Tools to Treat Adult Patients with Obesity: An Update on Bariatric Surgery and Pharmacologic Agents

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Tools to Treat Adult Patients with Obesity: An Update on Bariatric Surgery and Pharmacologic Agents

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PAFP, November 6, 2015

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Disclosure

- Dr. Robin Schroeder has no conflict of interest, financial agreement, or working affiliation with any group or organization.

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Which surgical procedure for weight loss is performed most often in the US today?

A. Gastric banding
B. Sleeve gastrectomy
C. Roux-en-Y gastric bypass
D. Revision

3

Patients who have had a weight loss surgery procedure should not take NSAIDS.

A. True
B. False

4

Which of the following weight loss medications is not approved for long term use?

A. phentermine ER/topirimate ER (Qsymia)
B. lorcaserin (Belviq)
C. liraglutide (Saxenda)
D. phentermine (Adipex)

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Objectives

- Describe the bariatric pre-surgical, surgical and post-surgical processes
- Perform long-term primary care management of post-bariatric surgery patients
- Describe the use of the currently available weight loss medications

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Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2014

¹ Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

Within Subsets of Patients with Overweight and/or Obesity

Deranged endocrine and immune responses → **Sick Fat Disease (SFD) (Adiposopathy)**

- Endocrine/metabolic:
  - Elevated blood glucose
  - Elevated blood pressure
  - Dyslipidemia
  - Other metabolic diseases

Abnormal and pathologic physical forces → **Fat Mass Disease (FMD)**

- Biomechanical/structural:
  - Stress on weight-bearing joints
  - Immobility
  - Tissue compression (i.e., sleep apnea, gastrointestinal reflux, high blood pressure, etc.)
  - Tissue friction (i.e., intertrigo, etc.)

Reference/s: [1] [2] [3] [4] [5] [6] [7]

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Fat Mass Disease

Cardiovascular
- Congestive heart failure and cor pulmonale
- Varicose veins
- Thromboembolic events (i.e., pulmonary embolus, stroke, etc.)
- Hypertension (i.e., compression of kidney)

Pulmonary
- Dyspnea
- Obstructive sleep apnea
- Hypoventilation syndrome
- Pickwickian syndrome
- Asthma

Neurologic
- Intracranial hypertension (pseudotumor cerebri) due to increased intra-abdominal pressure, sleep apnea, etc.
- Stroke (see "cardiovascular")
- Nerve entrapment (i.e., meralgia paresthetica, carpal tunnel syndrome, etc.)

Reference/s: [17] [18]

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Fat Mass Disease

Musculoskeletal

- Immobility
- Osteoarthritis (e.g. knees, hips)
- Low back pain
- Myalgias
- Altered center of gravity
- Impaired balance

Gastrointestinal

- Gastrointestinal reflux
- Hernias

Integument

- Stria distensae (skin stretch marks)
- Stasis pigmentation
- Venous stasis ulcers
- Cellulitis
- Skin tags
- Intertrigo (i.e. bacterial, fungal skin fold infections)
- Carbuncles

Reference/s: [17] [18]

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Adiposopathy (Sick Fat Disease)

Pathophysiology

- Impaired adipogenesis
- Adipocyte organelle dysfunction (endoplasmic reticulum, mitochondria, etc.)
- Increased circulating free fatty acids
- Pathogenic adipose tissue endocrine responses
- Pathogenic adipose tissue immune responses
- Pathogenic consequences to other body organs such as fatty liver, vasculopathies (endothelial dysfunction, atherosclerosis, hypercoagulation), etc.

Reference/s: [4] [6] [19] [20]

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Adiposopathy (Sick Fat Disease)

Anatomic Abnormalities

- Adipocyte hypertrophy
- Increased visceral, pericardial, perivascular, and other peri-organ adiposity
- Growth of adipose tissue beyond vascular supply
- Increased adipose tissue immune cells
- "Ectopic" fat deposition in other body organs (liver, muscle, possibly pancreas, etc.)

