known·well®

Transforming Obesity Care: Innovative Approaches for the Family Physician

Britta Reierson, MD, FAAFP

MAFP Spring Refresher
2025

DISCLOSURES

- I will be discussing off -labeled use of certain medications for purposes of weight loss that are not approved by the U.S. Food and Drug Administration (FDA) for obesity treatment.

- I will be referencing the Obesity Medicine Association 2024 Obesity Algorithm© throughout the presentation.

- I have no financial or other conflicts of interest or disclosures.

Learning Objectives

1. Understand obesity as a complex, multifactorial chronic disease.
2. Recognize weight stigma and bias within the community and healthcare and describe important components of a weight inclusive health care office.
3. Describe the 4 pillars of obesity management and learn how to incorporate them into your family medicine practice.
4. Apply an algorithm to create personalized obesity treatment plans based on patient risk factors and comprehensive assessments.
5. Summarize the latest advancements and pipeline in anti-obesity medications.

“Obesity is defined as a chronic, progressive, relapsing, and treatable 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.”

Obesity Medicine Association’s definition of Obesity

OBESITY IS A CHRONIC DISEASE REQUIRING SUSTAINED INTERVENTION

"Obesity is a chronic, relapsing, progressive disease process ….need for immediate action for prevention and control of this global epidemic"[1]

"AMA recognizes obesity and overweight as a chronic medical condition (de facto disease state) and urgent public health problem…"[2]

"The Canadian Medical Association (CMA) has declared obesity to be a chronic medical disease requiring enhanced research, treatment and prevention efforts"[3]

"A progressive disease, impacting severely on individuals and society alike…" [4]

"Obesity is a chronic relapsing health risk defined by excess body fat"[5]

"The RCP is calling for obesity to urgently be recognised as a disease by government and the broader health sector…"[6]

Israel Medical Association

"Obesity is a recurring chronic disease due to dysfunction of physiological-genetic mechanisms and is not due to behavioral weakness"[7]

Government of Germany

"We need care for people with obesity by family doctors and specialists that is worthy of its name, first and foremost, decent outpatient treatment..."[8]

Government of Italy

"Camera dei Deputati of the Italian Parliament voted unanimously to approve a motion that recognises obesity as a chronic disease..."[9]

"Obesity is recognized as a chronic clinical condition and is considered to be the result of interactions of genetic, metabolic, environmental and behavioral factors..."[10]

Slide contents are from Novo Nordisk Semaglutide Core Science Deck and data checks are assumed to have been carried out by Novo Nordisk.

OBESITY IS A TREATABLE DISEASE

- Obesity is a disease in which **excess body fat** has accumulated in a dysfunctional manner to a level that may have an adverse effect on health.
- It's about **biology** not BMI ultimately.
- BMI is just a tool used in the diagnosis
  - Pre-obesity BMI 25 -29.9
  - Class 1 obesity BMI 30 -34.9
  - Class 2 obesity BMI 35 -39.9
  - Class 3 obesity BMI ⩾ 40

TOP 10 BENEFITS OF TREATING OBESITY AS A CHRONIC DISEASE

1. Reduce premature mortality
2. Improve CV disease, such as atherosclerosis, HTN, thrombosis, and heart failure.
3. Improve metabolic disease – insulin resistance, hepatosteatosis, and gout.
4. Improve mechanical effects – OSA, OA, intertrigo
5. Reduce onset of certain cancers, improve efficacy of cancer treatments, and reduce recurrence.
6. Improve psychological effect – anxiety, depression, and body image.
7. Improve QOL – dyspnea, mobility, decrease polypharmacy
8. Improve individual and societal recognition of weight bias and stigma
9. Improve certain causes of infertility and hypogonadism
10. Help mitigate epigenetic transmitted increased risk of obesity and metabolic disease in future generations.

THE CURRENT LANDSCAPE OF OBESITY

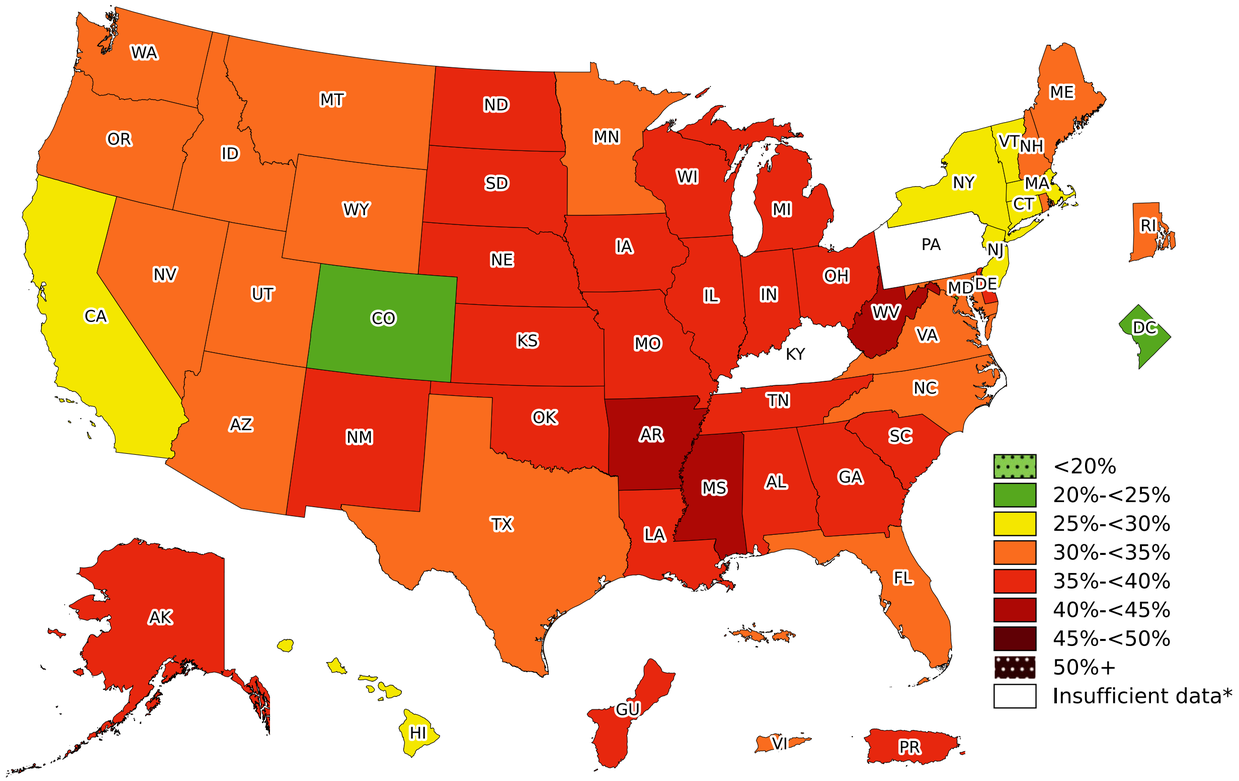
2023 United States population data shows 23 states have an adult prevalence of obesity at or above **35%.** This is 1 in 3 adults. This is in comparison to 19 states in 2021.

20% of US children have obesity.

Obesity Rate in MN – 33% of the adult population

Racial and Ethnicity- >35 % obesity rates

- Non-Hispanic Asian adults
- Non-Hispanic American Indian or Alaska Native
- Hispanic adults
- Non-Hispanic Black adults



[Adult Obesity Prevalence Maps | Obesity | CDC]

CURRENT LANDSCAPE OF ACCESS AND COST OF OBESITY CARE

"Epidemic obesity is arguably the gravest public health crisis we face and inarguably the least controlled." - David L. Katz

>100 million

Individuals in the United States have obesity today

Adult Obesity Facts | Obesity | CDC

9,800

American Board of Obesity Medicine Diplomates in the US today

https://www.abom.org/stats-data-2/

<50%

Of adults with obesity receive any form of treatment

Adult Obesity Facts | Obesity | CDC

$173 billon

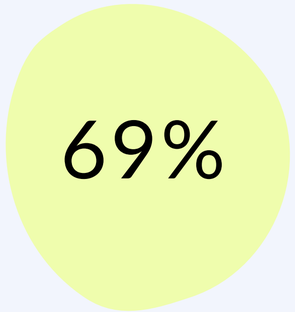
Annual medical expenditures for treating obesity-related conditions

Fast Facts: Health and Economic Costs of Chronic Conditions | Chronic Disease | CDC

THE PROBLEM

However, when patients with obesity seek treatment, they often face **stigma**

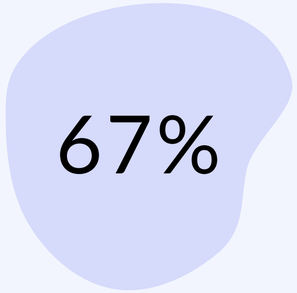
STIGMA



of patients have experienced weight-related stigma from their doctor

Source: Puhl, 2012

EXPLICIT BIAS

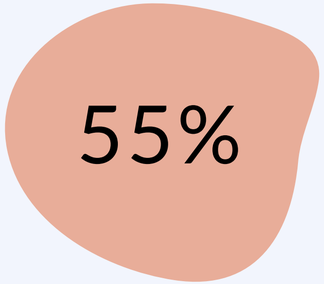


of medical students exhibit explicit weight bias

Source : Phelan, 2013

...which **discourages** them from receiving necessary **care**

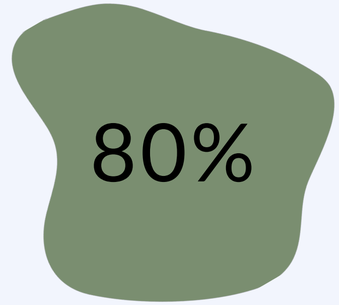
AVOIDANCE



of patients with obesity have cancelled an appointment due to anxiety about being weighed

Source: Gudzune, 2017

EMERGENCY CARE

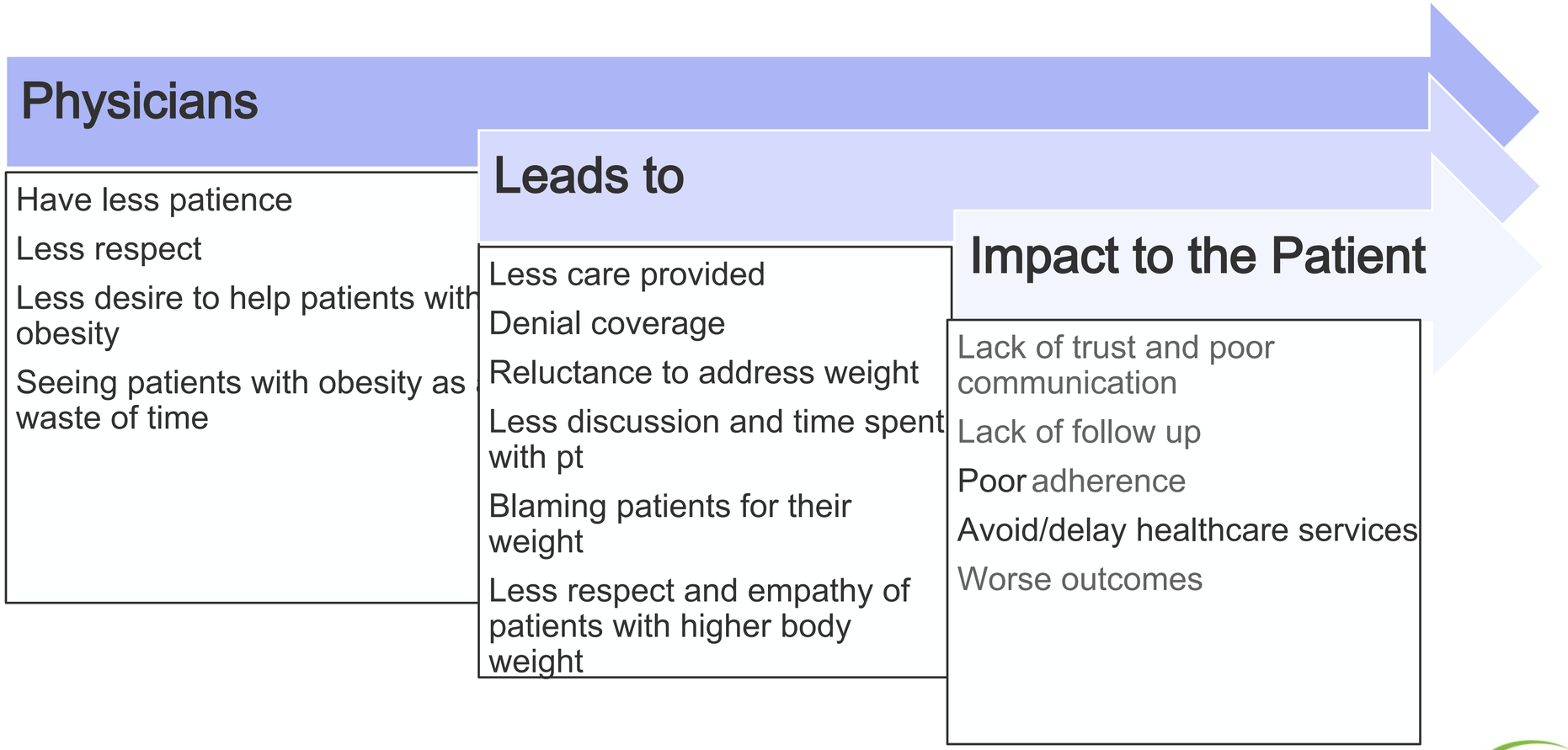


more likely to go to the emergency room, yet no more likely to be hospitalized, relative to those who have a PCP

