WELCOME to the *Obesity Care in All Ages ECHO*

Session 1, Why Obesity is a Disease, May 13, 2025

This ECHO is supported by the Walter and Carole Young Center for Digestive Health

Series Learning Objectives

- Describe obesity as a chronic disease, including evidence-based methods for evaluation and treatment
- Effectively communicate with patients about the health implications of obesity and its available treatment options
- Cultivate skills to effectively assess and treat patients with obesity in various care settings
- Identify when and how to refer patients to appropriate specialized obesity care services

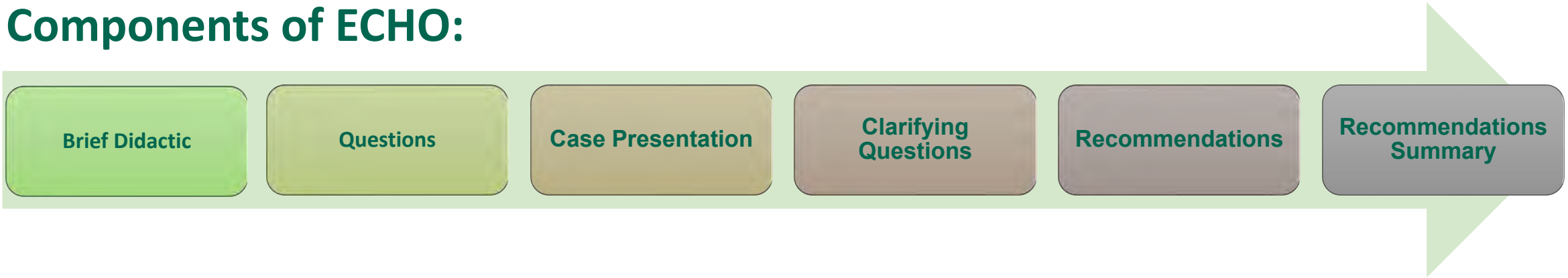
Series Sessions

Date	Session Title
5/13/2025	Why Obesity is a Disease
6/10/2025	Approach to the Patient with Obesity
7/8/2025	Optimizing the Use of Lifestyle-based Obesity Care
8/12/2025	How to Use Anti-Obesity Medications Effectively (GLP-1 agonist)
9/9/2025	How to Use Anti-Obesity Medications Effectively (Non GLP-1 agonist)
9/23/2025	Approach to the Pediatric Patient with Obesity – AAP Clinical Practice Guidelines
10/7/2025	How to Use Endoscopic Therapy Effectively
10/21/2025	Pediatric Anti-Obesity Medications and Bariatric Surgery
11/4/2025	Metabolic-Bariatric Surgery: Who, When, Why, and Which One
11/18/2025	Improving Equitable Access to Obesity Care

Project ECHO (Extension for Community Healthcare Outcomes)

- All teach, all learn.
- ECHO is a telementoring model that uses virtual technology to support case-based learning and to engage the wisdom and experience of all attending.
- Highly Interactive.

Components of ECHO:



Today's Program

- Brief housekeeping
- Didactic: Why Obesity is a Disease – Elizabeth Honigsberg, MD, MPH
- Role Play: Sarah Finn, MD and Abbey Berge-Clogston
- Discussion
- Summary
- Up Next

Housekeeping Notes

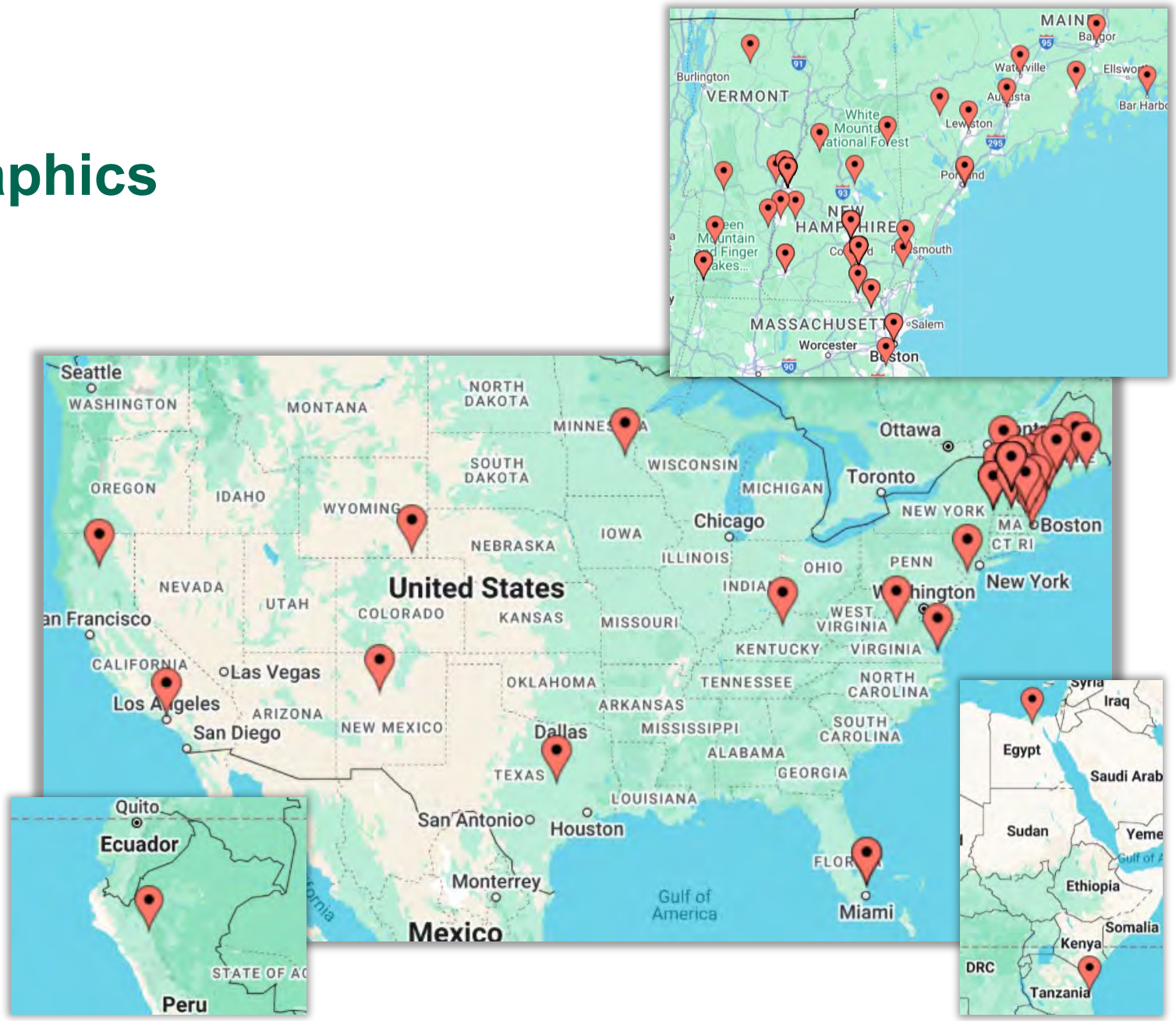
- Pre course survey: https://redcap.hitchcock.org/redcap/surveys/?s=EA47L8LEDJ43JTDN
- Raise virtual hand or enter comments in chat at any time. We will call on you when it works. Please mute otherwise.
- To protect individual privacy, please use non-identifying information when discussing cases.
- We will be recording the didactic part of these sessions. *Participating in these session is understood as consent to be recorded. Thank you!*
- Closed Captioning will be enabled during sessions
- Questions to ECHO Tech Support thru personal CHAT or ECHO@hitchcock.org

CME/CNE

- One hour of free CME/CNE is available for every session attended, up to 10 sessions.
- Track participation via DH iECHO site
- A link will be provided at the end of the course to submit your attendance and claim your CME/CNE

ECHO Participant Demographics
Total Registrants: 130

Professional Identities	
Nurse	39
Physician	37
Dietitians and Nutritionists	15
Administrator	7
Behavioral Health Professional	5
Physician Assistant/Medical Assistant	5
Other healthcare professional	4
Pharmacist	3
Patient navigator/healthcare educator	3
Child Development	2



Core Panel

- Abigail Berge-Clogston – Program Manager
- Amanda Boyd, MPH – Health Coach, Certified Personal Trainer
- Auden McClure, MD, MPH – Staff Physician, Pediatric Weight Center
- Charles Brackett, MD, MPH – Staff Physician, General Internal Medicine
- Elaine Banerjee, MD, MPH – Staff Physician, DH Weight Center
- Elizabeth Honigsberg, MD, MPH – Staff Physician, DH Weight Center
- Hannah Brilling, RDN, LD – Clinical Dietician
- Kimberly Dovin, MD – Staff Physician, DH Weight Center
- Kristin Wheeler, RN – Nurse, Weight Center
- Sarah Finn, MD – Interim Section Chief, DH Weight Center

Echo Session 1
Why Obesity is a Disease.

Elizabeth Honigsberg MD MPH FACS DABOM

May 13th, 2025

I have no financial interests or relationships to disclose.

There are four main objectives for today's discussion.

ASSESS	The current state of the obesity pandemic worldwide
UNDERSTAND	Obesity as a neurobiological/neuroendocrine disease
APPRECIATE	The multitude of factors that lead to the development of obesity
REVIEW	The various criteria for diagnosing the disease of obesity

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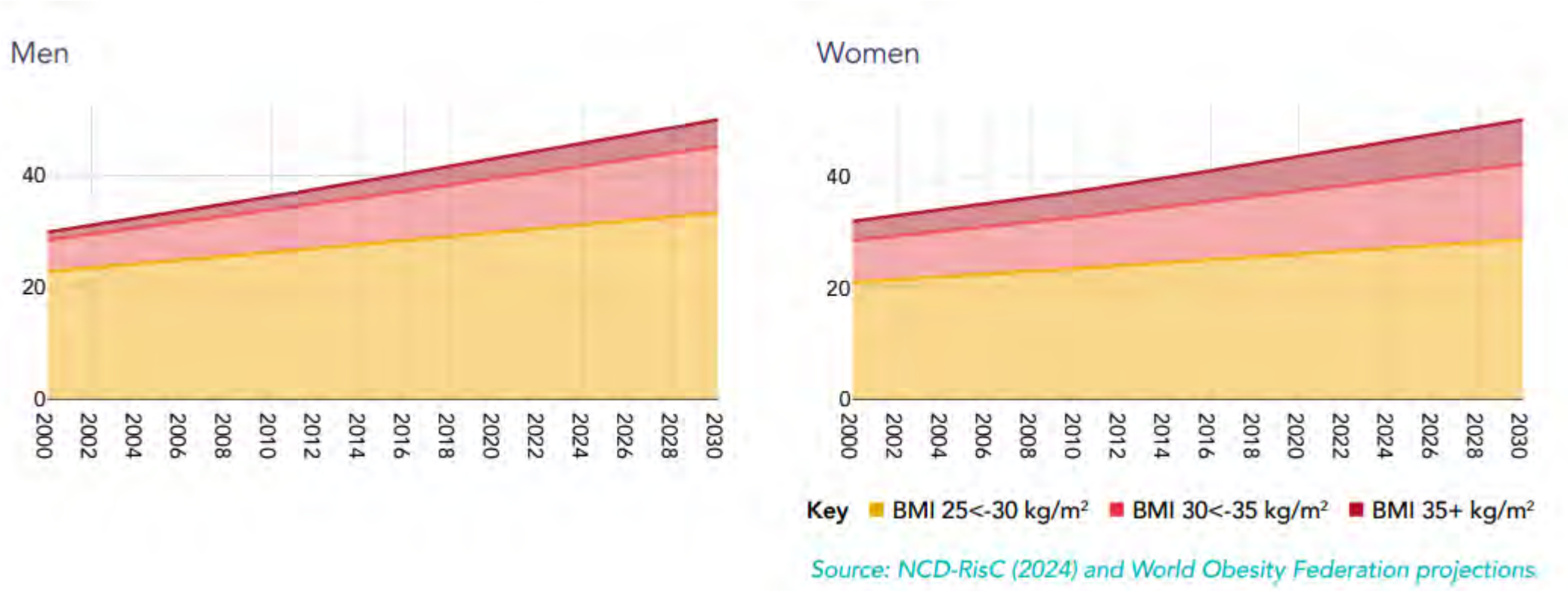
The current state of obesity worldwide.

Rates of men and women (20 years +) living with “high BMI” are increasing worldwide.



World Obesity Atlas 2025

By 2030, THREE BILLION adults will have “high BMI”, with 17% of men and 22% of women estimated to have BMI > 30 kg/m^2 (*and the world is NOT prepared*).

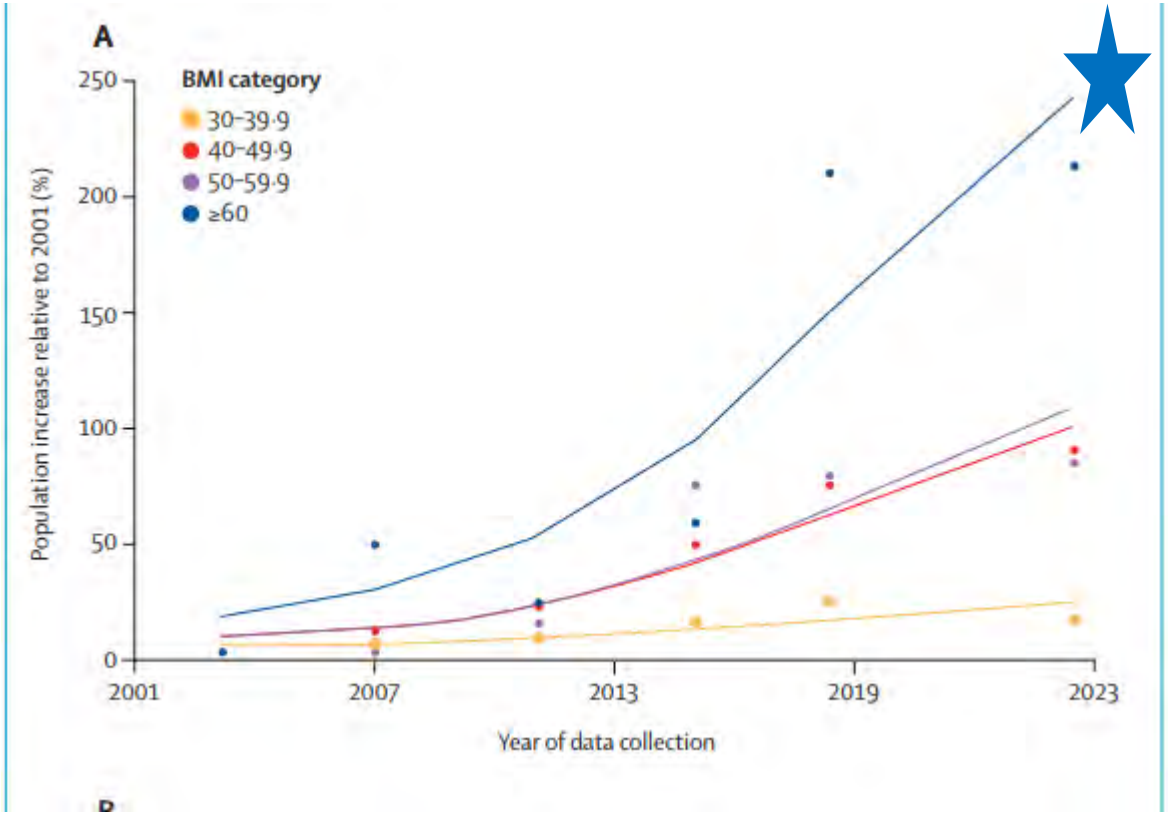
Yearly: 5 million/41 million adult deaths due to NCDs related to high BMIs.

4 million deaths from T2DM, CVA, CAD, CA.

Obesity rates are doubling across the globe, TRIPLING in low-income countries.

World Obesity Atlas 2024,2025

In the United States, the prevalence of “normal” weight and overweight has declined since 2001, while all obesity categories have increased over this timeframe.



