The University of Texas Specialty Surgery Center

Minimally Invasive Surgeons of Texas

BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH PATIENT GUIDE

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INTRODUCTION

Welcome to the program at the University of Texas Specialty Surgery Center, Minimally Invasive Surgeons of Texas. Obesity is a disease that affects millions of people worldwide and is increasing at a disturbing rate. Most people have battled with their weight at some point in their lives. Whether we feel the need to "lose a few pounds" or a lot more, the basic goal is always the same: we are all trying to improve our health, so we can live happier, longer and more productive lives. Nonetheless, 95 percent of the time that we lose the weight, we gain it right back within one year.

Countless studies have shown that many health issues go along with being morbidly obese, and weight reduction can help resolve these issues. At the University of Texas Specialty Surgery Center we continually strive to optimize our comprehensive treatment program to help you to successfully lose weight, keep it off, and become healthier.

With the proper preparation and realistic expectations that we can provide, you can expect favorable outcomes with significant weight loss and, as a result, improvement in your health. Surgical treatment of morbid obesity is a very effective method of long-term weight loss in carefully selected patients. That is why we have devoted ourselves to you and your promise to become a healthier person.

BILIOPANCREATIC DIVERSION WITH DUODENAL SWITCH

The biliopancreatic diversion with duodenal switch (BPD) was first performed by Dr. Scopinaro in 1979 in Italy. It is the most malabsorptive procedure approved by the FDA, leaving only 100-150 cm of small intestine left for absorption.

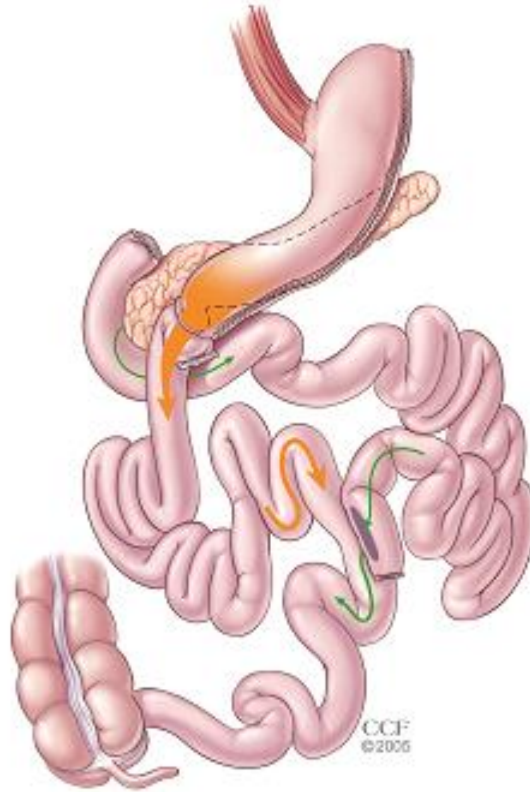
This operation carries the highest risk of complication and is the most technically challenging operation to perform; on the other hand, it offers the most benefit in terms of weight loss. Patients can expect to lose nearly all of their excessive weight in short order after this procedure (80-100%). Vitamin and mineral deficiencies are more likely after this procedure compared to the other weight loss surgeries, so close monitoring of vitamin levels is necessary.

Daily Vitamin Needs:

- Adult bariatric chewable multivitamin
- 1500 mg calcium: Take in small divided doses – 500 mg three times per day
- Sublingual B12
- Vitamin D: 3000 IU
- Iron: Prescribed as needed by your doctor

Your surgeon will start by performing a sleeve gastrectomy (permanently removing about 80% of the stomach). The valve that releases food to the small intestine is left, along with the first part of the small intestine, called the duodenum. The surgeon then closes off the middle section of the intestine and attaches the last part directly to the duodenum. This is the duodenal switch. The separated section of the intestine isn't removed from the body. Instead, it's reattached to the end of the intestine, allowing bile and pancreatic digestive juices to flow into this part of the intestine. This is the biliopancreatic diversion. As a result of these changes, food bypasses most of the small intestine, limiting the absorption of calories and nutrients. This, together with the smaller size of the stomach, leads to weight loss.

This operation can be performed as a one stage operation or a two stage operation (sleeve gastrectomy first, followed later by duodenal switch with BPD).



