Hot Topics in Medicine: **Updates in the Treatment of Overweight and Obesity**

July 2, 2025

MIZUHO MIMOTO, MD, PHD

ASSOCIATE CLINICAL PROFESSOR

UCSD DIVISION OF ENDOCRINOLOGY DIABETES AND METABOLISM

SAN DIEGO MOVE! PROVIDER CHAMPION

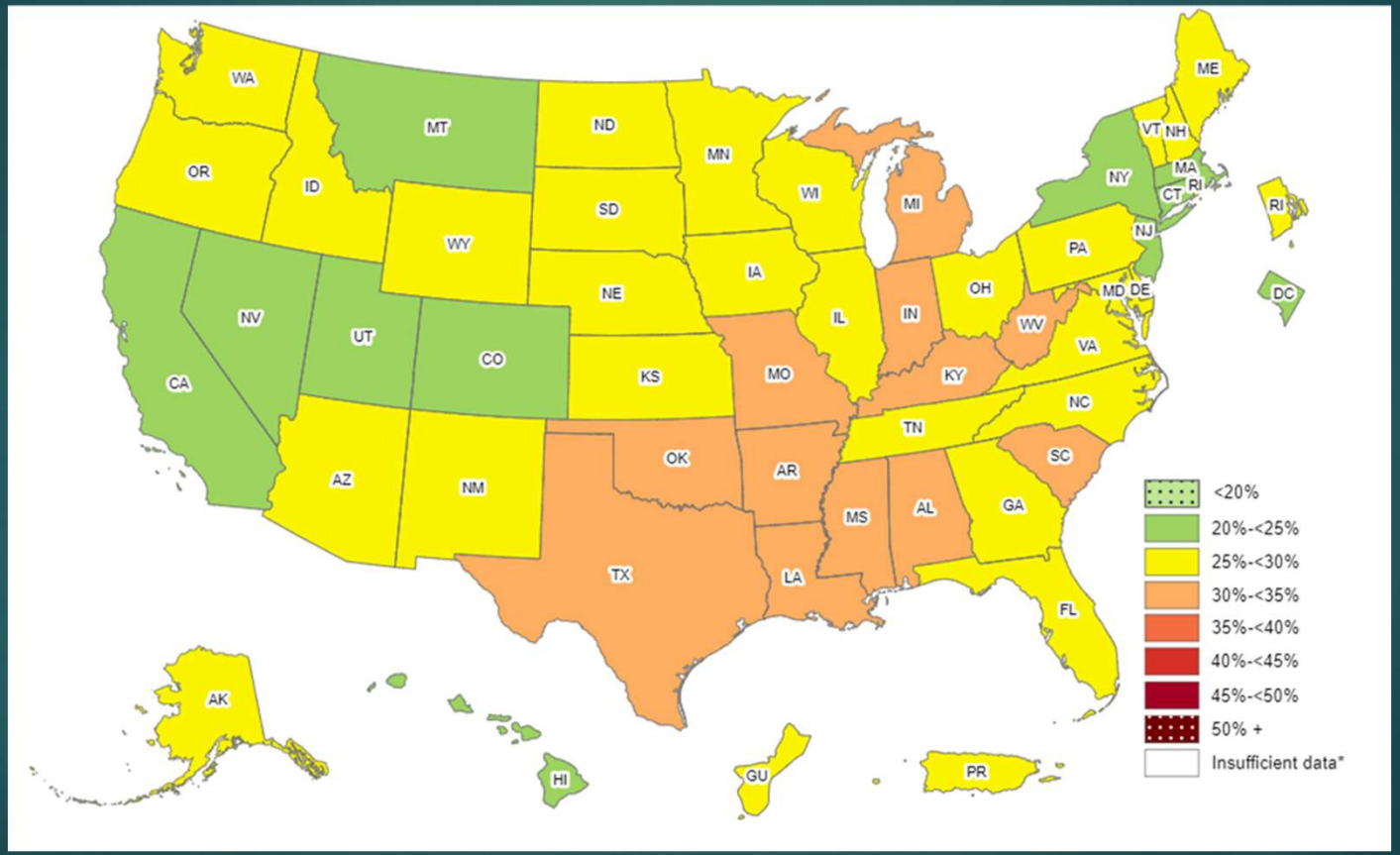
Learning Objectives

- Recognize weight bias and develop approaches for addressing obesity and overweight with patients
- Discuss lifestyle intervention recommendations for patients with overweight and obesity.
- Discuss medical treatment options for obesity and overweight

