OBESITY MANAGEMENT FUNDAMENTALS:
Essential Clinical Tools

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Personal Weight History
The personal weight history includes the patient’s highest weight, the patient's attempts at weight loss (successes) and how the patient lost weight. The patient should also be asked about any previous use of anti-obesity medications and any herbal or over-the-counter weight loss supplements.

Family History
The family history should include not only a history of family members who have had overweight or obesity but also family members who have had weight-associated diseases. A focused family history may look like the following.

Does anyone in your family have a history of...
• Overweight or obesity?
• Diabetes?
• Coronary heart disease?
• Hypertension?
• Dyslipidemia?
• Cancers?
• Genetic disorders?

Nutrition History
The nutrition history can help clinicians pinpoint both positive and problematic eating patterns, learn about the patient's food preferences and identify challenges. The nutrition history can also be used to ask about the patient's access to healthy, affordable food.
## Eating History Tools

<table>
<thead>
<tr>
<th>History</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24-hour Diet Recall</strong></td>
<td>• Detailed intake data.</td>
<td>• Requires recall.</td>
</tr>
<tr>
<td></td>
<td>• Small burden to patient.</td>
<td>• Trained interviewer.</td>
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<tr>
<td></td>
<td>• Literacy not required.</td>
<td>• Possible interviewer bias.</td>
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<td></td>
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<td>• Can be time consuming.</td>
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<td></td>
<td></td>
<td>• Need more than one day to get usual intake.</td>
</tr>
<tr>
<td><strong>Three-day Diary</strong></td>
<td>• Self-administered.</td>
<td>• Large respondent burden.</td>
</tr>
<tr>
<td></td>
<td>• No interview required.</td>
<td>• Literacy and motivation.</td>
</tr>
<tr>
<td></td>
<td>• No recall bias.</td>
<td>• Possible underreporting.</td>
</tr>
<tr>
<td><strong>Food Frequency Questionnaire</strong> (FFQ)</td>
<td>• Cost effective.</td>
<td>• Uses closed-ended questionnaire.</td>
</tr>
<tr>
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<td>• Assess usual dietary intake simply.</td>
<td>• Low accuracy due to recall bias.</td>
</tr>
<tr>
<td><strong>One-week Application</strong></td>
<td>• Detailed intake data.</td>
<td>• Literacy.</td>
</tr>
<tr>
<td></td>
<td>• No interview required.</td>
<td>• Smart phone or computer requirement.</td>
</tr>
<tr>
<td></td>
<td>• No recall bias.</td>
<td>• Later data for provider.</td>
</tr>
</tbody>
</table>

### Several websites that supply useful dietary assessment tools include:
- U.S. Department of Agriculture Food and Nutrition Information Center.
- The Mediterranean Diet Quick Assessment Tool.
- National Cancer Institute Dietary Assessment Primer.
- U.S. Department of Agriculture Individual Dietary Assessment.

## History of Obesogenic Medications

Some medications may promote weight gain, including diabetes drugs such as thiazolidinediones, insulin and sulfonylureas; antidepressants; antipsychotics; beta-blockers; antihistamines; and antiseizure medications.

Review the patient’s medication history and current medications to determine if any might be causing weight gain.
### OPQRST Mnemonic Sample Questions

| Onset | • When do you think you first began to gain weight?  
• What did you weigh at age 21? 30? 40?  
• What was your highest weight? |
|---|---|
| Precipitating Events | • What circumstances or behaviors contributed to your weight gain?  
• How do you handle stressful situations? Boredom? Sadness? Tiredness?  
• Have any medications or health conditions contributed to your weight gain?  
• If you have been pregnant, how much weight did you gain in pregnancy? |
| Quality of Life | • How would you describe your overall health?  
• What are your biggest health concerns?  
• How is your weight affecting you emotionally?  
• What are you unable to do, or what do you avoid doing, because of your weight?  
• What was your weight when you felt your best?  
• Have you ever discussed your weight with a health care professional? |
| Remedy | • Tell me about your efforts trying to lose weight in the past.  
• Can you describe the type of plan you followed? How long did you stay engaged?  
• Which aspects were most successful for you? What didn't work for you?  
• Did you regain any of the weight you lost?  
• What has triggered your past weight-loss efforts? |
| Setting | • Are there currently any barriers or challenges preventing you from beginning an obesity treatment program?  
• Do you have a support system? If so, who?  
• Is there anyone who might sabotage your weight-loss efforts? If so, who?  
• How do your current habits compare to your past efforts with weight loss?  
• What strategies have you used to change your health habits, such as eating, physical activity, stress reduction and sleep schedule? |
| Temporal Pattern | • What has been the pattern of your weight gain?  
• Has your weight gain occurred gradually over the years?  
• Has your weight gain happened suddenly over months? |

Evaluating Obesity-related Complications

A comprehensive, actionable diagnosis of overweight or obesity cannot rely on body mass index (BMI) screening. The identification of obesity-related complications to complete the diagnosis is imperative. These complications are identified through a personal and family history, physical examination and diagnostic testing.

