BEYOND THE SCALE

Obesity Medicine in Primary Care

- Raghuveer Vedala, MD, FAAFP
- Primary Care, Family Medicine
- Norman Regional Health Systems

EXPLORE HEALTHCARE SUMMIT

Vital Visions
The Vedala Brothers Podcast

NORMAN REGIONAL – SOUTH OKC PRIMARY CARE

ABOM DIPLOMATE PROGRAM

DISCLOSURES

- I have none…

OBJECTIVES

Explain	Discuss	Evaluate	Describe	Identify	Discuss
Explain the diagnostic criteria and staging for obesity in adults and pediatrics, including the use of BMI and waist circumference measurements.	Discuss the common comorbidities associated with obesity, including cardiovascular disease, diabetes, and sleep apnea.	Evaluate the effectiveness of different interventions for the management of obesity in adults and pediatrics, including lifestyle modifications, pharmacotherapy, and bariatric surgery.	Describe the various pharmacotherapy options available for the treatment of obesity in adults and pediatrics, including their mechanisms of action and potential side effects.	Identify the indications and contraindications for bariatric surgery in patients with obesity, and understand the potential benefits and risks of these procedures.	Discuss the various bariatric surgery procedures available, including their indications, contraindications, and potential complications.

DONNA M.

Donna is a 42-year-old African American female presenting to your clinic. She has history of GERD, HTN, and prediabetes. She recently moved here from Indiana and is just looking to establish care, get refills on her medications, and set up her annual Mammogram.

On her vital signs you noticed that her weight is 203 lbs and her BMI is 36.

- Based on this information, which of the following diagnoses would you assign this patient?
  - A.) Overweight
  - B.) Class 11 Obesity
  - C.) Morbid Obesity
  - D.) Fabulous

DIAGNOSIS AND STAGING

- **Note: BMI is calculated by dividing a person's weight (in kilograms) by their height (in meters) squared. A BMI calculator can be used to determine an individual's BMI based on their height and weight.**

BMI Category	Classification of Obesity	Comorbidity Risk
Below 18.5	Underweight	Low*
18.5 to 24.9	Normal weight	Average
25.0 to 29.9	Overweight	Increased
30.0 to 34.9	Class I obesity	Moderate
35.0 to 39.9	Class II obesity	Severe
40.0 and above	Class III obesity	Very Severe

WAIST CIRCUMFERENCE

Risk of Comorbidity Adjusted for Waist Circumference		
BMI Classification	Adiposity-Related Risk by Waist Circumference Factor	
	Men ≤40 in (102 cm) Women ≤35 in (88 cm)	Men >40 in (102 cm) Women >35 in (88 cm)
Overweight	Increased	High
Class I Obesity	High	Very High
Class II Obesity	Very High	Very High
Class III Obesity	Extremely High	Extremely High
Abbreviations: BMI = body mass index; in = inches; cm = centimeters		

"Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

Weight-Related Complications Caused or Exacerbated by Excess Adiposity[2]		
Hypertension	Dyslipidemia	Cardiovascular Disease
Diabetes Mellitus	Obstructive Sleep Apnea	Depression
PCOS, Female Infertility, & Male Hypogonadism	NAFLD & Nonalcoholic Steatohepatitis	Asthma & Reactive Airway Disease
Osteoarthritis	Urinary Stress Incontinence	GERD

"Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

MEASURING WAIST CIRCUMFERENCE IN OFFICE

"How to Measure Your Waist Circumference." *YouTube*, YouTube, 5 Nov. 2020, https://www.youtube.com/watch?v=G2bmwZtZMv4. Accessed 5 Aug. 2023.

OBESITY ICD 10 CODES

When coding for obesity, code for both the obesity diagnosis as well as BMI.

Obesity codes:

- E66.1 Drug-induced obesity
- E66.2 Severe obesity with alveolar hypoventilation
- E66.3 Overweight
- **E66.8 Other obesity**
- **E66.9 Obesity, unspecified**

NOTE: Recommended codes commonly used.

Obesity codes that should be avoided:

- E66.0 Obesity due to excess calories
- E66.01 Severe obesity due to excess calories
- E66.09 Other obesity due to excess calories

NOTE: these 3 codes are stigmatizing and should be avoided.

BMI Codes Z68.XX:

- Z68.25-29.9 Body mass index (BMI) 25-29.9, adult
- Z68.30-Z68.39 Body mass index (BMI) 30.0-39.9, adult
- Z68.4 Body mass index (BMI) 40 or greater, adult
- Z68.41 Body mass index (BMI) 40.0-44.9, adult
- Z68.42 Body mass index (BMI) 45.0-49.9, adult
- Z68.43 Body mass index (BMI) 50-59.9, adult
- Z68.44 Body mass index (BMI) 60.0-69.9, adult
- Z68.45 Body mass index (BMI) 70 or greater, adult

Counseling codes you may use also include:

- Z71.3 Dietary counseling and surveillance
- Z71.89 Other specified counseling (including exercise counseling)

"ICD 10 Codes for Obesity Management." *Primary Care Obesity Management*, www.aapa.org/wp-content/uploads/2018/09/FINAL_Obesity_ICD10_Codes.pdf. Accessed 5 Aug. 2023.

TOM H.

- Tommy H is a 38-year-old Indian-American male presenting to your clinic to establish care. He has also just moved here from Indiana, and it seems that Tom and another patient you saw today likely know each other. It seems that Thursdays are for some reason important to them.
- Tommy has no chronic conditions and says all he needs from you is an "Executive Physical." You notice on his Vitals that his BMI is elevated at 32. You mention this to Tommy to which he responds – " I work out all the time, my body is just AWESOME at being humble"
- How would you approach discussing Tom's weight with him? What advice would you give him moving forward?

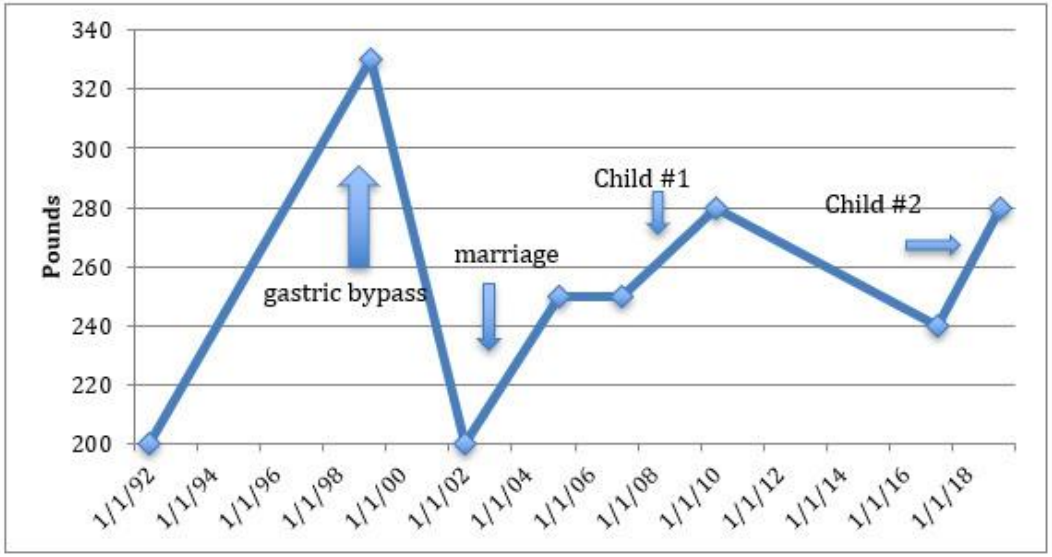
TALKING WEIGHT

- Proactivity
- Permission
- Language
- Open Communication

THE OBESITY FOCUSED HISTORY

- Open-ended questions
- Weight trajectory
- Current Diet, Exercise, Sleep
- Comorbidities
- Prior weight loss attempts
- Expectations
- Psychosocial factors
- Med List

