Module 4
Basic Lifestyle Modifications in Weight Management and Weight-Loss Programs

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Module 2

BASIC LIFESTYLE MODIFICATIONS IN WEIGHT MANAGEMENT AND WEIGHT-LOSS PROGRAMS

Goal:
To train providers in assessing patient lifestyle in terms of diet and physical activity, and when to recommend dietary and physical activity change as well as behavioral supports for weight loss and long term weight management.

After completing this module participants will be able to:
• Determine level of care to recommend to patients in order to achieve weight loss
• Assess patient diet and recommend basic evidence-based diet modifications to patients for weight loss
• Assess patient physical activity level and recommend evidence-based modifications for weight management
• Refer patients to weight-loss programs or trained interventionists for support with weight loss.
• Recommend a plan for patients to maintain weight loss long term

Professional Practice Gaps
Evidence-based guidelines recommend for overweight and obese individuals who would benefit from weight loss, that providers prescribe a calorie-restricted diet, increased physical activity, and (for most of these patients) participation for ≥ 6 months in a comprehensive lifestyle program that assists participants in adhering to these lifestyle changes through the use of behavioral strategies (Jensen et al., 2013).

Guidelines further recommend an algorithm that responds to the patients' readiness to start a weight-loss program. In our needs analysis (N=25), 92% of providers felt they needed training to help assess patient readiness to change (Tanner, 2011). Of the primary care providers surveyed, 84% reported that they needed training to counsel patients on proper diet recommendations (Tanner, 2011). Additionally, in our survey of obesity experts (N=7), 71% believe that primary care providers need additional training in interviewing patients regarding current diet and level of physical activity (Tanner, 2011).

Furthermore, evidence-based guidelines recommend long-term followup of patients during and after a weight-loss program, with an intensive program including continued reduced caloric intake, recommended levels of physical activity or higher, and behavioral supports (Jensen et al., 2013). However, of the primary care providers we surveyed, (N=25) only 40% monitored their patients' during weight loss, while only 32% monitored patients after weight loss.
MODULE INTRODUCTION

Lifestyle Change
To achieve and maintain long-term weight loss, patients need to modify their lifestyles in terms of diet and physical activity (Jensen et al, 2014). The lifestyle change needed is an all-encompassing, long-term alteration in both patients' eating habits and physical activity. Additionally, lifestyle change is more likely to succeed with support from a weight-loss program or trained interventionist.

Intensive interventions repeated over time are effective in supporting weight loss (USPSTF, 2012). The physician can play an important role by guiding patients' lifestyle changes and making appropriate referrals to support that change.

Meet Your Patients
We will follow the stories of these patients in order to illustrate how to guide your patients in making lifestyle changes for weight loss and long-term weight management:

MS. JONES
Ms. Jones has been diagnosed with Class II obesity and central adiposity during a routine physical. How can you quickly assess her current diet and provide a brief intervention based on the results?

MR. ALAIM
Mr. Alaim recently went from "overweight" to "obese," however, he claims he has not changed his diet. Could a low level of physical activity be the problem? How would you assess his physical activity level and provide a brief intervention?

MS. COLLINS
During a cholesterol evaluation, Ms. Collins was diagnosed as obese. How would weight loss impact her cholesterol? What dietary changes should she make as part of her plan for weight loss and long-term weight management?
THINK AHEAD: MAINTENANCE

Roger Thomas achieved his final weight-loss goal of 50 pounds but did not return for follow-up appointments. When he finally returned, he had regained 15 pounds and was upset. Which is the best response to support him in the maintenance stage?

Choose one

1. Reassure him that a small weight regain is typical after a large weight loss.
   - Feedback: Incorrect. Read further to learn why this is incorrect.
2. Recommend adjustments in his daily caloric intake, activity level, and behavioral support as needed.
   - Feedback: Correct!
3. Add a pharmacological weight loss treatment.
   - Feedback: Incorrect. Read further to learn why this is incorrect.
4. Advise him that a 15 lb gain is not significant for his health.
   - Feedback: Incorrect. Read further to learn why this is incorrect.

CASE #1: MS. JONES

Ms. Jones, presented for a physical and was diagnosed with moderately severe (Class II) obesity with central adiposity. She was referred to a sleep specialist for probable sleep apnea. The provider now focuses on helping her make a dietary lifestyle change.

Patient Name: Miranda Jones Age: 35 y/o
Height: 5’ 4” Weight: 225 lbs BMI: 38.6 kg/m² Waist: 41”
BP: 130/86 Pulse: 90 Respiration: 18/min
Chief Complaint: Routine physical, prompted by sleep problems
History of Present Illness: Complains of not being able to get a truly "refreshing" night's sleep for over a year.
Medical History: Hypertension (controlled with medications), cholecystitis. Family history of obesity, hypertension, dyslipidemia, and cancer (cervical-mother, pancreatic-father); her father died from a stroke.
Medications: Ethinyl estradiol/norethindrone (birth control), dyazide, daily multivitamin.
Weight History: Weight has fluctuated from normal to overweight/obese and back to normal over the past 10 years. Since starting her current job 2 years ago, she has not closely monitored her weight.
Physical Activity Level: Low - Moderately intense activity only 15 minutes, 2x/week; highly sedentary, although she does stand a lot at work.
Weight Related Diagnoses: E66.9 Obesity, unspecified; E65 Localized Adiposity (Central)
CASE OBJECTIVES
The learner will be able to:

• Determine if a patient should have a comprehensive lifestyle change recommended in order to achieve weight loss
• Assess patient's diet using validated instruments and patient's interview
• Recommend basic evidence-based diet modifications to the patient for weight loss.

WHO NEEDS A LIFESTYLE CHANGE?

SECTION TOPICS
• Level of care patients require to achieve weight loss.

When to Recommend a Lifestyle Change for Weight Loss
Lifestyle modifications to achieve healthy weight should be recommended to all patients who are overweight or obese, that is, anyone with a BMI over 25 kg/m$^2$ (Garber et al., 2015). Further treatment is needed according to the severity of the patient's excess weight and weight-related complications or comorbidities.

Ms. Jones
At a BMI of 38.6 kg/m$^2$, a comprehensive lifestyle change to support weight loss should be recommended to Ms. Jones.

Evidence for Effectiveness of a Lifestyle Change for Weight Loss

EVIDENCE
AHA/ACC/TOS concluded from a review of the literature (2014):

Successful long-term weight loss is achieved by a significant number of patients in intensive treatment.

• "Approximately 40% to 60% of overweight/obese adults who participate in a high-intensity, long-term comprehensive lifestyle intervention maintain a loss of 5% or more of initial body weight at 2 or more years followup." (moderate level of evidence).

• The lifestyle intervention MUST be intense. Strong evidence suggests that low to moderate weight-loss interventions were not effective when offered by primary care practices alone. (Jensen et al., 2014)

For patients having weight-related comorbidities, the AACE/ACE guidelines (Gayer et al, 2016-2017) recommend weight loss to impact many of these conditions. For example, the following weight loss is recommended to impact the following conditions:

• from 5 to 17% (varies with the condition from 5 to 10% for hypertension
WHAT LIFESTYLE CHANGES ARE NEEDED?

GUIDELINES FOR COMPREHENSIVE LIFESTYLE MODIFICATIONS

For patients with BMI≥27 kg/m^2 having no comorbidities*, or a BMI≥25 kg/m^2 plus comorbidities or failed weight loss attempts:

1. Healthy diet with reduced energy intake and modified macronutrients if needed to support adherence, often reduced carbohydrate intake
2. Physical activity, both sufficient aerobic exercise (building up to 150 minutes per week) and resistance training (2-3 times per week) as well as reduced sedentary time
3. Behavioral support (Long term–6 months, from a registered dietitian, weight-loss program, or counselor)
   Note that a single visit to a dietician is not sufficient for a successful weight-loss intervention.
4. After weight loss: A long-term maintenance program including maintaining recommended levels of physical activity

*For patients with BMI from 25 to 27 kg/m^2 and no comorbidities: Recommend "prevention of further weight gain." However, OBS guidelines recommend preventive treatment for this group as an alternative to waiting until comorbidities develop (Bays et al., 2016-2017).

For patients with higher BMI or more comorbidity: In addition to the above the following treatments or adjunctive treatments are recommended:

• Very low calorie diet programs (Bays et al., 2016-2017)
• Pharmacotherapy (BMI≥30 kg/m^2, BMI≥27 with comorbidity), or
• Weight-loss surgery (BMI≥ 40 kg/m^2, BMI≥35 with comorbidity).
(Jensen et al., 2013)

Follow-up: VA/DOD guidelines based on a review of the literature found evidence supporting providing or offering followup visits at least monthly for a year after providing a comprehensive lifestyle intervention (combined diet, physical activity, and behavioral strategies) (VA/DOD, 2014).
All Treatment Components Are Needed
Interventions that prescribe changes in diet and exercise and behavioral support produce larger weight loss than interventions without all three components (Wadden et al., 2014). All three components are also key to maintaining weight loss.

Note that prevention of obesity is important, given the difficulty of treating chronic obesity. Therefore, diet and activity modifications also might be considered for anyone who is overweight, that is, with a BMI of 25 to 30 kg/m$^2$.

**QUIZ: BASIC LIFESTYLE CHANGE**
Match each patient's BMI and comorbidity health status to a recommended treatment level.

1. BMI 26, otherwise healthy
   - Answer: Calorie-restricted diet and increased physical activity
   - Feedback: This is the recommendation for anyone with a BMI of 25 to 27, who is otherwise healthy

2. BMI 31, otherwise healthy
   - Answer: Calorie-restricted diet, increased physical activity, and weight loss program or counseling with a trained interventionist
   - Feedback: This is the recommendation for anyone with a BMI of 27 or over, who is otherwise healthy

3. BMI 25, hypertension and type 2 diabetes mellitus
   - Answer: Calorie-restricted diet, increased physical activity, and weight loss program or counseling with a trained interventionist
   - Feedback: This is the recommendation for anyone with a BMI of 25 or over, who also has a weight-related comorbidity

4. BMI 29, dyslipidemia, atrial fibrillation
   - Answer: Calorie-restricted diet, increased physical activity, and weight loss program or counseling with a trained interventionist
   - Feedback: This is the recommendation for anyone with a BMI of 25 or over, who also has a weight-related comorbidity

**OTHER LIFESTYLE CHANGES: SLEEP**

**Medical Evaluation Protocol Step:** Evaluate for medical conditions that could contribute to excess weight, including sleep disorders.

**Ms. Jones**
Ms. Jones' chief complaint was having problems with sleeping. She was referred for possible sleep apnea.
How does her sleep problem interact with her weight problem? Can anything be done to help her sleep apnea while she waits for the referral and loses weight?

Why Is Sleep Important in Weight Management?

Sleep deprivation is linked with:

- Increased energy intake and weight gain (Markwald et al, 2013; Spaeth et al, 2013)
- Metabolic alterations, contributing to:
  - The development of obesity
  - Insulin resistance
  - Type 2 diabetes
(Ryu et al., 2015).

Adequate sleep is essential for hormone balance which affects:

- Appetite
- Tissue repair
- Muscle mass
- Diurnal activity levels

The NIH recommends 7 to 8 hours of sleep per night for most adults (NIH, 2012).

Relationship Between Amount of Sleep or Sleep Deprivation and Weight

EVIDENCE

Research shows an inverse relationship between sleep duration and obesity (Shlisky et al., 2012; Ryu et al., 2015) and there is some evidence for causality in both directions:

- Sleep duration is significantly less for individuals with obesity (Ryu et al., 2015).
- A sleep reduction of 1 hour per day increased BMI an average of 0.35 kg/m² (Cappuccio et al., 2008).
- Sleep loss down-regulates the satiety hormone leptin and up-regulates the appetite increasing hormone ghrelin, causing a spike in hunger (Morselli et al., 2010).
- Sleep restricted to 4 hours per night resulted in more weight gain than for controls who were permitted normal sleep (Spaeth et al., 2015). Sleep-restricted participants consumed more calories at meals and late at night.
- Obesity plays a causal role in reducing sleep through increased incidence of sleep apnea (Tuomilehto et al., 2013).
- Reduced sleep decreases insulin sensitivity, resulting in impaired glucose tolerance and increased diabetes risk (Morselli et al., 2010). Less than one week of restricted sleep can produce a prediabetic state in healthy subjects (Van Cauter et al., 2005).
- In patients with recently-diagnosed type 2 diabetes, a half-hour less sleep at baseline corresponded to an increased rate of obesity by 17% after a year (Taheri et al., 2015).
• Neuroimaging data has shown that when sleep deprived, food increases both activity in the brain reward centers and the desire to eat (Greer et al, 2013). As a result, appetite is increased in excess of caloric needs and adhering to a weight-loss diet is challenging.