Source: The Obesity Society

WEIGHT STIGMA IN HEALTHCARE

PHYSICIANS, NURSES, DIETITIANS, STUDENTS, FITNESS PROFESSIONALS



What percentage of adults in the United States have experienced weight stigma at some point in their lives?

EDUCATION, AWARENESS, SELF - REFLECTION

Ask:

- What assumptions do I have about people with obesity?
- Do I stereotype a person's character, personality, lifestyle or health based on their body weight?
- How do I feel when I interact with people with obesity?
- Am I sensitive to the needs and struggles of people with obesity?

https://stopweightbias.com/quiz/

https://implicit.harvard.edu/implicit/takeatest.html

WHAT IS BIAS FREE HEALTHCARE?

Care that honors a patient's personal experience and journey

Care that has an in-depth knowledge of the healthcare system/treatment options/ and access landscape

Care that participates in shared decision making and goal setting

Care that is built upon active listening and respect.

Care that celebrates the wins, no matter how small.

Obesity is a Multifactorial Disease that Requires a Multifaceted, Patient-centered, Individual Approach and,

“One size does not fit all.”

Family Medicine is at the Frontline to treat this disease

Are you currently treating patients for obesity at your practice?

WHY DO MOST PRIMARY CARE VISITS FOR PATIENTS WITH OBESITY NOT INCLUDE WEIGHT MANAGEMENT DISCUSSIONS?

- Time Constraints
- Multiple competing priorities during a brief appointment
- Inadequate reimbursement for obesity care
- Insufficient training
- Sensitive topic and unprepared to address
- Weight bias

What can you control?

KEY COMPONENTS OF A WEIGHT INCLUSIVE ENVIRONMENT

Remember to always use **“patient first”** language. Not referring to or labeling individuals by their disease.

Stop Using	Instead Use
• Morbidly Obese • Obese • Fat • Heavy	• Weight • Excess weight • Unhealthy weight • Overweight • Affected by Obesity

Obesity is a complex and chronic disease

Its causes are complex and multifaceted

Patients should not have to manage a disease alone

All people should have access to affordable tools and treatment without shame and blame

WEIGHT INCLUSIVE HEALTH CARE OFFICE ENVIRONMENT

Positive Office Space

- Sturdy, armless chairs, wide chairs with arms, and/or firm sofas in waiting rooms and exam rooms.
- Sturdy, wide exam tables
- Sturdy stool or step with handles to help patients climb onto the exam table.
- Tables/chairs/toilet seats which sustain higher body weights.
- Extra-large patient gowns
- Reading materials in waiting room that focus on healthy habits, not dieting or body image.

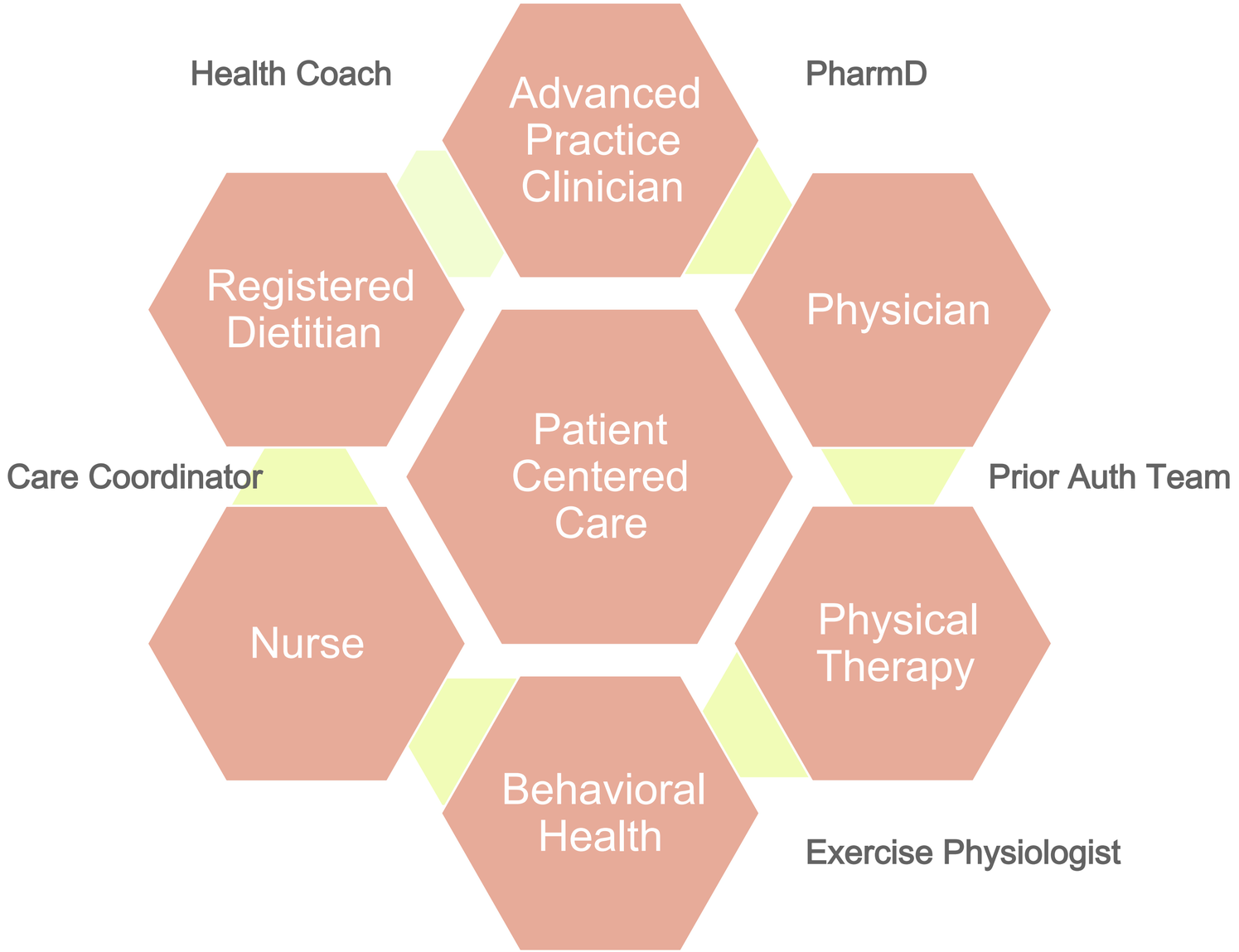
Appropriate Medical Devices

- Large adult blood pressure cuffs or thigh cuffs
- Extra-long needles to draw blood.
- Large vaginal specula
- Weight scales with the capacity to weight patients who weight more than 400 lbs.
- Weight scales located in a private area

MEMBERS OF THE CLINICAL TEAM

- Educated about bias and trauma informed care
- Interdisciplinary
- Collaborative
- Patient–centered team-based care

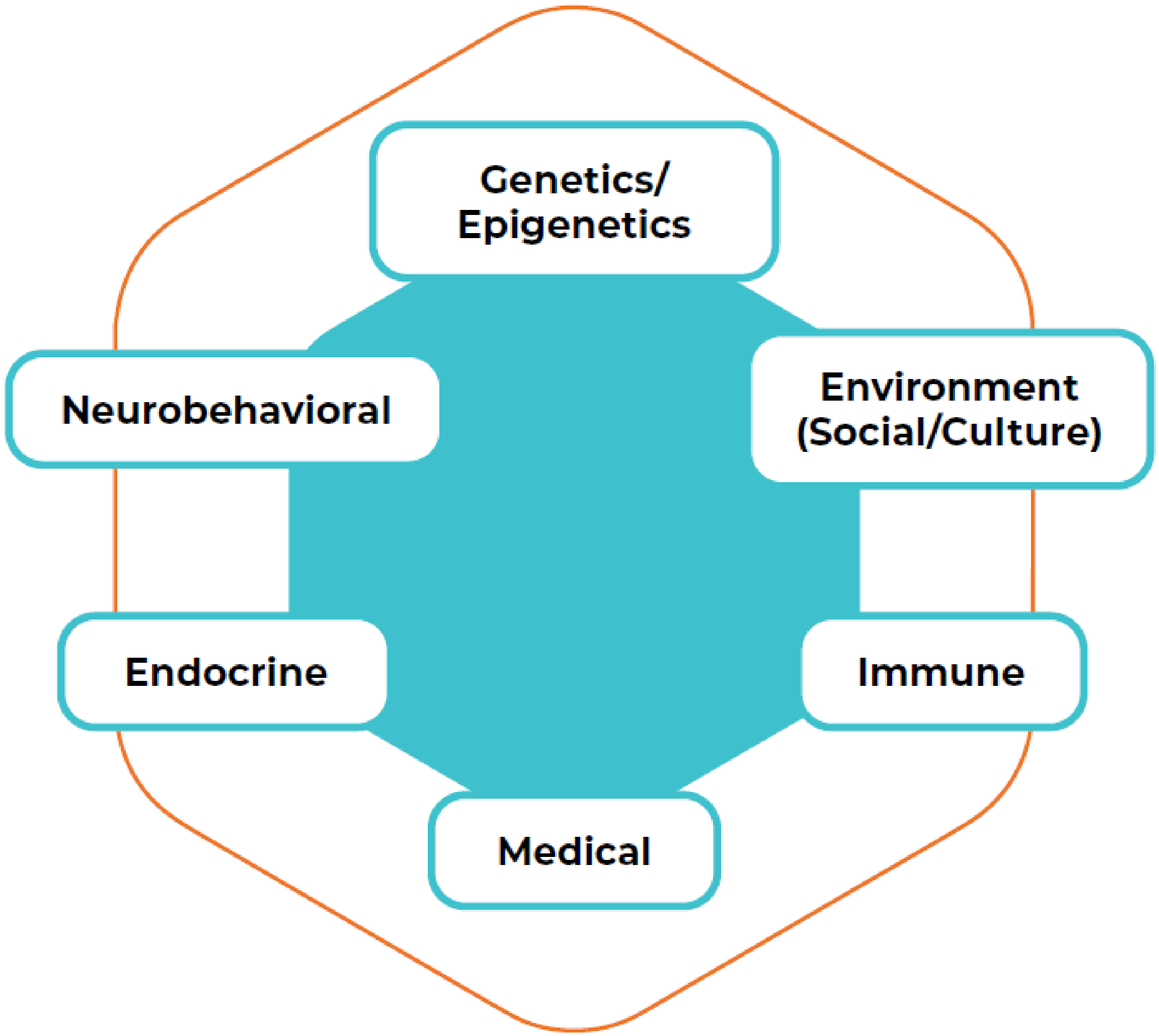
- Preferred referral partners- Psych, BH/Eating Disorder COE, Bariatric COE, Orthopedics, Cardiology, OB/Gyn, Gastroenterology



Evaluation and Treatment Overview

MANY FACTORS CONTRIBUTE TO OVERWEIGHT & OBESITY

- All these factors must be considered when evaluating your patient.
- Make sure you have enough time…..this is not an “end of the appointment” add on.
- Deserves an appointment with focus on weight and metabolic health- outside of annual exam, or regular office visit/follow up.