WEIGHT TRAJECTORY

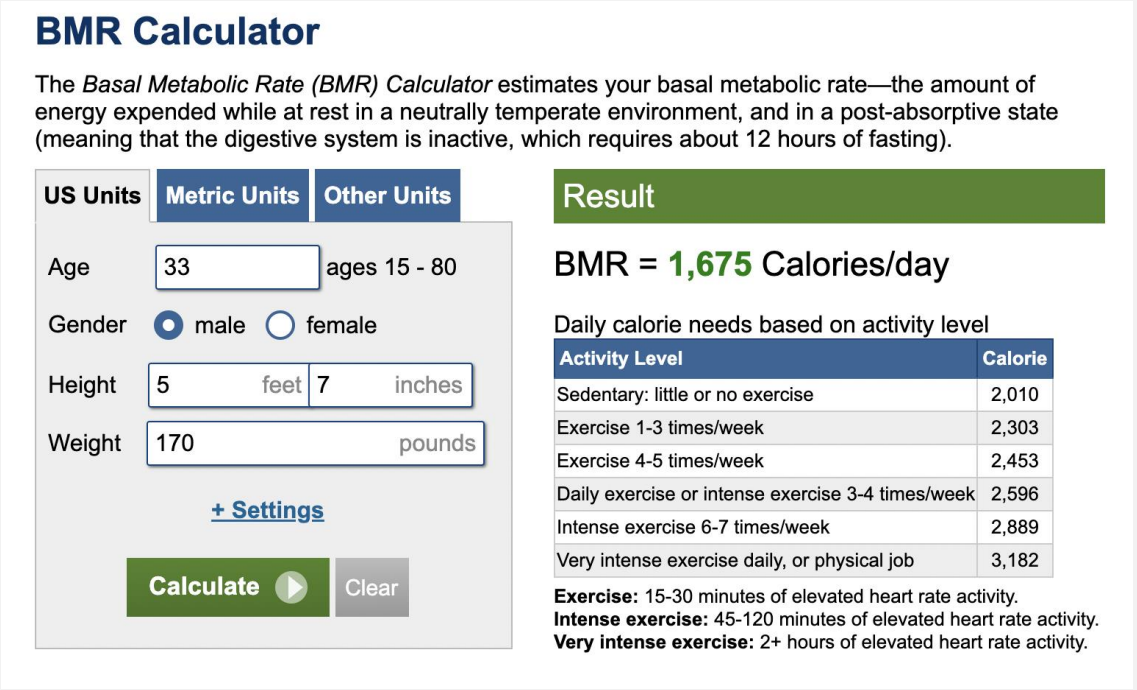


"Use of the Historial Weight Trajectory to Guide an Obesity Focused ..." *National Library of Medicine*, www.ncbi.nlm.nih.gov/books/NBK541616/. Accessed 9 Aug. 2023.

BASIC NUTRITION PRINCIPLES

- Refer to Dietician
- Long term weight loss requires Sustained Lifestyle Change
- Individualize to your patient
- Balance Caloric Restriction with Food Quality
- Promote Healthy Dietary Choice
- Incorporate Mindfulness
- Incorporate Records

CALORIC RESTRICTION



BMR Calculator

The *Basal Metabolic Rate (BMR) Calculator* estimates your basal metabolic rate—the amount of energy expended while at rest in a neutrally temperate environment, and in a post-absorptive state (meaning that the digestive system is inactive, which requires about 12 hours of fasting).

US Units | **Metric Units** | **Other Units**

Age 33 ages 15 - 80

Gender (•) male ( ) female

Height 5 feet 7 inches

Weight 170 pounds

+ Settings

Calculate Clear

Result

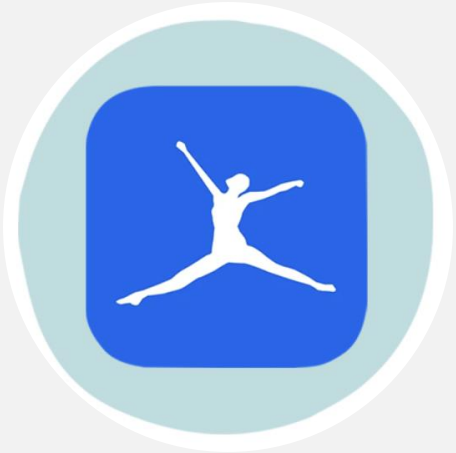
BMR = **1,675** Calories/day

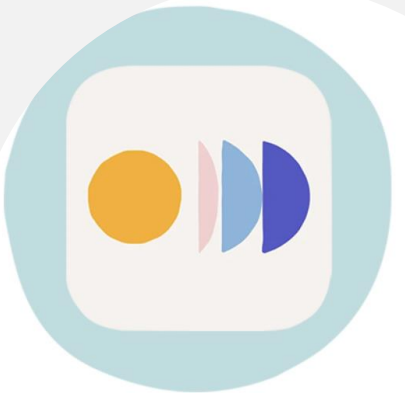
Daily calorie needs based on activity level

Activity Level	Calorie
Sedentary: little or no exercise	2,010
Exercise 1-3 times/week	2,303
Exercise 4-5 times/week	2,453
Daily exercise or intense exercise 3-4 times/week	2,596
Intense exercise 6-7 times/week	2,889
Very intense exercise daily, or physical job	3,182

Exercise: 15-30 minutes of elevated heart rate activity.
Intense exercise: 45-120 minutes of elevated heart rate activity.
Very intense exercise: 2+ hours of elevated heart rate activity.

"Home." *Calculator.net*, https://www.calculator.net/bmr-calculator.html.

USE YOUR PHONE!

EVIDENCE BASED DIETS

- Meal Based
- Intermittent Fasting
- Mediterranean
- DASH
- Vegetarian
- Atkins
- Paleo

EXERCISE

Age Group	Type of Activity	Duration	Frequency	Intensity
Adults	Aerobic	150-300 min/week	Moderate-intensity: 5 days/week or Vigorous-intensity: 3 days/week or a combination	Moderate-intensity or Vigorous-intensity
	Muscle-strengthening	2 days/week	All major muscle groups	Moderate or high intensity
	Flexibility	At least 2-3 days/week	Hold each stretch for 10-30 seconds	To the point of tightness or slight discomfort
	Balance	Regularly, as part of daily activities	N/A	N/A

Note: These recommendations are from the US Department of Health and Human Services' Physical Activity Guidelines for Americans, 2nd edition (2018).

EXERCISE - FITTE

Frequency

Intensity

Time or Duration

Type

Enjoyment

PEDIATRIC OBESITY

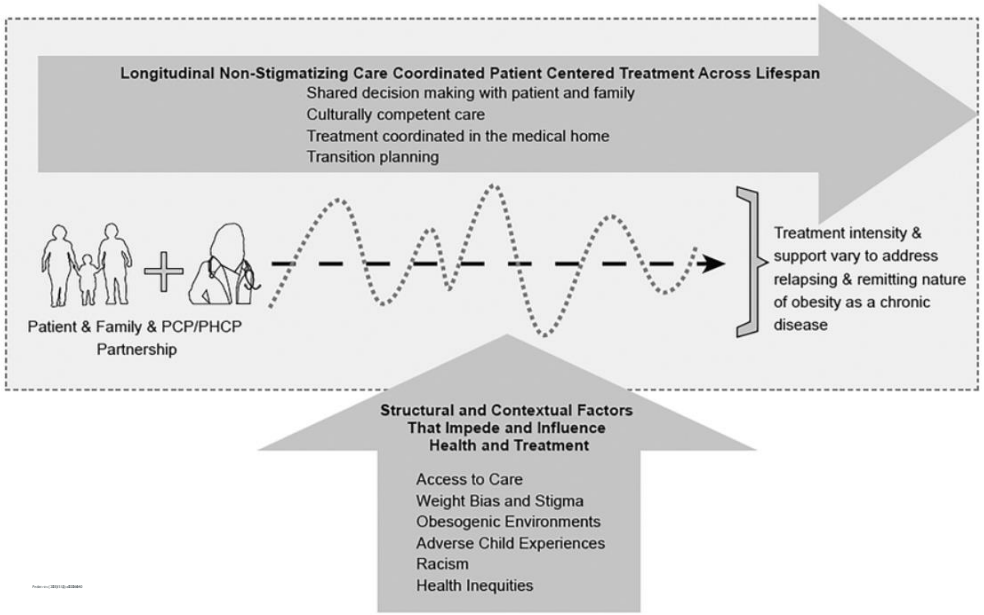
Obesity Classification	BMI-for-age percentile
Normal weight	Less than 85th percentile
Overweight	85th to less than 95th percentile
Obesity, class 1	95th to less than 120th percentile or BMI of 25 to 29.9 kg/m², whichever is lower
Obesity, class 2	120th to less than 140th percentile or BMI of 30 to 34.9 kg/m², whichever is lower
Obesity, class 3	140th percentile or higher or BMI of 35 kg/m² or higher