Reference/s: [4] [6] [19] [20]

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Adiposopathy (Sick Fat Disease)
Other Body Organs

Adiposopathy most often results in metabolic disease when accompanied by:

- Dysfunction other body organ
- Limitations in the metabolic "flexibility" of other body organs

Metabolic health is dependent upon the interactions or crosstalk with adipose tissue and other body organs:

- Liver
- Muscle
- Pancreas
- Immune system
- Heart and vasculature
- Brain
- Endocrine glands
- Intestine
- Other body organs

Reference/s: [4] [6] [19] [20]

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Adiposopathy (Sick Fat Disease)
Clinical Manifestations

- High blood glucose (prediabetes mellitus, type 2 diabetes mellitus)
- High blood pressure
- Metabolic syndrome
- Adiposopathic dyslipidemia
  - Increased triglyceride levels
  - Decreased high-density lipoprotein cholesterol levels
  - Increased atherogenic particle number (increased apolipoprotein B)
  - Increased proportion of small, dense, low-density lipoprotein particles
  - Increased triglyceride-rich lipoproteins
  - Increased lipoprotein-remnant lipoproteins
- Insulin resistance
- Hepatosteatosis (fatty liver)
- Hyperuricemia and gout
- Cholelithiasis
- Acanthosis Nigricans
- Nephrolithiasis
- Glomerulopathy
- Pro-thrombotic predisposition
- Neuropsychiatric diseases (such as worsening depression due to adiposopathic immune and endocrine responses)
- Asthma (due to adiposopathic immune and endocrine responses)
- Worsening of other inflammatory diseases (osteoarthritis, atherosclerosis, etc.)

Reference/s: [3] [4] [6] [7] [21]

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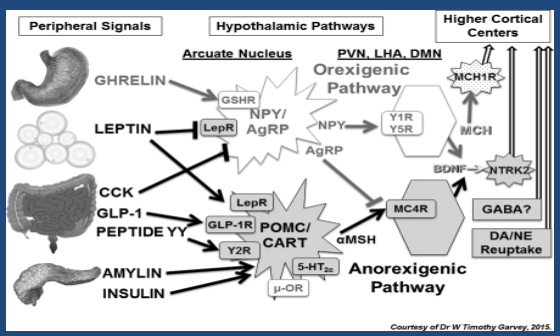
Eat Fewer Calories than you Burn = Lose Weight Simple?



Obesity
pages S1-S26, 7 JUL 2015 DOI: 10.1002/oby.21140

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Please Respond…Obesity often occurs when eating is used as a form of compensation for lack of love or attention.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

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Elements of Intensive Lifestyle Management

1) Food Plan (Multiple methods are effective)

- Restrict/reduce intake of certain food types (low carbohydrate for metabolic syndrome, low fat)
- Set a caloric goal (1,200-1,500 kcal/day for women, 1,500-1,800 kcal/day for men, adjusted for body weight)
- Specify a caloric deficit (500 or 750 kcal/ day)
- Consider patient preferences and health status when identifying a diet—a variety of approaches can produce weight loss

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Elements of Intensive Lifestyle Management

2) Increased Physical Activity

- Start with where they are and increase, either duration or intensity

Ideal Plan

- Aerobic activity > 150 min/week for weight loss
- Resistance training to preserve lean mass
- Stretching/Flexibility
- Balance/Core

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Elements of Intensive Lifestyle Management

3) Behavioral Interventions - critically important

Ideal

- Face-to-face sessions (≥14 with a trained interventionist over the first 6 months)
- Maintain efforts over 1 year
- Incorporate strategies such as goal- setting and self-monitoring
- May need to refer to a counselor

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CMS Coverage for Intensive Behavioral Therapy

- For Medicare beneficiaries with obesity, who are competent and alert at the time that counseling is provided and whose counseling is furnished by a qualified primary care physician or other primary care practitioner and in a primary care setting, CMS covers:

- One face-to-face visit every week for the first month;
- One face-to-face visit every other week for months 2-6;
- One face-to-face visit every month for months 7-12, if the beneficiary meets the 3kg weight loss requirement during the first six months as discussed below.

https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/downloads/MM8874.pdf

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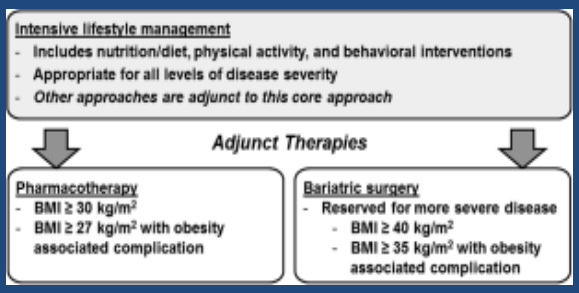
Adjunct Therapies or Tools



