
Roux-en-y Gastric Bypass Patient Nutritional Guide

RNY Divided Gastric By-Pass Patient Nutritional Guide

Introduction

Thank you for selecting the Weight-Loss Institute at SSM DePaul Health Center for your gastric bypass surgery. You have chosen the only permanent solution for treating severe obesity, and you now have a life-long tool to help you reach and maintain your goal weight.

At SSM DePaul, our ongoing support continues long after you have recovered from your surgery. Please feel free to contact us if you have a nutritional question both during your hospital stay or after you return home.

Gastric bypass surgery is only the first step in treating obesity. *You must also change your eating habits and behaviors permanently to achieve and maintain your desired weight loss.*

You also will need life-long vitamin and mineral supplements to maintain optimal health. The Weight-Loss Institute provides this nutritional guide to help you achieve weight loss and maintenance success, as well as helping you to prevent future nutritional deficiencies.

A new way of life—and a new way to eat

After surgery, it is important to develop proper eating habits to produce the desired weight loss, as well as to avoid disruption of the staple line and/or obstruction at the opening of the stomach.

Before beginning to eat, it is helpful to visualize the new stomach. It is much smaller than before and has been reduced to the size of a small egg. This new pouch will act as a reservoir for food and beverages.

The outlet leading from the pouch to the jejunum (second segment of small intestine) is approximately the size of a dime. This will prevent the new stomach from emptying its contents into the intestine too quickly. This will create a feeling of fullness for a longer period of time. Because you will be satisfied with a far smaller amount of food than is possible on traditional weight loss diets, you will lose weight if you are compliant with the recommendations provided by the Weight Loss Institute at SSM DePaul.

During your hospital stay, you will begin drinking water, then low-sugar clear liquids. Additional foods are added as the new stomach heals and full gastric function returns. Your surgeon will advise you when to advance the diet.

Because of the reduced size of the stomach, the amount of food you will be able to eat at one time will be very limited and will be discussed elsewhere in this booklet. Adequate fluid intake is essential. Drinking fluids hourly is recommended.

Since the new stomach is small and a significant portion of the intestine will be bypassed, you will be unable to consume and absorb adequate amounts of vitamins and minerals.

Important reminders

Key diet principles

- No carbonated beverages.
- No alcohol until advised by the surgeon, typically 1 year following surgery.
- Limit caffeine to one-two servings per day.
- All foods should be low-fat and low in simple sugars.
- Continually sip liquids every hour to prevent dehydration (at least 64 ounces daily).
- Eat solid foods no more than three times daily unless advised by the surgeon to have one or two small, high-protein snacks.
- Eat slowly, take small bites and *chew thoroughly*.
- Drink liquid between meals. Stop drinking 15 minutes before meals and do not resume drinking until at least a half hour after meals – times may vary among individuals.
- Do not lie down within one hour after meals.
- Add new foods one at a time to assess tolerance.
- Always eat protein-rich foods first.
- Avoid sugar, honey, molasses, corn syrup, and other foods high in sugar to prevent “dumping syndrome.”
- Do not chew gum until six months after surgery and *never* swallow gum.
- Do not take aspirin or non-steroidal-anti-inflammatory drugs.
- Ask your nurse or doctor for guidance regarding any medications.
- If nausea and vomiting occur, stop eating solids and return to clear liquids for 24 hours. Call the surgeons’ office if these symptoms persist.

Keys to success

- Life-long effort is required.
- Always eat protein foods first to ensure adequate protein intake and to increase satiety (fullness).
- Eat no more than three meals daily unless advised by your surgeon, nurse or dietitian.
- No “grazing.”
- No high-calorie snacks or drinks between meals.
- Drink plenty of liquids, preferably non-caloric beverages.
- Exercise as directed.
- Attend the bariatric support group as often as possible.