PATIENT ELIGIBILITY CRITERIA

A. We follow the criteria set forth by the National Institute of Health. These criteria include:

- A BMI equal to or greater than 40 with or without co-morbid conditions (see list below)
- A BMI greater than 35 with co-morbid conditions
- Permanent lifestyle changes including exercise
- No significant, untreated psychiatric illnesses
- Sufficient ability and cognition to understand surgery, potential complications and subsequent associated changes
- Willingness to participate in treatment and long-term follow-up
- Proof of failed attempts at non-surgical weight reduction
- Supportive family/social environment
- Acceptable medical/operative risks
- No smoking

B. List of Co-Morbid Conditions

- Degenerative joint disease
- Hypertension

- Diabetes mellitus
- Sleep apnea
- Asthma
- Hypoventilation syndrome of obesity
- Deep vein thrombosis / Pulmonary embolism
- Cardiac disease (arrhythmias/cardiomyopathy)
- Cor pulmonale
- Venous stasis ulcers
- Hypercholesterolemia / hyperlipidemia
- Depression
- Menstrual irregularities
- Fungal skin infections
- GERD (Gastroesophageal Reflux Disease)

PATIENT REQUIREMENTS

A. In order to be considered for weight-loss surgery we require that you:

- Attend the information session (education class) either in person or via webinar
- Recommended attendance for support groups prior to surgery (Please contact clinic for locations and times)
- Initial consultation with bariatric surgery nurses and surgeons

B. You must bring the following to your initial visit:

- Your insurance card. You must ensure that your health insurance coverage includes Weight-Loss / Bariatric surgical benefits.
- Completed registration/questionnaire package
- Insurance referral (if your insurance company requires one)

C. At the end of your consultation you will be scheduled for some of the following:

- Comprehensive blood testing
- Appointment with a psychiatrist to determine whether you are emotionally prepared for the surgery and to evaluate the lifestyle changes you have made in preparation for surgery.

- Follow-up appointment with the dietitian who will assist you in achieving the mandatory preoperative weight-loss.
- Appointment with anesthesia clinic a week before your surgery. The staff there will instruct you how to prepare for the surgery and what to expect pre- and postoperatively.
- Pulmonary, cardiology, gastroenterology or other specialty evaluation if needed

D. Surgery Scheduling

It is estimated that you will be having surgery 3-6 months from your initial consultation. This depends on your specific health problems, your ability to meet preoperative goals and your insurance providers. All goals must be met prior to receiving a surgery date.

PREPARATION PRIOR TO SURGERY

A. Personal Preparations

- **Chewable Multivitamins**:
  Start taking chewable adult multivitamins daily to improve your general health. You will need to take these everyday for the rest of your life. Further, take 500 mg of chewable Calcium with Vitamin D three times daily. Vitamin and mineral intake is especially important after bariatric surgery in order to maintain good nutrition and health and you are at risk for deficiencies after surgery. We have found that if you start taking these supplements before surgery, it will be easier remembering them after surgery.

- **Exercise:**
  The best time to begin your exercise program is before your surgery. Your weight loss after surgery is highly dependent on both your dietary habits and your level of exercise. The sooner you start exercising the easier it will be after you have surgery. It also helps improve circulation, which helps you through the surgical procedure. Success in duodenal switch/BPD is all about choosing the right habits before and after surgery. We want you to start moving more than normally; however, we do not want you injure yourself.
  Walking on a daily basis improves your circulation and makes breathing easier during recovery. You will also benefit from having a plan in place, so you don't have to figure out your walking route during the recovery phase. Should you be unable to walk daily due to joint pain, then you may want to look into an aquatics program. Every town has classes for arthritic or cardiac patients that are held in a safe and clinical environment. Water exercises still condition your breathing, but are not weight bearing and are therefore easier for people who have joint problems. You can also practice the exercises that speed up your recovery and become familiar with the chapter on exercise.

- **Personal hygiene**:

You should begin taking daily showers a few days before you enter the hospital. Careful attention must be given to cleaning the entire abdomen from the neck and armpits to the groin, making sure to clean between any folds of skin. Use antibacterial soap such as Dial. Pat dry any reddened areas or use a blow dryer on low heat to dry difficult to reach places.

B. Medications

- **Blood Thinners and all aspirin-containing medications:**
  Should be stopped 7 days prior to surgery, such as Coumadin (Warfarin), Plavix, Pradaxa, Ibuprofen, Celebrex and Naprosyn etc.

- **Herbal medications**:
  St. John's Wort, Gingko Biloba, Garlic, etc, should be discontinued as well, as these also have blood-thinning properties. Other herbal supplements such as Kava Kava and Valerian Root are known to interact with anesthesia and should also be stopped 7days before surgery.

- **Blood Pressure and Heart Medications**:
  Continue these as prescribed. Take them with a sip of water on the morning of surgery.
- **Diabetes Medications:** Take ½ of your usual dose of medicine the evening prior to surgery and no diabetes medicine the morning of surgery. Your blood sugar will be checked and adjusted at the hospital.

