Behavioral and pharmacologic strategies for weight management

Sarah E. Vordenberg, PharmD, MPH, BCACP
Clinical Assistant Professor
University of Michigan College of Pharmacy
skelling@med.umich.edu

Pharmacist learning objectives

• Identify patients who are appropriate candidates for weight management services.
• Recommend appropriate pharmacologic and nonpharmacologic therapy.
• Counsel patients who are interested in weight loss.
• Summarize medication-related considerations for patients who have undergone bariatric surgery.

Pharmacy technician learning objectives

• Summarize the prevalence of obesity and its negative health implications.
• Identify patients who are appropriate candidates for weight management services.
• List over-the-counter, prescription, and behavioral therapies for weight loss.
Health implications

• Cardiovascular disease
• Type 2 diabetes and gestational diabetes
• Osteoarthritis
• Asthma
• Sleep apnea
• Difficulties with activities of daily living
• Cancer of breast, prostate, endometrium, colon, rectum, gallbladder
• Negative attitudes leading to social stigmatization and discrimination

Obesity among adults in the United States

39.8% of adults = 93.3 million people

Obesity among children in the United States

• Children and adolescents 2-19 years: 18.5%
• Defined as ≥ 95th percentile of CDC sex-specific growth charts
**Definition**

- **Strategies to obtain BMI**
  - BMI = kg/m²
  - Chart
  - Online calculator/app

<table>
<thead>
<tr>
<th>Body mass index</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18.5</td>
<td>Underweight</td>
</tr>
<tr>
<td>18.5 – 24.9</td>
<td>Normal weight</td>
</tr>
<tr>
<td>25.0 – 29.9</td>
<td>Overweight</td>
</tr>
<tr>
<td>30.0 – 34.9</td>
<td>Obese, class I</td>
</tr>
<tr>
<td>35.0 – 39.9</td>
<td>Obese, class II</td>
</tr>
<tr>
<td>40.0 +</td>
<td>Obese, class III</td>
</tr>
</tbody>
</table>

- **Limitations**
  - Very muscular individuals may be classified as overweight or obese
  - Some people with desirable body weight may have less than optimal muscle mass and high levels of body fat
  - Ideal weight may vary based on ethnicity

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**Waist circumference**

- Central adipose tissue leads to greater health risk
- Increased risk of chronic inflammation
- Increased risk of type 2 diabetes and cardiovascular disease
- Men: > 40 inches
- Women: > 35 inches

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**How To Measure Your Waist Circumference**

- Stand and place a non-stretchable measuring tape just above your waistline.
- Place the tape horizontally around your waist.
- Keep the tape snug, but not compressing the skin.
- Measure your waist just after you inhale out.
Metabolic syndrome

• Occurs when patients meet three or more of the following

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waist circumference</td>
<td>&gt;40 inches</td>
</tr>
<tr>
<td>HDL</td>
<td>&lt;40 mg/dL</td>
</tr>
<tr>
<td>Serum triglycerides</td>
<td>&gt;150 mg/dL</td>
</tr>
<tr>
<td>BP</td>
<td>&lt;120/80 mmHg</td>
</tr>
</tbody>
</table>

• Diagnosis or treatment of a health condition meets the criteria, regardless of the current value.

Question

Ashley is a 31-year-old female who works at a local company that has contracted with your pharmacy for employee wellness services. She comes to your pharmacy to complete a mandatory health and wellness evaluation. You gather the information below during the visit. Her only medication is a birth control pill. She does not have any medical conditions. What is your assessment related to metabolic syndrome?