Diet progression

In the hospital

- Start:** After surgery, after gastro-graffin and blue ice test have been passed and bowel function begins, you may begin ice chips and sips of water until the dietary department arrives with your Phase 1 bariatric diet. Your surgeon may ask that you remain on only ice chips and water for 24 hours if the gastro-graffin test revealed swelling at the outlet leaving the newly created stomach pouch.
- Goal:** Approximately one ounce per hour
- Supplements:** Isopure
- Diet:** Sugar-free clear liquids in the hospital; sugar-free clear liquids plus minimum of 60 grams (women)/80 grams (men) of protein supplement divided into three to four times daily.
- Goal:** 4 - 6 ounces of liquid hourly for 64 ounces daily. Minimum of 60 grams (women)/80 grams (men) protein supplement daily. Most people will not reach this minimum for several weeks.
- Supplements:** Recommended multivitamin/mineral/iron supplements.
1000 mcg. Vitamin B-12 two to three times weekly or 500 mcg. daily sublingually (dissolved under your tongue). You may prefer to get injections from your primary care physician.
You must also take additional Thiamin (Vitamin B1) for 3 months, at least 25 mg a day. You do not need to take additional B1 after 3 months if you are taking a recommended bariatric vitamin.

There are many vitamin / mineral supplements designed for bariatric surgical patients. Talk to your nurse or dietitian to determine if a specific formula is appropriate.

Allowed foods/beverages

- Clear, no-sugar-added juices (no citrus) – apple, cranberry, or grape – dilute with 1 part juice and 1 part water. Limit juice to three servings daily (3 ounces diluted with 3 ounces water, three times daily).
- Clear broth or bouillon.
- Herbal tea or coffee (2 cups per day).
- Sugar-free gelatin.
- Sugar-free Kool-Aid, Crystal Light, Carb Solutions, or Wyler's Light
- Fruit ice made with sugar-free beverage such as Crystal Light or Sugar-free Kool-Aid.
- Sports drink containing no more than 50 calories per 8 ounce serving, such as Gatorade.
- Sugar-free Popsicles.
- Drink 4 ounces of skim milk with 1/2 serving of protein powder four times daily.
Alternatively, you may drink 4 ounces of canned protein beverage four times daily. Many people may need to build up to this amount of protein supplement gradually. During the first week, you may not be able to drink the full four ounces four times daily.

Phase 2

- Start:** As directed by surgeon (approximately one week after surgery; about Day 10) post-op.
- Duration:** About one week. New foods will be added one at a time.
- Diet:** Semi solid – slowly work up to approximately 1/2 cup each meal.
- Goal:** Aim for 64 ounces of fluid per day to prevent dehydration.

Remember to eat protein foods first!

You need to focus on the *volume* of food you consume. Initially, you may be able to eat only 1 to 2 tablespoons. Gradually increase the amount of food you eat to 1/2 cup. Use a standard dry measuring cup. *Remember to chew thoroughly.*

Foods allowed (no more than 1/2 cup):

- All foods from previous stages. Continue protein supplement beverages. Unflavored protein powder may be mixed with foods.
- Cream of Wheat, Cream of Rice or blended oatmeal.
- Cottage cheese – low-fat or non-fat.
- Yogurt – non-fat, sugar-free. No fruit chunks.
- Potato – boiled and mashed with skin removed. Do not eat fried potatoes.
- May add following blended soups – chicken noodle, chicken rice, cream of chicken, cream of mushroom, turkey noodle, vegetarian vegetable, cream of potato, and cream of tomato.
- Sugar-free pudding.
- Scrambled egg.

Phase 3

Start: 4 weeks after surgery.

- Deli-shaved chicken or turkey (moist chicken; many may not tolerate white meat poultry unless it is very moist)
- Seafood – moist white fish or shellfish and tuna (not fried) – No calamari or other “chewy” seafood
- Tofu
- Smooth peanut butter
- Crackers containing less than 3 grams of fat per serving such as melba toast or soda crackers (Example: approximately 2 ounces of solid food or 2 tablespoons with 2 crackers)
- Add 1 teaspoon olive oil, peanut oil, or canola oil daily **or** 1 tablespoon smooth peanut butter
- Toast
- Cheese containing less than 5 grams of fat per ounce.
- Lean ground beef
- Ham

Phase 4

Start: 5 weeks after surgery.