**BRIEF INTERVENTIONS FOR SLEEP PROBLEMS**

**Referral Protocol Step:** Provide treatment for sleep disorders or refer for treatment when necessary.

Inadequate sleep and obesity are part of a cycle that needs to be interrupted with a treatment of both conditions. Brief interventions may help, but a referral for sleep evaluation may be indicated.

Sleep diaries kept for a week or two can help track problem sleep patterns and contributing factors, such as caffeine consumption (NHLBI, 2011). If sleeplessness is caused by anxiety or stress, Cognitive Behavioral Therapy (CBT) can be effective.

Because sleep apnea can contribute to obesity through sleep deprivation, patients having sleep apnea may need more treatment than simply recommending weight loss. The following cycle needs to be broken: sleep deprivation leads to -> more obesity leads to -> more sleep apnea leads to -> more sleep deprivation leads to -> more obesity, etc.

**QUIZ: DIET ASSESSMENT AND DISCUSSION**

**MS. JONES** now has a weight loss goal of losing 10% of her weight in the next 6 months. Of the three areas of lifestyle change, diet, physical activity, and behavioral supports, Ms. Jones and her provider together decide to talk first about her diet.

**SECTION TOPIC**

• Using patient diet assessment to recommend diet modifications.

**Share Ideas:** Describe an example of how you might start the conversation with a patient about their diet.

**SUGGESTED ANSWER**

Question example: What is the hardest part for you in maintaining a healthy diet? Assessment examples: Starting the Conversation; SuperTracker from ChooseMyPlate.gov,

**BRIEF DIET ASSESSMENT**

**Screening Protocol Step:** Complete diet screening.
Several validated brief assessments of an individual's typical daily diet are available for primary care.

### STARTING THE CONVERSATION

One example of a brief diet assessment is **Starting The Conversation**. This form is an 8-item diet assessment designed for quick and easy use by nurses and physicians in primary care and health promotion settings. Its purpose is to determine healthful and unhealthful dietary behaviors. It was simplified from "The Dietary Risk Assessment", which had been validated previously (Paxton et al., 2011; Jillcott et al., 2007).

"Starting the Conversation" can also be completed by the patient in the waiting room before appointments, along with other forms. Answers to questions are 0 for healthiest, 1 for less healthy, and 2 for least healthy dietary habits. 16 is the maximum and 0 is ideal (healthiest).

### MS. JONES' COMPLETED DIET ASSESSMENT

Ms. Jones completed a "Starting the Conversation" form to assess her eating habits.

### STARTING THE CONVERSATION QUESTIONS

1. How many times a week do you eat fast food meals or snacks?
   - Less than 1
   - 1-3
   - 4 or more
2. How many servings of fruit do you eat each day?
   - 5 or more
   - 3-4
   - 2 or less
3. How many servings of vegetables do you eat each day?
   - 5 or more
   - 3-4
   - 2 or less
4. How many regular sodas or glasses of sweet tea do you drink each day?
   - Less than 1
   - 1-2
   - 3 or more
5. How many times a week do you eat beans (like pinto or black beans), chicken or fish?
   - 3 or more
6. How many times a week do you eat regular snack chips or crackers (not the low-fat)?
   - 1 or less
   - 2-3
   - 4 or more

7. How many times a week do you eat desserts and other sweets?
   - 1 or less
   - 2-3
   - 4 or more

8. How much margarine, butter or meat fat do you use to season vegetables or put on potatoes, bread, or corn?
   - Very little
   - Some
   - A lot

**SUMMARY SCORE** (sum of all items): 12

(Scale developed by: The Center for Health Promotion and Disease Prevention, University of North Carolina and North Carolina Prevention Partners)

**MS. JONES' DIET PROBLEM AREAS**
- Consumes too many saturated fats from fast food, chips, crackers, and desserts
- Consumes too many refined carbohydrates from these foods and in sugary drinks

**MS. JONES' DIET POSITIVE AREAS**
- Eats 2 or more serving each of vegetables and fruits - follow-up to confirm recommended 5 servings daily
- Has some lean protein intake, but could be increased
- Does not eat a lot of excess butter, but could be decreased further
QUIZ: MS. JONES’S SURVEY RESULTS

Question #1 of 1:

Ms. Jones Age: 35 y/o

Mean Assessment Score: 1.5 (0=ideal; 1=less than healthy; 2=least healthy)

Starting The Conversation Assessment Results

1. How many times a week do you eat fast food meals or snacks?: 1-3
2. How many servings of fruit do you eat each day?: 2 or less
3. How many servings of vegetables do you eat each day?: 2 or less
4. How many regular sodas or glasses of sweet tea do you drink each day?: 1-2
5. How many times a week do you eat beans (like pinto or black beans), chicken or fish?: 1-2
6. How many times a week do you eat regular snack chips or crackers (not the low-fat)?: 4 or more
7. How many times a week do you eat desserts and other sweets?: 4 or more
8. How much margarine, butter or meat fat do you use to season vegetables or put on potatoes, bread, or corn?: Some

Mean Assessment Score: 1.5 (0=ideal; 1=less than healthy; 2=least healthy)

(Scale developed by: The Center for Health Promotion and Disease Prevention, University of North Carolina at Chapel Hill, and North Carolina Prevention Partners)

Question: Which of the following answers would be appropriate to discuss with Ms. Jones after you and she review the survey? (select all that apply)

1. When you look at your answers did anything surprise you about your eating habits?
   • Feedback: Correct. This question uses the questionnaire results skillfully to start the conversation.

2. It's great that you are able to get beans into your regular diet!
   • Feedback: Correct. It is important to reinforce good food choices, in addition to guiding the patient to make needed changes.

3. It's also great that you manage not to eat too many chips and crackers!
   • Feedback: Incorrect. She reported that she eats chips 4 or more times per week. The "healthy" amount according to this survey is 1 time per week or less, so this would be a target for improvement.

4. Talk to me about what barriers you face when it comes to eating more healthily?
   • Feedback: Correct. This question uses questionnaire results skillfully to start the conversation.

5. Let's come up with three realistic changes that you are currently willing to make to improve your score.
Impact Obesity v1

6. Telling people around you about your goals is important. Is there anyone you feel comfortable telling about your plans to eat healthier?
   • Feedback: Incorrect. This response jumps to goals and skipped the conversation where goals would be made.

DISCUSSING THE DIET ASSESSMENT

Dialogue
Brief Counseling Protocol Step: Discuss problematic eating patterns.

The provider discusses the results of a diet assessment and uses as a guide to decide what brief intervention to make.

Provider: Thank you for filling out your eating assessment. I see that you have been eating some healthy foods, such as chicken, fish, and beans, which is very good.

Ms. Jones: I try to cook them when I have time, but usually I just grab what I can, since I get busy.

Provider: Yes, I see that you often eat snacks and desserts that are high in fat. And you go out for fast food 1-3 times a week?

Ms. Jones: Yes, I know those are bad for me, but this is part of my enjoyment in life.

Provider: Cutting back works for some people, for example, eating high calorie foods less often or in smaller portions. You could also look for quick-to-make, healthy options.

Prescribe A Dietary Change
Treatment Protocol Step: Prescribe a weight-loss diet that reduces calories.

GUIDELINES FOR DIETARY CHANGE RECOMMENDATIONS

Current guidelines for treating obesity recommend prescribing a reduction in caloric intake (Jensen et al., 2014). This can be achieved through any of the following:

- Intake of 1200 to 1500 kcal/day women; 1500-1800 kcal/day men. Adjust for weight, or
- Deficit of 500 or 750 kcal/day, or
- Evidence based diet restricting food type (e.g., Not eating foods that are high-carbohydrate or high saturated fat)
- Evidence based dietary change prescribing a healthy combination of foods, that, in limited quantity lead to weight loss (e.g., Mediterranean diet, DASH diet.)

(Jensen et al., 2014)

Dietary change to produce weight loss should consider a patient's health status and preferences (Jensen et al., 2013). For example, the DASH diet, which limits sodium, when adapted so that it also restricts calories, is a good choice for weight loss in a patient with hypertension. A referral to a nutritionist and a diet prescription helps many patients.
OPTIONS FOR DIETARY CHANGE

Initial Qualitative Change

Treatment Protocol Step: Recommend changes in dietary patterns that will support weight loss and help stop weight gain.

Many patients need to make at least some of the following changes:

- Reduce carbohydrates, especially refined carbohydrates, including sugary drinks and juices.
- Reduce intake of saturated fats; eliminate trans and hydrogenated fats.

Patients on a weight-loss diet may need to increase protein. Some patients may need to increase intake of relatively healthier fats, such as those containing omega-3 fatty acids. The 2015 Dietary Guidelines for Americans have suggested that healthy fats can replace less healthy fats, such as partially hydrogenated fats in processed foods.

(USDA, 2015; Jensen, 2014)

Many Small Steps For Permanent Lifestyle Change

Multiple small steps to change diet over a period of time can result in the major change needed to achieve long-term success. Keep the following in mind when suggesting changes:

Remember, the goal is not a time-limited diet; but instead, a permanent, major lifestyle change.

- Avoid overwhelming patients by asking for too many changes all at once.
- Suggest small changes.
- Introduce sub-goals incrementally.
- Span changes over multiple visits.
- Focus on problematic issues.
  - Avoid complete elimination of certain foods that may lead to feelings of deprivation.
  - Suggest eating a favorite food in moderation, initially.

CRAVINGS

The provider uses a motivational interviewing technique to focus the interview:

Provider: What is the most challenging part for you of changing your diet so you can lose weight and then maintain a healthy weight?
Ms. Jones: It's the food cravings! I start wanting something sweet or greasy and once I get the idea in my head, it is hard not to go ahead and eat something I shouldn't. Next thing I know, I hop in the car and go buy myself the fattening food.

Provider: Food cravings can feel very powerful! It's best to try to avoid them in the first place by not having any cues that remind you of those problematic foods. Avoiding hunger pains is also important; try drinking water, eating lots of vegetables, and not skipping meals. If you get a craving, taking deep breaths, distracting yourself or by doing something else can help. Cravings will sometimes go away if you wait them out. If you can, try delaying a half hour before getting in the car to buy that food.

4 Steps to Help With Food Cravings

The provider above has described the "Four Ds" which are steps that have been described for dealing with drug withdrawal. They may be also be helpful for patients who struggle with food cravings by helping them cope with the tension of a strong craving until it may diminish:

The 4 Ds to Cope With a Craving

• Deep breaths: Breath slowly and deeply
• Drink water: This may help create a feeling of fullness
• Distract: Do something else and move away from any food cues
• Delay: At least 3 minutes to a half hour.

FOLLOW-UP

Two Months Later

Ms. Jones returns after 2 months of making the diet changes she agreed to make, along with recommended changes in physical activity and behavioral supports (as described in later cases):

Provider: I see that you have lost 12 pounds since we last saw each other. Good job!

Ms. Jones: Yes, I am happy about that. Your suggestions for switching out some of my foods for others have helped me. As long as I give myself a little treat once in a while, so far I don't find myself missing my old way of eating. I'm not losing weight as fast as I did the first couple of weeks, though.

Provider: Congratulations on this success with the first set of changes to your diet. It is common to have more rapid weight loss at first and then have it slow down some. You will need to continue making changes in your diet and exercise, a few at a time, to continue to lose weight and keep it off.
Many, small, permanent changes will make a difference over a lifetime if you keep going. You were so successful with the first set of changes, can we talk about a next step?...

PRACTICE TIP

- Help patients set realistic goals and encourage their progress across multiple visits.
- Follow up on interventions at the next appointment.
- Acknowledge goals reached, and help patients set a new goal to continue progress. For most obese patients, a major lifestyle change is needed, even if it is achieved in many small steps over time.

OTHER DIET ASSESSMENTS

USDA Resource

The USDA's ChooseMyPlate.gov has a "SuperTracker" that you can download to your practice’s website or recommend for use by your patients. It helps them plan, analyze, and track diet and physical activity. They can email or print the results and share them with you, a dietitian, or a counselor.

