

# Treating Obesity Using a Chronic Disease Management Perspective

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## Disclosure

Advisory Board: Boehringer-Ingelheim; Eli Lilly;  
Nestle Healthcare Nutrition; Novo Nordisk;  
Regeneron; Weight Watchers

Consultant: Amgen; Brightseed; Intuitive Surgical

Grant Recipient: Boehringer-Ingelheim; Eli Lilly;  
Epitomee; Nestle Healthcare Nutrition; Novo Nordisk;  
Weight Watchers

Research Grant: KVK Tech; UnitedHealth Group



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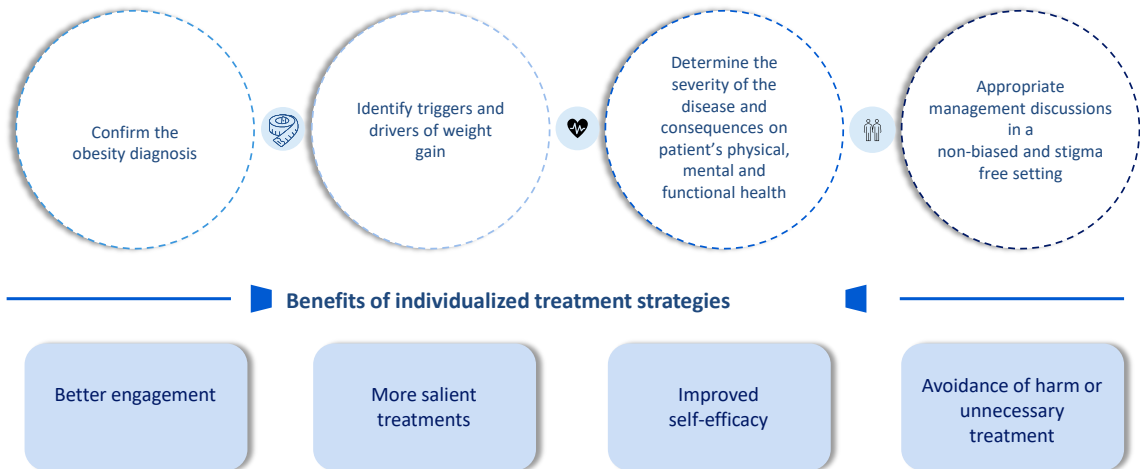
# Learning Objectives

1. Learn how the chronic disease management model is applied to obesity, including comprehensive assessment, setting realistic goals, and a multidisciplinary approach
2. Gain knowledge about various strategies for the long-term management of obesity
3. Learn about the physiologic changes that make maintaining a weight reduced state challenging



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## Objective of Obesity Assessment



Wharton S et al. CMAJ. 2020;192(31):E875-E891; Rueda-Clausen CF et al. Canadian Adult Obesity Clinical Practice Guidelines: Assessment of People Living with Obesity. Available from: <https://obesitycanada.ca/guidelines/assessment>


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## The 5As of Obesity Management




**ASK**

for permission to discuss weight and explore readiness




**ASSESS**

obesity-related risks and root causes of obesity




**ADVISE**

on health risks and treatment options



**AGREE**

on health outcomes and behavioral goals




**ASSIST**

in accessing appropriate resources and providers


Wharton S et al. CMAJ. 2020;192(31):E875-E891; Rueda-Clausen CF et al. Canadian Adult Obesity Clinical Practice Guidelines: Assessment of People Living with Obesity. Available from: <https://obesitycanada.ca/guidelines/assessment>

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## Obesity Is Diagnosed with BMI and WC



**Body Mass Index**  
Simple, objective and reproducible measure



**Waist Circumference**  
Low-tech; significant association with cardiometabolic risk

**BMI cut-offs differ between populations**

- In Caucasian, European and North American ethnicities, BMI cut-off are  $\geq 25$  kg/m<sup>2</sup> for overweight and  $\geq 30$  kg/m<sup>2</sup> for obesity
- In South-, Southeast- or East Asian ethnicity, the BMI cut-off for overweight is  $\geq 23$  kg/m<sup>2</sup>

**WC cut-offs differ between populations**

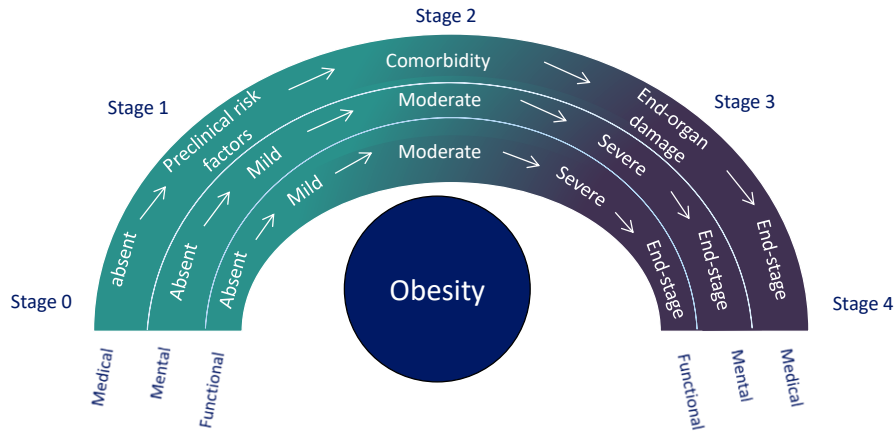
- Optimal WC cut-off values differ depending on ethnicity, measuring technique and outcomes of interest
- Most cut-offs range from 65.5 to 101.2 cm for women and 72.5 to 103 cm for men

