

Multimodal Approaches for Weight Management: Non-GLP1 Therapies, Counseling, and Bariatric Care

Non-GLP1 Medications for Weight Loss

Name / Mechanism of Action	Efficacy	Dosage	Contraindications	Common Side Effects and Management	Considerations for Prescribing
Orlistat (alli - OTC, or Xenical - Rx) Intestinal lipase inhibitor	~3% more weight loss compared to placebo 57% of patients had lost at least 5% of baseline body weight compared to 31% of placebo-treated patients (at 120 mg TID dose x1 year)	60mg and 120mg capsules 1 capsule (120mg) or 1-2 capsules (60mg) with each fat containing meal up to 3 times per day	Pregnancy Chronic malabsorption syndrome cholestasis	- Oily fecal spotting oily stools - Flatulence - Fecal urgency - Increased defecation - Follow low-calorie meal plan with <30% of calories from fat to reduce GI effects - Avoid high-fat meal plan, as it increases adverse effects (e.g., ketogenic, low-carbohydrate) - Recommended daily multivitamin, as orlistat can reduce the absorption of vitamins A, D, E, and K	May be preferred by patients concerned about effects of centrally-acting meds or seeking an OTC option
Phentermine (Adipex-P, Lomaira) Schedule IV Sympathomimetic amine - triggers norepinephrine release to suppress appetite.	5-7% weight loss over 6 months (vs. ~2.3% placebo)	Dosage forms: 8mg, 37.5 mg tablets; 15mg, 30mg, 37.5mg capsules Start at 8 mg daily or 15mg daily or 18.75 mg (½ of 37.5 mg) daily, increase up to 30 mg to 37.5 mg daily as tolerated 8 mg tablet can dosed up to 3x/day	History of CV disease (CAD, CHF, uncontrolled hypertension, arrhythmias) and stroke, glaucoma, pregnancy/breastfeeding, MAOI use	- ↑ BP and tachycardia: monitor BP during initiation and dose titration - Dry mouth: counsel on adequate water intake - Insomnia: avoid taking too close to bedtime - Headache - Constipation: Adequate water and dietary fiber intake - Patients with anxiety or taking other stimulating meds should monitor for increased anxiety.	FDA-approved/ indicated for 12 weeks but commonly used off-label long-term Shared decision-making should be used to continue vs stop med at 12 weeks Consider for primary 'symptom' of overeating/ portion control → targets appetite suppression and satiety

Name and Mechanism of Action	Efficacy	Dosage	Contraindications	Common Adverse Drug Effects (ADEs) and Management	Considerations for Prescribing
Bupropion/naltrexone (Contrave) Naltrexone: an opioid receptor antagonist Bupropion: dopamine and norepinephrine reuptake inhibitor	3-8% weight loss over 56 weeks	Weekly titration of bupropion 90mg/naltrexone 8mg tablets: Week 1: 1 tablet daily Week 2: 1 tablet BID Week 3: 2 tab AM, 1 tab PM Week 4 and on: 2 tab BID DIY Version: - Consider naltrexone 50mg tablet, ½ tablet once to twice daily - Bupropion (12hr) 100mg-200mg once to twice daily	Acute opioid withdrawal, abrupt discontinuation of alcohol, benzodiazepines, barbiturates, or antiepileptic drugs, bulimia or anorexia nervosa, concomitant use of chronic opioids, seizure disorder or history of seizures, uncontrolled hypertension, concomitant MAOI use	- Increased BP and heart rate (recommend monitoring) - Headache - Insomnia - GI adverse effects - Mood changes (Monitor for suicidality, mood changes or worsening, especially in patients with pre-existing anxiety or depression. Recommend screening for bipolar disorder before initiation.)	Consider for primary 'symptoms' of emotional eating, binge eating, or food reward-driven behaviors (acts on central reward pathways) Consider prescribing components separately for cost considerations
Phentermine/topiramate ER (Qsymia) (schedule IV) Phentermine: Sympathomimetic amine (increases NE) to ↓ appetite. Topiramate: GABA modulator/glutamate antagonist ↑ satiety + possible direct adipose ↓ effects	10.2% weight loss over ~2 years (vs 1.1-2.2% placebo)	1st step: 3.75 mg/23mg once daily x14 days → ↑ to 7.5/46mg daily 2nd step (if at least 3% weight loss in 12 weeks not achieved on first maintenance dose): 11.25/69mg daily x14 days then ↑ to 15/92 mg once daily If 5% weight loss not achieved at max dose for 12 weeks, then taper off (1 tab every other day x1 week, then off)	Pregnancy – REMS program for monthly pregnant test monitoring	- Paresthesia (tingling in extremities) - common, ~20% and usually self-limiting - Dysgeusia: metallic taste or carbonated beverages may taste flat - Cognitive dysfunction specifically in the form of "word-finding" difficulty or slowed thinking (often dose related, patients with high executive functioning jobs should especially be counseled about this)	Consider for primary 'symptom' of overeating/portion control → targets appetite suppression and satiety