Outline

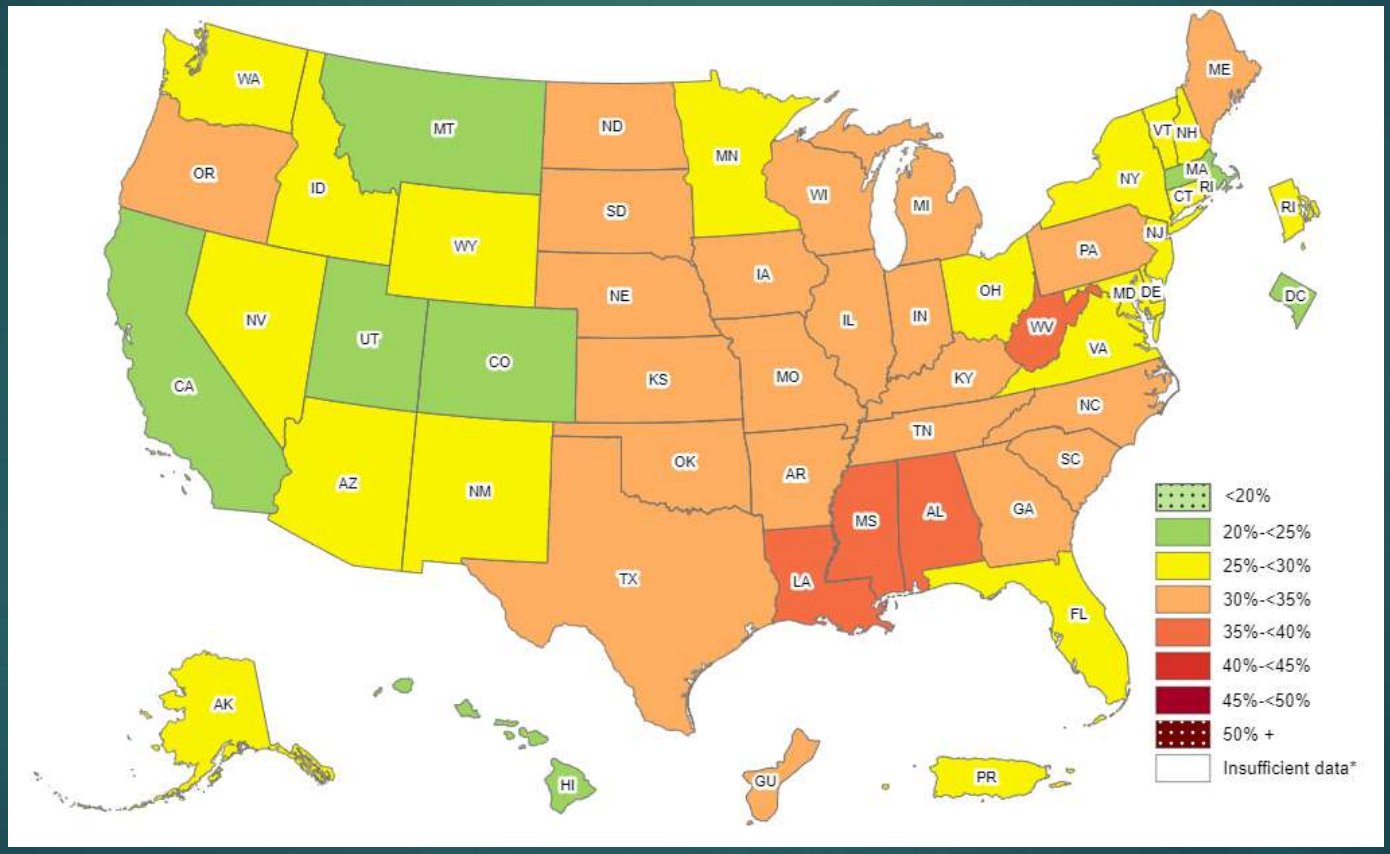
- **Prevalence of Obesity**
- **Diagnosing Overweight and Obesity**
- Treatment of Obesity
  - Oral medications
  - Injectables: GLP1 and dual GLP1/GIP agonists – the data
- Clinical Approach to Overweight and Obesity
  - Weight Bias
  - Obtaining a history
  - Setting Expectations
  - Monitoring for complications

Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2011



*Sample size <50, the relative standard error (dividing the standard error by the prevalence) ≥30%, or no data in a specific year.

Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2015



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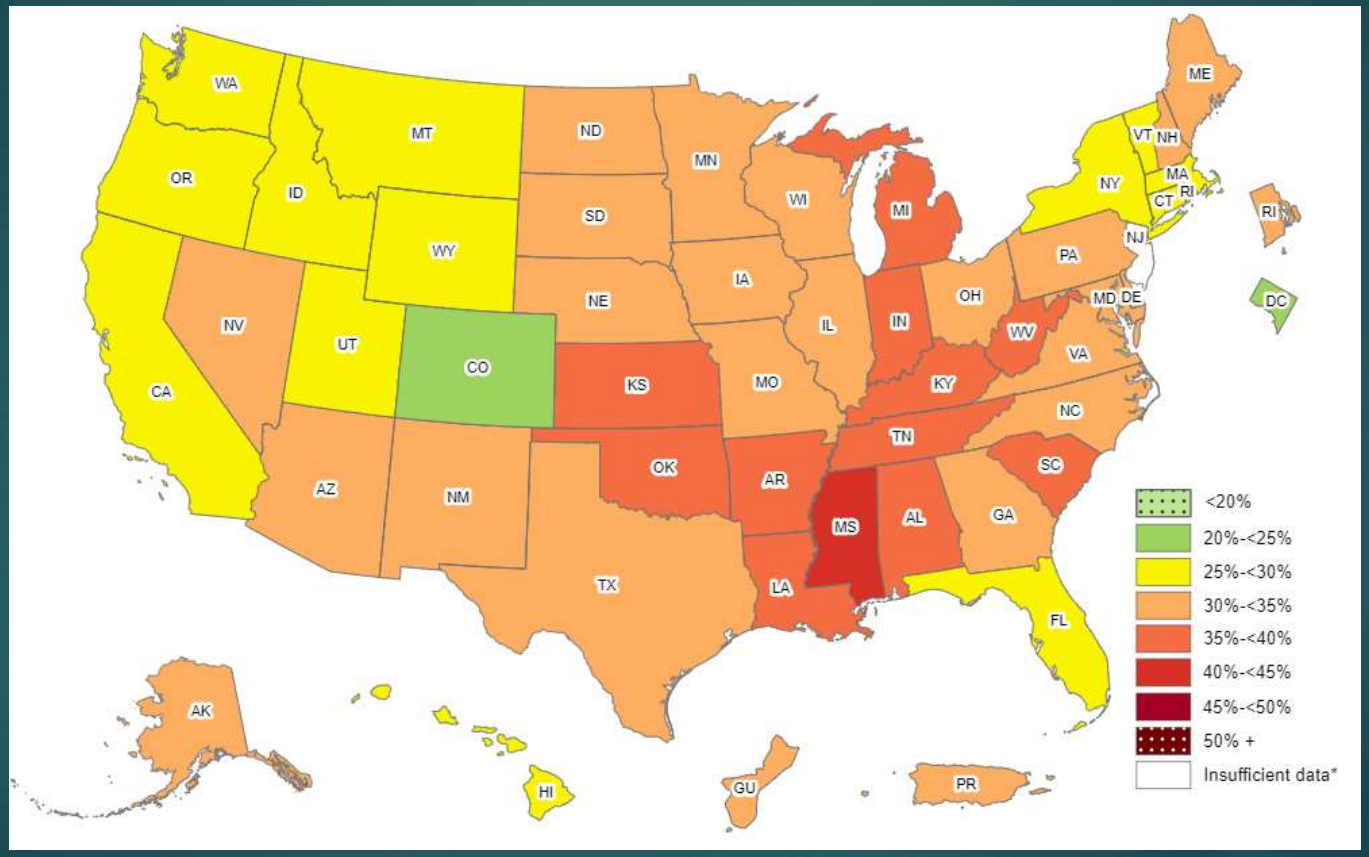
Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2019



