





## Lifestyle Intervention

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Karli Burrige, PA-C, MMS, FOMA  
Owner, Gaining Health

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**OBESITY MANAGEMENT IN PRIMARY CARE  
CERTIFICATE PROGRAM:**  
A Practice Management & Leadership Training Program for PAs and NPs



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## Commercial Support

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### House Keeping

Using Your GTW Control Panel and Reminders

**Desktop App Control Panel:**

- (a) Mute/unmute
- (b) Raise your hand
- (c) Handouts for you to download
- (d) Ask (type in) a question

**Browser-based Control Panel:**

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**Questions**

- Please post questions throughout the webinar via the Questions / (?) section in your GTW control panel (CP)
- In the Desktop app click on the "triangle" to open the Questions bar
- In the browser CP, click on the "?" icon.
- Your questions will be addressed during the Q&A section at the end of the webinar.

**Handouts**

- The faculty selected handouts for you to review, use in practice, and/or to follow along with during this session.
- In the Desktop app CP click on the "triangle" to open the Handouts bar.
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- To download the handouts double click on the PDF links

**Polling Questions**

- There are audience response-like questions that I'll refer to as "polling questions" in this presentation.
- Please be sure to respond to each polling question accordingly. You'll have 10 seconds to submit your response.

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POLLING PRACTICE

**In what time zone are you located?**

- A. Eastern (ET)
- B. Central (CT)
- C. Mountain (MT)
- D. Pacific (PT)
- E. Island Time

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**Disclosures**

- Bariatric Advantage: consultant
- Gaining Health: founder and owner

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**Faculty and Disclosure Statement**

- Karli Burrige is a nationally recognized expert in obesity medicine. She is a physician assistant, Fellow of the Obesity Medicine Association, and earned the Certificate of Advanced Education in Obesity Management in 2017. Karli has been working in obesity management, both surgically and non-surgically, since 2012. During this time, she has developed several medical obesity programs in a variety of healthcare settings. She is a co-author of the Obesity Algorithm® and serves on the Board of Trustees for the Illinois Obesity Society. She is also the co-founder and president of PAs in Obesity Medicine. Karli has received multiple awards from the Obesity Medicine Association for her work in expanding the field of obesity medicine and in furthering obesity education for health care providers.
- Karli is the founder of GainingHealth.com, which she developed to provide resources and support for healthcare providers who want to incorporate obesity medicine into their medical practice. She has authored a book on developing an obesity medicine program and provides numerous additional tools for obesity program development through her website. Her mission is to increase the availability of science-based, compassionate obesity treatment to all individuals whose health is impacted by obesity.

Bariatric Advantage consultant; Gaining Health founder and owner

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**Objectives**

**Apply**

Apply behavioral interventions for the treatment of obesity in primary care.

**Conduct**

Conduct comprehensive nutritional counseling as part of an effective obesity management plan.

**Conduct**

Conduct effective physical activity counseling as part of an effective obesity management plan.

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### Behavioral Interventions

Interventions designed to affect the actions that individuals take with regard to their health

Integrated into lifestyle interventions

5As

Stages of Change (Transtheoretical Model)

Motivational Interviewing

Cognitive Behavioral Therapy

5As: Ask, Assess, Advise, Agree, Arrange/Assist.  
Anderson NB, et al. Critical Perspectives on Racial and Ethnic Differences in Health in Late Life. 2004. <https://www.ncbi.nlm.nih.gov/books/NBK25332/>. Accessed February 10, 2021.  
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### Lifestyle Interventions

Mental Health

Physical Activity

Nutrition

Sleep

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### Comprehensive Obesity Management

Lifestyle Interventions

Pharmacotherapy

Metabolic/Bariatric Surgery

Pharmacotherapy and/or metabolic/bariatric surgery can support adherence to lifestyle interventions

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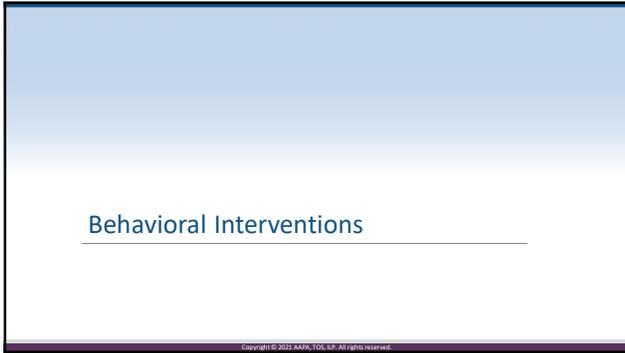
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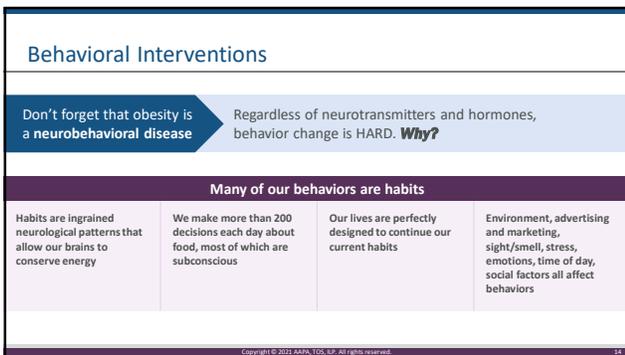
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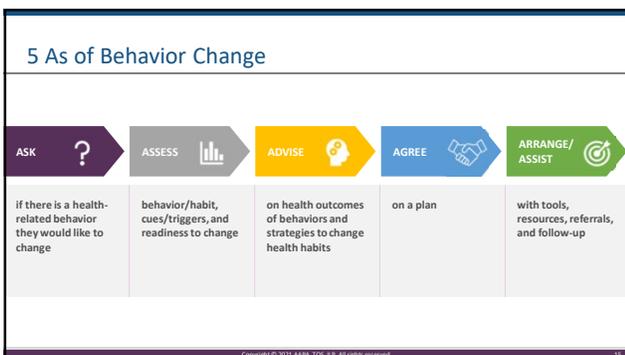
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**You are discussing obesity management with a patient, and they indicate that they've been thinking about increasing their physical activity but they think it's too cold to get outside, so they think they may start following the winter. What stage of change is this patient in?**

