Jesse Brown VAMC
Bariatric Surgical Program
Patient Education Packet

Introduction:

Welcome to the Jesse Brown VA Medical Center Bariatric Surgical Program. The goal of our program is to provide veterans with safe, effective surgical weight loss while improving co-morbid conditions associated with obesity.

The bariatric patient needs to be well-informed, motivated, willing to participate in long-term follow-up care, permanently change dietary patterns and embrace a revised lifestyle.

It must be understood that surgery is not the magic cure. It provides a tool to help limit the amount of food eaten and to change how food calories are absorbed. You must learn to consistently make appropriate food choices and alter poor behaviors for you to have a successful and healthy outcome for life. You must commit to adopting a new lifestyle, not just following a diet. A lifestyle indicates a natural and automatic system of making good food and activity choices.

The Bariatric Packet outlines the requirements expected of each patient. This packet also provides you with education of the procedures performed and post-operative care after bariatric surgery. There are exercises throughout the packet that are recommended to be practiced to help reinforce the information.

Program Requirements and Patient Selection:

1. Weight/BMI (Body Mass Index) Criteria
   BMI $\geq$ 40 but < 60; or
   BMI 35 to 39.9 with an obesity related co-morbidity
   (Diabetes Mellitus – type 2, Hypertension or High Blood Pressure, Sleep Apnea, Coronary artery disease, Hyperlipidemia or High Cholesterol, Osteoarthritis)

2. Medical Weight Management (minimum 12 weeks) - you must complete and demonstrate compliance in the MOVE program. The MOVE program provides a multi-disciplinary approach to weight management focusing on healthy life-style changes through diet, physical activity and behavior change. The MOVE program consists of 8 weekly sessions at the Jesse Brown VAMC or your local VAMC. You then graduate to monthly support group sessions.
   - You must attend regularly
   - You must participate in assignments

   What does compliance mean? Accepting personal responsibility for lifestyle changes and maintaining those changes. How will this be measured?
   - Demonstration of reasonable weight loss of 0.5 – 1 pound per week throughout MOVE program towards preparation for surgery.
   - Maintenance of weight loss and avoidance of weight re-gain while preparing for surgery.
   - For those who have inability to lose weight, the bariatric team will consider candidates who maintain their weight by maintaining healthy lifestyle habits.

3. Bariatric Psychological Consultation - The evaluation will identify whether there is evidence of any barriers that may interfere with your safety and with adjustment to the surgical procedure.
   - Based on identification of risk factors, recommendations will be made to you and the Bariatric Team that are aimed at facilitating the best possible outcomes. This may include counseling.

4. Dietitian Evaluation and Education – The purpose is to evaluate your weight loss history and eating behavior. The bariatric dietitian specialist will teach the principles of nutrition after bariatric surgery. During this nutrition counseling session, you will learn about the post-op dietary progression, protein and fluid requirements, and lifelong vitamin and mineral supplementation.

- The specialist then makes recommendations regarding how you can change your eating behavior and food selection practices to adjust to the post-op diet.

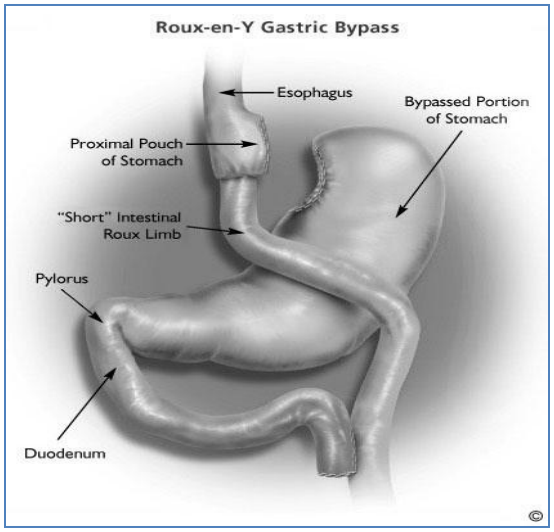
5. Medical Tests/Consultations – based on medical history some of the following tests may be required.
    - Sleep Study
    - Pulmonary Function Test
    - Cardiac Stress Test
    - Laboratory blood tests

Non-Candidates:

- Age > 65
- Current tobacco smokers or chew users
- Oxygen Dependent COPD or other lung disease
- Patients with Cirrhosis or active Hepatitis B
- Patient with significant heart failure or pulmonary hypertension
- Patients with major psychoses or issues with non-compliance with medications and treatment plans.
- Patients who were active substance abusers within a period of 1 year prior to referral.

Anticipated Costs:

You will be responsible for copays for inpatient and outpatient services. To determine your level of copays for services, please visit the Blue Desk in the admitting department.



What is Gastric Bypass with roux-en-y:

This is a combined procedure allowing for restriction and mal-absorption for optimal weight loss. Restriction is created by dividing the stomach, thus making the new "pouch" about the size of a golf ball (15-30 cc in size). Mal-absorption occurs by dividing the jejunum and reconnecting to the pouch. Food is no longer digested in the large portion of stomach and is not absorbed in the duodenum. This severely reduces the amount of caloric intake.

Physiology of the gastric bypass

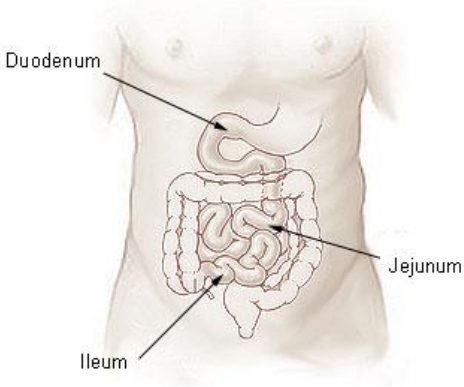
The gastric bypass reduces the size of the stomach by well over 90%. A normal stomach can stretch, sometimes to the size of a deflated football. The Gastric Bypass pouch is usually formed from the part of the stomach which is least susceptible to stretching. This will prevent any significant long-term change in pouch volume. What can change, over time, is the size of the connection (anastomosis) between stomach and bowel, and the ability of the small bowel to hold a greater volume of food. Therefore, it is essential that you continue to follow the new eating style to maintain your lower body weight over time.

When you ingest just a small amount of food, the first response is a stretching of the wall of the stomach pouch, stimulating nerves which tell the brain that the stomach is full. You feel a

sensation of fullness, as if they had just eaten a large meal — but with just a thumbful of food. Most people do not stop eating simply in response to a feeling of fullness, but you will rapidly learn that subsequent bites must be eaten very slowly and carefully, to avoid increasing discomfort, or even vomiting.

It is important that you eat only at mealtimes, 3 small meals daily, and avoid snacks and grazing between meals, which can effectively "bypass the bypass". This requires a change in eating behavior, and alteration of long-acquired habits for finding food. In almost every case where weight gain occurs late after surgery, capacity for a meal has not greatly increased. The cause of regaining weight is eating between meals, usually high-caloric snack foods. There is no known operation which can completely counteract the adverse effects of destructive eating behavior.