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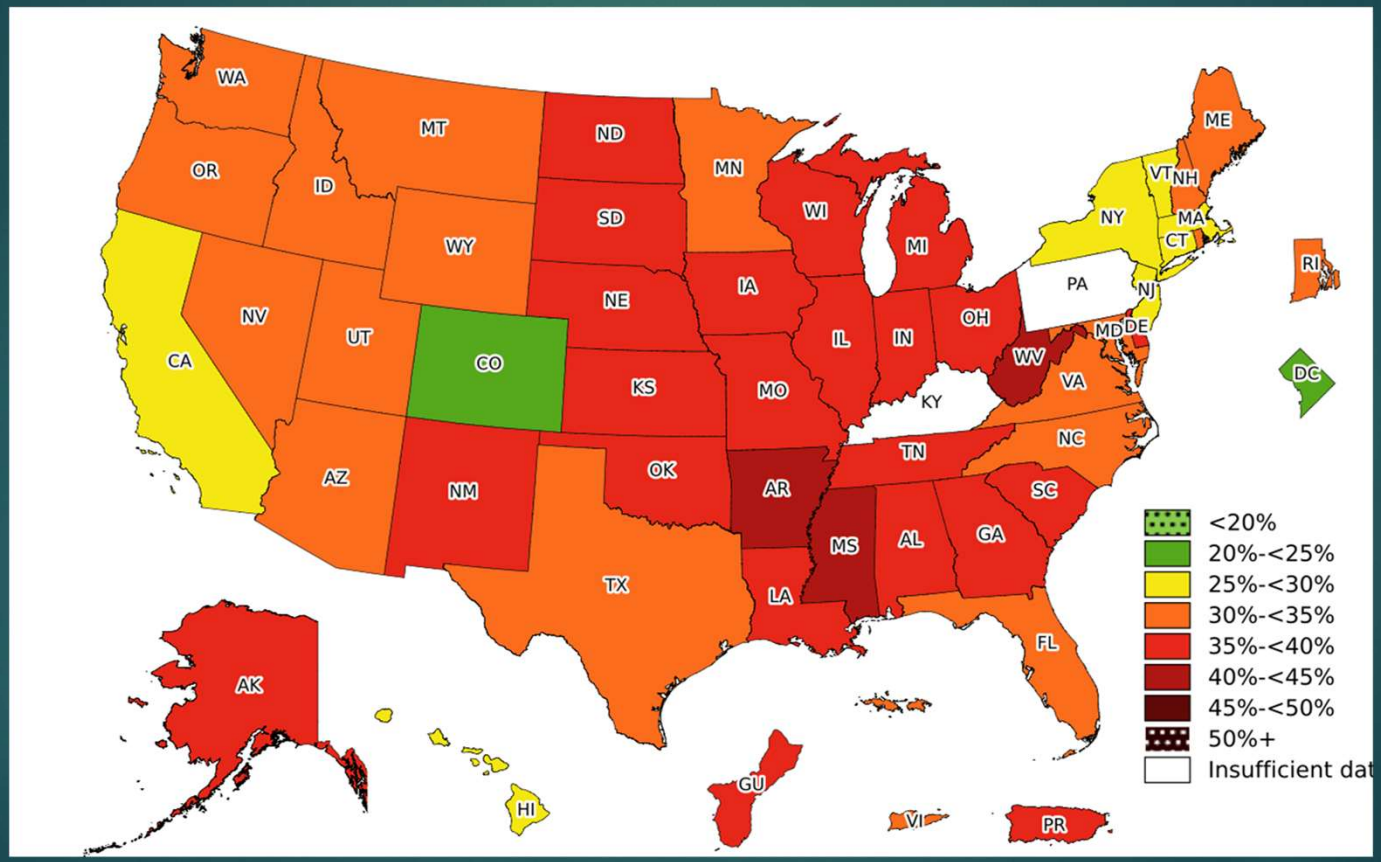
Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2023



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If current trends continue, in 2030:

- **MORE than HALF** of the global population, will be living with either overweight or obesity
  - 1 in 4 people (nearly 2 billion) will have obesity.
- Lower income countries are disproportionately affected by Obesity
- Childhood obesity rates are rising more rapidly than in adults
  - Rates are predicted to **double** among boys to 208 million (100% increase)
  - Rates are predicted to **more than double** among girls to 175 million (125% increase)
- Global economic impact of overweight and obesity will reach $4.32 trillion annually by 2035 ~3% of global GDP

The World Obesity Atlas
https://data.worldobesity.org

Diagnosing overweight and obesity

- Most common:
  - BMI = Mass (kg) / Height $(m)^2$
- Children and teens age <18
  - Overweight BMI ≥85th percentile
  - Obesity BMI ≥95th percentile

BMI	Classification
18.5 – 24.9	Normal weight
25.0 – 29.9	Overweight
≥30.0	**Obese**
30.0 – 34.9	Class I Obesity
35.0 – 39.9	Class II Obesity
≥ 40.0	Class III Obesity

BMI is not a perfect screening tool

- Most common:
  - BMI = Mass (kg) / Height $(m)^2$
  - Affected by ethnicity

BMI	Classification	Asians
18.5 – 24.9	Normal weight	18.5 – 22.9
25.0 – 29.9	Overweight	23.0 – 26.9
≥30.0	**Obese**	**≥27.0**
30.0 – 34.9	Class I Obesity	27.0 – 29.9
35.0 – 39.9	Class II Obesity	30.0-34.9
≥ 40.0	Class III Obesity	≥35.0

