

Obesity

Term	BMI	Obesity Class	Disease Risk Waist Circumference Men ≤ 102 cm (≤40 in) Women ≤ 88cm (≤35 in)	Disease Risk Waist Circumference Men > 102 cm (>40 in) Women > 88cm (>35 in)
Underweight	<18.5			
Normal	18.5-24.9			
Overweight	25-29.9		Increased	High
Obesity	30-34.9 35-39.9	I II	high Very High	Very High Very High
Extreme Obesity	>40	III	Extremely High	Extremely High

History

- Current Weight, Weight after high school, Goal weight
- Timeline for Weight loss
- Current Meds, prior meds tried
- How much weight loss in past efforts
- How long was the effort
- Failure reason
- Adverse events
- Prior formal programs
- Seeing a dietician/nutritionist?
- Current understanding of food (nutrition, calories)
- Diet recall, food diary, logs from apps
- Current exercise and activity level, frequency/intensity
- Dietary habits: Eating out, ETOH use, sodas/juices/sweet drinks, portions, meal times, snacks
- Comorbidities
- Why do they think they are obese?
- Commitment to change
- Depression
- QOL
- Stress factors
- Any Meds contributing to weight gain.
- Steps you are willing to take
- Sleep habits
- Barriers for success
- Support system

Exam

- Vitals,
- BMI
- Waist Circumference
- Neck/arm/thigh/Hip circumference
- Heart
- Thyroid
- Lungs
- Gait/MSK
- Skin issues
- Psych exam

Evaluation/Workup

- Cbc/cmp/tsh/a1c/lipids
- Calculate BMI, BMR, AMR
- Get dietary logs
- Net caloric intake and expenditure tracking

Management - Dietary Changes

- Palm of hand for portions
- 3 servings of fruits/veggies/protein daily
- 8 glasses water daily
- 2-3 servings of low fat dairy daily.
- Reduce consumption by 25% at each meal/snack
- Eat real food, shop on outside of grocery store
- Don't drink your calories
- Don't be hungry/Don't skip meals – eat 3 meals, 1 snack in between
- Track calories – myfitnesspal
- Goal net deficit of 500 kcal/day
- Avoid eating after 8pm
- Provide sample 1500 kcal/day meal plan or 1800 kcal/day meal plan depending on individual's activity level and goals.

Management - General Principles

- goal 2 pounds loss per week.
- Meet w/ nutritionist bimonthly or monthly.
- Check Weight monthly.
- Join comprehensive weight management program
- Support system
- Track Calories using app for 2-4 weeks
- Exercise program that can be consistent - schedule
- Portion Control

Management - Exercise Goals

- Start with 10 min twice daily. Build up to 30-45 min of CV exercise daily or HIIT training 15-20 min daily
 - Do something they enjoy and that works for schedule
 - Schedule exercise into their calendar
 - Exercise prescription
- Yoga/pilates for strength/balance/stress management periodically
- Walk 10000 steps/day
- Resources
 - 7 minute workout app, Youtube videos, home workout regimens, pyramid workouts
- Once consistent with HIIT or CV exercise, add 2-3 days of resistance training weekly
 - whole body routine vs. 2 day split routines

Management - Surgical Options

- Indication: pt w/ BMI>40 or BMI >35 and obesity related comorbidities.
- 30-50% of excess body weight loss possible.
- Restrictive Procedures
 - Limit volume of stomach and amount of food required to fill it
 - Promotes satiety/wt loss
 - Lap band, vertical banded gastroplasty, Sleeve gastrectomy
- Malabsorptive Procedures
 - Restrict size of stomach by creating small pouch, and bypass most of stomach and duodenum preventing fat absorption.
 - Roux-en-Y gastric bypass

Management - Endoscopic Metabolic and Bariatric Therapy (EMBT)

- Indication: BMI 30-40 or BMI >27 with 1 or more comorbidities
- Expected weight loss of 10-20% of total body weight
- Safe, can be repeated or reversed easily compared to MBS options.
- Types
 - Restriction (reduce gastric capacity)
 - Intra-gastric balloon (IGB) – gas filled or fluid filled. Several are FDA approved
 - has the most supportive evidence for EMBT.
 - Endoscopic sleeve gastroplasty (ESG) – 1 is FDA approved
 - recently approved for BMI 30-50
 - Biliopancreatic diversion – not FDA approved
 - sectionally separating duodenal and upper jejunal mucosa and prevention exposure of food to digestive juices
 - Percutaneous aspiration of already ingested gastric contents
 - FDA approved 2016, withdrawn 2021.

