OBESITY MANAGEMENT IN PRIMARY CARE TRAINING AND CERTIFICATE PROGRAM

Foundations of Treatment

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

AAPA THE OBESITY SOCIETY NACE

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

1

Commercial Support

This activity was sponsored by an educational grant from Novo Nordisk, Inc.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

2

Faculty and Disclosure Statement

Karli Burridge is an internationally respected obesity medicine PA. She has received the highest level of training in obesity medicine for PAs, receiving the Certificate of Advanced Education in Obesity Management from the Obesity Medicine Association (OMA), and is a Fellow of OMA. She is the recipient of the 2017 OMA Committee Leadership Award, the 2018 Dr. Vernon B Astler Award, and the 2020 Dr. Raymond E. Dietz Meritorious Service Award for her contributions to the Obesity Medicine Association.

Karli is heavily involved in educating clinicians to expand the understanding of obesity as a complex chronic disease. She is co-founder and President of PAs in Obesity Medicine, as well as a Board member of the Illinois Obesity Society and Chair of the OMA membership committee . She has been a guest lecturer on obesity at several prestigious medical schools, including at Yale School of Medicine Online PA Program and Loma Linda University School of Medicine. She has published multiple papers and Clinical Practice Statements in the *Obesity Pillars* journal and is a co-author of OMA's Obesity Algorithm®.

Karli founded her company, Gaining Health, in 2020 to provide resources and tools for clinicians who want to start or optimize an obesity management program without having to recreate the wheel. More than anything, she appreciates being able to help educate and support other healthcare providers on how to provide optimal evidence-based care for individuals with pre-obesity and obesity.

Disclosures:
- **Consultant:** Novo Nordisk, Bariatric Advantage
- **Advisor:** Gelesis Biotechnology, Currax Pharmaceuticals, Vivus
- **Speaker's Bureau:** Currax Pharmaceuticals, Vivus

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

3

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.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

4

Behavioral Interventions

- Interventions designed to affect the actions that individuals take with regard to their health
- Integrated into lifestyle interventions

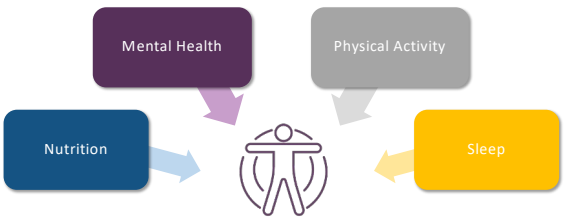
- 5As
- Stages of Change (Transtheoretical Model)
- Motivational Interviewing
- Cognitive Behavioral Therapy

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/NBK25532/. Accessed February 10, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

5

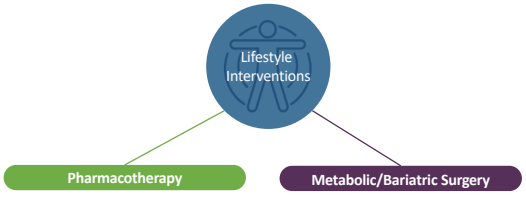
Lifestyle Interventions



Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

6

Comprehensive Obesity Management



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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

7

Behavioral Interventions

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

8

Behavioral Interventions

Don't forget that obesity is a **neurobehavioral disease**

Regardless of neurotransmitters and hormones, behavior change is HARD. ***Why?***

Many of our behaviors are habits

Habits are ingrained neurological patterns that allow our brains to conserve energy	We make more than 200 decisions each day about food, most of which are subconscious	Our lives are perfectly designed to continue our current habits	Environment, advertising and marketing, sight/smell, stress, emotions, time of day, social factors all affect behaviors

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

9

5 As of Behavior Change

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

10

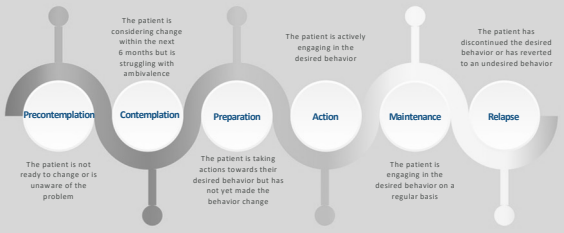
You are discussing obesity management with a patient, and they indicate that they've been thinking about increasing their physical activity but they think it's too cold to get outside, so they think they may start following the winter. What stage of change is this patient in?