(WHO 2004)

- Other measures:
  - Waist:Hip Ratio (WHR)
  - Waist Circumference (WC)
  - WC correlates with intraabdominal visceral fat on CT better than WHR
  - WC is associated with all-cause and CV mortality independent of BMI

Ross et al. Nat Rev Endo. Volume 16 | March 2020 | 177

Diagnosing overweight and obesity

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18.5 – 24.9	Normal weight	18.5 – 22.9
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≥30.0	**Obese**	**≥27.0**
30.0 – 34.9	Class I Obesity	27.0 – 29.9
35.0 – 39.9	Class II Obesity	30.0-34.9
≥ 40.0	Class III Obesity	≥35.0

(WHO 2004)

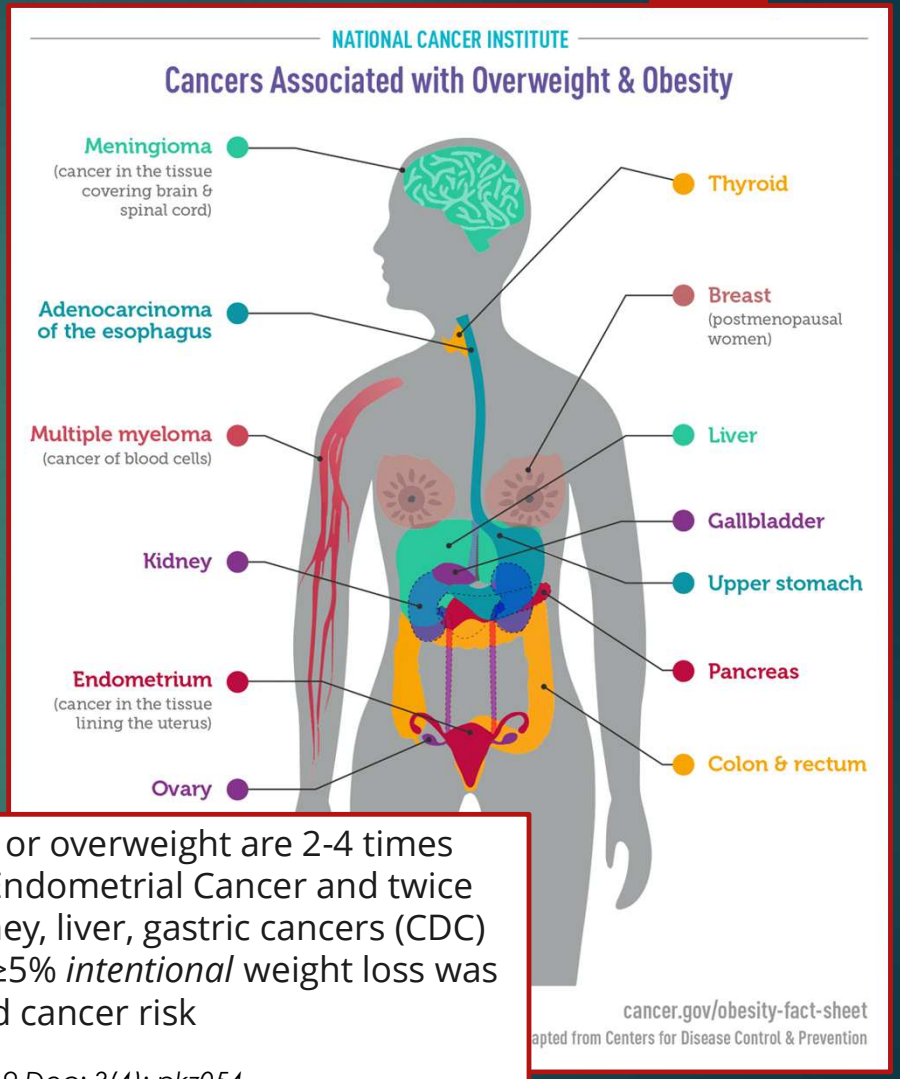
Medical Therapy Indicated:

BMI ≥27 with a weight-related comorbidity

BMI ≥30

Weight-related medical conditions

- Diabetes
- Dyslipidemia
- CVD (HTN, HF, CAD, AFib)
- Stroke/VTE
- GI (MASLD/MASH, GERD, gallbladder disease)
- MSK (Osteoarthritis, Gout)
- Reproductive (PCOS)
- Respiratory (OSA/OHS, Asthma)
- Cancer
- Depression?



- *e.g.* people with obesity or overweight are 2-4 times more likely to develop Endometrial Cancer and twice as likely to develop kidney, liver, gastric cancers (CDC)
- WHI data indicate that ≥5% *intentional* weight loss was associated with reduced cancer risk

Luo et al. JNCI Cancer Spectr. 2019 Dec; 3(4): pkz054.

Outline

- Prevalence of Obesity
- Diagnosing Overweight and Obesity
- **Treatment of Obesity**
  - **Oral medications**
  - **Injectables: GLP1 and dual GLP1/GIP agonists – the data**
- Clinical Approach to Overweight and Obesity
  - Weight Bias
  - Obtaining a history
  - Setting Expectations
  - Monitoring for complications

How much weight loss is needed?