Food Diaries

Food diaries have repeatedly been shown to improve weight-loss outcomes (Burke et al., 2008). Keeping a food record can raise patients’ awareness of their eating habits and be a part of a weight-loss treatment plan. Examples of food diaries are:

- **24-hour diet recall** is often used to get a diet assessment the same day. Food records for 3 consecutive days can be brought in to a patient's next appointment.
- Paper diaries (the NIH resource at the end of the module offers a printable form)
- A food diary app (Commercial and free apps for this purpose can be downloaded from app stores to various electronic devices or patients may purchase devices dedicated to tracking diet.)
- Other electronic source. For example, ChooseMyPlate.gov offers an online tracking tool ("Supertracker", found under their "Interactive Tools")

POLL: BASED ON THE DIFFERENT DIET ASSESSMENTS AVAILABLE, WHICH ARE YOU MOST LIKELY TO USE IN YOUR PRACTICE?

1. FDA SuperTracker
   - 7% (10 votes)
2. Starting the Conversation
   - 50% (67 votes)
3. 24-Hour Diet Recall and Food Diary
ADULT PHYSICAL ACTIVITY GUIDELINES FOR HEALTH

GUIDELINES FOR PHYSICAL ACTIVITY

Adults need at least:

- 150 minutes of moderate-intensity – OR – 75 minutes of vigorous-intensity aerobic activity/week
- Muscle-strengthening on 2 or more days/week of all muscle groups

(Physical Activity Guidelines for Americans. USDHHS, 2008)

How Does Activity Affect Weight Loss?
Research on physical activity levels needed to achieve weight loss and specific health benefits found the following:

- Exercise increases the amount of weight lost a little: a mean of 2 lbs, 7 oz more than diet alone (Shaw et al., 2006, Dachs, 2007).
- Increased exercise intensity increases weight loss a little: a mean of 3 lbs more (Shaw et al., 2006, Dachs, 2007).
- Increased exercise frequency is associated with more weight loss: 12% weight loss for the top quartile vs. 5% weight loss for the lowest quartile (Wadden, 2006).
- Exercise alone with no change in diet results in a small weight loss: a mean of 1 lb 2 oz to 16 lbs 12 oz (Shaw et al., 2006, Dachs, 2007).
- Some physical activity is better than none: Low intensity walking for 30 minutes, five times per week, for 6 months resulted in significant weight loss (5 to 6%) for people who were obese and sedentary (Ross et al., 2015). This program also decreased abdominal obesity (4 to 5 cm).

Prescribing physical activity at the start of a weight loss program can be critical in helping patients establish life-long exercise habits that will reinforce healthy weight maintenance.

CASE #2: MR. ALAIM

In the Ms. Jones case, making a dietary lifestyle change was the focus. In the following case, Mr. Alaim, the focus will be on making a lifestyle change in terms of physical activity.
Impact Obesity v1

**Patient Name:** Hakim Alaim  
**Age:** 54 y/o

**Height:** 5' 8"  
**Weight:** 200 lbs  
**BMI:** 30.4 kg/m²  
**Waist:** 39"

**BP:** 140/80  
**Pulse:** 95  
**Respiration:** 17/min

**Chief Complaint:** Follow-up on his low back pain

**History of Present Illness:** Injury to lower back 2 weeks ago while lifting with poor posture. Treated with muscle relaxant for first 24 hours and over the counter pain medication plus patient education on back pain prevention.

**Medical History:** Dyslipidemia, family history of coronary heart disease (mother).

**Weight History:** Reports past weight-loss of 30 lbs, but post-injury he has not closely monitored weight or diet.

**Physical Activity Level:** Decreased activity due to back injury; pre-injury activity was walking 3x/week, 45 minutes/day

**Weight Related Diagnoses:** E66.9 Obesity, unspecified; E65 Localized Adiposity (Central)

**CASE OBJECTIVES**

The learner will be able to:

- Determine level of care to recommended to patients in order to achieve weight loss.
- Counsel patients on health improvements that they can obtain through weight loss.
- Assess patient physical activity level and recommend evidence-based physical activity modifications to patients for weight management.
- Recommend a plan for patients to maintain weight loss long-term.

**QUIZ: DISCUSSING WEIGHT WITH MR. ALAIM**

Mr. Alaim

After addressing his back problem the provider reviewed Mr. Alaim's BMI (30.4) and measured his waist circumference (39 inches).

What issues from this evaluation would you address with Mr. Alaim?
Impact Obesity v1

Response:

1. Waist circumference in terms of elevated cardiovascular risk
   • Feedback:
   • His waist circumference, 39 inches, is not quite in the range of elevated cardiovascular risk. (cutoff is 40 inches in men – Alberti et al, 2007). You might mention that it is important not to gain further weight because of this risk.

2. Waist circumference in terms of elevated diabetes risk
   • Feedback:
   • Correct! His waist circumference of 39 inches puts him at risk for diabetes according to the 37-inch cutoff for men set by the International Diabetes Foundation (IDF, 2006).

3. Increased BMI in terms of being obese
   • Feedback:
   • Correct! With a BMI of 30.4 kg/m$^2$, he is into the obese range ($\geq 30$ kg/m$^2$) and this should be addressed early on.

4. Increased BMI in terms of being overweight
   • Feedback:
   • Incorrect. With a BMI of 30.4 kg/m$^2$, he is into the obese range ($\geq 30$ kg/m$^2$) rather than just overweight.

ASSESS NEED FOR LIFESTYLE CHANGE

Mr. Alaim mentions that he wants to lose 5 pounds to be back at his "fighting weight," which would still be in the overweight range.

Provider: I see that you have a prior weight-loss success of 30 lbs. However, since your injury you haven't monitored your weight.

Mr. Alaim: It's been difficult to do that, but I don't think I'm much heavier than I once was.

Provider: Your body mass now measures just slightly into the obese range. This could lead to health problems and cause permanent changes in your body, making it more difficult to lose weight later. Losing weight now will prevent future health problems and could also help your back.

Mr. Alaim: Is that right? I have to admit, I'm shocked. I thought at the most I was around 5 pounds overweight. Could it just be I have a bigger frame?

Potential response to Mr. Alaim:

• Agree that some of the weight may be from higher muscle mass
• Recommend that he reduce his BMI from 30.4 to at least the low end of the overweight range (closer to 25 kg/m²)
• Recommend that he eventually reduce his waist measurement by 2 inches to the 40 inch cutoff for men (35.5 inches for Asian men, 35 inches for women, 31.5 inches for Asian women)

Waist circumference cut points
• 40 inches for men

(Jensen et al., 2014)

DID YOU KNOW?
Patients may not understand healthy limits for overweight or obesity, or may not be aware of the severity of their own weight status. Screen all patients for weight problems and discuss the results with the patient. Current guidelines recommend calculating BMI annually or more frequently. Measure waist circumference annually or more frequently (Jensen et al, 2013).

ASSESS PHYSICAL ACTIVITY

SECTION TOPICS
• Using patient physical activity assessment to recommend physical activity modifications.

Screening Protocol Step: Assess physical activity.

Mr. Alaim
As part of a comprehensive weight management plan, Mr. Alaim needs his level of physical activity assessed.

How can you briefly assess his activity level and sedentary behavior?

Sufficient physical activity is critical for overall health and supports weight loss and maintenance. Benefits include:
• Better control of weight-related comorbidities
• Improved mood and sleep, which indirectly support weight loss
• A small contribution to weight loss
• Essential support for weight maintenance

Physical activity can be classified as light, moderate, or vigorous. Most assessments provide a list of example activities at each level, which can be helpful to share with patients.

Several quick assessment questionnaires to determine patient’s level of physical activity have been validated for use in primary care (Smith et al, 2005). For example, AHRQ recommended the following 2 questions and an alternative single question for primary care (Fernald, 2013).
Physical Activity Questions

2-QUESTION PHYSICAL ACTIVITY ASSESSMENT

1. On how many of the last 7 days did you engage in moderate to strenuous exercise (at least as strenuous as a brisk walk)?
   
2. On those days that you engage in moderate to strenuous exercise, how many minutes, on the average, do you exercise at this level ___ minutes

**Calculate Total Minutes Per Week:** (Reference Value: Scores $\geq$150 minutes per week are sufficiently active.)

**SINGLE QUESTION ALTERNATIVE**

"In the past week, on how many days have you done a total of 30 minutes or more of physical activity that was enough to raise your breathing rate? (Include sport, exercise and brisk walking or cycling for recreation or to get to and from places, but not housework or physical activity that may be part of your job.)" (Milton et al., 2011)

**Single Question Interpretation:** 5 or more days per week with 30 minutes per day would give the recommended 150 minutes per week of moderately-intense activity.

**MR. ALAIM: ASSESS PHYSICAL ACTIVITY**

**Assessment**

**Brief Counseling Protocol Step:** Educate on physical activity benefits and recommendations.

After discussing his weight and BMI, you review Mr. Alaim's 2-question physical activity assessment.

**2-QUESTION PHYSICAL ACTIVITY ASSESSMENT**

1. On how many of the last 7 days did you engage in moderate to strenuous exercise (at least as strenuous as a brisk walk)?
   
   2 days

2. On those days that you engage in moderate to strenuous exercise, how many minutes, on the average, do you exercise at this level ___ minutes

   10 minutes

**Total Minutes Per Week:** = 20 minutes/week

(Reference Value: Scores $\geq$150 minutes per week are sufficiently active.)

**Interpretation**

**Provider:** You mentioned you exercise 10 minutes a day twice a week. That comes to 20 minutes total exercise each week. I am glad you are getting some exercise. Now for basic overall health, you will need to increase that.
Mr. Alaim: I suppose I could do better. How much exercise are we talking?

Provider: About 150 minutes a week, but you can set that as a long-term goal and start by increasing a little each week, say adding another exercise session per week. Exercise can help you maintain your weight loss from dietary and lifestyle changes.

PRACTICE TIP
Large patients who were previously athletic or muscular, but have lost conditioning, may not realize they have unhealthy weight gain. Stressful lifestyles may contribute to poor eating habits and lack of exercise. Patients should adopt an exercise regimen of their own that fits their level of conditioning to achieve weight loss success.

POLL: BASED ON THE DIFFERENT PHYSICAL ACTIVITY ASSESSMENTS AVAILABLE, WHICH ARE YOU MOST LIKELY TO USE IN YOUR PRACTICE?

Responses:
1. 2-Question Physical Activity Assessment  
   • 65% (85 votes)
2. Single Question Physical Activity Assessment  
   • 28% (37 votes)
3. None of the Above  
   • 7% (9 votes)

Total votes: 131

SEDENTARY BEHAVIOR HEALTH IMPACT

Mr. Alaim
Mr. Alaim has a mostly sedentary lifestyle. How does this affect his overall health?

How Sedentary Behavior Impacts Weight

EVIDENCE
Sedentary behavior correlates with rates of obesity and many health risks (Shields & Tremblay, 2008). Research shows:

- Each 2 hour increment of television watching was associated with a 23% increased risk for obesity in the Nurses Health Study (Hu et al., 2003).
- Adipose tissue is preferentially deposited in the android (trunk and upper body) region after a long period of inactivity (Belavy et al., 2014).
- Sedentary behavior and little physical activity were found to be associated with non-alcoholic fatty liver disease in a large sample of middle-aged Koreans (Ryu et al., 2015).

**Impact of Reducing Sedentary Behavior**

Taking breaks in sedentary time has been shown to improve a number of health parameters, including waist circumference, BMI, triglycerides, and plasma glucose (Tremblay et al., 2011). Although evidence clearly shows the health hazards of too much sedentary time, precise limitations for adults are not yet available. The recommended limit for recreational screen time is no more than 2 hours per day for children (Tremblay et al., 2011). Additionally, other sedentary periods should be limited by taking breaks from sitting at least every hour. It makes sense that adults would benefit from similar recommendations.

Interruptions in inactivity (e.g., sitting at a computer) are more effective if they are:

- regular
- frequent
- varied in types of movement and intensity

(Tremblay et al., 2011)

For example, breaks from sedentary time might be a brief walk one time and stretching of climbing stairs another time.

**ENERGY EXPENDITURE & PHYSICAL ACTIVITY**

The total energy expenditure per day varies for each person, but is around 2000 kcal/day. It is made up of a combination of energy spent on resting energy, the thermic effect of meals, and physical activity. The distributions of total energy expenditure per day is shown in the graph below (Tataranni, 1995):

The energy expended on physical activities includes non-exercise activities, such as:

- Standing in line
- Walking
- Driving a car

Each activity varies with intensity. For example, driving a car takes less energy than a brisk walk.
POLL: OF THE FOLLOWING, WHAT DO YOU CONSIDER THE MORE PRESSING ISSUE FOR YOUR PATIENTS IN TERMS OF PHYSICAL ACTIVITY?