**History and Physical Examination**

People with overweight or obesity should receive a comprehensive history and physical examination to identify obesity-related complications. The specific diagnostics and referrals depend on the individual patient’s findings. Following is a list of the most common obesity-related complications that may be flagged while doing a history and physical examination.
<table>
<thead>
<tr>
<th>Complication</th>
<th>Findings</th>
<th>Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prediabetes</strong></td>
<td>Based on family history and patient review of systems (ROS).</td>
<td>Fasting plasma glucose (FPG), glycated hemoglobin (A1C) and two-hour oral glucose tolerance test (OGTT). Repeat FPG if elevated (100-125 mg/dL). If initial FPG is normal and A1C is elevated, perform FPG and two-hour OGTT.</td>
</tr>
<tr>
<td><strong>Type 2 Diabetes</strong></td>
<td>Based on exam and lab results</td>
<td>FPG, A1C and two-hour OGTT. Suggest secondary testing when needed to confirm diagnosis, to determine severity or to guide treatment. Overtly elevated (i.e., greater than or equal to 200 mg/dL) or a repeat fasting glucose greater than or equal to 126 mg/dL completes diagnosis. If fasting glucose and/or A1C is consistent with prediabetes, the two-hour OGTT should be performed to test for diabetes. A1C should be performed to help guide therapy.</td>
</tr>
<tr>
<td><strong>Metabolic Syndrome</strong></td>
<td>Based on waist circumference and blood pressure. There is an increased cardiometabolic risk when waist circumference is: Men: greater than 40 inches. Women: greater than 35 inches. South, Southeast and East Asian Men: greater than or equal to 33 inches. South, Southeast and East Asian Women: greater than or equal to 29-31.5 inches.</td>
<td>FPG triglycerides and high-density lipoprotein cholesterol (HDL-c).</td>
</tr>
<tr>
<td><strong>Hypertension</strong></td>
<td>All patients with overweight and obesity should be screened for hypertension.</td>
<td>Use the correctly sized cuff with the patient in a sitting position for at least five minutes. Suggest secondary testing when needed to confirm diagnosis, to determine severity or to guide treatment. Repeat elevated blood pressure measurements to complete diagnosis; home blood pressure or ambulatory blood pressure monitoring may help complete testing.</td>
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<tr>
<td>Complication</td>
<td>Findings</td>
<td>Testing</td>
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<td>Polycystic Ovary Syndrome (PCOS)</td>
<td>Premenopausal female patients should be assessed for polycystic ovary syndrome (PCOS) via physical examination, ROS, menstrual history and reproductive history. Exam may find hirsutism, acne and female-pattern hair loss.</td>
<td>Insulin resistance labs (fasting insulin level, Homeostatic Model Assessment for Insulin Resistance [HOMA2-IR], lipids) and hormones (androgen levels, sex hormone-binding globulin [SHBG], luteinizing hormone [LH], follicle-stimulating hormone [FSH], estradiol).</td>
</tr>
<tr>
<td>Male Hypogonadism</td>
<td>Assessed by physical examination and ROS.</td>
<td>Suggest secondary testing when needed to confirm diagnosis, to determine severity or to guide treatment.</td>
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<tr>
<td>Asthma/Respiratory Disease</td>
<td>Assessed by physical examination and ROS.</td>
<td>Suggest secondary testing when needed to confirm diagnosis, to determine severity or to guide treatment.</td>
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<td>Chest X-ray and spirometry may be needed to complete diagnosis.</td>
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<tr>
<td>Cardiovascular</td>
<td>Assessed by history, physical exam, medical records and ROS.</td>
<td>Referral based on findings.</td>
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<td>Suggest secondary testing when needed to confirm diagnosis, to determine severity or to guide treatment.</td>
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<td></td>