CARE MODEL

The Five As Framework for Obesity Counseling[2,*]

Ask
permission to discuss weight

Assess
BMI, waist circumference, and obesity class

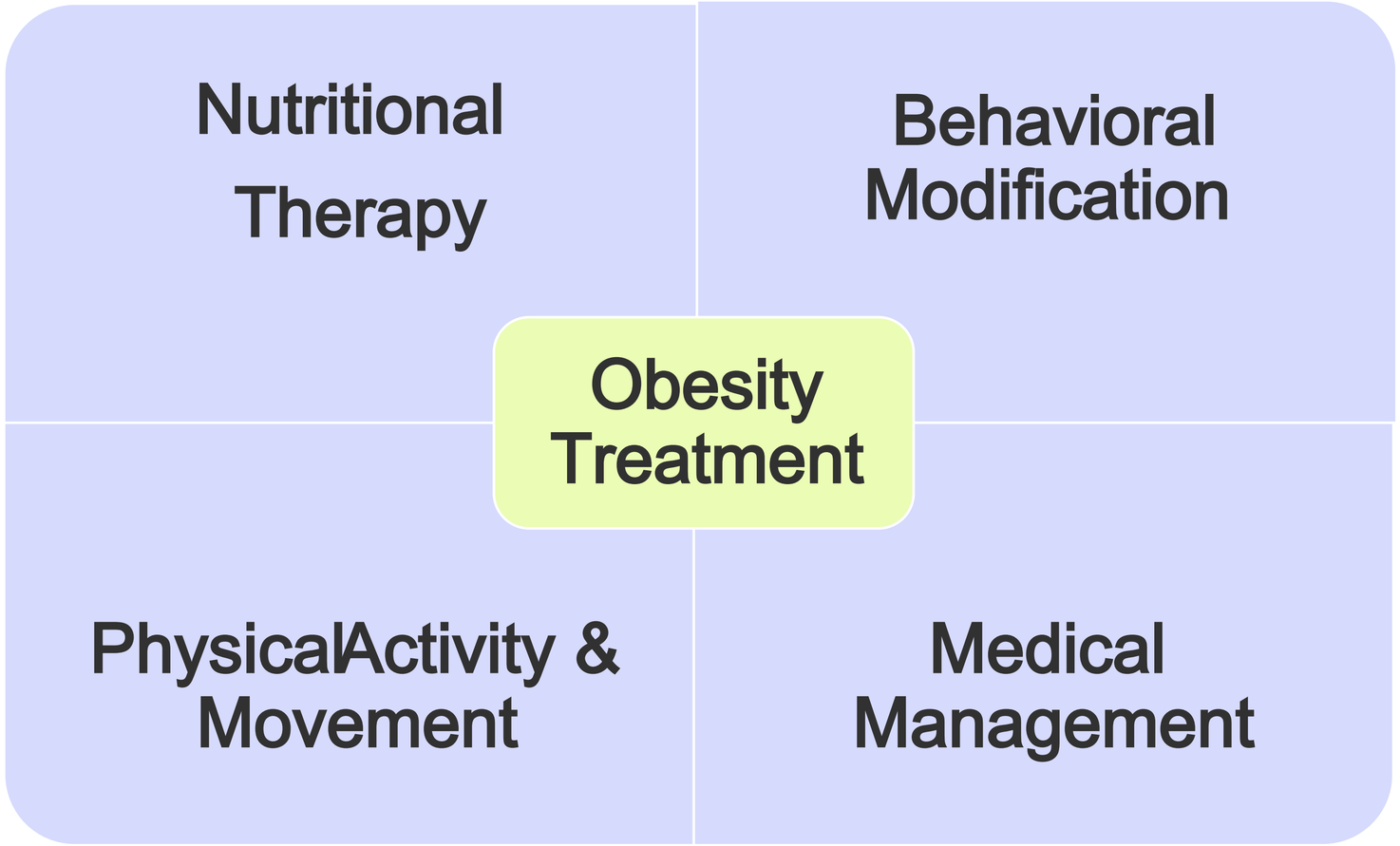
Advise
on treatment options and explain the need for a long-term strategy

Agree
on realistic goals and achievable changes

Assist
in identifying and addressing barriers and providing resources

In addition to Body Mass Index (BMI), what measurement tools are useful to assess obesity?

4 PILLARS OF OBESITY TREATMENT



Nutritional Therapy

NUTRITION THERAPY

Principles:

- Nutrition vs. Diet, and Longitudinal

- Individual based upon specific needs focusing on mental, emotional, and physical health and tailored to a patient's unique circumstances.

- Consumption of healthful proteins and fats, while being mindful of caloric content.
- Consumptions of veggies, whole fruits, nuts, legumes, whole grains.
- Complex carbs vs. simple sugars, low glycemic focus, high fiber focus.

- Minimize energy dense foods – sugar beverages, juice, cream
- Minimize ultra processed foods
- Minimize trans fats and excessive sodium

NUTRITIONAL COUNSELING FOR PRIMARY CARE- AVS

- Eat whole foods most of the time! Shop the perimeter!
- Main Focus- **PROTEIN AND FIBER** - Make these the dominant portion of each meal and most snacks!
- **PROTEIN-** Aim for 20-30g with each meal (3x/d) and a snack that is protein focused daily
- **FIBER** - 25-35 g /day. Vegetables! Whole fruit! Healthy grains.
- When choosing carbohydrates choose whole grains with added fiber preferentially. Limit the portion size (especially if you have diabetes, prediabetes, insulin resistance).
- Avoid refined grains, ultra processed foods, fast food, etc. as often as possible. These foods are VERY palatable, and it is hard to reduce quality thus leading to high calorie consumption
- If you eat whole foods 90% of the time the other 10% of the time what you eat becomes somewhat less relevant provided you are reasonable regarding portion sizes!
- Consider replacing a meal and a snack with a protein shake.

FAMILIARIZE YOURSELF WITH ALL THE “DIETS”

- Mediterranean
- DASH
- Low Fat
- Therapeutic Lifestyle Change (TLC)
- Ornish Dietary Pattern
- Vegetarian Dietary Variants
- Paleolithic Dietary Pattern
- Ketogenic Dietary Pattern
- Intermittent Fasting and Time-Restricted Eating

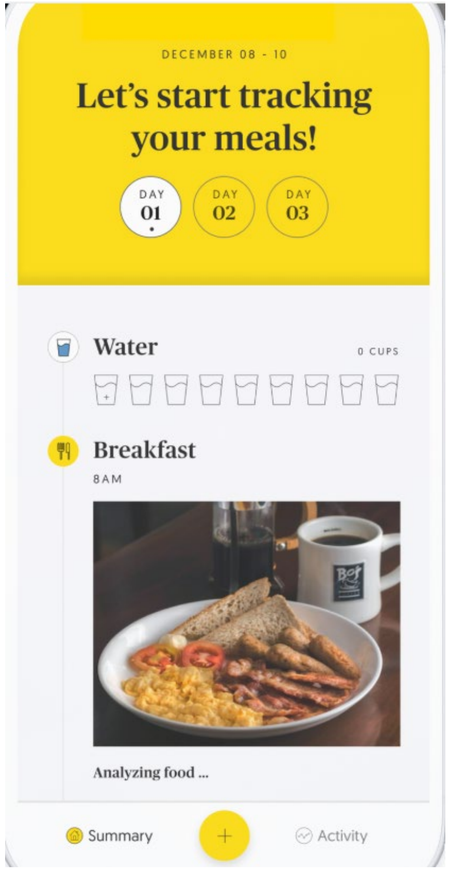
Nutrition.gov

GREAT TOOLS TO SUPPORT YOUR PATIENT

RxFood

uses AI to assess daily eating habits

https://rxfood.co

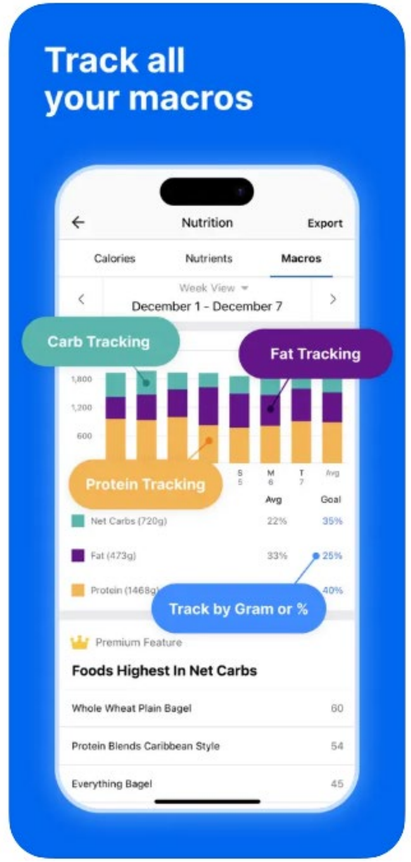


Fooducate: Nutrition Coach

your grocery shopping guide

MyFitness Pal

Track food, macros, nutrition



Physical Activity & Movement

PHYSICAL ACTIVITY AND MOVEMENT TIPS FOR PATIENTS

- Aim to get some movement on most days.
- Increase activity for the right reasons.
- Start low and go slow.
- Dedicated exercise – blend of aerobic activity and resistance training with a goal of 150 min of moderate intensity movement per week.
- As you get comfortable – challenge yourself and add stimulus or change (increase duration, frequency, intensity, weight) to keep your body guessing.

Resistance Training/muscle strengthening 2 x week
5000->10,000 steps per day and/or 150-300 min+ aerobic activity per week

PHYSICAL EXERCISE PRESCRIPTION (FITTE)

FREQUENCY, INTENSITY, TIME, TYPE, & ENJOYMENT

Rx

Mr. Mickey Mouse
DOB – 11/18/1928

- Frequency: 5 days a week
- Intensity: Moderate
- Time spent: 30 minutes per day
- Type: Walking at a pace where you can talk but not sing
- Volume: Distance walked
- Progression:
  - -Start at 10 minutes a day and increase by 5 minutes every month
  - -Increase the distance walked in the same amount of time

PHYSICAL ACTIVITY Rx

Rx

As your partner in health, I strongly recommend that you accumulate a total of 30 minutes of physical activity throughout your day on most, if not all, days of the week.

Start slow. Walking or spending more time doing activities you enjoy with others is a great place to start.

YOUR PHYSICAL ACTIVITY PRESCRIPTION:

	How Often	How Much
❑ Walk or wheel		
❑ Walk stairs		
❑ Dance fast		
❑ Bicycle		
❑ Swim		
❑ Work in the garden		
❑ Walk the dog		
❑ Other activity		

Start date: _____

Patient X _____ Health care provider X _____

OTHER FACTORS TO CONSIDER

- Assess current physical activity and functional abilities
- Patient readiness and expectations, encourage tracking apps and smart devices.
- Medical Evaluation to Ensure Safety (cardiac stress testing, PFTs, MSK assessment)
- Medication evaluation (diabetes and blood pressure)

Consider referral to Exercise Physiologist, Physical Therapist, or Personal Trainer

Behavioral Modification

BEHAVIORAL MODIFICATIONS

Where is the patient in **Stages of Change?** (pre-contemplation, contemplation, preparation, action, maintenance, or relapse?)

