

# Nutrition Management After Gastric Bypass Surgery

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Gastric bypass surgery is a highly effective weight-loss treatment for morbid obesity. Surgery is a tool by which individual patients learn to control their calorie intake without feeling excessive hunger. As a result, significant weight can be reduced to improve symptoms of many chronic illnesses, such as coronary heart disease and diabetes. The fact that most insurers, including Medicare, pay for the procedure testifies to its effectiveness. People with diabetes and heart disease are eligible for reimbursement at slightly lower body weights, although they must still be obese (Table 1).

The process, both before and after surgery, is fraught with pitfalls, which put a great deal of responsibility on both the surgical team and the patient. The team should consist of one or more certified bariatric surgeons, experienced dietitians, nurses, and psychologists. Extensive preoperative screening is important (Table 1).

As much as 60–70% of excess weight is lost in the 1–2 years following surgery<sup>1</sup> as a result of four postop-

erative phenomena (Table 2). Fewer calories are consumed because of patients' smaller stomach capacity. Also, patients experience a **diminished appetite**, perhaps because of a reduced production of appetite-stimulating hormones, such as ghrelin. Binge-like behavior tends to be extinguished postoperatively because it results in immediate negative consequences in the form of pain and vomiting.

**Malabsorption of calories** occurs as a result of the bypassed small intestine. The bypass also induces the dumping syndrome in those patients who consume a food or beverage containing a concentration of sugar. This syndrome produces symptoms similar to a hypoglycemic reaction. Because of this noxious effect, the dumping syndrome works well to dissuade patients from eating sweets. And finally, **increased physical activity**, which enhances weight loss and helps prevent weight regain, becomes increasingly possible as patients lose weight. In fact, a substantial regain of weight is likely in patients who do not maintain an active lifestyle.

**Table 2. Mechanisms Causing Postoperative Weight Loss**

- Reduced food volume
- Diminished appetite
- Malabsorption of calories
- Increased physical activity

Unlike other weight-loss programs, the surgery process allows patients to experience greater self-control. Glucose tolerance is improved to such a degree that more than 80% of patients with diabetes maintain normal levels of plasma glucose, glycosylated hemoglobin, and insulin after surgery.<sup>2</sup> However, the process requires significant changes in lifestyle habits that patients should understand and commit to early in the preoperative phase. An experienced dietitian can assist patients in establishing action plans of behavioral goals to achieve before surgery in preparation for the postoperative lifestyle. Full mastery of the new habit repertoire on the part of postoperative patients produces the best long-term results.

The pathology of morbid obesity is often complicated by one or more psychiatric diagnoses, such as post-traumatic stress disorder, clinical depression, binge eating disorder, or other conditions in which self-abusive behaviors are exhibited. Self-esteem is often held at a tragically low point. A critical aspect of the prescreening evaluation involves determining the patient's ability to tolerate frustration and to be patient when learning new skills. Patients suffering from severe depression or other forms of mental illness may not have sufficient self-control to accomplish permanent habit change. As part of the psychi-

**Table 1. Preoperative Screening Process at Baystate Surgical Associates**

Candidates for gastric bypass surgery must:

- Have a BMI > 40 kg/m<sup>2</sup> (morbid obesity) or (> 35 kg/m<sup>2</sup> for patients with diabetes or heart disease)
- Have comorbidities or chronic medical problems in family history
- Undergo a psychiatric evaluation
- Quit smoking (if they are smokers) by 2 months before the operation
- Undergo a sleep study if symptoms of sleep apnea are present
- Have an extensive dieting history with some medical supervision
- Participate in preliminary work on behavioral change to prepare for postoperative period
- Start taking an adult-strength multivitamin with minerals daily
- Attend a minimum of three support group meetings

atric evaluation, medication and/or psychotherapy may be recommended to help stabilize symptoms.

**Nine Areas of Behavior Change Crucial to Success After Surgery**

**1. Meal Frequency**

Many patients in our clinic were in the habit of eating very large quantities in only one or two meals per day. Early postoperative food capacity is usually about one-half cup or less. Patients must learn to eat frequent, small meals consisting of healthful foods. Failure to modify this habit will result in poor nutrition and an inadequate calorie intake. Consuming too few calories can result in the “starvation mode” of metabolism, which will interfere with weight loss. Patients are encouraged to eat break-fast and to eat at least four to five small meals daily.

**2. Food Volume and Meal Pacing**

The habits of taking small bites and eating slowly and mindfully are crucial for patients to have mastered by the time surgery is performed. If not, vomiting will probably result, having a negative impact on patients’ nutrition and overall health.

In the short term, this represents negative reinforcement, which can help shape behaviors to become consistent with success after surgery. If the vomiting persists, however, it results in surgical failure. To avoid the latter result, patients should chew solids very well and must avoid drinking liquids within 30–60 minutes of eating solids. Relaxation techniques can be used to reduce the speed of eating and drinking. By eating slowly, patients can also anticipate the feeling of fullness while they are eating. Thus, they can avoid the inevitable “fateful bite” that leads to pain and vomiting.

**3. Adequate Fluid Intake**

In the early postoperative period, patients often report a suboptimal fluid intake, perhaps as a result of the fluid restriction at meals and snacks. Dehydration can be very dangerous to overall health, and it can lead to constipation and poor absorption of medications and nutrients. Patients should carry sugar-free beverages with them and drink often. They should not rely

on thirst as a trigger to drink. Many foods, such as soups, contribute to the fluids consumed. It is recommended that patients consume about 48 oz of fluid daily.