A. Precontemplation  
 B. Contemplation  
 C. Action  
 D. Relapse

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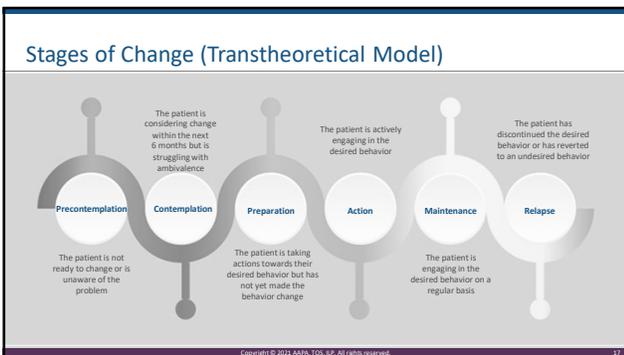
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### Motivational Interviewing (MI)

*"Motivational interviewing is a collaborative conversation style to strengthen a person's own motivation and commitment to change"*  
 —Miller and Rollnick

- Powerful communication style for people in contemplation/preparation stages
- Helps move a patient from ambivalence towards action by strengthening the patient's OWN motivation and commitment to change

Miller WR, Rollnick S. Motivational Interviewing: Helping People Change, 3rd ed. Guilford Press; 2013.  
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### The Spirit of MI: CAPE

**Compassion**  
In the words of the Dalai Lama, "compassion is the wish to see others free from suffering"

**Evocation**  
Tapping into a person's strengths and their reasons for wanting to change  
• Evoke "change talk" and have the patient argue for change

**Acceptance**  
Supporting patient autonomy and accepting their right to change or not to change

**Partnership**  
The collaborative relationship between two experts  
• A dance rather than a wrestling match  
• Avoid the "righting reflex"

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### Core Communication Skills of MI: OARS

<p><b>Open-ended Questions</b></p> <p>Allows the patient to express how they feel, which is important in resolving ambivalence</p>	<p><b>Affirmations</b></p> <p>Recognizing a good quality in another person and using this to build their confidence in changing their behavior</p>
<p><b>Reflections</b></p> <p>Can be simple or complex</p> <ul style="list-style-type: none"> <li>In a <b>simple</b> reflection, you may repeat what the person said, or you may rephrase what they said</li> <li>In a <b>complex</b> reflection, you may take a guess at what the person is trying to say, paraphrase what they are saying, reflect a feeling, use a metaphor, or amplify the reflection</li> </ul>	<p><b>Summaries</b></p> <p>Selectively summarize the change talk and turn this into an actionable plan</p>

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### Cognitive Behavioral Therapy (CBT)

**CBT is a type of psychotherapy that helps individuals recognize and address thoughts and feelings that influence their behavior**

**7 components of CBT commonly used in obesity management:**

- 1) Self-monitoring: Nutrition/activity logging, self-weighing
- 2) Stimulus Control: Reduce triggers or cues that lead to undesired behaviors or increase triggers that promote the desired behaviors
- 3) Problem Solving: Overcoming barriers
- 4) Goal Setting: SMART goals
- 5) Contingency Management: Develop strategies to overcome setbacks and encourage patients to plan for lapses and relapses
- 6) Enlisting Social Support: Accountability partner, support groups
- 7) Stress Management: Healthful coping strategies that do not involve food

SMART: Specific, Measurable, Achievable, Realistic, Timely.

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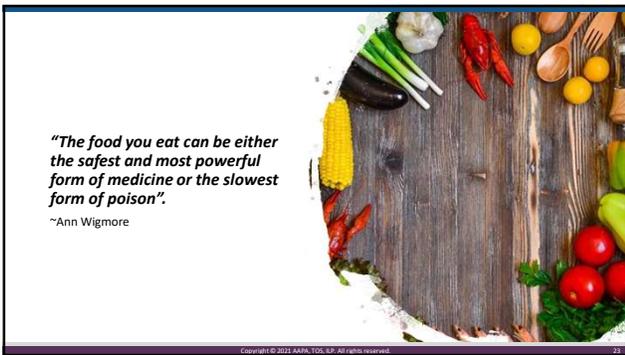
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Ask for Permission to Discuss Nutrition

"Nutrition plays a very important role in our overall health. Is it okay if we discuss your nutrition today?"

"Nutrition is complex and can be very confusing with all of the things we hear in the media. Can we have a brief conversation about nutrition today?"