BMI, body mass index; WC, waist circumference  
Wharton S et al. CMAJ. 2020;192(31):E875-E891; Rueda-Clausen CF et al. Canadian Adult Obesity Clinical Practice Guidelines: Assessment of People Living with Obesity. Available from: <https://obesitycanada.ca/guidelines/assessment>

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## How to Assess Disease Severity?

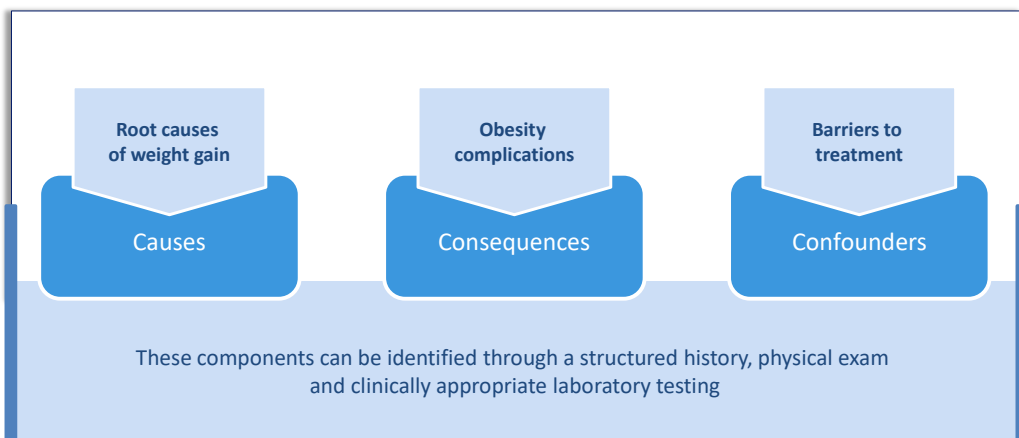
EOSS: EDMONTON OBESITY STAGING SYSTEM – Staging Tool



Wharton S et al. CMAJ. 2020;192(31):E875-E891; Atlantis E et al. Obes Rev. 2020;21(11):e13120. doi:10.1111/obr.13120

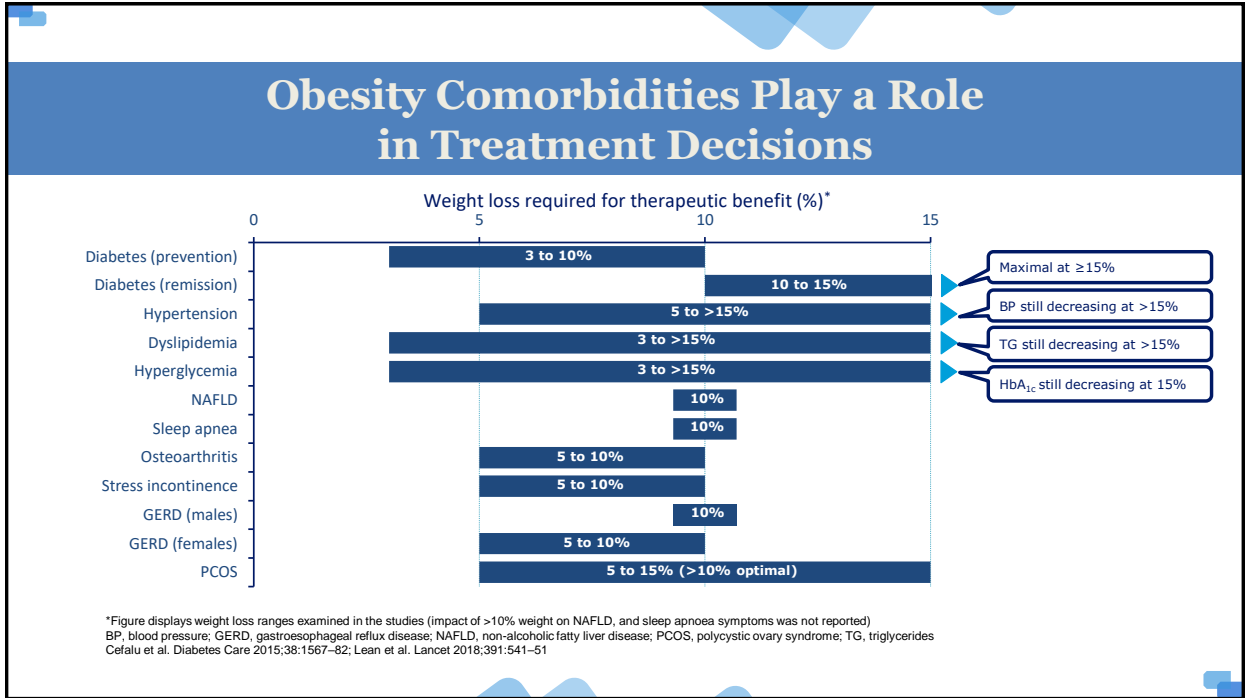
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## Importance of Obesity-centred History