The largest relative increase of > 200%!

Kachmar M et al. *The Lancet Diabetes Endocrinol 2025;* online April 24

This global systemic failure to slow the obesity pandemic must end.

- To do so, we must end:
  - The misunderstanding
  - The underinvestment
  - The fragmentation
  - The stigmatization

State of Obesity 2024: Better Policies for A Healthier America

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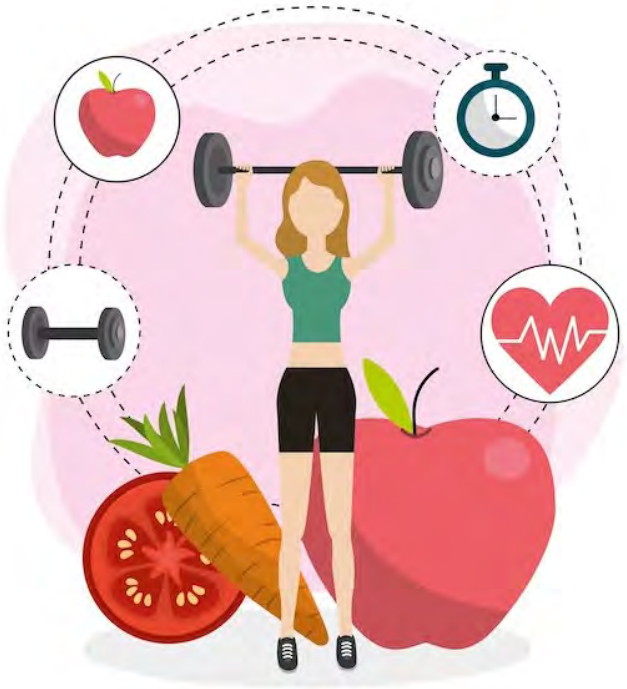
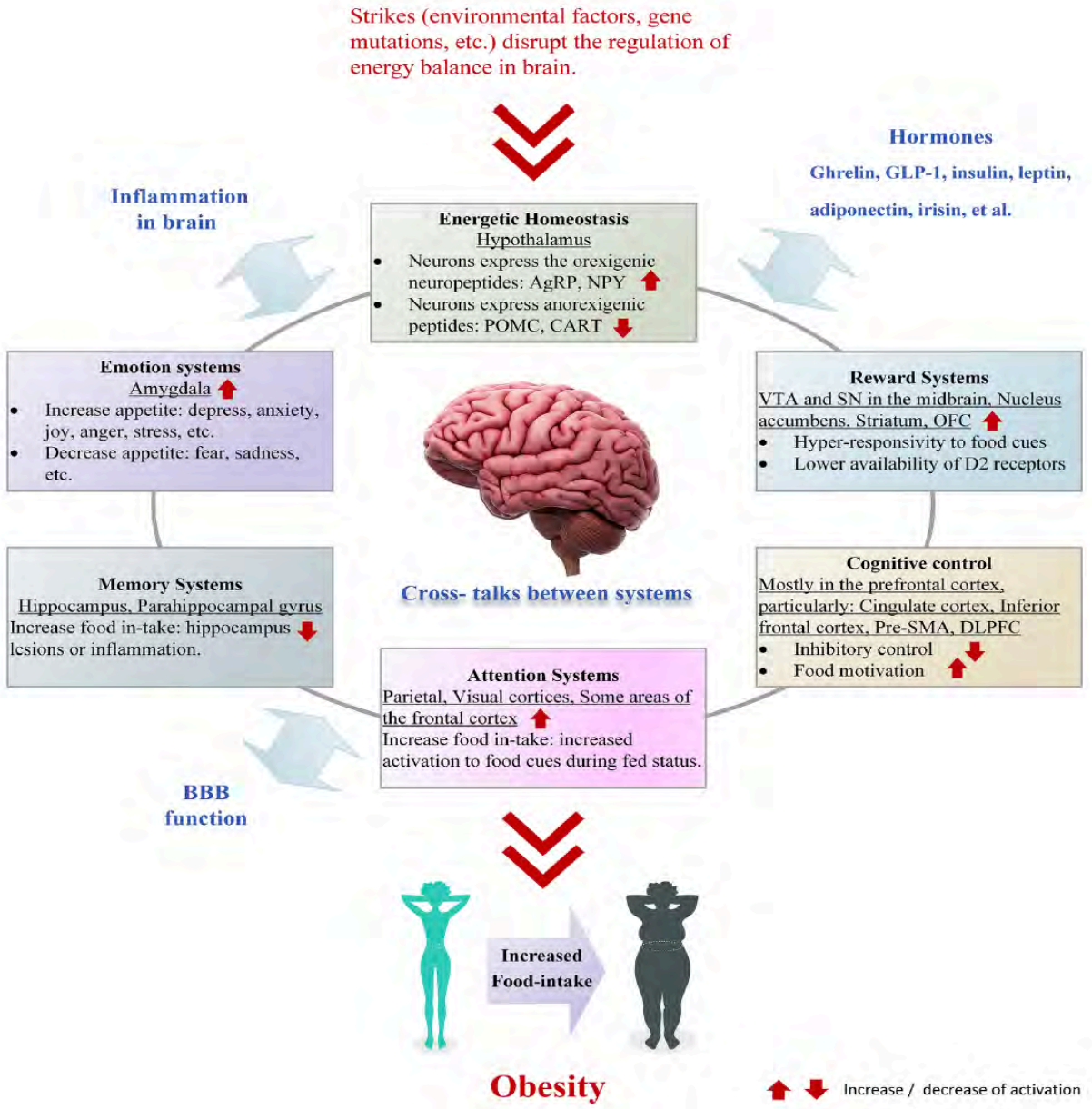
There is a fundamental misunderstanding about obesity…

THIS DOES NOT CAUSE OBESITY



THIS DOES NOT TREAT OBESITY

Both food intake and fat mass/set point are highly regulated by the brain.



Qu et al. *Obesity Surgery*. 2020; 30:1988–2002.

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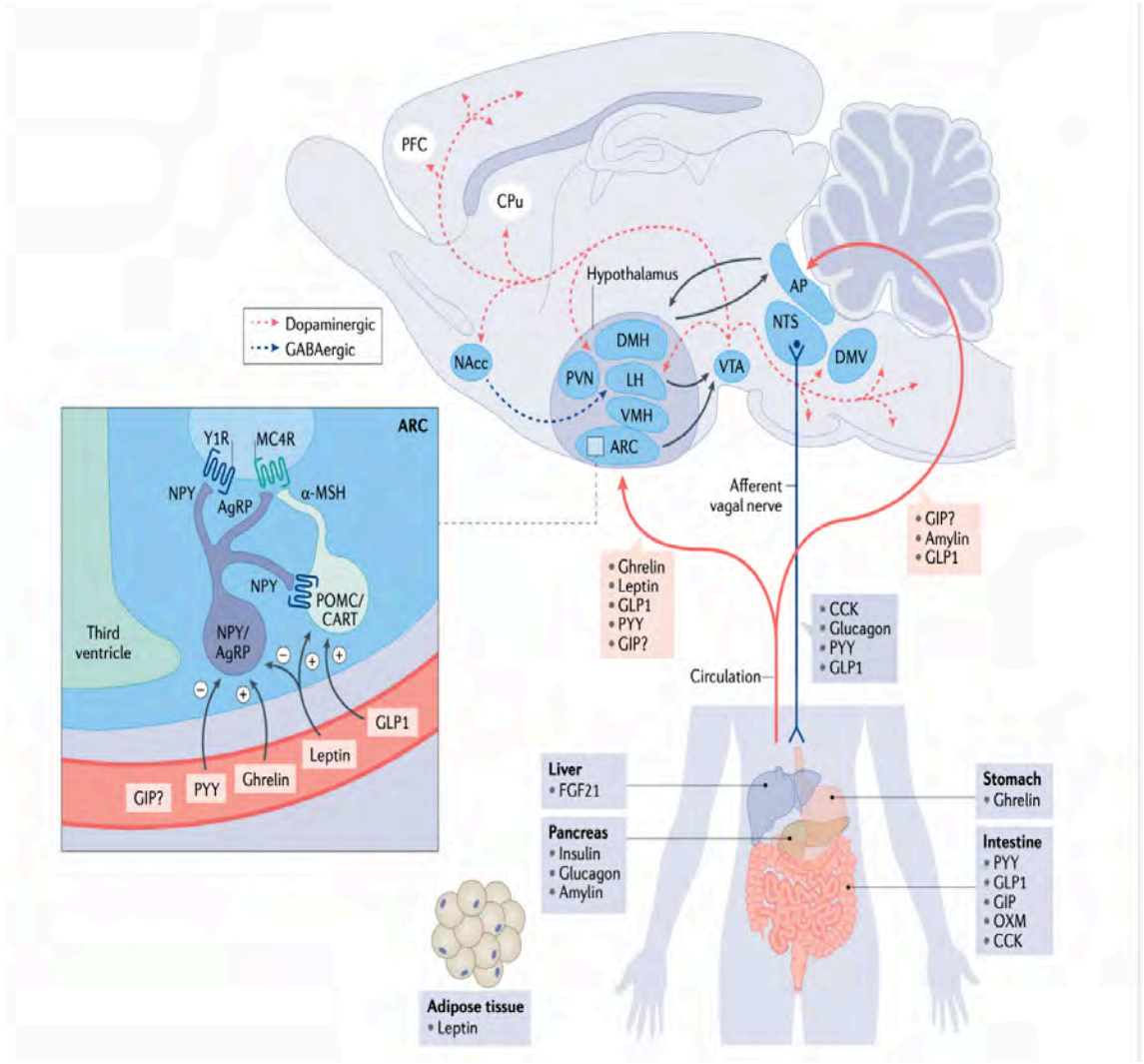
Various hunger and satiety hormones signal to the brain to affect food intake.



Muller et al. *Nature Reviews* 2022; 21:201-223

The brain sets AND defends a fat mass (set point) for everyone.

Genetics

Obesogenic medications

Sedentary lifestyle

Circadian disruption/sleep disruption

Chronic stress

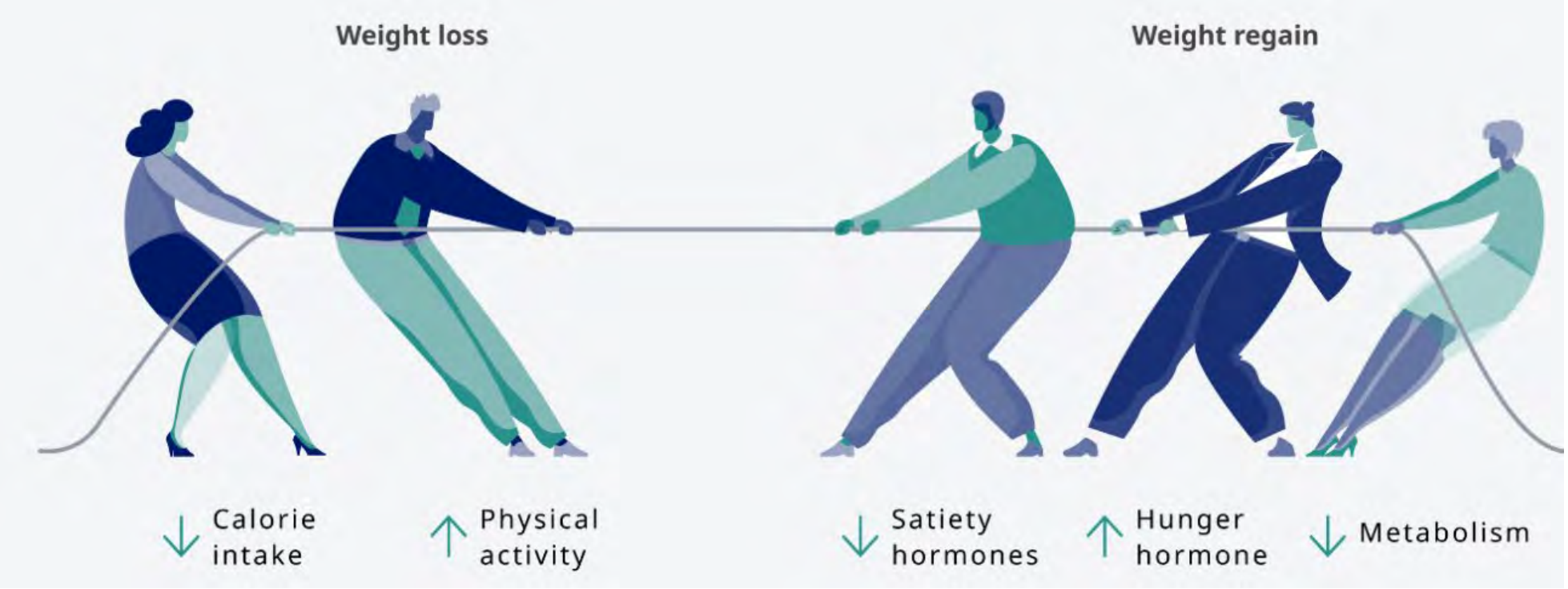
Social determinants of health

Altered food supply

In obesity, that fat mass/set point is abnormally high.

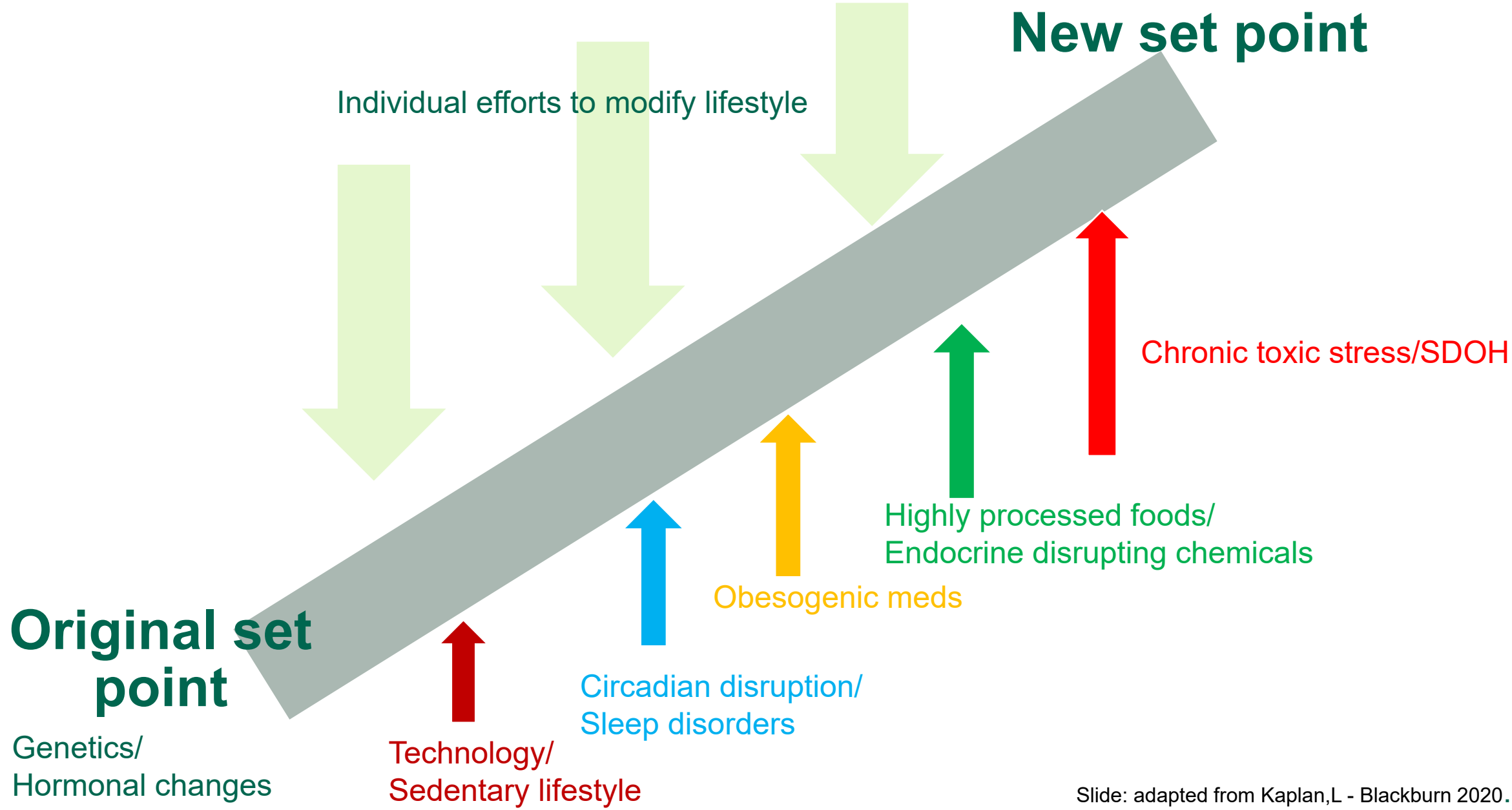
Slide: adapted from Kaplan,L - Blackburn 2020.