C. Tobacco

Patients are required to quit smoking before and after surgery permanently. Since smoking hinders proper lung function; it can increase the possibility of anesthetic complications. Smoking can increase your risk of complications such as deep vein thrombosis (blood clots in the legs), and smoking also reduces circulation to the skin and impedes healing. Smokers who undergo anesthesia are at increased risk for developing cardiopulmonary complications (pulmonary embolism, pneumonia and the collapsing of the tiny air sacs in the lungs) and infection as well. Besides the well-known risks to the heart and lungs, smoking stimulates the stomach acid production, leading to possible ulcer formation. In addition, smoking can cause a reduced ability of the body to heal itself. This can lead to wound infections, hernias, and leaks that may be devastating. Patients must agree to permanently refrain from smoking before and after surgery.

D. Alcohol

It is also important to avoid alcohol since it causes gastric irritation and can lead to liver damage. Be aware that during periods of rapid weight loss the liver becomes especially vulnerable to toxins such as alcohol. You may find that only a couple of sips of wine can give you unusually quick and strong effects of alcohol intolerance. In addition, alcoholic beverages are essentially a carbohydrate or sugar-based beverage high in sugar calories and may cause "dumping syndrome" and/or impede your weight loss. For these reasons, we recommend complete abstinence from alcohol for one year after surgery and avoiding frequent consumption thereafter. It is important to understand that alcohol is a liquid calorie

and is VERY calorie dense—it has almost as many calories per gram as fat. It really works against long term successful weight loss.

E. Pre-surgery Liquid Diet

Liquid diet need to be started at least 5-7days prior to surgery, 4-5 protein drinks was recommended daily.

Sample of Meal Replacement Shakes

Name	Volume (ml)	Calories	Protein (gm)	Carbohydrate (gm)
EAS Myoplex Lite	330	170	20	20
EAS Advantage	330	110	17	6
Atkins Advantage	325	160	15	3
Slimfast 321	325	180	10	23
Slimfast 321 low carb	325	190	20	6

Sample of Lactose Free Meal Replacement Shakes

Name	Volume	Calories	Protein	Carbohydrate
Slimfast 321 protein powder	1 scoop with 8 oz lactaid or soy	200	15	25
Bariatric Advantage Shake Mix	2 scoops with 8 oz cold water	160	27	8
Lactose Free/Fat free Mootopia (HEB)	1 cup	90	12	6

Sample Menu

Breakfast	Meal replacement shake
Snack	Calorie free fluids/foods: Sugar free jello, sugar free ice pops, broth
Lunch	Meal replacement shake
Snack	Calorie free fluids/foods: Sugar free jello, sugar free ice pops, broth
Dinner	Meal replacement shake
Snack	Calorie free fluids/foods: Sugar free jello, sugar free ice pops, broth

Calorie Free Foods: Water, crystal light, propel, sugar free kool aid or sugar free Hawaiian punch

A DAY PRIOR TO SURGERY

- **Avoid temptation to have a "Large Meal":** A large meal may not empty from the stomach in time for surgery and increases the risk of aspiration of stomach contents during anesthesia. This results in respiratory complications like bronchospasm and pneumonia. It also defeats the pre-op diet and fills the liver with fat.
- **Scopalamine Patch:** Apply the patch to the skin behind your ear the evening prior to surgery. It helps minimize nausea during and after anesthesia. It has a potential side effect of dry mouth and blurry vision. If you touch the patch, remember to wash your hands well.
- **NPO:** Do not eat or drink anything after midnight the night prior to surgery but you can take your blood pressure or heart medicine as prescribed.
- **Hospital pre-admitting procedures:** You will receive a call from a hospital nurse the day before your surgery instructing to arrive hospital 2 hours before your scheduled time. If your surgery is on Monday you will be called on Friday. If you need to know your arrival time before receiving your nurse call, you are welcome to call (713) 704-4375 after 9:00 am (the day before surgery). Please keep in mind that Memorial Hermann Hospital-Texas Medical Center (Day Surgery) is not open on Saturdays and Sundays. If you are receiving surgery in another hospital or surgery center, then the day surgery unit of that facility should provide you answers to these questions.

DAY OF SURGERY

A. Personal Preparation

We recommend that you shower in the morning on the day of surgery, but do not use any moisturizers, creams, lotions or make-up. Remove your jewelry and do not wear nail polish. You may wear dentures, but you will need to remove them just prior to surgery. Please bring your eyeglasses and a case if possible.

B. Anesthesia

When general anesthesia is induced; you will be sound asleep and under the care of your anesthesiologist throughout the operation. The anesthesiologist spends all of his or her time during the procedure ensuring your safety. Any significant changes in blood pressure, heart rate or other vital functions are treated immediately. Your anesthesiologist will discuss the specific risks of general anesthesia with you before your surgery. Be prepared for interviews by many nurses and doctors before surgery when you arrive. They will all ask you many similar or even the same questions. This is all done for your safety, not to annoy you. Rest assured that everyone is a professional and we are all here to help you. Certainly, if there is anything we can do to make your stay at the hospital more comfortable; please don't hesitate to ask anyone.