<td>Additional testing based on findings and risk status (e.g., ankle-brachial index, stress testing, coronary artery calcium score and the Multi-Ethnic Study of Atherosclerosis [MESA] risk score calculator, arteriography and carotid ultrasound).</td>
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<tr>
<td>Dyslipidemia</td>
<td>Patients should be evaluated with a lipid panel because dyslipidemia is common with overweight and obesity.</td>
<td>Lipid panel includes triglycerides, low-density lipoprotein cholesterol (LDL-C), HDL-C and non-HDL cholesterol.</td>
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<td></td>
<td>Suggest secondary testing when needed to confirm diagnosis, to determine severity or to guide treatment.</td>
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<td></td>
<td>Lipoprotein subclasses, such as apolipoprotein B-100 (apoB100), may further define risk.</td>
<td></td>
</tr>
<tr>
<td>Complication</td>
<td>Findings</td>
<td>Testing</td>
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<td>------------------------------------------------------------------------------</td>
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<tr>
<td><strong>Nonalcoholic Fatty Liver Disease (NAFLD)/ Nonalcoholic Steatohepatitis (NASH)</strong></td>
<td>Assessed by physical exam.</td>
<td>Liver function test</td>
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<td></td>
<td></td>
<td><strong>Suggest secondary testing when needed to confirm diagnosis, to determine severity or to guide treatment.</strong></td>
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<tr>
<td></td>
<td></td>
<td>Imaging (e.g., ultrasound, MRI, elastography) and/or a liver biopsy is needed to complete diagnosis.</td>
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<tr>
<td><strong>Obstructive Sleep Apnea</strong></td>
<td>Assessed by physical exam, neck circumference and ROS.</td>
<td>Complete blood count (CBC)</td>
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<td></td>
<td>Increased risk with neck circumference (men: greater than 17 inches, and women: greater than 16 inches), daytime sleepiness, snoring and evidence of apnea episodes provided by a sleeping partner and/or the STOP/BANG questionnaire.</td>
<td>Polysomnography is needed to complete diagnosis.</td>
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<td></td>
<td>Positive screening warrants a referral for a sleep study.</td>
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<tr>
<td><strong>Osteoarthritis</strong></td>
<td>Assessed by physical examination and ROS.</td>
<td>Radiographic imaging may be needed to complete diagnosis.</td>
</tr>
<tr>
<td><strong>Urinary Stress Incontinence</strong></td>
<td>Assessed by physical examination and ROS.</td>
<td>Urine culture and urodynamic testing may be needed to complete diagnosis.</td>
</tr>
<tr>
<td><strong>Gastroesophageal Reflux Disease (GERD)</strong></td>
<td>Assessed by physical examination and ROS.</td>
<td>Endoscopy and esophageal motility study may be needed to complete diagnosis.</td>
</tr>
<tr>
<td><strong>Depression, Anxiety, Binge Eating Disorder, Stigmatization</strong></td>
<td>Assessed by history and ROS.</td>
<td>Screening/diagnostic evaluation or questionnaires based on criteria in the Diagnostic and Statistical Manual of Mental Disorders; referral to clinical psychologist or psychiatrist.</td>
</tr>
<tr>
<td><strong>Insulin resistance</strong></td>
<td>Acanthus nigricans and skin tags</td>
<td>Fasting insulin level and HOMA2-IR. Lipids, elevated triglycerides and suppressed HDL.</td>
</tr>
</tbody>
</table>
Baseline Lab Test Overview:
- FPG of greater than 100 mg/dL (impaired fasting glucose, prediabetes and diabetes).
- Elevated liver function test (NAFLD).
- HbA1C of greater than 5.7% (prediabetes and diabetes).
- CBC (obstructive sleep apnea).
- Lipid panel with elevated triglycerides, decreased HDL (cardiometabolic, insulin resistance).
- Thyroid function test, thyroid stimulating hormone and free T4 (hypothyroid).
- Elevated high-sensitivity C-reactive protein (non-specific for inflammation).
- Fasting insulin level (insulin resistance).
- Vitamin B12 (metformin can prevent the absorption of B12).
- 25-hydroxy vitamin D (vitamin D is often low with obesity).

