

NUTRITION BEFORE AND AFTER BARIATRIC SURGERY

Amberlee Anderson, RD

Clinical Dietitian

Centre for Metabolic and Bariatric Surgery,

Victoria General Hospital

Faculty/Presenter Disclosure

- Faculty: Amberlee Anderson
- Relationships with commercial interests:
 - None

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Objectives

At the conclusion of the educational activity, the participants will be able to:

1. Describe changes a patient makes to their eating habits before and after bariatric surgery.
2. Identify common vitamin and mineral deficiencies after bariatric surgery.
3. Identify patients at high risk of vitamin and mineral deficiencies after bariatric surgery.
4. Help prepare patients while they are on the wait list, so they are medically ready once in the program.

Bariatrics

“The branch of medicine that deals with the causes, prevention, and treatment of obesity”



Obesity

Obesity is the abnormal or excessive fat accumulation that presents a risk to health (WHO, 2015).

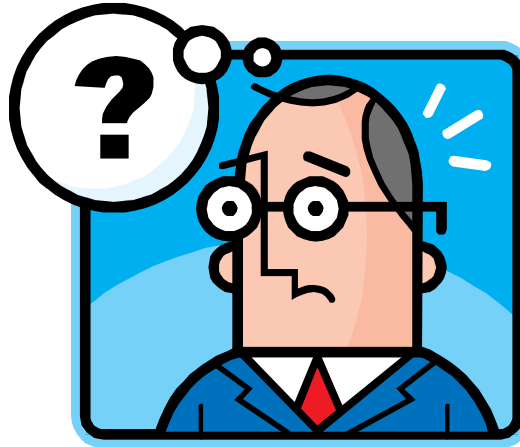
It is chronic, progressive and relapsing.

Hormones

Environment

Psychology

Emotional
Stress



Inactivity

Lack of
Sleep

Genetics

Medications

Centre for Metabolic and Bariatric Surgery (CMBS)

A multidisciplinary program that offers safe and effective long-term surgical weight loss:

- Nutrition education
- Behavior modification
- Physical activity
- Resource for patient life long

Bariatric surgery consists of two components:

- Surgery
- Lifestyle changes
- Surgery is a tool, to be successful you have to make lifestyle changes for 30, 40, 50 years or more

- Weight loss is individual and does not define the success of the surgery
- The ultimate goals are the health and lifestyle benefits of the surgery
- Typical weight loss at one year post surgery is 20-40% of the patients highest recorded weight

What Is Done

- The stomach is made into a small pouch which results in restriction.
- Stomach pouch is connected to a loop of small intestine.
- Food bypasses the distal stomach, duodenum and a portion of the jejunum.
- Results in restriction, thus causing weight loss.

Program Criteria

- By referral from primary care provider/specialist.
- Inclusion Criteria:
 - Age 18-59 years
 - BMI 40-55 males/females
 - BMI 35 with co-morbidity
 - Non-smoking
 - Failure of diet/exercise
 - Manitoba Resident

Patients Journey with CMBS

- Attend information seminar.
- 1-3 visits with team depending on level of support needed.
- All patients must complete Craving Change program.
- Attend all appointments & group sessions.
- Meeting program nutrition and physical activity requirements.
- Medication/supplement regime compliance.
 - Working with diabetes team.
 - Seeing other care providers as needed.

Nutrition Preoperatively

Goal: to have the patients nutrition habits before surgery supporting their health and nutrition after surgery.

- Encourage all changes to be made prior to surgery.
- Changes patients make:
 - Eating regular meals, at least 3 per day.
 - Limit grazing, or mindless eating.
 - Eating balanced meals with protein, vegetables and carbohydrates.

Nutrition Preoperatively

- Changes patients make:
 - Limiting fast foods, high sugar items.
 - Work on strengthening meal planning and preparation skills.
 - Want to reduce reliance on these items.
 - Food journaling to increase awareness of overall calorie and protein intake.
 - Patient are provided with individualized goals at first appointment.
 - Limiting carbonated beverages.
 - Eat slowly, chew thoroughly, follow hunger/satiety cues

Supplementation of Micronutrients Preoperatively

- Recommendations are tailored to preoperative lab work.
- Generally most patients start on a daily multivitamin and 2000 IU vitamin D unless otherwise indicated.

Preoperative Boost Diet

- 2-3 weeks prior to surgery.
- Goal is to shrink size of the liver.
 - Increases operative space.
 - Decrease operative risk.
- Consists of 5 bottles of Boost Diabetic per day.
 - 950 kcals, 80g protein, 70g carbohydrate per day.