Obesity
pages S1-S26, 7 JUL 2015 DOI: 10.1002/oby.21140

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Misperception-Surgery is a Cop-out

Truth:

- Individuals affected by obesity are resistant to long-term weight loss by diet and exercise for a variety of physiological reasons
- Surgery is a tool that impacts the gut-brain-adipose tissue hormonal cycle

Adapted from ASMBS website

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Misperception: Most people who have metabolic surgery regain their weight

Truth:

- "Successful" weight loss is a loss of at least 50% of excess body weight and the impact on quality of life
- Longitudinally, most surgical patients maintain their weight loss
- Up to 50% may regain some weight (5%) two or more years after surgery

Adapted from ASMBS website

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Misconception: Metabolic surgery is very dangerous

Truth:

- Risk of death within 30 days is 0.13 %; less than cholecystectomy and hip replacement
- Multiple studies have now shown that the benefits of bariatric surgery far outweigh the risks as compared to those who did not have surgery

Adapted from ASMBS website

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Misconception: Bariatric surgery causes serious vitamin and mineral deficiencies

Truth:

- Malabsorption can cause deficiencies and are totally avoidable with current recommendations
- The current guidelines are increasingly evidence-based and simpler than in the past

Adapted from ASMBS website

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Please Respond…In many cases, obesity is the result of a biological disorder.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

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Bariatric Surgery in U.S. - 2015

Total Procedures: 179,000

Sleeve gastrectomy	51%
RYGB	27%
Revisions	11.5%
Gastric banding	9.5%
Other	1%

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Definition of Success

- 50% Excess Body Weight (EBW) lost
- Fewer chronic illnesses
- Decreased number of medications taken
- No more CPAP
- Quality of Life improvements
- Can walk one mile
- My entire life will be better
- REALISTIC EXPECTATIONS

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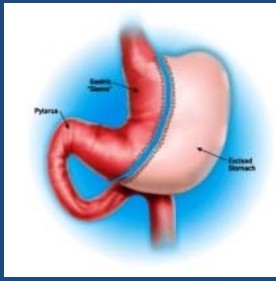
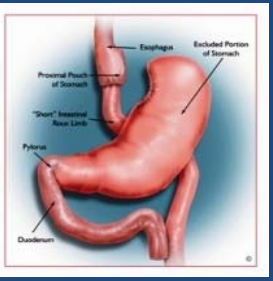
Most Common Surgical Procedures

Sleeve gastrectomy (sleeve)



Roux-en-Y gastric bypass (RYGB or bypass)



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Requirements-Insurance Specific

- Plan exclusions
- Center of Excellence?

- 3 or 6 month program
  - Can be done by multiple independent providers, or
  - Via Interdisciplinary team/Center

- Frequent changes to requirements

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Pre-operative Recommendations
Clinical Practice Guidelines

- Complete H & P
  - assess co-morbidities, weight loss history, commitment, exclusions for surgery
- Lab
  - CMP, lipid profile, CBC, HgbA1C
  - iron studies, B_{12}, folic acid, 25-hydroxyvitamin D
  - additional evaluation as indicated
- Identify and optimize the most common obesity-related conditions

Adapted from Surgery for Obesity and Related Diseases 9(2013) 159-191

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Pre-operative Recommendations
Clinical Practice Guidelines

- Nutrition evaluation by a Registered Dietician
  - Ability to incorporate nutritional and behavioral changes
- Psychosocial-behavioral evaluation
  - Active psych illness, substance abuse
- Pregnancy counseling
  - Avoid pre-op and 12-18 months post-op
- Tobacco cessation counseling
  - smoking leads to poor wound healing

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Pre-operative Recommendations

Consider

- Cardiopulmonary evaluation
  - polysomnography, ECG, additional evaluation if cardiac disease or pulmonary hypertension suspected
- GI evaluation
  - H.pylori screening in high prevalence areas
  - gallbladder evaluation
  - upper endoscopy if clinically indicated
    - Abdominal pain from non-surgical causes can be challenging to diagnose

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Pre-operative Recommendations

Clinical Practice Guidelines

- Age- and risk-appropriate cancer screening
  - Surgeons count on the PCP
- Weight loss via medical nutrition therapy
  - Benefit not clear except in pt with diabetes
  - Often done 2 weeks pre-op
  - Can reduce liver volume
  - Can improve access for laparoscopic procedure