We have metabolically adapted to defend our fat mass.



www.rethinkobesity.com/metabolic-adaptation.html

What drives the development of obesity?



Slide: adapted from Kaplan,L - Blackburn 2020.

The definition of obesity is evolving as is the diagnostic criteria.

WHO: abnormal or excessive fat accumulation that presents a risk to health.

CDC: BMI > 30 kg/m^2

Obesity Medicine Association: A chronic, relapsing multi-factorial, neurobehavioral disease, wherein an increase in body fat promotes adipose tissue dysfunction and abnormal fat mass physical forces, resulting in adverse metabolic, biomechanical, and psychosocial health consequences.

The Lancet Commission 2025: provided explicit characterization of the illness intrinsically caused by excess adiposity and establish objective criteria for diagnosis.

Christensen et al. *Obesity Pillars 4.* 2022;100041
Rubino et al. *Lancet Diabetes Endocrinol;* 2025

OBESITY

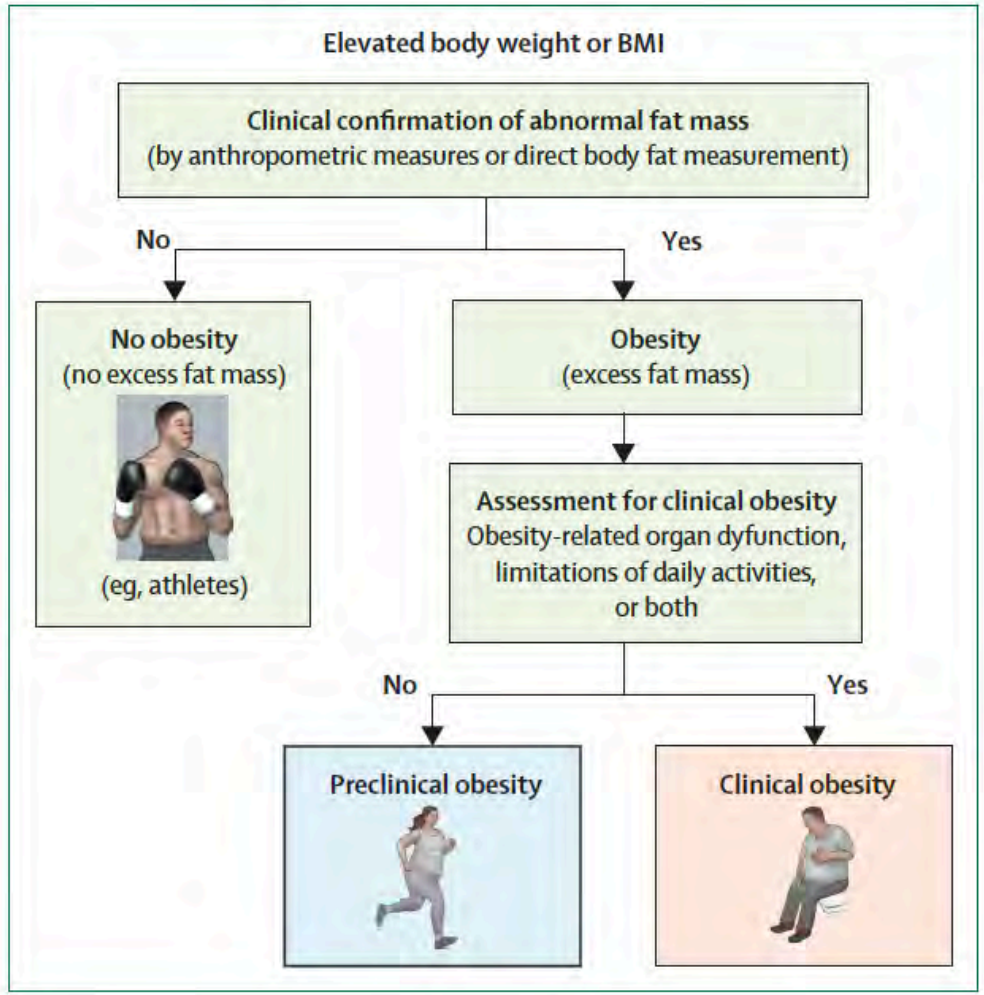
Excess fat mass +/- abnormal distribution or function

PRECLINICAL OBESITY

At increased risk of developing obesity related organ dysfunction, limitation of daily activities, or both

CLINCAL OBESITY

Chronic systemic illness with dysfunction of the tissues, organs, the entire individual



Rubino et al. *Lancet Diabetes Endocrinol;* 2025

The objectives for today's session.

ASSESS	The worldwide pandemic of obesity continues to worsen and low and middle income countries are least prepared.
UNDERSTAND	Obesity is a chronic, relapsing neurobiological and neurohormal disease whereby the affected individual CANNOT lower the set point with diet and exercise alone.
APPRECIATE	Both internal and external factors contribute to the development of obesity
REVIEW	Diagnosis still largely relies on BMI, however criteria is changing to reflect the greater importance of metabolic/orthopedic/psychosocial health than BMI alone.

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THANK YOU!

Role Play

WELCOME to the *Obesity Care in All Ages ECHO*

Session 2, Approach to the Patient with Obesity*, June 10th, 2025*

This ECHO is supported by the Walter and Carole Young Center for Digestive Health

Today's Program

- Brief housekeeping
- Didactic: Approach to the Patient with Obesity – Kimberly Dovin, MD
- Case Discussion
- Summary
- Up Next

APPROACH TO THE PATIENT WITH OBESITY

Kimberly Dovin, MD

Echo Series: Obesity Care in All Ages

Session #2

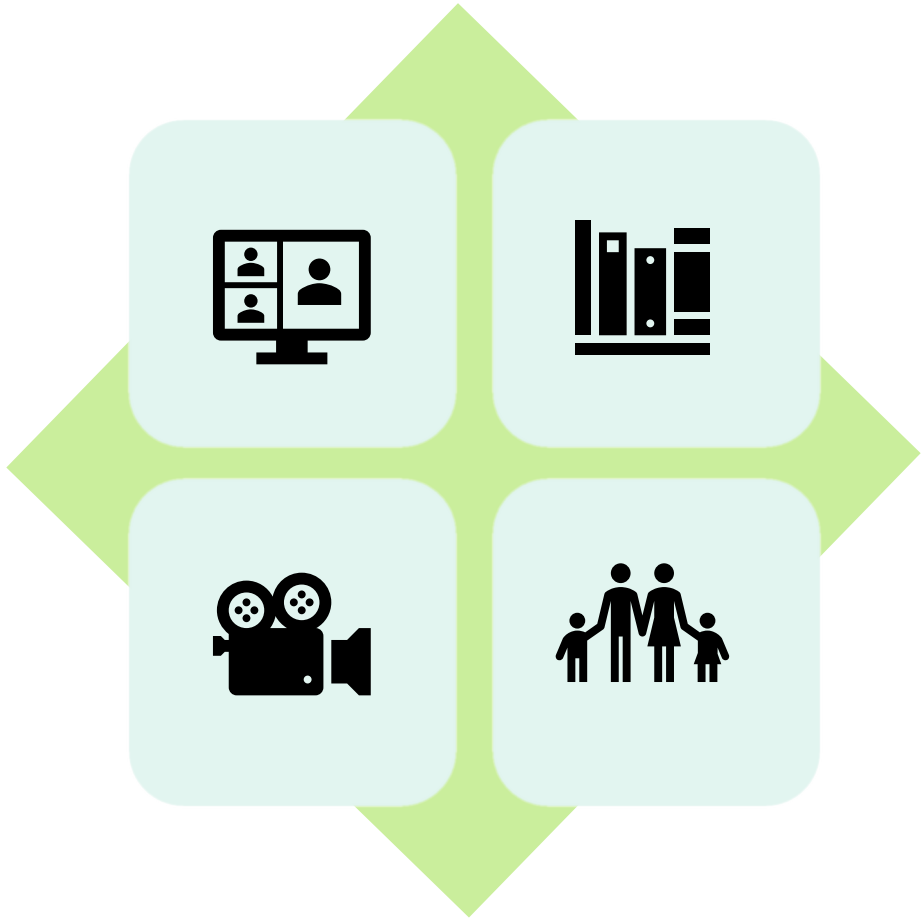
June 10, 2025

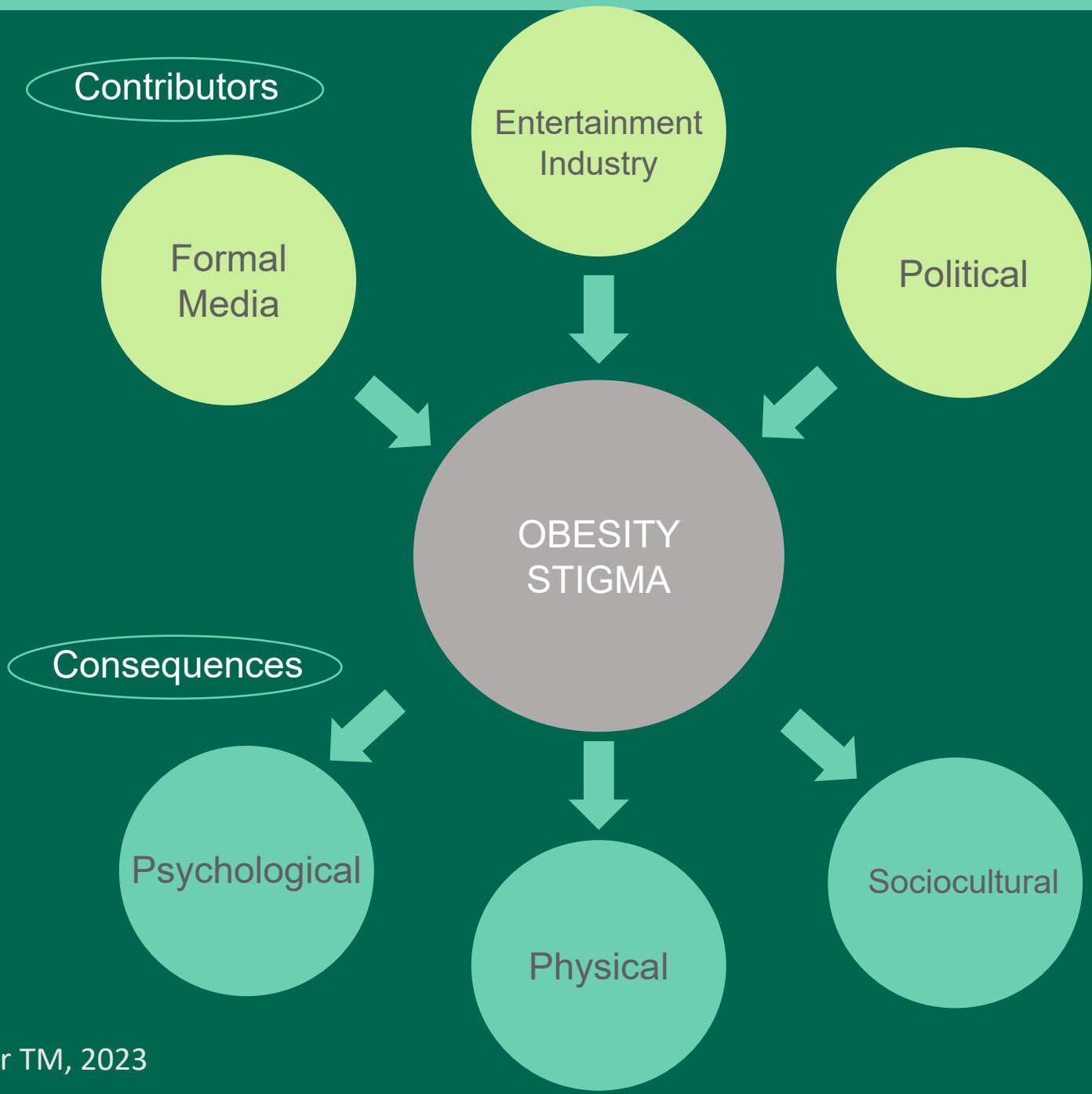
Goals

- How to talk to patients about weight
- Learn to take an obesity specific history
- Understand the evaluation of obesity to identify complications

Obesity Stigma and Bias

"Society regularly regards [persons with obesity] not as innocent victims, but as architects of their own ill health, personally responsible for their weight problems because of laziness and overeating."
-Rebecca Puhl and Chelsea Heuer