Pediatric Obesity Staging	BMI	Interventions
Stage 0	BMI < 85th percentile	Encourage healthy lifestyle behaviors, monitor growth and development
Stage 1	BMI 85th to <95th percentile or BMI z-score 1 to <2.0	Targeted prevention with focus on healthy lifestyle behaviors and family-based interventions
Stage 2	BMI 95th to <120% of 95th percentile or BMI z-score 2.0 to <3.0	Structured weight management interventions, including family-based lifestyle interventions and/or multidisciplinary interventions
Stage 3	BMI ≥120% of 95th percentile or BMI z-score ≥3.0	Comprehensive multidisciplinary intervention, which may include pharmacotherapy or bariatric surgery for severely affected adolescents

PEDIATRIC OBESITY

FIGURE 1

Treatment Experience of Obesity as a Chronic Disease



PHARMACOTHERAPY

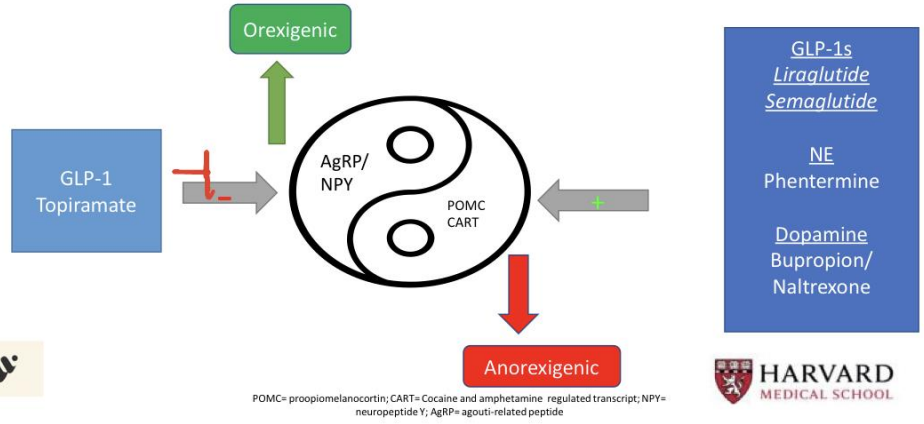
MEDS THAT CAUSE WEIGHT GAIN

Class	Medications	Alternatives
Anti-inflammatories	Prednisone, Hydrocortisone, Dexamethasone	NSAIDS, Intranasal steroids
Atypical antipsychotics	Olanzapine, Quetiapine, Clozapine	Aripiprazole,Ziprasidone, Brexiprazole (Less weight gain)
Mood stabilizers	Lithium, Valproate	Lamotrigine (Less weight gain)
Anticonvulsants	Gabapentin, Pregabalin, valproate, carbamazepine	Lamotrigine (less weight gain), Keppra (less weight gain), topomax (weight neutral / loss)
Tricyclic antidepressants	Amitriptyline, Imipramine	Nortryptiline (less weight gain)
Selective serotonin reuptake inhibitors (SSRIs)	Paroxetine, Sertraline, Escitalopram	Sertraline (Less weight gain), Fluoxetine (weight neutral)
Atypical antidepressants	Mirtazapine, Trazodone	Bupropion (weight loss)
Antidiabetic agents	Insulin, Sulfonylureas, TZDs	DPP 4i (weight neutral), Metformin, SGLT 2 and GLP-1 analogs (weight loss)
Infectious Disease Agents	Protease Inhibitors	
Anti-hypertensives	Alpha-blockers / B-blockers	Calcium channel blockers, ACE-I/ARBs
OB/Gyn	OCPs, depot-shot	Non hormonal IUD (weight neutral), hormonal IUD, Nexplanon, Progestin only-pill (less weight gain),

ANTI-OBESITY PHARMACOTHERAPY

Orlistat	Phentermine	Qysmia	Contrave
GLP-1 Analogs	Saxenda (Victoza)	Wegovy (Ozempic)	Off-Label

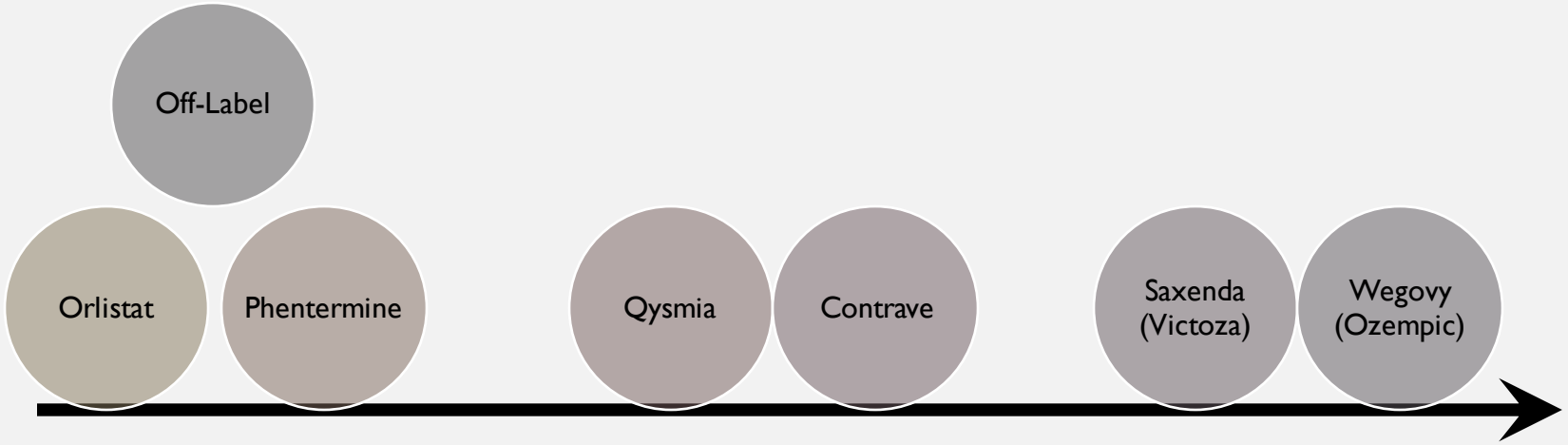
Mechanism of Action



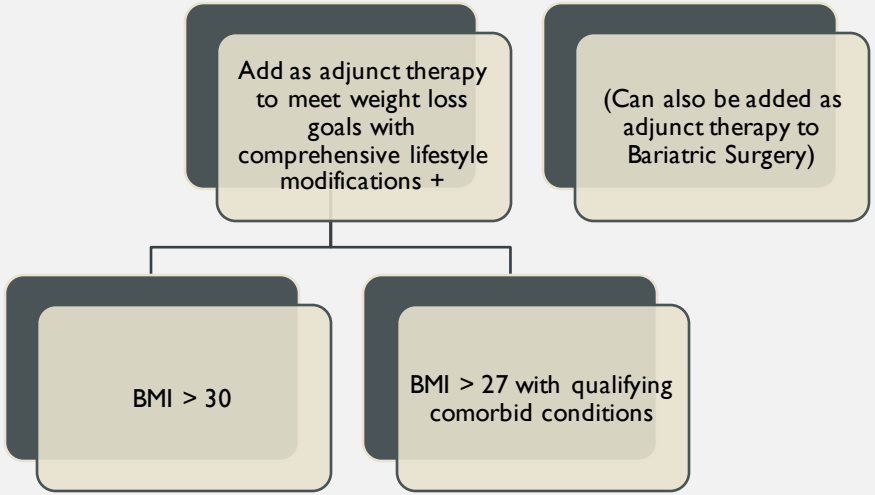
POMC= proopiomelanocortin; CART= Cocaine and amphetamine regulated transcript; NPY= neuropeptide Y; AgRP= agouti-related peptide

Curtis, Greg. "Pharmacotherapy to Treat Obesity." Harvard Blackburn Academy. Harvard Medical School Blackburn Academy, 23 Apr. 2023, Boston, Massachusetts, Harvard Medical School.