Management - Postoperative Follow up

- 5 servings of fruits/veggies, Avoid tob/etoh, Avoid NSAIDs, Avoid pregnancy for 2 yrs, Inc fluid/water, At least 60 g protein/day, max 1.5 g/kg/d
- Vitamins and Minerals:
 - Ca 1500-1800 mg day, Vit D 2000-3000 IU/day, Iron 20-65 mg/d, B12 daily, 2 MVI/day, B1 (Thiamine) only for higher risk groups. Dexa in 2 yrs.
- Labs:
 - Quarterly CBC/B12/CMP/iron/A1c
 - Annual CBC, CMP, Ceruloplasmin, Copper, iron studies, iPTH, Lipids, TSH, Thiamine, Vitamin A, Zinc, B12, Vitamin D
- F/u 1 week, 2 weeks, 1 month, 3 months, 6 months, 12 months

Drug Name	Drug Class	Cost/month Cash price or Goodrx	Mechanism	Indication	Expected Weight loss	Side effects
Semaglutide (Wegovy) Liraglutide (Saxenda)	GLP1 agonists	\$400-500 \$1300	stimulate insulin secretion after oral glucose load, delayed gastric emptying, inhibit glucagon production, appetite suppression	Adjunct to diet/exercise for weight loss with BMI 30 or higher or 27 or higher in presence of 1 weight related complications (HTN, DMII, HLD). Also indicated for reduction of CV issues (death, MI, CVA).	7-9 kg loss; 15% weight loss over 68 weeks	<ul style="list-style-type: none"> • nausea, diarrhea, vomiting, constipation, abdominal pain, headache, fatigue, dyspepsia, dizziness, abdominal distension, eructation, hypoglycemia, flatulence, gastroenteritis, GERD. • Risks can include rare thyroid C cell cancer, pancreatitis, cholecystitis, gastroparesis
Tirzepatide (Zepbound)	GLP1/GIP agonist	\$350-750 \$1100	stimulate insulin secretion after oral glucose load, delayed gastric emptying, inhibit glucagon production, appetite suppression, increase satiety.	Adjunct to diet/exercise for weight loss with BMI 30 or higher or 27 or higher in presence of 1 weight related complications (HTN, DMII, HLD).	15-21% at 72 weeks; 9-13 kg loss	<ul style="list-style-type: none"> • nausea, diarrhea, vomiting, constipation, abdominal pain, headache, fatigue, dyspepsia, dizziness, abdominal distension, eructation, hypoglycemia, flatulence, gastroenteritis, GERD. • Risks can include rare thyroid C cell cancer, pancreatitis, cholecystitis, gastroparesis
Phentermine	sympathomimetic /anorectic (scheduled drug) Short term only	\$10-25	stimulates release of Norepi and epi, Decreased appetite, increase metabolism	Adjunct to diet/exercise for weight loss with BMI 30 or higher or 27 or higher in presence of 1 weight related complications (HTN, DMII, HLD).	5-10% over 1 yr	<ul style="list-style-type: none"> • dry mouth, taste changes, constipation, paresthesias, anxiety, tachycardia, elevated BP, insomnia, anorexia.
Phentermine + Topiramate (Qsymia and Qsiva)	Combination sympathomimetic amine anorectic/anti-epileptic analogue (scheduled drug)	\$98-150	stimulates release of Norepi and epi, Decreased appetite, increase metabolism. Topiramate suppresses appetite (weakly) and enhances satiety (weakly)	Adjunct to diet/exercise for weight loss with BMI 30 or higher or 27 or higher in presence of 1 weight related complications (HTN, DMII, HLD).	5-10% (when combined with TLC)	<ul style="list-style-type: none"> • paresthesias, dizziness, dysgeusia, insomnia, constipation, dry mouth, primary pulmonary HTN, cardiac valvular disease, palpitations, tachycardia, elevated BP, overstimulation, restlessness, dizziness, insomnia, euphoria, tremor, headache, psychosis, dryness.
Naltrexone + Bupropion (Contrave)	Combination opioid antagonist/amino ketone antidepressant	\$199 \$560	stimulate hypothalamic pro-opiomelanocortin neurons while simultaneously blocking opioid mediated POMC autoinhibition with naltrexone. Affects midbrain dopamine areas to reduce food intake.	Adjunct to diet/exercise for weight loss with BMI 30 or higher or 27 or higher in presence of 1 weight related complications (HTN, DMII, HLD).	5-8% weight loss (when combined with lifestyle changes)	<ul style="list-style-type: none"> • nausea, constipation, headache, vomiting, dizziness, insomnia, dry mouth, diarrhea
Orlistat (Xenical or Alli) Alli is ½ strength of Xenical and available OTC	lipase inhibitor	Xenical - \$450 Alli - \$79 (90 tabs)	Inactivates gastric and pancreatic lipases by binding to these enzymes Prevents hydrolyzing TG into FFA and thus pass thru GI tract. Fat calories not absorbed à wt loss	Adjunct to diet/exercise for weight loss with BMI 30 or higher or 27 or higher in presence of 1 weight related complications (HTN, DMII, HLD).	5% weight loss (when combined w/ lifestyle changes)	<ul style="list-style-type: none"> • flatus w/ discharge, fecal urgency, fatty/oily stool spotting, fecal incontinence, bloating. • 33% attrition rate due to side effects.

References

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