- Cold cereals – no more than 3 grams of sugar per serving
- Vegetables – soft cooked such as carrots, green beans, and broccoli (may cause abdominal discomfort/gas)
- Raw lettuce
- Fruits – canned or soft bananas, apples, melon, peaches - NO CITRUS

Phase 5

Start: 7 weeks after surgery.

- Pasta – Do not use white sauces as they are usually high in fat.
Use no-sugar-added red sauces with no more than 5 grams of sugar.
- Bread – untoasted bread.
- Raw, crunchy vegetables, dill or sugar-free bread and butter pickles, and raw fruit, peeled (Chew well).
- Beans (not fried)
- Rice

Phase 6

Start: 8 weeks after surgery.

- Grapes
- Nuts
- Raisins
- Low carbohydrate protein bars. CarbWise, Carb Minders, Slim Fast Low Carbohydrate and Genisoy are good examples. *Avoid chewy ones.* (Be aware that many low carbohydrate protein bars contain sugar alcohols and may cause bloating, gas, or diarrhea.)

Three months

- Citrus
- Meat and pork – lean visible fat trimmed. (*Do not fry – chew well.*)

Six months

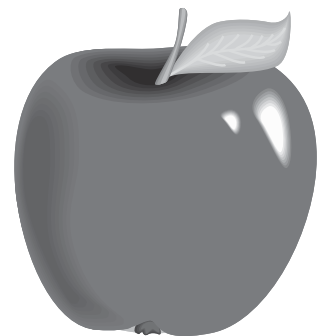
- Sugar-free gum (*Do not swallow*)
- Popcorn

Always avoid:

- Coconut
- Carbonated beverages

Remember

Meals at first may be one or two bites but you will be able to eat about a half cup of food soon and 1 1/2 cups by the end of the first year.



After surgery

Dumping syndrome

“Dumping” occurs when too many simple carbohydrates (the type of carbohydrate found in table sugar, ice cream, regular soda, juice, candy and other desserts) or fatty foods enter the jejunum too quickly after eating. Symptoms include abdominal fullness, nausea, cramping or abdominal pain followed by diarrhea. Patients also report feeling warm, dizzy, weak or faint. They sometimes experience an increased heart rate and may break out into a cold sweat. To avoid dumping, avoid simple sugars and fatty foods.

Nausea and vomiting

One of the causes of nausea and vomiting is noncompliance with nutrition guidelines; therefore, following the provided guidelines is very important. If you have any problems with nausea and/or vomiting, ask yourself the following questions, and modify your behavior(s) appropriately:

- Did I eat or drink too quickly?
- Did I drink fluids with my meal or too soon before/after the meal?
- Am I eating more than I should?
- Am I chewing solid foods until they resemble a pureed consistency?
- Did I lie down too soon after my meal?
- Did I eat hard-to-digest foods such as tough meat or fresh bread?
- Did I eat foods from the next stage of the menu plan before being cleared by the physician to do so?
- Am I taking my B1 (thiamin) for the first 5 weeks?

Repeated vomiting may cause stress on the new stomach and result in irritation – or even worse, rupture of the staple line. If vomiting persists throughout the day, do not eat solid foods. Return to consuming only clear liquids. If symptoms persist for more than 24 hours, contact your physician.

Constipation

After surgery, constipation may occur. Remember that food intake is very small compared to before surgery; therefore, bowel movements will be decreased. Many people report having a bowel movement every two or three days. If stools are hard, be sure to drink an adequate amount of fluid (a minimum of 64 ounces per day) between meals. Also, when appropriate, include more fiber-containing foods. If a high-fiber diet is insufficient to correct the condition, it is safe to take a stool softener. Avoid laxatives unless directed by your physician. Many patients add Benefiber (powder form only) daily along with a stool softener such as colace morning and evening if necessary.

Protein

Protein is an essential component of the human body and is involved in many important functions such as wound healing, immunity, hair and nail growth, and maintaining muscle mass. Since protein can be obtained only through food, the quality and amount of protein in the diet, as well as knowledge of protein sources, are very important.

The amount of protein needed each day is based on body weight. Added stress to the body such as surgery or infection will increase these requirements. It is essential to eat sufficient protein of high biological value for adequate wound healing and maintenance of muscle mass. Women should have a minimum of 60 grams of protein daily, and men should have a minimum 80 grams of protein daily.