The Duodenum and Malabsorption



The small intestine is the part of the gastrointestinal tract (gut) between the stomach and the large intestine and comprises the duodenum, jejunum, and ileum. It is where the vast majority of digestion takes place. Nutrients diffuse through the villi, projections sticking out of the walls of the small intestine, into the blood.

- Duodenum 26 cm (9.84 in) in length
- Jejunum 2.5 m (8.2 ft) in length
- Ileum 3.5 m (11.5 ft) in length

The majority of the nutrients from the food you have eaten are absorbed in the jejunum. However, the duodenum is known to absorb most of the iron and calcium you ingest. After a gastric bypass, food no longer passes through the duodenum (malabsorption); therefore,

you will no longer absorb adequate levels of iron and calcium. To prevent vitamin and mineral deficiencies, gastric bypass patients are required to take supplements for life. The specific types of vitamins and minerals will be discussed further on in the packet.

How is Surgery Performed?

Open Technique: A single cut about 4-6 inches is made to provide access to the abdomen.

Anesthesia: General anesthesia will be required to perform surgery. This is a treatment that puts you to sleep so you don't feel or remember anything that happens. General anesthesia is commonly produced by intravenous drugs or inhaled gasses.

Length of Surgery: Typically surgery is about 3 hours long but varies case by case.

Length of Stay in Hospital: Typically patients stay 3 overnights but this is reviewed on a case-by-case basis. Patients traveling from a greater distance will generally stay longer to assure no immediate complications before returning home.

Advantages of Gastric Bypass Surgery

- Weight loss of 60-77% of excess body weight during the first 12-18 months after surgery. Research studies have shown after 10-14 years, 60% of excess body weight loss has been maintained.
- Most Type 2 Diabetes will be cured
- 70-80% of patients will be off or have reduced high blood pressure and cholesterol medications.
- There will be major improvements in a whole range of weight associated conditions. These include: sleep apnea, asthma, joint pain, arthritis, reflux, fatigue and shortness of breath.
- Reports of less depression, improved self-esteem and confidence and an overall increase in sense of well-being.

Risks of Gastric Bypass Surgery:

With any surgery there is a risk of mortality (death) and morbidity (complications). Nationally, there is a 0.5% mortality or death rate for obesity surgery. This means that for every 200 patients operated on, one dies. Death is not usually due to the operation per se, but as a result of chronic lung or heart problems. The complication rate for this surgery nationally is about 10%. This means that one in ten patients will experience a complication related to the surgery.

Operative/Hospital Complications:

- Bleeding
- Blood Clot
- Leak at the anastomosis (connections)
- Anastomotic stenosis or intestinal obstruction
- Infection to incision or other areas
- Respiratory problems due to anesthesia

Reduction in operative risks of surgery is managed by close patient monitoring. In addition:

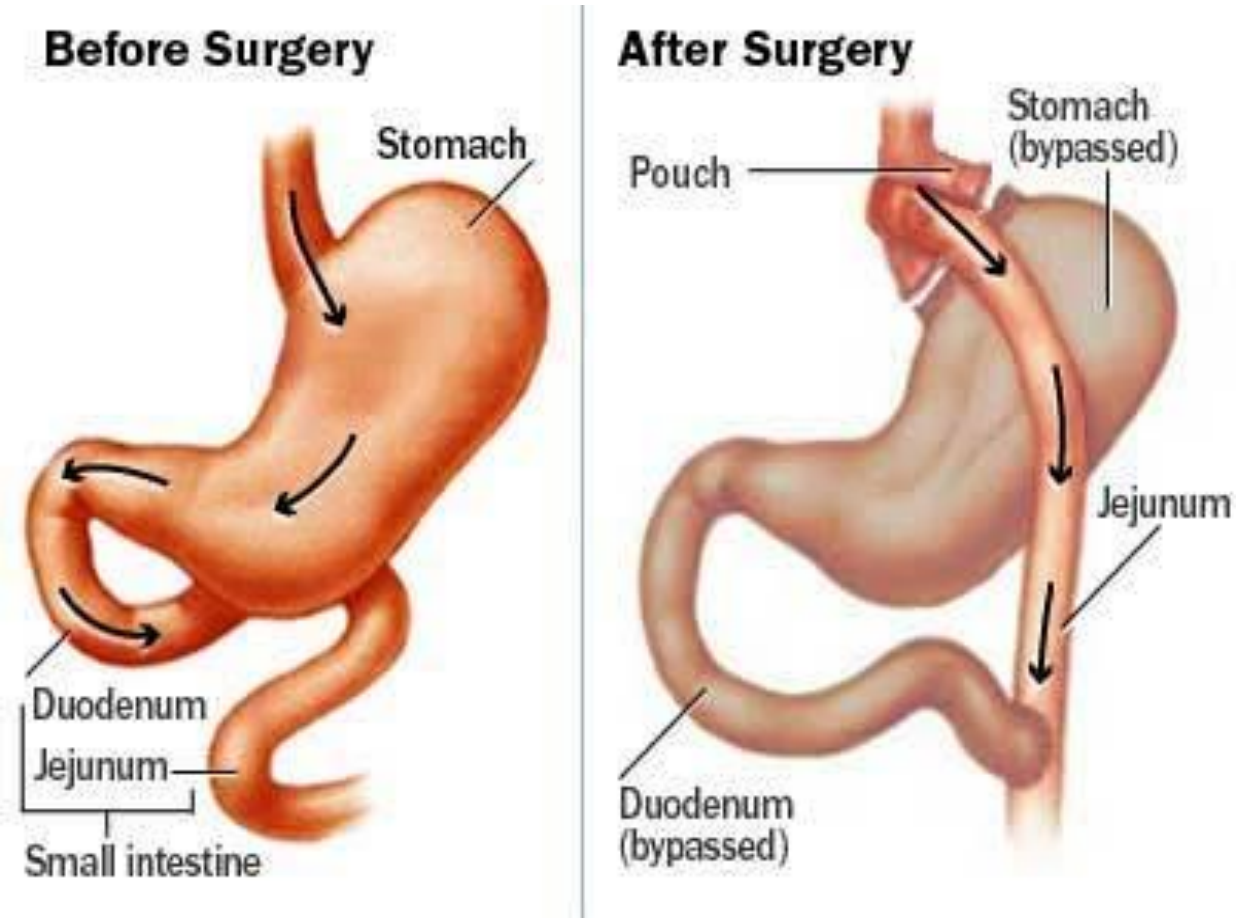
- Blood thinners are administered to prevent blood clots.
- Compression devices will be worn around the calves to help circulate the blood.
- You will be expected to get out of bed and begin walking soon after surgery.
- Nebulizers along with deep breathing and coughing will be encouraged to keep lungs open.
- To prevent incision infection, antibiotics are infused intravenously before incision made and also post-operatively.

