

THE BARIX™ SUPPORT GROUP GUIDE

For Education and Support of All Barix Clinics Patients

VITAMIN & MINERAL SUPPLEMENTS — Post-Surgical Challenges —



Vitamin and mineral supplementation is essential to optimal health and vitality following the gastric exclusion surgery. Obtaining all of the vitamin and minerals from food alone is difficult before surgery, but after surgery there are special challenges that make supplementation a must. Smaller quantities of food are eaten, bringing in smaller quantities of vitamins and minerals. The breakdown of food into its small absorbable components is compromised without the benefit of the acidic churning environment of the larger stomach. Food also has a decreased length of small intestine to pass through, lowering the opportunities for absorption. Lastly, most people experience a decreased appetite for the first months. Making healthful food choices, consistently taking the vitamin and mineral supplements recommended by your surgeon and nutritionist, and completing lab tests at the recommended intervals will help to keep you full of energy and on the way to a healthful weight loss.

To help you in choosing the right supplements for your individual needs, let's take a look at the more common

deficient nutrients, individually, and then how to choose supplements in general. Nutrition deficiencies most common are iron and Vitamin B12. Protein, calcium, and folic acid are nutrients to monitor. Generally, the rates of deficiencies found in studies and reported here are higher than those experienced by Barix Clinics patients.

IRON

Iron has many important functions/roles in the body, including oxygen transportation, immune function, and exercise performance. The recommended dietary allowances for iron are 15 mg for women and 10 mg for men.

Studies indicate that up to 33% of gastric bypass patients develop an iron

deficiency. There are three main reasons why this occurs: (1) The primary absorption site for iron is in the first section of the small intestine, which has been bypassed by the surgery; (2) iron is also better absorbed in an acid environment; this has also been limited by the surgery; and (3) red meat contains the best-absorbed form of iron (heme iron) and this is often limited due to pouch size and tolerance. In addition to the physiological reasons for decreased iron absorption, iron supplementation is poorly absorbed and has side effects of nausea and constipation for many. Iron supplementation for those with an iron

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FOODS CONTAINING HEME IRON		FOODS CONTAINING NON-HEME IRON	
Food	Mg Iron in 3 oz serving	Food	Mg Iron in 3 oz serving
Bone meal	74.0	Seaweed	81.0
Caviar	10.8	Wheat Germ	8.5
Calves Liver	8.0	Molasses, blackstrap	8.1
Mussels	5.3	Chickpeas	6.2
Oysters	5.0	Prunes	3.2
Snails	3.2	Spinach	3.0
Bacon	3.0	Bread, whole wheat	2.3
Beef	3.0	Bread, white, enriched	2.3
Veal	2.9	Cheddar cheese	0.9
Pork	2.7	Milk	0.0
Chicken	1.5		
Haddock	1.0		



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deficiency typically returns iron levels to normal. Taking iron supplements on an empty stomach with a Vitamin C supplement may increase absorption. Do not take calcium supplements or multivitamins with iron supplements. Do not routinely take iron supplements unless your lab values indicate a need and your physician directs you to do so.

There are two types of iron found in foods, heme iron and non-heme iron. Heme iron is much better absorbed. Forty percent of the heme iron from food is absorbed compared to 10% of the non-heme iron. Because iron is absorbed well in an acid environment, the tomato base in spaghetti increases the absorption of the iron in the ground beef. Cooking in an iron skillet can also increase the available iron in a food.

VITAMIN B12

Vitamin B12 functions in the formation of the protective sheath around nerve cells; in the metabolism of carbohydrate, protein and fat; in the production of amino acids and fats; in the replication of genetic code within each cell and in the formation of neurotransmitters. Adults require three micrograms a day. Vitamin B12 requires intrinsic factor, a substance in gastric juices, for absorption.

Studies indicate that 37% of people develop a Vitamin B12 deficiency after surgery. In a pre-surgical stomach, gastric juices free Vitamin B12 from foods. It then binds with intrinsic factor in the stomach prior to moving through to the lower small intestine for absorption. This process is much less efficient after surgery, leading to a lower absorption rate for Vitamin B12.