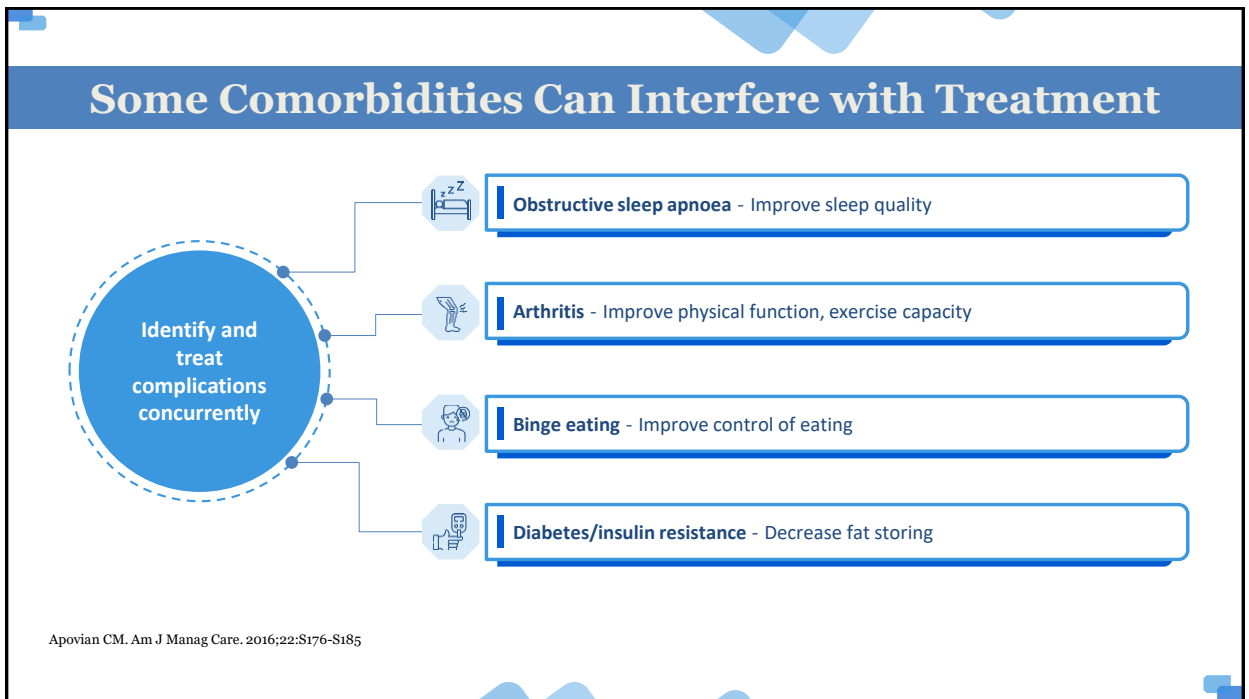


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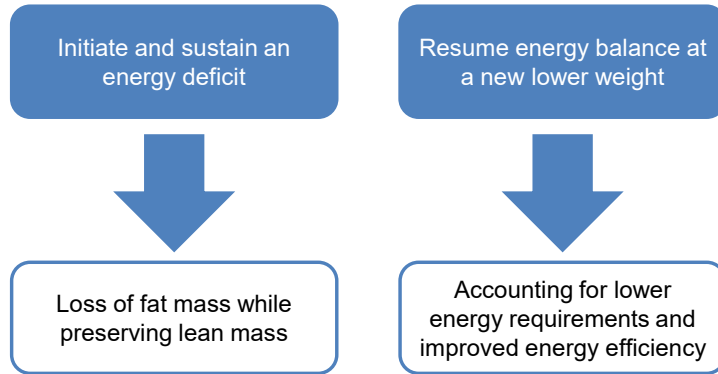


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# Goals of Anti-obesity Treatment



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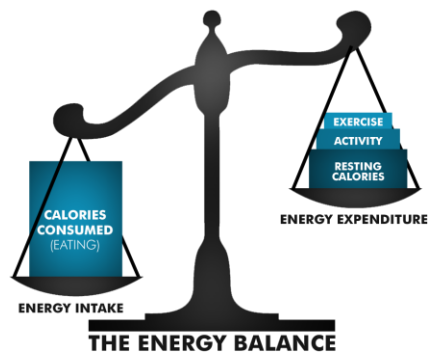
# Decreasing Energy Intake Is Key

Energy Out can be generated three ways:

- Resting energy expenditure: Metabolic rate at rest (60–70% of total energy out)
- Activity energy expenditure: Exercise, physical activity (20+% of total energy out)
- Thermic effect of food: Process of digestion (10% of total energy out)

Energy In is decreased in two ways:

- Consume fewer calories
- Absorb fewer calories



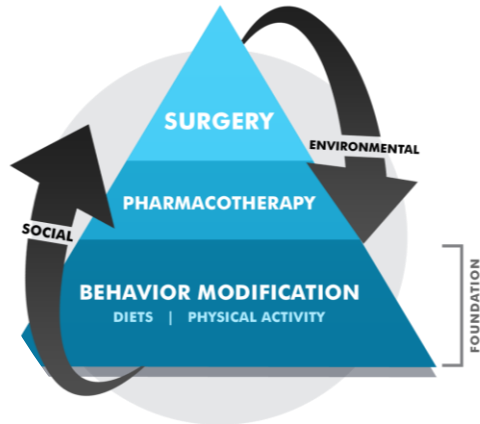
$$\text{Energy Out} > \text{Energy In} = \text{Weight Loss}$$

Hill et al. *Circulation* 2012;126(1):126–32

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# Behavior Modification Is Essential

Ultimately, any intervention should help the patient successfully decrease energy intake and increase energy expenditure over the long-term



Jensen et al. *Circulation* 2014;129(25 Suppl 2):S102-38

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# Diet and Physical Activity Modification



**Change calorie intake**  
 – Get to energy balance  
 or  
 – Establish an energy deficit (for weight loss)



**Change the composition of the intake**

- Target dietary pattern to address risk factors
- e.g. DASH, OmniHeart, Mediterranean, Low-Carb, etc

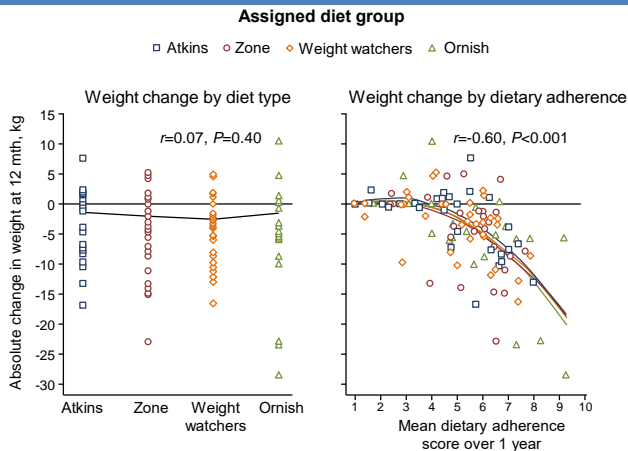


- Increase exercise (frequency, intensity, time)
- Improve CV fitness
- Change body composition

CV, cardiovascular; DASH, Dietary Approach to Stop Hypertension  
 Wadden et al. *Circulation* 2012;125(9):1157-70

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# Take Your Pick



The diet the patient can do is the one that will achieve results

Dansinger et al. *JAMA* 2005;293(1):43-53

# Behavior Modification



Change how we process information



Change how we make decisions



Reroute thought patterns

Wadden, Foster. *Med Clin North Am* 2000;84(2):441-61



# What Works?



High frequency  
contact



Behavioral counseling  
(groups or individually)



Monitoring  
and feedback



Trained  
interventionists



Education

Wadden et al. *JAMA* 2014;312:1779-91




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# Key Points

- Your initial assessment and framing of obesity as a chronic disease helps you appropriately design a treatment approach
- The goals of treatment are to address underlying causes while assisting the patient with achieving normal energy regulation
- Changes in lifestyle behaviors are the final path for achieving an energy deficit, which initiates weight loss

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## Stepped Approach to Obesity Management

	BMI 25–26.9 kg/m <sup>2</sup>	BMI 27–29.9 kg/m <sup>2</sup>	BMI 30–34.9 kg/m <sup>2</sup>	BMI 35–39.9 kg/m <sup>2</sup>	BMI ≥40 kg/m <sup>2</sup>
<b>Surgery</b> 			With adiposity-related complications	When optimal medical and behavioral management has been insufficient	+
<b>Pharmacotherapy</b> 		With adiposity-related complications	+	+	+
<b>Behavioral modification</b> 	+	+	+	+	+



All individuals, regardless of body size or composition, benefit from a healthy, well-balanced eating pattern and regular physical activity

BMI, body mass index.  
 Wharton S et al. CMAJ 2020;192:E875–91.  
 Surgery for Obesity and Related Diseases 18 (2022) 1345–1356

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## Key Challenges with Classic Approach

- Basic assumption for this approach: initial presentation and diagnosis. Patient is treatment naïve
- In most instances this assumption is incorrect
  - Multiple previous attempts
  - Varying degrees of success with previous strategies
- Stage/severity of disease should be considered