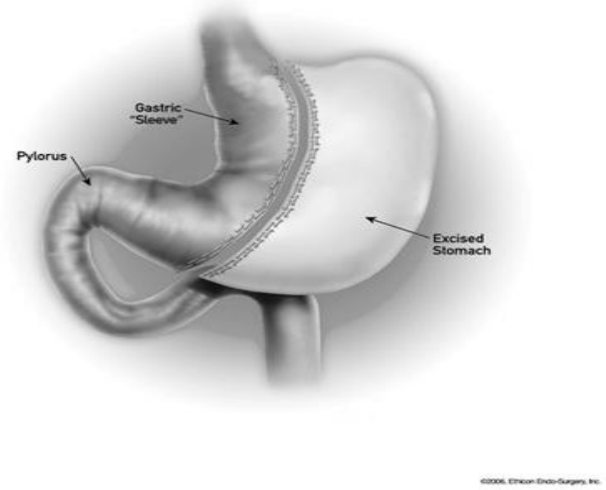
Long Term Complications:

- Ulcers along the staple line
- Decreased absorption of iron, calcium and vitamin B12
- Incisional hernia
- Dumping Syndrome
- Non-compliance with diet and exercise

Prevention of long term complications is accomplished by:

- patient education
- following prescribed diet
- taking prescribed vitamins and minerals
- long term follow-up of patient





What is the Vertical Sleeve Gastrectomy?

This procedure produces weight loss by creating restriction and limiting the amount of food you can eat. The stomach is divided vertically, and then about 85% of the stomach is removed.

How the Vertical Sleeve Gastrectomy Works:

First, the vertical sleeve gastrectomy reduces the size of the stomach about 85%. A normal stomach can stretch, sometimes to the size of a deflated football. After the sleeve gastrectomy procedure, your stomach that remains is shaped like a very slim banana and holds about 1 to 5 ounces (30-150cc) of food, depending on the surgeon performing the procedure.

Next, the stomach is responsible for producing a hormone called “Ghrelin”. This hormone is associated with appetite and hunger leading to increased food intake. By removing a significant portion of the stomach, the level of ghrelin is decreased, which causes loss of or a reduction in appetite.

How is Surgery Performed?

Laparoscopic Technique: Several small incisions are made to allow long-thin instruments through.

Anesthesia: General anesthesia will be required to perform surgery. This is a treatment that puts you to sleep so you don't feel or remember anything that happens. General anesthesia is commonly produced by intravenous drugs or inhaled gasses.

Length of Surgery: Typically surgery lasts about 1 ½ - 2 hour but varies case by case.

Length of Hospital Stay: Typically 2 overnights is the average but reviewed each day on a case-by-case basis. Patients traveling a great distance will probably have longer stay to ensure no immediate complications before being sent home.

Risks of Sleeve Gastrectomy:

With any surgery there is a risk of mortality (death) and morbidity (complications). Nationally, there is a 0.1% mortality or death rate for this surgery. This means that for every 1000 patients operated on, one dies. Death is not usually due to the operation per se, but as a result of chronic lung or heart problems. The complication rate for this surgery nationally is about 1-2%. This means that one in 50 to 100 patients will experience a complication related to the surgery. This can be a hospital/surgical complication or a long-term complication.

Surgical Risks:

Operative/Hospital Complications

- Bleeding
- Blood Clot
- Leak at the staple line- This rate varies by surgical group.
- Infection to incision or other areas
- Respiratory problems due to anesthesia.

Long-term Chronic Risks/Complications:

- Strictures – a narrowing of the passageway caused by scar tissue.
- GERD (Gastro-esophageal Reflux Disease) - due to high pressure in the stomach, contents may back up into esophagus.
- Weight re-gain

Advantages of Vertical Sleeve Gastrectomy:

- Estimated weight loss of 30-50% of your Excess Body Weight
- Improvement of obesity related conditions such as: Diabetes Mellitus, Obstructed Sleep Apnea, Hypertension, and joint pain.
- Reduces stomach capacity but tends to allow the stomach to function normally so most food items can be consumed.
- Dumping Syndrome is avoided or minimized as the pyloric valve is preserved.
- Risk of ulcers is significantly reduced.
- By eliminating the intestinal bypass, reduces chance of developing intestinal blockage, vitamin and mineral deficiencies and protein deficiencies.

Disadvantages of Vertical Sleeve Gastrectomy

- Part of the procedure is not reversible.
- No long term results to report. Do not know if the procedure will have lasting results.
- Weight failure can occur with frequent snacking, intake of high caloric foods, and/or lack of exercise/activity.

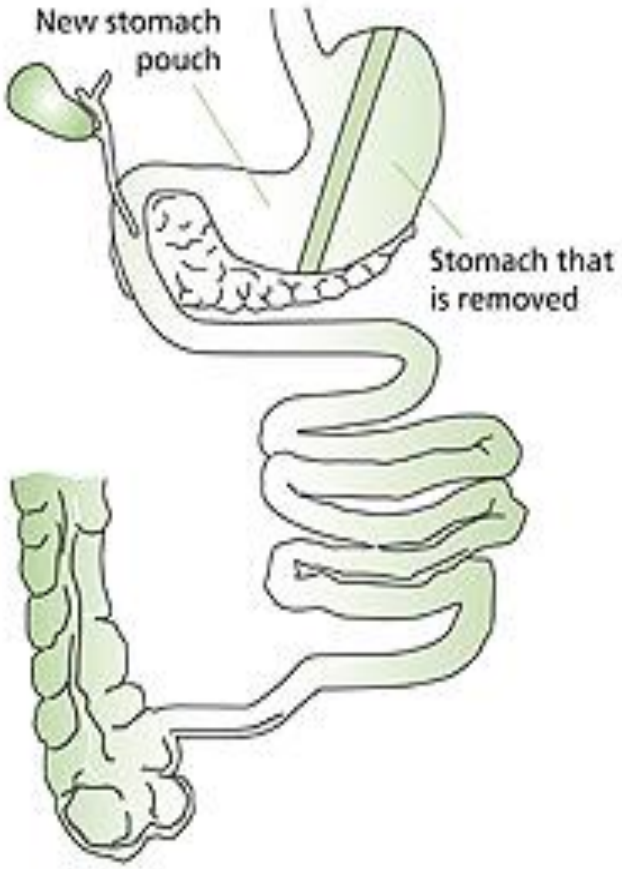
Reduction in operative risks of surgery is managed by close patient monitoring. In addition:

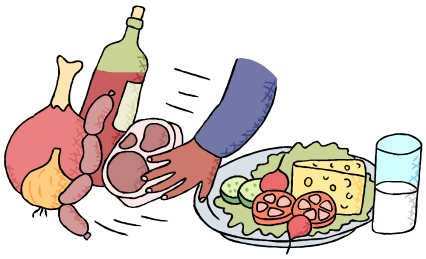
- Blood thinners are administered to prevent blood clots.
- Compression devices will be worn around the calves to help circulate the blood.
- You will be expected to get out of bed and begin walking soon after surgery.
- Nebulizers along with deep breathing and coughing will be encouraged to keep lungs open.