Oral supplementation with Vitamin B12 is somewhat effective. However, because the Vitamin B12 must bind with intrinsic factor, in a less than optimal process, absorption is compromised. Vitamin B12 injections are an option; however require a trip to the doctor on a regular basis. A cost efficient, effective solution is a liquid or dissolvable tablet

taken sublingually (under the tongue). Wal-Mart® carries Spring Valley Liquid Sublingual B-Complex for less than \$6.00 for a two-month supply. Supplementation for Vitamin B12 will be recommended by your physician if your Vitamin B12 levels get close to or below the low end of the acceptable range. An untreated Vitamin B12 deficiency can lead to irreversible nerve damage.

FOLIC ACID

Lab values for folic acid are elevated in patients that routinely take the recommend vitamin and mineral supplements. The surgeon and nutritionist can tell by your folic acid lab value if you have been taking your vitamins as recommended. Deficiencies are only seen when multivitamin and mineral supplements are not taken on a routine basis. Anyone desiring to become pregnant should keep a close eye on folic acid levels.

CALCIUM

Calcium functions as a component of bones and teeth; a component of cell membranes; it is essential for muscle relaxation; it maintains a regular heartbeat; it is necessary for the transmission of nerve impulses; and it is needed for blood clotting. Requirements range from 800 –1,500 mg daily. Hypertension,

osteoporosis, and metabolic bone disease can result from a deficiency. Calcium is absorbed in the small intestinal area that is bypassed after the surgery, leading to a possible decrease in absorption. Calcium absorption and deficiencies following gastric exclusion are not well defined. Due to the lack of comprehensive studies regarding calcium adequacy following gastric exclusion surgery and the fact that low bone mass affects 44 million Americans, it is important to obtain a daily calcium intake of 1,200 mg from food or supplemental sources.

Calcium supplements are either in the form of calcium citrate or calcium carbonate. Either form is an effective supplement. Calcium carbonate is found in Tums®, OsCal® and many other calcium supplements. It is less expensive, has twice the elemental calcium by weight than calcium citrate and appears to be absorbed almost as well if taken with food.

Calcium citrate is also a common form of supplement. It is absorbed well in a non-acid environment, which occurs in the first section of small intestine below the pouch. The pills will be larger than calcium carbonate because calcium citrate contains half as much elemental calcium.

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FOOD SOURCES of CALCIUM

Food	Amount	Calcium (mg)
Yogurt, plain	1 cup	415
Sardines	2 ounces	372
Milk, nonfat	1 cup	302
Milk, nonfat, dry	1/3 cup	279
Cheese, Cheddar	1 ounce	204
Salmon, canned with bones	3 ounces	167
Tofu	1 cake	154
Cottage Cheese	1 cup	146
Oysters	1/2 cup	113
Mustard Greens, cooked	1/2 cup	97
Orange	1 medium	54
Broccoli, cooked	1/2 cup	50
Navy beans, cooked	1/2 cup	48
Apricots, dried	1/2 cup	44

PROTEIN

Adequate protein is essential for health. Protein functions in the building of tissue; fluid balance; acid-base balance; the formation of antibodies; as a part of hormones; transporting of proteins; blood clotting; and as structural proteins. Adults require 0.8 grams per kg of weight. Following surgery, recommendations for the rapid weight loss phase are based upon 1.2 grams per kg of ideal body weight.

Actual protein deficiencies are not common after surgery. Meeting your individual protein goal daily can help to minimize hair loss, muscle tissue loss and keep the immune function working well. Protein supplements, a concentrated protein source, may be needed for the first months following surgery to meet protein goals. Low fat meat, fish, eggs, poultry, and other daily products are good food sources of protein.

IT WORKED FOR ME...

I have a couple of tips that helped me at the beginning of my journey.

