

Nutrition during pregnancy after weight loss surgery

The need for various vitamins, minerals and other nutrients increases after weight loss surgery. Pregnancy can increase those needs. Therefore, it is very important to strictly adhere to the nutritional supplement regimen that your bariatric surgeon/dietitian prescribed, as well as adhere to recommendations that meet the increased needs during pregnancy.

General recommendations include:

- If you have not had baseline blood work completed (about one month prior to conception), have your blood work checked for total protein, iron panel (hemoglobin, hematocrit and ferritin levels), vitamin B12 (methylmalonic acid and homocysteine), vitamin D (25 OHD), folate (red cell folate level), calcium (total serum calcium level) and thiamine.
 - o If a deficiency is detected, specific blood work should be rechecked in six to eight weeks after your treatment begins.
- All pregnant women are screened for gestational diabetes between 24-28 weeks of gestation. Due to the increased risk of gestational diabetes in women pregnant with multiples. We also recommend a glucose challenge at 14 AND 30 weeks of gestation. However, if you've had a Roux-en-Y gastric bypass, this test can cause dumping syndrome, therefore it is recommended that you have a fasting glucose and a two hour post-prandial checked after a carbohydrate dense meal (such as one packet of instant oatmeal with nuts and one serving of fruit) instead to screen for gestational diabetes.
- Eat slowly and chew very well, do not skip meals and aim for five to six nutrient-dense meals and snacks that include excellent sources of protein throughout the day. An individualized calorie level plan for appropriate weight gain and nutritional supplement regimen will be provided.

We understand that those who have undergone weight loss surgery have put in great effort to lose weight. However, adequate weight gain in pregnant women has been associated with better outcomes for their babies. If you struggle with the idea of gaining weight, we recommend consultation with a mental health provider to ensure the best possible outcomes for you and your pregnancy.

GENERAL GUIDELINES FOR PRENATAL SUPPLEMENTATION

Procedure	Supplement and dose
Roux-en-Y gastric bypass	Prenatal vitamin with iron Calcium citrate 1200mg/day with vitamin D Vitamin B12 500 micrograms/day sublingual Elemental iron 60 mg/day
*Laparoscopic adjustable gastric band or sleeve gastrectomy	Prenatal vitamin with iron Calcium citrate 1200mg/day with vitamin D
<i>*Recommend to have gastric band deflated as soon as positive pregnancy is diagnosed.</i>	

SOURCES OF PROTEIN

Excellent sources of protein ≥ 7 grams per ounce	Good sources of protein ≤ 7 grams per ounce	Fair to poor sources of protein ≤ 3 grams per ounce
Animal products such as beef, pork, lamb, turkey, chicken, fish, tuna, shellfish, hard cheeses like cheddar, Swiss, and soft such as cottage and ricotta	Beans, legumes (kidney, pinto, navy, chick peas, lentils), nuts, peanut butter, seeds, nut butters, hummus, soy milk and tofu	Whole grain breads, cereals, crackers, brown rice and vegetables
Egg and egg substitutes, milk and yogurt		

Potential nutrient deficiencies after weight loss surgery

Nutrient	Recommendation	Evidence	Deficiency	Food sources	
				Plant	Animal
Protein	1.1 gram/kg daily ~70-90 grams per day	Essential for growth, maintenance and tissue repair. Adequate protein can be obtained by eating a variety of different plant sources.	Protein malnutrition, hair loss, poor wound healing	Beans, nuts, nut butters, peas, soy products (tofu, tempeh, veggie burgers)	Meat, poultry, fish, eggs, low-fat dairy products
Iron	27 milligrams per day	Daily recommended intake of iron increases during pregnancy. Calcium and caffeine can interfere with the absorption of iron. If taking supplements, limit caffeine to between meals (<i>up to 300mg of caffeine per day appears safe for pregnant women</i>).	Iron deficiency anemia causing fatigue, weakness, pale skin, in severe cases unusual cravings for non-nutritive substances (pica) such as ice, dirt, clay or pure starch	Iron-fortified cereals, spinach, kidney beans, black-eyed peas, lentils, turnip greens, soy beans, tofu, black strap molasses, whole wheat breads and some dried fruits such as apricots, prunes and raisins. Add a source of vitamin C such as citrus fruit or juice, tomatoes or broccoli to meals to increase the absorption of iron. Note: avoid foods that decrease the absorption of iron with meals such as caffeine and calcium	Organ meats, meat, poultry, fish, shellfish, egg yolk
Vitamin B12	2.6 micrograms per per day	Found primarily in animal products and some fortified foods.	Megaloblastic anemia, neuropathy	Milk products, eggs, and foods that have been fortified with vitamin B12 such breakfast cereals, soy based beverages, veggie burgers and nutritional yeast	Meat, poultry, fish, eggs, low-fat dairy products
Folate/ Folic Acid	600 micrograms per day	Helps produce and maintain new cells, red cell production and prevention of neural tube defects of the fetus (such as spina bifida and anencephaly).	Folate deficient women who become pregnant are at greater risk of giving birth to low birth weight, premature, and/or infants with neural tube defects	Fortified cereals and grains, citrus fruits (orange, bananas), avocados, leafy green vegetables (spinach, broccoli and lettuce), okra and asparagus	
Calcium	1000 milligrams per day (1300mg daily for those <18 years of age)	Major dietary source is milk and milk products. During pregnancy, the body compensates by increasing the absorption of calcium; therefore, the daily recommended intake for calcium does not increase. However vegetarians may be deficient in calcium if avoiding dairy products. Prenatal vitamins do not provide adequate amounts of calcium. For strict vegetarians it may be difficult to fulfill daily needs and supplementation may be necessary.	Osteoporosis, tetany (body spasms)	Fortified breakfast cereals, soy products (tofu, fortified soy-based beverages), calcium-fortified orange juice and some dark green leafy vegetables (collard greens, turnip greens, bok choy, mustard greens)	Low-fat dairy products, salmon and sardines with bone
Vitamin D	5 micrograms per day (200 units)	Major dietary source is dairy products and products fortified with vitamin D.	Rickets	Low-fat fortified milk and soy milk, fortified margarines	Low-fat fortified milk products, fish oils and eggs

Go to www.mypyramid.gov for additional information.