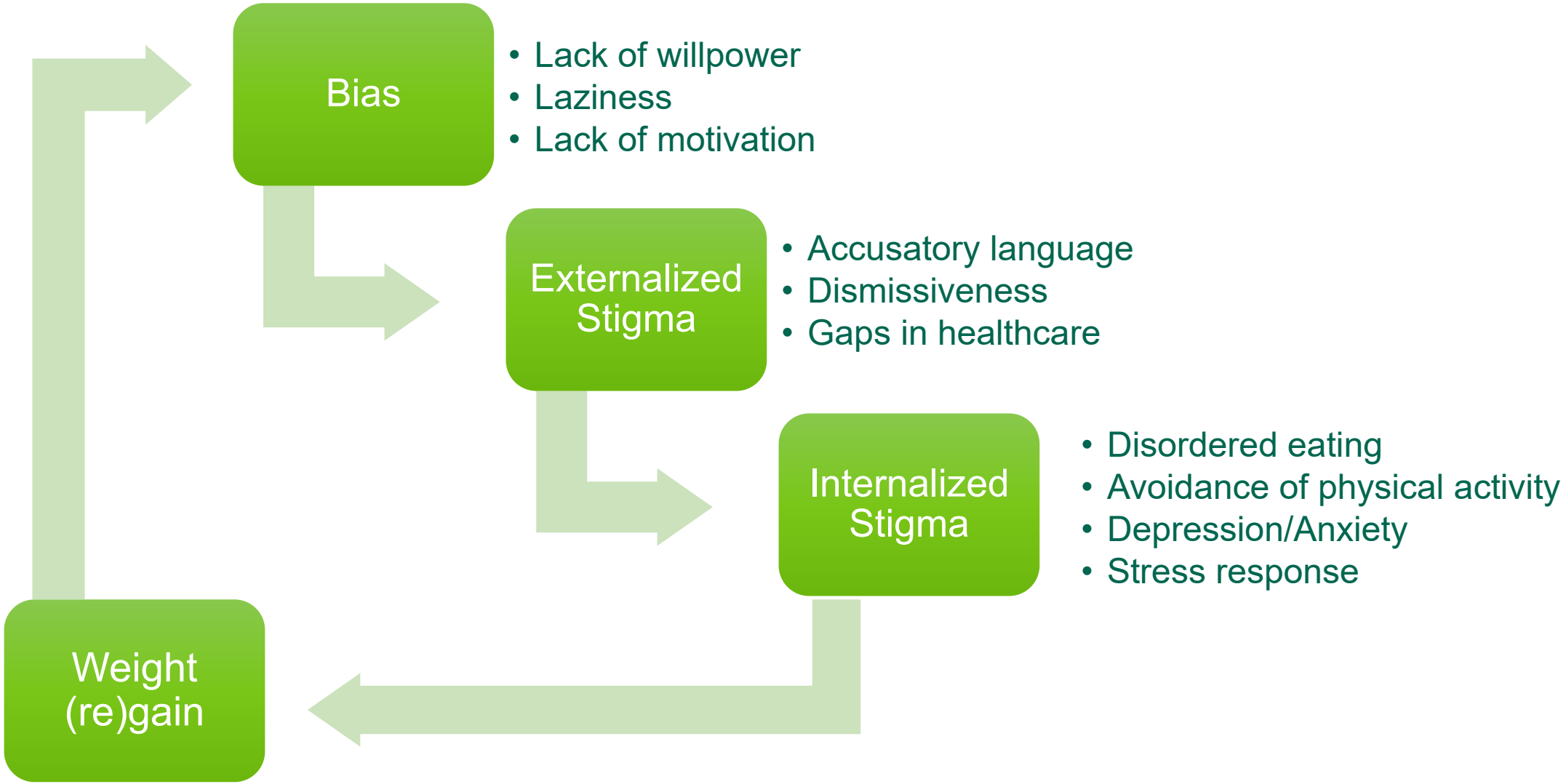




Westbury S, Oyebode O, van Rens T, Barber TM, 2023

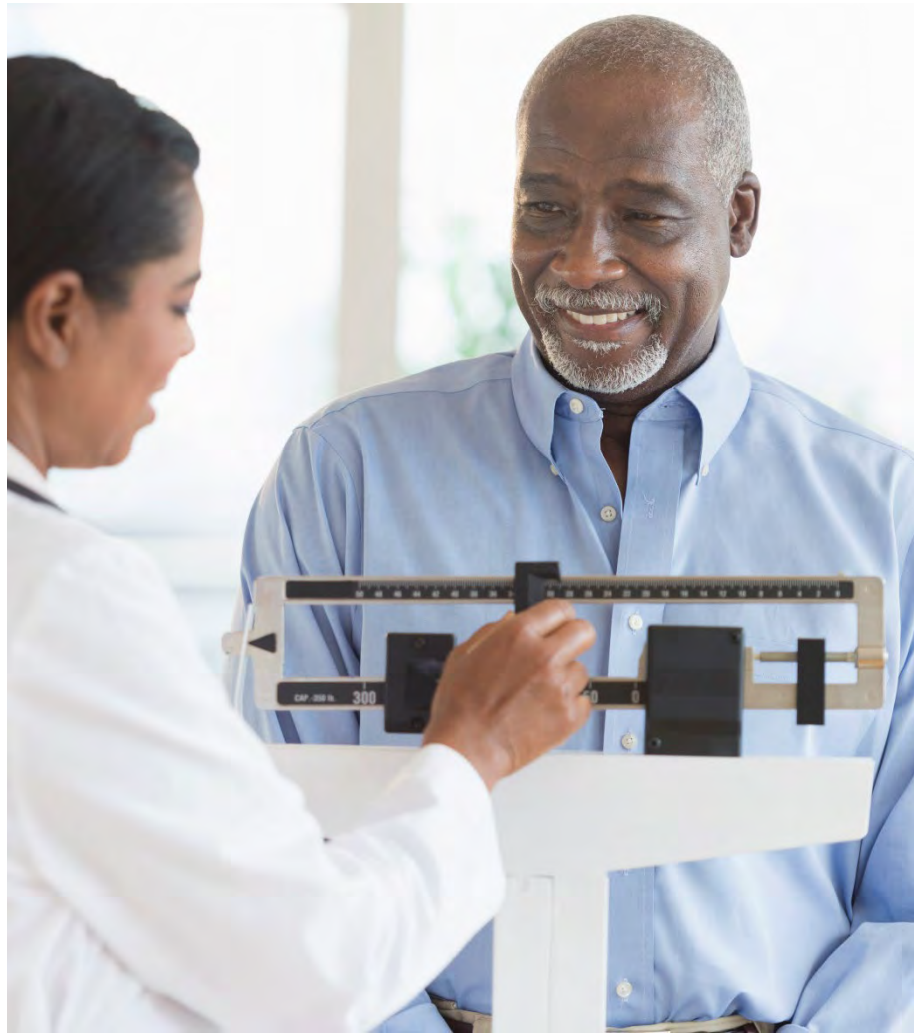
Obesity Stigma - **Medicine**

- 2nd only to family in perceived bias
- Less time/discussion
- Less evaluation/screening


Bias
• Lack of willpower
• Laziness
• Lack of motivation
Externalized Stigma
• Accusatory language
• Dismissiveness
• Gaps in healthcare
Internalized Stigma
• Disordered eating
• Avoidance of physical activity
• Depression/Anxiety
• Stress response
Weight (re)gain

Evaluation

- Starting the Conversation
- Take a weight history
- Assess symptoms and signs
- Set Goals
- (Re-)educate



Weight History

- “What is the story of your weight”
  - Did they have early childhood obesity (<5yo)
  - Stable adult weight?
  - Did they have any large gains and what might have been happening at that time?
  - Has it been gradual through adulthood?
  - How has excess weight impacted their life?

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Symptoms of Obesity

- Pervasive thoughts of food
- Excess or no hunger
- Abnormal satiation/satiety
- Craving
- Pain or discomfort
- Difficulty with daily activities due to size
- Fatigue
- SOB
- Low body image

Evaluation

Physical Exam

- Gen: central, gynecoid, generalized adiposity.
- VS, Waist and Neck circumference
- HEENT: Mallampati? Moon facies?
- Neck: buffalo hump,thyroid?
- CV: evidence of arrythmia?
- Abd: hepatomegaly?
- Ext: edema, cuffing?
- Gait: antalgic?
- Skin: acanthosis, hidradenitis, acne, hirsutism, abdominal striae, tender subcutaneous nodules, intertrigo

Evaluation (continued)

Laboratory evaluation

- CBC, CMP
- TSH
- Lipid panel
- FBS, A1c
- Vitamin D

Complications

- Obesogenic medications
- MASLD/MASH – Fib4 calculation
- OSA
- Eating disorders
- Contraindications to AOMs

Lipedema

Kruppa P, Georgiou I, et al PMID: 32762835; PMCID: PMC7465366.

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Goals of Treatment

- ~~BMI < 25~~
- Improvement in complications
- Symptom Resolution
- QOL
- BMI <30?
- BMI >= 23

Summary – Evaluating the Patient with Obesity

Approach patients with compassion

Take a disease-specific H&P

Set non-scale goals for treatment

- Kruppa P, Georgiou I, Biermann N, Prantl L, Klein-Weigel P, Ghods M. Lipedema-Pathogenesis, Diagnosis, and Treatment Options. Dtsch Arztebl Int. 2020 Jun 1;117(22-23):396-403. doi: 10.3238/arztebl.2020.0396. PMID: 32762835; PMCID: PMC7465366.
- Obesity Medicine Association. Pediatric Obesity Algorithm. https://obesitymedicine.org/resources/obesity-algorithm/. (Accessed = May 31, 2025)
- Pearl RL, Puhl RM, Himmelstein MS, Pinto AM, Foster GD. Weight Stigma and Weight-Related Health: Associations of Self-Report Measures Among Adults in Weight Management. Ann Behav Med. 2020 Nov 1;54(11):904-914. doi: 10.1093/abm/kaaa026. PMID: 32333673; PMCID: PMC7646152.
- Puhl RM, Brownell KD. Confronting and coping with weight stigma: an investigation of overweight and obese adults. Obesity (Silver Spring). 2006 Oct;14(10):1802-15. doi: 10.1038/oby.2006.208. PMID: 17062811.
- Puhl RM, Heuer CA. The stigma of obesity: a review and update. Obesity (Silver Spring). 2009 May;17(5):941-64. doi: 10.1038/oby.2008.636. Epub 2009 Jan 22. PMID: 19165161.
- Westbury, S., Oyebode, O., van Rens, T. *et al.* Obesity Stigma: Causes, Consequences, and Potential Solutions. *Curr Obes Rep* **12**, 10–23 (2023). https://doi.org/10.1007/s13679-023-00495-3

WELCOME to the *Obesity Care in All Ages ECHO*

Session 3, Optimizing the Use of Lifestyle-based Obesity Care*, July 8th, 2025*

This ECHO is supported by the Walter and Carole Young Center for Digestive Health

Today's Program

- Brief housekeeping
- Didactic: Optimizing the Use of Lifestyle-based Obesity Care – Shelby Sullivan, MD, FACG, FACG, DABOM
- Case Discussion
- Summary
- Up Next

Optimizing the use of Lifestyle-Based Obesity Care

Shelby Sullivan MD, FACG, FACG, DABOM

Director, Endoscopic Bariatric and Metabolic Program

Dartmouth-Hitchcock Medical Center and Geisel School of Medicine

Disclosure

The following planning committee member(s), speaker(s), author(s) or anyone in a position to control the content for this activity have reported the following financial relationship(s) with ineligible company(ies). All of the relevant financial relationships listed for these individuals have been mitigated.

Sarah Finn, MD ~ was a consultant to Harbor Capital (relationship has ended).

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Disclosure:

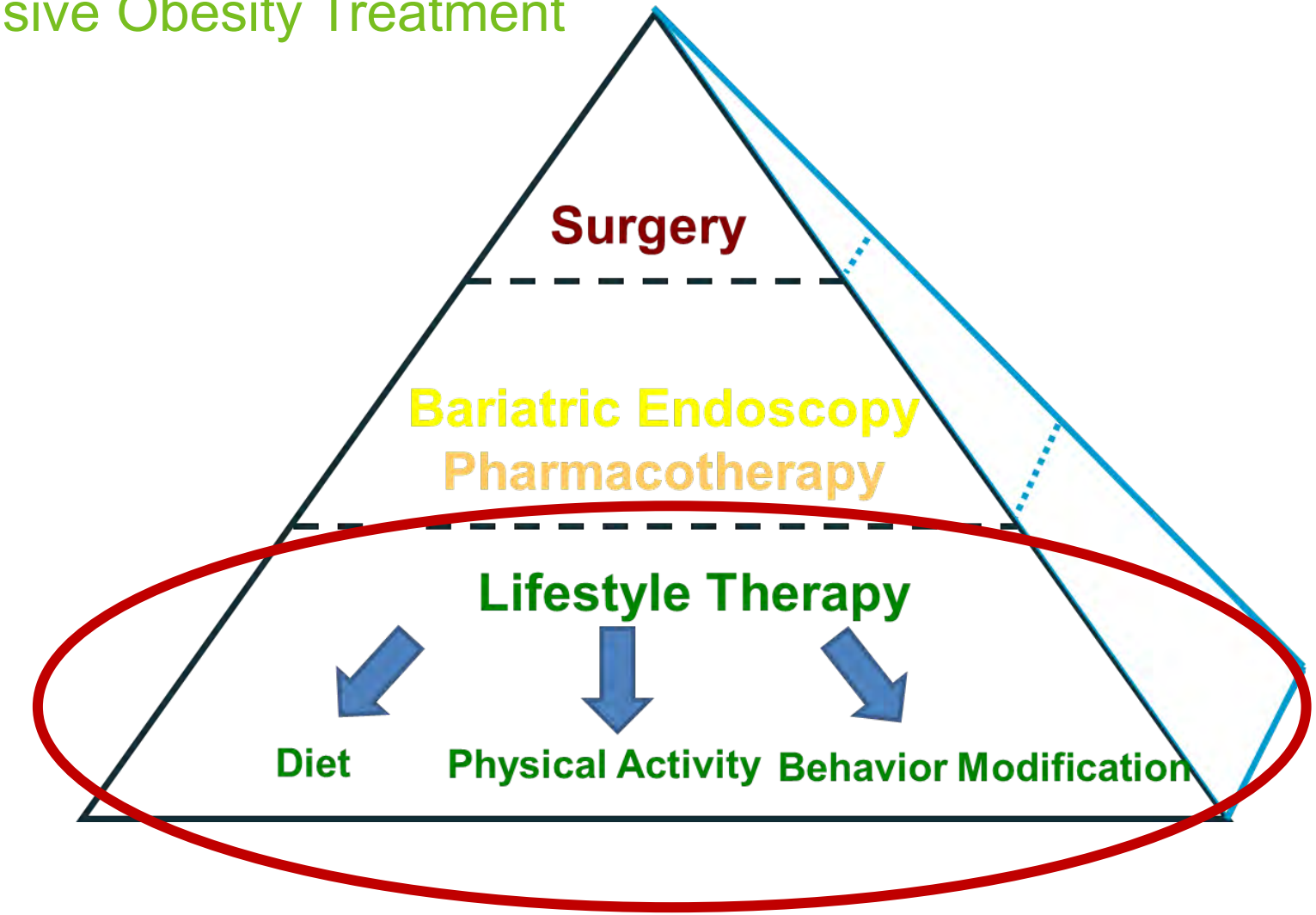
Shelby Sullivan, MD ~ is a consultant to Allurion, Bioling, Pentax Medical, and Olympus Corporation. She also has grant/research support from Fractyl. Dr. Sullivan was a consultant to Fractyl (relationship has ended) and had grant/research support from Allurion (relationship has ended).

Other planning committee member(s), speaker(s), activity director(s), author(s) or anyone in a position to control the content for this activity have no relevant financial relationship(s) with any ineligible company(ies) to disclose.

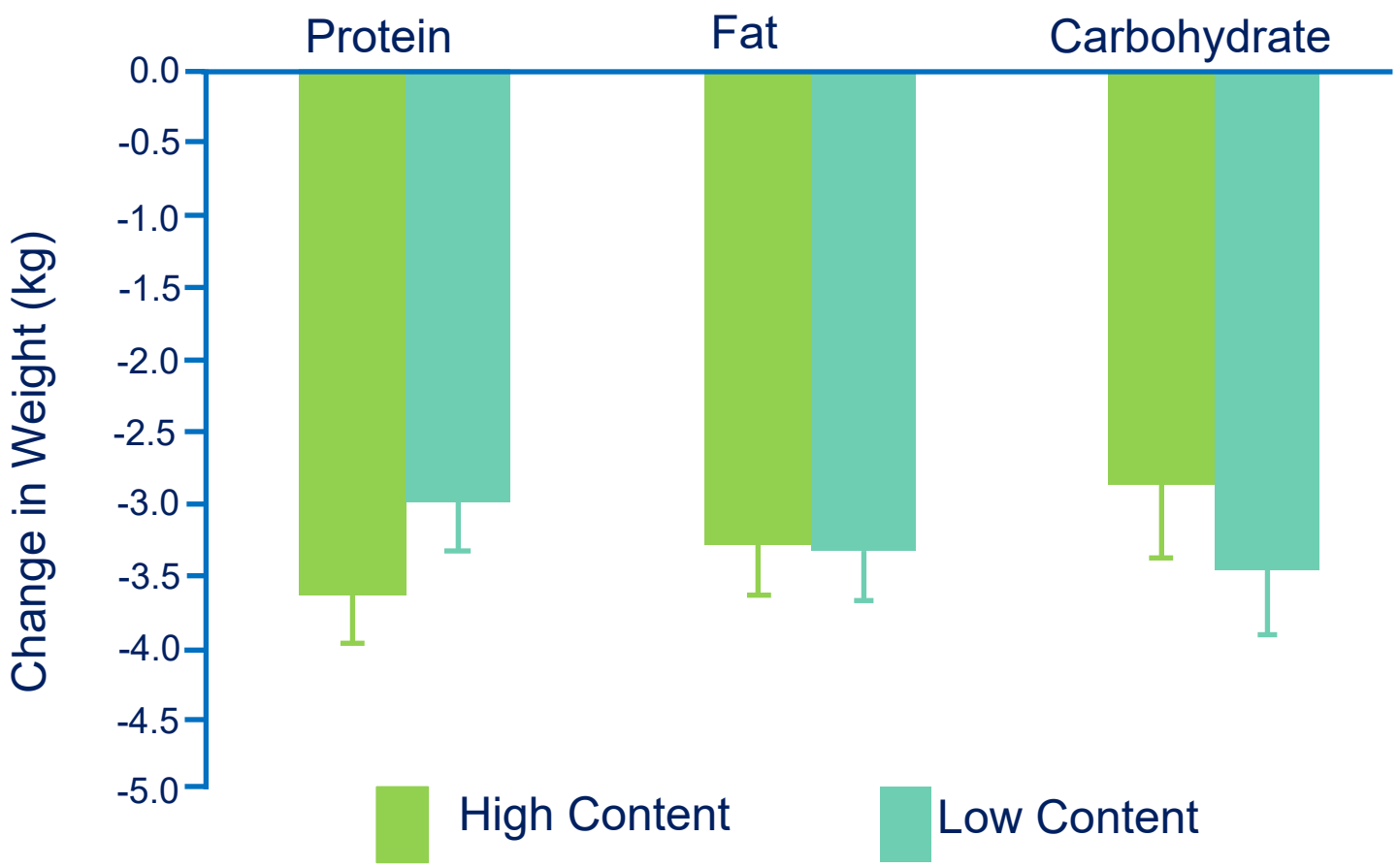
Disclosures

- Shelby Sullivan, M.D. has financial interests to disclose.
- Research Support / Grants Last 24 Months
  - Allurion Technologies, Fractyl Laboratories
- Consulting / Employment Last 24 Months
  - Allurion Technologies, Fractyl Laboratories, Biolinq, Pentax , Olympus
    - Notes