ANTI-OBESITY PHARMACOTHERAPY



ANTI-OBESITY PHARMACOTHERAPY - INDICATIONS

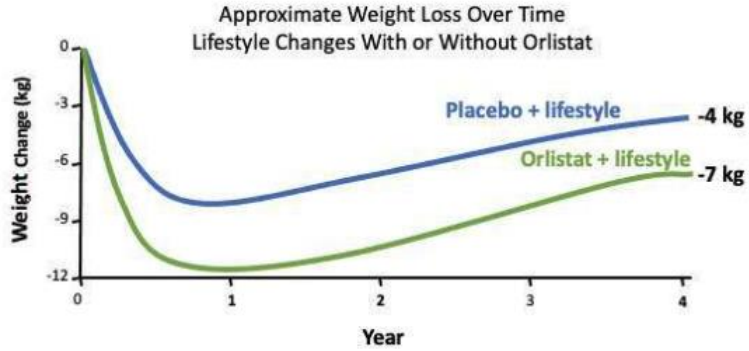


SETTING EXPECTATIONS

Efficacy	Medications as Adjunct Therapy	Medications as Long Term Therapy
Cost	Insurance Coverage	Shared Decision Making

ORLISTAT

Source for chart below: Torgerson JS et al.[8]



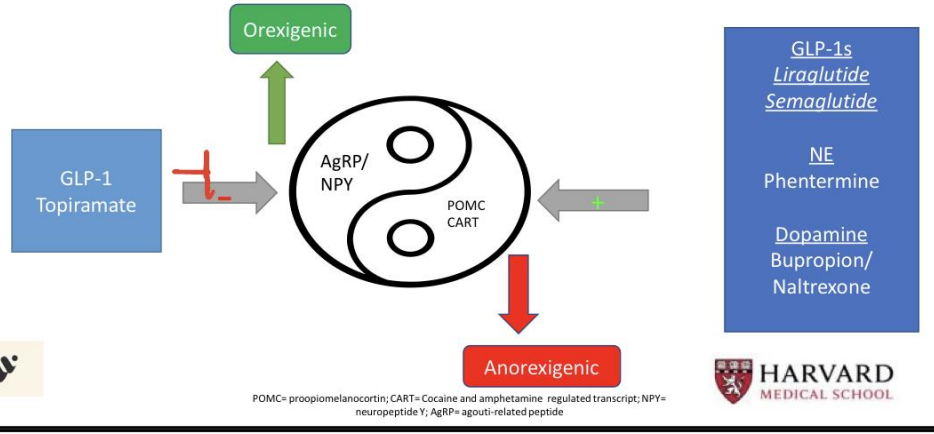
- Mechanism: gastrointestinal lipase inhibitor - reduces fat absorption
- Dosing: prescription and also available over the counter
  - Prescription: 120 mg TID w/ meals (Xenical)
  - OTC: 60 mg TID w/ meals (All)
- Side effects: Diarrhea, flatulence, bowel incontinence; interference w/ fat soluble vitamins and med absorption - Warfarin, Vitamins A,D,E,K, and some immunosuppressants
- Clinical Use: lowest probability of achieving 5% weight loss - but also lowest risk of serious side effects
- Consider if: **patient will tolerate (motivated)** by diarrhea, flatulence, bowel incontinence
- Avoid if: comorbid malabsorption, post bariatric surgery, nephrolithiasis
- Management: co-prescribe vitamins ADEK; administer vitamins / other meds 2-3 hours before dose
- Expected benefit: 3kg weight loss compared with lifestyle

"Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

PHENTERMINE

- Mechanism: sympathomimetic amine appetite suppressant, similar to amphetamine
- Dosing: available by prescription as generic phentermine HCL - 15 , 30, 37.5 mg tablets; brand Lomaira 8 mg tablets, brand Adipex 37.5 mg tablets; phentermine resin - 15 / 30 mg tabs absorbed slowly in GI tract
  - 15 to 37.5 mg / day 1-2 hours after breakfast or in 2 divided doses
  - 8 mg 30 minutes prior to meals TID
  - DEA schedule IV; **Contraindicated in Pregnancy**
- Side effects: easily dissociates in GI tract; common side effects: tachycardia, increase in blood pressure, tremor, **dry mouth,** constipation
- Clinical Use: most commonly prescribed, **least expensive**; FDA approved for short term use (12 weeks only), but longer term use can be used if bp is normal. Intermittent use can be considered.
- Consider if: pt desires low cost option for appetite control
- **Avoid if**: comorbid HTN, cardiac disease, glaucoma, substance use disorder, recent use selegiline, MAOIs
- Management: monitor blood pressure; avoid alcohol use, monitor stimulant use disorder
- Expected benefit: moderate potential to achieve 5% weight loss goal - added to lifestyle modification

Mechanism of Action



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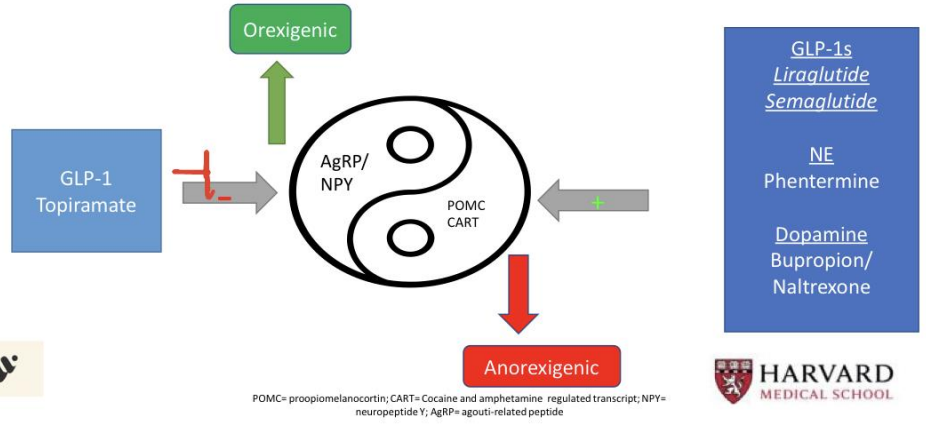
QSYMIA (PHENTERMINE / TOPIRAMATE)

- IR Phentermine + Controlled Release Topiramate
  - Mechanism: noradrenergic sympathomimetic short-term appetite suppression + Central (GABA, Glutamate) and Peripheral (NA, Ca channel) mediated appetite suppression + taste alteration
- Dosing:
  - Formulations: 3.75/23, 7.5/46, 11.25/69, 15/92 (max dose)
  - Begin 3.75/23 capsule once in AM for 2 weeks, then increase to 7.5/46
    - Reassess after 12 weeks. **If > 3% weight loss** then continue treatment. I**f < 3% weight loss**, then slow taper and DC or increase to 11.25/69 for 2 weeks, then to max dose of 15/92. Continue high dose of 12 weeks, **if weight loss > 5%,** then continue therapy, **if < 5%** slow taper and DC.
  - DEA scheduled 4 – **Contraindicated in Pregnancy**
- FDA Approved FOR PEDS (Ages > 12)
- Side Effects (Taste alteration, insomnia, dry mouth, constipation, metabolic acidosis, 2ndary closed angle glaucoma, nephrolithiasis, AKI, Metabolic Acidosis, Teratogenicity)
- Highest potential for desired 5% weight loss (up to 12-14% decrease in body weight)
- **Monitoring** – reproductive aged woman (pregnancy test prior to starting treatment, monitoring during therapy, use of contraception). Avoid in patients with known Cardiovascular Disease.
- Cost: average retail price: 234.19$, Qsymia Savings Card, Retail Savings, Home Delivery

Mechanism of Action



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QSYMIA (PHENTERMINE / TOPIRAMATE)