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Please Respond…Obesity is usually caused by overeating.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

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Post-surgery

- Avg. 1-2 nights in hospital
- Avg. 2 weeks out of work
- Diet advanced from clears, full liquids, to purees
  - Most recommend about one month to regular food
  - Adequate hydration (usually > 1.5 L/day)
- Adjust postoperative medications, as needed
  - Diabetes meds should be decreased at discharge
    - Metformin should be continued
  - Blood sugar monitoring critical in first weeks
  - Hypertension meds require close attention

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Post-operative Care

Usually done by the surgeon:

1, 3 months
- CBC, CMP

6 months
- CBC, CMP, lipids,
- B_{12} (if supplemented), 25-vitamin D-OH, folic acid, iron studies, iPTH
- 24 hour urine calcium

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Post-surgery and Ongoing Recommendations

- Two multivitamins/day or one bariatric vitamin
- Calcium citrate 1200-1500 mg/day
- B_{12} 1000 mcg/day (PO or intranasal)
- Elemental iron 45-60 mg/day
- Vitamin D3, at least 3000 IU/day (titrate to >30ng/mL)

Surgery for Obesity and Related Diseases 9 (2013) 159-191

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Ongoing Care

- Avoid NSAIDs
- Avoid pregnancy for 12-18 months

Support dietary, behavioral, and physical activity changes and recommendations
- Support groups (program provided)
- Behavioral counseling (refer if indicated)
- Physical activity (it is important!)

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Ongoing Care

Most surgeons/programs try to follow patients for at least five years, but patients sometimes stop going.

Annually

- lipid profile, CMP, CBC, 25- vitamin D-OH, B_{12}, folic acid, iron studies, iPTH
- 24-hour urinary calcium
- Bone density (DXA) at 2 years post surgery

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Check if Symptomatic

Symptoms	Check level
Unexplained anemia, fatigue, persistent diarrhea, cardiomyopathy, metabolic bone disease	selenium
Hair loss (after first year), pica, dysgeusia, erectile dysfunction	zinc
Anemia, neutropenia, myeloneuropathy, impaired wound healing	copper
Excessively rapid weight loss, protracted vomiting, excessive alcohol use, neuropathy or encephalopathy or heart failure	thiamine

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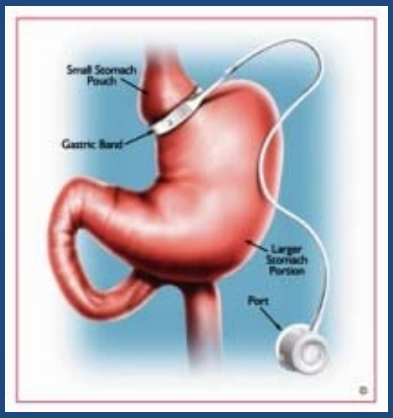
Please Respond…Most obese people cause their problem by not getting enough exercise.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

42



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Lap Band

- Band needs to be filled to create restriction/lead to weight loss
- Reflux is common, but should be evaluated with upper GI
- Many more complications than anticipated for the "least invasive" procedure

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Laparoscopic Adjustable Gastric Banding

A surgical procedure where an adjustable band is placed around the upper stomach creating a small pouch. The band diameter is adjustable through introduction of saline via a subcutaneous port that can be accessed from the upper abdomen.

General
- Outpatient procedure
- Recovery usually one week
- Contra-indications:
  - Poor surgical candidate
  - Severe physical disorder
  - Intolerance to general anesthesia
  - Pregnancy
  - Drug or alcohol addiction
  - Untreated esophagitis

Potential Acute Complications
- Band too tight with gastrointestinal obstructive symptoms (i.e., dysphagia)
- Leakage of gastric contents into abdomen
- Hemorrhage
- Gastrointestinal bleeding
- Infection
- Cardiac dysrhythmias
- Atelectasis and pneumonia
- Deep vein thrombosis
- Death

Potential Chronic Complications
- Weight regain or no weight loss
- Band slippage, erosion, ulceration, port infection, disconnection, and displacement
- Esophageal dilation
- Rare nutrient deficiencies if persistent vomiting or marked and sustained decrease in nutritional intake
- Depression
- Potential need to re-operate

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Reference/s: [5] [177] [178]

Sleeve Gastrectomy

A surgical procedure wherein the stomach is reduced to about 25 percent of its original size by the surgical removal of a large portion of the stomach along the greater curvature, resulting in a narrower sleeve or tube-like structure.