Comprehensive Obesity Treatment



Comparison of Varying Macronutrient Composition: Pounds Lost Study

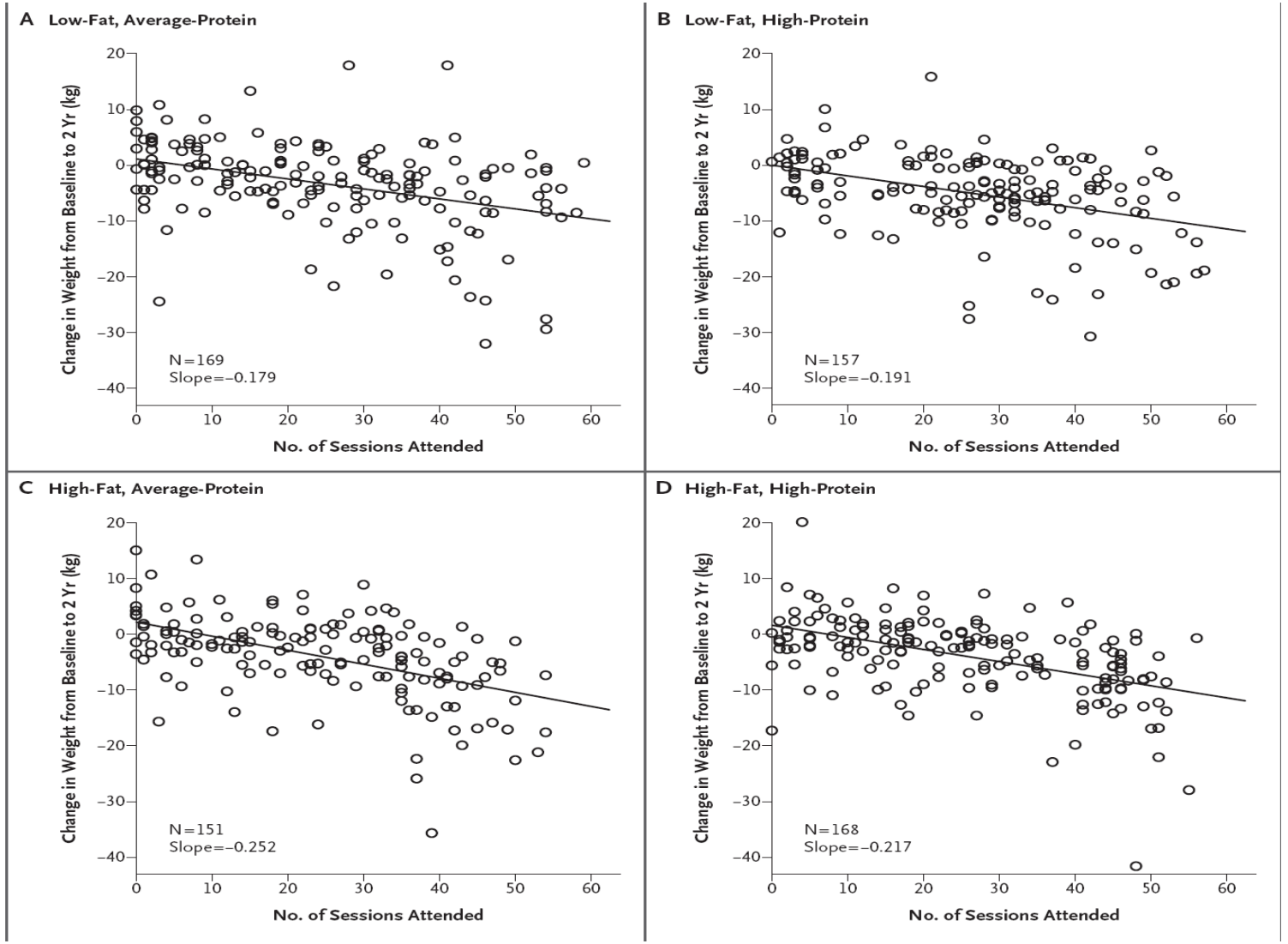


Differing macronutrient composition of the diet did not affect overall weight loss

Sacks F et al. N Engl J Med 2009;360:859-873

Comparison of Varying Macronutrient Composition: Pounds Lost Study

The number of visits with the study team for lifestyle therapy was directly correlated with weight los



Sacks F et al. N Engl J Med 2009;360:859-873

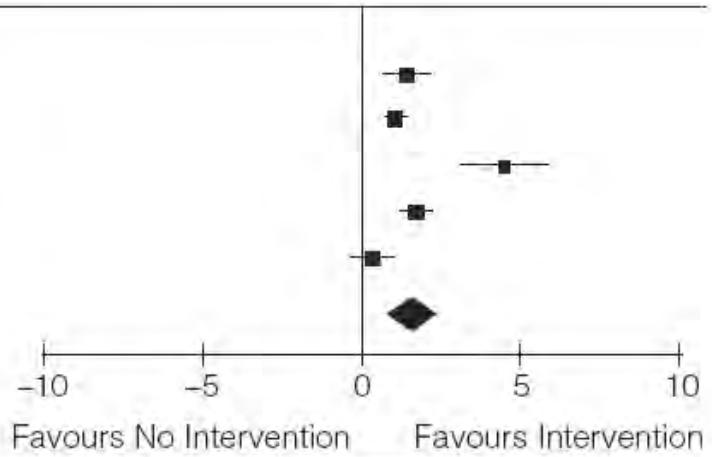
Lifestyle Therapy after Bariatric Surgery

Table 3 Forest plot of standardized mean differences in a random-effects model for percentage of excess weight loss in treatment and control group patients 6–12 months after start of the intervention

Study or subgroup	Intervention			No intervention			Weight	Standardized mean differences IV, random, 95% CI
	M	SD	Total	M	SD	N		
Kalarchian *et al.* (2011) (44)	5.8	3.5	18	0.9	3.2	18	20.1%	1.43 (0.69, 2.17)
Nijamkin *et al.* (2012) (38)	79.6	15.5	72	63.8	14.2	72	23.5%	1.06 (0.71, 1.41)
Papalazarou *et al.* (2010) (41)	76.4	4.1	15	57.5	4.1	15	13.6%	4.49 (3.07, 5.90)
Sarwer *et al.* (2012) (47)	26.1	1.5	41	23.5	1.5	43	22.3%	1.72 (1.21, 2.22)
Tucker *et al.* (1991) (46)	55	15.9	17	48.8	17.9	15	20.5%	0.36 (–0.34, 1.06)
Total (95% CI)			163			163	100.0%	1.60 (0.82, 2.38)

Heterogeneity: $Tau^2 = 0.64$; $Chi^2 = 31.04$, df = 4 ($P < 0.00001$); $I^2 = 87\%$

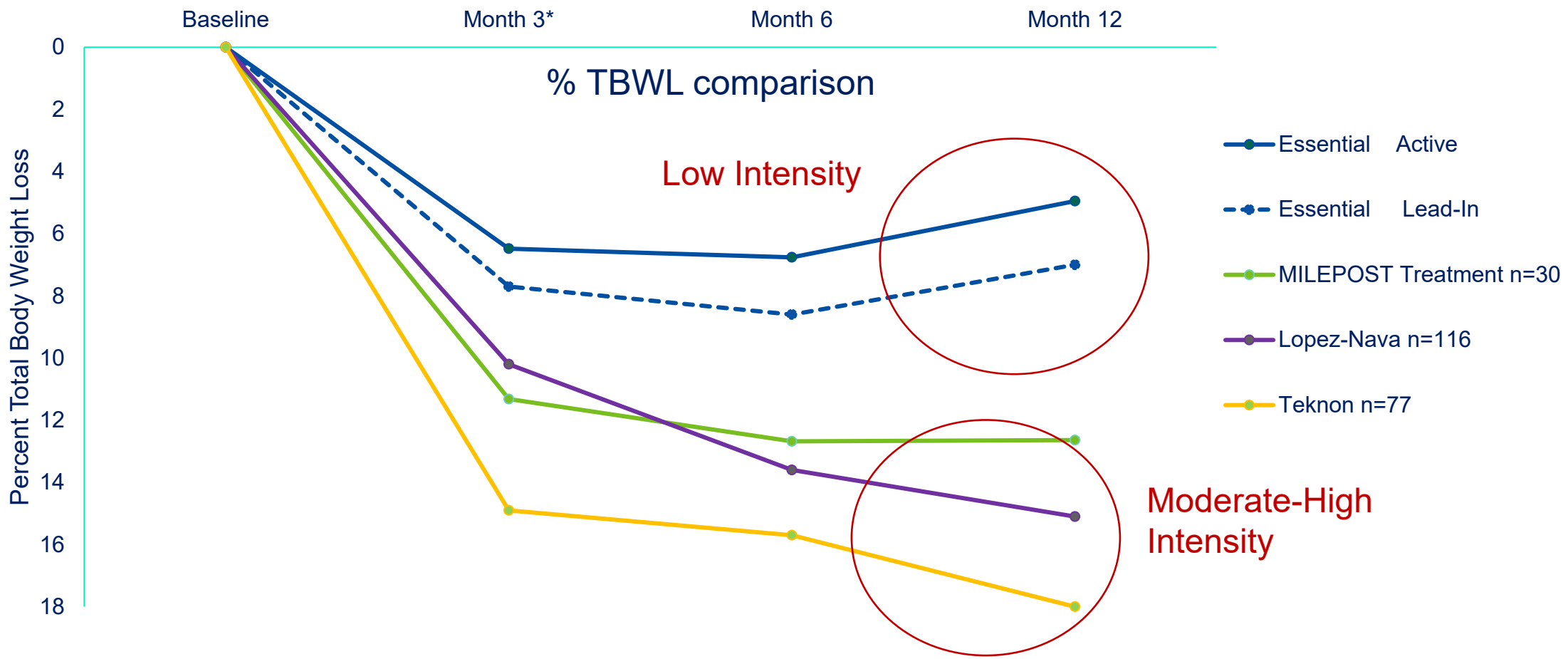
Test for overall effect: $Z = 4.04$ ($P < 0.0001$)



CI, confidence interval; df, degrees of freedom; M, mean; N, number of patients; SD, standard deviation.

Rudolph A. Obesity Reviews. 2013;14:292-302

Intensity of Lifestyle Therapy



Miller K. Obesity Surgery. 2016 epub ahead of print
Lopez-Nava G. SOARD. 2015;11:861-865
Sullivan S. *Obesity*. 2017;25(2):294-301.

Diets with Data

Diet	Carb	Fat	Protein
LEARN	Moderate	Low	Normal
Atkins	Very Low	High	High
South Beach	Moderate	Moderate	Moderate
Paleo	Moderate	Low	High
Zone	Moderate	Moderate	Moderate
Pritikin/ Ornish	High	Very Low	Normal
Mediterranean	Moderate	Moderate	Normal
Keto	Very Low	High	Normal

Common Themes

- Reduction in either the type or amount of food
- Reduce or eliminate sweets
- Reduce or eliminate sugar sweetened beverages
- Use whole grains when grain products are consumed

Network Meta-Analysis: Comparisons of Named Diet programs

		12-mo Weight Loss, kg			
	No diet (6 mo: 0; 12 mo: 0)[a]	5.16 (2.68 to 7.63)	5.70 (4.14 to 7.35)	7.25 (5.33 to 9.25)	7.27 (5.26 to 9.34)
6-mo Weight Loss, kg	6.07 (4.23 to 7.84)	LEARN (6 mo: 0; 12 mo: 0.02)[a]	0.55 (−1.71 to 2.87)	2.10 (−0.20 to 4.47)	2.12 (−0.33 to 4.59)
	6.78 (5.50 to 8.05)	0.71 (−0.97 to 2.44)	Moderate macronutrients (6 mo: 0; 12 mo: 0)[a]	1.55 (0.13 to 2.95)	1.56 (−0.17 to 3.30)
	8.73 (7.27 to 10.20)	2.66 (0.93 to 4.44)	1.95 (1.13 to 2.79)	Low carbohydrate (6 mo: 0.83; 12 mo: 0.48)[a]	0.02 (−1.78 to 1.79)
	7.99 (6.01 to 9.92)	1.92 (−0.19 to 4.06)	1.20 (−0.42 to 2.79)	−0.74 (−2.31 to 0.78)	Low fat (6 mo: 0.17; 12 mo: 0.50)[a]

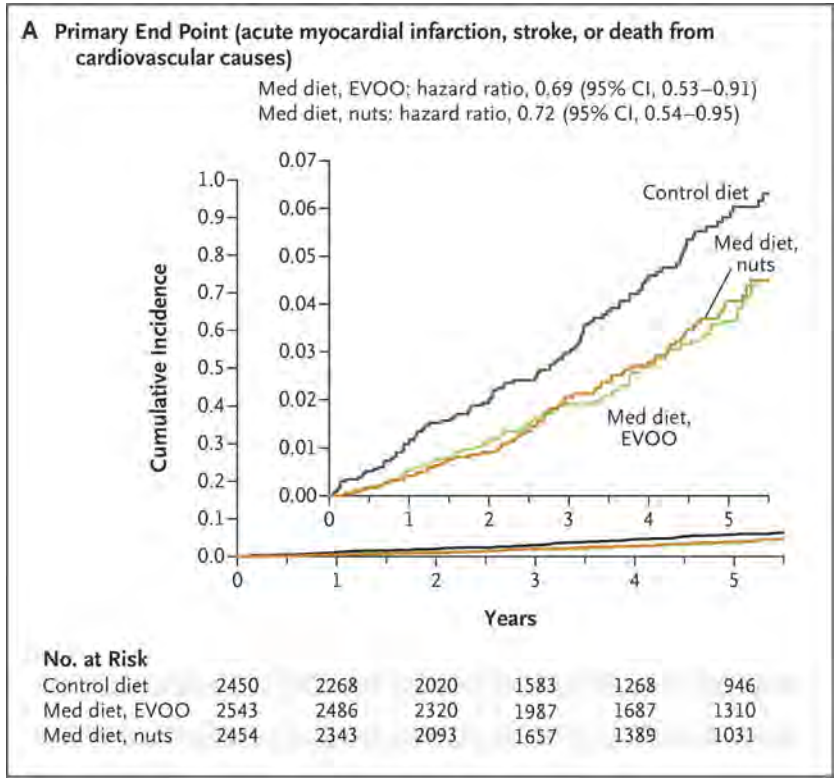
- 59 Article with 7286 patients
- Significant weight loss for both low-carb and low-fat diets
- Difference between named diets was small

Johnston BS. JAMA.2014;312(9):923-933

Mediterranean Diet: PREDIMED Study

Table 1. Summary of Dietary Recommendations to Participants in the Mediterranean-Diet Groups and the Control-Diet Group.