<table>
<thead>
<tr>
<th>Height</th>
<th>5'4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>185 lbs</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>36 inches</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>116/79 mmHg</td>
</tr>
<tr>
<td>Fasting blood glucose</td>
<td>91 mg/dL</td>
</tr>
<tr>
<td>Serum triglycerides</td>
<td>132 mg/dL</td>
</tr>
<tr>
<td>HDL</td>
<td>52 mg/dL</td>
</tr>
</tbody>
</table>

Etiology

Hormones & proteins

• Leptin: ↓ food intake and body weight
• Neuropeptide Y: ↑ appetite
• Ghrelin: ↑ appetite
• Melanocortins: energy homeostasis (balance satiety and energy expenditure)

Environment

• ↓ physical activity
• ↑ food availability, portion sizes, consumption
• ↑ sedentary working hours
• Poor sleep quality (associated with ↓ leptin & ↑ ghrelin)

Medications

• Antipsychotics: Second-generation antipsychotics
• Antidepressants: selective serotonin reuptake inhibitors, tricyclic antidepressants
• Diabetes medications: insulin, sulfonylureas, thiazolidinediones
• Systemic corticosteroids
Management of overweight and obesity

<table>
<thead>
<tr>
<th>Approach</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy lifestyle changes</td>
<td>• Requires significant behavior modification</td>
</tr>
<tr>
<td>Pharmacologic therapy</td>
<td>• Dietary supplements are ineffective</td>
</tr>
<tr>
<td></td>
<td>• OTC medication leads to modest weight loss but can only be used short-term</td>
</tr>
<tr>
<td></td>
<td>• Prescription medications are moderately effective</td>
</tr>
<tr>
<td></td>
<td>• OTC and prescription medications must be combined with lifestyle changes</td>
</tr>
<tr>
<td>Bariatric surgery</td>
<td>• Appropriate for patients with a BMI ≥ 40 or ≥ 35 with comorbidities</td>
</tr>
<tr>
<td></td>
<td>• Mean BMI reduction ranges from 10.6 – 14.4 kg/m²</td>
</tr>
<tr>
<td></td>
<td>• Invasive procedure with significant risks</td>
</tr>
<tr>
<td></td>
<td>• Requires lifestyle changes after surgery</td>
</tr>
</tbody>
</table>


Patient assessment

<table>
<thead>
<tr>
<th>Patient population</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal weight AND waist circumference</td>
<td>Counsel pros and cons of weight loss for cosmetic purposes</td>
</tr>
<tr>
<td>Normal weight AND elevated waist circumference</td>
<td>Assess readiness for change, if not ready, address other risk factors and develop treatment strategy</td>
</tr>
<tr>
<td>Overweight AND elevated waist circumference and/or prediabetes</td>
<td>Refer for medical evaluation</td>
</tr>
<tr>
<td>Obese with NO cardiovascular disease, dyslipidemia, hypertension, or diabetes</td>
<td>Refer for medical evaluation</td>
</tr>
<tr>
<td>Overweight or obese with cardiovascular disease, dyslipidemia, hypertension, or diabetes</td>
<td>Refer for medical evaluation</td>
</tr>
</tbody>
</table>

Question

How much weight loss is generally recommended?

A. 1-2 pounds per day
B. 3-4 pounds per day
C. 1-2 pounds per week
D. 3-4 pounds per week
E. As much as possible to lower the risk of health complications as soon as possible
Lifestyle modifications

- **Dietary modifications**
  - Typically lead to weight loss
  - ↓ 500 calories daily
  - 3500 calories = 1 pound

- **Physical activity**
  - Maintain weight loss
  - Improve overall fitness

Visual approach to healthy meals

- Half the plate with fruits & vegetables
  - Whole fruits
  - Vary vegetables
- Make half grains whole grains
- Move to low-fat and fat-free dairy
- Vary protein
  - Include seafood, beans and peas, unsalted nuts and seeds, soy products, eggs, lean meats, poultry
- Eat and drink beverages and foods with less sodium, saturated fat, and added sugars

Shopping tips

- Use a meal planner
- Make a shopping list
- Shop the perimeter of the store
- Don’t shop when hungry
- Read nutrition labels
  - Low-fat foods may be high in sugar
  - Some people have a tendency to eat a larger portion of low-fat foods