C. The Operation
Once you enter the OR, the staff will do everything they can to make you feel safe and secure. You may be transported on a gurney (a bed or stretcher on wheels). In the OR, you will be anesthetized. Medicines that will make you drowsy will flow through the tubing into a vein in your forearm. Sometimes these medicines give a slight, brief, burning sensation as they're given. At the same time, to ensure your safety, the anesthesiologist will connect you to monitoring devices.
After you are asleep, the anesthesiologist places a breathing tube, and a urinary catheter might be placed. The surgical procedure will usually last from about 1 hour to 4 hours depending upon the procedure performed. The operations requiring more technical work (such as gastric bypass or biliopancreatic diversion) may take longer than the simpler operations (such as gastric band or gastric sleeve). The final length of the operation is dependent upon the number of extra procedures necessary, if any, and the difficulty of finding working space within a very large abdomen. Seldom is the length of operating time related to the patient's immediate condition in the operating room, and it may go several hours without undue side-effects or risks. Your surgical team will take excellent care of you! When your surgery has been completed, you will be moved to the Recovery Room.

D. The Recovery Room

You will constantly be connected to monitoring equipment, and during this period, fully trained Recovery Room nurses will remain with you at all times. The nurses are certified for advanced cardiac life support. You can be confident that you will be well cared for in the Recovery Room. When your initial recovery is completed and all your vital signs are stable, you will be transported back to day surgery or to your room on a dedicated bariatric surgery unit. Patients are usually in the Recovery Room for about two hours before they are transported to their room. Your family will be able to see you when you arrive at your room. This may be 5 or 6 hours after they saw you preoperatively. The surgeon will go to the family waiting area to talk with your family as soon as the operation is finished. We prefer that family members wait in the hospital waiting area during the surgery.

E. Hospitalization
The averages hospital stay is 2-3 days, and may be longer. When you return to your room after surgery, you will continue to be closely monitored by your nurses. Your family may visit with you then. Along with periodic monitoring of your vital signs (blood pressure, pulse, temperature, respirations), your nurses will encourage and assist you in performing deep breathing, coughing, leg movement exercises, and getting out of bed after surgery. These activities prevent complications. Be certain to report any symptoms of nausea, anxiety, muscle spasms, increased pain or shortness of breath to your nurse. To varying degrees, it is normal to experience fatigue, nausea and vomiting, sleeplessness, surgical pain, weakness and lightheadedness, loss of appetite,

gas pain, flatus, loose stools, and emotional ups and downs in the early days and weeks after surgery.

DAY AFTER SURGERY

Activity to speed up recovery

Starting the day of surgery, you will be required to walk at least 3-4 times per day and to do your leg and breathing exercises hourly. Walking is extremely important for the prevention of blood clots.

Breathing Activity

To enhance your recovery, your nurse will instruct you in coughing and deep breathing, turning in bed and exercising your feet and legs. You will be shown how to use an "incentive spirometer" to help you expand your lungs. Coughing and deep breathing is important so that you will loosen any secretions that may be in your throat or lungs and to help prevent pneumonia. Deep breathing also increases circulation and promotes elimination of anesthesia.

POST-SURGERY FOLLOW UP

- 1 week after surgery
- 6 weeks after surgery
- 3 months after surgery
- 6 months after surgery
- 9 months after surgery
- 12 months after surgery
- Every 6 months for the second year after surgery
- Once a year for the REST of your life!

POST-SURGERY DIET

Bariatric surgery patients have unique dietary needs. Your meal plan begins with liquids and slowly advances to a low-fat, low-carbohydrate diet. Strict adherence to this plan will help generate healthful weight loss and improve or resolve medical problems related to metabolic syndrome. It is important to incorporate lifestyle changes to enhance overall outcomes.

General Guidelines

A. Hydration:

- Drink enough fluids to keep your body hydrated (48 - 64 oz daily)
- Take small-sips-no gulps

- Do not drink 30 minutes before or after a meal once on solid foods
- Do not use a straw. If you drink form a straw after surgery, you will cause air to enter into your new punch, resulting in a full feeling
- Avoid caffeine and alcohol as this may cause stomach irritation and will promote the loss of fluids, making it difficult to keep yourself hydrated

B. Meal Pattern and Preparation:

- Eat very slowly
- Avoid high fat, high sugar foods
- Maintain small, frequent meals and chew foods thoroughly
- Eat protein first at each meal. Minimum of 30-60 grams daily
- Stop eating as soon as you are full. Indications of fullness are: feeling of pressure in the chest just below the rib cage, a feeling of nausea, a pain in your shoulder area or upper chest.

