

Key Nutrients after Bariatric Surgery

The goals of nutritional and dietary treatment are to facilitate weight loss, optimize health, and reduce the risk of nutritional deficiencies following your weight loss surgery (WLS). As long as you eat well and take your supplements, the nutrition risk associated with the Roux-en-Y procedure will be minimized, if not avoided. Below is a list of the key nutrients of concern following the gastric bypass surgery. By understanding their roles, deficiency symptoms and sources, you can be your own best nutrition advocate.

Vitamin B1 (Thiamin)

Thiamin is necessary for carbohydrate metabolism, nerve conduction, and for the functioning of the heart and muscles. Its storage in the body is limited and may be depleted rapidly. Thiamin deficiency has serious, possibly permanent consequences. People with diabetes and/or chronic vomiting are at highest risk for thiamin deficiency. As a WLS patient, it is important for you to take your daily multivitamin and inform your health care team if you are vomiting or have any of the symptoms below.

Deficiency Symptoms: Deficiency manifests itself in neurological disturbances, impaired cardiac function and muscle atrophy. Symptoms include double vision, confusion, forgetfulness, disorientation, trouble walking, severe weakness of the legs and trouble with balance.

Food Sources: Whole grains, nuts, fish, pork, dried beans and enriched grain products.

Supplemental Sources: Thiamin is present in your multivitamin, taken as part of your daily supplement regimen. Tell your doctor or registered dietitian if an additional B50 complex supplement would be beneficial.

Vitamin B12 (Cobalamine):

Vitamin B12 is a water-soluble vitamin whose primary function is the production of red blood cells and maintenance of a healthy central nervous system. Postoperative WLS patients are at risk of deficiency because of the low acid environment of the new pouch, as well as the failure to mix B12 with a chemical called intrinsic factor, which is produced in the “bypassed” part of the stomach. Those who avoid animal products are also at risk. As a WLS patient, it is important for you to take your B12 supplement.

Deficiency Symptoms: Deficiency manifests itself as anemia, fatigue, weakness, constipation, neurological changes such as numbness, tingling in the hands and feet, difficulty in maintaining balance, depression, confusion, dementia, poor memory and soreness of the mouth or tongue.

Food Sources: Fish, seafood, meat, dairy products, eggs and fortified vegetarian foods (ie. yeast extracts, veggie burger mixes, textured vegetable protein and breakfast cereals).

Supplemental Sources: Sublingual, 1000mcg B12 supplements should be taken twice a week as part of your routine supplement regimen.

Folate (Folic acid)

Folate is needed to produce and maintain new cells, especially normal red blood cells. It prevents anemia and changes to cells genetic material that may cause cancer. Deficiency is associated with neural tube defects, cardiovascular disease and some cancers, which highlights how essential folate is for health. As a WLS patient, it is important for you to take your multivitamin and eat a diet rich in vegetables and fruits.

Deficiency Symptoms: Deficiency manifests itself as anemia or birth defects in the fetus of pregnant women. Other signs of folate deficiency are subtle, including fatigue, weakness, loss of appetite, diarrhea, sore tongue, headaches, heart palpitations, irritability, forgetfulness and edema.

Food Sources: Leafy green vegetables (eg. spinach and turnip greens), fruits (eg. citrus fruits, berries and melon), dried beans, peas and nuts. Enriched breads, cereals and other fortified grain products also contain folic acid.

Supplemental Sources: Your multivitamin should contain 400 to 800 mcg of folate, taken as part of your daily supplement regimen.

Iron

Iron is needed to help our red blood cells deliver oxygen to the rest of the body and maintain our immunity. It is essential for growth, development, and tissue repair. Iron deficiency may occur in up to 50 percent of patients after the Roux-en-y procedure, especially in women who are still menstruating. The prevalence of deficiency is high due to reduced intake of iron-containing foods, reduced acidity of the stomach and bypassing of the absorption site in the intestines. As a WLS patient, it is important for you to take your multivitamin.

Deficiency Symptoms: Deficiency symptoms may include lethargy, palor and loss of hair.

Food Sources: Meat (beef, lamb, pork), poultry, liver, eggs, vegetables, potatoes and iron-fortified cereals.

Supplemental Sources: Your multivitamin should contain at least 35 mg of iron, taken as part of your daily supplement regimen. Any supplemental iron will be based on individual need and prescribed by your doctor.

Calcium

Calcium is a mineral that gives strength to bones and teeth and has an important role in muscle contraction, blood clotting and nerve function. Due to the region of the intestines that is “bypassed” and the low acid environment of the stomach, calcium absorption is markedly reduced. Many people consume fewer dairy products after surgery than before. As a WLS patient, it is important for you to take your daily calcium supplement and monitor your bone density.

Deficiency Symptoms: Calcium deficiency manifests slowly and silently as bone loss and fracture.

Food Sources: Non-fat/low-fat milk, yogurt, hard cheese, ricotta cheese, canned fish with bones, tofu made with calcium, fortified soy milk, corn tortillas and leafy greens.

Supplemental Sources: You need to take between 1000 mg to 1500 mg of elemental calcium in

the form of citrate or carbonate. The citrate form tends to be better absorbed after WLS. Talk to your doctor or registered dietitian to determine the level that is right for you. Your calcium supplement should include at least 400 IU of vitamin D3 and magnesium as part of your daily supplement regimen.

Vitamin D (Calciferol)

Vitamin D is a fat-soluble vitamin that works to maintain normal blood levels of calcium and phosphorus to form and maintain strong bones. It also helps to maintain a healthy immune system. Vitamin D is called the sunshine vitamin because our body makes vitamin D with exposure to the sun. Despite our body's production of this vitamin, up to 60 percent of obese individuals (both before and after surgery) are deficient, and therefore, supplementation and monitoring is necessary. As a WLS patient, it is important for you to take your daily supplements, spend 15 minutes outside at least three times a week and monitor your bone density.

Deficiency Symptoms: Early deficiency manifests itself in generally no apparent symptoms other than lab alterations. Symptoms of late deficiency include bone pain, muscle weakness and bone fracture.

Food Sources: Cod liver oil, salmon, other fatty fish, vitamin D fortified milk (low fat or non-fat), ready-to-eat cereals fortified with vitamin D, egg yolk, liver, and margarine fortified with vitamin D.

Supplemental sources: You need a total of 800 to 1000 IU vitamin D3 derived from both, your calcium and multivitamin supplements, taken as part of your daily supplement regimen.

Zinc

Zinc is an essential mineral that is found in almost every cell and is needed for essential functions such as growth and development, maintenance of the body's immune system, wound healing and appetite control. Recent research also suggests that zinc positively impacts cognitive function and behavior not only in early development but also throughout life. As a WLS patient, it is important for you to take your daily multivitamin, which includes zinc.

Deficiency Symptoms: Deficiency manifests itself in hair loss, diarrhea, impotence, eye and skin lesions, and loss of appetite, delayed healing of wounds, taste abnormalities and mental lethargy.

Food Sources: Oysters, red meat, fish, poultry, dried beans, nuts, whole grains, fortified breakfast cereals and dairy products.

Supplemental Sources: Your multivitamin should include 15 mg zinc, taken as part of your daily supplement regimen. Discuss with your doctor or registered dietitian if additional zinc would be beneficial. Excess zinc may lead to toxicity.

Additional Care Instructions

Ask your surgeon and/or primary care provider if you need to have routine labs (blood work) performed as part of your follow-up care process for WLS.