"How do you feel about your nutrition?"

"Do you have any questions or concerns about your nutrition?"

"Are there any areas of your nutrition that you struggle with?"

"Would you be interested in us working together on your nutrition?"

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Which of the following is true related to a dietary recall?

- A. It is an informal clinician-conducted interview
- B. It should cover at least 3-4 days of food intake
- C. It requires access to a computer or app
- D. Patient literacy may be a disadvantage

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### Food Diary

- 1. 24-hour dietary recall
- 2. Multiple days recall
- 3. Written diary or log—pen and paper or an app

**Dietary recalls**

- Informal clinician-conducted interview
- Easy to conduct; can build rapport with a new patient
- Disadvantage: provides a limited snapshot of dietary intake and relies on the patient giving accurate information

**Food diary or log**

- Should cover at least 3–4 days
- Patient should record all foods and beverages immediately after they are consumed for highest accuracy
  - include the food/beverage item, serving size, method of preparation (e.g., baked, fried) and time and place the food was eaten
- Disadvantages: patient literacy, access to computer or app

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### Eating Behaviors

**Food timing**

- Late night eating, grazers, etc.
- Number of meals/snacks
- Frequency of eating

**Triggers**

- Late night eating, grazers
- Hunger/satiety
- Emotions
- Reward
- "Fast food"
- Celebrations
- Alcohol or smoking

**Barriers to healthy eating**

- Frequent travel for work
- Lack of family support
- Lack of access to healthy, affordable food

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### Cultural Influences

Culture is the collective beliefs and customs of a group

Ethnicity    Family    Work    Group of friends    Clubs

Evaluate if these affect food intake

Example: families of Italian descent living in the US may eat large portions of processed pasta, so helping a patient recognize serving vs portion may be a first step

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**Now What??**

- You have completed step 1: Ask
- You have completed step 2: Assess nutrition history and readiness to change
- Step 3: Advise
  - Before we advise, *let's dive deeper into nutrition!*

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**What Are Macronutrients??**

Nutrients that provide calories:

- Carbohydrates: 4 kcal/gram
- Protein: 4 kcal/gram
- Fat: 9 kcal/gram
- Alcohol: 7 kcal/gram

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**Order of Substrate Utilization**



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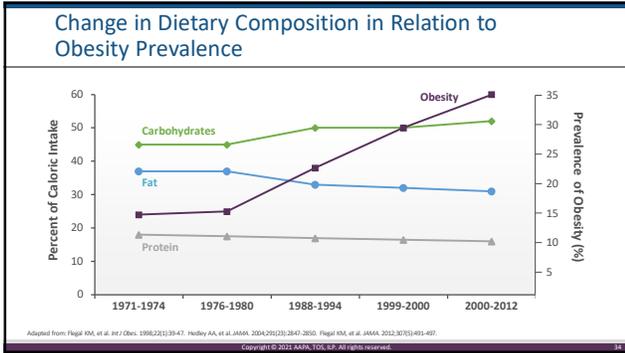
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### CARBOHYDRATES

- Sugars, starches, and fibers, which become monosaccharides when digested (glucose, fructose, galactose)
- Energy, structure
- Not a necessary macronutrient since liver and kidneys can make glucose
- "Carbohydrate deficiency" does not exist

Adapted from: Bays RE, et al. 2020. <https://obesitymedicine.org/obesity-algorithm/>. Accessed January 8, 2021. Copyright © 2021 AAPA, TOS, R.P. All rights reserved.

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### FIBER

- Soluble fiber: dissolves in water and forms a gel-like substance; feeds gut bacteria
- Insoluble fiber: non-water soluble; structure; creates bulk
- Recommended Daily Allowance
  - Men: 38 g/day
  - Women: 25 g/day
- Net carbs = (total carbohydrate) - (fiber)

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**PROTEIN**

- Essential and nonessential amino acids (“building blocks”)
- Supports: enzymes, hormones, membranes, and tissue (skin, muscle, organs)
- Protein deficiency: kwashiorkor
- USDA DRI: 0.8–2.0 g/kg/day, depending on gender, age, physical activity
  - 150 lbs = 68 kg (54.4g - 136g)
- Weight loss: 1.2–1.5 g/kg/day

DRI, dietary reference intake; USDA, United States Department of Agriculture  
Adapted from: Bays HE, et al. 2020. <https://obesitymedicine.org/obesity-algorithm/>. Accessed January 8, 2021.  
Salemian MG, et al. Obesity: Evaluation and Treatment Essentials. CRC Press, LLC 2010.  
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**FAT**

- Essential fats: omega-3, omega-6 (polyunsaturated fatty acids)
- Supports: cell membrane, brain (60% fat), hormones, absorption of fat-soluble vitamins (K, A, D, E), energy, insulation, and immune system
- USDA DRI: 30 g per day
- Many different kinds of fats: saturated, polyunsaturated, monounsaturated, trans

Adapted from: Bays HE, et al. 2020. <https://obesitymedicine.org/obesity-algorithm/>. Accessed January 8, 2021.  
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**Micronutrients**

**VITAMINS**

**MINERALS**

Vitamins: A, E, D, C, B6, B12, K, thiamin, riboflavin, niacin, choline, and folate

Minerals: calcium, iron, magnesium, phosphorus, potassium, sodium, zinc, copper, manganese, and selenium

Dietary Guidelines for Americans 2015–2020, Eighth Edition. [https://health.gov/sites/default/files/2019-09/2015-2020\\_Dietary\\_Guidelines.pdf](https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf) Accessed February 10, 2021.  
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### Dietary Guidelines and RDA

Main purpose of the *Dietary Guidelines* is to inform the development of federal food, nutrition, and health policies and programs  
 Primary audiences: policymakers; nutrition and health professionals

Food-based guidance to assist Americans' food choices for healthy diet  
 Disease prevention is focus

The Dietary Guidelines are not intended to be used to treat disease . . . Thus, the Dietary Guidelines may be used or adapted by medical and nutrition professionals to encourage healthy eating patterns to patients.

