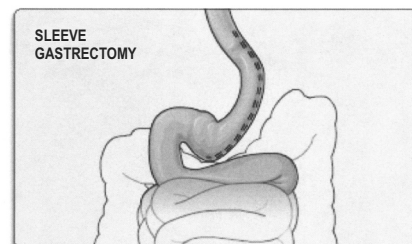
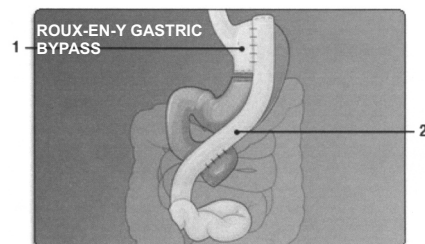
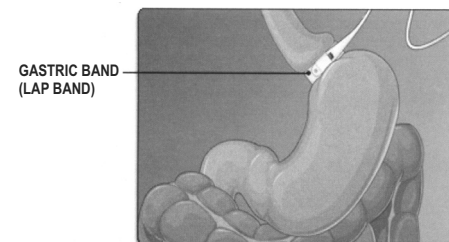
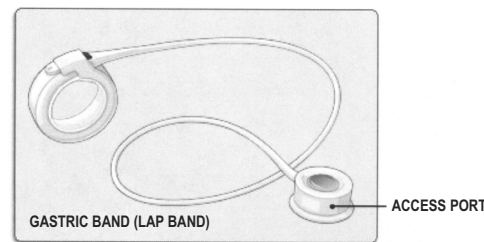
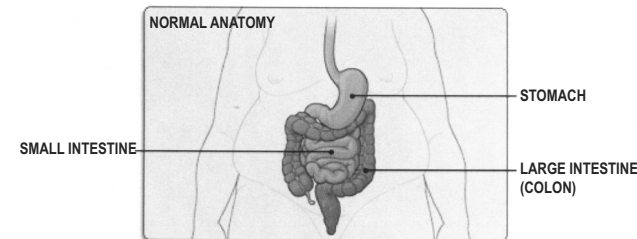


have an acceptable surgical risk and who have failed to benefit from previous nonsurgical weight loss therapies.

- Patients with BMI above 35 with at least 2 serious co-morbidities in whom traditional weight loss methods have failed are also the candidates to be considered for Bariatric Surgery.
- Most surgeons will also not perform Bariatric Surgery on patients with untreated major psychiatric disorders, including binge eating disorders and current drug or alcohol abuse, or on patients who are unable to comply with post operative nutritional, dietary, and follow up requirements.
- Surgeries performed on obese patients involve restrictive and malabsorbtive approaches. There are 3 commonly used Bariatric Surgery Techniques.

1. **Laparoscopic Adjustable Gastric Banding (Lap Band):** Example of restrictive procedure which reduces gastric size and leave the small bowel absorptive function intact. It is like a ring or belt that is wrapped around the upper stomach. It is connected to a thin tube that attaches to access port which sits under the skin.
 2. **Roux-en-y Gastric Bypass (Laparoscopic Gastric Bypass):** This is dual mechanism Bariatric surgery which combines restrictive approach (small gastric reservoir of the size of an egg which restricts oral intake) with malabsorption. The new path goes around (bypasses) the larger stomach and a part of the small intestine. Food moves from the new stomach pouch directly to the lower part of the small intestine.
 3. **Sleeve Gastrectomy:** Another example of restrictive procedures. Here most of the stomach is permanently removed. After surgery, the stomach is basically a thin tube (sleeve) that holds only a little bit of food.
- Where as the mortality rate for Bariatric surgery is generally less than 1%, adverse effects and complications are common with unexpected rehospitalization rate ranging from 6% to 20%
 - Each procedure has its own post op complications. Vitamins and mineral deficiencies are common in post op period and hence to be followed by a dietician on a regular basis in the post op period.
 - Surgery outcomes are usually better in high volume centers with multidisciplinary team dedicated for weight loss.

“Losing significant amounts of weight as a result of weight loss surgery, diet and exercise leads to exciting changes in health, outlook on life and appearance. As a result of weight loss, often there is redundant skin. Your Bariatric Surgeon should be able to find you a plastic surgeon who specializes in Body Contouring Procedures after such weight loss!!”



MOHAN MALLAM; MD, FACP, CMD

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OBESITY

Comprehensive Approach to the Management of Obesity in Adults

by

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The incidence of obesity has increased dramatically in the last several decades affecting over one third of the adult population in the United States. Safe and effective medical and surgical treatments have evolved. Yet, they are underutilized. Obesity has physical, psychological and social consequences, it is not a simple cosmetic concern. The health consequences of obesity include Heart Disease, Diabetes, several types of Cancer, High Blood Pressure, High Cholesterol, Sleep Apnea Syndrome, Respiratory problems and Musculoskeletal Diseases etc. Latest evidence based guidelines should enable clinicians to more effectively manage this complex disease.

- **Definition:** Diagnosis of obesity is made using “Body Mass Index” (BMI). The BMI is the patient’s weight in kilograms divided by height in meters squared.
 - Obese BMI ≥ 30
 - Overweight BMI 25-29.9
 - Healthy weight BMI 18.5 - 24.9
 - Underweight BMI ≤ 18.5

Obesity BMI is further divided into 3 classes

Class I BMI (30-34.9) • Class II BMI (35-39.9) • Class III BMI (> 40)

Severe or Morbid Obesity is defined as Class III. Obesity (BMI >40) or Class II Obesity (BMI 35-39.9) in the presence of significant co-morbidities caused by obesity.