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Altered portions of food groups

<table>
<thead>
<tr>
<th>Diet</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very-low-fat vegetarian diet</td>
<td>- Improve cardiovascular health</td>
<td>- May be difficult to follow&lt;br&gt;- May lead to vitamin deficiency&lt;br&gt;- May lead to short-term ↑ triglycerides &amp; HDL</td>
</tr>
<tr>
<td>High protein, higher fat, low carbohydrate diet</td>
<td>- Simplified food choices are easier for some people&lt;br&gt;- May prevent ↑ insulin levels&lt;br&gt;- Favorable effects vs. fat-restricted diet</td>
<td>- May lead to vitamin deficiency&lt;br&gt;- May lead to adverse effects (e.g., Osteo)</td>
</tr>
<tr>
<td>Low glycemic index diet</td>
<td>- Promote satiety&lt;br&gt;- May help maintain insulin sensitivity</td>
<td>- Studies not consistently supported usefulness in weight loss&lt;br&gt;- Controversy regarding how to classify foods</td>
</tr>
<tr>
<td>Food additives (e.g., sugar &amp; fat substitutes)</td>
<td>- Theoretically should decrease caloric intake</td>
<td>- Conflicting data re: effectiveness&lt;br&gt;- May lead to adverse effects (e.g., GI distress)</td>
</tr>
<tr>
<td>Meal replacement therapy</td>
<td>- Provides 2 meals/day</td>
<td>- Dieter chooses &quot;reasonable&quot; third meal but extreme hunger leads to overeating</td>
</tr>
<tr>
<td>Commercial weight-loss programs</td>
<td>- Provides social support&lt;br&gt;- May have online tools</td>
<td>- Expensive to purchase program-specific tools and food</td>
</tr>
</tbody>
</table>

Physical activity

Minimum recommended

150 min moderate intensity OR 75 min vigorous intensity (spread out throughout week & minimum 10 min at a time) AND 2-days/week strengthening

Intensity of physical activity

Moderate
- Walking briskly ≥ 3 mph
- Water aerobics
- Bicycling < 10 mph
- Tennis (doubles)
- Ballroom dancing
- General gardening

Vigorous
- Racewalking, jogging, or running
- Swimming laps
- Tennis (singles)
- Aerobic dancing
- Bicycling ≥ 10 mph
- Jumping rope
- Hiking uphill with a heavy backpack
- Heavy gardening
- Continuous digging or hoeing with heart rate increase


Behavioral modifications

**Environment**
- Do not have unhealthy foods available
- Read nutrition labels
- Identify reasonable portions

**Thoughts**
- Set SMART goals
- Identify and plan for obstacles

**Self-efficacy**
- Maintain optimistic and positive approach

**Social support**
- Rely on friends, family, and health care professionals

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**Importance ruler**

- How important is it for you to... [activity]?
  - 0: not at all important
  - 10: the most important thing for me right now
- Why are you at X and not at Y (lower number)?
- What would it take to go from X to Z (higher number)?
- If you were to decide to change, what might be your options?

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**Agenda mapping**

- Include goals
- Use smaller plate at meals
- Drink 8 glasses of water per day
- Walk for 30 minutes
- Pack healthy lunch
- Snack on nuts with sparkling water
- Include 90% of plate with fruits and vegetables
Goal setting

SMART GOALS

S – specific
M – measurable
A – attainable
R – relevant
T – timely

GOAL ATTAINMENT SCALE

<table>
<thead>
<tr>
<th>Example related to exercise</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>+3</td>
<td>201+ minutes or more</td>
</tr>
<tr>
<td>+2</td>
<td>151–200 minutes</td>
</tr>
<tr>
<td>+1</td>
<td>101–150 minutes</td>
</tr>
<tr>
<td>0</td>
<td>51–100 minutes</td>
</tr>
<tr>
<td>-1</td>
<td>40–50 minutes</td>
</tr>
<tr>
<td>-2</td>
<td>30–40 minutes</td>
</tr>
<tr>
<td>-3</td>
<td>&lt; 30 minutes</td>
</tr>
</tbody>
</table>