Clinically relevant weight loss: ~5-10%

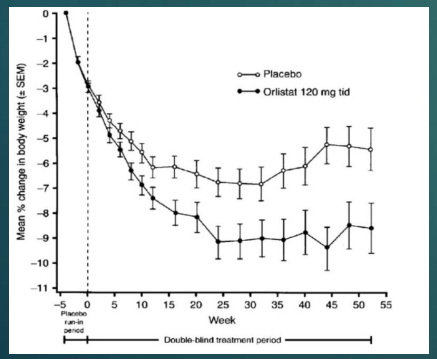
- Based on large-scale lifestyle intervention studies **5-7%** weight loss led to improvements in metabolic parameters such as BP, lipids, glucose levels.
  - Diabetes Prevention Program (DPP)
  - Finnish Diabetes Prevention Study

6 medications are FDA-approved for long-term use for weight loss

Medication	Dosage form	Approximate Weight loss above placebo
Orlistat (Alli OTC)	PO TID	3%
Phentermine/Topiramate (Qsymia)	PO Daily	9%
Naltrexone/Bupropion (Contrave)	PO BID	4%
Liraglutide (Saxenda)	INJ Daily	6%
Semaglutide (Wegovy)	INJ Weekly	12-13%
Tirzepatide (Zepbound)	INJ Weekly	18%

Orlistat (Alli)

- Lipase inhibitor - reduced intestinal fat absorption
- RCT, N = 238; mean BMI 37
- **Mean weight loss x 52 wks**
  - **Placebo: -5.4%**
  - **Orlistat: -8.5%**
  - **1/3 of patients had ≥5%**
- A/E: GI (8% d/c)
- Vitamin supplementation (ADE) recommended

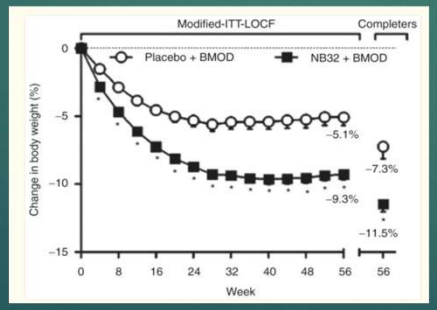


Finer et al. Int Journal of Obesity vol 24, 306–313 (2000)

Naltrexone/Bupropion (Contrave)

- Appetite suppression, reduced cravings
- RCT N = 800; mean BMI 36-7
- **Mean weight loss x 56 wks**
  - **Placebo: -5.1%**
  - **Contrave: -6.1-6.4%**
  - **Contrave + IBT: -9.3%**
- A/E: GI, HA, dizziness, fatigue - 46% d/c (24% due to A/E)
- *CI: seizures, eating d/o, opioids*

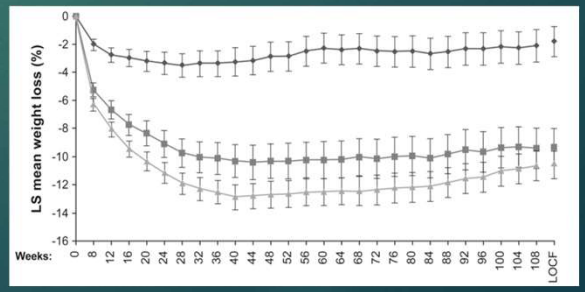
*IBT = intensive behavioral therapy



Wadden et al. Obesity. 2011 (1):110-20
Greenway et al. Lancet 376, 9741, 21–27 2010, p595-605
Apovian et al. Obesity. 2013 (5):935-43
Halpern et al. Expert Opinion on Drug Safety 16;1, 2017

Phentermine/ Topiramate (Qsymia)

- Appetite suppression
- RCT: N =2500; mean BMI 42
- **Mean weight loss x 56 wks** (+Extension up to 2 years)
  - **Placebo: -1.6% (-1.8%)**
  - **Dose 7.5/46 mg: -5.2% (-9.3%)**
  - **Dose 15/92 mg: -10.9% (-10.5%)**
- A/E: dry mouth, dizziness, constipation, insomnia, brain fog paresthesia (2% d/c)
- *Monitor K, Cr, HCO3, bHCG*
- *CI: CAD, Pregnancy, hyperthyroid, glaucoma*



Garvey et al. Amer J of Clin Nut 95;2. 2012, 297-308

6 medications are FDA-approved for long-term use for weight loss

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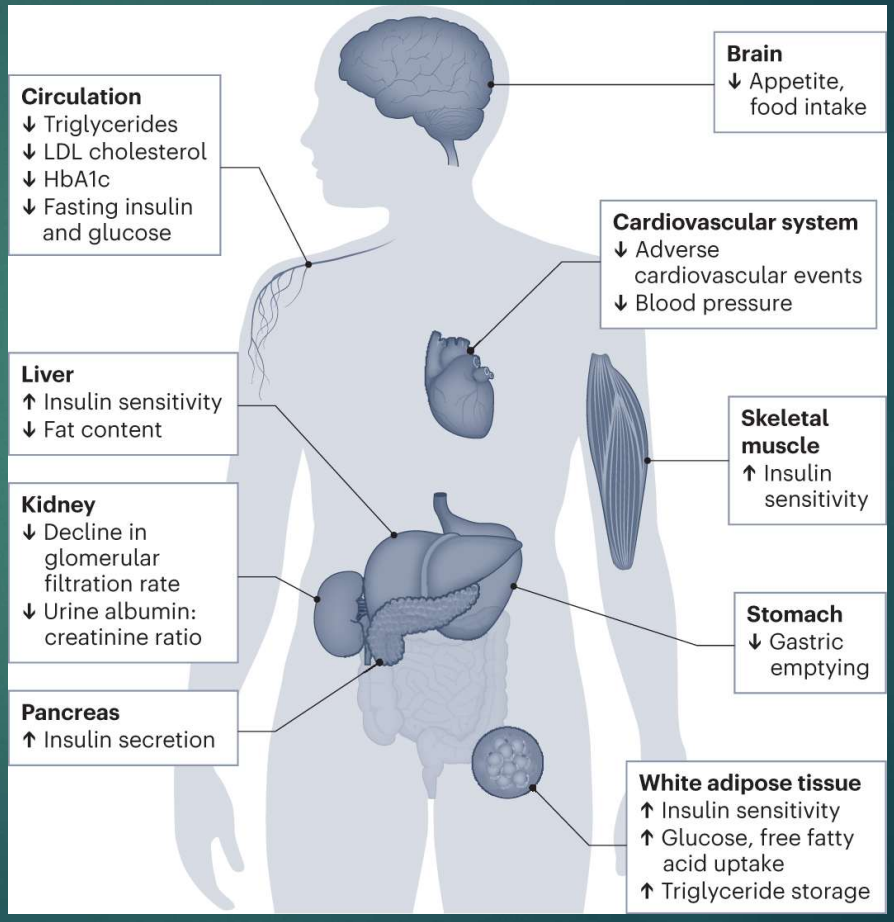
Liraglutide (GLP1) (Saxenda)	INJ Daily	6%
Semaglutide (GLP1) (Wegovy)	INJ Weekly	12-13%
Tirzepatide (GLP1+GIP) (Zepbound)	INJ Weekly	18%

GLP1 mechanisms of action

- Endogenous $T_{1/2}$ 1-2 min
- Clinical applications focused on extending half-life
- Initially developed as a drug for T2DM
- Pts noted to have significant weight loss



Nogueiras et al. *Nat Metab* **5**, 933–944 (2023).