- To prevent incision infection, antibiotics are infused intravenously before incision made and also post-operatively.

Prevention of long term complications is accomplished by:

- Patient education
- Follow the prescribed diet – learning to eat slowly, not to overeat and to select healthy foods.
- Taking prescribed vitamins and minerals
- Long term follow-up with healthcare providers





Bariatric Surgery Diet and Dietary Education

You will be receiving an individual consultation with the dietitian. The dietitian will provide you specific handouts on the diet progression and sample meal plans for after your weight loss surgery. This section is to educate you on the “rules” of eating after any weight loss surgery and to provide further information why taking vitamin and mineral supplements everyday for life is essential.

Bariatric Surgery Eating Rules – the way you eat will need to change after bariatric surgery. By now, your eating style has become a habit. Do you eat in front of the TV? Are you rushing and eating too fast? Do you skip meals and become overly hungry? Please review the following eating recommendations and refer to Exercise I. This exercise asks you to begin practicing these new styles of eating. Constant repetition will help you develop new habits.

1. Eat slowly, small bites and chew food thoroughly – eating too fast may cause nausea from stretching the pouch and food entering the small intestine too quickly after gastric bypass. Food must be chewed extremely well to avoid blockage of the new opening to intestine. After a sleeve gastrectomy, chewing well and slowly prevents blockages and prevents overeating which will cause reflux and vomiting.

2. Eat proteins first, and then vegetable, then fruit or grains last – Without protein our body cannot function properly. Our body nerves, tissues, bones all are made up of proteins. So proteins become very necessary for them to grow and repair. It also used to produce some hormones, antibodies and enzymes in our body. After surgery, your pouch will hold only small amounts of food making it difficult to obtain enough daily protein. During the early times, you may need to supplement your diet with protein supplements. It is also recommended you eat your protein first and include protein in every meal.

3. Avoid sugar, high carbohydrate and fatty foods – to avoid experiencing dumping syndrome (associated with Gastric Bypass) it is recommended to consume foods with less than 15 grams of sugar and low in fat. Dumping syndrome occurs when a concentrated food quickly enters the intestine. It will draw water into the intestine. The experience will cause light-headedness, sweatiness, and diarrhea. Avoidance of these will prevent intake of too many calories leading to weight re-gain.

4. Do not drink liquids with meals – Drinking liquids at mealtime may leave you feeling full and prevent you from eating enough nutrient-rich foods. Also, drinking with meals may lead to dumping syndrome or nausea as the liquid will allow food to empty into the intestine too quickly. You must consume 48-64 oz of fluid per day. You must drink between meals by sipping slowly every few minutes.

5. No carbonated beverages – The gas from carbonated beverages expands leading to nausea and pain. Also, carbonation is irritating to the stomach wall and depletes the body of minerals (magnesium and calcium). Drink water, crystal lite, iced tea, diluted Gatorade.

6. Avoid coffee (decaf or regular) – all types of coffee stimulate acid production in the stomach which can increase your risk of stomach ulcers.

7. Stop when full – after surgery your stomach holds about 1 ounce of food at a time. Over time, it will tolerate about ½ to 1 cup of food per meal. Eating slowly will help your brain receive the message you are full. If you continue to eat, you will feel nauseated, suffer abdominal pains and cramps and perhaps vomit or suffer reflux.

All about Protein

- Next to water, protein is the most abundant substance in the human body. The word "protein" is derived from the Greek word meaning "of first importance." This is literally true for the bariatric surgery patient. Protein is undeniably the most important nutrient in the bariatric diet.

  Weight loss surgery causes severe trauma to the body. After bariatric surgery or gastric bypass surgery, you must take in sufficient protein every day to speed wound healing, preserve your lean body mass, enhance your fat-burning metabolism and minimize hair loss. Foods that are high in protein should always be eaten first during meals. The recommended long term post-surgery protein intake may vary from 55 to over 100 grams per day, depending on your individual needs and the bariatric diet provided by your surgeon or dietitian.

  It's very difficult to consume enough protein from foods alone during the first several months after weight loss surgery. Most bariatric surgery patients integrate liquid protein supplements such as shakes, cold drinks, hot drinks, soups and puddings into their diet after surgery and many continue to use them as a balanced, convenient source of protein and nutrition for the rest of their lives.

  Protein provides many important benefits:
  - Protein aids in proper wound healing after bariatric surgery.
  - Protein helps keep your hair, skin, bones and nails healthy.
  - Protein helps form hormones, enzymes and immune system antibodies to help your body function properly.
  - Protein helps your body burn fat instead of muscle for a healthier weight loss.
  - Protein curb's your hunger between meals.

  A good source of complete protein is animal protein which includes meat, fish, eggs and dairy products. Vegetable or plant protein is incomplete protein. Exercise 2: Located in the back of the packet is exercise #2. You will track the grams of protein contained in your food for the day. A large protein chart is provided to help you calculate the grams.

Management at Home

Management of Medications at home: Do not decide to discontinue medication on your own. Please discuss with your health care provider.

Diabetes: Weight loss surgery has shown to dramatically improve diabetes.

- You will receive specific instructions upon discharge of any discontinuation of medication; or any new dosages of diabetic medication.
- You must continue to check your blood sugar 4 times per day at home and record the results on paper for your health care provider to review.
- You will continue to work with your medical provider at adjusting diabetic medication as the blood sugar normalizes.
- Your medical provider should still continue to check blood sugar levels periodically to assess for recurrence of diabetes.

Hypertension: Hypertension typically will improve over the next 2 years following weight loss surgery.

- Diuretics or water pills (for example: lasix or hydrochlorothiazide) should be discontinued immediately following surgery as you will be prone to dehydration and electrolyte imbalance. Sometimes these are added back.
- Many anti-hypertensive medications need dosages reduced to prevent hypotension or low blood pressure. Symptoms of low blood pressure are lightheadedness upon standing, fatigue.
- If you have a BP cuff at home, measure your blood pressure daily and record result for medical provider to review.

Cholesterol/Triglyceride Medications: many patients will experience a gradual improvement in total cholesterol, triglycerides and HDL (good cholesterol).

- Often patient's cholesterol medication dose is lowered. If patient has a history of coronary artery disease, most medical practitioners continue a low dosage of the medication.

Sleep Apnea: Over 80% of patients will experience resolution or improvement in sleep apnea following weight loss.

- At this time there are no standing recommendations for discontinuation of CPAP. However, providers recommend sleep study after 30% loss of excess body weight.