C. Vitamin/Mineral supplementation:

Due to the significant malabsorption as part of the BPD/DS, vitamin deficiency is a significant concern. If not closely monitored, this can result in severe consequences. All patients considering the BPD/DS should thoroughly review these guidelines:

http://www.pamtremble.com/wp-content/uploads/2011/08/Vitamin_and_Nutrition_Guidelines.pdf

- Take required vitamin and mineral supplements to meet recommended daily allowances
- Take in divided doses throughout the day to ensure optimal absorption
- One adult multivitamin (chewable or liquid) twice daily
- Does not need to be chewable once on regular texture foods
- Calcium citrate with Vitamin D, which helps maintain bone health, promote cardiac function and repair soft tissue. Caffeinated products, spinach and whole grains may decrease absorption.
    - Dosage: 1200-1500 mg calcium daily, best absorbed in 500-600mg doses
    - At least 3,000 international Units of Vitamin D recommended

D. Four stages of the diet

There are 4 stages of the diet. The diet will transition from liquids to purees to solids by the fourth and final stage. Upon reaching the 4th stage, your diet will consist of small, low fat, low sugar meals to be consumed over a 30-minute interval. Fluid continues to be important and a goal of 64 ounces per day is recommended upon reaching the final stage of the diet. It is recommended to avoid using a straw when consuming your liquids since volume is difficult to control with a straw. Drink fluids 30 minutes before or after a meal.

a. Stage I: Clear Liquid Diet (Day 1 – Day 3)

Goal: 48-64 oz of fluid

- Water
- Sugar free gelatin
- 100% clear fruit juice
- Decaffeinated tea/coffee
- Sugar free popsicles
- Propel
- Crystal Lite
- Clear broth (beef, chicken, or vegetable)

Remember: 1 ounce=2 tablespoons=30 cc of liquid intake is needed every 15 minutes to maintain hydration (take small sips).

Meal Pattern Clock: Liquid intake every 15 minutes

Time	Intake
00:00	1 ounce liquid
00:15	1 ounce liquid
00:30	1 ounce liquid
00:45	1 ounce liquid

b. Stage II: Full Liquid Diet (Day 4-Day 14)

Goal: 48-64 oz of fluid and 60 grams of protein. Begin taking chewable multivitamin and calcium. Meal pattern clock is liquid intake every 15 minutes

Protein is an important food source after bariatric surgery. Adequate protein in the diet will promote wound healing for both the inner and outer wounds. Protein will also help to maintain muscle mass while losing weight rapidly. If protein intake is not adequate to meet the daily needs, the lean mass will be broken down and used to meet energy needs. Low protein intake can also lead to decreased energy levels and hair loss.

Double milk: Mix 1 cup skim milk with 1/3 cup non-fat dry milk powder to make a base with 16 grams of protein per cup. Protein powder can be added to foods and beverages to boost protein content of the foods consumed.

*****Cottage cheese, yogurt, and sugar free pudding are not recommended during the 1st week after bariatric surgery.** To prevent nausea, **DRINK LIQUIDS SLOWLY**. When you feel full, stop drinking

Sample Menu of Full Liquid Diet

8:00 – 9:00 am	**4 oz Protein Supplement (20 grams protein)**
9:00 – 10:00 am	4 oz water
10:00 – 11:00 am	4 oz Diet Jello-O
11:00 – 12:00pm	Sugar-free ice-pop
12:00 – 1:00 pm	**4 oz Protein Supplement (20 grams protein)**
1:00 – 2:00 pm	4 oz Crystal Light
2:00 – 3:00 pm	4 oz broth
3:00 – 4:00 pm	4 oz Sugar-free Hawaiian punch
4:00 – 5:00 pm	4 oz Decaffeinated Tea
5:00 – 6:00 pm	**4 oz Protein Supplement (20 grams protein)**
6:00 – 7:00 pm	4 oz Sugar-free kool aid
7:00 – 8:00 pm	4 oz broth
8:00 – 9:00 pm	Sugar-free ice-pop
9:00 – 10:00 pm	4 oz water
10:00 – 11:00 pm	4 oz Crystal Light

c. Stage III: Pureed Diet (Week 3- Week 6)

Goal: 48-64 oz of fluid and 60 grams of protein. Continue multivitamins and calcium,

Pureed foods are the consistency of applesauce. Foods can be placed in a food blender until they are the consistency of applesauce or baby food.

- Meals should be completed in 30 minutes
- Do not mix liquids with solid foods at the meal table-drink fluids 20-30 minutes before or after your meal (combining liquids with solids may cause dumping, nausea or vomiting).
- Eat protein first – start with 1 ounce and increase slowly to 2 ounces
- No straws or chewing gum
- Do not skip meals
- Avoid extremes in temperature
- Protein powder can be added to pureed fruits and vegetables to help increase protein in the diet
- Do not nibble, munch or drink foods that supply calories continually during the day. This grazing effect will slow down weight loss.