High biological value proteins are considered “complete.” This means that they contain all the essential amino acids needed by the body. High biological value proteins include dairy products, eggs, meat, fish, seafood and poultry. Vegetable and grain proteins are “incomplete.” It is not necessary to “combine” incomplete and complete proteins, but most selections should be from high biological value sources. *Remember to always eat high biological value proteins first.*

Guidelines for protein beverages and powders

Strive for 20 grams of protein for a full serving. The amount of protein should be at least twice as the amount of carbohydrate. For example, a supplement with 20 grams of protein should have no more than 10 grams of carbohydrate. Tolerance will vary among individuals. Typically, lower carbohydrate beverages are better tolerated. Read labels and exercise caution with products that contain *sugar alcohols* as these generally cause bloating, gas, and/or diarrhea. Examples of commonly used sugar alcohols are manitol, sorbitol, maltitol, xylitol, lactitol, erythritol, and generally end in *-ol*.

Products such as Ensure®, Boost®, and store brand supplements are NOT acceptable since they contain too much carbohydrate. Products such as Atkins®, Carb Solutions®, Advant Edge®, Slimfast® Low-Carbohydrate, Isopure® and some GNC products, are all acceptable, but your choices do not need to be limited to these brands. The Weight Loss Institute neither endorses particular brands nor benefits from the sale of these products.

Be aware that many people develop lactose intolerance after surgery. Lactose-free milk such as Lactaid® is recommended. Lactaid chewable tablets are also available.

Remember

- Eat all protein foods first at each meal. Then proceed with vegetables, fruits, grains and cereals.
- Eventually, you will be able to include one or two ounces of protein, two or three times per day. One ounce is about the size of a small matchbox.

Protein content of selected foods

Amount	Food	Protein grams
8 oz.	Skim milk or yogurt	8-9
1	Egg	7
1 oz.	Poultry, fish or pork	7
1/4 cup	Tuna	7
1/4 cup	Nonfat/low-fat cottage cheese	7
1 oz	Cheese, low-fat	7
1/2 cup	Tofu	5
1/2 cup	Beans, lentils	3
1/2 cup	Most vegetables	2

Nutritional supplements

Due to the reduced size of the new stomach, and the bypassing of part of the small intestine, adequate intake and/or absorption of all nutrients required by the body is impossible. It is essential to take the following nutrients:

Protein Beverages

Begin: In the hospital. Continue to strive for 60 grams of protein (women) or 80 grams (men) daily. This will initially come in the form of liquid protein supplements and gradually be replaced with solid foods. Continue protein supplements until you are absolutely sure you are consuming more than the minimum requirements in solid foods. Some people will continue consuming one protein supplement routinely “just to make sure”. Remember, it is never intended that liquid protein supplements should be your only source of nutrition for any long term period.

LIFE-LONG VITAMIN AND MINERAL SUPPLEMENTATION IS REQUIRED TO PREVENT SERIOUS NUTRITIONAL DEFICIENCIES.

You may take regular pills and capsules as long as they are no bigger than an aspirin.

Multivitamin/mineral supplement

Begin: Day of discharge from hospital.

Dose: Multivitamin: Bariatric formulations are recommended by the Weight Loss Institute, and can be found online.

These sites are provided to you so you may choose the bariatric vitamin of your personal preference:

www.vistavitamins.com

www.bbvitamins.com

www.vitalady.com

www.bariatricadvantage.com

www.bariatriceating.com provides a link to a multitude of bariatric products

If you choose to disregard these recommendations, please at least use Centrum Silver or the generic equivalent. You will need to supplement an additional source of iron as Centrum Silver does not supply this essential mineral. You will also need Thiamin (B1)

upon discharge for 1 month.

Vitamin B-12

Begin: When discharged from the hospital.