Depression/Anxiety: Do not stop medications for depression or anxiety. Some anti-depressant medications are "long-acting". This means they are slowly absorbed throughout the intestinal tract. After gastric bypass surgery, this type of medication may not be fully absorbed. If you feel a worsening in depressive symptoms, please contact your Mental Health Provider. With weight loss over time, dosages may need adjustment.

Aspirin and Non-steroidal Anti-inflammatories (NSAIDS) – These types of medications increase the risk of stomach ulcers. They are <u>not recommended</u> to be used. **Tylenol or Acetaminophen** may be used for headaches and muscle pains. Many patients with diabetes and heart disease are recommended to be on aspirin daily. If your provider recommends continuation of aspirin, great care should be used. Instructions: take only with food, never take on empty stomach. Use a coated aspirin or a chewable tablet.

Activity Levels:

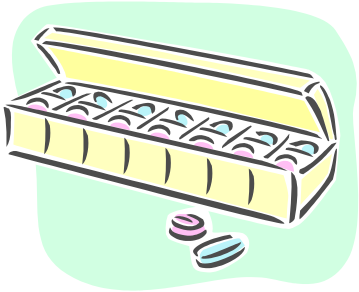
Besides eating healthy, maintaining physical activity will assist with your weight loss, and furthermore, help you keep the weight off over time. During your participation in the MOVE program, you will need to identify types of activity you enjoy and begin to coordinate activity into your schedule. Please see Exercise # 3 located in your packet and complete. If you have a medical problem that has prevented you from activity, please discuss with the MOVE Coordinator or Bariatric Nurse Practitioner.

After surgery:

- You will be encouraged to begin a walking program upon discharge for the first week and adding more activity as you tolerate.
- After 4-6 weeks after surgery, you may begin more vigorous activity.
- The goal is 30-40 minutes of activity per day, 4 times per week.

Follow up Care:

- Post-operative appointments are generally at 2 weeks, 6 weeks, 3 months, 6 months, and 1 year following surgery. Patients traveling a considerable distance will return to their PCP for any/all follow-up care. The dietitian should be seen to ensure proper intake and good nutrition. Mental Health involvement should continue after surgery and MOVE or Bariatric Support Group.
- After the first year after surgery, you should follow-up every 6 and 12 months with providers. Blood work should be drawn at each visit to monitor for complications and nutritional deficiencies.



Vitamins and Minerals

Vitamins and minerals are nutrients essential for the body's metabolic processes. Information is provided on each vitamin and mineral that must be supplemented after gastric bypass surgery. It cannot be stressed enough that vitamins and supplements must be taken for life to maintain good health.

Chewable vitamins and minerals are recommended after gastric bypass. Often tablets are quite large and may block the connection between stomach and intestine. Remember to read labels as dosages vary per product line.

Supplement	Dosages	Comments
Multivitamin	2 chewable tablets per day.	You can take 1 tablet in morning and 1 tablet in evening.
Calcium Citrate with Vitamin D	400 mg with 100 IU - Take 3 tablets per day	Do not take with iron. Wait 1-2 hours of taking medications as blocks absorption.
Iron	29 mg daily.	Do not take with vitamin or calcium tablets.
Vitamin B12	1000 mcg daily	Do not take on empty stomach.

It is recommended to begin a multivitamin while planning surgery. Research has shown that many bariatric patients are vitamin deficient prior to having surgery.

Frequently Asked Questions:

How long will I be in the hospital? The length of stay is 3-5 overnights. Patients are evaluated on a daily basis to determine ability to safely return home.

How long will I be off work? Depending on type of work performed. If you have a desk job, patients return to work in 2-3 weeks. If your job is more labor intensive 4-6 weeks off work may be required.

How much protein should I be eating? To determine your range of protein intake per day follow the formula: (your weight in pounds) x (0.36 to 0.6) = # gram/day.

What is the best protein supplement? I do not recommend one type of protein supplement over another. All are difficult to drink due to taste. You will need to use a protein drink to supplement your protein intake as it is impossible to consume enough protein during early post-operative recovery.

Do you have to lose a required amount of weight in order to qualify for surgery? No, however, if you are making small changes to your diet and adding more activity, you should expect some weight loss instead of weight gain.

Do I have to lose weight prior to surgery? Any weight loss before surgery will reduce your risks of complications during surgery. We would like your BMI to be 55 or less for surgery.

Why am I nauseous? 99% of the time, nausea is due to poor eating style. Ask yourself the following questions - Did you chew your food well enough? Are you eating foods considered hard to digest? Are you eating too fast? Did I eat too much? Are you drinking liquids with meals?

How can I avoid getting an ulcer? Avoid caffeine, carbonated beverages. Avoid aspirin or aspirin containing products. Avoid NSAIDS (Ibuprophen, Advil, Aleve, Motrin, Naprosyn, Daypro, Soma)

Who should be contacted for questions or concerns? The bariatric nurse practitioner is available for questions and concerns and can be contacted at 312-569-8373.

Recommended Bariatric Surgery Web Sites:

In order to learn more about weight loss surgery these are highly reputable internet sites.

http://www.obesityhelp.com

http://www.bariatriceating.com

http://www.bsciresourcecenter.com

http://bariatricadvantage.com

All about Calcium and Vitamin D

Why is it important to supplement Calcium?

- Most calcium is absorbed in the duodenum (1st portion of small intestine) which has been "bypassed". Therefore, you need to ensure you eat calcium-rich foods and take calcium supplementation.

Why is calcium important?

- Calcium is needed for transmitting nerve signals and water balance.
- Calcium helps blood to clot and helps muscles function.
- Calcium will aid in the prevention of osteoporosis.

What is the recommended daily intake of calcium?

- Women and Men (ages 19-51) require 1000 mg a day
- 1200-1500 mg a day for people over age 51.

What happens if I don't consume enough calcium?

- The body begins to breakdown bone to obtain additional calcium. This leads to osteopenia and eventually osteoporosis (a weakening of the bone).

Are there signs or symptoms of low calcium?

- Usually there are no symptoms of low calcium.

Recommendations for Calcium Replacement –

- Chewable calcium will more rapidly dissolve and absorb into the body than hard pills.
- Calcium should be taken twice a day, 500 - 600 mg each. The body cannot absorb more than 500 - 600 mg at a time.
- Calcium supplements are calcium citrate, calcium carbonate, and calcium lactate. **Calcium citrate is the recommended form** since it does not require stomach acid for absorption.

Calcium Containing Foods (see food list on last page):

- Dairy products
- Sardines
- Salmon (canned or fresh)
- Green-leafy vegetables
- Tofu

Do I need Vitamin D and How much?

- Vitamin D is needed in the intestines to help absorb dietary calcium.
- Recommendations for Vitamin D replacement are:
  - 200 IU daily for men/women 19-50 years old
  - 400 IU daily for men/women 51-70 years old
  - 600 IU daily for men/women 71 and older
- A multivitamin will not contain enough calcium or vitamin D alone.