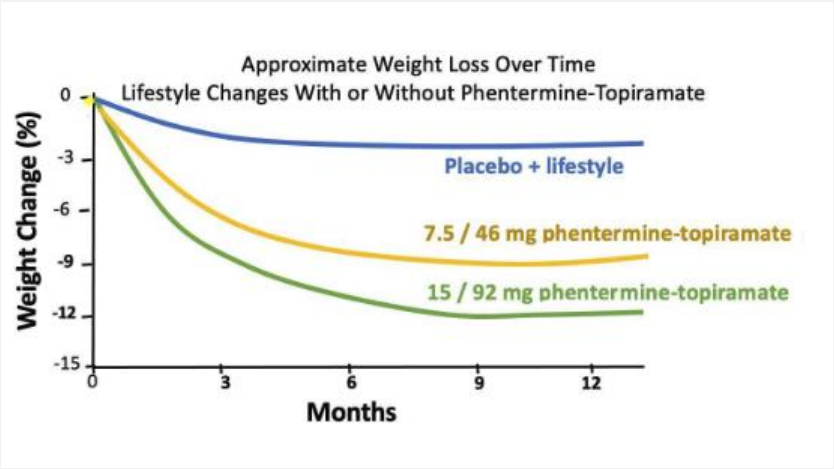
Retail Pharmacies		Qsymia Home Delivery Pharmacy
$79*	**$128***	**$98***
Average price for a 30-day Rx	Average price for a 30-day Rx	For any 30-day Rx or Qsymia product pack
✓ For patients using commercial insurance	✓ For patients paying cash	✓ For the lowest cash price
DETAILS	VIEW DETAILS	VIEW DETAILS

$79

Price after applying $65 monthly savings using the Qsymia retail pharmacy savings card. **Fees may vary by location.**

✓ **For patients using commercial insurance** after covering the first $70 of copay and applying $65 savings.

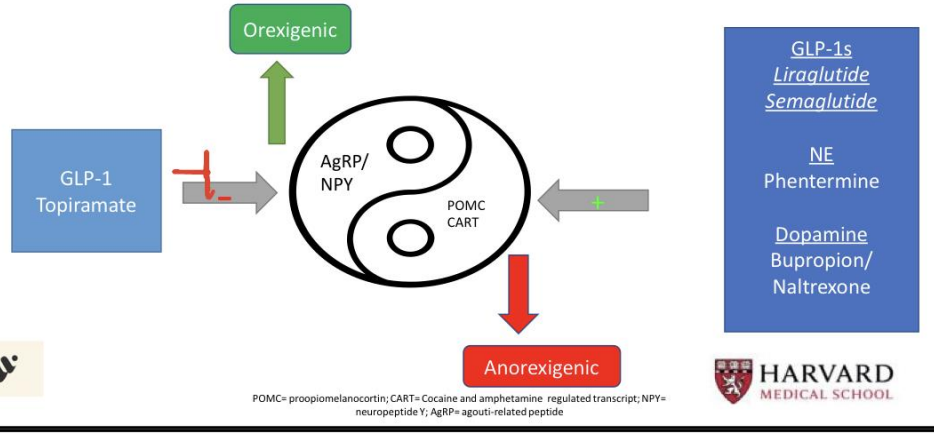
SAVINGS CARD REGISTRATION



CONTRAVE (WELLBUTRIN / NALTREXONE)

- Mechanism: suppresses appetite through dopamine and NE reuptake inhibition, and naltrexone mu-opioid antagonism enhancing appetite suppressant effect. Combo decreases reward pathways for foods, reducing compulsive and pleasure eating;
- Dosing: 8/90 mg ER (Brand name Contrave)
  - Begin with 1 tab daily, increase weekly intervals
  - Increase up to 2 tabs twice a day
- Side effects: n/v, change of bowel habits, constipation, dizziness, insomnia, headache; multiple drug interactions (review prior to starting)
- Consider if: patient desires appetite control and reduction of pleasure-based or compulsive eating (food addiction behaviors)
- Avoid if: seizure disorder hx, hx of SI, eating disorders (due to seizure risk), uncontrolled HTN, any current opiate use, at risk alcohol use, kidney failure (GFR < 30), use of listed drug interactions
- Management: begin 1 tab, increase dosage weekly with additional tab to max 2 caps twice a day; adjust dose for renal function
- Expected benefit: intermediate probability of achieving 5% weight loss; combine with behavior modification, can go up to 5-10%
- Cost: good rx: 517$, CurxAccess - get for 99$ / month; contrave coupon savings - if covered by insurance as low as 20$, no more than $199

Mechanism of Action



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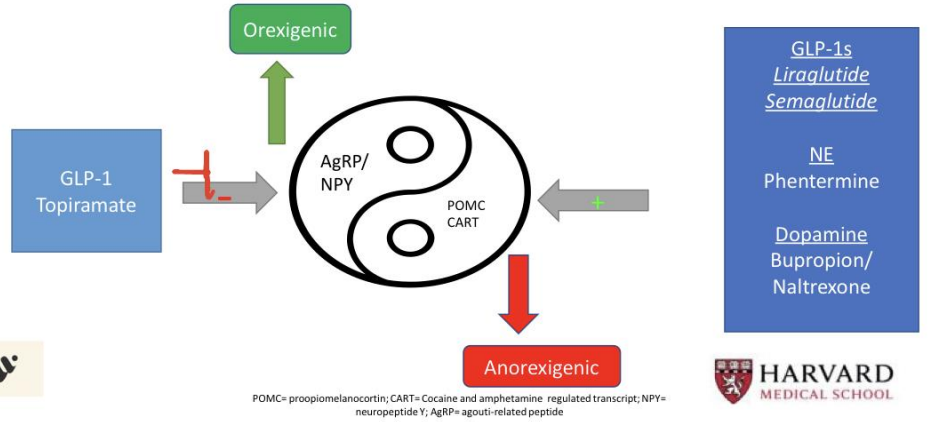
CONTRAVE (WELLBUTRIN / NALTREXONE)

GLP-1 ANALOGS

- GLP-1 receptor agonists; used with higher doses than diabetes for weight loss
- Mechanism: appetite suppression by activation of hypothalamic GLP-1 receptors to increase postprandial satiety sensation - also delays gastric emptying
- Dosing:
  - Liraglutide (Saxenda) - 3mg sub injection daily (diabetes max dose 1.8 mg daily)
    - Start with 0.6 mg daily for 1 week, then increase daily dose each week over 4 weeks as tolerated to max of 3 mg (1.2, 1.8, 2.4, 3.0)
  - Semaglutide -2.4 mg injection weekly; (diabetes = ozempic (IM) and Rybelus (PO)) but for Obesity = Wegovy
    - 0.25 mg weekly for 4 weeks; then go up every 4 weeks (0.5, 1,1.7, 2.4)
- Approved for Peds (Saxenda, Wegovy – Ages > 12)
  - Saxenda – ages 12-17 – pt's weight has to > 132 lbs (60 kh)

Mechanism of Action



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GLP-1 ANALOGS

- Side effects:
  - N/V, **constipation, diarrhea, dyspepsia**; less common - Pancreatitis, thyroid c-cell tumors theoretical risk (Medullary cancer)
  - Wegovy: increased risk of **acute gallbladder disease;** hypoglycemia, diabetic retinopathy, and **increased HR**
- Clinical Use: significantly more expensive than all other meds - but have less serious risks
- Consider if: Patient has diabetes or prediabetes, is willing to use an injectable medication, is willing to tolerate mild gastrointestinal symptoms, and understands potential long-term costs.
- Avoid if: History of pancreatitis or medullary thyroid carcinoma, Family history of multiple endocrine neoplasia type 2
- Management: Nausea is most prominent early after initiation, then often diminishes. If necessary, slow the dose escalation cycle during initiation. Patients with nausea and vomiting may also experience greater weight loss than those who do not; uses cautiously in CKD

GLP-1 ANALOGS

Expected Benefit:

- Demonstrated in patients with or without diabetes
- Semaglutide Treatment Effect in People with Obesity (STEP) trial: Mean loss of 6% of weight by week 12, and 12% of weight by week 28, sustained 15% weight loss at 2 years.
- Semaglutide leading to 20% reduction in MACE (SELECT TRIAL)

Cost

- Saxenda: good rx: 1400$; can look up copay online; can get as low as 25$ for 30 day supply with insurance if you have savings card (pharmacists can help)
- Wegovy: good rx: 1400$; co-pay card - pay as little as 0$; wegotogether - personalized support for patients- has behavior change resources, but they can try to help navigate costs

Request or activate your Saxenda® Savings Offer

If you have private or commercial insurance you may pay as little as $25 per 30-day supply (1 box) of Saxenda® subject to a maximum savings of $200 per 30-day supply. If you pay cash for your prescriptions, you can save up to $200 per 30-day supply (1 box) of Saxenda®.[a]

[a] Eligibility and other restrictions apply.