Psychological History
Psychological conditions are both a cause and an effect of overweight and obesity, and they can be triggered or exacerbated by the stigma and bias people with overweight and obesity face.3,4

People with obesity experience bias at work, school and in health care settings.3 They earn less and receive fewer promotions than their non-overweight counterparts in comparable positions.3 People with overweight and obesity also have higher rates of post-traumatic stress disorder and are more likely to have a history of sexual, physical or verbal abuse.4

Unresolved psychological issues can sabotage weight loss. Gently asking questions such as, “Can you tell me about your childhood?” can reveal such histories.

The care of people who have experienced trauma demands a range of services beyond the primary care provider. Patients with significant psychological problems should be referred to a mental health care professional. Patients with an eating disorder should be referred to a counselor with experience in this field.

References


The following questions ask about your eating patterns and behaviors within the last three months. For each question, choose the answer that best applies to you.

**NOTE: IF YOU ANSWERED “NO” TO QUESTION 1, YOU MAY STOP. THE REMAINING QUESTIONS DO NOT APPLY TO YOU.**

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. During the last three months, did you have any episodes of excessive overeating (i.e., eating significantly more than what most people would eat in a similar period of time)?</td>
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<tr>
<td>2. Do you feel distressed about your episodes of excessive eating?</td>
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<tr>
<td>3. During your episodes of excessive overeating, how often did you feel like you had no control over your eating (e.g., not being able to stop eating, felt compelled to eat or went back and forth for more food)?</td>
<td></td>
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<tr>
<td>4. During your episodes of excessive overeating, how often did you continue eating even though you were not hungry?</td>
<td></td>
<td></td>
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<tr>
<td>5. During your episodes of excessive overeating, how often were you embarrassed by how much you ate?</td>
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<tr>
<td>6. During your episodes of excessive overeating, how often did you feel disgusted with yourself or guilty afterward?</td>
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</tr>
<tr>
<td>7. How often did you make yourself vomit as a means to control your weight or shape?</td>
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</tbody>
</table>
For Clinicians

The BEDS-7 is a screening tool to help you identify adults whom you suspect may have binge-eating disorder (BED). It should not be used as a diagnostic tool.

How to use this tool:

<table>
<thead>
<tr>
<th>STEP 1: QUESTION 1</th>
<th>If the patient answers YES to question 1, have them complete questions 2 through 7. If the patient answers NO to question 1, there is no need to continue with the remaining questions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP 2: QUESTION 2-7</td>
<td>If the patient answers YES to question 2 AND checks one of the shaded boxes for ALL questions 3 through 7, a follow-up discussion of the patient's eating behaviors and his/her feelings about those behaviors should be considered.</td>
</tr>
<tr>
<td>STEP 3:</td>
<td>If the patient meets the criteria in step 2 above, consider a referral to a mental health professional for further patient evaluation.</td>
</tr>
</tbody>
</table>

References


Pre-exercise Physical Assessments

Par-Q+
Before your patients with overweight or obesity can begin a program of physical activity, you should determine if they are healthy enough to exercise independently. The Physical Activity Readiness Questionnaire (PAR-Q) is a seven-question screening tool that focuses on symptoms of heart disease and also identifies musculoskeletal problems that should be evaluated before patients participate in a physical activity program. If your patient answers “no” to all seven PAR-Q questions, he or she may be cleared for low to moderate physical activity, such as walking.

If your patient answers “yes” to any of the PAR-Q questions, use your professional judgment to further evaluate his or her readiness for physical activity. You may decide to follow up with more advanced screening tools, such as a treadmill stress test.

Mobility Assessment
Overweight and obesity can compromise mobility and increase the risk of injury. You should assess your patients’ mobility, balance and gait before prescribing physical activity. Patients with diminished mobility may benefit from chair-based exercise. Patients with osteoarthritis or activity-induced musculoskeletal pain may benefit from pool-based exercises or classes designed for people with arthritis. Referral to a physical therapist for rehabilitative exercise may be warranted.

Medical Testing
Based on your professional judgment, patients with metabolic, cardiac or pulmonary disease may need a treadmill stress test to minimize the risk of injury, stroke or heart attack. Patients may also need pulmonary function tests or musculoskeletal assessment.

Access Evaluation
Keep in mind that some of your patients may not have access to safe places to be physically active. Does your patient live in a safe, walkable neighborhood with sidewalks, crosswalks and access to parks? Can your patient afford gym fees? Understanding obstacles to access can help you and your patient find solutions. For example, perhaps the patient’s local high school keeps the track or gym open after school hours for use by the community.
Readiness to Change
People with overweight and obesity may face specific barriers when increasing their physical activity. They may feel self-conscious about exercising in a class because they feel uncomfortable and exposed in exercise clothes. They may worry that they will not be able to keep up with others in the class or that their fitness instructor won’t empathize with their physical limitations. They may believe that the recommended exercise schedule is just too much for them. All these barriers affect a patient’s readiness to change.