General

- Hospital stay = 1-2 days
- Recovery = 1-2 weeks
- Contra-indications:
  - Poor surgical candidate
  - Severe psychiatric disorder
  - Intolerance to general anesthesia
  - Pregnancy
  - Drug or alcohol addiction
  - Untreated or severe esophagitis
  - Barrett's esophagus
  - Severe gastroparesis
  - Achalasia
  - Previous gastrectomy
  - Previous gastric bypass
  - Sometimes used as a staged approach to gastric bypass

Potential Acute Complications

- Gastrointestinal obstruction
- Hemorrhage
- Gastrointestinal bleeding
- Anastomotic staple line leaks
- Infection
- Cardiac dysrhythmias
- Atelectasis and pneumonia
- Deep vein thrombosis
- Pulmonary emboli
- Rhabdomyolysis
- Dehydration
- Death

Reference/s: [5] [178] [179]

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Sleeve Gastrectomy

Potential Chronic Complications

- Weight regain or lack of long-term weight loss
- Marginal ulcers
- Esophageal dilation
- Dumping syndrome with reactive hypoglycemia
- Small bowel obstruction caused by internal hernias or adhesions
- Luminal stenoses (stomal narrowing)
- Anastomotic staple-line leak
- Fistula formation
- Gallstones
- Calcium deficiency
- Secondary hyperparathyroidism
- Iron deficiency
- Protein malnutrition
- Other nutritional and mineral deficiencies (i.e., deficiencies of vitamins A, C, D, E, B, and K, folate, zinc, magnesium, thiamine, etc.)
- Anemia (often related to mineral and nutrition deficiencies)
- Metabolic acidosis
- Bacterial overgrowth
- Kidney stones (oxalosis)
- Neuropathies (resulting from nutritional deficiencies)
- Osteoporosis (often caused by calcium deficiency and chronically elevated parathyroid hormone levels)
- Depression
- Potential need to re-operate

Reference/s: [5] [178] [179]

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Gastric Bypass

A surgical procedure wherein the stomach is divided into a large residual section and a smaller section (pouch) that is attached to a limb of the small intestine at variable distances from the first part of the small intestine, largely bypassing the stomach and part of the duodenum.

General

- Hospital stay = 2-4 days
- Recovery = 1-2 weeks
- Contra-indications:
  - Poor surgical candidate
  - Severe psychiatric disorder
  - Intolerance to general anesthesia
  - Pregnancy
  - Drug or alcohol addiction
  - Untreated esophagitis
  - Unwillingness or an inability for appropriate long-term follow up

Potential Acute Complications

- Gastrointestinal obstruction
- Hemorrhage
- Gastrointestinal bleeding
- Anastomotic leaks
- Infection
- Cardiac dysrhythmias
- Atelectasis and pneumonia
- Deep vein thrombosis
- Pulmonary emboli
- Rhabdomyolysis
- Dehydration
- Death

Reference/s: [5] [177] [178] [179]

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Gastric Bypass

Potential Chronic Complications

- Weight regain
- Marginal ulcers
- Esophageal dilation
- Dumping syndrome with reactive hypoglycemia
- Small bowel obstruction caused by internal hernias or adhesions
- Anastomotic stenoses (stomal narrowing)
- Gallstones
- Calcium deficiency
- Secondary hyperparathyroidism
- Bacterial overgrowth
- Kidney stones (oxalosis)
- Metabolic acidosis
- Iron deficiency
- Protein malnutrition
- Other nutritional and mineral deficiencies (i.e., deficiencies of vitamins A, C, D, E, B, and K, folate, zinc, magnesium, thiamine, etc.)
- Anemia (often related to mineral and nutrition deficiencies)
- Neuropathies (resulting from nutritional deficiencies)
- Osteoporosis (often caused by calcium deficiency and chronically elevated parathyroid hormone levels)
- Depression
- Potential need to re-operate

Reference/s: [5] [177] [178] [179]

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Comparison of Outcomes for Bariatric Surgical Procedures

Outcome	Overall	Sleeve gastrectomy	RYGB
Excess body weight lost (%) median*			
1 to 2 years	60 to 70	33 to 85	48 to 85
3 to 6 years	50 to 60	46 to 66	53 to 77
7 to 10 years	50	NA	25 to 68
Remission of diabetes mellitus			
< 1 year	80	56 to 68	56 to 84
1 to 3 years	72	80	46 to 81
15 years	30	NA	NA
Mortality			
≤ 30 days (%)	0.08	0.296	0.20 to 0.50
> 30 days (%)	0.31	0.11-0.34	0.14-0.21
7-15 years	30 to 40% lower than those not having surgery		

NA = not available

**Excess body weight is the total preoperative weight minus ideal weight.*

Multiple references, available.