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

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

11

Stages of Change (Transtheoretical Model)



Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

12

Motivational Interviewing (MI)

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

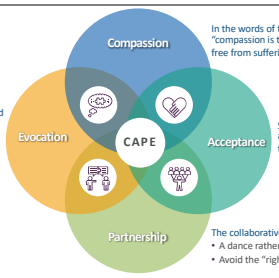
- Powerful communication style for people in contemplation/preparation stages
- Helps move a patient from ambivalence towards action by strengthening the patient's OWN motivation and commitment to change

Miller WR, Rollnick S. Motivational Interviewing: Helping People Change. 3rd ed. Guilford Press; 2013.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

13

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"

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

14

Core Communication Skills of MI: OARS

Open-ended Questions
Allows the patient to express how they feel, which is important in resolving ambivalence

Affirmations
Recognizing a good quality in another person and using this to build their confidence in changing their behavior

Reflections
Can be simple or complex
- In a **simple** reflection, you may repeat what the person said, or you may rephrase what they said
- In a **complex** 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

Summaries
Selectively summarize the change talk and turn this into an actionable plan

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

15

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.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

16

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

17

"The food you eat can be either the safest and most powerful form of medicine or the slowest form of poison".

~Ann Wigmore

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

18

Taking a Nutrition History

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

19

5As of Behavior Change

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

20

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?"

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

21

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

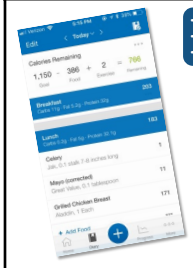
C. It requires access to a computer or app

D. Patient literacy may be a disadvantage

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

22

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

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

23

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

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

24

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

25

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*!

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

26

What Are Macronutrients??

Nutrients that provide calories:

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

27

Order of Substrate Utilization

ALCOHOL

GLUCOSE

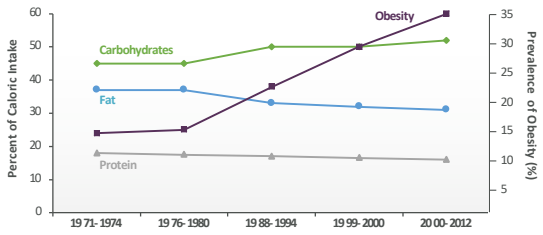
FAT

PROTEIN

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

28

Change in Dietary Composition in Relation to Obesity Prevalence



Adapted from: Flegal KM, et al. *Int J Obes.* 1998;22(1):39-47. Hedley AA, et al. *JAMA.* 2004;291(23):2847-2850. Flegal KM, et al. *JAMA.* 2012;307(5):491-497.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

29

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 HE, et al. 2020. https://obesitymedicine.org/obesity-algorithm/. Accessed January 8, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

30

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)

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

31

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.
Stedman NG, et al. *Obesity: Evaluation and Treatment Essentials*. CRC Press, LLC;2010.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

32

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.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

33

Micronutrients

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 Accessed February 10, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

34

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.

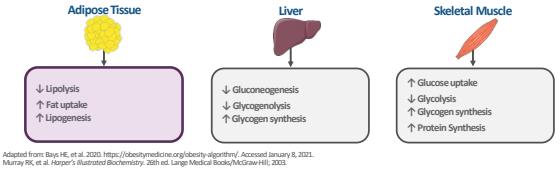
Dietary Guidelines for Americans 2015-2020, Eighth Edition. https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf Accessed February 10, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

35

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

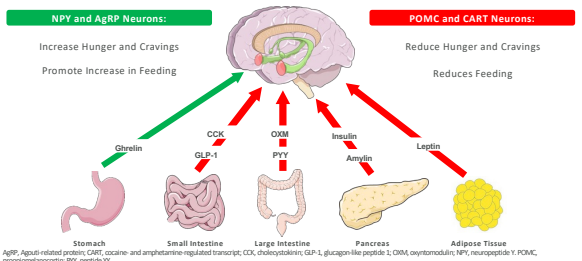


Adapted from: Bays HE, et al. 2020. https://obesitymedicine.org/obesity-algorithm/. Accessed January 8, 2021.
Murray RK, et al. *Harper's Illustrated Biochemistry*. 26th ed. Lange Medical Books/McGraw-Hill; 2003.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

36

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



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. 8th Ed. McGraw Hill; 2018.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

37

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 © 2022 AAPA, TOS, NACE. All rights reserved.

38

Macronutrient Manipulation

Carbohydrate Restricted

- Under 150 g carbohydrates per day
- Very low carbohydrate: under 50 g carbohydrates per day
- Greater reduction in triglycerides, serum glucose, hemoglobin A1c, insulin; greater increases in HDL
- In first 6 months, greater weight loss
- Usually not calorie-restricted: may result in reduced hunger
- May induce gout flares early on; may increase LDL
- May increase energy expenditure during weight reduction maintenance
- Examples: Atkins, South Beach, Ketogenic

Fat Restricted

- 10-30% calories from fat
- Under 10% saturated fat
- Greater reduction in LDL cholesterol, BP (DASH)
- Usually calorie restricted; may result in greater hunger
- After 6 months, similar weight reduction as low carbohydrate plans
- Examples: DASH, Ornish

BP, blood pressure; DASH, dietary approaches to stop hypertension; HDL high-density lipoprotein; LDL, low-density lipoprotein.
Adapted from: Bays HE, et al. 2020. https://obesitymedicine.org/obesity-algorithm/. Accessed January 8, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

39

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

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

40

Ketogenic Nutrition Plan (cont.)