- 1) I left my nutrition book on my kitchen counter for easy referral throughout the first six weeks. It never left its spot.
- 2) I had a difficult time tolerating the taste of the different protein powders so I frequently added nonfat dry milk to increase the protein content of my liquids.
- 3) Whenever I became frustrated at the beginning of my journey, I often visualized what my life would be like once I reached my goal weight. I often closed my eyes and thought of myself on a warm, sunny beach somewhere. I knew that I would be so much healthier and feel so much better about myself—and I do.

—Submitted by Barb W.



MULTI-VITAMIN & MINERAL SUPPLEMENTS

Vitamins and minerals are nutrients needed in very small amounts for good health. Your body requires the same amount of each vitamin and mineral as it did before the surgery. Because of the smaller amounts of food and the decreased absorption of nutrients following the surgery, supplementation is needed to be sure your body is getting all of the nutrients it requires to remain healthy. Chewable or liquid supplements are recommended for the first three months after surgery. If you choose to switch to a “pill” form after three months, be sure that it is smaller than an “M & M” in diameter. Vitamin and mineral supplementation is recommended for life.

Individuals may have different needs for specific nutrients or preferences in the type of supplements they choose. For those reasons, we do not recommend a specific brand or supplement over another. Choose the type of supplement that meets your needs and preferences using the information below to make an informed decision. Choose a supplement that contains at least 20 vitamins and minerals essential for good health with no more than 150% of the USRDA for each nutrient. Some vitamins and minerals will be toxic in larger doses.

Use caution when using herbal supplements. There is very little

regulation on these substances. Avoid “weight loss formulas” which may include stimulants or ingredients whose effectiveness has not been proven.

- Natural and synthetic vitamins are virtually identical.
- Look for the USP (United States Pharmacopoeia) mark on the bottle. The manufacture pays for this testing. It means that the listed ingredients are indeed in the supplement and that the supplement will dissolve. It does not guarantee safety.
- % Daily Values means the same thing as % USRDA (US Recommended Daily Allowance). Labels use them interchangeably. This is the FDA’s advice on how much of the vitamin or mineral to shoot for each day.
- Check the expiration date on the bottom of the bottle.
- Store brands are usually just as good as national brands.
- A multi-vitamin and mineral supplement should contain no more than 150% of the RDA for any nutrient.
- Herbal supplements are not standardized for dose or regulated for safety.
- Manufactures are responsible for setting their own safety standards—there are no government standards or checks for safe manufacturing.
- Supplements can be called “High Potency” if at least two-thirds of its nutrients have 100% or more of the Daily Value (DV).
- “Advanced,” “Complete,” or “Maximum” formulas can mean anything.

Cinnamon Toast Pancakes

Submitted by Nancy B.

2	cups Reduced Fat Bisquick®	1 1/4	cups skim milk
1	egg	2	scoops Cinnamon Toast Protein for Life®

Note: Cinnamon Toast Protein for Life is available at any Barix Clinic or online at www.prostat.com. Spray unheated griddle or skillet with cooking spray; then heat over medium-high heat or electric griddle to 375°. Surface is ready when a few drops of water dance and disappear. Mix skim milk and Cinnamon Toast Protein for Life together until blended. Add remaining ingredients. Stir until blended. Pour by 1/4 cupfuls onto hot griddle. Cook until bubbles break the surface. Turn and cook until golden. Makes 14 pancakes.

NUTRITION INFORMATION PER SERVING: 86 calories, 5 grams protein, 2 grams fat, 13 grams carbohydrate, 237 mg sodium.

HEALTHFUL TIDBITS



Walking is a great part of a healthful lifestyle that will help you to be trimmer, more energetic and happier. Study after study supports this. If you do not have a regular exercise routine, consider walking. The benefits of increased energy and productivity will repay your investment of time. Then you'll reap the added benefits of an improved mood, decreased stress and firmer muscles. To get started, purchase a pedometer and track your steps for a week. Your first goal should be to daily walk the number of steps that you walked on the most active day. Then add 500 steps per day as you feel you can. Set an ultimate goal of 10,000 steps. It takes up to six months for a new activity to become a habit so rededicate yourself to your goal daily.