Dose: Take 1000 mcg. sublingual (under your tongue) 2-3 times weekly or 500 mcg. daily. You may also obtain shots from your primary care doctor (1,000 mcg. monthly). NOTE: Vitamin B-12 must be taken in the form of nasal spray, sublingual drops, or tablets meant for placement under the tongue. This ensures that the vitamin is absorbed directly into the bloodstream. Alternatively, you may obtain shots from your physician. Vitamin B-12 will no longer be absorbed effectively from the digestive tract. B-12 was previously absorbed into your system per “intrinsic factor” which is found in the stomach; since your stomach has been bypassed except for an egg-size portion there is no longer a transport system to utilize B-12 if taken in an oral (swallowed) form.

Iron

Some may require additional iron. It is better absorbed taken with Vitamin C. *Please remember that if you have chosen to disregard the WLI recommendations to take a bariatric formulation of multivitamin and choose to take another vitamin such as Centrum Silver, please take an additional iron supplement with iron since iron is better absorbed when taken with vitamin C.*

Calcium

Begin: When discharged from hospital

Dose: 1000-1500 mg. daily of calcium

Calcium Citrate is the **best-absorbed** form of calcium. Calcium citrate is absorbed into the system using water as its transport system. Calcium carbonate, which is **NOT** recommended, requires gastric acid in order to be absorbed into the system. Gastric acid is produced in the lower portion of your stomach which has now been bypassed. Do not use coral calcium or oyster shell calcium because they contain high amounts of lead. Do not use “candy-like” chewable calcium supplements unless they are sugar-free and contain calcium citrate.

It is essential to take the multi-vitamin/mineral with iron, B-12, and calcium citrate supplements **FOREVER**. Not doing so will result in nutritional deficiencies such as anemia, protein, calcium, and thiamine deficiencies. Some of the more obvious signs of nutrient deficiencies are general weaknesses, hair loss, poor skin elasticity and swelling, and muscle wasting. Following these guidelines for life will help prevent nutrient deficiencies and keep you feeling well. Please see the next page for a more detailed list of vitamin/mineral deficiency signs and symptoms.

Bariatric Vitamin Deficiencies

Gastric bypass surgery is a strong and effective treatment against obesity and associated diseases, but without vitamin and mineral supplementation, certain deficiencies can occur.

An introduction to Roux-en-Y Gastric Bypass surgery:

Step 1 - A gastric pouch is created by separating a small portion of the stomach which restricts the amount of food one is able to eat.

Step 2 - The small intestine is divided just below the duodenum, passed behind the remaining stomach and the colon, and attached to the output of the newly created gastric pouch.

Complete - The end of the duodenum is re-connected to the small intestine to allow the biliopancreatic juices to aid in the digestion of food. This is the malabsorptive component of the procedure.

The same qualities that make gastric bypass so successful—particularly the restrictive absorption aspects of the procedure—also make necessary special nutritional considerations. These ought to be followed for life to successfully maintain the health benefits of bariatric surgery. Otherwise, certain vitamin and mineral deficiencies can occur.

Nutrient deficiencies with gastric bypass can occur for several reasons.

- 1. The procedure reduces overall food intake.*
- 2. The small gastric pouch produces negligible amounts of digestive enzymes and acid for complete digestion of certain foods.*
- 3. The small stomach pouch no longer produces a substance needed to help absorb Vitamin B12.*
- 4. The stomach bypasses a portion of the gut that is necessary for the absorption of many vitamins and minerals.*

Regular daily multivitamins or children's chewable supplements, therefore, ARE NOT EFFECTIVE in meeting all of the special vitamin and mineral needs of the gastric bypass patient. These patients will be discharged from the hospital on children's chewable vitamins and be asked to take these for a short period of time until the healing process enables them to resume taking large pills without difficulty.

Studies have shown that certain vitamin and mineral deficiencies can occur following bypass even when patients are taking a daily multivitamin supplement.

Folate deficiencies have been reported in 20% to nearly 40% of bariatric patients. Folate deficits occur with gastric bypass because the portion of the gut responsible for much of the absorption of this B-complex vitamin has been bypassed by the procedure. Folate deficiencies can increase the risk of heart disease, cause anemia, and the body's ability to produce energy. Taking folate at an amount 200% the RDI is effective in both the treatment of folate deficiencies and its prevention.