Dietary Guidelines for Americans 2015-2020, Eighth Edition. [https://health.gov/sites/default/files/2019-09/2015-2020\\_Dietary\\_Guidelines.pdf](https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf) Accessed February 10, 2021. Copyright © 2011 AAPA, TOS, R.P. All rights reserved.

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### Hormonal Considerations: Insulin

- Insulin is the hormone that controls fat metabolism
- Sugars and starches, and to some degree, amino acids, stimulate the secretion of insulin from the pancreas
- A nutrition plan that lowers the amount of insulin secreted is beneficial for weight reduction

**Adipose Tissue:**  
 ↓ Lipolysis  
 ↑ Fat uptake  
 ↑ Lipogenesis

**Liver:**  
 ↓ Gluconeogenesis  
 ↓ Glycogenolysis  
 ↑ Glycogen synthesis

**Skeletal Muscle:**  
 ↑ Glucose uptake  
 ↓ Glycolysis  
 ↑ Glycogen synthesis  
 ↑ Protein Synthesis

Adapted from: Bray HE, et al. 2020. <https://obesitymedicine.org/obesity-algorithm/>. Accessed January 9, 2021. Murray PR, et al. Harper's illustrated biochemistry, 26th ed. Lange Medical Books/McGraw-Hill, 2015. Copyright © 2011 AAPA, TOS, R.P. All rights reserved.

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### Hormonal Considerations: Behaviors, Such as Eating and Physical Activity, are Influenced by Hormones

**NPY and AgRP Neurons:** Increase Hunger and Cravings, Promote Increase in Feeding

**POMC and CART Neurons:** Reduce Hunger and Cravings, Reduces Feeding

Hormones and their sources:

- Stomach:** Ghrelin
- Small Intestine:** CCK, GLP-1
- Large Intestine:** OXM, PYY
- Pancreas:** Insulin, Amylin
- Adipose Tissue:** Leptin

AgRP, Agouti-related protein; CART, cocaine- and amphetamine-regulated transcript; CCK, cholecystokinin; GLP-1, glucagon-like peptide 1; OXM, oxyntomodulin; NPY, neuropeptide Y; POMC, proopiomelanocortin; PYY, peptide YY. Saladin, K. Anatomy & Physiology: The Unity of Form and Function, 8<sup>th</sup> Ed. McGraw Hill, 2018. Copyright © 2011 AAPA, TOS, R.P. All rights reserved.

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### Nutritional Approaches for Weight Reduction

- Caloric manipulation of macronutrients: carbohydrates or fat
- Low-calorie nutrition plans
  - Women: 1,200–1,500 kcal/day
  - Men: 1,500–1,800 kcal/day
- Meal replacements can be used with any plan
- VLCD: under 800 kcal/day; close medical supervision required

VLCD, very low-calorie diet. Copyright © 2021 AAPA, TOS, R.P. All rights reserved.

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### Macronutrient Manipulation

<p><b>Carbohydrate Restricted</b></p> <ul style="list-style-type: none"> <li>• Under 150 g carbohydrates per day</li> <li>• Very low carbohydrate: under 50 g carbohydrates per day</li> <li>• Greater reduction in triglycerides, serum glucose, hemoglobin A1c, insulin; greater increases in HDL</li> <li>• In first 6 months, greater weight loss</li> <li>• Usually not calorie-restricted; may result in reduced hunger</li> <li>• May induce gout flares early on; may increase LDL</li> <li>• May increase energy expenditure during weight reduction maintenance</li> <li>• Examples: Atkins, South Beach, Ketogenic</li> </ul>	<p><b>Fat Restricted</b></p> <ul style="list-style-type: none"> <li>• 10-30% calories from fat</li> <li>• Under 10% saturated fat</li> <li>• Greater reduction in LDL cholesterol, BP (DASH)</li> <li>• Usually calorie restricted; may result in greater hunger</li> <li>• After 6 months, similar weight reduction as low carbohydrate plans</li> <li>• Examples: DASH, Ornish</li> </ul>
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BP, blood pressure; DASH, dietary approach to stop hypertension; HDL, high-density lipoprotein; LDL, low-density lipoprotein. Adapted from: Bray HE, et al. 2020. <https://obesitymedicine.org/obesity-algorithms/>. Accessed January 6, 2021. Copyright © 2021 AAPA, TOS, R.P. All rights reserved.