		"DIY" version: - Replace phentermine component with closest correlated phentermine strength at 1:1 ratio - Replace topiramate component with closest correlated topiramate IR dose total daily dose (25-100 mg to ~23-92mg) → <i>Note, at 100 mg, may need to divide into 50 mg BID</i>		- Kidney stones: Patients should be counseled to drink water throughout the day (at least 2 liters or 8 cups).	
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Pharmacists can help patients work to avoid weight-promoting medications:

Glucocorticoids	betamethasone, cortisone, dexamethasone, hydrocortisone, methylprednisolone, prednisolone, prednisone
Alpha-blockers	alfuzosin, doxazosin, tamsulosin, terazosin
Beta-blockers	atenolol, metoprolol, propranolol
Glucose lowering medications	insulins, sulfonylureas, thiazolidinediones
Synthetic progestin hormones	depo-medroxyprogesterone acetate, progestins
Antihistamines	cetirizine, cyproheptadine, diphenhydramine, fexofenadine, hydroxyzine, meclizine
Antidepressants	amitriptyline, citalopram, doxepin, escitalopram, fluoxetine, imipramine, mirtazapine, nortriptyline, paroxetine, phenelzine, sertraline
Antipsychotics	aripiprazole, clozapine, olanzapine, perphenazine, quetiapine, risperidone
Mood stabilizers	lithium
Anticonvulsants	carbamazepine, gabapentin, pregabalin, valproic acid, vigabatrin

Lifestyle: Nutrition and Physical Activity

Nutrition – Macronutrients (Proteins, carbohydrates, fats)

Comprehensive Assessment & Individualization

- **Evaluate patient factors:** Assess the patient's medical history, current dietary intake, social determinants of health (SDOH), personal values, and cultural preferences.
- **Frequent monitoring:** Evaluate the patient's eating patterns and overall nutritional adequacy at **every** follow-up visit during active weight reduction.

Minimizing Muscle Loss Risk

- **Identify high-risk patients:** Anticipate an increased risk of excessive skeletal muscle loss in patients taking highly effective anti-obesity medications (specifically those resulting in **≥15% weight reduction**).
- **Vulnerable populations:** Screen older adults and patients with severe obesity-related complications for signs of sarcopenic obesity (loss of muscle mass and function) and decreased bone mineral density.
- **Counsel on preserving lean mass:** Educate patients on the need to couple weight-loss medications with consistent muscle-strengthening activities and optimal protein intake.
- **Adequate protein intake:** Recommend a minimum of **60 g of protein daily** to preserve lean muscle mass, although higher intakes are frequently required during active weight reduction. For patients with additional risk factors or co-morbidities, consider consultation with a registered dietitian nutritionist for patient-specific protein requirements.

Nutritional & Dietary Targets

- **Promote nutrient-dense whole foods:** prioritize lean proteins, fruits, vegetables, whole grains, and healthy fats to prevent micronutrient deficiencies.
- **Ensure adequate hydration:** Review and reinforce sufficient daily water intake.

Nutrition - Micronutrients:

Fat soluble vitamins A, C, D, E, as well as calcium and magnesium are often insufficient in adult patients with obesity. The appetite suppressive effects of obesity medications lead to caloric reduction, and this reduced food consumption may be insufficient to meet essential micronutrient requirements in some individuals. Multivitamin/mineral supplement use has been associated with lower risk of nutrient deficiencies.