Other Recommendations:

- Exercise regularly – exercise helps the body better absorb calcium into the body than sedentary individuals. Plus, it will help keep the weight off.
- Get lots of sunshine. Twenty minutes a day of direct or indirect sunlight will give the body plenty of natural vitamin D, which is necessary for calcium absorption.

Chart of Calcium-Rich Foods -

Milk Products	**Calcium** (MG)	**Vegetables / Fruit**	**Calcium** (MG)
Plain yogurt, 2%, 1 cup	415	Rhubarb, 1 cup	348
Nonfat dry milk, 1/4 cup	377	Collard/mustard greens, 1/2 cup	179
Skim milk, 1 cup	302	Kale, 1 cup	179
Buttermilk, 1 cup	285	White beans, 1 cup	170
Mozzarella cheese, part-skim, 1 oz	207	Beet greens, 1 cup	165
Ricotta cheese, part-skim, 1/4 cup	168	Broccoli, 1/2 cup	89
Cottage cheese, 2%, 1 cup	155	Okra, 1/2 cup	88
Pudding (with skim milk), 1/2 cup	150	Rutabagas, 1 cup	72

Parmesan cheese, 1 tbsp	69	Green beans, 1 cup	58
		Lima beans, 1 cup	55
Bean/Grain Products		Orange, 1 medium	52
Waffle/pancake (milk, egg added)	179	Cabbage, 1 cup	50
Tofu, 3 oz	150		
English muffin	96	**Seafood**	
Soybeans, 1/2 cup cooked	88	Salmon, 3-4 oz	225
Corn muffin	66	Oyster, 3 1/2 oz	100
Pita bread, 1 pocket	49	Clams, 1/2 cup	74
Fortified whole wheat cereal	48	Shrimp, 3 1/2 oz	50
Corn tortilla, one 6 inch	42	Haddock, 3 1/2 oz	42
Whole wheat dinner roll	34		
Brown rice, 1 cup	33		

All about Iron

Why is it important to supplement iron?

- Most iron is absorbed in the duodenum (1st portion of small bowel) which has been "bypassed". Therefore, you need to ensure you eat iron – rich foods, take vitamins with iron, and women often need an additional iron supplement.

Why is iron important?

- Iron is needed to make up Red Blood Cells (RBC's). It helps to bind Oxygen to transport throughout the body.

What is the recommended daily intake of iron?

- Women (ages 19-51) require 18mg iron daily
- Men require 8mg iron daily

How often should iron levels be checked?

- Once or twice a year is sufficient.

Does a low iron level mean I am anemic?

- Not necessarily. Anemia is a shortage of
  - RBCs and/or
  - The amount of hemoglobin in them.
- If the RBC or hemoglobin level is low, along with a low iron count, you would be classified as having Iron Deficient Anemia (IDA). The body has a storage unit of Iron. The body will take iron from the storage unit to make new RBC's. This must be replaced; otherwise, the unit will become empty leading to anemia.

Are there signs or symptoms of Iron Deficient Anemia?

- Low level fatigue
- Loss of energy
- Hair loss

Recommendations for Iron Replacement –

- Never take Iron Supplement with Calcium or Vitamin. Calcium will block absorption of iron.
- Vitamin C will help iron absorption. Take 500 mg Vitamin C tablet with the vitamin pill.
- Iron may cause nausea, constipation, diarrhea and/or epigastric pain. Try taking with food or trying a gentler formula may improve.

Iron Containing Foods:

- Meat, fish, poultry, liver, organ meats
- Shellfish, especially oysters
- Dried beans and peas (lentils, chick peas, seasame, tahini)
- Dark-green leafy vegetables (spinach, broccoli)
- Dried fruit (figs, raisins, apricots, and dates)
- Nuts (cashews, pistachios, almonds)

Types of Iron Supplements –

- Ferrous Sulfate – cheapest form. May be difficult to tolerate
- Ferrous Gluconate – Slightly gentler on stomach. Inexpensive.
- Ferrous Fumarate – Slightly gentler than gluconate.
- Ferronyl® - Carbonyl Iron Powder. More gentle on stomach and better absorbed.

Forms of Iron Supplements –

- Tablet
- Chewable
- Liquid

All about Vitamin B-12 (Cyanocobalamin)

Why is it important to supplement Vitamin B-12?

- The stomach produces a protein called Intrinsic Factor that binds to vitamin B-12 to allow the body to absorb. After a Gastric Bypass, there are fewer cells that produce intrinsic factor.
- Secondly, after gastric bypass surgery, there is a reduction in hydrochloric acid. The acid is needed to cleave Vitamin B12 from protein, thereby reducing the amount of available vitamin B-12.

Why is Vitamin B-12 important?

- Your body needs Vitamin B-12 to make blood cells
- Nerve and brain cells require Vitamin B-12 to work well.

What is the recommended intake of Vitamin B-12 after Gastric Bypass?

- 1000 mcg or 0.1mg (1000 mcg) just once a week if no other medical conditions exist (Pernicious anemia, intestinal disorders). Sublingual (under the tongue) formula is most recommended.
- Patients may opt to receive a monthly B-12 injection from their primary care physician.

What happens if I don’t consume enough Vitamin B-12?

- Risk for several forms of anemia.
- Risk for nerve cell damage or nerve cell death

Are there signs or symptoms of B-12 deficiency?

- Usually this is asymptomatic.
- Neurological symptoms include numbness or tingling of extremities or ataxia (abnormal walking, falling)

Sources of Vitamin B-12: B-12 is naturally found in foods that come from animals and foods that are fortified (added to foods).

- Meat (especially liver and shellfish)
- Eggs
- Milk Products
- Fortified cereals

How can I tell if I am getting enough B-12?

- A simple blood test can measure your level of B-12. This should be measured every 6 months after gastric bypass surgery.

Other Vitamins and Supplements

All about Thiamine or B-1 –

Why is Thiamine important?

- It is essential for nerves to function and carbohydrate metabolism

What is the recommended intake of Thiamine a day?

- 1– 1.5 mg daily of Thiamine is recommended. This is usually contained within a daily multi-vitamin tablet.
- Patients experiencing frequent vomiting are recommended to take additional Thiamine to prevent deficiency.

What happens if I don't consume enough Thiamine?

- In less severe deficiency, symptoms include malaise, weight loss, irritability and confusion.
- Wernicke 's encephalopathy – a form of psychosis associated with persistent vomiting, confusion, inability to coordinate muscle movement (ataxia) and weakness of eye muscles (ophthalmoplegia). This occurrence is extremely rare.

Sources of Vitamin B-1:

- Yeast
- Oatmeal
- Brown rice
- Whole grain flour (rye or wheat)
- Asparagus
- Kale
- Cauliflower
- Potatoes
- Oranges
- Pork
- Cured ham
- Liver (beef or pork)
- Eggs

How can I tell if I am getting enough Thiamine (B-1)?