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# Alternative Approach

## Presenting disease severity

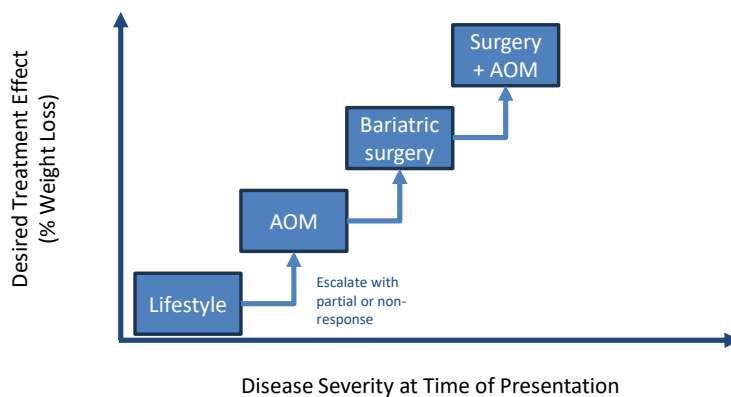
- What complications are present?
- What symptoms are present?
- Can the patient engage in physical activity?

## Desired treatment effect

- How much weight loss is needed to achieve health goals?

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# Initiating Treatment by Disease Stage and Desired Treatment Effect



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## What Is the Role of Pharmacotherapy in the Treatment of Obesity?

Compared to diet and exercise alone, pharmacotherapy has 3 primary impacts



INCREASES THE PROPORTION OF PEOPLE ACHIEVING CLINICALLY SIGNIFICANT WEIGHT LOSS



INCREASES THE AMOUNT OF WEIGHT LOSS ACHIEVED



INCREASES THE DURATION OF WEIGHT-LOSS MAINTENANCE WITH CONTINUED USE

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## When Should You Initiate AOM Treatment?

At the initiation of a treatment plan

In a sequential fashion after beginning lifestyle intervention

After achieving initial weight loss and entering maintenance

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## When Should You Initiate AOM Treatment?

At the initiation of a treatment plan

In a sequential fashion after beginning lifestyle intervention

After achieving initial weight loss and entering maintenance

- Early hunger
- Poor satiation
- Persistent food thoughts
- Strong hedonic response to food, eating
- Less than robust response to dietary/physical activity plan

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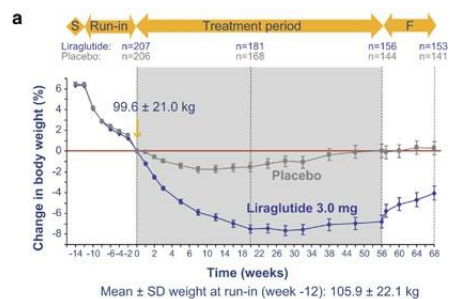
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After achieving initial weight loss and entering maintenance

SCALE Maintenance randomized study



Int. J. Obes. (Lond.) 37, 1443-1451 (2013).

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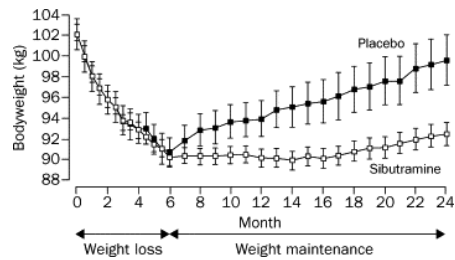
## When Should You Initiate AOM Treatment?

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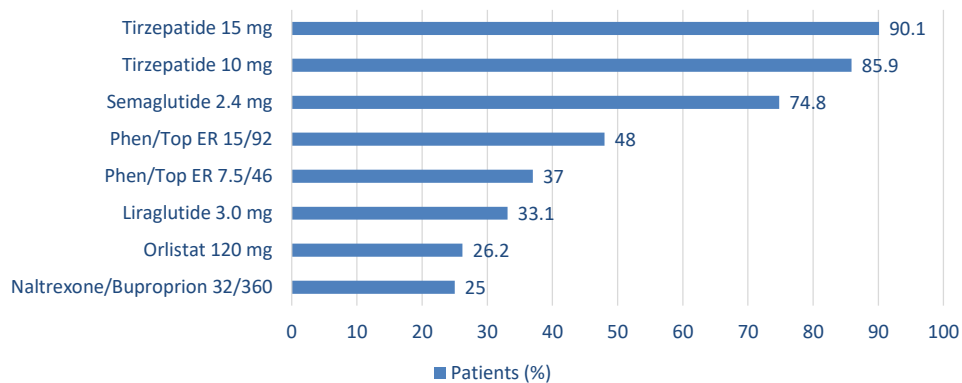
- No significant symptoms of obesity at initial presentation or with treatment implementation (e.g., increased hunger, cravings)
- Adaptive response or other conditions make maintenance challenging



Lancet 2000. James et al  
Sibutramine is no longer on the market (illustrative study design and concept)