Pharmacologic therapy

<table>
<thead>
<tr>
<th>Generic name</th>
<th>Brand name</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orlistat</td>
<td>Alli</td>
<td>OTC</td>
</tr>
<tr>
<td>Lorcaserin</td>
<td>Belviq</td>
<td>Schedule IV</td>
</tr>
<tr>
<td>Phentermine-topiramate</td>
<td>Qsymia</td>
<td>Schedule IV</td>
</tr>
<tr>
<td>Naltrexone-bupropion</td>
<td>Contrave</td>
<td>Prescription</td>
</tr>
<tr>
<td>Liraglutide</td>
<td>Saxenda</td>
<td>Prescription</td>
</tr>
<tr>
<td>Phentermine</td>
<td>Adipex-P and Lomaira</td>
<td>Schedule IV</td>
</tr>
<tr>
<td>Benazepril</td>
<td>Diuril and Regitenn</td>
<td>Schedule IV</td>
</tr>
<tr>
<td>Phentermine-topiramate</td>
<td>Qsymia</td>
<td>Schedule IV</td>
</tr>
<tr>
<td>Diethylpropion</td>
<td>Tenuate</td>
<td>Schedule IV</td>
</tr>
<tr>
<td>Phentermine-topiramate</td>
<td>Belviq</td>
<td>Schedule II</td>
</tr>
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<td>Qsymia</td>
<td>Schedule IV</td>
</tr>
</tbody>
</table>

Effectiveness

<table>
<thead>
<tr>
<th>Results Compared with Placebo</th>
<th>Weight loss in patients vs placebo at 1 year</th>
<th>Increase in body weight at least a 5% weight loss compared to placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orlistat</td>
<td>5.5 kg</td>
<td>11%</td>
</tr>
<tr>
<td>Xenical</td>
<td>5.0 kg</td>
<td>14%</td>
</tr>
<tr>
<td>Saxenda</td>
<td>4.5 kg</td>
<td>14%</td>
</tr>
<tr>
<td>Saxenda</td>
<td>4.0 kg</td>
<td>13%</td>
</tr>
<tr>
<td>Saxenda</td>
<td>3.5 kg</td>
<td>12%</td>
</tr>
<tr>
<td>Saxenda</td>
<td>3.0 kg</td>
<td>11%</td>
</tr>
</tbody>
</table>
Orlistat

<table>
<thead>
<tr>
<th>Indication</th>
<th>OTC: BMI ≥ 25</th>
<th>Rx: BMI ≥ 30 or ≥ 27 with risk factors (e.g., hypertension, diabetes, high cholesterol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose</td>
<td>OTC: 60 mg TID during or within 1 hour of fat-containing meals</td>
<td>Rx: 120 mg TID during or within 1 hour of fat-containing meals</td>
</tr>
<tr>
<td>MOA</td>
<td>Reversible inhibitor of intestinal lipases &gt; dietary triglycerides cannot be hydrolyzed into absorbable fatty acids and monoglycerides. ↓ absorption of dietary fats ~25%</td>
<td></td>
</tr>
<tr>
<td>Side effects</td>
<td>Flatulence with oily spotting, loose &amp; frequent stools, fatty stools, fecal urgency and incontinence</td>
<td></td>
</tr>
</tbody>
</table>
| Counseling points | • Take a multivitamin once daily (separate from orlistat by at least 2 hours)  
• Decreased fat in diet improves GI side effects  
• Side effects generally improve within a few weeks |

Orlistat

Selected drug interactions
- Fat-soluble vitamins
- Liothyronine
- Warfarin (due to malabsorption of vitamin K)
- Antiepileptic medications