Motivational Interviewing – Collaborate and work together, draw out the patient's own thoughts and ideas, Empower the patient to own the solution.

OARS – Open ended questions, Affirmation, Reflections, and Summaries

Techniques that are set up for success:

- Doable and Practical
- Efficacious – evidence based
- Measurable & Accountable
- Self – Ownership

BEHAVIOR THERAPY

Implementation into practice

- Frequent visits and follow ups – sync and async
- Education – obesity is a disease
- Set realistic expectations
- Stimulus Control- social support, family
- Stress Management

Behavior Therapy

- Stimulus Control Education
- Cognitive Restructuring – address matters of body image
- Goal Setting (SMART)
- Non-Scale Victories
- Self-monitoring Tools
- Sharing of social media resources – healthful mind and body

GOAL SETTING AND SELF-MONITORING

Goal Setting

Give your patient step by step, concise instructions to accomplish goals.

- Specific
- Measureable
- Achievable
- Realistic
- Time-related

Non-Scale Victories

Celebrate goals beyond body weight and other number focused metrics.

- Improved energy
- Improved focus at work
- Better sleep
- Reduction in medications

Self-Monitoring

- Frequency of self-monitoring is related to weight loss
- Food diaries
- Physical activity logs/Activity tracker
- Sleep monitoring
- Photo journaling

☎ **CALL A FRIEND** – Partner with your practice or community Behavioral Health Experts.

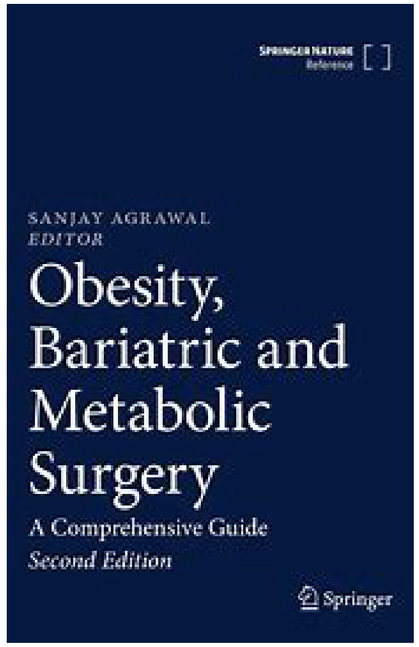
Medical Management

MEDICAL MANAGEMENT

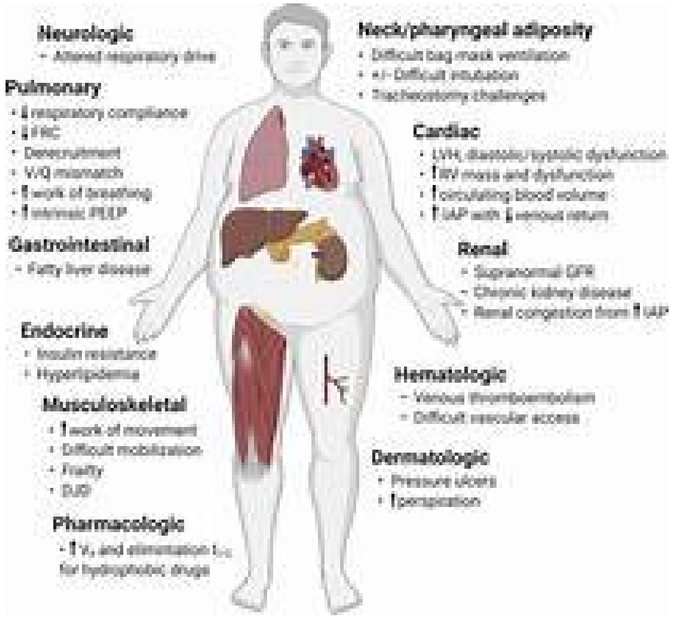
Medications

Verywellhealth.com

Bariatric & Metabolic Surgery



Secondary Disease and Complication Management



CHEST, Volume 160, Issue 6, 2135 - 2145

MEDICAL ASSESSMENT AND EVALUATION

Medical History and PE

- Weight history
- Lifestyle patterns
- Previous weight loss attempts
- Vital Sign measurement including waist circumference
- Physical exam to identify obesity related complications

Laboratory Tests

CMP
CBC
A1C
Lipids
Insulin
TSH

Body Composition Testing

DEXA
BOD POD
Bioelectrical Impedance
SECA
InBody

Concomitant Medications

Is the patient taking a medication that is weight promoting? ~15% of obesity/wt gain may be related to a medication.

- Beta-blocker
- Diabetes - Insulin, sulfonylurea, “-glinides” & “-zones”
- Contraceptive- progestins
- Steroids
- Anti-seizure- gabapentin, valproate, carbamezapine
- Antidepressants- tricyclic, SSRI – paroxetine, citalopram, SNRI - venlafaxine
- Mood stabilizers- lithium
- Antipsychotics – clozapine, olanzepine, risperidone

ANTI-OBESITY MEDICATION (AOM)

Indicated for individuals with a BMI > 30 or

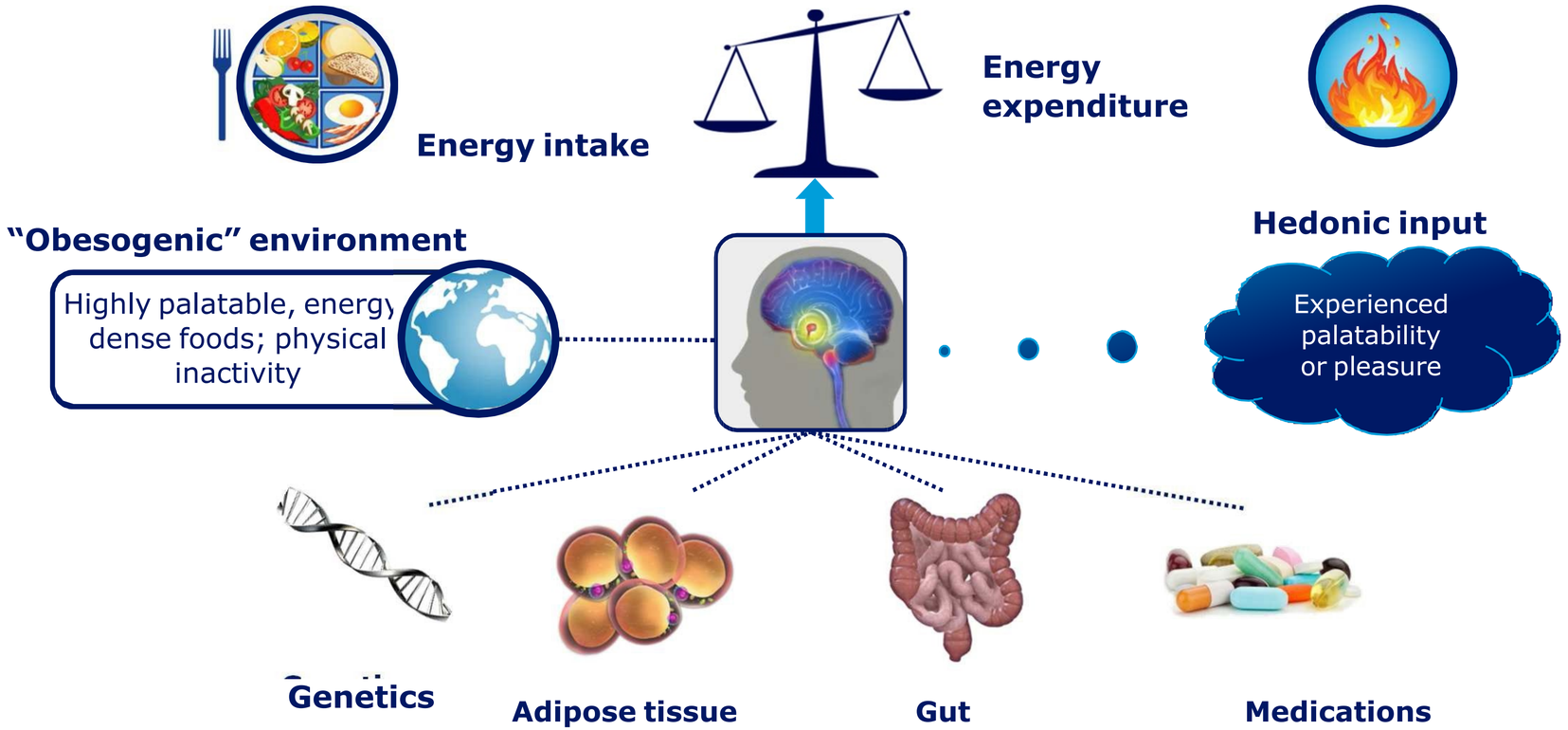
BMI > 27 with an obesity related co-morbidity.

- Less than 2% of eligible people are on an AOM.

Medication is an important tool in a comprehensive obesity management plan.

- Support people to adhere to lifestyle changes.
- Medications address the physiological mechanisms (Metabolic Adaptation) that promote weight gain and make it difficult to lose weight.
- Weight loss response to anti-obesity medications is variable.
- Weight regain is likely to occur if medication is discontinued.

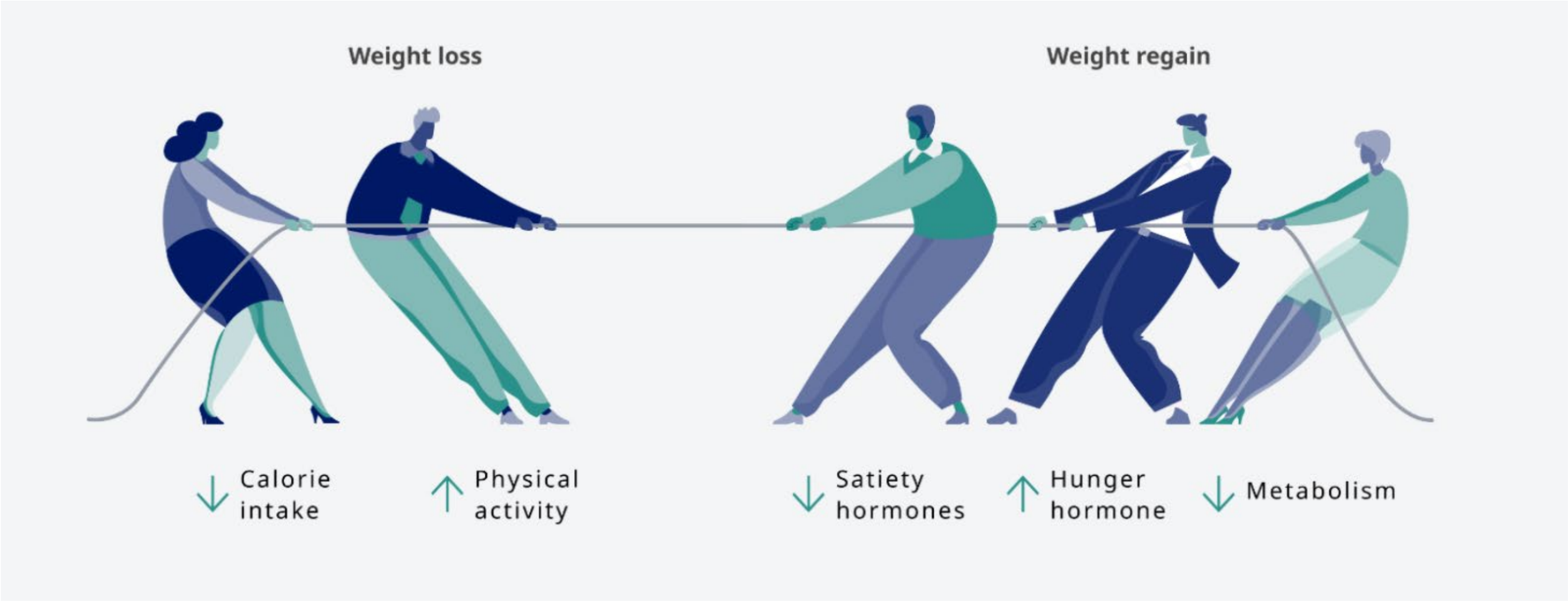
APPETITE REGULATION IS COMPLEX



1. Woods SC et al. *Int J Obes Relat Metab Disord*. 2002;26 Suppl 4:S8–S10. **2.** Ludwig DS. *JAMA*. 2014;311:2167–2168.
3. Speliotes EK et al. *Nat Genet*. 2010;42:937–948. **4.** Garvey WT et al. *Endocr Pract*. 2014;20:977–989. **5.** Bray GA and Ryan DH. *Ann NY Acad Sci*. 2014;1311:1-13.