What are all these GLP1 Trials??

Intro to the GLP1/Dual Agonist Trials:

SUSTAIN First published in 2017; **semaglutide** at lower doses 0.5 and 1.0 mg/week **reduces A1c 1.6 –1.8%** in patients ***with* T2DM. (Ozempic)** → Weight also down 10-14 lbs

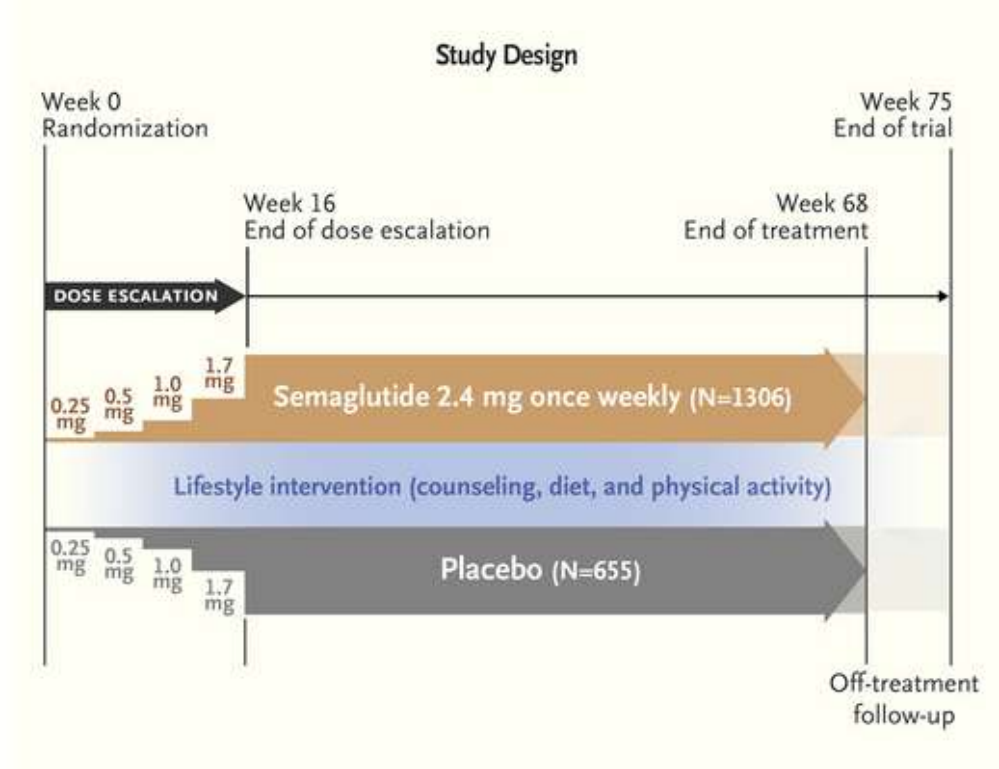
STEP First published in 2021; **semaglutide** at the higher dose of 2.4 mg/week reduces **WEIGHT** in patients ***with Obesity without* T2DM**. **(Wegovy)**

SURPASS First published in 2021; **tirzepatide reduces A1c 1.9 – 2.1%** in patients ***with* T2DM**. **(Mounjaro)**

SURMOUNT First published in 2022; **tirzepatide** reduces **WEIGHT** in patients ***with Obesity without* T2DM**. **(Zepbound)**

SELECT Published in 2024: **semaglutide** reduces risk of MACE in patients with Obesity **without T2DM**

STEP1: Semaglutide for weight loss (Wegovy)



- Double-blind RCT, N = 1961
- BMI ≥ 30 or ≥27 with ≥ 1 weight-related condition, NO DM
- Intervention
  - Lifestyle intervention: Q4 week counseling on 500 kcal deficit, 150 min per week activity
  - +Semaglutide 2.4 mg weekly
  - OR +Placebo
- T = 68 weeks followed by 7-week washout
- Primary outcomes: weight, 5% weight loss

Wilding et al. N Engl J Med 2021; 384:989-1002

STEP 1: Demographic and Clinical Characteristics of the Participants at Baseline

STEP

Table 1. Demographic and Clinical Characteristics of the Participants at Baseline.*