Multivitamin mineral supplements may be considered for patients who:

- consume less than 1,200 kcal/day
- who exclude micronutrient-rich food groups from usual intake (e.g., fruits and vegetables, whole grains, proteins, and nuts and seeds)
- are strict vegetarians
- have underlying health conditions that impair nutrient absorption

- are aged >50 years
- experience excessive weight loss with an inability to consume the types of foods necessary to obtain recommended micronutrient intakes
- take orlistat due to decreased absorption of fat-soluble vitamins

If nutritional intake remains inadequate due to obesity medication effects, a dose reduction of the obesity medication should be considered.

Proactively refer patients to a Registered Dietitian Nutritionist (RDN) for formal Medical Nutrition Therapy (MNT), especially when complex dietary tailoring or persistent nutritional deficits are identified.

Physical activity (exercise)

Patients should be reminded that lean body mass is maintained in interventions involving resistance training and caloric restriction. Similarly to tailoring nutritional plans, we should assess baseline activity levels and tailor recommendations to individual needs and context.

- Cardiovascular activities: types, duration, and frequency

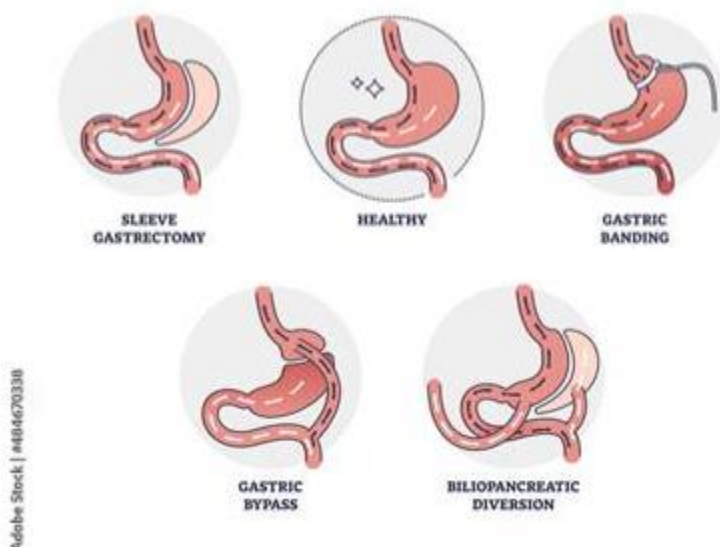
Aerobic activity should also be included in a comprehensive treatment plan, given its cardiometabolic benefits.

- Muscle strength building activities: types, duration, and frequency
- Tips for all body types, ages, and physical limitations (chair exercise, resistance bands, budget friendly)

Not just weight loss, but MOST chronic health conditions and health wellness guidelines recommend at least 150min/week of moderate cardiovascular activity and 2x/week strength or resistance activity. This is an important emphasis that pharmacists can remind patients and help promote.

Bariatric Surgery

TYPES OF BARIATRIC SURGERY



Restrictive procedures – sleeve gastrectomy (SG) and adjustable gastric banding (the band or AGB).

Restrictive and malabsorptive procedures – gastric bypass (Roux-en-Y gastric bypass) and biliopancreatic diversion

Consider incorporating a systematic approach to adjusting a patient's medications **POST** bariatric surgery

Considerations	Questions
Know the type of surgery the patient had	Is it malabsorptive, restrictive, or both?
Know when the patient had surgery	Was it 2 weeks, 2 months, or 2 years ago?
Assess comorbidities and medications	Were they controlled on therapy prior to surgery?
Account for changes in caloric intake and weight loss	Are dosage reductions needed?
Evaluate drug formulations	Do they need to be adjusted?
Incorporate recommended nutritional supplements	What drug interactions could occur and how will you manage them?

General medication principles postoperatively (continue for at least 2 months regardless of the type of procedure patients undergo)

- **Liquid or crushable formulations**
 - Non-enteric-coated, extended-release, sustained-release
 - **Consider non-oral options** - transdermal, suppositories, intranasal, subcutaneous; parenteral if severe gastrointestinal intolerance
- **Limit formulations containing** - Sorbitol, sucrose, corn syrup, maltose, fructose, lactose, mannitol, or honey

- **Key counseling:**
 - Space medications throughout the day
 - Work to achieve adequate fluid
- Roux en Y gastric banding (RYGB) - Long-term, need change from enteric-coated, extended-release, or sustained-release formulations
- Need a complete list of patients' medications, including prescriptions, OTCs, vitamins, and supplements. Remember to ask about topical products as well.