To add some INTEREST to your WALKING PROGRAM:

- Take a trip. Find out the distance to a destination and then take a virtual trip by adding up your steps daily towards your destination. A mile equals approximately 2,000 steps. Mapquest® is a great source for this information plus you can print out a map and highlight your progress for motivation! A trip from Barix Clinics in Wylie, TX to Barix Clinics in Scottsdale, AZ is 1,110 miles or 2,220,000 steps. If you take 10,000 steps a day, this trip would take about 7-1/2 months. What a fun way to keep you going! You may want to make a lot of stops along the way with smaller goals.
- Form a walking group with friends, family or coworkers.
- Sign up for a charity walk.
- Visit parks and enjoy the trails.
- When carting your kids around, arrive early and walk for 10–20 minutes. Keep your headphones, walking shoes, and water bottle in the car so you don't skip a beat. **Happy Walking!**

WHAT'S NEW

Low levels of iron in the blood can be difficult to correct. Iron supplements in pill form are not well absorbed and tolerance to red meat, a good source of absorbable iron, is often compromised after gastric exclusion surgery. A new product from Medical Nutrition USA called Hemo-Stat® may be an effective solution for low iron levels. It is a liquid iron solution containing elemental iron, that is iron in its simplest form, for a high rate of absorption. It also contains vitamins B12 and B1. Hemo-Stat is currently available online at www.pbsnutrition.com and at the West Michigan group practice. Other group practices will carry this product in the future, so look for it at your next follow-up appointment. As a note of caution, do not take iron supplements unless directed by your surgeon. Those with low iron levels taking this product or other iron supplements must have regular lab tests to determine the effectiveness of the current treatment and to prevent iron toxicity.



To receive a free **RECONSTRUCTIVE SURGERY GUIDE**, CALL 800-282-0066 or send us an email at rc@barixclinics.com with your name and contact information.

Our reconstructive surgery program is currently performed at our centers in Michigan and Illinois—and we are planning to expand our program to our Scottsdale, AZ, Langhorne, PA, Wylie, TX, and Columbus, OH facilities in the next few months.

Special thanks to Nancy B. and Barb W. for the "It Worked For Me" tips and recipes. Please send comments, ideas, recipes, and "It Worked For Me" tips to Deb Hart, RD, LD at dhart@foresthealth.com.

BARIX CLINICS™
America's Leader in Bariatric Surgery

Chocolate Banana Crepes

<ol style="list-style-type: none"> 1 tbsp. butter or margarine 2 tbsp. maple syrup, sugar free 1 medium banana, sliced into rounds 	<ol style="list-style-type: none"> 1 large flour tortilla 1/2 cup sugar free chocolate pudding 2 tbsp. Cool Whip Free®
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Heat butter and sugar free maple syrup until it bubbles. Add banana slices and cook for about 2 minutes on medium heat. Remove from heat and set aside. Heat the flour tortilla in the microwave for 10 seconds between 2 sheets of paper towel so that it is warm and bendable. Place the warmed tortilla on a plate. Spread the chocolate pudding on the tortilla, leaving 1/4 inch around the edges. Spread the syrup/banana mixture on top of the pudding. Roll the tortilla (like a burrito) and gently place the seamed side on the bottom. Cut into two servings. Top with Cool Whip Free. Makes two servings.

NUTRITIONAL INFORMATION PER SERVING: 242 Calories, 3 grams Protein, 8 grams Fat, 32 grams Carbohydrate, 338 mg Sodium.

OTHERS CARE. PLEASE SHARE.



Please tell us about the lives that have changed because you shared your weight-loss story. Submit your story on the "Share Your Success" section of the Patient website. What you have to say may be printed in this publication or on our website and can serve as inspiration to all.

REFER a Friend: Call 800-282-0066 or REQUEST a FREE INFORMATION KIT for a FRIEND: www.barixinfo.com/sgg