day are sufficient. If you feel hungry in between meals choose a low fat protein source like yogurt, cheese or milk.
- ***Set aside 30 to 45 minutes to eat each meal.*** Aim to chew your food 30 times with each bite until it is the consistency of applesauce while still in your mouth. Ground or soft foods may be necessary if you have dentures. Slow down –we have a lifelong habit of eating too fast.
- ***Explain to friends and family why you must eat slowly*** so they do not urge you to eat faster.
- ***Take small bites of food*** and, for a visual aid, you may want to use a saucer in place of a plate to help with portion control.
- ***Include a protein food at each meal.*** Eat this item first to help maximize protein intake.
- ***Pay attention to taste;*** learn how to savor your food.
- ***Never drink liquids when eating solid foods.*** Liquids should be avoided for a period of 30 minutes before and 30 minutes after eating solid food or meals. Combining liquids and solids may cause nausea, as well as push foods through the stomach pouch faster, enabling you to eat more.
- ***Don’t drink high calorie beverages*** such as soda, shakes, alcoholic beverages, fruit drinks, sweetened iced tea or sweetened waters. Sipping these liquids during the day allows many calories to be consumed without feeling full. This will lead to poor weight loss or possible regain.
- ***Avoid high calorie sweets*** such as candy, cake, cookies, ice cream and snack foods such as chips, pretzels, crackers, etc. Sugary foods may cause dumping syndrome.
- ***Stop eating as soon as you are full.*** Over-eating even one ounce can make you vomit and can lead to stretching your pouch. Indications of fullness are:
 - A feeling of pressure or fullness in the center of your abdomen, just below your rib cage.
 - A feeling of nausea, regurgitation or heartburn.
 - A pain in your shoulder area or upper chest.
- ***Add one “new” food at a time.*** Experiment at home with a new food to make sure it agrees with you.

- **Only eat the best of foods** –after all, if you are going to eat so little, shouldn't you have the best?
- **You may have a feeling of satiety several minutes after you are actually full.** If your pouch is 30cc (one ounce), you can put 30cc in it, and you will not feel full for about 5 minutes. Try this to help you find out the right portion size:
 Measure 30cc (2 Tbsp) of water, drink it, and wait for a few minutes. If you feel full with this amount and are comfortable, measure this amount of food before you eat it. This will prevent stretching of the pouch and the misery caused by over-eating.

POTENTIAL PROBLEMS AND SUGGESTED DIETARY MODIFICATIONS

Nausea and Vomiting : If nausea and vomiting occur after eating a new food, wait several days before trying it again. Always return to liquids for 24 hours. Eating/drinking too fast, eating/drinking too much, or insufficient chewing, may also cause nausea or vomiting. Avoid cold beverages and those with caffeine or carbonation.

Dehydration : Dehydration can occur with inadequate fluid intake, persistent nausea, vomiting, or diarrhea. At least 6 to 8 cups of fluids daily are recommended.

Lactose Intolerance: Use lactase-treated milk and lactase enzyme tablets. Try Lactaid 100% or Dairy Ease 100%. Yogurt is usually tolerated.

Constipation: Constipation may occur temporarily but generally resolves with adaptation to changes in volume of food. The regular use of fruits reduces the risk of recurrent constipation. Drink low-calorie fluids regularly.

Diarrhea: Limit the following foods: high fiber; greasy; milk and milk products; and very hot or cold foods. Eat smaller meals. Sip fluids between meals. Check labels for 'sugar alcohols'

Heartburn: Avoid carbonated beverages.

Bloating: Limit liquids to 2 oz at one time and sip **slowly**.

Blockage of the dime sized opening from your new pouch: The dime-sized opening may be temporarily blocked if foods with large particle size are eaten without thorough chewing. If symptoms of pain, nausea, and vomiting persist, a physician should be contacted. Do not progress to solid foods until Doctor's approval.

Weight gain or no further weight loss: You might be eating high calorie foods or beverages. Keep a record of all foods, beverages and snacks consumed to determine the exact reason for this happening. Measure portion sizes. All beverages, except milk

and protein supplement should be calorie free. Increase physical activity to at least 60 minutes 5 to 7 days per week.

Temporary Hair Loss: Reasons are unclear; possibilities include the rapid weight loss, stress of the surgery or a nutrient deficiency. Continue taking your multivitamin. Choose foods wisely and make healthy choices. Typically starts 3- 4 months after surgery. Special hair care products are available to help.

Pregnancy: For many women of childbearing age, weight loss may help infertility. Please use the appropriate protection for 2 years after surgery. Once weight loss has stabilized, discuss your desire to become pregnant with your physician.

PHYSICAL ACTIVITY

Incorporating regular physical activity into your daily routine is as important as following your nutrition plan. Often patients have been sedentary due to decreased activity tolerance, psychological constraints, and in some cases, physical disabilities. After surgery, aerobic activities, particularly walking and swimming are generally best tolerated. You will need to consult with your surgeon and weight-management team to find out which activity is right for you.

Walking

You should begin walking as early and as often as tolerated immediately after surgery. This should include a 5-10 minute warm-up. Depending on your health, the warm up may be all you can manage early on. Take it slow and gradually increase walking time up to 30-45 minutes of continuous walking daily if possible.

Set a 6 week goal for walking time.

Don't worry about speed initially.

Once you achieve the 45 minute walking plateau, gradually increase your walking pace.

Generally 6 weeks post-op, it is considered safe to perform any exercise (including aerobics, bicycling, strength conditioning, etc.) At this point you should begin a strength conditioning program. In addition to the strength benefits, increasing your muscle mass will make them a more efficient calorie burner.

Long Term Exercise Program

60 – 90 minutes of aerobic activity (walking, swimming, jogging, dancing, biking) 5 – 7 times per week

2-3 days per week of weight training.

Tips for Better Workouts

- Make sure you have quality shoes for your chosen activity.
- Start slowly. Doing too much too soon can lead to injuries.
- Try new activities. Doing the same thing can lead to plateaus and boredom.
- Be ready for exercise by eating right throughout the day and by staying hydrated.
- Always stretch both after you warm up and after your workout!
- If you're sore or tired, give yourself extra recovery days if needed.

How to Begin

Choose an activity that you enjoy. The best exercise for you is the one you'll actually do!

Start with 2 or 3 days of exercise with a rest day between workouts.

Begin with a 5-10 minute warm up of light cardio and stretch the muscles you'll use during your workout.

Increase your pace and intensity to slightly harder than comfortable and exercise as long as you can.

Begin where you ARE, not where you want to be. You may only be able to exercise for a few minutes at a time, but that will change quickly if you're consistent.

End each workout with a 5-minute cool down of light cardio and stretch the muscles you've worked to improve flexibility and reduce your chances of injury.

Each week, increase your workout time by a few minutes until you can work continuously for 30 minutes.

For the first few weeks, focus on endurance and conditioning. You have plenty of time to work on your speed and distance!

How Hard Should You Work?

When doing cardio, you should be within your target heart rate (THR) zone. Always be aware of how you feel when you exercise. If you feel dizzy or lightheaded, stop immediately and rest or call your doctor. If you're not breaking a sweat, speed it up!

Variety will keep your body and your mind challenged, so after the initial conditioning period (about 6 weeks of consistent workouts), vary your workout intensity and time. Each week, do a long slow workout (45-60) minutes at the lower end of your THR and one short one (20-30 minutes) at the higher end of your THR. Your other workouts can be between 30-45 minutes, in the middle of your THR.