WEIGHT LOSS IS ABNORMAL!

THE "TUG OF WAR" OF WEIGHT MANAGEMENT



Metabolic Adaptation - the body's physiology responds to weight reduction with the goal of regaining the weight to bring back into homeostasis, driving weight regain.

Decrease Energy Expenditure	Increase in All Appetite Inducing Hormones
Decrease in Fat Oxidation	Hedonic Factors also Override the Normal Feedback Loop- Heightening Cravings
Decrease in Circulating Leptin	

https://www.rethinkobesity.com

FDA APPROVED MEDICATIONS & DEVICE FOR WEIGHT LOSS

Drug	Status
Phentermine	Approved in 1955
Orlistat (Rx & OTC)	Approved in 1999
Phentermine/Topiramate (Qysmia®)	Approved in 2012 (Components available in generic formulation)
Naltrexone/Bupropion (Contrave®)	Approved in 2014 (Components available in generic formulation)
Liraglutide (Saxenda®/Victoza®)	Approved in 2014 (only GLP1 medication available generically)
Plenity® (device)	Approved in 2019
Semaglutide (Ozempic®/Wegovy®)	Approved in 2017 for thetx of T2DM and for obesity in June 2021
Tirzepatide (Mounjaro® Zepbound®)	Approved in 2022 for thetx of T2DM. Approved for weight loss in 11/2023

ADDITIONAL MEDICATIONS THAT MAY IMPACT WEIGHT REDUCTION- OFF LABEL

Metformin (avg. weight loss of 2-5%)
Improve adiposopathic disorders – insulin resistance, PCOS, CV disease, longevity

- Help treat complications of concurrent drug treatments – antipsychotic-related weight gain, HIV protease inhibitor – associated abnormalities
- Reduce overall cancer rate and improve the treatment of multiple cancers
- Improve insulin sensitivity and reduce hunger via multifactorial effects – enhance GLP-1 levels and receptor and other GI hormones applicable to weight loss.

SGLT2 and SGLT1 inhibitors (avg. weight loss of 2-4 kg)
Lower glucose levels and negative caloric balance – induces Ketosis

- Decrease proximal renal tubule glucose reabsorption
- Decrease GI glucose absorption

OTHER OFF LABEL OPTIONS

Naltrexone- great for patients with cravings BUT only 50 mg, hard to score to low dosing- side effects headache, dizziness, fatigue, nausea, anxiety (12.5-25 mg)

Bupropion XL (150-300 mg)

Phentermine – Lomaira- start 4-8 mg – low dose in am and ½ dose afternoon if needed.

Topiramate – works nicely for patients with evening eating and cravings –(50-100 mg)

THERAPEUTIC GOALS

Weight reduction of 5-10 % of body weight

Reduce obesity-associated complications

6 months

- Reduce CVD risk factors
- Prevention and delay of onset of DM2
- Improved MASLD
- Improved osteoarthritis and mobility

Improve patient health and quality of life

ongoing

- Reduced sleep apnea
- Improved mental health
- Improved physical functioning and quality of life scores

CVD, cardiovascular disease; T2DM, type 2 diabetes mellitus.

Jensen MD, et al. *Circulation*. 2014;129:S102-S138. Garvey WT, et al. *Endocr Pract.* 2016;22 Suppl 3:1-203. Yanovski SZ, et al. *JAMA*. 2014;311:74-86. Apovian CM, et al. *J Clin Endocrinol Metab.* 2015;100(2):342-362.

HEALTH BENEFITS OF OBESITY TREATMENT

Percentage weight loss

5% 10% 15% 20% 25% 30% 35%

- T2D prevention[1]
- Sleep apnea[2]
- Physical function[2]
- MASLD resolution[3,4]
- T2D remission[5]
- MACE reduction[6]
- Cancer risk reduction[7]

Increasing health risks

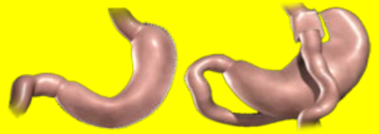
Increasing adiposity

Obesity Treatment Pyramid

Treatment Intensity

BMI > 40
BMI > 35 with comorbidity

Surgery



20-40% weight loss

Endoscopic

10-20% weight loss

BMI > 30
BMI > 27 with comorbidity

Pharmacotherapy

10-25% weight loss

Prescriptive Nutritional Intervention

5-10% weight loss

Lifestyle Modification

2-5% weight loss

Used with permission from Dr. Angela Fitch

Patient Care
your day in the office

CASE STUDY – MEET ELLEN

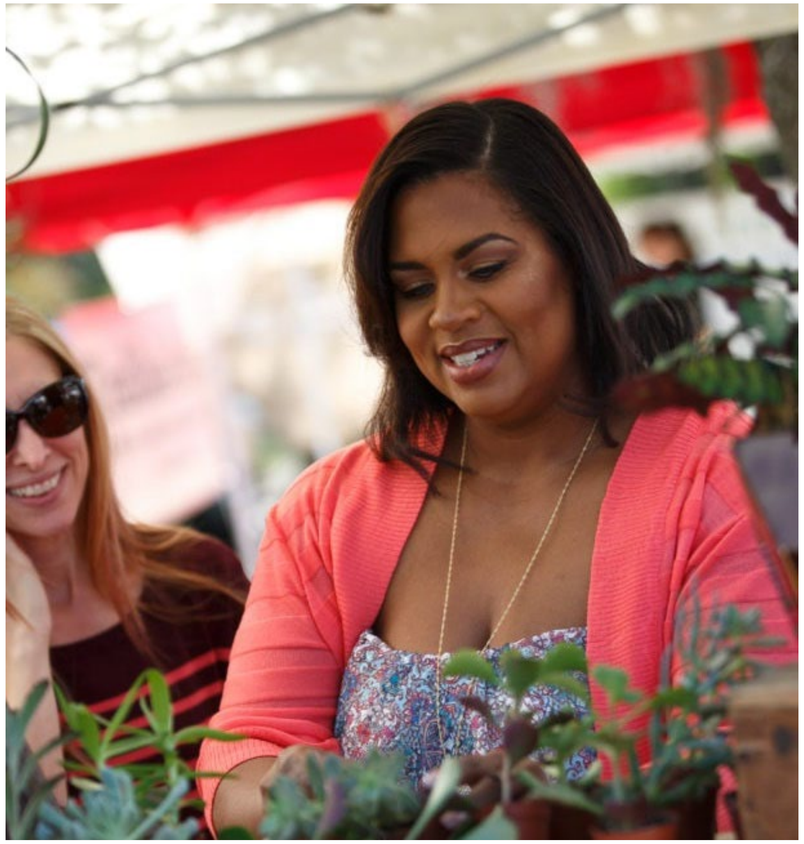


Photo courtesy of OAC

44-year-old woman presents to the clinic today to discuss possible assistance with her increasing weight.

Medical History	Medications
OSA	Metoprolol
GERD	Omeprazole
HTN	Duloxetine
Depression/Anxiety	Copper IUD
Kidney Stones	

Family History: HTN, DM (father, mother, sister), all family is “heavy”, no cancer

SH: Married with 2 teenagers, remote work high stress job, ETOH social, no tobacco/THC.

Vital Signs:

- 5’4”; 212 lbs
- BMI: 36.30 kg/m2
- Waist circumference: 42”

- BP **142/88 mmHg**
- HR 78
- O2sat 98%

• Screening tools: PHQ-9 (4), **GAD-7 (15)** BED7 (neg), **STOP-BANG positive**

Most recent labs:

- Triglycerides **174 mg/dL; TC 236 mg/dL**; **LDL 134 mg/dL**; HDL 48 mg/dL; **AST 67 u/L; ALT 102 u/L;** vitamin D 34 ng/mL
- Fasting insulin 18 mIU/L; glucose 94 mg/dL; A1C 5.6

Obesity-related complications:

- Elevated liver enzymes
- Hyperlipidemia, HTN
- OSA

Obesity comorbidities: kidney stones, depression

Weight promoting medication: β blocker, Duloxetine

REAL WORLD MANAGEMENT

Know your Patient

- Family History, Medical History, Secondary Conditions, Psychological, Goals and Motivations

Evaluate

- Vital Signs, WC, BMI, body composition, reconcile medications and identify weight promoting meds, laboratory, physical exam

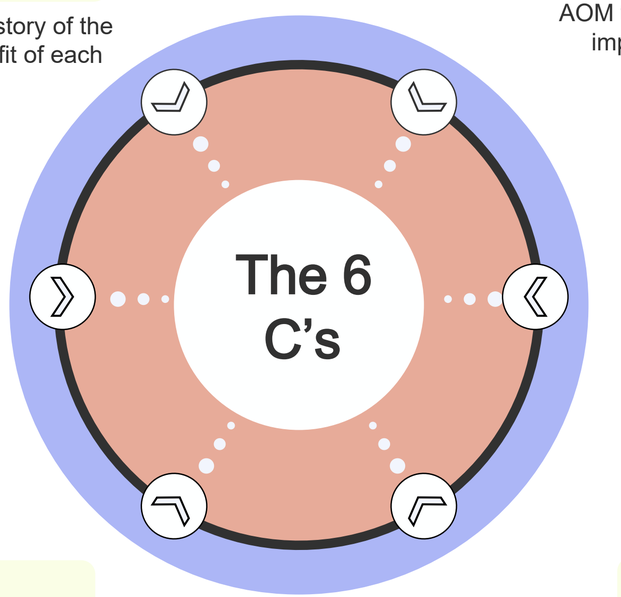
Identify

- Lifestyle and pharmacologic, surgical strategies

SMIO
SINGLE MOST IMPORTANT OUTCOME

What are the patient’s goals?

CONSIDERATIONS WHEN CHOOSING AN AOM



Contraindications and Caution

Assess the clinical history of the patient and risk/benefit of each AOM

Comorbidities

When appropriate, select an AOM that can treat obesity and improve other conditions

Commitment

Is the patient ready for long term treatment? Is there a mode of delivery preference?