Responses:
1. Too little exercise
   • 18% (18 votes)
2. Too much time spent in sedentary behavior
   • 77% (78 votes)
3. Don't know
   • 5% (5 votes)

Total votes: 101

ASSESSING SEDENTARY BEHAVIOR

Screening Protocol Step: Assess sedentary behavior.

Approaching the Topic
The half-hour that is spent per day on physical activity is not the only time during which physical activity is important – the rest of the day counts, too. It is important to screen patients for hours of uninterrupted sedentary behavior.

ASK ABOUT SEDENTARY BEHAVIOR:

• "How many hours a day do you spend sitting in front of a television or computer screen or sitting or lying down without getting up?"

Hours Per Day: (Reference Value: Ideally no more than 2 hours per day of uninterrupted sedentary time)

For some patients, especially those resistant to doing exercise, it can be helpful to emphasize changes to become less sedentary. Limiting hours of screen time decreases the sedentary time for
many people. Multiple small changes that get the patient moving more throughout the day can add up to a big difference in energy expended by the end of the day.

REDUCING SEDENTARY BEHAVIOR

The approximately 15 or 16 waking hours per day that are not involved in exercise can be utilized to increase a patient's total physical activity. Sedentary behavior should be limited because it is correlated with obesity and health risks (Tremblay et al., 2011).

Treatment Protocol Step: Recommend that all patients limit sedentary time to no more than 2 hours at a time without a break of at least several minutes with some physical activity and further reduction in sedentary time for weight loss.

A key point to make with patients: Physical activity is important THROUGHOUT THE DAY, not just during exercise.

Guidelines for reducing sedentary time include the following:

- Some guidelines recommend as much as 2 hours of general movement during a sedentary work day (Buckley et al., 2015). Four hours has been described as the ideal.
- Recommend increasing standing time as a way to decrease seated time. A standing desk or workstation can be used for this purpose.
- Limit computer and television time.
- Recommend that patients increase their active time to conversely reduce sedentary time. For example, recommend using public transportation and add a walk to and from the loading point.
- Advise patients to take breaks if they find they must sit for long periods. Varying the activity during breaks in sedentary time is more effective at improving health than repeating the same activity (Tremblay et al., 2011).

The Evidence

- Interrupting long periods of sedentary behavior with 2 minutes of movement per hour significantly decreased mortality rate compared to those who continued sedentary behavior (Beddhu et al., 2015).
- Some researchers recommend no more than 2 hours per day of recreational screen time (Tremblay et al, 2011).

The Underlying Science

A moderately sedentary individual spends around 20% of energy on physical activity, 70% on resting metabolic rate, and 10% on dietary thermogenesis (Bales et al., 2016-2017). The widest variance between individuals is seen in non-exercise activity thermogenesis (NEAT). NEAT ranges from 150 to 500 kcal/day and represents calories burned by working, fidgeting, and other non-exercise activities of daily living. While it may be difficult to change an individual's metabolism, NEAT can be changed by decreasing sedentary behavior.
QUIZ: REDUCING SEDENTARY BEHAVIOR

Suggest Sedentary Behavior Reduction: Activity during the 15 to 16 waking hours per day during which a person is not exercising or sleeping are important in weight management (Levine, 2002). Many providers have never talked with their patients about sedentary time.

What are some things you might say to patients in discussing sedentary time effectively?

SUGGESTED ANSWER

Increasing the frequency of small activities that spend energy, such as regularly taking the stairs or walking to the store rather than driving, impacts metabolic rate and weight (Levine, 2002).

MR. ALAIM: DISCUSS SEDENTARY BEHAVIOR

After assessing Mr. Alaim's physical activity, the next step is to ask about his sedentary time.

Provider: How many hours a day do you spend in front of a television or computer screen? Or how long do you spend sitting or lying down without getting up?

Mr. Alaim: Pretty much all day at work, like 4 hours, then lunch, then another 4 hours, except for bathroom breaks. When I get home I sit for another 3 or 4 hours watching TV, except when I get up to get a snack or answer the phone.

Provider: Your health will improve and your risks for health problems will go down if you reduce the amount of time you spend in uninterrupted sitting. I recommend no more than 2 hours total of uninterrupted sitting per day after work. Also, if you can, interrupt sitting during work hourly if possible.

RECOMMEND A PHYSICAL ACTIVITY PLAN

SECTION TOPIC

• Recommending physical activity modifications.

Exercise offers minor, but important support for weight loss. Exercise is essential, however, to improve obesity-related comorbidities and for weight-loss maintenance. Discuss with obese patients the following health benefits of exercise:

Physical Activity in Obesity: Factors Affecting Weight Management and Related Health

• **Time spent:** More time spent on physical activity produces more weight loss. In an intensive lifestyle management study, weight loss correlated with increased activity and was significantly
greater for the top quartile in activity (12% weight loss) vs. the bottom (5% weight loss) – Look AHEAD Study (Wadden, 2006).

- **Intensity:** A walking program of even low intensity for 30 minutes, five times per week for 6 months, by people who were obese and sedentary resulted in significant weight loss (5 to 6%) and decreased abdominal obesity (4 to 5 cm) (Ross et al., 2015). Similar decreases were seen with longer, slow daily walking (60 minutes/day) and faster walking (40 minutes per day at a fast pace). Glycemic control only improved significantly with walking fast; fast walkers also had the most improvement in cardiovascular fitness.

- **Effect of interval training:** Intense, intermittent exercise was beneficial for otherwise healthy obese patients who participated in 10 minute training sessions / 3 times per week, with 1 minute of intense exercise each session. Improved health outcomes included skeletal muscle oxidative capacity and cardiometabolic health (Gillen et al., 2014). Other research found health benefits for intensive intervals were similar to continuous aerobic exercise. However, the latter was superior in producing improved distribution of body fat in overweight adults (Keating et al., 2014)

- **Weight loss maintenance:** Those who succeed at weight loss are physically active according to data from a voluntary registry of people successful at weight loss. 94% of people who registered reported that they had increased their physical activity as part of their weight-loss program - National Weight Control Registry (10 year study) (NWCR, 2014). Guidelines based on an evidence review recommend **200 to 300 minutes of physical activity per week** for weight loss maintenance (Jensen et al., 2014).

- **Strength training:** Strength or resistance training has been associated with a number of important health benefits for people with obesity. However, results are somewhat inconsistent and used widely varied approaches. More research is needed to clarify who benefits the most and how much training is beneficial (Strasser et al., 2012). Benefits include increased muscle mass relative to fat mass and improved glycemic control. Additionally, abdominal obesity, visceral fat, insulin resistance, inflammatory response, and incidence of type 2 diabetes are all reduced. Frequency of cardiovascular disease also may be lowered (Garber et al., 2011). Endocrinology guidelines (AACE/ACE) recommend strength training 2 to 3 times per week for the major muscle groups during weight loss to help promote fat loss and preserve the fat-free mass (Garvey et al., 2016-2017).
**BENEFITS OF PHYSICAL ACTIVITY IN THE GENERAL POPULATION**

Research on physical activity in the general population is important for preventing obesity, treating early obesity, and weight-loss maintenance. The results show that regularly spending a minimum amount of time on physical activity appears to be more important than the type or intensity of activity in the general population.

*Note that research on the benefits of physical activity completed with average weight individuals, may or may not apply to those who are chronically or severely obese, due to the metabolic changes of chronic obesity. Exercise research focused on the obese was covered on the previous page.*

**Effect of Strength Training on Basal Metabolic Rate:** BMR increased slightly (around 5%) after 9 months of around 10 workouts per month. (Aristizabal, et al., 2015).

**Walking Is Effective for Obesity Prevention and Other Benefits**

Each daily 1-hour increment of brisk walking was associated with a 24% decrease in risk of developing obesity - Nurses’ Health Study (6-year study) (Hu et al., 2003). Physical activity decreased weight and improved HDL and triglycerides.

**Activity Is Beneficial, Even If Not Intense**

At a low "dose" of activity, activity intensity did not matter - STRRIDE Study (Slentz et al., 2005).

- **Running**, even 5 to 10 min/day and at moderate speed <6 miles/h, markedly reduced risk of death from all causes and cardiovascular disease, compared to no activity (Lee et al., 2014).
- **Brisk walking** for 15 minutes/day, or half of the current guideline recommendation for physical activity, confers similar benefits to running (Wen et al., 2011; 2014).

**Moderate Activity May Be Better Than Intense Activity**

Some research found the following were better with walking over running:

- Mortality is decreased more with light jogging over moderate or strenuous jogging (Schnohr et al., 2015).
- Walking can be more beneficial than running for lowering the risk of hypertension (-7.2% vs. -4.2%), high cholesterol (-7% vs. 4.3%), diabetes (-12.3% vs. 12.1%), and coronary heart disease (-9.3% vs. 4.5%) (Williams and Thompson, 2013).

**PRESCRIBE SMALL CHANGES IN PHYSICAL ACTIVITY**

Considering their medical condition and current level of conditioning, people who are obese can start with a goal of a small increase in physical activity. They can continue to increase activity incrementally until they at least reach the recommended level. As patients build exercise tolerance, their mobility will improve, allowing them to progress toward a healthy level of physical activity.
Suggestions to offer patients who need to become more active:

- Wear a pedometer to keep track of the steps they take in one day.
- Park further away from their destination.
- Multitask: Walk while they are on the phone; spend time on the treadmill while watching television.
- During downtime, take a quick walk around the block, the park, wherever they might be.
- Avoid spending long periods of time in sedentary behavior. Reduce hours spent on "screen time" (ideally fewer than 2 hours per day). Get up and move for at least 2 minutes at least once per hour.

QUIZ: MR. ALAIM - BARRIERS TO ACTIVITY

Brief Counseling Protocol Step: Elicit and discuss personal barriers to weight loss, followed by brainstorming and goal setting.

Mr. Alaim:
Age: 54 y/o

After Assessments: Next Steps: Recall that based on the results of his assessments, Mr. Alaim is "insufficiently" active in terms of physical activity and too sedentary. Discussing barriers to being more active and less sedentary can be useful in guiding a plan of action.

Question: When discussing barriers to physical activity and less sedentary behavior with Mr. Alaim, what items do you need to address? (select all that apply)

1. Works 50 hours per week
   - Feedback: Correct. His work schedule could be time barrier for him to increase his physical activity. Utilize motivational interviewing to engage him in thinking about activities he could accomplish despite this barrier.

2. Involvement in his son's extracurricular activities
• Feedback: Correct. His son's extracurricular schedule also contributes to time being a barrier for him to increase his physical activity. Utilize motivational interviewing to engage him in thinking about activities he could accomplish despite this barrier.

3. Back pain
• Feedback: Correct. His back pain could be a major barrier for him to increase his physical activity. Start his exercise regimen off slowly so his back has a chance to recover. If his weight is contributing to the back pain, swimming might be a good choice.

4. Higher muscle mass
• Feedback: Incorrect. His higher muscle mass has no effect on his ability to increase physical activity.

ADDRESS MR. ALAIM’S BARRIERS

Provider: Based on our prior conversation, it appears that time is a factor that prevents you from being sufficiently active?

Mr. Alaim: I just don't have enough time. Between working long hours and then trying to be there for my son when he's having his ball games, I just don't have enough hours in the day to exercise, too.

Provider: It's important to continue as much of your daily activities as possible while you are recovering. Try to integrate an exercise program into your daily routines as much as possible. Exercise is important to strengthen your back. It also will help you a little with weight loss, too, which will put less load on your back. And it is critical to keep active to maintain weight loss.

Mr. Alaim: Wouldn't exercise just make my back worse? I thought I'd need to take it easy when I'm recovering.

ADDRESS MR. ALAIM’S PAIN

Discussing Mr. Alaim's Back Pain as a Barrier to Mobility
Here is how the provider in the case responded to Mr. Alaim's concern about his back. Mr. Alaim perceives his back pain as a barrier to physical activity.

Mr. Alaim: I worry I might re-injure my back if I do any physical activity.
Provider: Well, you could start out low and slow, just gentle walking and a few short and simple strengthening movements each day. In time, that will lead to you being able to do more. [Small, incremental changes].

Plans for Patients with Limited Mobility
Patients with limited mobility can still be advised to optimize their physical activity level according to their degree of mobility:

1. **Unable to walk**: These patients can still do some exercise, which can be developed with the help of a physical therapist or occupational therapist. For example, deep water exercise, swimming, and seated exercises, such as arm cycling.