Thiamin or Vitamin B1 deficiencies may occur following an episode of vomiting, if meals are skipped, or if the appropriate vitamins are not taken. Deficiencies in thiamin can have some very serious consequences, including an inability to walk, a loss of memory (sometimes permanent), impaired learning, or even coma and death. Some other symptoms of thiamin deficiency include muscle cramps, numbness or tingling in legs or arms, racing heart, and confusion.

Vitamin B12 deficiencies are common with gastric bypass because the small gastric pouch does not produce intrinsic factor necessary for vitamin B12 absorption. Studies found that B12 supplements of 100 to 350 micrograms is effective in preventing deficits in up to 95% of patients. Some patients, however, may also need or prefer to take vitamin B12 shots (1000 mcg) monthly or to use vitamin B12 sublingually to prevent deficiencies. Deficits in B12, if left untreated, can cause a number of health problems such as loss of mental alertness, neuropathies, nausea, muscle weakness, digestive upset, depression, irritability, memory impairment, poor concentration, and water retention.

Calcium deficiencies, similar to iron, occur with gastric bypass patients because the procedure bypasses that portion of the gut where iron is most readily absorbed, and because the stomach pouch produces little or no acid necessary for optimum calcium absorption. Calcium supplements are, therefore, required of the gastric bypass patient and is most effective in the form of CALCIUM CITRATE, not calcium carbonate, phosphate, or coral calcium. For optimal absorption, the calcium citrate may also contain vitamin D, ascorbic acid (vitamin C), and magnesium.

Calcium deficiencies cause bone loss, irregularities in muscle, heart, or nerve functions, defects in certain hormones, and weight gain. Studies are showing as much as 2 inches in loss of height due to loss of bone density.

Iron deficiencies occur with gastric bypass surgery because the surgical procedure bypasses the portion of the gut that absorbs iron.

Iron should be taken for life and in a form that is readily absorbable. The most absorbable forms of supplemental iron are fumerate or iron chelate.

Long-term studies have found that the risk of iron deficits following gastric surgery are NOT reduced over time and may occur even with iron supplementation. Some symptoms of iron deficiency may be weakness, skin pallor, constipation, and anemia.

CoQ-10 is a powerful antioxidant when provided with other anti-oxidants and minerals, and is important in helping to facilitate tissue repair and post-operative recovery.

Bariatric Multi-Vitamin - It is very important for the post surgical bariatric patient to take a vitamin formulated for the bariatric patient. They have been designed for the best absorption in this patient population. Bariatric vitamins commonly contain, if taken daily as recommended, vitamins A, E, D, C, niacin, biotin, pantothenic acid at 100 to 250% the recommended daily intake (RDI), chelated minerals at approximately 100% the RDI, folic acid at 200% the RDI, major B-complex vitamins (thiamin, riboflavin, pyrid oxine) at amounts up to 800% the RDI, and vitamin B12 at 200 mcg which is 3333% the RDI, an amount reported to prevent B12 deficiencies in the majority of gastric bypass patients.

Other vitamins and important trace minerals found in bariatric vitamins are iodine, magnesium, zinc, selenium, copper, manganese, chromium, molybdenum, potassium, boron, arabinogalactans, and lactobacillus.

Deficiencies in **vitamin A** lead to night blindness, kidney stones, mild skin problems, and inflamed mucous membranes. Since vitamin A is a fat soluble vitamin, an excess intake can also be hazardous. Symptoms of excessive intake include loss of appetite, dry skin, hair loss, headaches, and nausea.

Deficiencies in the ***B vitamins*** (vitamin B complex consists of Thiamine-B1, Riboflavin-B2, Nicotinic Acid-B3, Pantothenic Acid-B5, Pyridoxine-B6, Biotin, Folic Acid, and Vitamin B12) result in beri beri. The symptoms of B vitamin deficiency have been discussed thoroughly elsewhere in this paper. The B vitamins are extremely important to this patient population and are routinely given in dosages higher than the RDI for the general population. When evaluating lab tests the B vitamins should at least be in the normal range but above normal is acceptable. Any excess not used by the body is eliminated through the kidneys.