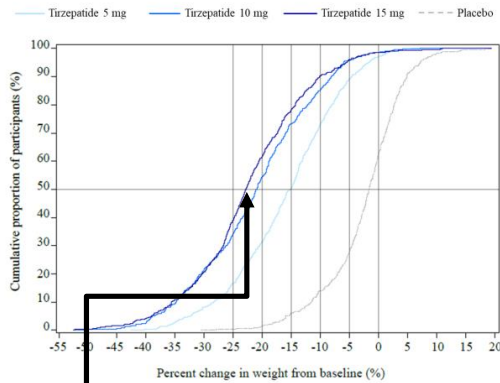
## Treatment Effects: Expectations

Proportion achieving at ≥ 10% weight loss  
(at least 56 weeks of treatment)



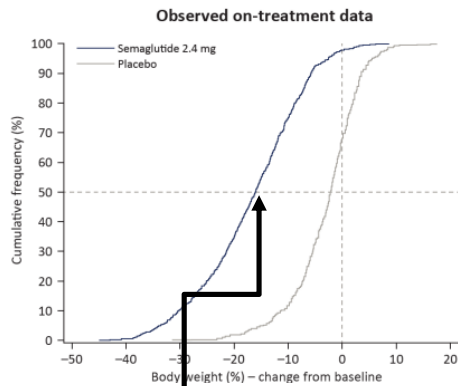
Torgerson et al. Diabetes Care 2004;27:155-61; Gadde et al. Lancet 2011;377:1341-52; Pi-Sunyer et al. NEJM 2015;373:11-22; Greenway et al. Lancet 2010;376:595-605; Wilding et al. NEJM 2021; 384:989-1002; Jastreboff et al. NEJM 2022; 387:205-216

# Treatment Effects: Expectations



Average weight change = -22.5%

Jastreboff AM, Aronne LJ, Ahmad NN, et al. N Engl J Med 2022;387:205-16.

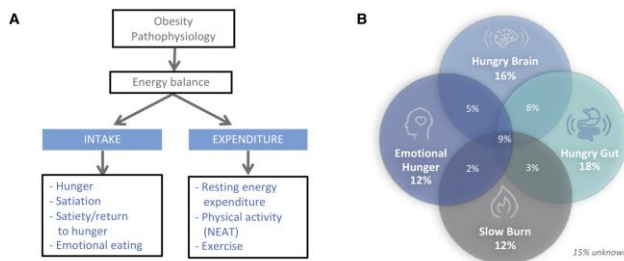


Average weight change = -16.9%

Wilding JPH, Batterham RL, Calanna S, et al. N Engl J Med 2021;384:989-1002

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# Tailoring Treatment



Accomplished using the following meds: Lorcaserin (12%), Phentermine (13%), Liraglutide (16%), Naltrexone/Bupropion (29%), Phen/Top ER (30%)

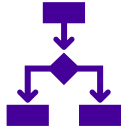
Acosta et al demonstrated the impact of tailoring AOM prescribing based on key physiologic and behavioral variables

- “Proportion of patients who lost >10% at 12 months was 79% in the phenotype-guided group compared with 34% with non-phenotype-guided treatment group”

Obesity, Volume: 29, Issue: 4, Pages: 662-671. 2021

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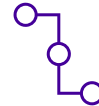
# Tailoring Treatment



Identify a process and key variables for data collection



Understand mechanism of action and treatment targets



Map your variables to MOA

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# Non-Responders

- Identify early in treatment course



Switch

Side effects  
No symptom improvement



Combination

Symptom improvement

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## Key Points

- AOMs can be used early in the treatment course based on treatment goals and disease severity
- AOMs increase treatment response to lifestyle interventions
- Tailoring treatment with AOMs can lead to greater mean effectiveness

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## Treating to Target

### Clinical Targets

Hypertension

Type 2 Diabetes

- If obesity is a chronic disease like hypertension and type 2 diabetes, what is the expectation for treatment and long-term management?

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# Mission Accomplished?

Obesity treatment is more of a marathon

Not a sprint!

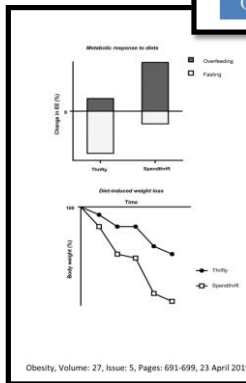


## If Treatment Is Withdrawn

Genetic predisposition still exists  
 Environment may still be persistent  
 Changes in behaviors may not be sufficient to sustain weight loss

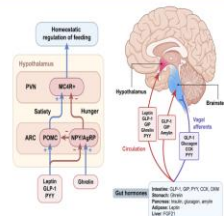


Our Obesogenic Environment



## Your Brain Plays Defense

- Loss of mass and sustained reductions in energy intake is a trigger
- Brain shifts hormones to favor
  - INCREASING food intake
  - DECREASING energy expenditure (resting and activity related)



Roh E, Choi KM. Hormonal Gut-Brain Signaling for the Treatment of Obesity. Int J Mol Sci. 2023 Feb 8;24(4):3384.