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New Procedures

FDA Approval 8/15 (for patients with BMI of 30-40)

- ORBERA™ and
- ReShape™ Intragastric Balloons

Short term, no ghrelin suppression

ASMBS views these balloon devices as a bridge between medications and bariatric surgery

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Revisional Procedures

Surgical
- Band to sleeve or RYGB
- Sleeve to RYGB (for refractory reflux)
- Sleeve plus duodenal switch
- Revision of RYGB (older pouches were larger)
- Band over bypass (uncommon)

Non-surgical: ROSE, StomaphyX endoscope procedure
  –Not very effective

Experimental: lap band plus gastric plication

52

Please Respond…Most obese people eat more than non-obese people.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

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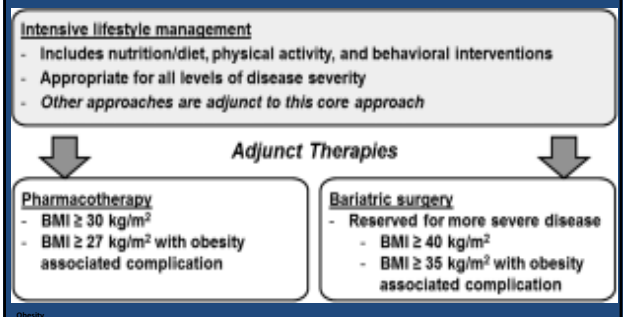
Adjunct Therapies/ TOOLS



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Medication and Obesity
First, Do No Harm

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Identify and Manage Concomitant Pharmacotherapy That Might Alter Body Weight

Cardiovascular Medications

May increase body weight
- Some beta-blockers
  - Propranolol
  - Atenolol
  - Metoprolol
- Dihydropyridine ("dipine") calcium channel blockers
  - Nifedipine
  - Amlodipine
  - Felodipine

Diabetes Mellitus Medications

May increase body weight
- Most insulins
- Sulfonylureas
- Thiazolidinediones
- Meglitinides

May decrease body weight
- Metformin
- Glucagon-like peptide-1 agonists
- Sodium glucose co-transporter 2 inhibitors
- Alpha glucosidase inhibitors

Reference/s: [7] [18] [57] [69]

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Identify and Manage Concomitant Pharmacotherapy That Might Alter Body Weight

Hormones

May increase body weight
- Glucocorticoids
- Estrogens

May decrease body weight
- Progestins
- Testosterone

Anti-seizure Medications

May increase body weight
- Carbamazepine
- Gabapentin
- Valproate

May decrease body weight
- Lamotrigine
- Topiramate
- Zonisamide

Reference/s: [18] [57] [73] [74] [75] [76]

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Identify and Manage Concomitant Pharmacotherapy That Might Alter Body Weight

Mood Stabilizers

May increase body weight
- Gabapentin
- Lithium
- Valproate
- Vigabatrin

Variable/neutral effects on body weight
- Carbamazepine (sometimes reported to increase body weight)
- Lamotrigine (sometimes reported to decrease body weight)
- Oxcarbazepine

Migraine Medications

May increase body weight
- Amitriptyline
- Gabapentin
- Paroxetine
- Valproic acid
- Some beta-blockers

May decrease body weight
- Topiramate

Reference/s: [18] [57] [73] [74] [75] [76]

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Identify and Manage Concomitant Pharmacotherapy That Might Alter Body Weight

Antipsychotics

May substantially increase body weight
- Clozapine
- Olanzapine
- Zotepine

May somewhat increase body weight
- Asenapine
- Chlorpromazine
- Iloperidone
- Paliperidone
- Quetiapine
- Risperidone
- Sertindole
- Lithium

Variable/neutral effects on body weight
- Amisulpride
- Aripiprazole
- Haloperidol
- Lurasidone
- Ziprasidone

Hypnotics

May increase body weight
- Diphenhydramine

May have limited effects on body weight
- Benzodiazepines
- Melatonergic hypnotics
- Trazodone