Food	Goal
Mediterranean diet	
Recommended	
Olive oil*	≥4 tbsp/day
Tree nuts and peanuts†	≥3 servings/wk
Fresh fruits	≥3 servings/day
Vegetables	≥2 servings/day
Fish (especially fatty fish), seafood	≥3 servings/wk
Legumes	≥3 servings/wk
Sofrito‡	≥2 servings/wk
White meat	Instead of red meat
Wine with meals (optionally, only for habitual drinkers)	≥7 glasses/wk
Discouraged	
Soda drinks	<1 drink/day
Commercial bakery goods, sweets, and pastries§	<2 servings/wk
Spread fats	<1 serving/day
Red and processed meats	<1 serving/day
Low-fat diet (control)¶	
Recommended	
Low-fat dairy products	≥3 servings/day
Bread, potatoes, pasta, rice	≥3 servings/day
Fresh fruits	≥3 servings/day
Vegetables	≥2 servings/day
Lean fish and seafood	≥3 servings/wk
Discouraged	
Vegetable oils (including olive oil)	≤2 tbsp/day
Commercial bakery goods, sweets, and pastries§	≤1 serving/wk
Nuts and fried snacks	≤1 serving/wk
Red and processed fatty meats	≤1 serving/wk
Visible fat in meats and soups‖	Always remove
Fatty fish, seafood canned in oil	≤1 serving/wk
Spread fats	≤1 serving/wk
Sofrito‡	≤2 servings/wk



Weight loss at 5 years:

- Control: -0.604 kg
- Med, EVOO: -0.88 kg
- Med, Nuts: 0.188 kg

HR primary Endpoint

- Med, EVOO: 0.69
- Med, Nuts: 0.72

Estruch R. NEJM. 2018;378:e34
Estruch R. Lancet Diabetes and Endocrinology.2019;7(5):e6-17

Meal Replacements and Odds of Achieving >5% and >10% TBWL at 1 year

	≥5% Weight Loss	≥10% Weight Loss
	OR [95% CI]	**OR [95% CI]**
MR diet vs diet only	2.83* [1.37, 5.86] I^2 = 40	1.73 [0.92, 3.26] I^2 = 0
MR diet + support vs diet + support	1.49* [1.08, 2.06] I^2 = 44	1.80* [1.12, 2.87] I^2 = 56
MR diet + support vs diet only	2.83* [1.37, 5.86] I^2 = 25	5.95* [2.12, 16.67] I^2 = 1
MR diet + enhanced support vs diet + support	4.32* [3.01, 6.20] I^2 = 0	6.63* [4.01, 10.94] I^2 = 0
MR diet + support vs minimal control	4.03* [1.87, 8.69] I^2 = 82	8.32* [2.02, 34.16] I^2 = 93

Astbury NM. Obesity Reviews. 2019;20(4):569-587

Long-term Calorie Goals

- Based on start weight, gender, level of physical activity
- Goal for 1-2 pound weight loss per week
  - 500 kcal/day deficit = 1 pound per week
  - 750-1000 kcal/day deficit = 2 pounds per week
- Estimates for BMI 30-40 kg/m^2:
  - 1200-1500 kcal/day women
  - 1500-1800 kcal/day men
- Comparison - Gastric Bypass
  - 500-970 kcal/ day in the first 3 months
  - 870-1420 kcal/day at the end of the first year

Jensen, MD. Obesity. 2014;22(2):S5-S39
Klein, S. Gastroenterology. 2002;123(3):882-932

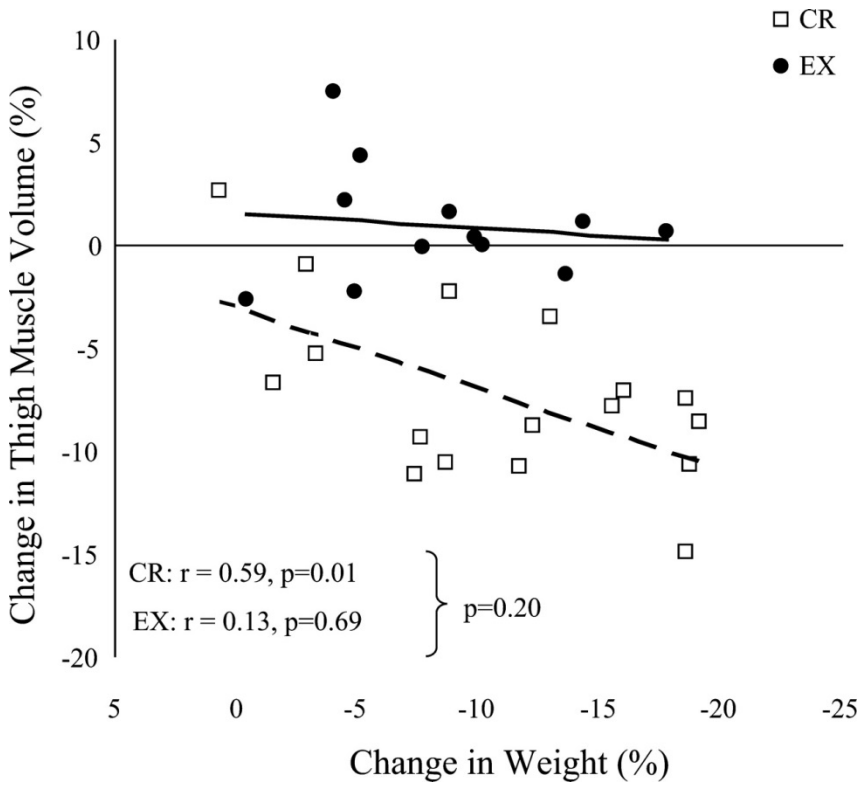
Bobbioni-Harsch E. Eur J Clin Nutr. 2002;56:551-6.
Ribeiro AG. Nutr Hosp. 2009;24:32-9.
Coughlin K, Bell RM, Bivins BA, et al. Arch Surg 1983;118:813-6.
Anderson WA. Obesity. 2007;15:1455-1463.

Dartmouth Health

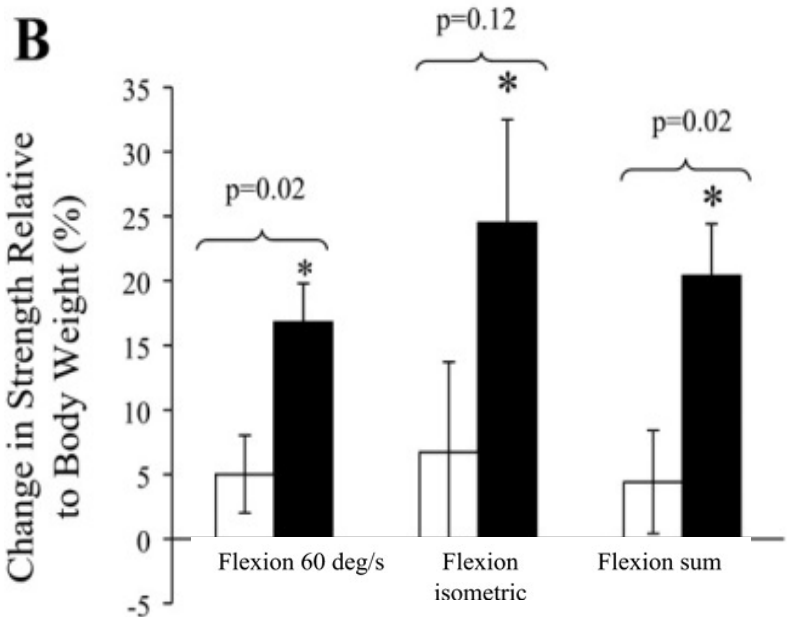
Project ECHO

Exercise Preserves Lean Muscle Tissue

Muscle Thigh Volume

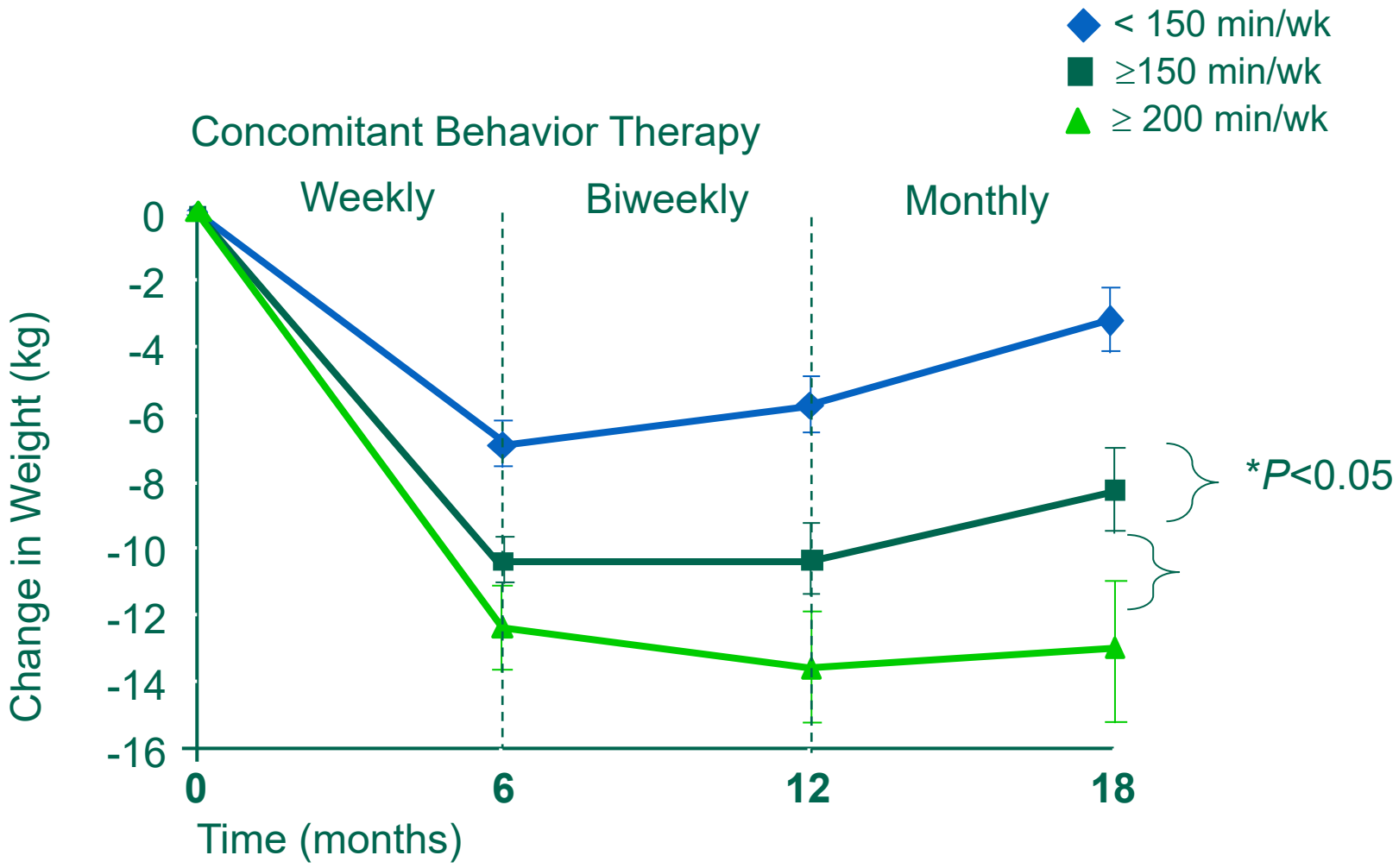


Strength Relative to Body Weight



Weiss, EP. Journal of Applied Physiology.2007;102(2):634-640

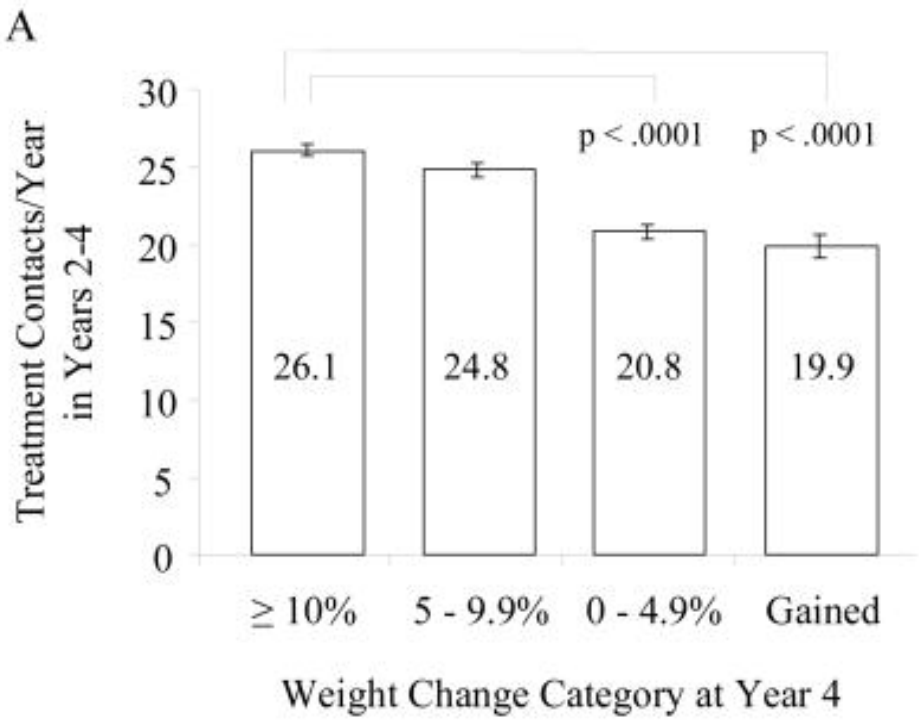
Physical Activity Is Necessary for Weight Loss Maintenance



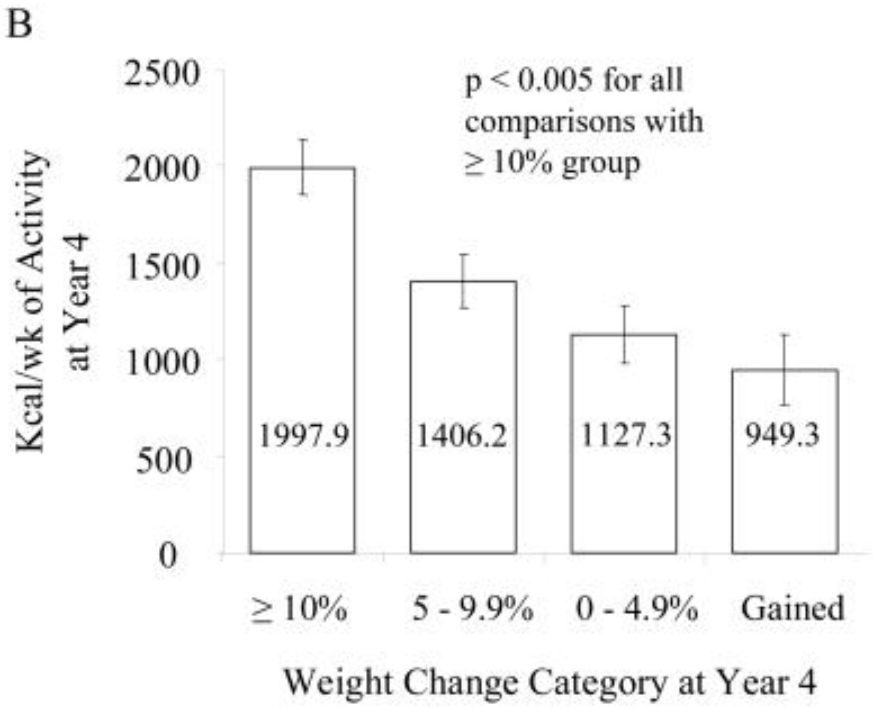
Jakicic et al. *JAMA* 1999;282:1554.