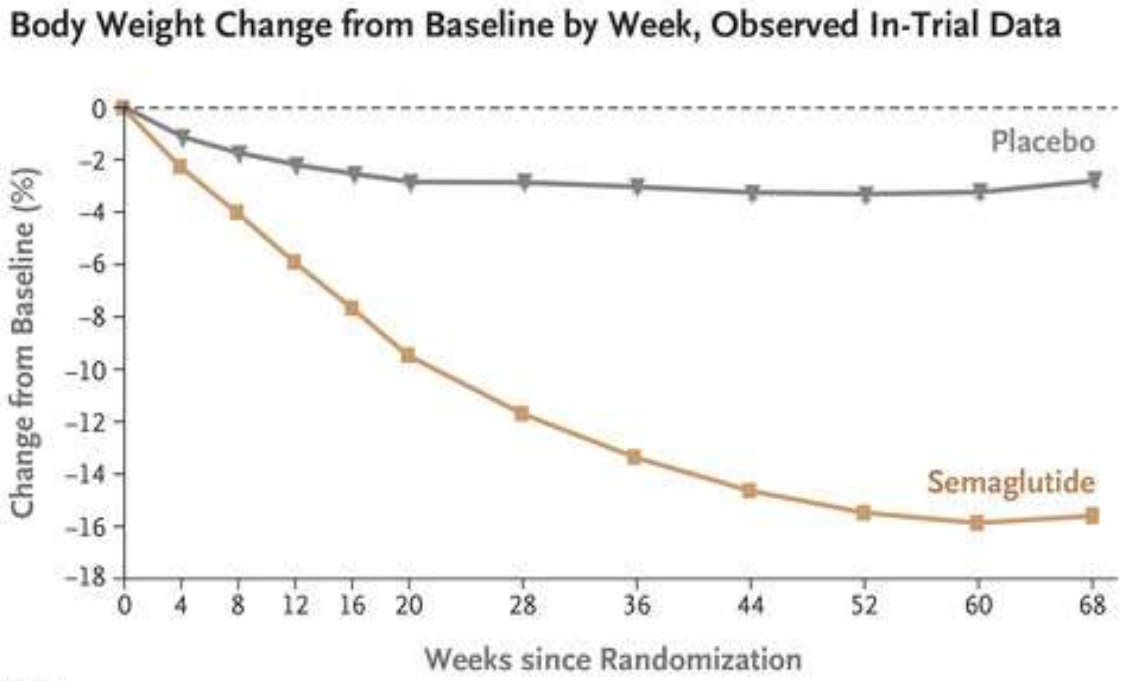
Characteristic	Semaglutide (N=1306)	Placebo (N=655)
Age — yr	46±13	47±12
Female sex — no. (%)	955 (73.1)	498 (76.0)
Race or ethnic group — no. (%)†		
White	973 (74.5)	499 (76.2)
Asian	181 (13.9)	80 (12.2)
Black or African American	72 (5.5)	39 (6.0)
Other	80 (6.1)	37 (5.6)
Hispanic or Latino ethnic group — no. (%)†	150 (11.5)	86 (13.1)
Body weight — kg	105.4±22.1	105.2±21.5
Body-mass index‡		
Mean	37.8±6.7	38.0±6.5
Distribution — no. (%)		
<30	81 (6.2)	36 (5.5)
≥30 to <35	436 (33.4)	207 (31.6)
≥35 to <40	406 (31.1)	208 (31.8)
≥40	383 (29.3)	204 (31.1)
Waist circumference — cm	114.6±14.8	114.8±14.4
Glycated hemoglobin — %	5.7±0.3	5.7±0.3
Prediabetes — no. (%)§	593 (45.4)	263 (40.2)

230 lbs

JP Wilding et al. N Engl J Med 2021;384:989-1002.

STEP 1: Effect of Semaglutide, as Compared with Placebo on Body Weight.

STEP



- Mean weight loss with semaglutide:
- 14.9% **(230 →195 lbs)**

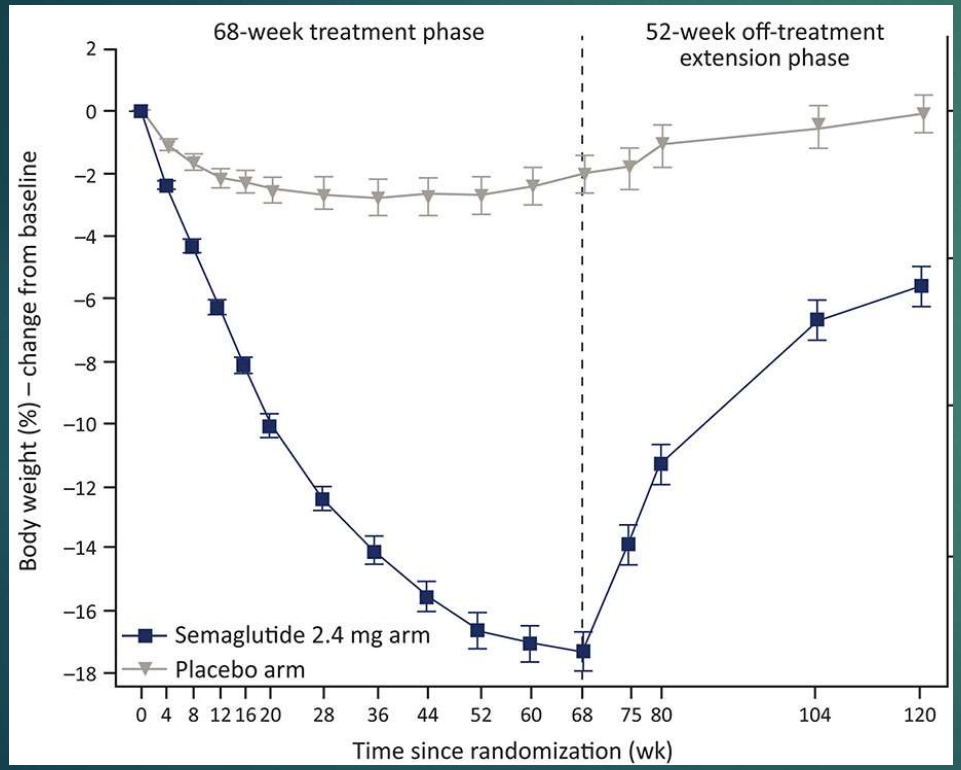
- Mean weight loss with placebo:
- 2.4% (230# →224#)

- **86% of participants on semaglutide had at least 5% weight loss** (clinically significant) vs 31.5% with placebo

- Adverse effects:
  - Primarily GI
  - 7% of patients discontinued drug (vs 3% in placebo)

JP Wilding et al. N Engl J Med 2021;384:989-1002.