Sample Pureed Meal Plan

8 am	2-4 ounces light yogurt or cottage cheese (Can add protein powder)
10 am	2-4 ounces low-carbohydrate protein supplement
Noon	2 ounces pureed meat/poultry/fish 1-2 tablespoons pureed vegetable
2 pm	2-4 ounces low-carbohydrate protein supplement
6 pm	2 ounces pureed meat/poultry/fish

	1-2 tablespoons pureed vegetable
8 pm	1-2 ounces low-fat cheese

d. Stage IV: Low-Fat, Low-Carbohydrate diet (Maintenance Week 7)

Goal:

- 48-64 oz of fluid and 60 grams of protein.
- 3 meals daily
- Exercise
- Add 350-500 mcg vitamin B12 daily
- Continue multivitamins and calcium

Successful tips:

- No liquid calories – Discontinue protein shake
- Protein First (foods include lean beef, poultry without skin, fish, cottage cheese, eggs or egg substitutes, tofu, low fat yogurt, milk and cheese)
- Stop eating when you are full – don not overfill pouch
- Chew all foods to applesauce consistency (avoid tough, fibrous or gummy foods – such as popcorn, bread, raw vegetables, salads, rice, watermelon, and tough meat)
- Do not drink liquids while eating solids (drink 30 minutes before or after eating)
- Skipping meals will not improve or speed up weight loss.

Meal pattern: ¾ - 1 cup of food per meal

Breakfast	1 egg 1 slice toast 1 tsp margarine
Optional Snack	1 low-fat cheese stick
Lunch	2 oz of poultry, beef or fish – baked, broiled or boiled ¼ cup cooked vegetable ¼ cup pasta
Optional Snack	½ cup sugar-free pudding or protein bar – 150 kcal or less with 6 or more grams of protein
Dinner	2 oz of poultry, beef or fish – baked, broiled or boiled ¼ cup cooked vegetable ¼ cup pasta
Snack	½ cup low-fat reduced carbohydrate yogurt

Summary of Four Stages diet

Stage	Diet
Stage I: Day 1 to Day 3	**Clear liquid diet**
Stage II: Day 4 to Day 14	**Full liquid diet** 60 grams protein daily, Start protein drinks Start chewable multivitamins and calcium citrate supplement
Stage III: Week 3 to Week 6	**Puree diet** Continue multivitamins and calcium 60 grams protein daily
Stage IV: Maintenance Week 7	**Low fat, low carbohydrate diet** Continue multivitamins and calcium 60 grams protein daily Add 350-5—mcg of vitamin D12 daily

WOUND CARE

Your wound dissolves, so there is no need to remove any stitches. You will notice some glue on your wounds. This glue is called "Dermabond or Indermil". The glue will flake off on its own. If surgical staples were used, they will have to be removed, usually at your three-week visit. The removal of surgical staples is a simple procedure in the office and usually feels like a "pinch". Leave the wound open to air whenever possible to help prevent suture infection.

No matter how your wound was closed, it is important to keep the wound clean and dry to promote faster healing. You may shower, but pat dry the incision area well. After about three weeks, the incision is usually ready for immersion. Ask your surgeon for the official go ahead before you take a bath. As you feel stronger you may enjoy a swim or a soak in the tub. Despite the greatest care, any wound can become infected. Please do not use any Neosporin or other occlusive ointment on your incision.

If your wound becomes reddened, swollen, shows pus or red streaks, has yellow/green, purulent and/or odorous drainage, feels increasingly sore or you have a fever above 101°F, you must report to your surgeon right away. The bottom line: (unless otherwise prescribed) Shower, wash with soap, rinse and dry thoroughly. If oozing or catching on clothing you may cover with a very light dressing, otherwise leave open to air.

Danger Signs

Even though we do not expect you to have any serious concerns, some symptoms that you may experience need to be addressed immediately. If you experience any of these symptoms, contact your surgeon right away:

• Worsening abdominal pain

• Fever of 101°F or above (You should have a thermometer at home)

• Cloudy fluid coming from a wound

• Bright red blood or foul smelling discharge coming from the wound

• Chest or shoulder pain, shortness of breath

• Vomiting for more than 24 hours or vomiting of blood or coffee grounds-like Material

• Inability to keep any liquids down

• Leg pain or swelling

• Redness and excessive bruising around the incision that is spreading

Normal Symptoms

• Discomfort and pain – mild to moderate discomfort or pain is normal after any surgery. Pain should gradually improve on a daily basis. Pain should not increase in intensity or become severe. If the pain becomes severe and is not relieved by pain medication, please contact your surgeon.

• Itching – itching and occasional small shooting electrical sensations within the skin frequently occur as the nerve endings heal. These symptoms are common during the recovery period. Ice, skin moisturizers, vitamin E oil and massage are often helpful.

• Redness of scars – all new scars are red, dark pink or purple. The scars take about a year to fade. There may even be "firmness" to them. This is normal. We recommend that you protect your scars from the sun for a year after your surgery. Even through a bathing suit, a good deal of sun light can reach the skin and cause damage. Wear a sunscreen with a skin-protection factor (SPF) of at least 15 when out in sunny weather.