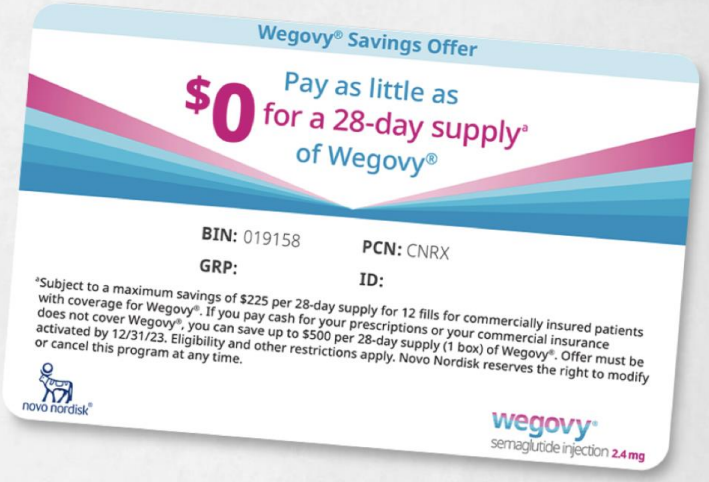
SAXENDA (LIRAGLUTIDE)

Request your Wegovy® Savings Offer and WeGo *Together*® support

If you have private or commercial insurance with coverage, you may pay as little as $0 per 28-day supply (1 box) of Wegovy® subject to a maximum savings of $225 per 28-day supply for 12 fills. If you pay cash for your prescriptions or your commercial insurance does not cover Wegovy®, you can save up to $500 per 28-day supply (1 box) of Wegovy®.[a]

¿Habla español? Por favor, llame 1-888-870-2340 para inscribirse.

[a]Eligibility and other restrictions apply.



WEGOVY (SEMAGLUTIDE)

GLP-1 POPULARITY

COMPOUNDED GLP-1S

- Official Statement from Obesity Medicine Association
  - In the interest of “primum non nocere” (i.e., first do no harm), the Obesity Medicine Association recommends:•Anti-obesity medications and their formulations should undergo clinical trial testing for efficacy and safety as overseen by the FDA
  - The components of compounded peptides should be legally produced by source companies whose identities are readily disclosed, and who have documented manufacturing processes compliant with oversight by applicable regulatory agencies (i.e., the FDA for example, if the source component is a prescription drug) undisclosed sources
  - Prescribers should be cautious of compounded peptides where the safety, efficacy, quality, and purity of the source molecule, and their combination with other molecules, cannot be assured. At minimum, patients should be informed of potential limitation of compounded peptides.
    - Angela Fitch , Anthony Auriemma , Harold Edward Bays

Fitch, Angela, et al. “Compounded Peptides: An Obesity Medicine Association Position Statement.” *Obesity Pillars*, vol. 6, 2023, p. 100061, https://doi.org/10.1016/j.obpill.2023.100061.

OFF-LABEL

Metformin	Wellbutrin	Topomax
Naltrexone	Ozempic	Mounjaro

TIRZEPETIDE

- Approved for DM ONLY. Off-Label for Obesity
- Dual GLP-1 / GIP Receptor Antagonist
- MOA: stimulates POMC/CART, slows gastric emptying
- Dosing: Start 2.5 mg weekly, increase by 2.5 mg every 4 weeks up to max dose of 15 mg weekly
- Side effects: GI → N/V, constipation. Tachycardia, Depression?

GELESIS-100

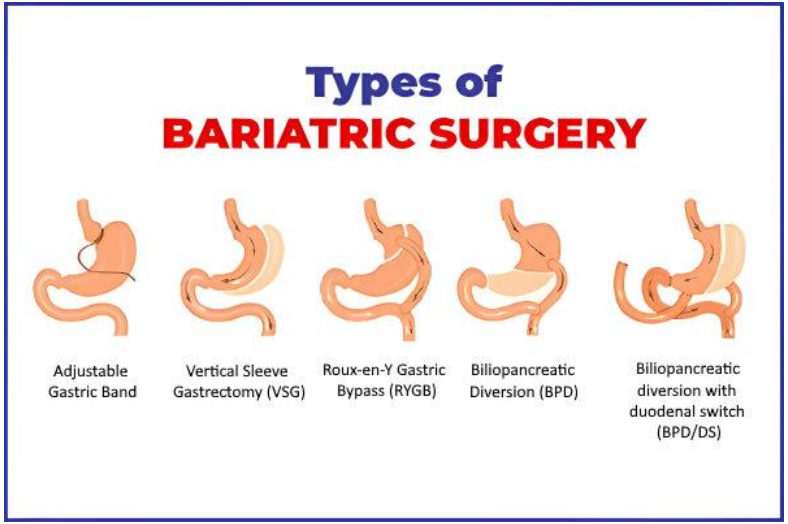
- Medical Device → hydrocellulose capsule, absorbs H20 and expands in stomach taking up gastric space
- Approved if BMI > 25 with or without comorbidities
- Dose: 3 capsules in 16 oz of Water, BID
- CI: pregnancy, allergies to cellulose, and gelatin, caution if recent abdominal surgeries, strictures (Chrohn's), esophageal rings, etc.
- SE: GI – bloating, etc.
- Not studied in patients with prior bariatric surgery

GELESIS 100

"Gelesis Granted FDA Clearance to Market PLENITYTM — a New Prescription Aid in Weight Management." *YouTube*, YouTube, 15 Apr. 2019, https://www.youtube.com/watch?v=o9c6KxcKfZs. Accessed 9 Aug. 2023.

FDA APPROVED FOR PEDS

Orlistat (Ages > 12)	Phentermine (Ages > 16)	Qsymia (Ages > 12)
Saxenda (Ages > 12)	Wegovy (Ages > 12)	Setmelanotide (Imcivree) (Ages > 6 with identified genetic causes of obesity)



BARIATRIC SURGERY

BARIATRIC SURGERY -- TARGETS

Restriction

Malabsorption

Hormones (involved in all procedures)

BARIATRIC SURGERY -- BENEFITS

- Most effective tx for producing long-term weight loss and for improving obesity-related comorbid conditions
- Associated with longer life expectancy than usual obesity care
- 89% reduction in 5-year mortality following bariatric surgery
- Nearly all patients experience some improvement in quality of life

BARIATRIC SURGERY – SURGICAL CRITERIA

Basic

- 1.) **BMI > or = 40** (severe obesity)
- 2.) **BMI > 35 with comorbid conditions** (diabetes mellitus, insulin resistance, prediabetes, metabolic syndrome, poorly controlled hypertension, nonalcoholic fatty liver disease/nonalcoholic steatohepatitis, obstructive sleep apnea, osteoarthritis of the knee or hip, or stress urinary incontinence) - most insurance will require 2 criteria above

Newer Indications

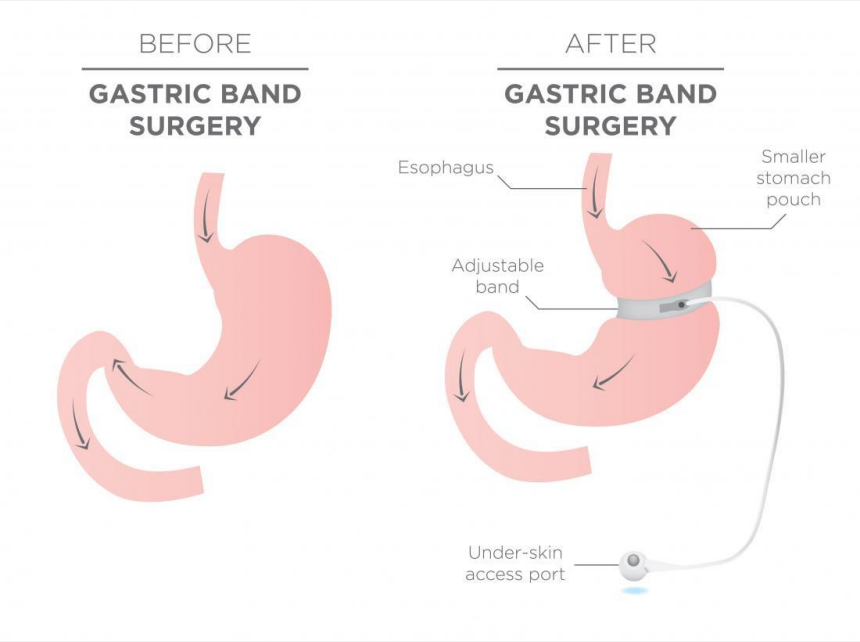
- 3.) BMI 30-34.9 and type 2 diabetes with inadequate control despite lifestyle and med therapy
- 4.) At any weight to achieve optimal health and quality of life when amount of weight loss needed to prevent / treat clinically significant obesity-related complications cannot be obtained using nonsurgical therapy
- 5.) **BMI > 27 in a person of Asian descent w/ comorbid DM**; In Asians, a BMI of 18.5 to 22.9 kg/m^2 is considered normal range, 23 to 24.9 kg/m^2 is overweight, and ≥25 kg/m^2 defines obesity.