Post-surgery Supplement Recommendations to Prevent Deficiency

Regardless of procedure type - should daily take

Vitamin	Amount
Vitamin B1 (thiamine) or MVI or B-complex	At least 12 mg (50 mg preferred)
Vitamin B12 (cobalamin)	Amount depends on route (oral, nasal spray, IM, or SQ) of administration
Folate (folic acid)	All should take 400 – 800 mcg Females of childbearing potential 800 – 1000 mcg MVI or prenatal vitamin
Iron (if low risk for iron deficiency anemia)*	18 mg; otherwise - 45 – 60 mg (may increase based on levels, or make sure is in MVI)
Vitamin D	At least 3000 IU (goal 25(OH)D levels >30 ng/dL)

*-Consider separating from calcium supplements and acid-reducing medications.

Additional supplements based on procedure (daily recommendations)

	Calcium [^]	Vitamin A	Vitamin E	Vitamin K	Zinc [#]	Copper [#]
BPD/DS	1800-2400 mg	10,000 IU	15 mg	300 ug	16-22 mg	2 mg
LAGB	1200-1500 mg	5000 IU	15 mg	90-120 ug	8-11 mg	2 mg
RYGB	1200-1500 mg	5000-10,000 IU	15 mg	90-120 ug	8-22 mg	1 mg
SG	1200-1500 mg	5000-10,000 IU	15 mg	90-120 ug	8-11 mg	1 mg
Magnesium and selenium recommended as needed						

[^]-Give in divided doses. Remember calcium carbonate should be administered with meals while calcium citrate can be administered without regard to meals.

[#]-Recommended daily allowance (RDA) as part of multivitamin with minerals. Ratio of zinc to copper (8-15 mg to 1 mg) should be maintained to minimize the risk of copper deficiency. BPD/DS and RYGB should receive 200% of RDA while LAGB and SG should receive 100% of RDA.

- Guidelines recommend that a multivitamin with minerals (MV) can be taken to meet some of the requirements for supplementation.
 - 1 MV for patients post-LAGB and 2 MV for patients post-SG, RYGB, or BPD.
- Note that there are different recommendations if it is determined that a patient is deficient in a particular nutrient.

Timing of Routine Nutrient Monitoring Post-Bariatric Surgery

Timing post-surgery		First year post-surgery*			Annually in subsequent years*
		3 months	6 months	12 months	
Nutrients to monitor	Vitamin A			X – BPD/DS	X-BPD/DS
	Vitamin B1		X ^a	X ^a	X
	Vitamin B12	X ^b	X ^b	X ^b	X
	Vitamin D [25(OH)D]		X		X
	Vitamin E			X ^c	X ^c
	Vitamin K			X ^c	X ^c
	Calcium		X		X
	Copper			X ^d	X ^d
	Folate		X		X
	Iron	X	X	X	X
	Selenium				X ^c
	Zinc				X ^c

* Monitoring is for all bariatric surgeries [laproscopic adjustable gastric band (LAGB), sleeve gastrectomy (SG), Roux-en-Y gastric bypass (RYGB), bilopancreatic diversion/duodenal switch/(BPD/DS)] unless otherwise noted.

a – Should be monitored in high-risk patients or if signs or symptoms are noted.

b - Should be monitored in patients who have undergone SG, RYGB, and BPD/DS.

c – Should be monitored if specific signs or symptoms are noted, usually if patients have undergone malabsorptive procedures (RYGB or BPD/DS).

d – Should be monitored in patients who have undergone RYGB and BPD/DS.

All of these nutrients should also be monitored any time signs and symptoms of deficiency are noted in a patient

Published on behalf of the [ASHP Section of Ambulatory Care Practitioners Advisory Group on Ambulatory Care Pharmacotherapy](#).

Reference last updated on **07/13/2026** by:

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Resources patients can consult:

<https://medlineplus.gov/>

<https://asmbs.org/for-patients/>

<https://www.nutrition.gov/topics/healthy-living-and-weight/strategies-success>