Reference/s: [18] [57] [73] [74] [75]

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Identify and Manage Concomitant Pharmacotherapy That Might Alter Body Weight

Human Immunodeficiency Virus (HIV) Medications

May increase body weight
- Some highly active antiretroviral therapies (HAART) protease inhibitors without HIV lipodystrophy

May decrease body weight
- Some highly active antiretroviral therapies (HAART) protease inhibitors with HIV lipodystrophy

Chemotherapies

May increase body weight
- Tamoxifen
- Cyclophosphamide
- Methotrexate
- 5-fluorouracil
- Aromatase inhibitors
- Corticosteroids

Reference/s: [18] [57] [73] [74] [75]

60

Please Respond…The majority of obese people have poor eating habits that lead to their obesity.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

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Anti-obesity Medications

Adjunct to nutritional, physical activity, and behavioral therapies

Objectives:

- Treat disease
  - Adiposopathy or sick fat disease (SFD)
  - Fat mass disease (FMD)
- Facilitate management of eating behavior
- Slow progression of weight gain/regain
- Improve the health, quality of life, and body weight of the patient with overweight or obesity

Reference/s: [55] [159]

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Pathologic Metabolic and/or Fat Mass Consequences of Increased Body Fat

- 5-10 percent weight loss may improve adipocyte and adipose tissue metabolic and immune function
  - 5-10 percent weight loss may improve metabolic disease
- 5-10 percent weight loss may improve abnormal and pathologic physical and mechanical forces
  - 5-10 percent weight loss may improve fat mass diseases

Reference/s: [8] [160] [161]

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When to Prescribe Medication for the Treatment of Obesity

- History of difficulty achieving and maintaining weight loss with life style intervention alone
  (diet, physical activity, behavior change still need to happen)
- Sufficient health risk to justify Tx with a med
- BMI 30 or more or 27 with comorbidity
- For weight maintenance
- No contraindication

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How to Choose?

- Consider medical history and current medications
- Shared decision making
- Medical conditions (diabetes, depression, migraines, CVD, HTN, glaucoma)
- Potential for pregnancy
- Certain amount of trial and error
- Insurance coverage/financial

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Pharmacotherapy

Examples of anti-obesity medications approved 1999 or before

- Phentermine
- Diethylpropion
- Phendimetrazine
- Benzphetamine
- Orlistat

Examples of anti-obesity medications approved 2012 and beyond

- Lorcaserin
- Phentermine HCL/topiramate extended release
- Naltrexone HCL/bupropion HCL extended release
- Liraglutide

Reference/s: [500] [502]

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Sympathomimetics Approved for Short Term

Drug-generic	Dosage	Mech of Action	Common Side Effects	Contraindications
Phentermine (DEA class IV) -longest ½ life	AdipexP 37.5 mg Ionamin 30 mg 15-37.5 mg/d	Norepi-releasing agent	Headache, elev BP/HR, insomnia, dry mouth, constipation, palpitations, changes in libido	Anxiety disorders, history of heart disease, uncontrolled HTN, seizure MAO inh, preg, hyperthyroidism, glaucoma, history of drug abuse
Diethylpropion (DEA class IV) -shorter ½ life	Tenuate 75mg SR 1x/day 25mg 3x/day	Norepi-releasing agent	Similar to above, different pt response	Similar to above
Phendiametra-zine (DEA class III)	Bontril 105mg SR 36 mg. 2-3x/day	Norepi-releasing, dopaminergic	Similar	Similar to above

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Please Respond…Obesity is rarely caused by a lack of willpower.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

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Medications Approved for Chronic Weight Management

Drug	Mechanism of Action	Dosing	Response Evaluation
Orlistat (Xenical)	Pancreatic lipase inhibitor	120 mg orally with each meal containing fat	Not addressed in label
Lorcaserin (Belviq)	5-HT2c serotonin agonist Little affinity for other serotonergic receptors	10 mg orally twice daily	Stop if <5% loss at 12 weeks
Phentermine/ TopiramateER (Qsymia)	Sympathomimetic Anticonvulsant (GABA receptor modulation, carbonic anhydrase inhibition, glutamate antagonism)	Orally in the morning: 3.75 mg/23 mg × 14 days 7.5/46 mg ×14 days	At 12 weeks, option to ↑ to 11.25 mg/69 mg × 14 days, then 15 mg/96 mg; Stop if <5% loss at 12 weeks on top dose
Naltrexone/ BupropionSR (Contrave)	Opioid receptor antagonist Dopamine/noradrenaline reuptake inhibitor	Orally1 tab (8 mg/90 mg) 1 in am × 1 week; 1 in am 1 in pm × 1 week; 2 in am 1 in pm × 1 week; 2 in am 2 in pm	Stop if <5% loss at 12 weeks
Liraglutide 3.0 mg (Saxenda)	GLP-1 receptor agonist	Inject subcutaneously (any time of day); Initiate at 0.6 mg per day × 1 week. In weekly intervals, increase the dose by 0.6 mg/week until a dose of 3.0 mg is reached	Stop if <4% weight loss at 16 weeks