The stages of readiness to change are pre-contemplation, contemplation, preparation, action, and maintenance.8

Explore health care provider resources to help your patients incorporate regular physical activity into their daily lives.
References


Overview

Common eating plans restrict carbohydrates, calories or fat. Other eating plans emphasize meal patterns and time-restricted eating plans.
Low-carbohydrate eating plans limit carbohydrates to 50-150 grams per day.\textsuperscript{1} Very low-carbohydrate eating plans limit carbohydrates to less than 50 grams per day.\textsuperscript{1}

**Proposed Benefits\textsuperscript{3,4}**
- Improves metabolic markers (decreases insulin levels).
  - Hypothesis — decreased carbohydrates cause the body to burn stored fat for energy.
- Improves cholesterol levels (increases high-density lipoprotein [HDL] and decreases triglycerides).
- Increases satiety.

**Nutrition**
- A daily limit of 20 to 60 grams of carbohydrates.
- No limit on fats but recommend limiting saturated and trans fat.

**Example: Ketogenic**
- Various levels to put the body into a state of ketogenesis:
  - 60% fat, 35% protein and 5% carbohydrates.
  - 40% fat, 40% protein and 20% carbohydrates.
  - 50% fat, 40% protein and 10% carbohydrates.
  - 75% fat, 20% protein and 5% carbohydrates.

**Atkins, Ketogenic and Carbohydrate Addict’s Diets**
These eating plans take the low-carbohydrate, moderate-to-high protein, high-fat approach and promote quick weight loss.\textsuperscript{2} They can be too high in saturated fat and low in carbohydrates, vitamins, minerals and fiber. These diets may not be practical in the long term because of their rigidity and lack of food choices.\textsuperscript{2}

**Zone and South Beach Diets**
These diets take the higher-protein, moderate-carbohydrate, moderate-fat approach.\textsuperscript{2} They can be challenging to maintain because they are very structured and time consuming.\textsuperscript{2} In an observational study of the South Beach Diet in people with metabolic syndrome, the mean baseline weight was 93.5 kilograms; the mean weight after phase 1 of the diet (i.e., after two weeks) was 90.4 kilograms and the mean weight after 10 weeks on phase 2 of the diet was 88.3 kilograms.\textsuperscript{3}
CALORIE-RESTRICTED APPROACHES

Low-calorie Eating Plans
Low-calorie eating plans limit calories to 1,200-15,00 calories per day for women and 1,500-1,800 calories per day for men.¹

Proposed Benefit
• Reduced biological age.
• Reduced oxidative stress.

Nutrition
• Ensure the meals include vital nutrients and fiber.
• Choose whole foods naturally low in calories.
• For weight loss, reduce calories by 500-1,000 per day.

Very Low-calorie Diets (VLCDs)
In VLCDs, patients consume less than 800 calories per day.¹ These diets may be used by obesity specialists and bariatric surgery programs. They require medical supervision and replace all meals with shakes, bars, soups and other meal-replacement options. Rapid weight loss of 3 to 5 pounds per week is possible.² Risks include fatigue, nausea, constipation, diarrhea, hair loss, brittle nails, cold intolerance, dysmenorrhea, electrolyte imbalance and cardiac dysrhythmia.¹² If patients are not taught proper nutrition when they transition to self-prepared foods, they will regain lost weight.¹²

Proposed Benefit
• Loss of 3-5 pounds per week.

Nutrition
• Short term and under medical supervision.
Low-fat eating plans limit fat to 10% to 30% of total calories from fat. Very low-fat eating plans limit fat to less than 10% of total calories.

Proposed Benefits
• Provides weight loss.
• Improves metabolic markers.
• Improves blood pressure.
• May reduce premature all-cause mortality.

Nutrition
• A fat intake of 15% to 20% of total calories has been shown to decrease total and low-density lipoprotein (LDL) cholesterol by 10% to 20%, likely due to a reduction in saturated fat intake.
  Example: Dietary Approaches to Stop Hypertension (DASH) Diet
• If individuals with hypertension were fully adherent to DASH, an estimated 400,000 cardiovascular disease events could be prevented over 10 years (see Meal Pattern Approaches for more information).
DASH Diet

The DASH Diet was initially developed as a diet for patients with hypertension.\cite{1} It is considered a balanced-nutrient, moderate-calorie approach.\cite{2}

The DASH diet is rich in fruits, vegetables and low-fat or nonfat dairy.\cite{1} It also includes mostly whole grains, lean meats, fish and poultry, nuts and beans. It is high in fiber and low-to-moderate in fat.\cite{2} Numerous studies have shown that the DASH Diet is a good choice for weight management, particularly weight reduction in persons with obesity.