## Consider Treatment Phases as an Alternative

### Intensive phase

- More frequent encounters
- More support, direction
- Designed to initiate weight loss with implementation of energy deficit

*REMEMBER: Short-term response predicts long-term response*

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## Consider Treatment Phases as an Alternative

### Transition phase

- Decreased frequency of encounters
- Maintain support, direction
- Designed to gradually alter treatment strategy to prepare for long-term maintenance
  - Building sustainable routines, habits
  - Learning how to adapt to a variety of situations

*REMEMBER: Pace of weight loss slows naturally due to metabolic adaptations*

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## Consider Treatment Phases as an Alternative

### Maintenance phase

- Lower frequency of encounters
- Maintain support, direction
- Provide accountability for maintenance of key behaviors- e.g., self-monitoring
- Re-engage in an active treatment strategy for any significant weight regain

*REMEMBER: It's better to lose 2 pounds 10 times rather than 20 pounds once*

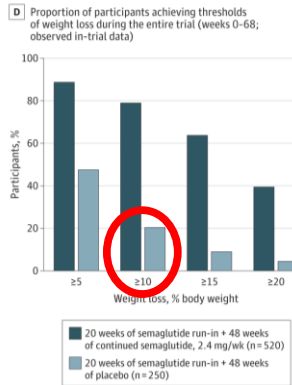
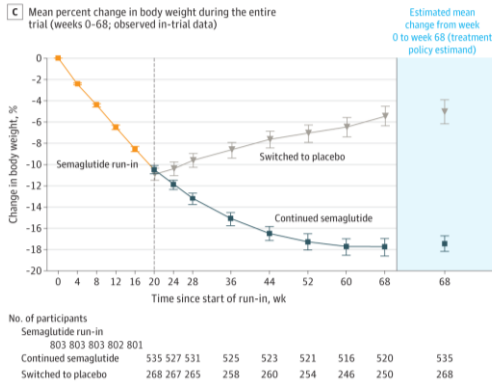
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## Key Long-term Treatment Strategies

- Ongoing counseling, support via direct contact
  - Tailored feedback
- Pharmacotherapy
  - Some people may not need AOM for weight loss, but may benefit for weight loss maintenance
  - AOM needs to be continued long-term; if withdrawn, probability of weight regain increases
  - Can be used on intermittent basis with success

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# Long-Term Management

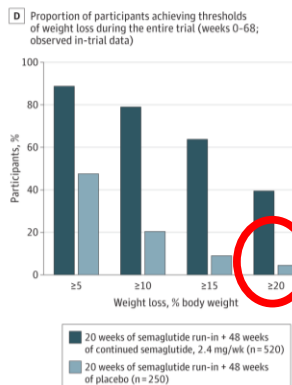
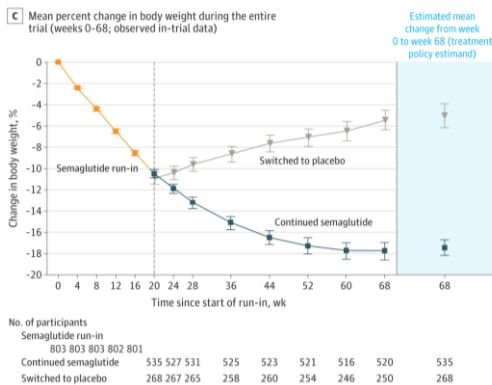


Discontinuation after 20 weeks was associated with an average weight gain of 6.9% over 48 weeks