Deficiencies in ***vitamin C*** lead to scurvy. Symptoms of scurvy include bleeding gums, weakness, irritability, muscle and joint pains, weight loss, tooth loss, hemorrhages under the skin and in thigh muscles.

Deficiencies in ***vitamin D*** lead to rickets. Symptoms of rickets include sleeplessness, constant head movements, and bones bend under the body's weight, leading to bow legs. Vitamin D is also a fat soluble vitamin. Your skin can make vitamin D when exposed to sunlight.

Vitamin E deficiency in adults can lead to lethargy, apathy, poor concentration, irritability, and muscle weakness. Since vitamin E is also a fat soluble vitamin, it is hazardous in excess. Excess vitamin E can cause nausea, diarrhea, muscle weakness, high blood pressure, and palpitations.

Vitamin K is required for maintenance of normal levels of the blood clotting proteins.

Minerals - As important as vitamins are, they can do nothing for you without minerals. Vitamins cannot be assimilated without the aid of minerals, and though the body can manufacture a few vitamins, it cannot manufacture a single mineral. All tissues and internal fluids of our body contain varying quantities of minerals. Minerals are constituents of the bones, teeth, soft tissue, muscle, blood, and nerve cells. They are vital to overall mental and physical well-being.

Minerals act as catalysts for many biological reactions within the body, including muscle response, the transmission of messages through the nervous system, the production of hormones, digestion, and the utilization of nutrients in foods.

Magnesium plays a role in regulating the neuromuscular activity of the heart, maintains normal heart rhythm, is necessary for proper calcium and vitamin C metabolism, and converts blood sugar into energy. Symptoms of deficiency include calcium depletion, heart spasms, nervousness, muscular excitability, confusion, and kidney stones.

Iodine aids in the functioning of the thyroid gland, regulates the body's production of energy, helps burn excess fat by stimulating the rate of metabolism, mentality, and speech. The condition of the hair, skin, and teeth are dependent upon a well-functioning thyroid gland. Symptoms of deficiency may include slow mental reaction, enlarged thyroid gland, dry skin and hair, weight gain, and loss of physical and mental vigor.

Copper is necessary for the absorption and utilization of iron, helps oxidize vitamin C and works with vitamin C to form elastin, a chief component of the muscle fibers throughout the body, aids in the formation of red blood cells, and helps proper bone formation and maintenance. Symptoms of deficiency include general weakness, impaired respiration, and skin sores.

Zinc is an anti-oxidant nutrient necessary for protein synthesis, wound healing, prostate functions and male hormone activity, it governs the contractility of muscles, is important for blood stability, maintains the body's alkaline balance, helps in normal tissue function, and aids in digestion and metabolism of phosphorus. Deficiency symptoms may result in prolonged healing of wounds, white spots on finger nails, stretch marks, fatigue, decreased alertness, and susceptibility to infections.

Manganese, another anti-oxidant nutrient, is important in the blood breakdown of amino acids and the production of energy, is necessary for the metabolism of vitamin B1 and vitamin E, activates various enzymes which are important for proper digestion and utilization of foods, is a catalyst in the breakdown of fats and cholesterol, helps nourish the nerves and brain, and maintains sex hormone production. Symptoms of deficiency include paralysis, convulsions, dizziness, ataxia, loss of hearing, and digestive problems.

Chromium works with insulin in the metabolism of sugar and stabilizes blood sugar levels, cleans the arteries by reducing cholesterol and triglyceride levels, helps transport amino acids to where the body needs them, and helps control the appetite. Medical research has shown that persons with low levels of chromium in their bodies are more susceptible to having cancer and heart problems and becoming diabetic. Deficiency may result in glucose intolerance in diabetics, arteriosclerosis, heart disease, obesity, and tiredness.

Potassium works with sodium to regulate the body's waste balance and normalize heart rhythms, aids in clear thinking by sending oxygen to the brain, preserves proper alkalinity of body fluids, stimulates the kidneys to eliminate poisonous body wastes, assists in reducing high blood pressure, and promotes healthy skin. Deficiency may result in poor reflexes, nervous disorders, respiratory failure, cardiac arrest, and muscle damage.