Contraindications and cautions
- Diabetes mellitus
- Malabsorptive disorders
- History of thyroid disease
- Renal/haematological  
- Renal disease
- Liver disease

Pregnancy category: Category X

Question

- Refer back to slide 11. What do you recommend to Ashley?
  A. Initiate orlistat 60 mg three times daily before meals with fat. Counsel about using a daily multivitamin and that side effects improve with time  
  B. Use stages of change to determine readiness to start behavioral modifications and incorporate motivational interviewing, if needed.  
  C. Recommend a low-glycemic-index diet, meal replacement therapy, or a very-low-fat vegetarian diet depending on Ashley’s dietary preferences.  
  D. Educate about benefits of losing 5-10% of body weight and provide information about healthy food choices and physical activity  
  E. Recommend removing 500 calories from her diet every day and slowly increase exercise to 150 minutes of moderate or 75 minutes of vigorous exercise per week.
**Lorcaserin**

**Indication**  
BMI ≥ 30 or ≥ 27 with risk factors (e.g., hypertension, diabetes, high cholesterol)

**Dose**  
IR: 10 mg tablet BID  
ER: 20 mg tablet once daily  
Discontinue if 5% weight loss not achieved by week 12

**MOA**  
Selective serotonin 2C (5-HT(2C)) receptor agonist. Thought to promote satiety and decrease food intake by activating 5-HT(2C) receptors on anorexigenic pro-opiomelanocortin neurons in the hypothalamus

**Side effects**  
Common: Nausea, dizziness, headache, nasopharyngitis, fatigue  
Serious: Hypoglycemia (type 2 diabetes = 29.3%), serotonin syndrome, behavior change

**Counseling points**  
- Drug may decrease mental alertness and coordination  
- Discontinue drug and immediately report erection persisting more than 4 hours  
- Monitor for hypoglycemia (diabetes)

**Selected drug interactions**  
- Serotonergic agents

**Cautions**  
- Bradycardia or heart block greater than first degree  
- Congestive heart failure  
- Diabetes mellitus treated with insulin or insulin secretagogues  
- Severe renal impairment or ESRD  
- Depression

**Pregnancy**  
- Fetal risk has been demonstrated

**Phentermine-topiramate**

**Indication**  
BMI ≥ 30 or ≥ 27 with risk factors (e.g., hypertension, diabetes, high cholesterol)

**Dose**  
Initial: 3.75/23mg once daily x 14 days  
Maintenance: 7.5/46mg  
Discontinue or escalate dose if 3% weight loss not achieved by week 12 of maintenance therapy  
Escalation (after 12 weeks maintenance): 11.25/69mg once daily  
Then 15/92mg once daily  
Gradually discontinue therapy if 5% of baseline weight loss not achieved by 12 weeks of highest dose

**MOA**  
- Phentermine: sympathomimetic amine thought to increase hypothalamic release of catecholamines leading to ↓ appetite and ↓ food consumption  
- Topiramate: exact MOA unknown but appears to ↓ appetite and ↑ satiety

**Side effects**  
Common: Constipation, taste sense altered, dry mouth, dizziness, insomnia, prickling sensation on skin, nasopharyngitis, upper respiratory infection  
Serious: Seizure, angle-closure glaucoma, suicidal behavior, decreased sweating

**Counseling points**  
- Avoid activities requiring clear vision, mental alertness, or coordination until effects realized  
- Use caution when participating in activities that increase core temperature  
- Monitor for signs of hypoglycemia (diabetes)  
- Do not abruptly discontinue medication (↑ risk of seizures, regardless of medical history)  
- Do not drink alcohol
Phentermine-topiramate

Drug interactions:
- MAOI (hypertensive crisis)
- Hormonal contraceptives (may decrease plasma level of hormonal contraceptive)
- CNS and/or respiratory depressants
- Agents that prolong QT interval