Cues

Consider patient-described appetite control symptoms

Cost & Coverage

Consider medication cost and insurance coverage

Combinations

Consider combination therapy with lifestyle interventions, other AOMS, and surgery

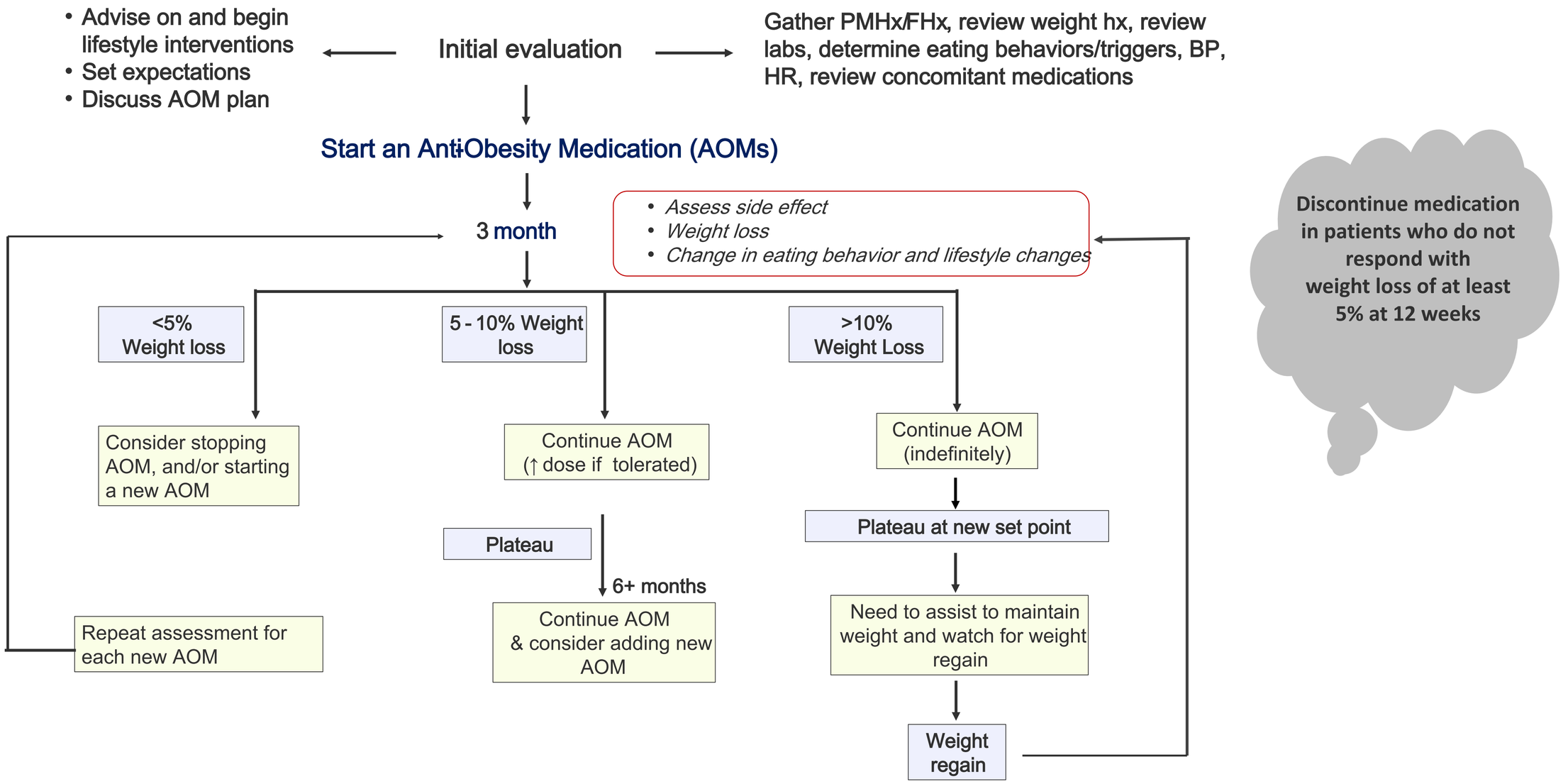
Goal – personalize treatment intervention for different severities of obesity to achieve weight reduction and mitigate long -term risk

GOAL SETTING STRATEGY FOR WEIGHT REDUCTION

- **Shared decision making is important**
- **Weight loss goals based upon starting BMI, WC, individual patient goals, and obesity related complications**

Obesity Related Complication	Weight loss goal	Clinical Goal
Metabolic Syndrome	10%	Prevention of T2DM
Prediabetes	10%	Prevention of T2DM
T2DM	5-15% or more	Reduction in A1C, reduction in # of DM meds, Diabetes remission
Dyslipidemia	5-15% or more	Decrease trigs, raise HDL, Lower non-HDL
Hypertension	5-15% or more	Lower SBP and DBP, dose de-escalation of meds, reduction of # of meds
Steatosis- MAFLD	5%	Reduction in fatty infiltration
Steatohepatitis- MASH	10-40%	Reduction in inflammation
PCOS	5-15%	Ovulation, menses regulation, decreased hirsutism, increase insulin sensitivity, decrease androgen level
Female infertility	10% or more	Ovulation, Pregnancy, Live birth
Male hypogonadism	5-10%	Increase in serum testosterone
OSA	7-11%	Improved symptoms, decreased AH index
Asthma/RAD	7-8 %	Improved FEVI, symptoms
OA	>10% or (5-10% when coupled with exercise)	Improved symptoms, increased function
Urinary Stress Incontinence	5-10%	Reduced frequency
GERD	10% or more	Improved symptoms
Depression	?	Improved scores, symptoms, QOL

TREATMENT ALGORITHM



Adapted from Pharmacology talk, Blackburn Obesity June 2020

Obesity Treatment Strategy Algorithm

***When to initiate anti-obesity medication as an adjunct to lifestyle therapy**

1. Failure to lose weight (progressive weight gain or no clinical improvement in weight related complications on lifestyle therapy alone)
2. Weight regain on lifestyle therapy
3. Presence of weight related complications (initiate medication concurrent with lifestyle therapy in patients with overweight or obesity who have weight related complications, especially if severe)

Obesity Classification- BMI and /or WC	BMI ≥ 30-39.9 BMI 27 + condition WC >35 (88cm)/>40(102cm) (pop specific)		BMI ≥ 40 (pop specific)	
Baseline complications	• Medical (DM, NAFLD, HTN, and more) • Psychological (Depression, Anxiety, Stigma, BED and more) • Physical (OA, OSA, skin, and more) Mild → Severe			
	No	Yes	No	Yes
Target Weight Loss 6 months	> 5%	> 5%	>10%	>10%
Target Weight Loss 12 months	>10%	>10%	>15%	>15%
Initial Weight Loss Strategies	Supervised Lifestyle	***Supervised Lifestyle + Pharmacotherapy** -Metformin -Contrave® (bupropion/naltrexone) -Qsymia® (phentermine/topiramate)	***Supervised Lifestyle + pharmacotherapy** -Metformin -Contrave® (bupropion/naltrexone) -Qsymia® (phentermine/topiramate)	***Supervised Lifestyle + Pharmacotherapy** – GLP 1 & GLP1/GIP consideration
	*If target wt loss not achieved 6 months or not maintained			
Secondary Weight Loss Strategies	**+Pharmacotherapy** -Metformin -Contrave® (bupropion/naltrexone) -Qsymia® (phentermine/topiramate)	**+Additive Therapy–** consider GLP 1, GLP1/GIP -Metformin -Contrave® (bupropion/naltrexone) -Qsymia® (phentermine/topiramate) -Saxenda® (liraglutide) -Wegovy® (semaglutide) -Zepbound® (tirzepatide)	**+Additive Therapy–** consider **GLP1, GLP1/GIP** -Metformin -Contrave® (bupropion/naltrexone) -Qsymia® (phentermine/topiramate) -Saxenda® (liraglutide) -Wegovy® (semaglutide) -Zepbound® (tirzepatide	**Metabolic & Bariatric Surgery**

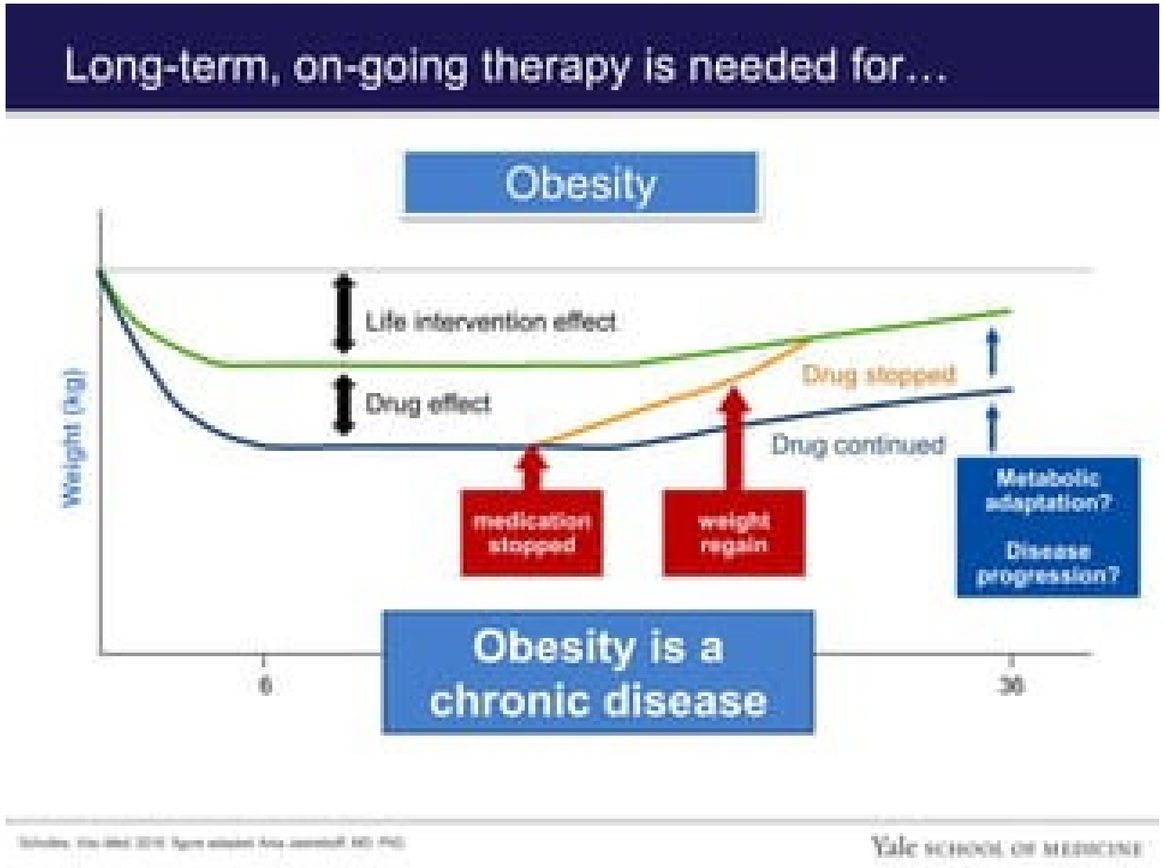
BACK TO ELLEN: SHARED DECISION MAKING

AOM	Additional Benefit	Excluded
Bupropion ER/Naltrexone	+craving of sweets in the evening	Anxiety?
Orlistat	None	GI side effects
Phentermine	Cost	HTN
Phentermine/Topiramate ER	+craving in evening	HTN, Kidney Stones
Semaglutide(Wegovy®)	Insulin Resistance Liver steatosis CV risk	None
Tirzepatide(Zepbound®)	Insulin Resistance Liver steatosis OSA	None

WEIGHT LOSS OVER TIME +/- LIFESTYLE INTERVENTION AND AOMS

knownwell®

AOMs are not a temporary solution. Must manage expectations.



Schultes B. Pharmacological Interventions against Obesity: Current Status and Future Directions. Visc Med. 2016 Oct;32(5):347-351. doi: 10.1159/000450904. Epub 2016 Oct 7. PMID: 27921047; PMCID: PMC5122991.

ANTI-OBESITY DRUG DEVELOPMENT

Targets of current anti -obesity drug development are mainly focused on intervention pathways related to the central nervous system, gastrointestinal systems, and adipose tissue.

GLP-1 RA are being combined with other agents as double or triple hormone receptor agonists (e.g., retatrutide).

An emerging concept is that the development of anti -obesity agents must not only reduce fat mass (adiposity) but must also correct fat dysfunction (adiposity -related disease) .

Novel agents are becoming more effective and reaching outcomes Except for what is observed with bariatric surgery .

Except for anti -obesity agents that are a combination of drugs in a single formulation, limited data exists for combination of multiple anti -obesity medications .