Selenium, a major anti-oxidant nutrient, protects cell membranes and prevents free radical generation thereby decreasing the risk of cancer and disease of the heart and blood vessels. Medical surveys show that increased selenium intake decrease the risk of breast, colon, lung, and prostate cancer. Selenium also preserves tissue elasticity, slows down the aging and hardening of tissues through oxidation, and helps in the treatment and prevention of dandruff. Deficiency may result in premature aging, heart disease, dandruff, and loose skin.

Remember, it is not only important that gastric bypass patients remember to take all supplements daily and for life, but also that they have regular (usually annual) blood tests to check their levels of vitamins and minerals - particularly iron, folate, and vitamin B12. If you are going to have your lab work done at your primary care physician's office, please contact our office and ask that we forward a copy of the bariatric lab panel to your physician.

Tips for dining out

Once solid foods are tolerated, feel free to enjoy dining out with family and friends. However, be very conscientious about the choices made, the quantity eaten, and the length of time it takes to eat. It is very important that foods are chewed thoroughly. The following tips can help you make good choices when dining out.

Plan ahead. Decide what to order before going to the restaurant. Most restaurants have a menu available online. Once the main course arrives, decide how much to eat, and stick to it. Ask for a to-go box when you order, after sectioning off your intended portion for this meal immediately place the rest in the to-go box to be used for meals later in the week. Ask that the complimentary bread or chips not be placed on the table.

Be familiar with menu descriptions. Breaded, fried, creamed, scalloped, au gratin, and rich mean extra calories and fat. Instead, choose items that are poached, roasted, broiled, steamed, or stir-fried, as they are usually lower in fat.

Ask about serving sizes. Restaurants may not be able to accommodate every request, but most will try to make reasonable changes or assist in making appropriate choices. Request half portions, share a full entrée with a dining partner, or order a la carte. Some restaurants permit ordering off the children's menu. Show the Midwest Bariatric menu card.

Ask about ingredients and preparation. Ask if vegetables and meats are cooked and served with fats such as cream, butter, or sauce. Always request that sauces or dressings be omitted or served on the side, then use sparingly or not at all. Broiled, grilled, baked, steamed or poached fish, poultry and seafood are excellent choices. Many entrées are often basted with large amounts of fat. Ask to have the entrée prepared without added fat and for chicken to be prepared without skin. Request lemon juice or a non-fat item to be used instead.

Ask for items that are not on the menu. Nonfat or low-fat milk is usually available upon request. Light, broth-based soups and fresh fruit are often available, even though they may not be included on the menu.

Skip the bread. It may not be well tolerated. Instead, request low-fat crackers such as soda crackers or Melba toast.

Caution at the salad bar! Be careful with salad dressings, toppings and creamy salads (potato, macaroni, and coleslaw). These items are high in fat and calories. Use sparingly, if at all. Remember to control portion sizes.

Avoid desserts. They contain unnecessary calories and can cause "dumping." Instead, try fresh fruit or a no-sugar-added dessert, if available.

No alcoholic beverages. They are not only high in calories, but can irritate the new stomach. After one year, you may incorporate *small* amounts of alcohol occasionally, with physician approval only. Check with the nurse or doctor to see if this is an appropriate choice for you.

Always remember to follow the same eating principles observed at home when dining out.



Goals for a lifetime of success

- Develop healthy eating habits.
- Eat only when hungry, and stop at first sign of fullness.
- Eat three small healthy meals a day. Some people may require 1-2 small high protein, sugar-free snacks between meals.
- Always eat your protein foods first.
- Follow low-fat, sugar-free guidelines.
- Remember to take the recommended multivitamins, calcium, and Vitamin B-12 for life.
- Chew your food thoroughly. This will aid in digestion and food tolerance.
- Continue to drink minimum of 64 oz of sugar-free fluids daily (water or a calorie-free beverage is preferred).
- Limit alcohol, 1-2 small drinks for special occasions *with physician approval only*.
- Exercise daily 30-45 minutes, or as instructed by the bariatric nurse or physician.
- Attend support groups. Log onto www.depaulweightloss.com for list of support group topics and special events.



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