Encouraged

- Non-starchy vegetables
- Leafy greens
- Low sugar fruits: berries, avocados, olives
- Nuts, seeds
- Meats, poultry, fish, eggs
- Hard cheeses, grass-fed butter, olive oil

Discouraged

- Processed foods, sugar
- Cereals, breads, grains, legumes
- Starchy vegetables (examples: potatoes, corn)
- Foods with high glycemic index
- Most fruits
- Most dairy besides cheese
- Trans fats

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

41

Ornish Nutrition Plan

Encouraged

- Whole food in natural form
- Vegetables, fruits, legumes, whole grains
- One serving soy per day
- Green tea
- Fish oil
- Small frequent meals throughout the day

Discouraged

- Fat
  - Goal is under 10% calories from fat
- Cholesterol
  - Goal is under 10 mg per day
- Sugar, sodium, alcohol, and caffeine other than from green tea
  - Limit intake
- Avoid
  - Animal products
  - Trans fats
  - Refined carbohydrates and oils

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

42

DASH

Encouraged

- Vegetables, fruits, whole grains
- Low-fat dairy
- Fish, poultry, lean meats
- Nuts, seeds, legumes
- Fiber, calcium, magnesium, potassium

Discouraged

- Sodium
  - Limit to 1,500–2,300 mg per day
- Fat
  - Under 27% of calories per day
- Saturated fat
  - Under 6% of calories per day
- Cholesterol
  - Under 150 mg per day
- Avoid
  - Red and processed meat
  - Sugar

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

43

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 © 2022 AAPA, TOS, NACE. All rights reserved.

44

Nutrition Plan	General Description	Types of Foods Recommended	Types of Foods to Avoid	Advantages	Disadvantages
Low Fat	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
Low Carbohydrate	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
Mediterranean	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 © 2022 AAPA, TOS, NACE. All rights reserved.

45

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. / *Am Diet Assoc.* 2009;109(2):330-346. Tsai AG, et al. *Obesity* (Silver Spring). 2006;14(8):1283-1293. Wadden TA, et al. *Arch Intern Med.* 2001;161(2):218-227. Wadden TA, et al. *Obesity* (Silver Spring). 2009;17(4):713-722.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

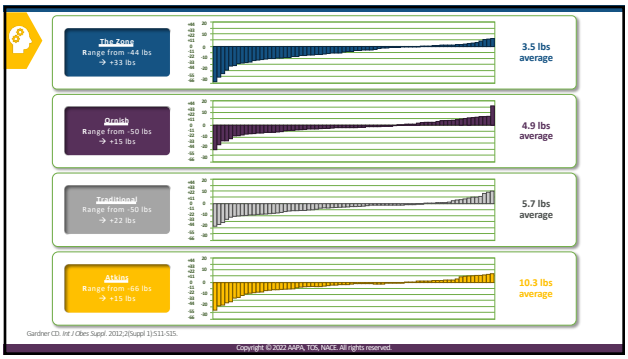
46

Calorie Restricted

Low Calorie	Very Low Calorie
• WW®, Jenny Craig®, NutriSystem® • Calorie counting • All guidelines recommend 500 kcal reduction per day	• Prepackaged programs; e.g., Optifast® and Medifast® • <800 kcal/day—need health professional supervision

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

47



Gardner CD. *Int J Obes Suppl.* 2012;2(Suppl 1):511-515.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

48

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.e3.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

49

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

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

50

Serving Sizes

Portion

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

Serving

- Measured amount

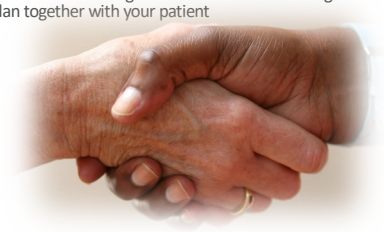
National Heart, Lung, and Blood Institute. https://www.nhlbi.nih.gov/health/educational/wecan/eat-right/portion-distortion.htm. Accessed January 27, 2021.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

51

Agree

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



Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

52

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
  - SkinnyTaste.com
- Apps:
  - MyFitnessPal
  - LoseIt
  - Carb Manager
- Referrals: Commercial plans, online programs, registered dietitians, obesity medicine provider, community resources