PROMISING THERAPIES IN DEVELOPMENT

More……

- Ghrelin O- Acyltransferase Inhibitor or GOAT – Prader Willi
- Anti-obesity vaccines
- Cholecystokinin analogues
- Adiponectin therapy
- Triple Monoamine reuptake inhibitor

Class of agents in development	Mechanism
Oral Semaglutide	• Showing effectiveness near injection in Oasis trial
Glucagon (GCG) receptor agonist	• ↑ glucose levels via gluconeogenesis and inhibits insulin • ↑ satiety • ↑ thermogenesis • ↑ energy expenditure • ↑ lipolysis and fatty acid oxidation → ↓ cholesterol and TG level
Glucose-dependent insulinotropic peptide (GIP) antagonists	• ↑ glucagon secretion • Improves insulin resistance • ↑uptake and rapid oxidation of fatty acids by muscle and liver
Areas of promising new combinations:	GLP-1 combined with: • GLP-1 + amylin analogue (15% weight loss at 5 months)- **CagriSema– Early 2026** • GLP-1 + GIP + GCG (tri-agonist)- **Retatrutide - 2027** • GLP-1 + SGLT-2 inhibitors
Monoclonal Antibody (Bimagrumab)	• Binds to activin type II receptors **in muscle** (increase mass and volume) and **in adipose** (decrease mass, increase BAT, thermogenesis, mitochondrial and oxidative metabolism)
Fibroblast growth factor– 21 analogues	• Increase energy expenditure and browning of adipocytes • FGF21 improves insulin sensitivity, reduces hepatic fat, and reduces lipid levels

Thank you

CONTACT

Britta Reierson

britta.reierson@knownwell.health

linkedin.com/in/britta-reierson-md-faafp-diplomat-obesity-med-43266294

Knownwell.co

REFERENCES

- Tondt J, Freshwater M, Benson -Davies S, Dawkins C, Magee J, Karjoo S, Ortiz Page SO, Pile H, Khan N, Hurtado Andrade M, Rajpal A, Petcu A, Antoun J, Haq H, Fryoux E, Gugnani K, Manek M, Aranas MP, Afreen S. Obesity Algorithm eBook, presented by the Obesity Medicine Association. www.obesityalgorithm.org. 2024
- Adult Obesity Algorithm eBook: Detailed Overview of Obesity Medicine.
  Bays HE, McCarthy W, Christensen S, Tondt J, Karjoo S, Davisson L, Ng J, Golden A, Burridge K, Conroy R, Wells S, Umashanker D, Afreen S, DeJesus R, Salter D, Shah N. Obesity Algorithm eBook, presented by the Obesity Medicine Association, www.obesityalgorithm.org. 2020. https://obesitymedicine.org/obesity -algorithm/ (Accessed February 2021)
- Michałowska J, Miller-Kasprzak E, Bogdański P. Incretin Hormones in Obesity and Related Cardiometabolic Disorders: The Clinical Perspective. Nutrients. 2021 Jan 25;13(2):351. doi: 10.3390/nu13020351. PMID: 33503878.
- Killion EA, Wang J, Yie J, Shi SD, Bates D, Min X, Komorowski R, Hager T, Deng L, Atangan L, Lu SC, Kurzeja RJM, Sivits G, Lin J, Chen Q, Wang Z, Thibault SA, Abbott CM, Meng T, Clavette B, Murawsky CM, Foltz IN, Rottman JB, Hale C, Véniant MM, Lloyd DJ. Anti-obesity effects of GIPR antagonists alone and in combination with GLP-1R agonists in preclinical models. Sci Transl Med. 2018 Dec 19;10(472):eaat3392. doi: 10.1126/scitranslmed.aat3392. PMID: 30567927.
- O'Neil PM, Birkenfield AL, McGowan B, et al. A randomized, phase II, Placebo-and-active controlled close-ranging study of semaglutide for treatment of obesity in subjects without diabetes. Presented at the Annual Meeting of The Endocrine Society, Chicago, IL, March 18, 2018. Abstract OR.
- Lancet. 2100 Oct 22;378(9801). 1485-1492.
- AMA Surg. 2016 Nov. 1;151 (11):1046-1055.
- Obesity (Silver Spring. 2019 Jan;27(1):75-86.

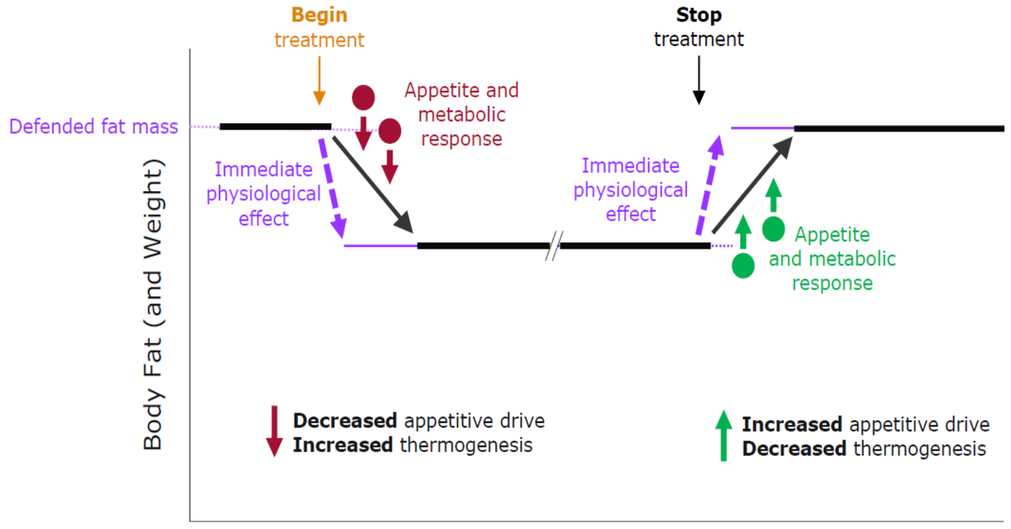
Reference URLs:

- Obesity Algorithm | Obesity Medicine Association
- Rethinkobesity.com
- AMA resolutions: https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/about-ama/councils/Council Reports/council-on-science-public-health/a13csaph3.pdf
- Obesity Canada: https://obesitycanada.ca/obesity-in-canada/
- EASO: https://easo.org/wp-content/uploads/2018/12/EASO-Milan-Declaration-FINAL.pdf
- FDA: https://www.fda.gov/
- RCP: https://www.rcplondon.ac.uk/file/11920/download
- IMA: https://www.israelnationalnews.com/News/News.aspx/246066
- German Government: https://easo.org/german-parliament-recognises-obesity-as-a-disease/
- Italian Government:
- EMA: https://www.ema.europa.eu/en/documents/scientific-guideline/guideline-clinical-evaluation-medicinal-products-used-weight-management-revision-1_en.pdf

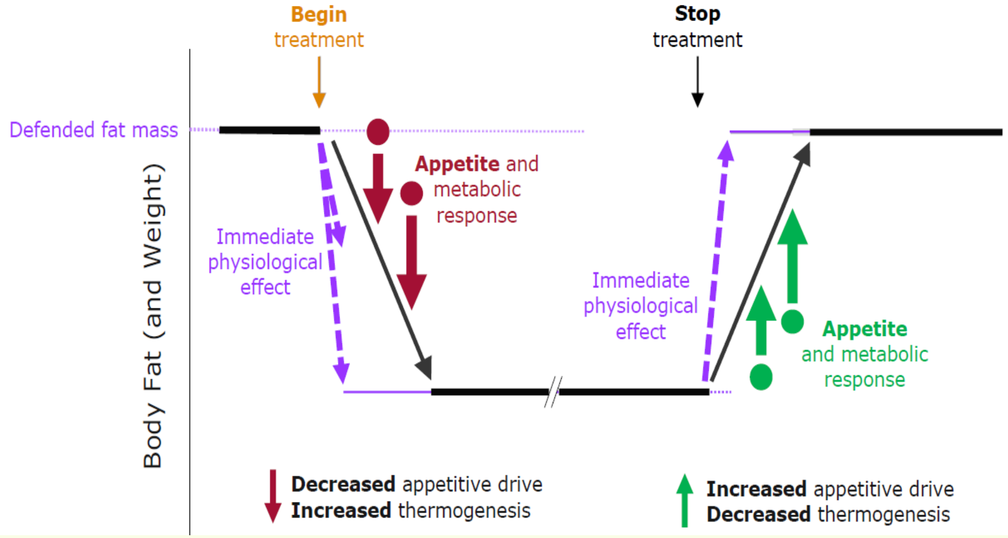
Appendix & Additional Resources

OBESITY IS A RELAPSING DISEASE

Removal of effective therapy returns the set point to baseline



The greater the weight loss, the greater the drive to weight regain after stopping a medication



THERE ARE MANY MEDICATIONS THAT HAVE THE POTENTIAL TO PROMOTE WEIGHT GAIN

Class of medication	Alternative Agents
Weight Promoting	**May promote weight loss +/-weight neutral**
Cardiovascular:	
Beta-blockers: ➢Propranolol ➢Atenolol ➢Metoprolol	➢Carvedilol
Older and more lipophilic CCBs may ↑ body weight 2/2 edema, e.g. nifedipine, amlodipine	
Diabetes medications:	
Insulins ➢Sulfonylureas ➢Thiazolidinediones ➢Meglitinides (e.g. nateglinide, repaglinide)	May ↓ weight: ➢Metformin ➢GLP-1 agonists ➢SGLT2-inhibitors ➢Alpha glucosidase inhibitors (e.g. acarbose, miglitol) ➢Pramlintide Weight neutral: ➢DPP4 inhibitors (e.g. "-gliptins")

Class of medication	Alternative Agents
Weight Promoting	**May promote weight loss +/- weight neutral**
Steroids:	
Contraceptives: ➢Progestin contraceptives (injectable or implantable) ➢OCPs ➢IUDs	➢Copper IUD ➢Testosterone (helpful in men, facilitates ↓ in lead body mass)
Anti-seizure medications:	
➢Carbamazepine ➢Gabapentin ➢Valproate ➢Pregabalin	➢Topiramate ➢Zonisamide

Class of medication	Alternative Agents
Weight Promoting	**May promote weight loss +/weight neutral**
Antidepressants	
Tricyclic antidepressants: ➢Amitriptyline ➢Doxepin ➢Imipramine ➢Dosulepin	Variable effect on body weight: ➢Desipramine ➢Nortriptyline
SSRIs ➢Paroxetine ➢Citalopram	Variable effect on body weight: ➢Escitalopram ➢Sertraline
SNRIs ➢Venlafaxine	➢Desvenlafaxine ➢Duloxetine
➢Trazodone	Decrease weight: ➢Bupropion ➢Fluoxetine

Class of medication	Alternative Agents
Weight Promoting	**May promote weight loss**
Mood stabilizers	
➢Gabapentin ➢Divalproex ➢Lithium ➢Valproate ➢Carbamazepine ➢Lamotrigine ➢Oxcarbazepine	➢Topiramate ➢Zonisamide

Medication Information

YESTERDAY, TODAY, AND TOMORROW

Dinitrophenol and methamphetamine, Rainbow Pills 1930-1950s

Phentermine* 1955

Orlistat. 1999

Qysmia® 2012
Phentermine/topiramate ER

Contrave® 2014
Naltrexone/bupropion SR

Saxenda®/Victoza®
Liraglutide 3 mg

Plenity® 2019

Imcivree® 2020
Setmelanotide

Wegovy® 6/2021
Semaglutide 2.4 mg

Zepbound® 11/2023
Tirzepatide 15 mg

What's Next?
- CagriSema
- Bimagrumab
- GLP1/GIP/Glucagon Triagonist
- Oral Semaglutide