BARIATRIC SURGERY – COMMON PROCEDURES

- Gastric Band
- Sleeve Gastrectomy
- Roux-en-Y Gastric Bypass
- Biliopancreatic Diversion
- BPD with Duodenal Switch
- Single Anastomosis (Mini Bypass)
- Gastric Balloon

GASTRIC BAND

- Previously popular, but now less offered
- Targets: Restriction
- Less Weight loss
- Increased risk of adjustment, mechanical complications (erosion, band slippage, obstruction)



"Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

SLEEVE GASTRECTOMY

Most Common in US

Targets: Restriction + Hormone-induced appetite suppression

Weight loss: Average 50-60% of excess weight

Risks:

- Early:
  - **Anastomotic leak** (staple line leak) is the most feared complication: 1% to 3%[12]
  - Nausea, vomiting
  - Bleeding: 1% to 2%
  - Delayed gastric emptying
  - Wound infection
  - Deep venous thrombosis (DVT)/pulmonary embolism
  - Obstruction
  - Reflux (GERD) (most see improvement of GERD but some will get worse)
  - Death: 0.1% to 0.5%
- Late
  - Nutritional deficiencies: folate, vitamin B_{12}, iron, and thiamine
  - Obstruction
    - Stricture
    - Internal hernia

"Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

GASTRIC BYPASS

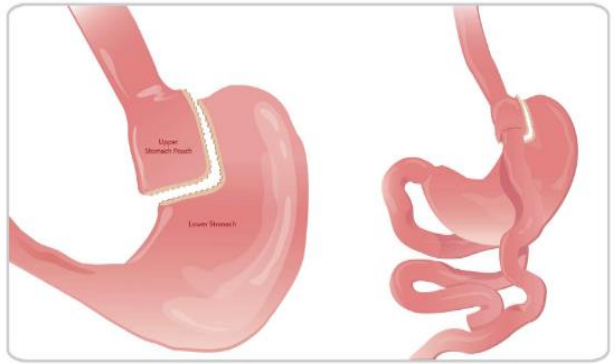
2nd Most Common in US

Targets: Restriction + Hormone + malabsorption

Weight Loss: Avg 70-75% of excess weight

Risks:

- Early (< 30 days)
  - **Anastamotic leak: 0.4%**
  - Acute gastric distention of the gastric remnant
  - Nausea, vomiting
  - DVT/pulmonary embolism
  - Bleeding
  - Death: 0.5% to 1%.
- Late
  - **Marginal ulcer** (1 cm below the anastomotic line, with risk for perforation): **5.2%**
  - Nutritional deficiencies: folate, vitamin B_{12}, iron, thiamine, vitamin D, zinc, and vitamin A[14]
  - Obstruction
    - Stricture: 3.7%
    - Internal hernia
- Gallstones: 10%

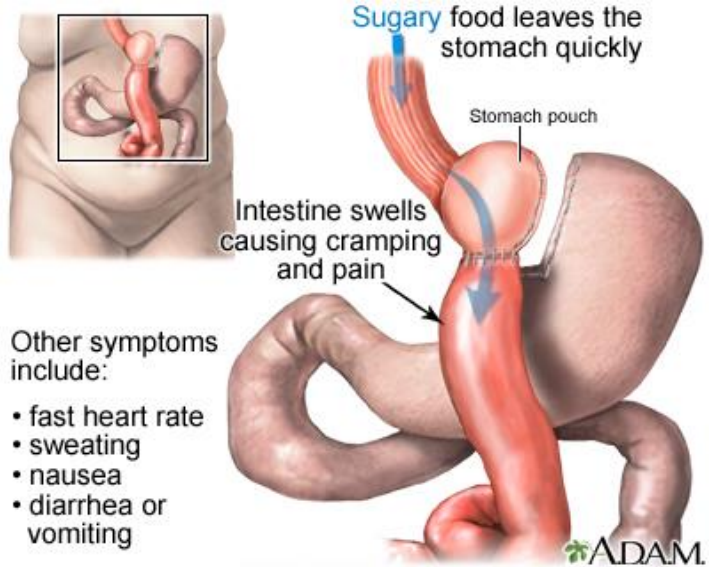


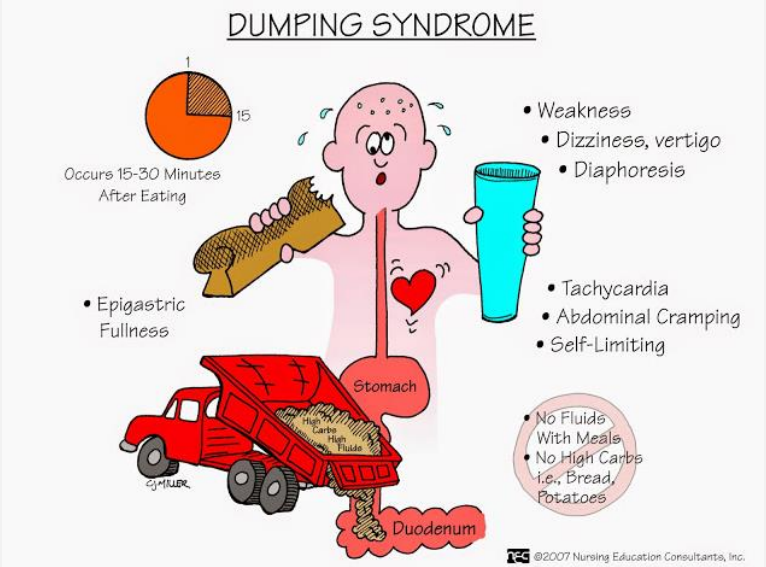
"Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

GASTRIC BYPASS

- **ALERT**: **NSAIDs, Nicotine, and Corticosteroids: Caution**
  - Due to the risk for **anastomotic ulcer**, nonsteroidal anti-inflammatory drug (NSAID) and nicotine use in any form are contraindicated for life after gastric bypass. Corticosteroids, NSAIDs, and tobacco can cause ulcers after Roux-en-Y gastric bypass.