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### Ketogenic Nutrition Plan

- Very low carbohydrate diet (under 50 g carbohydrates per day)
  - Induction phase: under 20-30 g carbohydrates
  - Weight reduction phase: varies from 20-50 g carbohydrates
  - Maintenance phase: 60–90 g carbohydrates (variable)
- Promotes using fat vs. glucose as a primary fuel source, which generates ketones
  - Ketones may have independent health benefits and may reduce appetite



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**Ketogenic Nutrition Plan (cont.)**

<p><b>Encouraged</b></p> <ul style="list-style-type: none"> <li>• Non-starchy vegetables</li> <li>• Leafy greens</li> <li>• Low sugar fruits: berries, avocados, olives</li> <li>• Nuts, seeds</li> <li>• Meats, poultry, fish, eggs</li> <li>• Hard cheeses, grass-fed butter, olive oil</li> </ul>	<p><b>Discouraged</b></p> <ul style="list-style-type: none"> <li>• Processed foods, sugar</li> <li>• Cereals, breads, grains, legumes</li> <li>• Starchy vegetables (examples: potatoes, corn)</li> <li>• Foods with high glycemic index</li> <li>• Most fruits</li> <li>• Most dairy besides cheese</li> <li>• Trans fats</li> </ul>
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**Ornish Nutrition Plan**

<p><b>Encouraged</b></p> <ul style="list-style-type: none"> <li>• Whole food in natural form</li> <li>• Vegetables, fruits, legumes, whole grains</li> <li>• One serving soy per day</li> <li>• Green tea</li> <li>• Fish oil</li> <li>• Small frequent meals throughout the day</li> </ul>	<p><b>Discouraged</b></p> <ul style="list-style-type: none"> <li>• Fat             <ul style="list-style-type: none"> <li>• Goal is under 10% calories from fat</li> </ul> </li> <li>• Cholesterol             <ul style="list-style-type: none"> <li>• Goal is under 10 mg per day</li> </ul> </li> <li>• Sugar, sodium, alcohol, and caffeine other than from green tea             <ul style="list-style-type: none"> <li>• Limit intake</li> </ul> </li> <li>• Avoid             <ul style="list-style-type: none"> <li>• Animal products</li> <li>• Trans fats</li> <li>• Refined carbohydrates and oils</li> </ul> </li> </ul>
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**DASH**

<p><b>Encouraged</b></p> <ul style="list-style-type: none"> <li>• Vegetables, fruits, whole grains</li> <li>• Low-fat dairy</li> <li>• Fish, poultry, lean meats</li> <li>• Nuts, seeds, legumes</li> <li>• Fiber, calcium, magnesium, potassium</li> </ul>	<p><b>Discouraged</b></p> <ul style="list-style-type: none"> <li>• Sodium             <ul style="list-style-type: none"> <li>• Limit to 1,500–2,300 mg per day</li> </ul> </li> <li>• Fat             <ul style="list-style-type: none"> <li>• Under 27% of calories per day</li> </ul> </li> <li>• Saturated fat             <ul style="list-style-type: none"> <li>• Under 6% of calories per day</li> </ul> </li> <li>• Cholesterol             <ul style="list-style-type: none"> <li>• Under 150 mg per day</li> </ul> </li> <li>• Avoid             <ul style="list-style-type: none"> <li>• Red and processed meat</li> <li>• Sugar</li> </ul> </li> </ul>
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Adapted from: Bays HE, et al. 2020. <https://obesitymedicine.org/obesity-algorithm/>. Accessed January 6, 2021. Copyright © 2021 AAPA, TOS, LLP. All rights reserved.

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### Mediterranean Nutrition Plan

- Not a specific nutrition plan, but based on commonalities of dietary pattern often found in Greece, Italy, and Spain
- Approximately 40% fat: extra virgin olive oil is primary fat
- Encouraged: olive oil, vegetables, fruits, legumes, nuts, seeds, whole grains, physical activity, sleep
- Moderately encouraged: poultry, seafood, eggs, fermented dairy (cheese, yogurt), red wine
- Limit: red meat, processed meats, ultra-processed carbohydrates, sweets
- Greatest amount of data showing reduction in cardiovascular risk



Adapted from: Bays HE, et al. 2020. <https://obesitymedicine.org/obesity-algorithm/>. Accessed January 8, 2021. Copyright © 2021 AAPA, TOS, LLP. All rights reserved.

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Nutrition Plan	General Description	Types of Foods Recommended	Types of Foods to Avoid	Advantages	Disadvantages
<b>Low Fat</b>	Less than ~20% of calories from fat	Vegetables, whole grains, legumes, fruits, low fat or fat-free dairy, and lean meats and fish	Fat, red meats, sugar, and refined carbohydrates (ultra-processed foods)	Greater decrease in both LDL and total cholesterol	Hunger may be problematic
<b>Low Carbohydrate</b>	Less than 150 grams of carbohydrates per day  Very low carbohydrate nutrition plan: less than 50 grams of carbohydrates per day	Non-starchy vegetables, leafy greens, low sugar fruits, nuts, seeds, eggs, meats and fish, some full-fat dairy, and natural oils and fats	Starchy foods, sugar, refined carbohydrates, trans fats, and ultra-processed foods	Greater reductions in triglycerides, insulin, glucose, inflammation; greater increases in HDL  May reduce hunger  Greater weight reduction in the first 6 months vs. other nutrition plans	Some individuals may experience increases in LDL on a very-low-carbohydrate diet  May induce gout flares early on
<b>Mediterranean</b>	40% of calories from fat  Dietary pattern of citizens of Mediterranean countries	Olive oil, vegetables, fruits, legumes, whole grains, nuts, seeds, fish, and a moderate intake of red wine, seafood, poultry, fermented dairy (cheese and yogurt), and eggs	Ultra-processed carbohydrates, sugar, and red meat	Countries following a Mediterranean lifestyle tend to have low rates of heart disease and long life-expectancies  The most robust data to support reductions in cardiovascular disease risk	May produce less weight reduction and less reductions in hunger vs. a low carbohydrate eating plan

Adapted from: Bays HE, et al. 2020. <https://obesitymedicine.org/obesity-algorithm/>. Accessed January 8, 2021. Copyright © 2021 AAPA, TOS, LLP. All rights reserved.