Contraindications and cautions:
- MAOI (within 14 days of discontinuation)
- Glaucoma
- Hypertension
- Recent or unstable cardiac or cerebrovascular disease
- Depression
- Diabetes mellitus treated with insulin or insulin secretagogues
- Hepatic impairment
- Renal impairment

Pregnancy Category X

Naltrexone-bupropion

Indication: BMI ≥ 30 or ≥ 27 with risk factors (e.g., hypertension, diabetes, high cholesterol)

Dose:
- Week 1: 1 tablet* every morning
- Week 2: 1 tablet twice daily
- Week 3: 2 tablets in the morning & 1 tablet in the evening
- Maintenance (week 4 & thereafter): 2 tablets twice daily

Discontinue if 5% weight loss not achieved by week 12 at maintenance dose

MOA: Naltrexone (opioid antagonist) and bupropion (aminoketone antidepressant with weak inhibitory effects on neural regulation of dopamine and norepinephrine) act to regulate food intake by ↑ firing rate of the hypothalamic pro-opiomelanocortin neurons (appetite regulatory center) and the mesolimbic dopamine circuit (reward system).

Side effects:
- Common: Constipation, diarrhea, nausea, vomiting, dry mouth, dizziness, headache, insomnia, anxiety
- Serious: Hypertension, depression

Counseling points:
- Report changes in behavior including depression, mania, and suicidal thoughts
- Report tachycardia
- Limit or avoid alcohol

*1 tablet = 8/90 mg

Naltrexone-bupropion

Selected drug interactions:
- Opioids (may precipitate opioid withdrawal symptoms)
- Selegiline or MAOIs (↑ risk of hypertensive reactions)
- Levodopa or antiemetics (↑ risk of CNS toxicity)
- Medications that lower seizure threshold

Contraindications and cautions:
- Chronic opioid, opioid agonists (e.g., methadone), or partial agonists (e.g., buprenorphine)
- Acute opioid withdrawal
- Patient undergoing abrupt discontinuation of alcohol, benzodiazepines, barbiturates, or antiepileptic drugs
- Bulimia or anorexia nervosa
- Use of MAOIs within 14 days
- History of seizures
- Uncontrolled hypertension
- Adults 65 years of age and older (monitor renal function)
- Diabetes mellitus treated with insulin or insulin secretagogues
- Hepatic impairment or end stage renal disease
- Bipolar disorder (may trigger manic episode)

Pregnancy Category X
Liraglutide

**Indication**
BMI ≥ 30 or ≥ 27 with risk factors (e.g., hypertension, diabetes, high cholesterol)

**Dose**
- Week 1: 0.6 mg subQ once daily
- Week 2: 1.2 mg subQ once daily
- Week 3: 1.8 mg subQ once daily
- Week 4: 2.4 mg subQ once daily
- Maintenance (week 5 & thereafter): 3 mg subQ once daily

**Note:** Higher dose than for type 2 diabetes. Efficacy has not been established for doses lower than 3 mg/day.

**MOA**
Glucagon-like peptide-1 (GLP-1) receptor agonist that regulates appetite and calorie intake including via subreceptors in the brain. Weight reduction is due to decreased calorie intake.

**Side effects**
- **Common:** Hypoglycemia, constipation (19.4%), decrease in appetite, diarrhea, indigestion, nausea (15.3%), vomiting, headache, upper respiratory infection
- **Serious:** Thyroid carcinoma, cholecystitis, cholelithiasis, breast cancer (0.7%), suicidal thoughts

**Counseling points**
- Administer once daily, independent of meals
- If more than 3 days have elapsed since the last dose, retitration is recommended
- Avoid dehydration

**Selected drug interactions**
- Fluoroquinolones – increased risk of hypoglycemia or hyperglycemia
- Insulin – hypoglycemia