POTENTIAL PROBLEMS AND SUGGESTIONS

A. Short Term Complication

- **Infection**
  The most frequent early complication is infection of the surgical incision. However, infections can happen anywhere in your body. Prior to your surgery and after the procedure, antibiotics are administered. The antibiotics will decrease the risk of developing a wound infection. Also, a breath exercise machine (Incentive Spirometer) is used to keep your lungs expanded to help prevent pneumonia.
  If you have increasing pain, fever (> 100.5 degrees), fell warmth, swelling or redness more than a dime size around your incisions, please call our office.
- **Clotting**
  Morbid obese people are at a high risk of developing “clots”. Clots are known as “Deep Venous Thrombosis (DVT), and can form in the veins of the legs. If clots migrate from the legs and go to the lungs, then they are known as “Pulmonary Embolus (PE). The risk of DVT formation can be decreased by using pneumatic compression boots for the legs, and walking.
- **Bleeding**
  A tiny bloody drainage is normal for up to 36 hrs after surgery. If you have excessive swelling or drainage, please call our office.
- **Leak**
  It is rare, less than 5% chance of developing a leak but serious. A leak can develop at any of the cut areas in the stomach or intestines. Although they can happen while the patient is in the hospital, it is also possible for them to develop at home (around day 7 after surgery). The early sign is tachycardia or rapid heart rate with or without fevers. The diagnosis is usually made with a CT scan. Occasionally the only way to rule it out is to return to the OR and insert a laparoscope under anesthesia.

B. Long Term Complication

- **Wound Herniation**
  It is caused by the tremendous amount of pressure on that wound closure in a very obese abdomen. In patients over 300 lbs, this complication may occur in nearly 20% of cases. In patients with lesser intra-abdominal pressure, the incidence is about 5%. A laparoscopic operation greatly reduces the risk of a wound hernia, as the size of the incision is much smaller. Hernias can be effectively repaired with surgery when the weight is lost.
- **Gallstones**
  It is not a complication of surgery but rather a complication of rapid weight loss.

It is highest in the first six months after surgery. Obese persons have a very high rate of gallstone formation compared to normal weight persons, mainly because of the many weight loss/gain episodes that obese persons undergo.

- **Bowel obstruction**
  It is due to a blockage adhesions (scar tissue) can occur as tit can after any abdominal operation, trauma, or intra-abdominal infection. Usually this presents with nausea and vomiting and frequently requires another operation to correct. Bowel obstruction after duodenal switch/BPD MUST prompt evaluation for possible internal hernia.
- **Stomach /Peptic Ulcer**
  It is more likely to occur in smokers or patients who must continue to use non-steroid anti-inflammatory drugs (NSAID) such as ibuprofen, Aleve etc.
- **Vitamin Deficiency**
  It may include iron, protein, calcium, Vitamin B12, and folate. It is extremely important to continue with your follow up after surgery and have your blood work monitored at the specified intervals: 3 months, 6 months, 9 months, 1 year, 18 months, 2 years, and annually thereafter. After surgery you must take a multivitamin and calcium (1500 mg) daily for the rest of your life.

C. Dumping Syndrome:

Dumping syndrome is usually divided into early and late phases. The two phases have separate physiologic causes and will be described separately. In fact, a patient usually experiences a combination of these events and there is no clear-cut division between them.

This syndrome occurs in approximately 80% of patients who undergo this surgery. It happens when food passes too quickly from the stomach into the small intestines. This leads to uncomfortable symptoms such as nausea, sweating, fullness, abdominal cramping, diarrhea, and a fast heart rate. The common cause is foods high in simple sugar (such as: candy, chocolate, cookies, soda, ice cream, syrups etc.) It is important to avoid these foods after surgery to prevent dumping syndrome. In addition, these types of foods are high in calories and low in nutrients, which will hinder your weight loss efforts. Food intolerance may also be caused by high fat content or lactose intolerance. It is important to keep a food record to help determine the cause of your symptoms.

Rapid gastric emptying, or early dumping syndrome, happens when the lower end of the small intestine fills too quickly with undigested food from the stomach. After the surgery, patients can develop abdominal bloating, pain, vomiting, and vasomotor symptoms (flushing, sweating, rapid heart rate, light headedness). Finally, some patients have diarrhea.
Since with this surgery the stomach is not being used and a new, small pouch that directly connects to the small intestine is created, there may be dumping. Early dumping

syndrome is due to the now rapid gastric emptying causing bowel distension plus movement of fluid from the blood to the intestine to dilute the intestinal contents. These symptoms usually occur 30 to 60 minutes after eating and are called the early dumping syndrome.