Rubino et al. JAMA. 2021;325(14):1414-1425

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# Long-Term Management

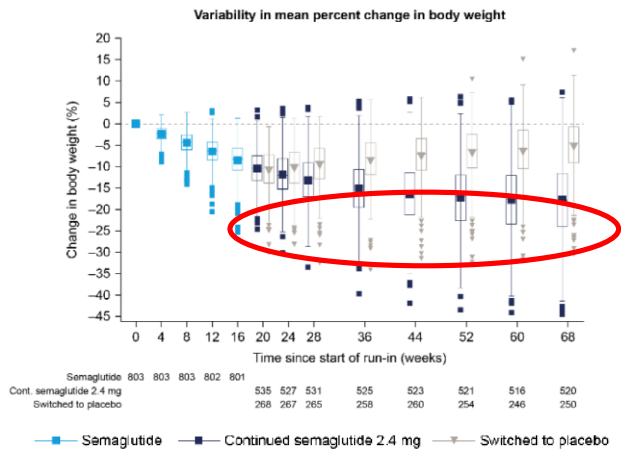


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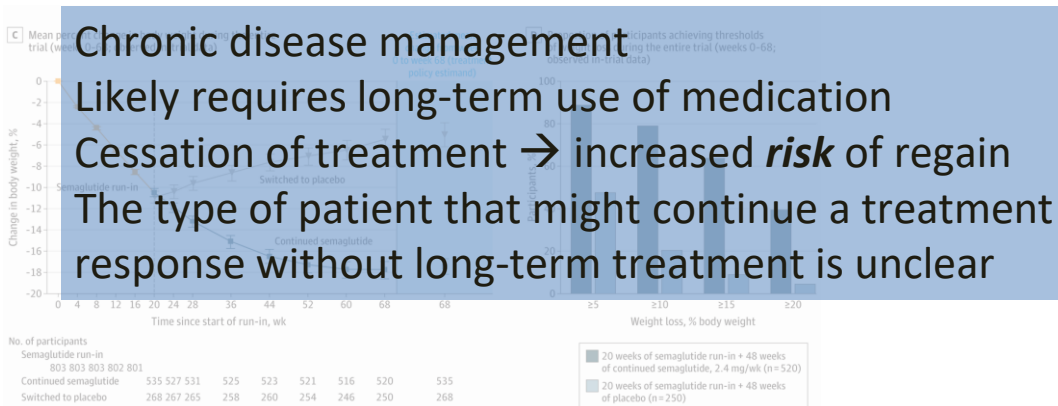
# Variability in Response to Medication Discontinuation



Some people in the placebo group have a sustained weight loss that is better than mean treatment response on drug

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# Long-Term Management



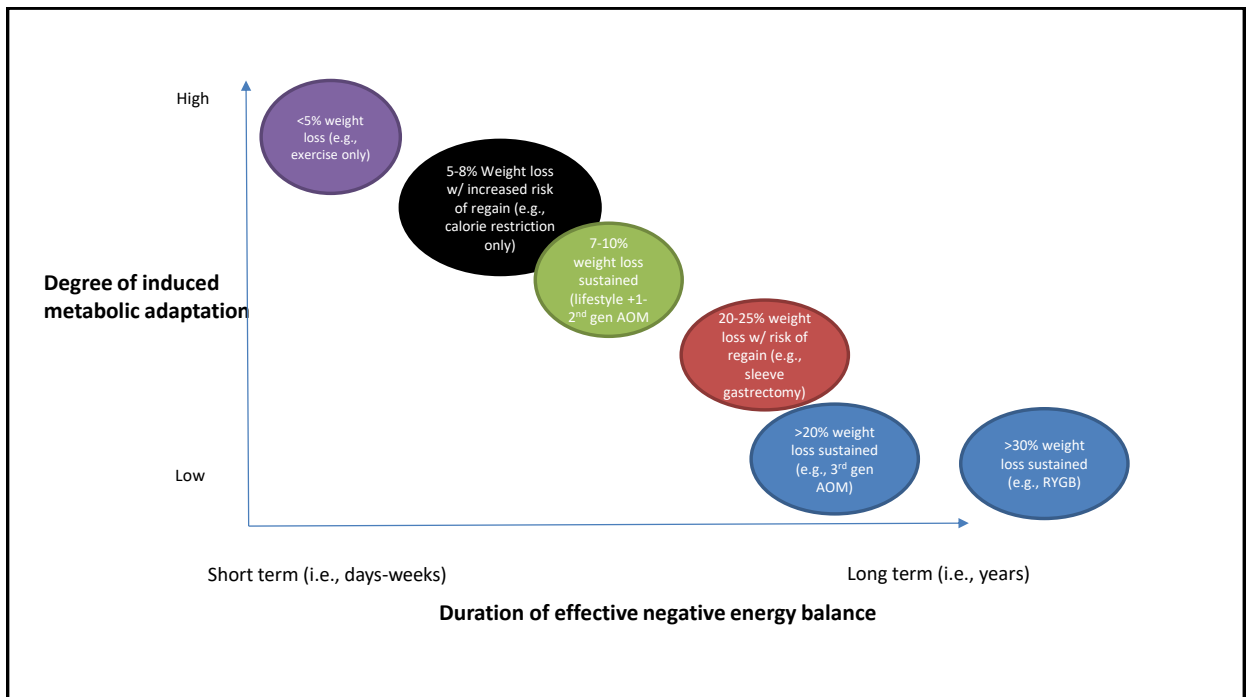
Rubino et al. JAMA. 2021;325(14):1414-1425

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# Key Long-term Treatment Strategies

- Ongoing vigilance to diet and exercise
  - It may be easier over time, but patients still need to plan, make good choices
  - Exercise is critical; includes strength training
- Self-monitoring
  - Weighing regularly is consistently associated with better maintenance of weight loss
  - Some frequency of food journaling can help check assumptions about food habits

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## Key Points

- Chronic treatment is the rule for obesity
- Discontinuation of AOM therapy is associated with weight regain on average
- In the weight reduced state, addressing metabolic adaptation is important for maintenance of weight loss

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**(True/False) If a Patient Is on an Anti-obesity Medication, He/She Should Expect to Discontinue It After Reaching a Goal Weight.**

- A. True
- B. False

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## **Treatment of Obesity Can Be Tailored to the Patient in the Following Ways:**

- A. Based on the severity of disease at the time of presentation.
- B. Based on the type of dietary approach the patient can be most successful with
- C. Based on the type of hunger the patient experiences
- D. All of the above

## **In the Weight Reduced State, Which of the Following Is True?**

- A. Once you have a good behavioral routine, it is easy to maintain weight loss.
- B. Physical activity has to be increased to account for improvements in energy efficiency.
- C. The need for monitoring of behaviors and weight is much less important.