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### Meal Replacements

Can be used with any dietary approach to substitute for 1-2 meals per day

Partial meal replacement plans produce twice as much weight loss compared to equivalent calorie diets

Additive effects when using pharmacotherapy, behavior modification, and meal replacements

Seagle HM, et al. J Am Diet Assoc. 2008;108(2):330-346. Tsai AG, et al. Obesity (Silver Spring). 2006;14(8):1283-1293. Wadden TA, et al. Arch Intern Med. 2005;165(2):218-227. Wadden TA, et al. Obesity (Silver Spring). 2009;17(6):713-722. Copyright © 2021 AAPA, TOS, LLP. All rights reserved.

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**Calorie Restricted**

**Low Calorie**

- WW<sup>®</sup>, Jenny Craig<sup>®</sup>, NutriSystem<sup>®</sup>
- Calorie counting
- All guidelines recommend 500 kcal reduction per day

**Very Low Calorie**

- Prepackaged programs; e.g., Optifast<sup>®</sup> and Medifast<sup>®</sup>
- <800 kcal/day—need health professional supervision

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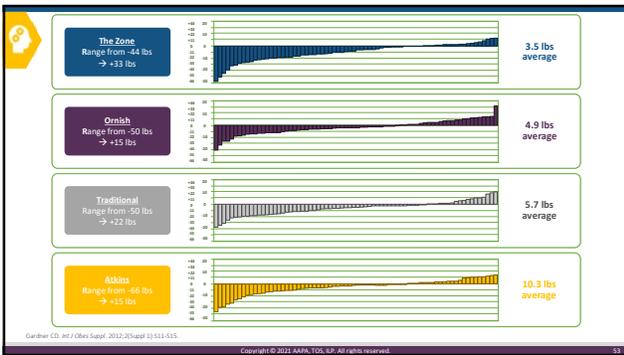
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**Advise**

**Limit ultra-processed foods**  
 People eat on average 500 kcals more per day when eating processed vs. whole foods

**Encourage whole foods:**  
 Vegetables, fruits, nuts, seeds, meat, poultry, fish, eggs, healthy fats (olive oil, avocado oil, avocados, nuts), unprocessed grains, legumes

**Read labels vs. marketing claims**  
 Provide resources: websites, hand-outs

Hall KD, et al. Cell Metab. 2019;30(1):67-77.e5. Copyright © 2021 AAPA, TOS, R.P. All rights reserved.

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Which of the following is 1 serving?

- A. Softball size of cereal
- B. Cassette tape size of bread
- C. Baseball size of pasta
- D. 6 dice-sized cubes of cheese

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### Serving Sizes

**Portion**

- Amount of food you choose to eat for a meal or snack
- Portion distortion can be significant

**Serving**

- Measured amount

<p><b>GRAIN PRODUCTS</b></p> <ul style="list-style-type: none"> <li>1 cup of cereal flakes = fist</li> <li>1 pancake = compact disc</li> <li>½ cup of cooked rice, pasta, or potato = ½ baseball</li> <li>1 slice of bread = cassette tape</li> <li>1 piece of cornbread = bar of soap</li> </ul>	<p><b>VEGETABLES AND FRUIT</b></p> <ul style="list-style-type: none"> <li>1 cup of salad greens = baseball</li> <li>1 baked potato = fist</li> <li>1 med. fruit = baseball</li> <li>½ cup of fresh fruit = ½ baseball</li> <li>½ cup of raisins = large egg</li> </ul>
<p><b>DAIRY AND CHEESE</b></p> <ul style="list-style-type: none"> <li>1 ½ oz. cheese = 4 stacked dice or 2 cheese slices</li> <li>½ cup of ice cream = ½ baseball</li> </ul>	<p><b>MEAT AND ALTERNATIVES</b></p> <ul style="list-style-type: none"> <li>3 oz. meat, fish, and poultry = deck of cards</li> <li>3 oz. grilled/baked fish = checkbook</li> </ul>
<p><b>FATS</b></p> <ul style="list-style-type: none"> <li>1 tsp. margarine or spread = 1 dice</li> </ul>	<p><b>2 Tbsp. peanut butter = ping pong ball</b></p>

National Heart, Lung, and Blood Institute. <https://www.nhlbi.nih.gov/health/educational/whycare/whycare-portion-distortion.htm>. Accessed January 27, 2021.