**4. Consumption of Fruits, Vegetables, and Whole Grains**

Patients who are morbidly obese typically do not eat the number of servings of fruits, vegetables, and whole grains recommended for a healthy diet. This habit should be modified as part of the surgical process to ensure adequacy of fiber and certain vitamins and minerals. A low fiber intake can result in either constipation or chronic diarrhea because of the lack of dietary bulk. In addition, a higher fiber intake is recommended to reduce serum cholesterol.<sup>3</sup> Fresh fruit can be incorporated into a smoothie made with cow’s milk, yogurt, or soy milk. Vegetables can be grated into soups or tomato sauce, and chopped or grated vegetables can be added to omelets.

**5. Adequate Protein Intake**

Approximately 60–80 g of daily protein is recommended for nutritional adequacy and for wound healing after surgery. This fact can be complicated by patients’ intolerance of many food sources of protein, especially red meats and poultry. Also, lactose intolerance is a possible postsurgical complication, requiring a modification of milk products.

Protein is available in fish, eggs, and many plant-based foods, such as soy products, nuts, and legumes. In addition, commercially available high-protein, low-sugar shakes and breakfast bars can be used to supplement the diet. However, many of these contain sugar alcohols (e.g., sorbitol), which are likely to produce gas and diarrhea. Fortunately, most patients can resume eating all protein foods after a few months.

The highest protein demand for healing purposes, however, is in the first few weeks. Nuts, nut butters, cheeses, and yogurt, if tolerated, can be major sources of protein until the dietary choices increase. The dietitian’s role in this postoperative phase is crucial to the outcome for each patient. Frequent nutrition visits are required in the first few months after

surgery, in part to ensure that protein nutrition is optimal.

**6. Avoidance of Sweets**

As mentioned above, average servings of foods and beverages containing large amounts of sugar will cause the dumping syndrome and must be avoided. The items most often linked to the dumping syndrome are sweetened beverages, such as soda, juice drinks, and milkshakes, and regular ice cream. No-sugar-added ice cream is available, but it may contain sugar alcohols.

Old habits can lead patients to desire sweets, even though the consequences are noxious. Patients should have available healthful snacks, such as nuts, hummus and whole grain crackers, trail mix, fresh and dried fruit, and plain popcorn. They also need to be patient as they form new habits and gradually extinguish the old ones.

**7. Vitamin/Mineral Supplements**

The gastric bypass creates malabsorption, whereby iron, calcium, and B-vitamin nutrition is in jeopardy. In addition to a nutritious diet, supplements are necessary to work against potential deficiencies. Iron-deficiency anemia, pernicious anemia, and osteoporosis (in both sexes) may develop, although usually not in the first postoperative year.

A daily combination of an adult-strength multivitamin with iron, a B-complex supplement, and 1,000–1,500 mg of calcium is needed for the rest of the patient’s life. Chewable vitamins are now available for patients who do not tolerate pills well. Diagnostic blood work is needed at the patient’s annual postoperative visit or sooner if suspicious symptoms such as fatigue or shortness of breath are present.

**8. Regular Attendance at Support Group Meetings**

Attendance at support group meetings should be mandatory before surgery, and patients should continue regular attendance for several months or longer after surgery. Support groups offer a haven for morbidly obese patients, who tend to isolate themselves from social events. In this setting, patients are likely to feel more

accepted than they do in society in general.

Very importantly, peers can provide credible and practical coaching on managing adjustment difficulties with eating and other lifestyle behaviors. Patients who are achieving their goals serve as role models and can encourage a fighting spirit in those more wary of making big changes in their habits.

Internet-based correspondence is often useful to patients. However, information available on the Web is sometimes wrong. Also, using the Internet for support exclusively with no face-to-face peer interaction can allow patients to remain isolated. This can result in a continuance of their antisocial behaviors to their own detriment.

### 9. Compliance With Exercise Program

Incorporating activity into the patient's lifestyle is crucial for good health and maintenance of weight loss. Most patients need at least 35 minutes of daily aerobic exercise with thrice-weekly strength training exercise highly recommended to maintain the metabolic rate at a high level.<sup>4</sup>

Through support groups, patients often form buddy systems whereby they exercise together, such as in a walking program or at a health club. If orthopedic problems persist, aquatic exercise programs may be the only option for adding therapeutic movement to the postoperative lifestyle.

Some patients lose weight very rapidly, especially in the early postoperative phase. If they are having difficulty eating well, this must be resolved to allow for a nutritious diet with adequate protein. Muscle loss is unavoidable if someone is losing as much as 1 lb/day. Exercise, especially strength training, can help reduce the rate of muscle loss. Patients can gradually increase resistance exercises, starting as early as 2–3 weeks postoperatively.

### Profound Postoperative Changes for Patients

Patients face many dramatic changes imposed on their attitudes and their behaviors. Food can still be a source of emotional and physical comfort for postoperative patients, but the manner by which this comfort is obtained will by necessity be very different.

Changes can be expected in relationships. Responsibilities tend to increase as patients lose weight. Self-care requirements increase. Despite the postoperative demands, most patients say that they would go through the process again if they had to because they feel as if they have a second chance at life.

### References

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