Late dumping has to do with the blood sugar level. The small bowel is very effective in absorbing sugar, so that the rapid absorption of a relatively small amount of sugar can cause the glucose level in the blood to rise rapidly. The pancreas responds to this glucose challenge by increasing the insulin output. Unfortunately, the sugar that started the whole cycle was such a small amount that it does not sustain the increase in blood glucose, which tends to fall back down at about the time the insulin surge really gets going. These factors combine to produce hypoglycemia (low blood sugar), which causes the individual to feel weak, sleepy and profoundly fatigued.

Dumping syndrome provides a quick and reliable negative feedback for intake of the wrong foods. Most patients do not experience full-blown symptoms of dumping more than once or twice. Patients usually react negatively to the taste for sweets after dumping has occurred.

Late dumping is the mechanism by which sugar intake can create low blood sugar, and it is also a way for patients to get into a vicious cycle of eating. If the patient takes in larger amounts of a food that is closely related to sugar (simple carbohydrates like rice, pasta, potatoes) they could experience some degree of hypoglycemia in the hour or two after eating.

D. Food Related Problems

- **Nausea and Vomiting:** You may be eating too fast, too much, too large bite, wrong type of food or not chewing enough. If nausea and vomiting occurs after eating a new food, wait several days before trying it again. It may be necessary to go back to more liquid or pureed foods for a while. Add only 1-2 new foods each day as you progress your diet.
- **Dehydration:** It may occur if vomiting or diarrhea is persistent or if fluid intake is not enough (at least 6-8 cups per day). Remember to drink beverages that are calorie free (except milk). Symptoms include fatigue, dark colored urine, dizziness, fainting, lethargy, nausea, low back pain (a constant dull ache across the back), and a whitish coating on the tongue. Dehydration may lead to bladder and kidney infections. In some cases you will need to be admitted to the hospital so that fluids can be given through your veins.

- **Constipation:** It is common during the first month after surgery, but usually resolves itself as the body adjusts to the smaller volume of food. Regular intake of fresh fruit may prevent recurrence.
- **Diarrhea:** Avoid sugars and sweets and drink lactase-treated milk. Avoid very hot or very cold foods and beverages. Limit high fiber and greasy foods.
- **Heartburn:** Try eating slowly and chew food thoroughly. Decrease food quantity in each meal. Avoid cold or carbonated beverages and do not use straw when drink. Heartburn is a frequent symptom after sleeve gastrectomy (which is performed as part of the duodenal switch procedure) (about 20% of patients) and usually improves with weight loss and time.
- **Blockage of the stomach opening:** Temporary blockage may occur if a large piece of food is swallowed without chewing completely. It is important to rest your stomach when this happens. Stop eating solid food. Next, go to a liquid diet only. Sometimes, you must stay on liquids for several days.

Ten Tricks for Sticking with the Program

1. Look at exercise like a prescription medication - You do not have to like exercise, but you need to do it in order to stay healthy, and also have to do it in order to lose weight. If you have a condition that requires a medication every day, you are going to take this medicine every day. Your body needs exercise every day, so you have to give it what it needs.

2. Do research - Find out what types of classes your local gym is offering. Does your hospital offer water exercises classes for people with arthritis? Is there a gentle yoga class offered at the community center? You are going to have a greater likelihood to stick to an exercise that is tailored to your needs and that you enjoy. Explore new types of exercise.

3. Change your routine - So you love to walk, but you are bored with it. Sometimes, just changing the direction of your route can make all the difference. Find new places to go walking, change the time of day, or offer to walk your neighbor’s dog.

4. Find a buddy - We all need someone to budge us and make us go the extra mile, especially when it comes to exercise. Find a friend, a neighbor and personal trainer to meet you at the gym or in the park.

5. Find your rhythm - Listen to music or books on tape or meditation while you exercise. 15 minutes on the bike can seem like an eternity without music, but with the right music to occupy your brain, it will not seem so long.

6. Participate in group sports - Participating in a group activity increases the chances that you will stick to it. Choose places and times where there are other people who are actively involved in exercise.

7. Know what makes you give up the program - If going on vacation throws you off you fitness plan, try incorporating exercise into your vacation.

8. Make a schedule - If you don't put exercise into your daily schedule, most likely you will do everything but exercise. Plan in babysitters. Schedule specific activities on specific days, like walk 20 minutes on Mon, yoga class on Tues, etc…

9. Use a workout log - Write down the exercise you do and see how you have improved. Just like weight loss, sometimes one does not see the scale drop, but the inches seem to melt away. It is difficult to keep up with exercise when you do not see the results. Write down the number of repetitions, the weight used, the length of walk, the time, etc. Use the workout log in the appendix as a guide.

10. Stay active between workouts - Walk as much as possible between workouts. Get off the bus a couple of stops early. Always keep a good pair of walking shoes in your car, should you have unexpected time to take a walk.

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