Post Op Progression of diet

- Phase 1: Liquids (Days 1-7)
- Phase 2: Pureed foods (1-4 weeks)
- Phase 3: Soft, minced foods (4-8 weeks)
- Phase 4: Regular food (8+ weeks)

Life long Eating

On Average...

- Protein: ~ 60-80 grams per day.
 - Individualized at 1-1.2 g/IBW/day.
 - Some require protein supplements to meet needs.
- Calories: ~1200-1500 kcal per day long-term
 - ~500-600 kcal/day first weeks post op, increasing as meal volume/tolerance increases.
- High protein, high fibre, low-moderate carbohydrate (CHO) diet life-long.
- 3 meals + 1-3 snacks. Limited to 1-1 ½ cups of food per meal.

Things to consider....

- Meal skipping.
- Mixing of liquids and solids.
- Drinking calories – heavy reliance on protein shakes, smoothies, specialty coffees.
- Increasing food intolerances or foods getting stuck.
- Frequent vomiting or diarrhea.
- Low blood sugars or symptoms of low blood sugars.
 - All patients are susceptible.
- Pregnancy

Micronutrient Deficiencies

- Patients often require higher levels of supplementation than those without bariatric surgery.
- “The American Society for Metabolic and Bariatric Surgery Integrated Health Nutritional Guidelines for the Surgical Weight Loss Patient 2016 Update: Micronutrients” provide recommendations on treatment and monitoring of micronutrients.
- Our clinic follows patients and monitors lab work for up to 1 year post op.
 - Labs are checked at 3 months, 6 months, and 1 year.

Summary of ASMBS Supplement Recommendations

Vitamins	Daily Requirements
Vitamin A	5000-10,000 IU
Vitamin B1 (Thiamine)	12 mg
Vitamin B2 (Riboflavin)	3.2 mg
Vitamin B3 (Niacin)	40 mg
Pantothenic acid (B5)	20 mg
Vitamin B6	4 mg
Vitamin B12	350-500 mg
Folate	Under 1000 mcg
Biotin	60 mcg
Vitamin C	120 mg
Vitamin D	3000 IU
Vitamin E	15 mg
Vitamin K	90-120 mcg

Minerals	Daily Requirements
Calcium citrate	1200-1500 mg
Iron	18 or 45-60 mg
Zinc	8-22 mg
Copper	1-2 mg
Selenium	55 mcg
Magnesium	350 mg
Manganese	2 mg
Chromium	25 mcg
Molybdenum	50 mcg

Based on ASMBS micronutrient guidelines (2016).

CMBS Vitamin and Mineral Routine

Vitamin/Mineral	Daily Amount	Notes
Adult Multivitamin Recommend Brands*: 1. One a Day Women's 50+ 2. Jamieson Multi Max Strength 3. Natures Way Alive! Once Daily Women's Maximum Potency	1	Your multivitamin should include vitamins and minerals. *Talk to Dietitian if choosing alternate brand.
Vitamin B12	500 mcg	Can be taken as a tablet, self- dissolving strip, spray, or under the tongue (sublingual)
Calcium Citrate (Best) Or Calcium Carbonate	1200-1500mg (elemental)	<u>Do not</u> take with thyroid medication or iron. Take with food. DO NOT take all at once. Take 400-600mg doses 2-3X/day.
Vitamin D	Total of 3000 IU (From <u>ALL</u> supplements)	You may be able to get enough Vitamin D through your multivitamin combined with your calcium supplement.
Thiamin	100mg	Can be taken anytime of day.
Ferrous Sulfate (Iron)	65 mg Elemental Iron (300mg Tablet)	Empty stomach preferred or take with an orange. Do not take with high calcium foods (i.e. milk products) or with calcium pills. <u>Do not</u> take with Thyroid medication.

Vitamin and Mineral Supplements

- Patients should take all supplements by 2 weeks post-op.
 - Large tablets must be cut, crushed, or chewed for the first few weeks.
 - Tablets/capsules smaller than an M&M are generally fine to swallow whole.
- Liquid supplements may be better absorbed and/or tolerated.
- Alternate routes/types of supplementation
 - Injections, dissolvable strips, chewables

Role of Family Doctors

- Normalizing lab work while patient is on the wait list. Eg. A1C within Diabetes Canada Clinical Practice Guidelines.
- Investigation of abnormalities in lab work that may indicate liver abnormalities, renal insufficiency, or decreased gastro-intestinal absorption eg. celiac.
- Treatment and management of heavy menses.
- Optimizing ferritin to 50 or greater prior to surgery (with other anemia values within normal range).
- Consulting community RD to help patient get started on nutrition changes.
- Lifelong yearly monitoring of vitamin and mineral status. Eg. Vitamin A, D, B12, zinc, folic acid, iron, ferritin, TIBC, CBC, PTH.

References

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