If you would like to know your BMI now, please visit:

<http://www.nhlbisupport.com/bmi/bmicalc.htm>

In adult with a BMI of 25-34.9, a waist circumference greater than 40 inches for men and 35 inches for women is associated with greater risk than that determined by BMI alone. In Asian populations, a male waist circumference greater than 35 inches and a female waist circumference greater than 32 inches are considered abnormal. The mortality risk among overweight patients is 20% - 40% higher and the risk among obese patients is 200% -300% higher than those with a normal BMI.

- **Evaluation for Underlying Causes of Obesity:**
 - Patients diagnosed with obesity should be screened for evidence of secondary diseases, medications and behavioral conditions that can cause or worsen the condition.
 - The time course which the obesity developed, the patient’s eating habits, and a medication and psychiatric history are all important components of the initial evaluation
 - Life events commonly associated with weight gain include pregnancy, marital status changes, occupation changes, and smoking cessation
 - Most obese patients do not have a readily identifiable secondary cause to weight gain and are potential barriers to weight loss.
 - There are several medications that can cause weight gain, for example some medications to treat diabetes including insulin, some psychiatric medications and several seizure medications can cause weight gain.
 - In the occasional patient in whom a secondary cause of obesity is found, endocrine disorders are often the underlying cause. Hypothyroidism, excess gluco corticoid leading to Cushing’s Syndrome, Growth Hormone deficiency, insulinomas, Hypothalamic damage can also result in obesity.
 - About half of women with the Polycystic Ovary Syndrome are obese.

• **Treatment**

A. **Behavioral Intervention:**

- Dietary and exercise interventions are traditional and effective approaches to obesity therapy. They are often used to augment Pharmacologic and Surgical approaches in morbidly obese patients or as monotherapy in patients with less severe disease.
- Behavioral interventions typically involve self monitoring of food intake, learning about and

controlling stresses that activate eating, establishing a supportive social network, slowing food intake during meals, nutrition education about portion size and meal content, goal setting and education about appropriate physical activity.

- Group and individual sessions are both effective but result only in modest weight loss - on average 3 kg or less.
- Active monthly interventions with face on face or internet engagement with patients can be effective in preventing weight from being regained.

B. **Physical Activity:**

- Low intensity workouts equivalent to walking 30 minutes per day are effective in maintaining stable weights
- High intensity / High amount workouts provide proportionately greater benefits.
- Exercise has additional benefits of improved cardiovascular health and decreased abdominal and hip circumference measurements
- Probably not adequate as monotherapy for obesity without behavioral therapy, diet, medication, or surgery.

C. **Dietary Therapy:**

- The amount of ideal caloric restrictions in obese patients depend upon patients age, sex, degree of obesity, and physical activity.
- Diets are best planned with input from a dietitian. Low calorie diets provide 1000-1500k calories per day. Very low calorie diets (less than 800K calories per day are difficult to administer and can be associated with a higher incidence of adverse effects.
- Calorie restricted diets fall into 3 major categories:
 1. **Low Carbohydrate Diets:** Including variants of the Atkin’s diet, target an initial goal of 20gm per day or less of carbohydrate for several months followed by a goal of 50gm per day or less for subsequent continued weight loss and maintenance.
 2. **Low Fat Diets:** Such as the Ornish Diet, generally restrict fat intake to 10% or less of total dietary calories.
 3. **Balanced Low Calorie Diets:** Such as the Zone diet, have a balance of carbohydrates, protein, and fat typically in a 40% / 30% / 30% distribution.
- Low carbohydrate diets improve triglyceride and HDL Cholesterol levels more than low fat diets, where as low fat diets improve LDL and total cholesterol levels more than low carbohydrate diets
- In one 12 month study, low carbohydrate diets resulted in a mean weight loss of 4.7kg, compared with 2.2kg with a low fat diet and 1.6kg with a balanced low calories diet.
- Calorie restriction is effective for weight loss; however dieting rarely causes more than 5kg of sustained weight loss.

D. **Pharmacologic Therapy:**

- Pharmacologic therapy can be offered to obese patients who have failed to achieve their weight loss goals thru diets and exercise alone and may result in an additional 3 to 4kg of weight loss.
- It is important to discuss with patients the drug side effects, lack of long term safety data and the temporary nature of the weight loss achieved with medications.
- USFDA has approved ‘ORLISTAT’ (XENICAL) for pancreatic lipase inhibition for a 4 year course. This drug alters fat digestion and eliminates excess fat in stool, less than 1% is absorbed systemically and side effects include abdominal cramps, flatus, oily stool and fecal incontinence. It achieves wt reduction up to 2.9kg; reduces blood glucose, blood pressure, total cholesterol and LDL Cholesterol levels. A small increase in HDL cholesterol is also expected with this drug.
- Adjunctive drug therapy may include antidepressant medications such as Fluoxetine (Prozac) and Bupropion (Wellbutrin).

E. **Surgical Treatment:**

- The goal of Bariatric Surgery is to improve mortality, reduce morbidity from obesity related illnesses and improve patient quality of life.
- Surgical therapy be considered in well informed, motivated patients with a BMI above 40 who