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

53

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

54

Physical Activity

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

55

According to WHO: Risks of Sedentary Lifestyles

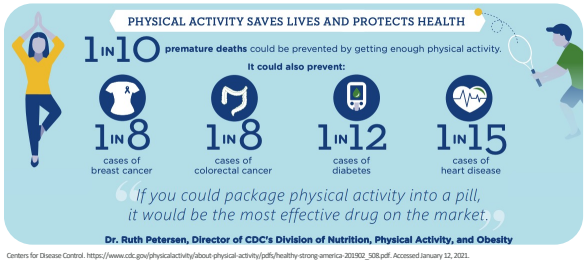
- **2 million deaths** per year are attributed to physical inactivity
- Among the **10 leading causes of death and disability** in the world
- Increases all causes of mortality
- Doubles the risk of cardiovascular diseases, diabetes, and obesity
- Increases the risks of colon cancer, high blood pressure, 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/04-04-2002-physical-inactivity-a-leading-cause-of-disease-and-disability-warns-wholl#:~:text=Sedentary%20lifestyles%20increase%20all%20causes,lipid%20disorders%2C%20depression%20and%20anxiety. Accessed January 12, 2021.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

56

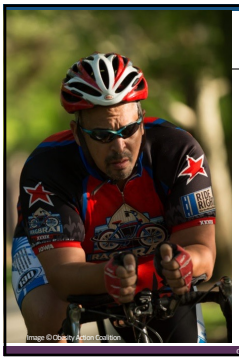
According to the CDC



Centers for Disease Control. https://www.cdc.gov/physicalactivity/about-physical-activity/pdfs/healthy-strong-america-201902_508.pdf. Accessed January 12, 2021.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

57



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.

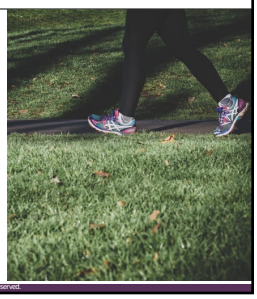
Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

58

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. Accessed January 12, 2021.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

59

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. Accessed January 12, 2021.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

60

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. Accessed January 12, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

61

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

62

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

Adam JA, et al. *Int J Obes Relat Metab Disord.* 2002;26(2):274-276. Digby JE, et al. *J Endocrinol.* 2006; 191(1):129-136. Brisbare-Roch C, et al. *Nat Med.* 2007;13(2):150-155. Inutsuka A, et al. *Front Endocrinol* (Lausanne). 2013;4:18. Sakurai T. *Nat Rev Neurosci.* 2007;8:171-181.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

63

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.exerciseismedicine.org/. Accessed January 13, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

64

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

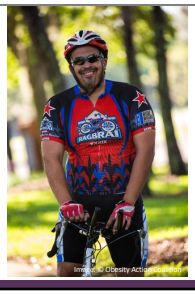
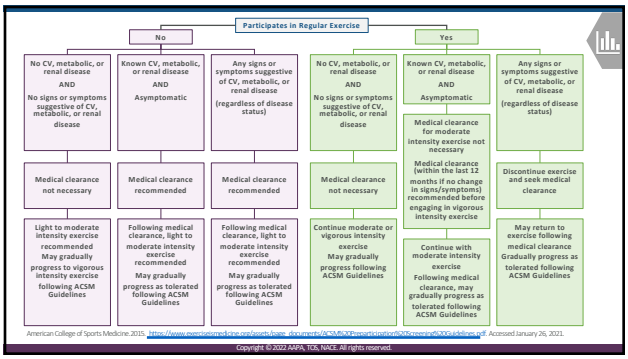


Image © Obesity Action Coalition

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

65



American College of Sports Medicine.2015. https://www.exerciseismedicine.org/assets/page_documents/ACSM%20Preparticipation%20Screening%20Guidelines.pdf. Accessed January 26, 2021.

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

66

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.

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

67

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

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

68

Assist/Arrange

Resources:

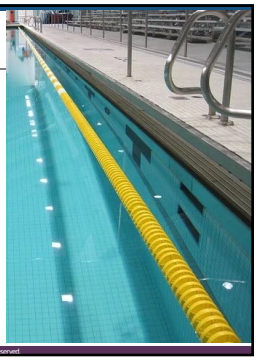
- https://www.exerciseismedicine.org/
- https://www.nutrition.gov/topics/exercise-and-fitness
- https://www.hhs.gov/fitness/resource-center/physical-activity-resources/index.html
- https://www.cdc.gov/nccdphp/dnpao/state-local-programs/physicalactivity.html
- https://www.nih.gov/health-information/physical-wellness-toolkit-more-resources

Copyright © 2022 AAPA, TCS, NACE. All rights reserved.

69

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



Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

70

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.)

Image: © Obesity Action Coalition

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

71

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

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

72

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**

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

73

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)

Copyright © 2022 AAPA, TOS, NACE. All rights reserved.

74