Predictors of Success in Lifestyle Therapy

Treatment Contacts



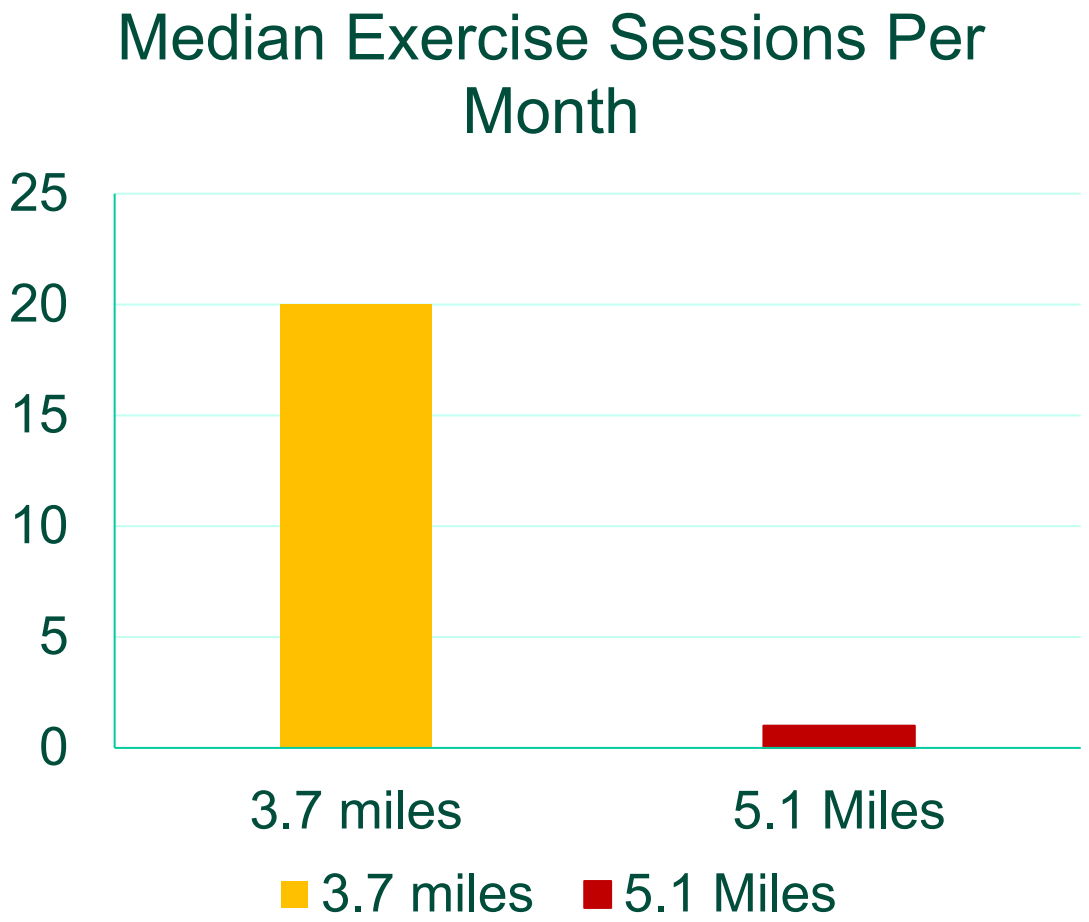
Exercise



Wadden TA. Obesity. 2011;19:1987-1998

Gym Use and Distance From Home

- Data collected from 7.5 million mobile devices by the data firm Dstillery
- Difference of only 1.4 miles between going to the 5 times a week vs one time per month
- Summary – even small barriers will reduce exercise



https://dstillery.com/press/probably-youre-skipping-gym/. Accessed 12.15.22

Exercise for Weight Loss and Weight Maintenance

American Heart Association/American College of Cardiology/The Obesity Society Guidelines and American Diabetes Association Guidelines

- **Weight loss and Adults with type I and type II diabetes**
  - ≥150 minutes per week moderate intensity (brisk walk)
  - Equal to ≥ 30 minutes/day most days of the week
- **Weight maintenance**
  - 200-300 minutes per week moderate intensity
  - 40-60 minutes/day most days of the week
- **Strength and flexibility**
  - Recommended as a consideration by the obesity guidelines
  - ADA Guidelines Recommend 2-3 sessions per week

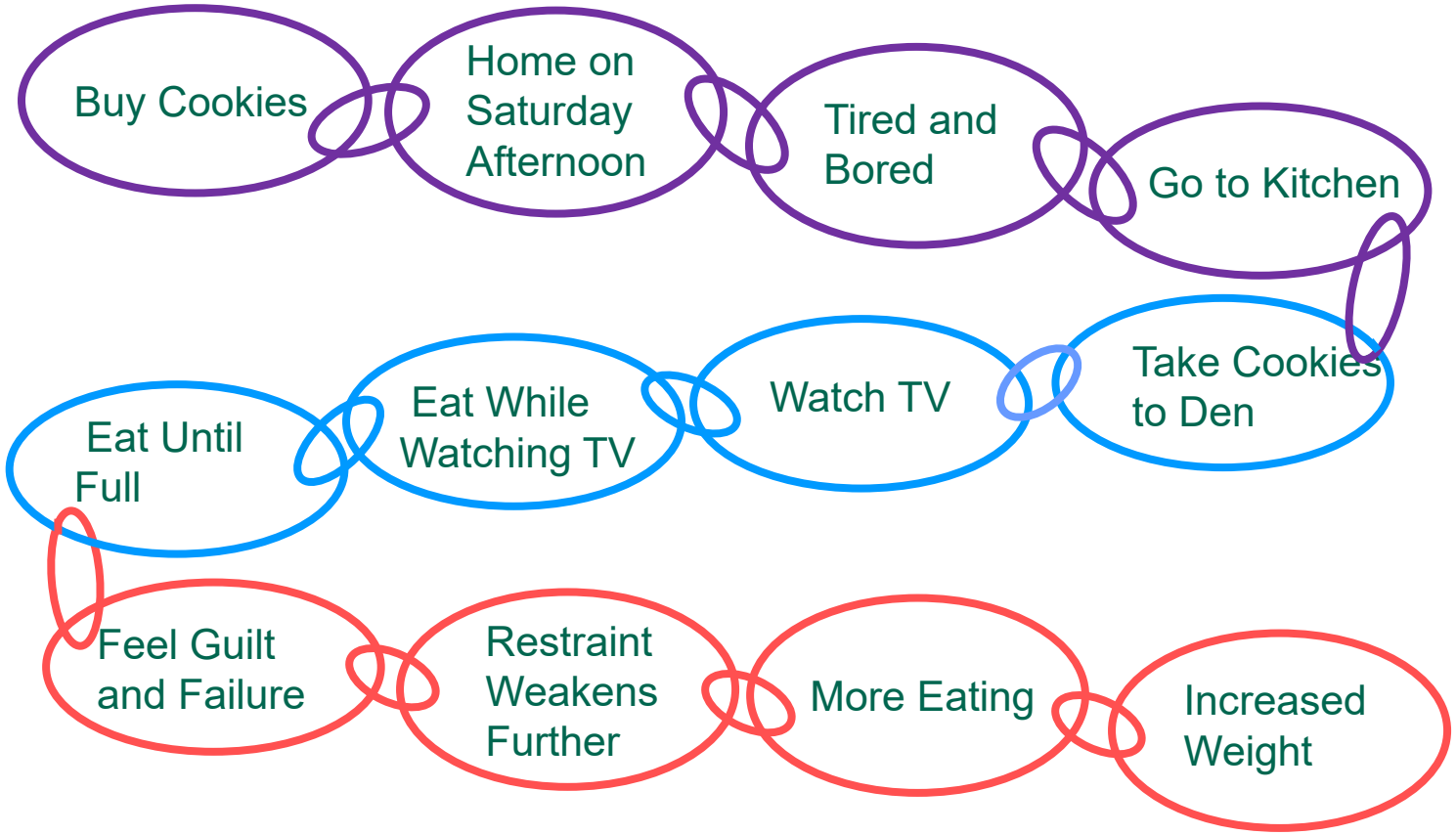
Jensen, MD. Obesity. 2014;22(2):S5-S39
Diabetes Care. 2022;45(Supplement_1):S60-S82

Department of Health and Human Services 2018 Physical Activity Guidelines

Age	Aerobic Activity	Muscle Strengthening
6-17	60 minutes of moderate or vigorous physical activity (PA)/day including at least 3 days ofvigorous PA/wk	3 days/week and included as part of the 60 minutes of daily PA. Also include bone-loading activity
18-64	150-300 minutes of moderate PA/wk, 75 minutes of vigorous PA/wk or equivalent combination spread throughout the week	Muscle strengthening activities at moderate or greater intensity (all major muscle groups) on 2 or more days/wk
65+	Same as adults, or be as active as abilities and health conditions allow	Same as adults, but include balance training and combination activities (strength and aerobic training together)
All Ages	Sit Less. Move More	

Piercy K. JAMA. 2018;320(19):2020-2028

Breaking the Obesity Behavior Chain



Adapted from Brownell. *The LEARN Program for Weight Control*. American Health Publishing Co.1997.

Pillars of Behavior Modification

Self Monitoring
- Recording intake and activities

Problem Solving
- Identifying barriers and finding solutions

Stimulus Control
- Avoiding triggers to eating, slowing the rate of eating

Social Support
- Recruiting friends and family

Cognitive Restructuring
- Thinking positively

Relapse Prevention
- Managing episodes of overeating/weight gain

Klein, S. Gastroenterology. 2002;123(3):882-932

Wadden, TA. Circulation. 2012;125(9):1157-70

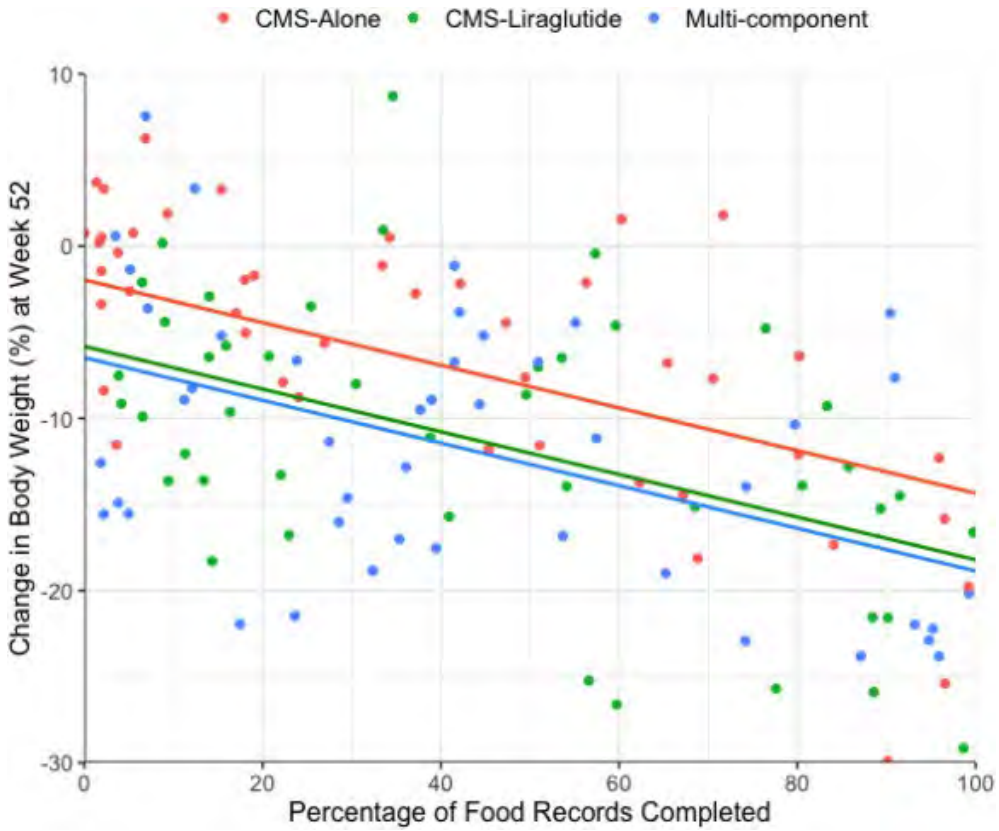
Self-Monitoring: Independently Associated with Weight loss

Systematic review of 22 studies

- More frequent and complete self-monitoring of food intake, exercise and body weight was consistently associated with more weight loss

Post hoc analysis of a randomized controlled trial of 3 arms: intensive behavioral therapy (IBT) alone vs IBT + liraglutide 3.0 mg/d vs IBT vs liraglutide 3 mg/d + meal replacements

- In a linear regression model controlled for treatment group, only adherence to self-monitoring predicted weight loss at 52 weeks
- Patients who completed 100% of their food records lost 12.4 percentage points more than those who completed 0%



Burke LE. J Am Diet Assoc. 2011;111:92-102
Tronieri JS. Behaviour Research and Therapy. 2020;131:103639

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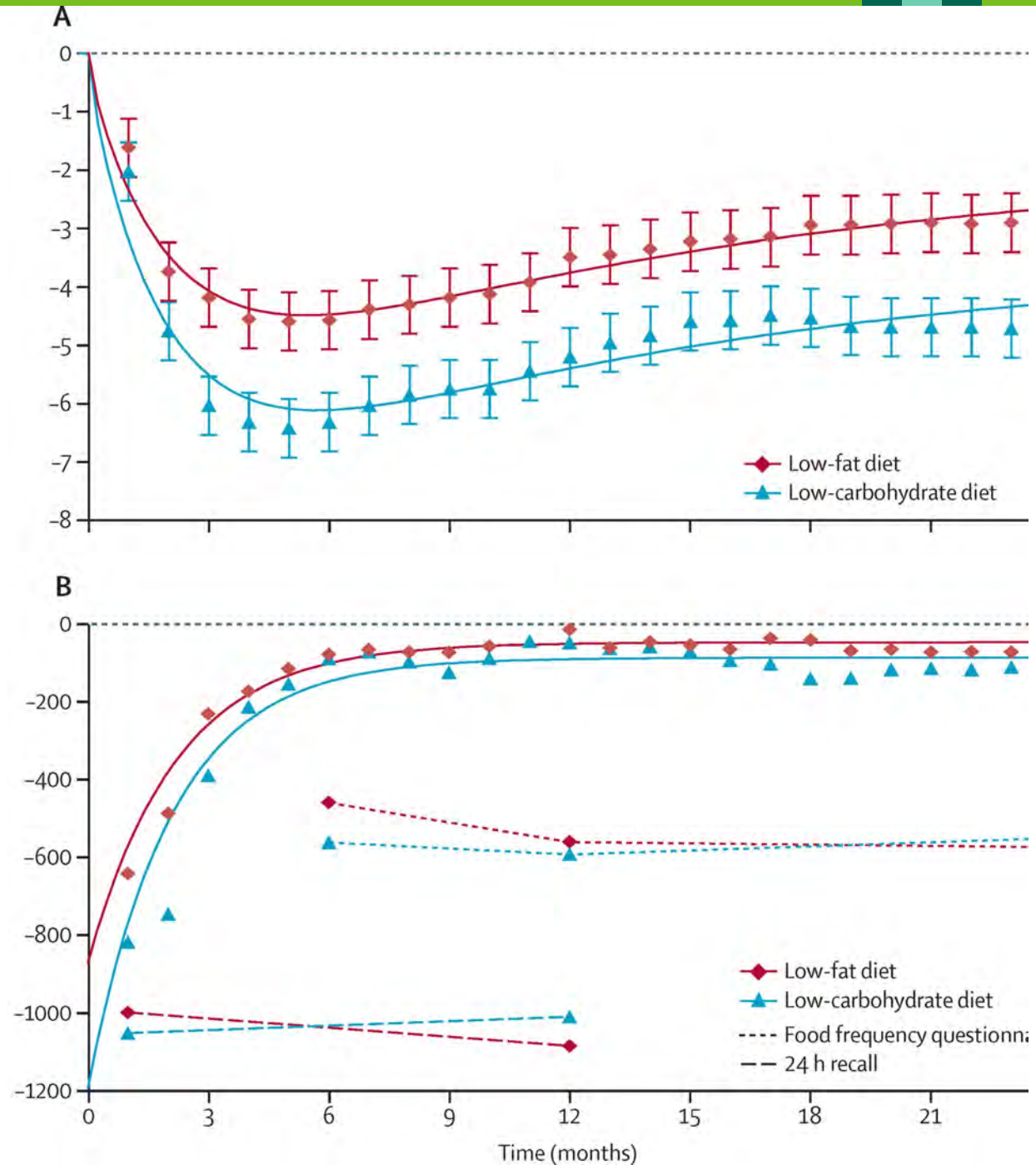
Project ECHO