- Normally, Thiamine is not routinely measured. B-1 levels can be measured via a lab test if patient is experiencing symptoms of persistent vomiting, weakness, and confusion.

Biotin or Vitamin B-7:

- Biotin is essential to the metabolism of amino acids, carbohydrates and fats.
- Biotin also helps the health of hair and nails.
- Biotin has been used by gastric bypass patients to prevent or help hair loss.

Natural Sources of Biotin:

- swiss chard
- tomatoes
- romaine lettuce
- carrots
- almonds
- eggs
- onions
- cabbage
- cucumber
- cauliflower

What is the recommended intake of Biotin daily?

- An adequate amount of biotin is about 30 to 100 mcg daily. The U.S. RDA for biotin, the value used for nutritional supplement and food labeling purposes, is 300 micrograms/day. Doses of up to 2,500 mcg have been used safely to treat hair and nail problems.

What is a B-Complex Vitamin?

- A mixture of the eight essential water-soluble B vitamins that play important roles in cell metabolism. **Some gastric bypass patients take a B-complex vitamin to ensure they obtain enough of all B vitamins.**

- **Vitamin B_1** (thiamine)
- **Vitamin B_2** (riboflavin)
- **Vitamin B_3** (niacin)
- **Vitamin B_5** (pantothenic acid)
- **Vitamin B_6** (pyridoxine)
- **Vitamin B_7** (biotin), also known as vitamin H
- **Vitamin B_9** (folic acid), also, vitamin M
- **Vitamin B_{12}** (cyanocobalamin)

Exercise I: Eating like a Gastric Bypass Patient

Purpose: To begin developing the ability to eat slowly, chew your food well and not drink fluids with your meals.

Activity: this exercise is to be performed during mealtimes. Read through the following steps. Plan one day to eat all your meals as recommended on the following list.

1. All meals will be eaten at the dining table, or any designated area, while sitting down.
2. Avoid distractions. No television, reading or talking on phone while eating meals.
3. Do not serve a drink with your meals. Experience eating your meal without a beverage.
4. Practice taking a small bite. Chew the food 20-30 times. Put your utensils down while chewing. Concentrate on the taste of the food. Then swallow.
5. Try to take 1 minute before you take another bite of food.
6. Do not drink any water or beverages for 30 minutes after your meal is completed.

After each meal – analyze how you did. Did you find this assignment difficult? Did you feel full sooner than normal? Did you miss having a drink with your meal?_____

_____
_____
_____
_____
_____
_____
_____
_____
_____.

Exercise II: Protein Selection and Tracking

Purpose: To learn the amount daily protein you should ingest each day and to begin to develop an awareness of the protein content contained in the foods you eat.

Activity:

1. Calculate the range for your daily protein requirement. With a calculator multiply your weight (pounds) times 0.36; then multiply your weight (pounds) times .06.

   (weight in #) x 0.36 = _____ gm protein/day (low range)
   (weight in #) x 0.60 = _____ gm protein/day (high range)

2. Record your food intake for the entire day using the log sheet provided. A protein chart is provided in the packet to help you determine the quantity of protein contained in the foods you eat. Calculate the total number of grams of protein ingested for the day.

Did you consume enough protein? _____, if no, what could you do differently to improve your protein intake? _____
_____.

Did you consume over your recommended protein range? _____, if yes, evaluate if portions too large or perhaps meals are not well-balanced with vegetables, fruits and grains.

Protein Tracking Sheet

Name	
Date	

	MEAL	PORTION	PROTEIN		
BREAKFAST					
SNACK					
LUNCH					
SNACK					
DINNER					
TOTAL					

Exercise III: Fluid Intake

Purpose: To begin practicing consuming 48-64 ounces of fluid each day to avoid dehydration and to help eliminate waste products from the body.

Activity: this exercise is to be performed during the whole day. Read through the following steps. Plan to record your fluid intake throughout the day and evaluate how you did.

7. Begin to plan types of fluids you will drink. Remember no carbonated or caffeinated fluids are recommended.
8. Avoid high sugar drinks. Read labels to check sugar content.
9. Do not consume fluids during meals.
10. Remember 1 cup = 8 ounces. Many drink containers hold much more than 8 ounces.
11. Practice sipping fluids slowly, about 1 ounce of fluid at a time. This about all the fluid your pouch can hold after gastric bypass surgery.
12. Keep a water bottle/container with you at all times to practice sipping fluid throughout the day and evening.

After the day – analyze how you did. Did you find this assignment difficult? Were you able to drink the recommended amount of fluid?
Were you able to not drink carbonated beverages?

_____

_____
_____
_____
_____
_____
_____
_____
_____
_____.

Protein Chart:

Examples of Protein Grams in Food

EGG	6 grams per EACH
LEAN MEAT, FISH, POULTRY	25-30 grams per 3 1/2 OZ.
TOFU	20 grams per CUP- 8OZ.
TEMPEH	30 grams per CUP-8OZ.
MILK	8-9 grams per CUP-8OZ.
YOGURT	8-10 grams per CUP-8OZ.
CREAM CHEESE	2 grams per OZ.
CHEDDAR/JACK	7 grams per OZ.
PARMESAN	10 grams per OZ.
COTTAGE CHEESE	28 grams per CUP
NUTS AND SEEDS	2-3 grams per TABLESPOON
RICE, COOKED	5 grams per CUP
CORN MEAL, COOKED	2 grams per CUP
BULGAR, COOKED	8 grams per CUP
OATMEAL, COOKED	5 grams per CUP
WHEAT GERM, TOASTED	8 grams per 1/4 CUP
BREAD	2-11 grams per SLICE CHECK THE LABEL
ADZUKI BEANS, COOKED	17 grams per CUP
KIDNEY BEANS, COOKED	15 grams per CUP
POTATO, BAKED WITH SKIN, MEDIUM	5 grams
NUTRITIONAL YEAST, FLAKES	4 grams per heaping TABLESPOON.
MOST FRUITS	1 gram per FRUIT
VEGETABLES	1-3 grams per 1/2 CUP

Protein ChartNuts and Seeds (shelled)

Nut/Seed (1/4 cup)	Protein Grams
Almond	7
Brazil nut	5
Cashew	4
Chestnut	1
Coconut (shredded)	2
Filbert/Hazelnut	5
Flax seed	5
Macadamia	2
Peanut	8
Pecan	2
Pine nut	4
Pistachio	6
Pumpkin seed	7
Sesame seed	7
Soynut	10
Sunflower seed	8
Walnut	5

Protein in Beans (cooked)

Bean 1 cup	**Protein Grams**
Adzuki (Aduki)	17
Anasazi	15
Black Beans	15
Black-eyed Peas	14
Cannellini (White Beans)	17
Cranberry Bean	17
Fava Beans	13
Garbanzos (Chick Peas)	15
Great Northern Beans	15
Green Peas, whole	9
Kidney Beans	15
Lentils	18
Lima Beans	15
Mung Beans	14
Navy Beans	16
Pink Beans	15
Pinto Beans	14
Soybeans	29
Split Peas	16