2. **Limited ability to walk**: These patients can benefit from the same exercise programs as those who cannot walk. They can also walk to the extent that they are able to. Evaluate the need for equipment to facilitate walking. They may also benefit from a referral to physical therapy. Physical therapy for physical limitations of obesity can help set up realistic exercise programs. Such programs do not cause a lot of pain and fit within the individual's ability.

3. **No mobility limitations**: These patients still may benefit from special equipment to facilitate walking, for example, if they have problems with balance. Facilitate the development of a physical activity plan that starts from where they are and addresses all areas: aerobic, resistance/strength, flexibility, and reducing sedentary time.

**CAUTION TIP**

**Medical Evaluation Protocol Step**: Evaluate medical fitness for physical activity and discuss any restrictions.

Discussions of physical activity in this module are for patients who are cleared medically for this level of activity. Modify as needed for patients having to limit exercise according to the medical condition. Obese people often require a higher volume of oxygen for the same intensity of exercise. Therefore, they may need to start their exercise program at a lower intensity than a person of normal weight (McQueen, 2009).

**ACTION PLAN**

**Brief Counseling Protocol Step**: Elicit and discuss personal barriers to exercise, followed by brainstorming.

Provider: *It can be a challenge to find time for exercise. Let's look at how some activity can fit into your current schedule. How about on your lunch break? Could you take a quick five or ten minute walk? [Addressing barriers].*

Mr. Alaim: *Sure, I guess I could do that. I have an hour for lunch.*
Provider: What other ideas do you have to add more physical activity in your day? Small increases can add up, build your conditioning until you are at a healthy active level, which will help you lose weight. [Small changes].

Mr. Alaim: Well, I could park further away at work.

Provider: Great! So far you have a lunchtime walk and parking further away from the door. What do you think of starting this plan soon as long as it doesn't make the pain worse? [Time frame reference].

Mr. Alaim: I think I can do that much! I'd actually enjoy getting out for a walk. I actually had a New Year's resolution to start walking more but kept forgetting.

Provider: There are online programs that can send you messages through text and email that remind you of your goals. These help to encourage your continued exercise and weight-loss efforts without having to attend in person. We can give you a list if you are interested.

Mr. Alaim: That might be helpful for me.

HOW EXERCISE IMPACTS OVERWEIGHT/OBESITY

Exercise alone does not produce a great deal of weight loss, but the effect is significant. A review of controlled studies of exercise in overweight or obesity found that exercise alone produces modest weight loss:

- **Exercise alone:** Produced modest weight loss ranging from 1 lb, 2 oz to 16 lb, 12 oz (0.5 to 7.6 kg)
- **No treatment controls:** Experienced weight loss ranging from 3-oz to a weight gain of 1 lb, 9 oz (0.1 kg - 0.7 kg)

(Dachs, 2007; Shaw et al., 2006)

The review also found that:
• Exercise combined with a calorie restricted diet results in greater weight loss than calorie restricted diet alone (+2 lbs and 7 oz) in 3 to 12 mos.
• High exercise intensity produced more weight loss than low intensity (weighted mean difference 1.5 kg). However, high intensity exercise, especially with high impact, may not be appropriate for many obese people due to stress on joints.

(Dachs, 2007; Shaw et al., 2006)
To further motivate patients struggling with obesity to exercise, it is important to inform them about the other benefits of physical activity, including better success at weight-loss maintenance.

**FOLLOW-UP ON PHYSICAL ACTIVITY**

Because obesity is a chronic condition, be sure to follow-up on the physical activity recommendations that you make and praise successes. Adjust recommendations toward progressively more physical activity. Over time, suggest:

• Adding minutes of exercise per day or week
• Increasing exercise intensity
• Adding strength training
• Decrease sedentary time by increasing non-exercise activity

**PRACTICE TIPS**
Recommends that parents implement an activity plan with their children. The activity plan should limit screen time to no more than 2 hours per day and include an hour a day of play time. Overweight parents will benefit along with their children! An example of a structured program is the evidence-based 5-2-1-0 approach for children.

Take into account whether patients have a safe location to exercise and brainstorm ideas with them if they do not (e.g. walk inside a shopping mall).

**WEIGHT LOSS MAINTENANCE**

**SECTION TOPIC**
• Recommending a plan for long-term, weight-loss maintenance.
Mr. Alaim returned 6 months later having increased physical activity, reduced sedentary time, and made key dietary changes. As a result, he achieved his goals for weight loss and decreased waist circumference.

*How can you help him maintain his weight loss?*

**Tips for Maintaining Weight Loss**
To avoid weight regain, obesity management guidelines recommend the following to patients as part of a permanent change in lifestyle for weight-loss maintenance.

**GUIDELINES FOR WEIGHT LOSS MAINTENANCE**
- Frequent self-weighing (weekly or more frequently)
- A diet that is reduced in calories relative to the patient's old diet. Calories should be just enough to maintain the new weight
- High levels of physical activity (200 to 300 minutes/week)
- Meeting with a trained interventionist, such as a dietitian or a counselor specializing in weight loss, in a face-to-face, regular (at least monthly) maintenance program for support in achieving the above maintenance steps
- Planning a strategy to get back on track soon after a lapse in diet or exercise, before weight gain.
- Reinstating weight loss strategies soon after a small weight gain, before there is a large weight gain. Set a weight that should signal return to treatment.

(AHA/ACA/TOS Guidelines – Jensen et al., 2014)

**Additional Tips Include:**
- Avoiding excess stress and use of stress management exercises/techniques
- Monitoring food intake and activity, including inactive and active periods
- Consuming a high protein diet may help prevent weight regain in the maintenance phase (Aller et al., 2014).

The VA/DOD guidelines (2014) for treating obesity and overweight offer the following recommendation for exercise in weight management, based on expert opinion:

"Offer, as part of comprehensive lifestyle intervention, moderate-intensity physical activity performed for 200-300 minutes per week to prevent weight regain after initial weight loss."

**PRACTICE TIP**
Consistent daily self-weighing supports weight loss and weight maintenance (Pacanowski & Levitsky, 2015). Charting one's daily weight so that there is a visual representation of weight loss progress is an effective approach for some people.
ACTIVELY MAINTAIN WEIGHT LOSS

Maintenance Success Criteria

**Maintenance Protocol Step:** Repeat body mass assessment during maintenance at intervals of 1 month initially, graduating to every 6 months.

Maintenance of weight loss is variously defined as:

- Weight loss of at least 5 to 10% maintained for at least a year
- Sustained reduction in waist circumference of 4 cm (1.6 inches) over 2 years
- No more than 3 kg (6.6 lbs.) regained over 2 years

(Wing & Phelan, 2005; Stevens et al., 2006; Blackburn, 2004)

Note that a weight loss program can take over some of the weight monitoring function from the clinical practice.

Why Calorie Reduction Must Be Maintained

**Maintenance Protocol Step:** Recommend adjustments to caloric intake and/or physical activity levels, as needed to maintain new weight

Prepare patients with realistic expectations about how many calories they can consume without regaining weight. After weight loss, the amount of energy needed is much less than might be predicted by the change in fat and lean mass:

- A 10% weight loss decreases twenty-four hour total energy needs by 20-25%, which is 10-15% below what is predicted solely on the basis of alterations in fat and lean mass. This results in a formerly obese person needing 300 to 400 fewer calories per day to maintain the same body weight as a never obese person.

**Case Example:** If a 200 lb patient loses 50 lbs (22.7 kg), metabolism will slow by 22.7 x 15 calories/day) = 340 kcal/day. So the patient who is now 150 lbs will need 340 kcal/day less to maintain the new weight and an even greater deficit to continue to lose weight.

- It will take 300-400 fewer calories per day to maintain the same body weight as somebody who has not just lost weight.
- This reduction in energy needs lasts 6 months to 7 years.

PHYSICIAN ROLE IN WEIGHT MAINTENANCE

**Recommendations for Weight Maintenance**

**Maintenance Protocol Step:** Recommend that patient continue participation, for at least a year, in a comprehensive weight loss program (Jensen et al., 2014).

Maintenance groups should:
Meet face-to-face or by phone
Meet monthly or more frequent
Monitor weight regularly
Be with a trained interventionist
Support high levels of physical activity (200 to 300 minutes/week)
Support continued consumption of a diet lower in calories than before weight loss

(Jensen et al., 2014)

Physician Steps to Support Weight Maintenance
The usual pattern after weight loss is gradual weight gain over time (Jensen et al, 2014). Therefore, physicians should be prepared to support weight maintenance during patient encounters through the following:

1. Check to make sure the message that a life-long lifestyle change is needed is understood by the patient.
2. Provide support and encouragement.
3. Address small weight gains with a weight management plan, before they become large weight gains.

QUIZ: ADDRESSING MAINTENANCE
Question: After 6 months of increased physical activity, reduced sedentary time, and diet changes, Mr. Alaim is no longer obese. He is happy to report that he now weighs as much as his best friend who does not have a history of obesity and is looking forward to eating as much as his friend without the fear of gaining weight. Which of the following pieces of advice do you think is most appropriate for Mr. Alaim:

Choose one

1. Now that you are leaner you can start to relax the calorie restrictions in your diet.
   - Feedback: Incorrect. It takes 300-400 fewer daily calories per day to maintain the same body weight as somebody who has not lost 10% of their weight (Rosenbaum, et al, 2010).

2. You can make a small increase in your daily calorie intake but only if you continue to exercise.
   - Feedback: Incorrect. It takes 300-400 fewer daily calories per day to maintain the same body weight as somebody who has not lost 10% of their weight (Rosenbaum, et al, 2010).

3. Unfortunately, due to your history of obesity, you actually need fewer calories per day than someone who weighs the same amount as you but does not have a history of obesity.
   - Feedback: Correct! It takes 300-400 fewer daily calories per day to maintain the same body weight as somebody who has not lost 10% of their weight (Rosenbaum, et al, 2010).
4. As long as you do not eat too much too much sugar you can eat as much as your best friend.
   • Feedback:
     • Incorrect. It takes 300-400 fewer daily calories per day to maintain the same body weight as somebody who has not lost 10% of their weight (Rosenbaum, et al, 2010).

LONG-TERM MAINTENANCE

Data From a Registry of People Successful at Weight Loss

Description of Registrants: Data on over 10,000 self-selected people who have lost weight, and voluntarily entered their data, has been collected by the National Weight Control Registry since 1994. This registry is meant to help learn about characteristics of people who lose weight and maintain it long-term. Registrants had lost from 30 to 300 lbs (mean 66 lbs) and kept it off 1 to 66 years (mean 5.5 years). Mean age is in the 40s and 80% are women.

How they achieved weight loss: Around 45% lost weight on their own and 55% lost weight with the help of a program. Nearly all participants modified their food intake and increased their physical activity to lose the weight in the first place.

(NWCR, 2014)

Lessons in Maintaining Weight Loss

Registry participants that kept weight off had the following characteristics:

Most maintain a low-calorie, low-fat diet

90% exercise on average about 1 hour per day

62% watch less than 10 hours of TV per week
75% weigh themselves once a week

78% eat breakfast every day
(NWCR, 2014)

LESSONS FROM THOSE WHO REGAIN WEIGHT

Registry participants that regained weight had the following characteristics as they finished their diets, in comparison to those who maintained weight loss:

• Higher levels of depression
• Higher dietary disinhibition (lack of control regarding over-eating)
• More binge eating
(NWCR, 2014)

During the period following weight loss, in comparison to those who maintained weight loss, participants who regained had:

• Greater decreases in energy expenditure
• Greater increases in percentage of calories from fat
• Greater decreases in restraint
• Greater increases in binge eating
• Greater dietary disinhibition
(NWCR, 2014)

Greater weight loss and more recent weight loss were associated with more regain.
TAking a weight history

A thorough weight history will enable you to provide more targeted treatment. Weight histories often include the following components:

1. Current weight and body mass status and past changes
2. Past attempts to lose weight, types of weight-loss treatments attempted, and the corresponding difficulties and results
3. Eating patterns and cravings that might need to be addressed

The following sample weight history is based on questions often asked in medical weight loss centers. It may give you ideas on what to include when taking a weight history in your practice:

weight history: [patient name]

current measurements:

BMI: [BMI] WEIGHT-RELATED DIAGNOSIS: [Diagnosis] HEIGHT: [height] WEIGHT: [weight]
Waist Circumference: [measurement], [year]

History:

- History of significant changes in weight over lifetime:
- Maximum weight: [weight], [year] weight age 20: [weight], [year] weight one year ago: [weight]
- Episodes of rapid weight gain and related triggers: [description]
- Family history of overweight/obesity/metabolic disease: [description]
- History of weight-loss attempts:
  - Most recent weight-loss attempt: [date], [description]
  - Past weight-loss attempts: [date], [description]

Dietary patterns:

- Foods often craved: [description]
- Eating patterns: [description, including uncontrolled binging, purging, night eating]

Physical activity:

- Exercise: [description, (hrs/week, intensity)]
- Sedentary behavior: [(avg hrs/day)]
CASE #3: MS. COLLINS

The Ms. Collins case addresses:

- Diet and physical activity changes needed to lose weight
- Referral for behavioral support
- When to recommend adjunctive treatments, such as surgery or pharmacotherapy.