In a randomized, controlled trial conducted in 116 patients with metabolic syndrome, three diets were prescribed for six months: a control diet, a weight-reducing diet emphasizing healthy food choices and the DASH Diet.\cite{4} Women randomized to the DASH Diet achieved a 15-kilogram weight loss, and men achieved a 16-kilogram weight loss, compared with 13 and 12 kilogram, respectively, in patients randomized to the weight-reducing diet.\cite{4}

For a National Institutes of Health handout on the DASH Diet (“Your Guide to Lowering Your Blood Pressure on DASH”), see the Resources section at the end of this module.

Proposed Benefits

- Lowered blood pressure and LDL cholesterol.
- Weight loss:
- PREMIER clinical trial: those who followed the DASH diet and received behavioral interventions had a mean weight loss of 5.8 kg, and 35% overall had optimal blood pressure at six months.

Nutrition

- The DASH eating plan provides daily and weekly nutritional goals. This plan recommends figuring out the patient's daily calorie needs based on age and physical activity level. The food groups and daily/weekly servings include:
  - Grains (6-8 per day).
  - Vegetables (4-5 per day).
  - Fruits (4-5 per day).
  - Fat-free or low-fat dairy products (2-3 per day).
  - Lean meats, poultry and fish (6 or fewer per day).
  - Nuts, seeds, and legumes (4-5 per week).
  - Fats and oils (2-3 per day).
  - Sweets and added sugars are limited (5 or fewer per week).

\textit{continued on next page}
The Mediterranean Diet emphasizes fruits, vegetables, whole grains and legumes. It also emphasizes monounsaturated fatty acids (MUFAs), including olive oil, nuts, canola oil, avocados, olives and nut butters. MUFAs reduce cardiometabolic risk factors, but they are high in calories and should be consumed in moderation. Red meats are limited in the diet, and fish and poultry are eaten at least twice per week. Herbs and spices replace salt. Red wine is recommended in moderation if the patient drinks alcohol. According to the Obesity Medicine Association, the Mediterranean Diet “has the most consistent and robust scientific support in reducing atherosclerotic cardiovascular disease risk.”

Proposed Benefits

- Improves heart disease.
  - Lyon Heart Study: 50% to 70% reduction in second cardiovascular event.
  - Predimed Study: cardiovascular risks reduced by 30% even without calorie reduction.
- Anti-inflammatory.
- Protects against dementia, Alzheimer’s disease and Parkinson’s disease.
- Reduces all-cause death, including cancer.

Nutrition

- Nine dietary components score 0-9 depending on amounts consumed:
  - Vegetables (2-3 cups per day).
  - Oils and fats (1 serving per day).
  - Legumes (2-3 servings per week).
  - Seafood (2 servings per week).
  - Fruits and nuts (1-2 servings per day).
  - Dairy (1 serving per day).
  - Meats (4 ounces per day; red meat rarely).
  - Cereals and whole grains (2-3 servings per day).
  - Alcohol (2 drinks per day for men, 1 drink per day for women).
- Avoid sugar-sweetened beverages, added sugars, processed meat, refined grains, refined oils and other highly processed foods.
Whole Food and Plant-based Diets

Proposed Benefits
- Improves metabolic markers.
- Improves blood pressure.
- May reduce premature all-cause mortality.
- Decreases visceral adipose tissue.

Nutrition
- **Dos:**
  - Leafy greens.
  - Starchy vegetables.
  - Fruits.
  - Legumes.
  - Cruciferous vegetables.
  - Whole grains.

- **Don’ts:**
  - Highly refined grains.
  - Processed oils.
  - Animal products.
  - Added sugars.
Alternate-day Fasting (ADF)

Proposed Benefits
- Particularly effective for weight loss among middle-aged people.
- Decreases inflammatory markers.
- Reverse insulin resistance.
- Decreases visceral adipose tissue.
- Improves cardiometabolic profile.
- Improves lipid profile.
- Decreases blood pressure.

Nutrition
- Varies from actual fasting to reduced caloric intake on alternate days, such as:
  - Zero calories.
  - 25% of calorie needs.
  - 500-750 calories.

Evidence
- Sixteen adult participants, eight-week trial: ADF, 450 calories consumed between 1200 and 1400 hours, no limits on feed day.
  - Weight loss of 5.6 kilograms.
  - Total and LDL cholesterol decreased by 21% and 25%.
  - No changes in HDL.
- Concerns include long-term adherence to eating plan and sustained weight loss.
Intermittent Fasting

Proposed Benefits
- Lower insulin and decreased insulin resistance.
- A decrease in body weight.
- Decrease in hunger.