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Medications Approved for Chronic Weight Management:

Drug Cost/mos.	Caution	Contraindications	Side Effects
Orlistat Xenical 120mg/$520 Alli 60mg/$50	↑cyclosporine exposure; rare liver failure; concomitant multivitamin advised, gall bladder disease, warfarin, antiepileptic meds,	Chronic malabsorption; cholestasis, pregnancy and breastfeeding	All the symptoms of steatorrhea (oily spotting, flatulence with discharge, increased defecation, etc.)
Lorcaserin $240	SSRI, SNRI/MAOI, St. John's wort, triptans, buproprion, dextromethorphan, priapism, hypoglycemia if on other antidiabetic meds	Pregnancy and breastfeeding	Headache, nausea, dry mouth, dizziness, fatigue, constipation
Phentermine/ TopiramateER $205	Fetal toxicity; acute myopia; cognitive dysfunction; metabolic acidosis; hypoglycemia	Glaucoma; active suicidal ideation, hyperthyroidism; MAOIs; pregnancy and breastfeeding	Insomnia, paraesthesias, dysgeusia, dizziness, dry mouth

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Medications Approved for Chronic Weight Management

Drug Cost/mos.	Caution	Contraindications	Side Effects
Naltrexone/ Bupropion SR $110	**Suicidality, BP, HR,↑ seizure risk, glaucoma, hepatotoxicity**	**Seizure disorder, uncontrolled HTN, chronic opioid use, MAOIs, Pregnancy and breastfeeding**	**Nausea, vomiting, headache, dizziness, insomnia**
Liraglutide 3.0mg $1200	Thyroid c-cell tumors in rodents, acute pancreatitis, acute gallbladder disease, serious hypoglycemia if used with insulin secretagogue, heart rate increase; use caution in renal impairment; hypersensitivity reactions	Patients with a personal or family history of medullary thyroid carcinoma or Multiple Endocrine Neoplasia, Pregnancy and breastfeeding	Nausea, vomiting, diarrhea, constipation, dyspepsia, abdominal pain

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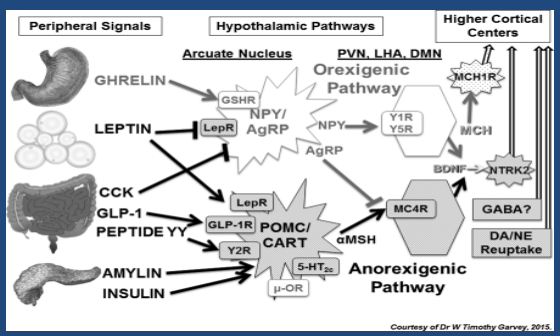
Eat Fewer Calories than you Burn = Lose Weight Simple?



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pages S1-S26, 7 JUL 2015 DOI: 10.1002/oby.21140

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Please Respond…People can be addicted to food, just as others are addicted to drugs, and these people usually become obese.

A. Strongly Disagree
B. Disagree
C. Somewhat Disagree
D. Neutral
E. Somewhat Agree
F. Agree
G. Strongly Agree

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Weight Bias

- We all have bias
- First, we must recognize it

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Which surgical procedure for weight loss is performed most often in the US today?

A. Gastric banding
B. Sleeve gastrectomy
C. Roux-en-Y gastric bypass
D. Revision

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Patients who have had a weight loss surgery procedure should not take NSAIDS.

A. True
B. False

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Which of the following weight loss medications is not approved for long term use?

A. phentermine ER/topirimate ER (Qsymia)
B. lorcaserin (Belviq)
C. liraglutide (Saxenda)
D. phentermine (Adipex)

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Questions?

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