**Patient Name:** Rebecca Collins  **Age:** 45 y/o

**Height:** 5' 5"  **Weight:** 290 lbs  **BMI:** 48.3 kg/m²  **Waist:** 41"

**BP:** 126/80  **Pulse:** 90  **Respiration:** 18/min

**Chief Complaint:** Evaluation of cholesterol.

**History of Present Illness:** Dyslipidemia has been fairly well-controlled with Lipitor for the past 4 years. Has not mentioned concerns about weight.

**Medical History:** Hypertension, controlled with medications. Impaired fasting glucose. A family history of hypertension (mother) and high cholesterol (father). Previous lab results showed the following:

**Lab Results**

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cholesterol</td>
<td>218 mg/dL *Elevated (below 200 mg/dL ideal)</td>
</tr>
<tr>
<td>HDL-C</td>
<td>30 mg/dL *Low (60 mg/dL and above ideal)</td>
</tr>
<tr>
<td>LDL-C</td>
<td>158 mg/dL *Elevated (below 100 mg/dL ideal)</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>154 mg/dL *elevated (below 150 mg/dL ideal)</td>
</tr>
<tr>
<td>Total Cholesterol to HDL-D Ratio</td>
<td>7.3:1 *High</td>
</tr>
<tr>
<td>Fasting Serum Glucose</td>
<td>104 mg/dl (Prediabetes)</td>
</tr>
</tbody>
</table>

**Medications:** Lovastatin 20mg 1x/daily for dyslipidemia; Enalapril 10 mg 2x/daily for hypertension.

**Weight History:** Weight has varied within a 30 lb range during the past decade. Prior weight loss attempts have been unsuccessful long-term.

**Physical Activity Level:** Unknown

**Weight Related Diagnoses:** E66.01 Severe Obesity; E65 Localized Adiposity (Central)

**CASE OBJECTIVES**

The learner will be able to:

- Determine level of care to recommend to patients in order to achieve weight loss.
• Assess patient diet using validated instruments and the patient interview, and recommend basic evidence-based diet modifications for weight loss.
• Assess patient physical activity level and recommend evidence-based physical activity modifications for weight management.
• Recommend a plan for patients to maintain long-term weight loss.

WEIGHT HISTORY

Medical Evaluation Protocol Step: Complete a weight-focused medical history.

WEIGHT HISTORY | Rebecca Collins

BMI: 48.3 (Class III Obesity) HEIGHT: 5'5" WEIGHT: 290 lbs

History of Significant Changes in Weight Over Lifetime: Weight has varied within a 30 lb range during the past decade.

MAXIMUM WEIGHT: 300 lbs, 2010 WEIGHT AGE 20: 210 lbs, 1990 WEIGHT ONE YEAR AGO: 280 lbs

EPISODES OF RAPID WEIGHT GAIN AND RELATED TRIGGERS: When she reached her highest weight in 2010, she cited the cause as being stress. She tends to stress eat, which causes a cycle of weight gain.

Waist Circumference: 41", 2015

Family History of Overweight/Obesity/Metabolic Disease: A family history of hypertension (mother) and high cholesterol (father). Both parents are considered overweight.

History of Weight-Loss Attempts:

• MOST RECENT WEIGHT-LOSS ATTEMPT: 2013, Low-calorie meal substitution plan, abandoned due to constant hunger.
• PAST WEIGHT-LOSS ATTEMPTS: Every one to two years since 2006. Multiple initially successful calorie restriction or food substitution dietary changes that were temporary, followed by weight regain.

Foods Often Craved: High-carb foods, sugary snacks.

Eating Patterns: While she tries to avoid high fats, she also eats large portions and tends to snack between meals.

Physical Activity: Unknown

• EXERCISE: Unknown
IDENTIFYING HEALTH CONCERNS
Focusing on health issues that matter most to patients can be an effective way to engage and motivate patients, including:

- **Mortality**: Obesity's effect on longevity is obviously an important factor for most people.
- **Other comorbidities**: Mrs. Collins has dyslipidemia and impaired glucose tolerance, which are impacted by her weight.
- **Psychosocial**: The impact of obesity on psychosocial factors can be a powerful motivator and could be explored.
- **Physical disabilities**: The impact of obesity on an individual's comfort and ability to get around is a powerful motivator for many people.

**Bringing Up Weight in the Context of Comorbidities**
**Provider**: I'm concerned because your cholesterol continues to be high, which is a risk to your health. Losing weight would help with that and provide other overall health benefits. Even a small weight loss can make some difference. Would you consider working with me to lose some weight?

**Ms.Collins**: Um, I suppose. I'm not sure if I can succeed. I've tried cutting back calories and monitoring everything I ate. After a while, even though I was starting to lose weight, I couldn't keep on track. I felt hungry and deprived the whole time.

**Provider**: That does sound discouraging. Would you be willing to work with me to develop a weight-loss plan where you would feel less hungry?

**Ms.Collins**: All right (sounds hesitant)

**Provider**: It helps not to try to do this alone. I also recommend a support group. The government has programs throughout the country put out by the CDC to support people who are prediabetic to make changes so they don't develop diabetes. There's one in our town. Would you like to hear more?

**Ms.Collins**: Yes, I am definitely interested!

**QUIZ: MS. COLLINS**
**Age**: 45 y/o

**Scenario**: You have just uncovered that Ms. Collins is not very confident that she can lose weight.

**Question**: Which of the following is the best next step?

Choose one

1. Schedule a follow-up for 4 weeks, and try again
• Feedback: Partially correct. Follow-up is important because obesity is a chronic disease. However, an intervention to build confidence is needed at this point.

2. Tell her to cut her portion sizes down a specific amount, such as 25%.
   • Feedback: Partially correct. Recommending a small step, such as cutting portion size is a good intervention to boost her confidence, showing her that changes can be small and do-able, but suggesting this approach rather than telling her, would be a more patient-centered approach.

3. Ms. Collins is not ready to lose weight and continuing at this point could offend her.
   • Feedback: Incorrect. An intervention to boost her confidence is indicated at this point.

4. Ask her about behavioral health changes she has made that were successful
   • Feedback: Correct. Helping her explore other changes she has made successfully in her life might boost her confidence, which is needed at this point.

QUIZ: RECOMMENDING A LIFESTYLE CHANGE

SECTION TOPICS
• Using patient diet assessment to recommend diet modifications.
• Using patient physical activity assessment to recommend physical activity modifications.
• Referral to weight-loss programs or trained interventionists.

At Ms. Collins' next visit the physician assistant asked her to fill out a diet screening instrument, Starting the Conversation (Paxton et al., 2011). Here is a summary of her completed survey:

Ms. Collins: Starting the Conversation Diet Assessment (Significant Results)
• Fast food meals/snacks: 4 or more times/week (0 is ideal)
• Servings of fruit/week: 2 or less (around 5 is ideal)
• Servings of vegetables/day: 2 or less (5 is ideal)

Mean Assessment Score: 1.62 (0=ideal; 1=less than healthy; 2=least healthy)

Question: Based on the results of Ms. Collins' screening, which of the following could account for her mean score not being health (between "less than healthy" and "least healthy")?

1. Too many fruits
   • Feedback:
   • Incorrect. Ms. Collins eats only two or fewer servings of fruits per week, which is below recommended level according to this screening tool of around 5 servings per week.

2. Too few vegetables
   • Feedback:
   • Correct! Ms. Collins eats only 2 or less of the recommended 5 servings of vegetables a day.
3. Too many fast food meals/snacks
   • Feedback:
     • Correct. Ms. Collins eats fast food meals/snacks 4 times a week, which is over the limit of 0 for an ideal score on this screening tool.

4. Not enough dairy
   • Feedback:
     • This screening tool does not ask about dairy consumption.

5. Too many calories
   • Feedback:
     • Incorrect. She may eat too many calories, but this screening tool does not ask about calorie intake.

BRIEF DIET INTERVENTION

Brief Intervention Based on Assessment
The provider gently notes a few specific differences between the patient's diet and a healthy diet.

Provider: Let's look at your food choices. You mentioned that you eat fast food, or snacks, 4 or more times per week and don't eat a lot of vegetables and fruits. How would you feel about skipping just one of those less healthy meals or snacks each week and having some fruit or a salad instead?

Ms. Collins: I suppose I could try that.

Discussions During Patient Visits
At each office visit for other medical problems, use 2 minutes to discuss diet and physical activity. Pick a different topic each time. Set a goal, agree to follow up, and then follow up/review previous goals at the next appointment. Some important goals for many people in the U.S. today are:

- Increased vegetable intake to 2.5 cups (3-5 servings) per day
- Decreased fast food, fried foods, and processed foods
- Decreased sugary drinks, including juices
- Increased physical activity/decreased screen time

(USDA, 2015)

AAFP PHYSICAL ACTIVITY SCREENING TOOL

The AAFP Physical Activity Assessment Tool
After completing a brief intervention regarding diet, the provider next turns to the results from Ms. Collins' physical activity screening form. Ms. Collins completed the form before coming in today and brought it to this appointment.
The Physical Activity Assessment Tool was developed by the American Association of Family Physicians. It is considerably longer than the two-question assessment presented in the Mr. Alaim case, but provides additional information. This includes the patient's confidence about increasing physical activity and other information that you would otherwise have to obtain via interview (Meriweather et al., 2008).

**Ms. Collin’s Completed AAFP Physical Activity Assessment**

**AAFP Physical Activity Assessment**

Rebecca Collins

**Moderate physical activity** *Moderate physical activity is any activity that is somewhat hard and makes you feel like you do when you walk fast (3–4 mph).*

1. List activities you did during the last 7 days at a moderate level nonstop for at least 10 minutes:
   - Walking fast, when I have a destination
   - Housework: mopping, sweeping, vacuuming
2. During the last 7 days, on how many days did you do a Moderate physical activity nonstop for at least 10 minutes at a time?
   - 3 days
3. On those days, how much time did you spend on average doing Moderate physical activities?
   - 20 Minutes/Day

**Vigorous physical activity** *Vigorous physical activity is any activity that is hard and makes you feel like you do when you run or jog.*

1. List activities you did during the last 7 days at a VIGOROUS LEVEL for at least 10 minutes at a time without stopping:
   - NONE
2. During the last 7 days, on how many days did you do a Vigorous physical activity nonstop for at least 10 minutes at a time?
   - 0 Days
3. On those days, how much time did you spend on average doing Vigorous physical activities?
   - 0 Minutes/Day
4. Compared with your Usual Physical Activity over the last 3 months, was the last seven days’ activity:
   - A little more

**Medical Problems**

Please answer the next 7 questions YES or NO.

1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?
   - No
2. Do you feel pain in your chest when you do physical activity?
   - No
3. In the past month, have you had chest pain when you were not doing physical activity?
   - No
4. Do you lose your balance because of dizziness, or do you ever lose consciousness?
   No
5. Do you have a bone or joint problem that could be made worse by a change in your physical activity?
   No
6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
   Yes
7. Do you know of any other reason why you should not do physical activity?
   No

Physical Activity Plans
Please select the ONE answer that best describes your physical activity plans for the next 6 months:

1. I am thinking about becoming more physically active.

Benefits of Physical Activity Important to You

Please choose the 3 benefits of physical activity that are Most Important to You:

- For my health
- Feel better
- Lower my cholesterol

Getting Help from Others

1. Is there someone who would encourage you or help you with some of your responsibilities so you could get regular physical activity? Yes
2. Who is that? My neighbor
3. How could they help? She can go walking with me.

Helping Others

1. Is there a friend or family member you think should get more physical activity? No
2. Who is that? N/A
3. How could you help them? N/A

Confidence

How confident are you that you could increase your physical activity if you decided to do so?