Nutrition
- Fasting 12 to 16 hours per day.

Evidence
- Twenty-three adult participants, 12-week trial: eight-hour, time-restricted feeding, water fasting 16 hours.
  - Weight loss of 2.6%.
  - Systolic blood pressure decreased 7 mmHg.
- Concerns include a high drop-out rate of 26%.
References:


## Phentermine

**WEIGHT LOSS:**
Average: 4.5-10kg  |  Mean: 5-10%

**METHOD OF ACTION:**
Sympathomimetic amine anorectic, agonist at TAAR1 receptor site, Pro-opiomelanocortin neurons in the hypothalamus (POMC) Stimulates norepinephrine release.

### BRANDS

<table>
<thead>
<tr>
<th>BRANDS</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>ADMIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suprenza</td>
<td>15 mg- 37.5 mg</td>
<td>Oral</td>
<td>Daily</td>
</tr>
<tr>
<td>Adipex-P</td>
<td>37.4 mg</td>
<td>Oral</td>
<td>Daily</td>
</tr>
<tr>
<td>Lomaira</td>
<td>8mg</td>
<td>Oral</td>
<td>TID</td>
</tr>
</tbody>
</table>

**ADVERSE EFFECTS**
- Constipation
- Difficulty sleeping
- Dizziness
- Diarrhea
- Dry Mouth
- Irritability
- Nausea/Vomiting

**CONTRAINDICATIONS**
- History CVD
- Hyperthyroidism
- Pregnancy category “X” /Nursing

## Orlistat

**WEIGHT LOSS:**
Average: 5.3kg  |  Mean: 6.10%

**METHOD OF ACTION:**
Pancreatic lipase inhibitor-impairs GI energy absorption, causing excretion of ~30% of ingested triglycerides in stool.

### BRANDS

<table>
<thead>
<tr>
<th>BRANDS</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>ADMIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xenical</td>
<td>120 mg</td>
<td>Oral</td>
<td>TID</td>
</tr>
<tr>
<td>Alli (OTC)</td>
<td>60mg</td>
<td>Oral</td>
<td>TID</td>
</tr>
</tbody>
</table>

**TREATMENT CONSIDERATIONS:**
- Fat-soluble multivitamin
- Limit fat intake to 30% of calories

**ADVERSE EFFECTS**
- Constipation
- Difficulty sleeping
- Dizziness
- Diarrhea
- Dry Mouth
- Irritability
- Nausea/Vomiting

**CONTRAINDICATIONS**
- History CVD
- Hyperthyroidism
- Pregnancy category “X” /Nursing
Phentermine/Topiramate ER
(DEA Schedule IV drug)

**METHOD OF ACTION:**
Noradrenergic + GABA-receptor activator, Kainite/AMPA glutamate receptor inhibitor causing appetite suppression.

<table>
<thead>
<tr>
<th>BRANDS</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>ADMIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qsymia</td>
<td>3.75mg/23mg</td>
<td>Oral</td>
<td>Daily</td>
</tr>
<tr>
<td></td>
<td>7.5mg/46mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11/25.69mg</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>15mg/92mg</td>
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<td></td>
</tr>
</tbody>
</table>

**ADVERSE EFFECTS**
- Constipation
- Dizziness
- Dry Mouth
- Dysgeusia
- Insomnia
- Paresthesia

**CONTRAINDICATIONS**
- Glaucoma
- Hyperthyroidism
- MOAi
- Pregnancy category “X”/Nursing

**TREATMENT CONSIDERATIONS:**
Titrate dose at initiation and discontinuation.

---

Naltrexone HCL/Bupropion HCL ER

**METHOD OF ACTION:**
Opioid receptor antagonist, dopamine and noradrenaline reuptake inhibitor.

<table>
<thead>
<tr>
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<th>ROUTE</th>
<th>ADMIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contrave</td>
<td>16mg/180mg</td>
<td>Oral</td>
<td>AM/PM</td>
</tr>
<tr>
<td></td>
<td>32mg/360mg</td>
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</tr>
</tbody>
</table>

**TREATMENT CONSIDERATIONS:**
Titrate dose on initiation, Monitor BP, Monitor for Depression.

**ADVERSE EFFECTS**
- Constipation
- Dizziness
- Diarrhea
- Dry Mouth
- Headache
- Insomnia
- Nausea/Vomiting

**CONTRAINDICATIONS**
- Bulimia or Anorexia nervosa
- History of seizures
- History of suicidal behavior
- Pregnancy category “X”/Nursing
- Seizure disorder
- Uncontrolled hypertension
- Use of other bupropion-containing products
### Liraglutide