Use of Food and Activity Logs

- Cue the patient on what they have already eaten in the day
- Help the patient be more mindful with food choice
- Help identify patterns
- Food logs and in person 24-hour recalls are not accurate for total energy intake
  - Very hard to estimate energy intake
  - Should only be used as a tool to guide choices

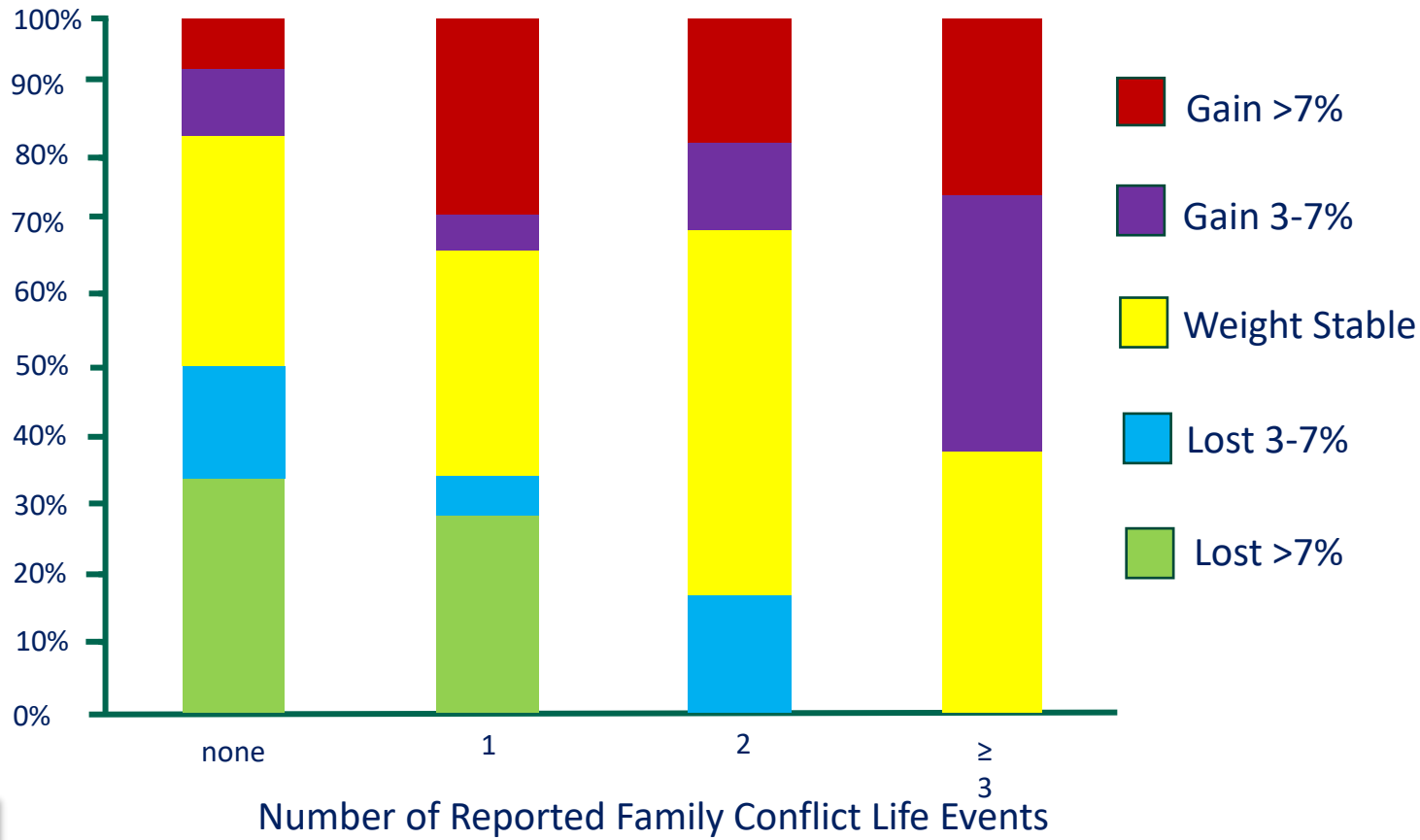


Freedhoff Y. The Lancet. 2016;338(10047):849-851

Factors That Can Derail Lifestyle Therapy

- **Stress**
  - Home related
  - Work related
- **Lack of Sleep**
  - Not getting to bed on time
  - OSA
  - Insomnia
- **Physical Injuries**
- **Food insecurity**

May need referrals for management



Philips EG. Obesity.2017;25:833-841

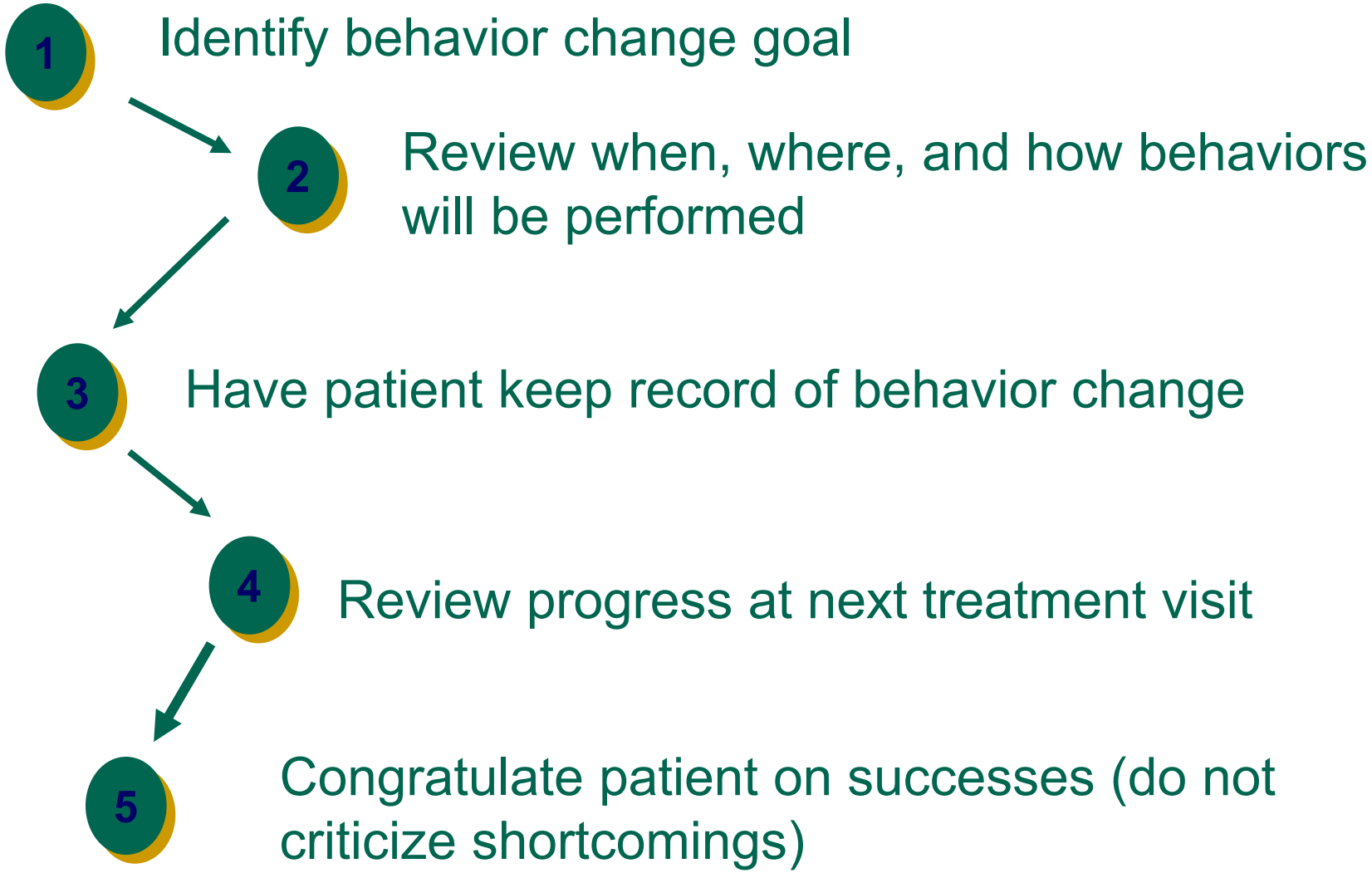
Delivering Lifestyle Therapy

- Trained Interventionist
  - Dietitian, nurse, psychologist, behavior coach, exercise professional, physician (Billing may be limited to physician, dietitian, psychologist)
- In person and over the telephone may yield similar results, less via internet only
- Intensity of lifestyle intervention does matter
  - High Intensity = 14 or more “visits” in 6 months*
  - Moderate Intensity = 6 to 13 “visits” in 6 months*
  - Difference between high and moderate intensity is about 5% TBWL
- Does not appear to be a difference in weight loss between individual sessions and group sessions

*Definition of exact number of visits varies

Jensen, MD. Obesity. 2014;22(2):S5-S39
Webb, VL. Gastroenterology. 2017;152(7):1752-1764

Five Steps to Facilitate Behavior Change



Wadden and Foster. *Med Clin North Am* 2000;84:441.

Goal Setting

Specific	• Names a specific action or behavior
Measurable	• The goal is made so that it can be measured
Attainable	• The goal can be reasonable attained
Relevant	• The goal is relevant to the desired behavior change
Time-Based	• The goal has a deadline for accomplishment

What Do I Do for My Patients Without a Dietitian or Health Coach?

Diet Recall

- Everything consumed (liquid and solid)
- You can skip this for time, but ask about snacking and meals out

Set calorie goal with typical ranges (BMI <40 kg/m2), calculate for higher BMI

- 1200-1500 kcal/day women,
- 1500-1800 kcal/day men,

Set Exercise Goal:

- 150 min/week moderate intensity exercise for weight loss
- 200-300 min per week for weight maintenance
- 2-3 sessions of strength/resistance exercise per week

Discuss barriers and goals at every visit

At least monthly follow-up for the first 6 months

Reduce

- Added sugars
- Processed grains
- Animal fat (except fatty fish)

Protein in moderation – 16-24% of calories (80-120 gm/day for most patients)

For MASLD or CVD patients: discuss Mediterranean diet

Increase

- Non-starchy Vegetables/Fruit
- Unsaturated vegetable oil (olive oil)
- Nuts (but limit total number of servings)

Use meal replacements to help achieve dietary goals

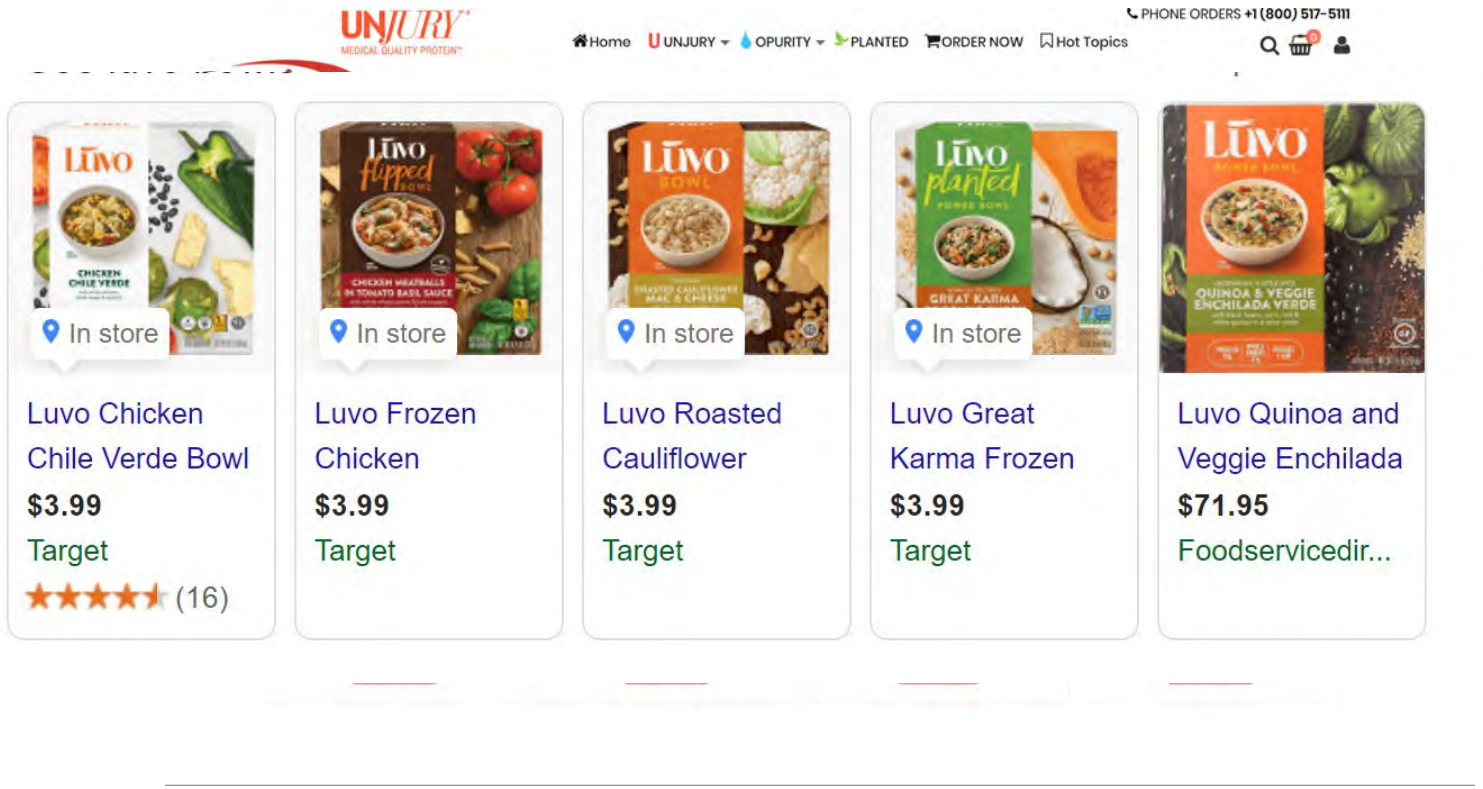
Jensen, MD. Obesity. 2014;22(2):S5-S39
Webb, VL. Gastroenterology. 2017;152(7):1752-1764
Mozaffarian D. Obesity. 2025. epub ahead of print

Resources for Exercise

- https://www.mayoclinic.org/healthy-lifestyle/fitness/in-depth/strength-training/art-20046031
- https://www.acefitness.org/resources/everyone/exercise-library/?srsltid=AfmBOopUPYpKGr7er-aaZG6q4TdBJkKKPdVwCueAXo3MezSgDf4zWxcw
- Apple Fitness App
- Multiple other exercise apps

Meal Replacements

- Types
  - Shakes
  - Bars
  - Frozen Entrée
  - Patient self purchase
  - Carry in the office
- Calorie Controlled
- Stimulus controlled



Conclusions

- Lifestyle therapy alone achieves only modest weight loss
- Lifestyle therapy maximizes weight loss with all adjunctive therapies
  - Anti-obesity medications
  - Endoscopic Bariatric Therapies
  - Bariatric Surgery
- Components
  - Diet
  - Exercise
  - Behavior Modification
- Can be done in a primary care practice – if time is limited, focus on one goal at a time