A Little

BRIEF PHYSICAL ACTIVITY INTERVENTION

After reviewing Ms. Collins' competed AAFP Physical Activity Screening form, the provider uses the information to provide a brief intervention to raise her physical activity level:
Provider: I see you have been a little more active in the past month and now get at least 20 minutes of moderately-intense activity at least 3 days per week, which is good. And you understand the health benefits.

For optimal health, ideally, you would eventually increase to around 30 minutes per day and add a couple more days per week. You said you are interested in increasing your activity level. How about adding another day of the week to your current activity schedule? Or a few additional minutes per day?

Ms. Collins: I used to walk 20 minutes every night with my neighbor, Nancy. I could start doing that again.

Provider: That would be a very good change for your health. It would also bring you close to the recommended level of physical activity, which is 150 minutes per week of at least moderately-intense activity.

POLL: HOW MANY MINUTES OF MODERATE PHYSICAL ACTIVITY DO YOU RECOMMEND AS A LONG TERM GOAL TO YOUR OBESE PATIENTS WHO ARE HEALTHY ENOUGH TO EXERCISE?

Results:

1. I do not recommend moderate physical activity
   • 2% (3 votes)
2. 100 minutes or less
   • 6% (7 votes)
3. 100 - 200 minutes
   • 66% (80 votes)
4. More than 300 minutes
   • 2% (2 votes)
5. I recommend moderate physical activity but I do not specify a length of time
   • 23% (28 votes)
6. Other
   • 2% (2 votes)

Total votes: 122
QUIZ: FURTHER OPTIONS

Ms. Collins

Based on the interactions with Ms. Collins so far, what other weight-loss treatment options should be explored with her at this time?

Response:

1. No other treatments warranted
   - Feedback: Incorrect. The conversations with Ms. Collins has helped her discover issues regarding her eating habits, but given her high BMI and chronic obesity, further treatment is warranted.

2. Comprehensive Weight-Loss Program Or Counseling
   - Feedback: Correct. A comprehensive weight loss program or counseling is warranted in this case because of her high BMI, comorbidities. Furthermore, counseling is an effective treatment for binge eating disorder, which gives another reason for referral for counseling. For weight-loss, a trained interventionist, such as a comprehensive weight loss program, a nutritionist, or a counselor specializing in weight loss, in order to give patients the more in-depth, intensive support recommended by current guidelines: 6 months, at least twice per month of in-person support for improving diet and physical activity level (Jensen et al, 2013). Given her chronic, severe obesity, adjunctive treatments should also be considered (Ochneremail, 2015).

3. Bariatric Surgery
   - Feedback: Correct. Because she has severe obesity with a BMI of 47.4 and the weight-related comorbidity of metabolic syndrome, she falls within the group of patients for which bariatric surgery is recommended for consideration according to current guidelines.
   - The guidelines recommend to advise adults with a BMI ≥40 or BMI ≥35 with obesity-related comorbid conditions who are motivated to lose weight and who have not responded to behavioral treatment with or without pharmacotherapy with sufficient weight loss to achieve targeted health outcome goals that bariatric surgery may be an appropriate option to improve health and offer referral to an experienced bariatric surgeon for consultation and evaluation.(Jensen et al, 2013)

4. Pharmacotherapy
   - Feedback: Correct. With her relatively high BMI and comorbidities, as well as the possibility of binge eating disorder, the use of pharmacotherapy is something that could be explored with Ms. Collins. Together with the other lifestyle changes that have been
introduced, this would increase her chances of weight-loss success. Bariatric surgery could be explored if this is not successful.

WEIGHT-LOSS PROGRAMS AND COUNSELING

The Importance of Referrals

Treatment Protocol Step: Recommend a structured, comprehensive weight loss program and/or counseling by a qualified professional to support the lifestyle changes needed.

Ms. Collins should start a weight-loss program so that she has sufficient support between appointments with primary care.

Provider: I also recommend getting support in an intensive weight-loss program, such as the one at the university medical center. There’s also an excellent program at the YMCA that is sponsored by the federal government to prevent diabetes. It can be tough trying to do this on your own. We could give you some referrals on your way out.

Ms. Collins: I’d like to give it a try.

Weight Management Requires Behavioral Support

OBESITY TREATMENT GUIDELINES

Obesity treatment guidelines recommend that the following patients participate in a comprehensive weight-loss program. The program should use behavioral strategies to support people with weight problems in making and adhering to the necessary changes in diet and physical activity:

1. Patients who are at least moderately overweight (BMI 27 kg/m² or over)
2. Patients who are overweight (BMI 25 up to 27 kg/m²) who have comorbidities or for whom routine diet and exercise have not worked

Comprehensive weight-loss interventions should be:

- at least every other week
- for at least 6 months
- face-to-face, if possible

Comprehensive weight-loss programs can be

- Individual or group sessions.
- Electronically delivered, but these are less effective than face-to-face interventions. (Jensen et al, 2014)

For individual counseling, areas of focus that often need to be addressed include identifying self-sabotage and stress management (Bays et al., 2016-2017).
MEDICAL WEIGHT-LOSS PROGRAMS

If patients cannot lose enough weight on their own, more intensive treatment may be needed in the form of medical weight-loss programs (Jensen et al., 2014). Within medical weight-loss programs, there is typically medical evaluation and consultation with a nutritionist, as well as both individual and group support. Medical facilities can offer long-term (spanning weeks) weight loss support through the use of:

- nutrition therapy
- structured diets (should make permanent changes in diet, and result in reduced caloric intake)
- meal replacements
- pharmacotherapy
- bariatric surgery
- defined exercise programs
- behavioral therapy

(Grunvald, 2014; Jensen et al., 2014)

Effectiveness

Multiple studies completed in medical weight-loss programs show their effectiveness (Jensen et al., 2014). For example:

1. In the TRAMONTANA study of 143 morbidly obese patients randomized to Intensive Lifestyle Intervention, standard medical treatment and compared to a group receiving bariatric surgery, intensive lifestyle intervention was the most effective at weight loss after 2 years (Burguera et al., 2015). The behavioral support component consisted of 90 minute weekly group sessions with behavioral therapy and nutritional counseling (Mediterranean diet) for 12 weeks and then every other week for the rest of 1 year, weekly homework assignments, prescribed daily exercise and stretching, and physical self-checks. Of patients in the Intensive Lifestyle group, 31.4% were no longer morbidly obese after 6 months, 44% after 2 years.

2. In a study conducted with 232 patients, involvement in an intensive weight-loss program prior to elective surgery showed rapid loss of excess weight in both the 3-week program (17.3%) and the extended 6-12 week program (24.4%) from a starting BMI level of 42.5-43.5 kg/m² (Deveraux et al., 2014).

When structuring on-site, high-intensity lifestyle intervention treatment approaches, the most effective components to include are a combination of the following:

- moderate reduction of caloric intake
- increased physical activity
- behavioral therapy to support weight-loss diet and exercise adherence
- weight-maintenance diet, later

(Jensen et al., 2014).

Through this combination approach, patients are able to commit to their weight-loss goals and aim for overall success.
PRACTICE TIPS
Even if adjunctive therapy, such as pharmacotherapy or bariatric surgery, has been undertaken, weight-loss programs are still important for patients. Weight loss programs help achieve an overall lifestyle change. For example, free group support is available to support long-term weight loss through a 12-step group called Overeaters Anonymous. Chapters are available throughout the country.

COMMERCIAL WEIGHT-LOSS PROGRAMS
Commercial weight-loss programs are widely used as a source of regular support. They vary in terms of approach and effectiveness. Evidence supports the effectiveness of at least some commercial weight-loss programs (Gudzune et al., 2015).

EVIDENCE

- One study found that commercial weight-loss plans proved more effective for weight loss than standard care (Jebb et al., 2011). One commercial program was found to be more effective than self-help in a research trial (Johnston et al., 2013).
- Some commercial weight-loss programs have shown evidence for effectiveness by allowing the eating of favored sweet or higher fat foods in small portions (Johnston et al., 2013). Other patients do better with complete abstinence from less healthy foods. For an individualized approach to treatment, consider this variation.
- Some evidence points to substantial weight regain following program cessation (Tsai, 2005). As a result, patients who have lost weight should be encouraged to continue some form of ongoing support.

One downside to commercial programs is that they can be expensive, with extra costs often not being calculated in the initial pricing (Gudzune et al., 2015).

OTHER WEIGHT-LOSS PROGRAMS

Self-Help Groups
There are many in-person and online groups that patients can join to provide support and accountability. Many groups are specific to age, gender, sexual orientation, or race/ethnicity, which may help patients feel more connected to the group.

Online Programs
Internet programs offer readily available tips, meal plans, and goal-setting. However, patients may have trouble adhering to the program because of less social support (AMA, 2003). Commercial internet programs do not appear to be substantially efficacious at producing weight loss on their own (Tsai, 2005). They are often aligned with counseling in terms of success rate (Gudzune et al., 2015). A number of online programs are available at no cost for the basic program, but incur additional costs for enhanced features.

DID YOU KNOW?
Online weight-loss programs provide social support, which is advantageous if you are not able to attend in-person group meetings (Poncela-Casasnovas et al., 2015).

POLL: WHAT TYPE OF WEIGHT-LOSS PROGRAM DO YOU MOST FREQUENTLY RECOMMEND FOR YOUR PATIENTS?

Results:
1. In-Person Support Groups
   • 9% (8 votes)
2. Online Programs
   • 4% (4 votes)
3. Commercial Organizations
   • 21% (20 votes)
4. Hospital-based Program
   • 4% (4 votes)
5. My Own Clinic's Program
   • 14% (13 votes)
6. Individual Counseling with Counselor
   • 3% (3 votes)
7. Dietitian or Nutritionist
   • 30% (28 votes)
8. I don't do this
   • 15% (14 votes)

Total votes: 94

PSYCHOSOCIAL TREATMENTS

Therapy for Weight Loss

Ms.Collins
Guidelines also recommend counseling with a trained interventionist as part of a comprehensive weight-loss program.

Should counseling be considered for Ms. Collins?
GUIDELINES

The American Heart Association/American College of Cardiology/The Obesity Society guidelines on obesity treatment (Jensen et al., 2013) recommend that you provide the following for patients with obesity (and overweight with a comorbidity or risk factors), based on strong evidence:

Prescribe high-intensity (i.e., ≥14 sessions in 6 months) comprehensive weight loss interventions provided in individual or group sessions by a trained interventionist.

*In this recommendation, "trained interventionist" is defined as "health professionals (e.g., registered dietitians, psychologists, exercise specialists, health counselors, or professionals in training) who adhere to formal protocols in weight management."

(Jensen et al., 2013)

Behavioral Interventions

Behavioral therapy can support weight loss through a variety of interventions that can be a focus of education/therapy including:

- Monitoring one’s own weight, food intake, and physical activity
- Goal setting and contracting to achieve the goal
- Education about obesity, nutrition, and the benefits of specific amounts and types of physical activity
- Stress reduction, stimulus control
- Social support in face-to-face meetings with others
- Problem solving
- Cognitive restructuring and motivational interviewing

Intensify interventions if the patient does not achieve 2.5% weight loss in the first month.

(Garvey et al., 2016/2017)

COUNSELORS FOR WEIGHT LOSS

Working with a licensed counselor is another possible way to address the need for long-term support in a weight-loss attempt. Many counselors describe an interest or specialization in helping people lose weight. A basic understanding of what happens in counseling for weight loss can help you prepare patients to accept a referral. Additionally, you might be able to apply some of the techniques used in counseling with your patients.

Behavioral Interventions and Cognitive Behavioral Therapy

Behavioral therapy and a related form of therapy, cognitive behavioral therapy (CBT) add to the effectiveness of weight loss efforts when part of a multi-component treatment (ADA, 2009). They are more effective than patient education.
**Behavioral Psychology, Health Psychology.** Simple actions and tools that support behavior changes leading to weight loss are taught and rewarded in behavioral therapy.

**Cognitive Behavioral Therapy (CBT).** CBT is based on behavioral approaches plus intentional changing of one’s thinking. CBT helps patients identify cues that trigger inappropriate eating behaviors and learn new ways to think about them. Changing thoughts helps improve emotional issues that indirectly affect weight (e.g., depression, anxiety) as well as emotional issues specific to weight.