**WEIGHT LOSS:**
- Average: 8.4kg
- Mean: 8.00%

**METHOD OF ACTION:**
- GLP-1 Receptor agonist.

<table>
<thead>
<tr>
<th>BRANDS</th>
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<th>ROUTE</th>
<th>ADMIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saxenda</td>
<td>0.6mg - 3mg</td>
<td>SQ</td>
<td>Daily</td>
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</tbody>
</table>

**TREATMENT CONSIDERATIONS:**
- Adults with BMI >30 kg/m² or BMI >27 kg/m² with at least one co-morbid complication.

<table>
<thead>
<tr>
<th>ADVERSE EFFECTS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal pain</td>
<td>Personal or family hx C-cell tumors or MES type2</td>
</tr>
<tr>
<td>Constipation</td>
<td>Pregnancy category “X”/Nursing</td>
</tr>
<tr>
<td>Decreased appetite</td>
<td></td>
</tr>
<tr>
<td>Dizziness</td>
<td></td>
</tr>
<tr>
<td>Diarrhea</td>
<td></td>
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<tr>
<td>Dyspepsia</td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
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<tr>
<td>Fecal urgency</td>
<td></td>
</tr>
<tr>
<td>Headache</td>
<td></td>
</tr>
<tr>
<td>Hypoglycemia</td>
<td></td>
</tr>
<tr>
<td>Increased lipase</td>
<td></td>
</tr>
<tr>
<td>Nausea/Vomiting</td>
<td></td>
</tr>
</tbody>
</table>

**CONTRAINDICATIONS**
- Personal or family hx C-cell tumors or MES type2
- Pregnancy category “X”/Nursing

### Hydrogel matrix

**WEIGHT LOSS:**
- Average: 10 kg
- Mean: 5-10%

**METHOD OF ACTION:**
- Capsule releases non-aggregating particles of superabsorbant hydrogel matrix of cellulose and citric acid.

<table>
<thead>
<tr>
<th>BRANDS</th>
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<th>ADMIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plenity Gelesis100</td>
<td>One capsule</td>
<td>Oral</td>
<td>BID</td>
</tr>
</tbody>
</table>

**TREATMENT CONSIDERATIONS:**
- BMI >25 kg/m² and < 40 kg/m²

<table>
<thead>
<tr>
<th>ADVERSE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of severe reflux</td>
</tr>
<tr>
<td>History of ulcers</td>
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</tbody>
</table>
What do older people need to know about being overweight?

A healthy weight is still important for adults 65 and older

Gaining weight is common as we age. Our metabolism changes and we need to eat less. We also lose height and muscle mass. More than 1 in 3 people over 65 have obesity, which can lead to sickness, physical disability, and early death.

Ask your healthcare provider what you can do to stay as healthy as possible.

- Your healthcare provider can tell you whether you need to lose weight, change some eating habits, or be more active.
- Your waist may be measured to determine whether you are overweight. In some people, this is more accurate than determining your body mass index (BMI) as you get older.
- It helps to talk with your provider about what foods, exercises, and medications are safe for people over 65, as well as who buys your food and where you get it from.
- Your provider may suggest certain foods and exercises that are helpful. They can also tell you if any of your medicines may cause weight gain.

How can older adults lose weight safely?

- Tell your healthcare provider you want to lose weight and ask for help.
- Make an eating, exercise, and medication plan that works for you—one that you are willing to do every day.
- Safe diets include DASH and the Mediterranean diets. Look for them on the Internet or at the library.
- A dietitian can help you with what you need to eat, how much, and how often. You also may need to eat more protein.
- You may need to take vitamin D and calcium pills. Ask your pharmacist for recommendations.
- Resistance exercises and strength training help keep bones and muscles strong while someone loses weight.
- Consider seeing a physical therapist. They can help you with an exercise plan you like.

What’s the benefit of making changes in eating and exercise for older adults?

- Making small changes in eating and exercise can help you have more energy and increased strength.
- These changes could also help you stay healthier, improve your ability to move, and live longer.

Are there other ways to lose weight for people over 65?

- Weight loss medicines approved by the FDA have not been extensively studied in older adults, so they cannot be universally recommended. Use particular caution for those medicines that can increase blood pressure and pulse.
- Bariatric surgery can still be an option. Talk with your healthcare provider before you consider this surgery.

Talk with your healthcare provider about maintaining a healthy weight.