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### Agree

- Use motivational Interviewing and shared decision making to develop a nutrition plan together with your patient



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**Assist/Arrange**

- Resources:
  - EatRight.org
  - NHLBI Portion Distortion
    - <https://www.nhlbi.nih.gov/health/educational/wecan/eat-right/portion-distortion.htm>
  - Nutrition.gov
  - DietDoctor.com
  - SkinnyFaste.com
- Apps:
  - MyFitnessPal
  - Losett
  - Carb Manager
- Referrals: Commercial plans, online programs, registered dietitians, obesity medicine provider, community resources

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**Conclusion**

- There is no one size fits all nutrition plan!
- Base your nutrition plan on your patient's metabolic profile, medical history, past nutrition history, dietary preferences, cultural and social background, and other factors that may influence their nutrition
- Adherence is KEY
- Use motivational interviewing and shared decision making to facilitate nutrition behavior change
- Make appropriate referrals or schedule follow-ups if you are managing nutrition

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**Physical Activity**



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### According to WHO: Risks of Sedentary Lifestyles

- 2 million deaths per year are attributed to physical inactivity
- Among the 10 leading causes of death and disability in the world
- Increases all causes of mortality
- Doubles the risk of cardiovascular diseases, diabetes, and obesity
- Increases the risks of colon cancer, high blood pressure, osteoporosis, lipid disorders, depression, and anxiety
- 60 to 85% of people in the world lead sedentary lifestyles, making it one of the more serious yet *insufficiently addressed* public health problems of our time

World Health Organization. <https://www.who.int/news/item/04-04-2020-physical-inactivity-a-leading-cause-of-disease-and-disability-warns-who>  
 \*Non-Sedentary%20lifestyle%20research%20for%20action%20series%20part%202%20order%20of%20prevention%20and%20anxiety. Accessed January 12, 2021.  
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### According to the CDC

**PHYSICAL ACTIVITY SAVES LIVES AND PROTECTS HEALTH**

1 IN 10 premature deaths could be prevented by getting enough physical activity.

It could also prevent:

- 1 IN 8 cases of breast cancer
- 1 IN 8 cases of colorectal cancer
- 1 IN 12 cases of diabetes
- 1 IN 15 cases of heart disease

*If you could package physical activity into a pill, it would be the most effective drug on the market.*

**Dr. Ruth Petersen, Director of CDC's Division of Nutrition, Physical Activity, and Obesity**

Centers for Disease Control. [https://www.cdc.gov/physicalactivity/about-physical-activity/facts/healthy-strong-america-201902\\_508.pdf](https://www.cdc.gov/physicalactivity/about-physical-activity/facts/healthy-strong-america-201902_508.pdf). Accessed January 12, 2021.  
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### Cardiorespiratory Fitness and Premature Death



- Low cardiorespiratory fitness is the number one predictor of premature death
  - Protective effect of fitness against other risks (eg, smoking, obesity, hypertension, hyperlipidemia, diabetes)
- High cardiorespiratory fitness is protective against CVD mortality even at high BMIs
- Elevated risk for CVD mortality with low cardiorespiratory fitness and low BMI vs high cardiorespiratory fitness and high BMI

BMI, body mass index; CVD, cardiovascular disease.  
 Blair SN, et al. JAMA. 1996;276(3):205-210. Church T, et al. Arch Intern Med. 2005;165(18):2114-2120.  
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**Executive Summary of 2018 Physical Activity Guidelines  
Advisory Committee Scientific Report**

**Benefits (strong evidence)**

- Improves
  - Sleep
  - Executive function
  - Perceived quality of life
  - Physical function
  - Insulin sensitivity
- Reduces
  - Depression and depressive symptoms
  - Anxiety



US Department of Health and Human Services. [https://health.gov/sites/default/files/2019-09/PAG\\_Advisory\\_Committee\\_Report.pdf](https://health.gov/sites/default/files/2019-09/PAG_Advisory_Committee_Report.pdf). Accessed January 12, 2021.

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**Executive Summary of 2018 Physical Activity Guidelines  
Advisory Committee Scientific Report**

- Prevents or minimizes excessive weight gain in adults; prevents obesity
- Reduces risk of:
  - Excessive increases in body weight and adiposity in children ages 3 to 17 years
  - Breast cancer, colon cancer, cancers of the bladder, endometrium, esophagus, kidney, lung, and stomach
  - Development of a new chronic condition
  - Progression of current condition
- In pregnancy, reduces risk of:
  - Excessive weight gain
  - Gestational diabetes
  - Postpartum depression



US Department of Health and Human Services. [https://health.gov/sites/default/files/2019-09/PAG\\_Advisory\\_Committee\\_Report.pdf](https://health.gov/sites/default/files/2019-09/PAG_Advisory_Committee_Report.pdf). Accessed January 12, 2021.

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**Key Physical Activity Guidelines for Adults**

- At least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) per week of **moderate-intensity** aerobic physical activity
- OR
- 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) per week of **vigorous-intensity** aerobic physical activity
- Additional health benefits beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity a week
- Spread out activity over the week
- Adults should also perform muscle-strengthening activities 2 or more days per week

Adapted from: US Department of Health and Human Services. Physical Activity Guidelines for Americans, 2nd Edition. [https://health.gov/sites/default/files/2019-09/Physical\\_Activity\\_Guidelines\\_2nd\\_edition.pdf](https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf). Accessed January 12, 2021.