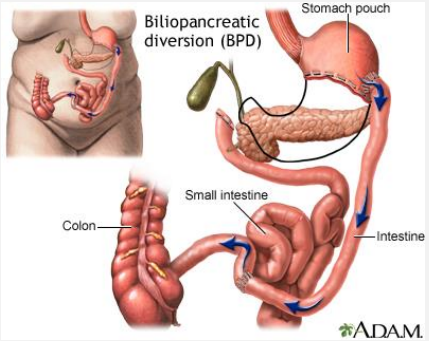
DUMPING SYNDROME

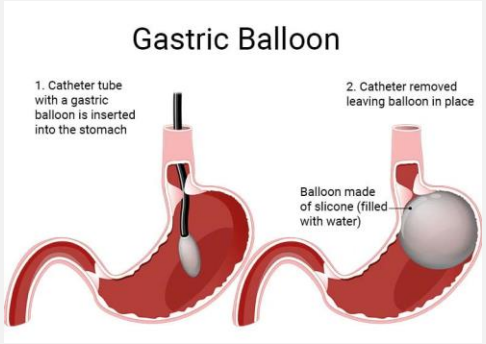




BARIATRIC SURGERY – LESS COMMON PROCEDURES

- Gastric Balloon
- Biliopancreatic Diversion
- Duodenal Switch
- Single Anastomosis Duodeno-ileal bypasss with sleeve gastrectomy





BARIATRIC SURGERY – PRE-OP REQUIREMENTS

1.) Engage a nonsurgical sustained program of weight loss (w/ or w/o meds)

- Surgery reserved for pts who have been unable to lose adequate weight despite weight loss efforts

2.) Evaluate Med-surg risk:

- Needs cardiac, pulmonary, hematology evals
- Routine cancer screens should be done
- Screening for OSA needed
- Optimizing blood sugar / pressure required
- Usually bariatric surgery team performs pre-operative nutrient screening

3.) Assess psychological appropriateness and behavioral health needs

- Many insurance plans require formal psych evaluation prior to bariatric surgery.
  - Depression very common with obesity
  - Need to rule out binge-eating disorder
- Smoking cessation counseling and substance abuse treatment

4.) GI eval for selected pts

- Complete upper endoscopy for all patients undergoing gastric bypass in order to screen the excluded stomach for masses and pathology prior to its closure into a blind loop.
- Complete upper endoscopy for patients with GERD who schedule a sleeve gastrectomy to screen for esophagitis and dysplasia.
- Perform ultrasonography of gallbladder to assess for gallstones.
- Screen for *Helicobacter pylori* in high-prevalence populations.

BARIATRIC SURGERY – PRE-OP REQUIREMENTS

5.) Complete presurgery education

- R/B/I of surgery including risk of mortality

6.) Agreement for post-operative care

- Patients must understand the need for and agree to adhere with regular postoperative follow-up to monitor weight and nutritional status. They should understand the lifelong need to take regimens of vitamin supplements, including a daily multivitamin.

7.) Manage preoperative contraception

- Candidates for bariatric procedures should avoid pregnancy before and for 12 to 18 months after the procedure to ensure appropriate fetal nutrition and maternal weight loss. Women undergoing gastric bypass should be counseled about non–oral contraceptive therapies due to bypass effects on oral absorption.

8.) Discuss Common Concerns post surgery

- Hair Loss
  - common, primarily due to the stress on the body and hormonal changes caused by surgery. Patients may be reassured that it is usually temporary. Other causes include inadequate protein, vitamins, and minerals. Attention to preoperative nutrition, stress management, and postoperative care will be necessary. Biotin is often included in postoperative supplements.
- Excess Skin
  - Excess skin is expected following severe weight loss and may need to be removed by a plastic surgery team. Excess skin removal procedures often require significant out-of-pocket expenses and are not covered at all by some insurers.
- Small increase in alcohol misuse and suicide

9.) Risk Calculator

- The Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) in conjunction with the American College of Surgeons developed a bariatric risk-benefit calculator that all patients and physicians and surgeons may access.
- https://riskcalculator.facs.org/bariatric/

BARIATRIC SURGERY – POST OP VISITS

Follow up visits: 1 week, 2 week, 1,3,6,9,12,18 months

Visits include: complication monitoring, weight loss monitoring, self-management and exercise support, nutrition management, and screening for depression

For first 2 weeks post surgery – pts will require 2 weeks of liquid meals, followed by 4 weeks of soft meals, then modified regular meal plan.

Lab review: A1c, CMP, Iron, Folate, Calcium, Vit D, b12, A,E,K, Cu, Zinc, and lipid panel

After 18 months, need annual visits for labs monitoring

BARIATRIC SURGERY – POST-OP LAB TESTING

Summary of Usual Testing After Bariatric Surgery[6]		
Test	**Timing**	**After Sleeve Gastrectomy or Gastric Bypass?**
SMA-21, CBC/platelets	With each visit	Both
Iron	At baseline, then at 3, 6, 12 months, then as indicated	Both
Lipid evaluation	Q 6 to 12 months (based on risk and therapy)	Both
Bone density (DXA)	At 2 years, and then as indicated	Both
24-hour urinary calcium excretion	At 6 months, and then annually	Both
B_{12} (MMA and HCy optional)	Annually, then q 3 to 6 months if supplemented	Both
Thiamine evaluation	If suggestive findings	Both
Folic acid (RBC folic acid optional), 25-vitamin D, iPTH	With follow-up visits months 1, 3, 6, 12	Gastric bypass: routinely Sleeve gastrectomy: only if clinically indicated
Vitamin A	initially and q 6 to 12 months thereafter	Gastric bypass: optional Sleeve gastrectomy: only if clinically indicated
Copper, zinc, and selenium evaluation	If suggestive findings	Gastric bypass
Hemoglobin A_{1c}, TSH	Evaluation in long-term follow-up	Both, as indicated

- "Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

COMMON POST-OP SUPPLEMENTS

Common Postoperative Supplements[14]	
Multivitamin with iron	• Thiamine (vitamin B_1): at least 12 mg • Folate: at least 400 to 800 µg • Iron: at least 18 mg of elemental iron (+ vitamin C to enhance absorption) • Vitamin A: 5000 to 10,000 IU • Vitamin K: 90 to 120 µg/d • Zinc: 100% to 200% RDA • Copper: 100% to 200% RDA
Calcium citrate + vitamin D	• Calcium citrate: 1200 to 1500 mg/d in divided doses • Vitamin D: at least 3000 IU/d (titrate 25(OH)D levels to >30 ng/mL) • May be taken without meals
Vitamin D (alone)	• Vitamin D: at least 3000 IU/d (titrate 25(OH)D levels to >30 ng/mL)
Vitamin B_{12} (cobalamin)	• Vitamin B_{12}: at least 350 to 500 µg/d • Sublingual 1000 µg daily preferred (loss of intrinsic factor)

"Obesity Management Learning Hub." *Obesity Management Learning Hub | ACP Online*, 15 Feb. 2022, https://www.acponline.org/clinical-information/clinical-resources-products/obesity-management-learning-hub.

MEDS TO AVOID AFTER SURGERY

- **NSAIDs** are completely contraindicated following gastric bypass to avoid marginal ulcer and to avoid ulcers in the gastric pouch.
- **NSAIDs** are also discouraged following sleeve gastrectomy.
- Oral bisphosphonates that can cause esophageal erosions (e.g., alendronate)
- Warfarin, if used, will require special monitoring and management.
- Corticosteroids increase risk for ulcers after Roux-en-Y gastric bypass.

INSUFFICIENT WEIGHT LOSS AFTER SURGERY

10% to 20% of patients will experience inadequate weight loss or actual weight regain as a long-term complication of bariatric surgery, depending on criteria used.

Common definition of adequate weight loss after surgery = about 50% of excess weight

Insufficient weight loss or weight regain following bariatric surgery can be due to anatomic, behavioral, and medical factors.

The primary targets of weight regain treatment are behavioral, with emphasis on dietary supports, physical activity, and social stressors.

Antiobesity pharmacotherapy may be continued or even initiated post-surgically as an adjunct to promote adequate weight loss.

Weight gain retreatment requires a multifactorial approach with coordination across the medical and surgical teams.

PREGNANCY AFTER SURGERY

Increase in fertility expected after surgery

Pregnancy safe after 12-18 mo

Low dose OCPS may not be effective due to unreliable absorption - recommend higher dose / long term contraception

SUMMARY

Staging of Obesity can help assess risk, assist in treatment plan, and help quantify improvement

Be Proactive and Respectful when bringing up your patient's weight – be aware of Language being used

Most critical information comes from the History!

Pharmacotherapy is helpful but remember meant to be used as ADJUNCT to lifestyle modifications and meant to be used Long Term

Pediatric Obesity is on the Rise! Know what meds are FDA approved!

Multiple bariatric surgery procedures (with gastric sleeve and bypass being most common in US), but targets are the same – restriction + Hormones +/- malabsorption

Be aware that Primary Care is where all of these patients will present for post-op surveillance. Know labs to review, supplements to recommend, and what Meds to AVOID

RESOURCES

Curtis, Greg. "Pharmacotherapy to Treat Obesity." Harvard Blackburn Academy. Harvard Medical School Blackburn Academy, 23 Apr. 2023, Boston, Massachussetts, Harvard Medical School.

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QUESTIONS