**Contraindications and cautions**
- Personal or family history of medullary thyroid carcinoma
- Personal or family history of multiple endocrine neoplasia syndrome type 2
- Avoid use with insulin or other GLP-1 receptor agonist
- Caution with hepatic or renal impairment
- Avoid use in patients with history of suicidal ideation

**Pregnancy**
Fetal risk has been identified

Sympathomimetic amines

<table>
<thead>
<tr>
<th>Drug</th>
<th>Indication</th>
<th>Drug interaction</th>
<th>Contraindications and cautions</th>
<th>Pregnancy category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phentermine</td>
<td><strong>BMI ≥ 30 or ≥ 27 with risk factors</strong></td>
<td><strong>MAOIs – hypertensive crisis</strong></td>
<td><strong>Cardiovascular disease including uncontrolled hypertension or congestive heart failure</strong></td>
<td>X X B X</td>
</tr>
<tr>
<td>Lophenamine</td>
<td><strong>Obesity, particularly management of obesity</strong></td>
<td></td>
<td><strong>Glaucoma</strong></td>
<td></td>
</tr>
<tr>
<td>Diethylpropion</td>
<td><strong>Obesity, particularly in patients with hypertension or cardiovascular disease</strong></td>
<td></td>
<td><strong>Hyperthyroidism</strong></td>
<td></td>
</tr>
<tr>
<td>Phendimetrazine</td>
<td><strong>Obesity – generally not used due to more CNS side effects than other agents</strong></td>
<td></td>
<td><strong>Concurrent use with other drugs for weight loss including SSRIs</strong></td>
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</tbody>
</table>

**Selected drug interactions:**
- MAOIs – hypertensive crisis
- Cardiovascular disease including uncontrolled hypertension or congestive heart failure
- Glaucoma
- Hyperthyroidism
- Concurrent use with other drugs for weight loss including SSRIs
- May need to adjust dose of insulin or oral diabetes medications

**Pregnancy category:**
- X: Avoid use
- X: Use only if the potential benefit justifies the potential risk to the fetus
- B: May be used if the potential benefit justifies the potential risk to the fetus
- X: Avoid use

8/12/2018
## Phentermine

**Dose**
- Capsule: 15 to 30 mg taken 2 hours before breakfast
- Low-dose tablet: 8 mg three times daily, after one-half hour before meals (may only require 4 mg)
- Tablet: 10.5 mg taken 1-2 hours before breakfast or 18.75 mg twice daily

**Indicated for short-term use (a few weeks)**

**Side effects**
- Common: Dry mouth, CNS stimulation, insomnia
- Serious: Cardiomyopathy, heart valve disorder, ischemia, psychotic disorder

**Counseling points**
- Avoid activities requiring mental alertness or coordination until effects realized
- Report deterioration in exercise tolerance
- Avoid alcohol

## Benzphetamine

**Dose**
- Initial: 25 to 50 mg once daily
- Maintenance: 25 to 50 mg 1-3 times daily

**Use should be limited to patients with satisfactory weight loss within the first 4 weeks of therapy with a maximum of 3 months of treatment**

**Side effects**
- Common: Increased blood pressure, palpitations, tachycardia, sweating, urticaria, diarrhea, nausea, insomnia, tremor, depression (following drug withdrawal), sexual desire disorder
- Serious: Cardiomyopathy, myocardial ischemia, psychotic disorder, pulmonary hypertension

**Counseling points**
- Avoid activities requiring mental alertness or coordination until effects realized
- Take dose in mid-morning or mid-afternoon
- Avoid sudden discontinuation to prevent withdrawal effects

## Diethylpropion

**Dose**
- Controlled release: 75 mg once daily in midmorning
- Immediate release: 25 mg three times daily taken 1 hour before meals (may take 1 dose midevening to overcome night hunger)