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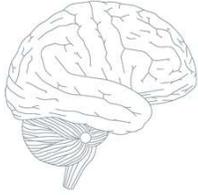
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### Hormonal Regulation of Physical Activity

- The hypothalamus plays a central role in the control of physical activity and NEAT (Non-Exercise Activity Thermogenesis)
- Orexin neurons in the hypothalamus integrate physiological and metabolic information and modulate physical activity (also modulate sleep and appetite)
- Overall effect is to increase activity, wakefulness, and appetite
- Function of the orexin system varies with lifestyle and age, generally decreasing with advancing age



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### Orexin

- People with obesity have lower circulating levels of orexin and impaired orexin receptor activity in adipose tissue
- Orexin-producing cells are inhibited by leptin and glucose, and activated by ghrelin and hypoglycemia
- Important link between metabolism and sleep regulation



Adami JA, et al. Int J Obes Relat Metab Disord. 2002;26(2):274-276. Digby E, et al. J Endocrinol. 2006;191(1):129-136. Brodare-Roch C, et al. Nat Med. 2007;13(2):150-155. Hutsuka A, et al. Front Endocrinol (Lausanne). 2015;6:148. Sakuma T. Nat Rev Neurosci. 2007;8:175-181.

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### ? Incorporating Physical Activity Into Practice

- Ask: "Physical activity is an important component of your overall health. Is it okay if we talk about your physical activity today?"
- Assess: PAVS (physical activity vital sign)
- The PAVS consists of 2 questions:
  - "On average, how many days per week do you engage in moderate to strenuous exercise like a brisk walk?"
  - "On average, how many minutes do you engage in exercise at this level?"

American College of Sports Medicine. 2018. <http://www.exercisemedicine.org/>. Accessed January 13, 2021.

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### Physical Activity History

- Current activity: FITTE (frequency, intensity, type, time, enjoyment)
- Previous activities: likes/dislikes
- Reason for discontinuing
  - When? What? Why?
- Perceived barriers
- Readiness?
- Access to safe places to be active



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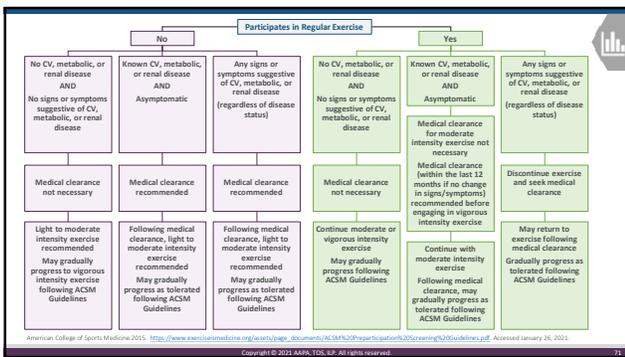
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### Physical Activity Prescription

Based on readiness to change, medical conditions, barriers, mobility, preferences, etc.

Use Motivational Interviewing!

Agree on SMART goals

FITTE-VP principles

FITTE-VP: Frequency, Intensity, Time, Type, Enjoyment, Volume, and Progression.

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**Example of a Physical Activity Prescription**

- FITTE-VP: frequency, intensity, type, time, enjoyment, volume, progression
- Walk at a brisk pace for 20 minutes
- Three times a week: Monday, Wednesday, Friday at 7:00 a.m.
- Listen to favorite podcast
- Volume: 60 minutes moderate intensity physical activity per week
- Increase by 5 minutes every 2 weeks

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**Assist/Arrange**

**Resources:**

- <https://www.exerciseismedicine.org/>
- <https://www.nutrition.gov/topics/exercise-and-fitness>
- <https://www.hhs.gov/fitness/resource-center/physical-activity-resources/index.html>
- <https://www.cdc.gov/nccdphp/dnpao/state-local-programs/physicalactivity.html>
- <https://www.nih.gov/health-information/physical-wellness-toolkit-more-resources>

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**Develop Your List of Local Referrals**

- Physical therapists
- Aquatic programs
- Online programs/DVDs
- Community programs
- Exercise physiologists
  - EIM credential program: <http://certification.acsm.org/exercise-is-medicine-credential>
- Exercise professionals
  - Certified through an NCCA-accredited association



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**Non-Exercise Activity Thermogenesis (NEAT)**

- Be aware of **compensation**
- Reduce and break up sedentary time
- Promote movement at work and home; encourage active hobbies
- Encourage use of tracking devices (pedometers, step trackers, fitness trackers, smart watches, smart phones, etc.)



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**Conclusion**

- Physical activity and physical fitness are crucial components of overall health
- The effects of physical activity are far-reaching and very complex
- Our job as providers
  - Educate our patients on the impact of physical activity
  - Help our patients set realistic goals and expectations
  - Support our patients where they are in their physical activity journey and provide guidance, accountability, and resources

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**Take Home Points**



- Use the 5As as a framework to address health behaviors
- Use motivational interviewing when assessing health behaviors and moving patients towards the "action" stage
- Use shared decision making and CBT when developing a plan
- When you address lifestyle, you are addressing the root of most chronic medical conditions, and you can **reverse, resolve, and prevent disease**

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Conclusion



- 01 Obesity is a multicausal disease
- 02 Reducing weight bias and stigma can help improve health outcomes for individuals with obesity
- 03 Nutrition and physical activity play a crucial role in health and should be assessed and discussed with patients (with permission)

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