Research on these approaches has found:

- Counseling is most effective when long term, i.e., lasting around 6 months (Jensen et al., 2014).
- Interventions were most effective when they include a variety of components, such as:
  - Self-monitoring – For example, keeping a food diary to become aware of eating habits and to have a record that can become the basis for reinforcing rewards.
  - Stimulus control – This might involve avoiding commercials, food odors, or asking family members not to leave tempting foods lying around.
  - Problem solving – The counselor supports the patient/client in coming up with personal solutions to perceived barriers.
  - Social support – Joining a weekly weight-loss group can provide this benefit.
  - Contingency management – Patients are asked to take an active role in their health by making an agreement to follow behaviors that will lead to achieving a series of small goals. Rewards are given by the provider or self-awarded for achieving these goals.
  - Cognitive restructuring – Helping patients think about a problem in a more helpful way. For example, a therapist might help a patient change her way of thinking about body image or expecting negative outcomes from weight loss efforts.
- (ADA, 2009)

An observational study of CBT in patients with morbid obesity found significant improvements in patients' psychopathology and satisfactory weight reduction (Abilés et al., 2013; AND, 2009).

**COACHING AND IN-HOUSE TREATMENT**

**Coaching**

Coaching helps people set and meet individually-determined goals with guidance and support from a trained, certified coach (certified by the International Coach Federation, IFC). Coaching has been shown to be effective in improving weight loss and physical activity (Stephens et al., 2011). Some primary care practices are hiring coaches to provide skilled behavior change assistance. This practice enables physicians to focus their limited time on more complex medical issues.

**Treatment In-House**

A referral for intensive counseling is not needed if you can provide such counseling within your practice. Intensive behavioral weight-loss counseling, with 14 sessions lasting 10 to 15 minutes and meeting over 6 months, is approved for primary care settings if delivered by physicians or other CMS-
defined primary care providers (Wadden et al., 2014). A review of controlled trials for counseling by a variety of trained interventionists showed that counseling in a primary care setting was effective (Wadden et al., 2014). The most effective approach included 3 components:

- Prescribing reduced energy intake diet
- Increasing physical activity
- Regular counseling sessions

QUIZ: WEIGHT-LOSS SUPPORT REVIEW

**Question:** Which of the following is true regarding guidelines for weight loss programs and counseling?

1. Recommended for all patients over a BMI of 27 kg/m$^2$ (moderately overweight), or a BMI of 25 kg/m$^2$ if there is a comorbidity or multiple attempts to lose weight using only calorie restricted diet and activity increase have failed.
   - Feedback: Correct. Recommended for all patients over a BMI of 27 (moderately overweight), or a BMI of 25 if there is a comorbidity or multiple attempts to lose weight using only calorie restricted diet and activity increase have failed.

2. Recommended for all patients over a BMI of 35 kg/m$^2$ (Class II obesity), or a BMI of at least 30 kg/m$^2$ (Class I obesity) if there is a comorbidity or multiple attempts to lose weight using only calorie restricted diet and activity increase have failed.
   - Feedback: Incorrect. Recommended for all patients over a BMI of 27 (moderately overweight), or a BMI of 25 if there is a comorbidity or multiple attempts to lose weight using only calorie restricted diet and activity increase have failed.

3. Attend for at least for 3 months, meeting at least once per month.
   - Feedback: Incorrect. The weight loss groups should meet for at least for 6 months, meeting at least twice per month.

4. Attend for at least for 6 months, meeting at least twice per month
   - Feedback: Correct. The weight loss groups should meet for at least for 6 months, meeting at least twice per month.

ADJUNCTIVE WEIGHT-LOSS TREATMENTS

**SECTION TOPICS**

- Level of care patients require to achieve weight loss.

Because of Ms. Collin's high BMI (48.3), she could benefit from an adjunctive weight-loss treatment.
With relatively heavier patients, and especially those with weight-related comorbidities, adjunctive treatments of pharmacotherapy or bariatric surgery may support their weight-loss efforts. According to guidelines for weight-loss management, the BMI cutoffs for recommending these treatments are as follows:

**Cut points for Adjunctive Treatments**

### Pharmacological treatment

Consider when BMI is ≥ 30 kg/m\(^2\)
(or ≥ 27 with weight-related comorbidity)

### Bariatric Surgery

Consider when BMI is ≥ 40 kg/m\(^2\)
(or ≥ 35 with weight-related comorbidity)

(According to AHA/ACC/TOS guidelines - Jensen et al., 2014)

**How Many Patients Need Pharmacotherapy or Surgery?**

![Pie chart](https://via.placeholder.com/150)

Following the obesity management guidelines for when to add adjunctive treatments (Jensen et al., 2013) and considering current rates of obesity (Yang & Colditz, 2015):

- 36% of U.S. adults are candidates for weight-loss pharmacotherapy (BMI ≥30 kg/m\(^2\)).
- 6% of U.S. adults are candidates for bariatric surgery (BMI ≥40 kg/m\(^2\)).

**PRACTICE TIP**

Adjunctive treatments do not replace lifelong and comprehensive lifestyle change. They still need to be supported through a structured weight-loss program and continued medical follow-up.
WEIGHT PLATEAU

Treatment Protocol Step: Anticipate weight loss plateau and adjust treatment intensity.

Ms. Collins
At 6 months, Ms. Collins has reached a plateau in her weight loss. How might you help her get through this?

What Is a Weight Plateau?
Weight loss often plateaus after around 6 to 8 months in a weight-loss program. Additionally, the onset of a weight plateau can occur more quickly when patients don’t follow their prescribed diet consistently (Thomas et al., 2014). This makes it a high risk time for patients to abandon their weight-loss plan, as they fail to see continued progress for their efforts. As metabolism slows to accommodate the new lower weight, energy expenditure decreases to match energy intake. Resting metabolism slows by 15 calories / day for every kg lost on a low-calorie diet and 11 calories / day for every kg lost from weight-loss surgery (Schwartz & Doucet, 2011).

THE PLATEAU CHALLENGE

Strategies for Getting Past the Weight-Loss Plateau
To help patients continue weight loss at this point:

1. Review current diet.
   • Some patients find subtle ways to increase calories without realizing it. Look for "calorie creep."
   • Patients who have reduced sugar intake may find that foods taste sweeter now and they can reduce sugar intake further.

2. Review current physical activity and sedentary behaviors.
   • Patients on a weight-loss plateau may better tolerate physical activity now that they weigh less.
3. **Revise diet and physical activity.**
   - Revision of plans should create an energy deficit.

4. **Adjunctive therapies.**
   - If they are not already being tried, and the above approach does not work, consider whether the patient is a candidate for adjunctive weight loss therapies, such as pharmacotherapy or surgery.

(Jensen et al., 2014)

**PRACTICE TIP**
Depression is associated with both weight gain and weight regain (NWCR, 2014). Be sure to monitor and treat this weight-related comorbidity long-term.

**CLINICAL PROTOCOL STEPS IN THIS MODULE**

The following Clinical Protocol Steps for patients with obesity were illustrated in this module:

**Medical Evaluation**
- Evaluate for medical conditions that could contribute to excess weight, including sleep disorders.
- Complete a weight-focused medical history.

**Lifestyle Screening and Assessment**
- Complete diet screening.
- Evaluate for problematic eating patterns.
- Assess physical activity.
- Assess sedentary behavior.

**Brief Counseling and Patient Education**
- Discuss problematic eating patterns.
- Educate on physical activity benefits and recommendations.
- Elicit and discuss personal barriers to weight loss, followed by brainstorming and goal setting.
- Facilitate behavioral change goal setting.

**Treatment**
- Prescribe a change in physical activity that supports weight loss and is important for weight loss maintenance. Recommend:
  - At least the 150 minutes of at least moderate physical activity per week that is recommended for all individuals, and more for weight maintenance.
  - Reductions in sedentary time to no more than 2 hours at a time without a break of at least several minutes with some physical activity and further reductions in sedentary time to support further weight loss.
• Recommend changes in dietary patterns that will support weight-loss and help stop weight gain.
• Prescribe a weight-loss diet that reduces calories.
• Recommend a weight loss program and/or counseling by a qualified professional, a structured, comprehensive weight-loss program that supports the lifestyle changes needed.
• Anticipate weight loss plateau and adjust treatment intensity.
• Provide or offer followup office visits at least monthly for a year after providing a comprehensive lifestyle intervention

Referral
• Provide treatment for sleep disorders or refer for treatment when necessary.

Maintenance
• Repeat body mass assessment during maintenance at intervals of 1 month initially, graduating to every 6 months.
• Recommend adjustments to caloric intake and/or physical activity levels, as needed to maintain new weight.
• Recommend continued participation, for at least a year, in a comprehensive weight loss program (Jensen et al., 2014).

MODULE SUMMARY

Assessment

Diet Assessment
Brief surveys on diet can be filled out by the patient while waiting to be seen and can be used to start the conversation about improving diet. For example, see the external resource, "Starting the Conversation."

Physical Activity Assessment
A brief assessment of physical activity consists of just two questions about whether they are getting the recommended amount of physical activity:

• How often per week does the patient do at least 20 minutes of aerobic activity?
• How often do they do at least 30 minutes of moderately intense activity?
• Also ask how much of patient's time is sedentary.

Achieving Weight Loss
Small, incremental lifestyle changes, added up over time as a result of multiple interventions and follow up from the provider can help patients advance toward weight-loss goals. They must, however, add up to a major change for most obese patients to achieve and maintain a healthy weight.

• Diet Recommendations:
An achievable, initial goal for most people is weight reduction of approximately 10% of body weight. Following up with consecutive goals is also important.

A reduction of 300-500 kcal/day for overweight patients and 500-1000 kcal/day for obese patients can potentially achieve 10% weight-loss in about 6 months.

- **Physical Activity Recommendations**: Produces only a modest increase in weight loss, but improves cardiovascular risk, peripheral glucose sensitivity, mood, sleep, and weight-loss maintenance
  - Recommend 150 minutes of moderate-intensity OR 75 minutes of vigorous-intensity aerobic activity/week.
  - Recommend muscle strengthening of all muscle groups 2 or more times per week.
  - Also recommend breaks in sedentary time of at least 2 minutes of movement, if more than an hour is spent seated at a time. Recommend 2 hours of movement and ideally 4 hours during an otherwise sedentary workday.
  - Include these elements in a physical activity prescription: Frequency, Intensity, Time spent, Type, and Enjoyment level (FITTE).

Weight Loss Programs and Plans
- **Prescribe a Weight-Loss Program**: Prescribe a comprehensive, face to face, intensive weight-loss program for patients needing to lose weight, for at least 6 months, to help them make changes in diet and activity level. Substitute free or inexpensive online programs if cost is a concern.
- **Prescribe Weight-Loss Counseling**: Referral for counseling by a trained interventionist for sessions at least every other week for six months is important. A registered dietitian can support the diet aspect and an exercise physiologist can support the activity aspect.

RESOURCES AVAILABLE THROUGH THIS MODULE:
  This is the first appendix of the Dietary Guidelines for Americans 2015-2020. The US Department of Health and Human Services developed this set of guidelines for recommended physical activity. The guidelines are separated by age group, adolescents, adults, and older adults.
- **ChooseMyPlate.gov**
  Teaches food groups, balancing calories, foods to increase, foods to reduce, modifications for different groups of people, such as kids, those losing weight, pregnant women.
- **Exercise is an effective intervention in overweight and obese patients**
  "Putting Evidence into Practice" article for clinicians, based on a 2006 Cochrane review of the evidence for the effectiveness of exercise in treating overweight and obesity.
- **National Diabetes Prevention Programs. Find One in Your Area**
  The National Diabetes Prevention Program is a national partnership, community-based intervention designed to prevent or delay the onset of type 2 diabetes through evidenced-based lifestyle changes. (From the website.)
- **NIH/NHLBI Daily Food and Activity Diary**
Keeping a record of daily food intake can help patients stay on track when trying to lose weight or maintain a healthy weight and activity levels. It also will give the doctor or health care provider a quick way to check a patient's progress.

- **Physical Activity Assessment Tool**
  An assessment tool for use with patients to determine their level of physical activity and other information that will help providers make brief interventions to improve patient physical activity.

- **Starting the Conversation**
  A brief, 8-item Diet Scale for primary care and health prevention developed by: UNC, NC Prevention Partners, and Heart Disease and Stroke Prevention Branch, NC DHHS).

**REFERENCES USED IN THIS MODULE:**

**Practice Gap References**


**Module Content References**


Taheri, S. Losing 30 minutes of sleep per day may promote weight gain and adversely affect blood sugar control. *Endocrine Society*. 2015; March 6: . Available at: [https://www.sciencedaily.com/releases/2015/03/150306082541.htm](https://www.sciencedaily.com/releases/2015/03/150306082541.htm) Accessed on: 2015-03-09.