**Side effects**
- Common: Increased blood pressure and palpitations (mild), rash, urticaria, nausea, vomiting, constipation, dry mouth, CNS stimulation, dizziness, headache, insomnia, pain, blurred vision, dilated pupils, restlessness
- Serious: Cardiac dysrhythmia, cardiomyopathy, agranulocytosis, leukopenia, cerebral ischemia

**Counseling points**
- Avoid activities requiring mental alertness or coordination until effects realized
- Do not drink alcohol
- Avoid concomitant use of caffeine or other CNS stimulants

## Phendimetrazine

**Dose**
- Sustained release: 105 mg once daily taken 30-60 minutes before morning meal
- Immediate release: 30 mg 2-3 times daily taken 1 hour before meals (maximum 70 mg TID)
Question
Sam is a 51-year-old male who comes to the pharmacy to pick up his atorvastatin, lisinopril, hydrocodone-acetaminophen, metoprolol succinate, and sertraline. He asks if there are any medications that could help him "lose a lot of weight — like 100 pounds." He says he tried orlistat but could not tolerate the GI side effects. Based on the information available, what do you recommend?
A. Lorcaserin
B. Phentermine-topiramate
C. Naltrexone-bupropion
D. Liraglutide
E. None of the above

If you select a product... What is the appropriate dose? Counseling points?
If you do NOT select a product... What do you recommend?

Alternative therapies
• Lack of safety and efficacy evidence for weight loss
• Proprietary blends include ingredient name, but not quantity of each ingredient
• Many herbal extracts are listed by their common or not-so-common names, but not their botanical name
• Some products are associated with serious adverse events
  • Herbal laxatives: dependence for regular bowel movements
  • Herbal diuretics: electrolyte imbalances
  • Stimulants: headache, nervousness, hypertension, and rarely cardiovascular events

Medications after bariatric surgery
• Literature is lacking regarding how bariatric surgery impacts medication pharmacokinetics
• Reduced drug absorption is proposed; however, different types of surgery may lead to different factors influencing absorption
• General questions
  • Is medication indicated? Has the medical condition resolved?
  • Is medication safe? Is the patient experiencing side effects?
  • Is medication effective? Is increased dose or change of dose form needed?
Medications after bariatric surgery

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<table>
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<th>Questions</th>
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</thead>
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<td>Indication</td>
<td>Is medication needed? Has medical condition resolved?</td>
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<td>Safety</td>
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</tr>
<tr>
<td>Effectiveness</td>
<td>Is medication effective? Is increased dose or change of dose form needed?</td>
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Antidepressants

- Retrospective study of 439 patients with Roux-en-Y gastric bypass
  - 23% patient had increase in antidepressant use
  - 40% no change
  - 18% change in medication
  - 16% decreased or discontinued medication
- Summary: closely monitor for recurrent of depressive symptoms and for side effects

Antidiabetes medications

- Three randomized controlled trials found superiority of surgery over medical care for type 2 diabetes
- One study showed 62% remission of diabetes maintained at after 6 years
- Few studies on antidiabetic medication use, but studies show significant decreases in use of insulin and oral medications
Oral contraceptives

- Bariatric surgery appears to improve fertility, sexuality, pregnancy outcomes, and reproductive hormone profile
- Effectiveness of oral contraceptives may be decreased due to malabsorption and complications such as diarrhea and vomiting
- 40 women who underwent biliopancreatic diversion
  - 9 patients used oral contraceptives
  - 2 patients became pregnant

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Summary

- Excess weight can negatively impact patient’s health
- Lifestyle changes are critical for all weight management programs
- Additional strategies for weight management include
  - Over-the-counter medication
  - Prescription medications
  - Bariatric surgery
- There is limited information available about the impact of bariatric surgery on use of medications

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References for medications

Behavioral and pharmacologic strategies for weight management

Sarah E. Vordenberg, PharmD, MPH, BCACP
Clinical Assistant Professor
University of Michigan College of Pharmacy
skelling@med.umich.edu