1st Generation

2nd Generation

** Not FDA approved for longterm use > 3mo*

METFORMIN

Mechanism of Action[1]	Dose	Commonly Experienced Side Effects	Cautions/ Contraindications	Comments
➢↓ gluconeogenesis ➢↓insulin resistance ➢↑ levels of GLP-1 **Mechanism for weight loss:** ➢Induces↑ GDF 15 (aka macrophage inhibitory cytokine1 – MIC1) levels in the small and large intestine → ↓food intake and↑ energy expenditure	➢Start with 500mg in the AM with meals, and in one week may↑ to BID. ➢Can↑ to 1000mg BID, as tolerated ***Use ER formulation due to improved tolerability*** ➢May time pill prior to or with meal to maximize appetite suppressing effect	➢Diarrhea ➢Abdominal cramping ➢Flatus ➢Vitamin B12 deficiency *(Metformin acts as a direct competitor to B12 absorption and impairs intrinsic factor) → Need to monitor levels* ➢Lactic acidosis in the presence of renal insufficiency ➢Allergic reaction (rare) ➢Hypoglycemia (rare) ➢Altered taste	➢History of ketoacidosis ➢History of heart failure ➢GFR < 30 (Stage IV CRF) ➢History of hepatic failure ***Will need to discontinue up to 48-72 hours prior to a procedure requiring contrast or planned surgery due to risk of metabolic acidosis/ acute renal injury***	➢↓ risk of adverse cardiovascular events[2] ➢Can mitigate weight gain due to psychoactive Rxs[3] ➢Has anti-cancer effect[4] ➢↓ mortality due to COVID[5] ➢Key to tx of women with PCOS and infertility issues[6] ➢Can be used during pregnancy to mitigate weight gain ***Important to stabilize insulin levels*** ➢“Anti-aging” effect: ➢Improves mitochondrial function ➢↓ telomere attrition and senescence ➢Anti-inflammatory effects/anti-cancer

PHENTERMINE

Mechanism of Action	Dose	Commonly Experienced Side Effects	Cautions/ Contraindications	Comments
➢Norepinephrine (NE) releasing agent	➢Adipex-P® 37.5mg/day ➢Lomaira® 4-8mg/day ➢Start with 4mg (1/2 tab of Lomaira) and↑ to 8mg in one week ➢**Do not start with 37.5mg** ➢If need more than 8mg, may consider ½ tab of 37.5mg (18.75mg)	➢Headache ➢↑ BP ➢Anxiety ➢Tachycardia ➢Dry Mouth ➢Insomnia ➢Tachycardia	➢History of cardiac disease ➢Uncontrolled HTN ➢Hyperthyroidism ➢Anxiety ➢Glaucoma ➢Already on sympathomimetic amines (e.g., as those with ADD/ADHD) ➢History of substance abuse	➢Mean Weight Loss: 5-7.8% ➢Best used in the morning up to mid day ➢Can be used prn ➢Can help those with "insatiable hunger" and/or "appetite" ➢When combined with topiramate has even better weight loss promoting effects ➢Monitor BP and HR ➢**Do not need to get an EKG in an otherwise healthy person, with no cardia history** ➢**May not initiate phentermine in person who has not been seen in person at least once**

QSYMIA® (PHENTERMINE/TOPIRAMATE)

Mechanism of Action	Dose	Commonly Experienced Side Effects	Cautions/ Contraindications	Comments
➢ Phentermine: NE releasing agent ➢ Topiramate: GABA receptor modulation	➢ Start with 3.75/23 and can ↑ to as high as 15/92 ➢ *(Most common dose is 7.5/46 mg daily)*	➢ Insomnia ➢ Dry mouth ➢ Constipation ➢ Headache ➢ Parethesias ➢ Dizziness ➢ Mental fog	➢ Pregnancy ➢ Breast feeding ➢ Hyperthyroidism ➢ Glaucoma ➢ MAOi inhibitors (due to risk of hypertensive crisis)	➢ Mean Weight Loss: 6.6-8.6% ➢ ***Before starting in woman of child-bearing age, document form of contraception use*** ➢ **May not initiate in person who has not been seen in person at least once**

CONTRAVE® (NALTREXONE/BUPROPION)

Mechanism of Action	Dose	Commonly Experienced Side Effects	Cautions/ Contraindications	Comments
➢Opiate antagonist– blocks the feedback inhibition of the ß-endorphin ➢↓ reuptake inhibitor of dopamine and norepinephrine	➢Each tab: 8mg naltrexone/ 90mg bupropion ➢Week1: Start with 1 tab daily ➢Week2:1 tab BID ➢Week3: 2 tabs in AM 1 tab in PM ➢Week 4: 2 tabs BID ➢*Do not take with a high fat meal due to increased absorption	➢Nausea ➢Constipation ➢Headache ➢Vomiting ➢Dizziness	➢Uncontrolled HTN ➢Seizure disorder ➢Anorexia ➢Bulimia nervosa ➢Drug or alcohol withdrawal ➢MAO inhibitors (*due to risk of hypertensive crisis*) ➢Pain syndromes (*naltrexone can potentiate pain signals and offset the impact of opioids*)	➢Mean weight loss: 4.8-6% ➢Many do not need to use the full dose of 4 tabs per day

ORLISTAT

Mechanism of Action	Dose	Commonly Experienced Side Effects	Cautions/ Contraindications	Comments
➢Lipase inhibitor ➢Inhibits gastric and pancreatic lipase ➢Causes malabsorption of 30% of ingested fat	➢Alli® 60mg (OTC) ➢Xenical® 120mg (Rx) ➢60-120 mg 3x/day	➢Steatorrhea ➢Fecal urgency/ incontinence ➢Oily spotting ➢↓ absorption of fat-soluble vitamins (A,D,E,K) ➢Flatulence	➢Pregnant ➢Breast feeding ➢Cholestasis ➢Malabsorption syndrome ➢Warfarin ➢Antiepileptic drugs	➢Does not affect appetite regulatory systems ➢No systemic absorption ➢Mean weight loss: 2.9-3.4% ➢Consider in those who struggle with constipation (possible adjunct to those on GLP1 who struggle with constipation)

SODIUM-GLUCOSE LINKED TRANSPORTER (SGLT) 2-INHIBITORS

Mechanism of Action	Commonly Experienced Side Effects	Cautions/ Contraindications	Comments
Inhibits Na+ glucose cotransporter 2 (SGLT-2) → prevent resorption of glucose as well as water in the renal tubules → promoting approximately: ➢75 g of urinary glucose excretion with an associated caloric loss (approximately 300 kcal/ day	➢Recurrent genitourinary infections ➢Dehydration/ hypotension/ hyperkalemia ➢Normoglycemic ketoacidosis ➢↑ risk of amputations ➢DKA risk ➢Risk of bone fractures (canagliflozin) ➢↑LDL	➢ Type 1 diabetes ➢ Less effective in those with renal insufficiency ➢ GFR <45 (caution) ➢ GFR < 30 (contraindication) ➢ History of diabetic ketoacidosis ➢ Should be d'cd prior to surgery due to potential risk for DKA	➢***Does not affect appetite*** ➢Variable weight loss depending on agent ➢Improved CVD mortality ➢Outcomes ➢Weight loss is dose dependent ➢Can also be used prn in anticipation of a carbohydrate rich foods

Agent	Dose	Comments
Canagliflozin	100-300 mg daily	Invokana® ➢Can induce 2.5-4 kg weight loss
Dapagliflozin	5-10 mg daily	Farxiga® ➢Can induce 2.65 to 3.2 kg of weight loss
Empagliflozin	10-25 mg daily	Jardiance® ➢Can induce 2.0-2.5 kg of weight loss

GLUCAGON-LIKE PEPTIDE-1 (GLP-1) RECEPTOR AGONISTS

Mechanism of Action	Commonly Experienced Side Effects	Cautions/ Contraindications	Comments
• Expressed in cells of the pancreas, the intestine, and neurons located in the caudal brainstem and hypothalamus. • ↓ gastric emptying and gut motility • ↓ food intake • ↑ satiety	• Nausea • Emesis • Cramps • Constipation • Dizziness • Pancreatitis • Hypoglycemia (rare)	• Hx of pancreatitis • Gallbladder disease • Medullary Thyroid cancer/ MEN2 • Pregnancy	• Mean Weight Loss: 7-15% • Each click is on the pen is a dose. May slowly titrate one click at a time to facilitate tolerability (Ozempic) • SELECT trial – 20% reduction of MACE (CV events) *Semaglutide 2.4 mg*

Agent	Dose	Comments
Liraglutide	• Start with 0.6mg daily for first week and may increase by 0.6mg each week up to a max dose of 1.8mg (Victoza®) and 3.0mg (Saxenda®)	Commercially available as: Victoza® (FDA-approved for tx of T2DM) Saxenda® (FDA-approved for tx of obesity) (Up to 7% weight loss)
Semaglutide	• Injectable: Start with 0.25 mg weekly for 4 weeks, after 4 weeks may increase to 0.5mg weekly up to 2 mg (Ozempic) and up to 2.4mg (Wegovy) over 16 weeks. • In the real world, may do titration over longer periods of time and base dose increases based on need for greater efficacy. • Rybelsus® - Start with 7mg daily PO for 4 weeks. May ↑ to 14mg for greater effect as tolerated	• Formulation has greatest penetration into the brain (i.e. fat soluble) Commercially available as: Ozempic® (FDA-approved for tx of T2DM) Wegovy® (FDA-approved for tx of obesity) (Up to 20% weight loss) Rybelsus®: Oral formulation has more modest weight loss as compared to injectable formulation (5-8lbs after 6 months) Glucose control- after 6 months, ↓ A1c by 1.2%-1.4%
Dulaglutide	• Start with 0.75mg subcutaneously weekly • Can ↑ to 1.5 → 3.0 → 4.5 mg as tolerated • Recommend 4 weeks at each dose before ↑ dose	• Trulicity®: Auto-inject pen • In fall of 2020, received FDA-approval for 3.0mg and 4.5mg weekly. Effect on glucose and weight is dose dependent • Can help to promote modest weight loss (2-6lbs)

TIRZEPATIDE (GLP-1 RA + GIP)

Mechanism of Action	Dose	Common Side Effects	Cautions/ Contraindications	Comments
GLP-1 RA • Expressed in cells of the pancreas, the intestine, and neurons located in the caudal brainstem and hypothalamus. • ↓ gastric emptying and gut motility • ↓ food intake • ↑ satiety **Glucose dependent Insulinotropic Polypeptide-GIP** • Enhances first and second phase insulin secretion • ↓ glucagon levels • ↑ insulin sensitivity	• Start with 2.5 mg subcutaneous injection weekly • May titrate up in increments of 2.5mg (q 4 weeks) up to a dose of 15mg • 2.5 mg → 5 mg → 7.5mg → 10 mg → 12.5 mg → 15 mg	• Nausea • Emesis • Cramps • Constipation • Dizziness • Pancreatitis • Hypoglycemia (especially if on insulin or sulfonylureas)	• Hx of pancreatitis • Gallbladder disease • Medullary Thyroid cancer/ MEN2	• Mean Weight Loss: 22% (1/3 of study participants on max dosage achieved > 25% mean weight reduction) • Selectively binds to GIP and GLP • SURMOUNT-1 and SURMOUNT-2 trials • High % of study participants have remission of prediabetes in Surmount-1 trial.

NUTRITION TIPS TO IMPROVE TOLERABILITY OF GLP-1 RA AND GLP-1 RA/ GIP MEDICATIONS

- Eat high protein foods first (animal-based proteins, plant-based proteins)
- Eat non-starchy vegetables next (asparagus, broccoli, brussels, carrots, celery, spinach)
- Allow some healthy fats such as nuts, seeds, olive oil. Limit processed oils.
- Eat fruit and/or starch last if you are still hungry. Best fruits – berries, apples, oranges, peaches, pears, kiwi
- Best complex starches – pinto, lima, black beans, low carb tortillas, chickpea pasta, sweet potatoes, oats, wild rice, popcorn.
- Avoid high fat and fried foods
- Avoid processed meats
- Avoid refined carbs and sugars (whites)
- Limit carbonated beverages
- Limit ETOH
- Eat slowly and avoid feeling too full