Protein in Grains (cooked)

Grain 1 cup	Protein Grams
Amaranth	7
Barley, pearled	4 to 5
Barley, flakes	4
Buckwheat groats	5 to 6
Cornmeal (fine grind)	3
Cornmeal (polenta, coarse)	3
Millet, hulled	8.4
Oat Groats	6
Oat, bran	7
Quinoa	5
Rice, brown	3 to 5
Rice, white	4
Rice, wild	7
Rye, berries	7
Rye, flakes	6
Spelt, berries	5
Teff	6
Triticale	25
Wheat, whole berries	6 to 9
Couscous, whole wheat	6
Wheat, bulgur	5 to 6

Protein in Meat, Chicken, Fish Substitutes*

Product	Serving Size	Protein Grams
Boca Burger Original Vegan	2.5 oz	13
GardenVegan Veggie Patties	2.5 oz	9
Health is Wealth Chicken-Free Patties	3 oz.	14
Health is Wealth Yummie Burger	2.5 oz.	12
Lightlife Gimme Lean	2oz.	8
Lightlife Smart Cutlets Seasoned Chicken	3 oz.	26
Lightlife Smart Deli Combos	2.7 oz.	17
Lightlife Smart Dogs	1.5 oz.	9
Mon Cuisine Breaded Chicken Patties	3 oz.	7
Morningstar Farms Original Grillers	2.3 oz	15
Nate's Meatless Meatballs (3)	1.5 oz	10
Natural Touch Vegan Burger	2.7 oz	11
Natural Touch Veggie Medley	2.3 oz	11
SoyBoy Vegan Okara Burger	3 oz.	13
SoyBoy Vegetarian Franks	1.5 oz.	11
Starlite Cuisine Soy Taquitos	2 oz.	7
White Wave Seitan	3 oz.	31
Whole Foods 365 Meat Free Vegan Burger	2.5 oz.	13
Yves Canadian Veggie Bacon (3 slices)	2 oz.	17
Yves Veggie Burger	3 oz.	16
Yves Veggie Chick'n Burgers	3 oz.	17
Yves Veggie Dogs	1.6 oz.	11

Protein in Hot Cereals (cooked)

Cereal	Cup	Protein Grams
Arrowhead Mills Corn Grits	1/4	3
Arrowhead Mills 7 Grain	1/4	4
Bob's 8 Grain	1/4	4
Bob's 10 Grain	1/4	6
Bob's Kamut	1/4	5
Bob's Triticale	1/4	4
Bob's Whole Grain Cracked Wheat	1/4	5
Cream of Rye	1/3	5
Kashi	1/2	6
Mother's Multigrain	1/2	5
Quaker Old Fashioned Oats	1/2	5
Quinoa Flakes	1/3	3
Roman Meal Hot Cereal	1/3	5
Wheatena	1/3	5

Protein in Fresh Vegetables

(cooked)

Vegetable	Serving	Protein Grams
Artichoke	medium	4
Asparagus	5 spears	2
Beans, string	1 cup	2
Beets	1/2 cup	1
Broccoli	1/2 cup	2
Brussels Sprouts	1/2 cup	2
Cabbage	1/2 cup	1
Carrot	1/2 cup	1
Cauliflower	1/2 cup	1
Celeriac	1 cup	1
Celery	1 cup	1
Chard, Swiss	1 cup	3
Chayote	1 cup	1
Chives	1 tablespoon	0.10
Collards	1 cup	4
Corn, Sweet	1 large cob	5
Cucumber	1 cup	1
Eggplant	1 cup	1
Fennel	1 medium bulb	3
Jerusalem Artichoke	1 cup	3
Kale	1 cup	2.5
Kohlrabi	1 cup	3
Leeks	1 cup	1
Lettuce	1 cup	1
Okra	1/2 cup	1
Onion	1/2 cup	1
Parsnip	1/2 cup	1
Peas	1/2 cup	4
Peppers, bell	1/2 cup	1
Potato, baked with skin	2 1/3 x 4 3/4"	5
Potato, boiled with skin	1/2 cup	1
Radish	1 cup	1
Rhubarb	1 cup	1
Rutabaga	1 cup	2
Spinach	1 cup	1
Squash, Summer	1 cup	2
Squash, Winter	1 cup	2
Sweet Potato	1 cup	3
Tomato	1 medium	1
Turnip	1 cup	1

Protein in Nut Butters

Nut/Seed (2 Tablespoons)	Protein Grams
Almond	5 to 8
Cashew	4 to 5
Peanut	7 to 9
Sesame Tahini	6
Soy Nut	6 to 7

Protein in Fruits (raw)

Fruit	Serving	Protein Grams
Apple	2 per lb.	0
Apricot	med.	0
Avocado	med.	4
Banana	1	1 to 2
Blackberry	cup	2
Blueberry	cup	1
Boysenberry	cup	1
Cantaloupe	cup	1
Casaba Melon	cup	2
Cherimoya	1	7
Cherry	cup	1
Cranberry	cup	0
Currant	cup	2
Date(pitted)	1/4 cup	1
Durian	1 cup	4
Feijoa	med.	1
Fig	1	0
Gooseberry	cup	1
Grape	cup	1
Grapefruit	1/2	1
Guava	med.	1
Honeydew	cup	1
Jackfruit	cup	2
Jujube, dried	1 oz.	1
Kiwi	large	1
Kumquat	med.	0
Lemon	1	1
Lime	1	0
Loganberry	cup	1.4
Loquat	1	0
Mango	1	1
Mulberry	cup	2
Nectarine	1	1
Orange	1	1
Papaya	cup	1
Passionfruit	1	0
Peach	1	1
Pear	1	1
Persimmon	1	0
Pineapple	cup	1
Plum	1	1
Pomegranate	1	1.5
Pomelo	1/2	2.3
Prickly Pear	med.	1
Quince	med.	.4
Raspberry	cup	1
Rhubarb	cup	1
Sapote	med.	5
Star Fruit	cup	1
Strawberry	cup	1
Tangerine	med.	1
Watermelon	cup	1

Protein in Milk Substitutes

Beverage 1 cup	Protein Grams
Soy Regular	6 to 9
Soy Low/Nonfat	4
Rice	1
Rice and Soy	7
Almond	1 to 2
Oat	4
Multigrain	5

Protein in Soy Products

Product	Serving Size	Protein Grams
Tofu Medium to Extra Firm	3 oz.	7 to 12
Tofu Soft or Silken	3 oz.	4 to 6
Tempeh	4 oz.	12 to 20
Textured Vegetable Protein TVP	1/4 cup	10 to 12

Helpful Website:
http://www.nal.usda.gov/fnic/foodcomp/Data/SR21/nutrlist/sr21a203.pdf

MOVE Tracking Sheet

Date of Attendance	Weight