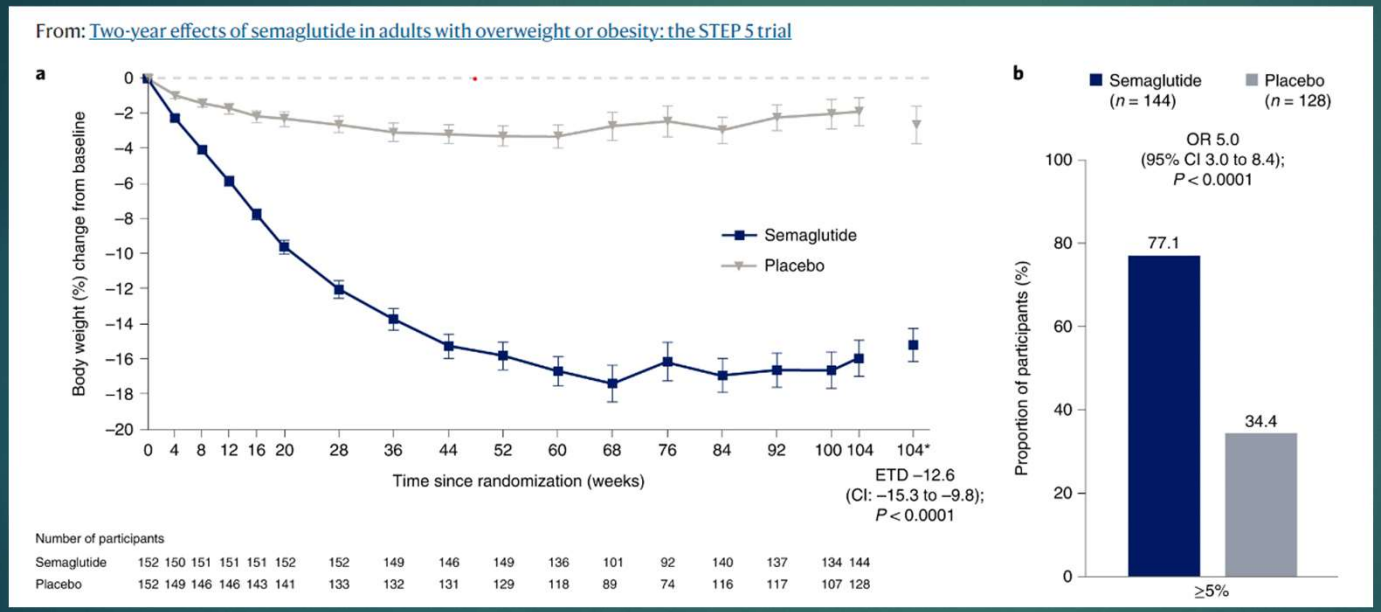
STEP 1 Extension: 2 year follow up off semaglutide x 12 months



- N = 327; mean age 48-50; 66% Women, 75% white, BMI 38
- **Mean wt loss at 12 mo: 17% on semaglutide vs 2% placebo**
- After 1 year OFF therapy mean weight loss 6% (vs 0% placebo):
  - **2/3 of the weight regained at 1 year – what happens with longer follow up?**
- Other cardiometabolic improvements also returning to baseline (e.g. A1c, BP)

Wilding et al. Diabetes Obesity Metabolism, Volume: 24, Issue: 8, Pages: 1553-1564. 2022

STEP 5 = 2 year continuation of semaglutide 2.4 mg weekly



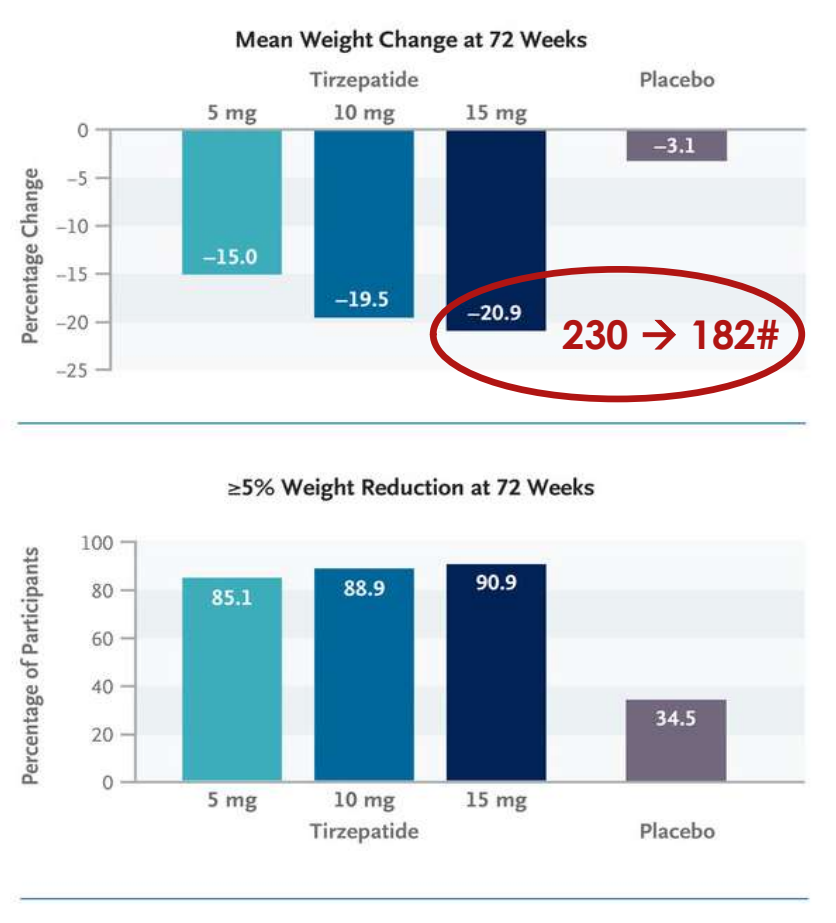
- N = 304 , mean age 47, ~75% women, 90% White, BMI 38.5
- Primary end points weight loss, and 5% weight loss.
- Semaglutide group average15% weight loss (vs 2.6% placebo)
- **77% achieved 5% weight loss**

Garvey et al. *Nat Med* 28, 2083–2091 (2022).

*Important to set expectations about continued need for medical therapy

SURMOUNT – Tirzepatide for weight loss

SURMOUNT

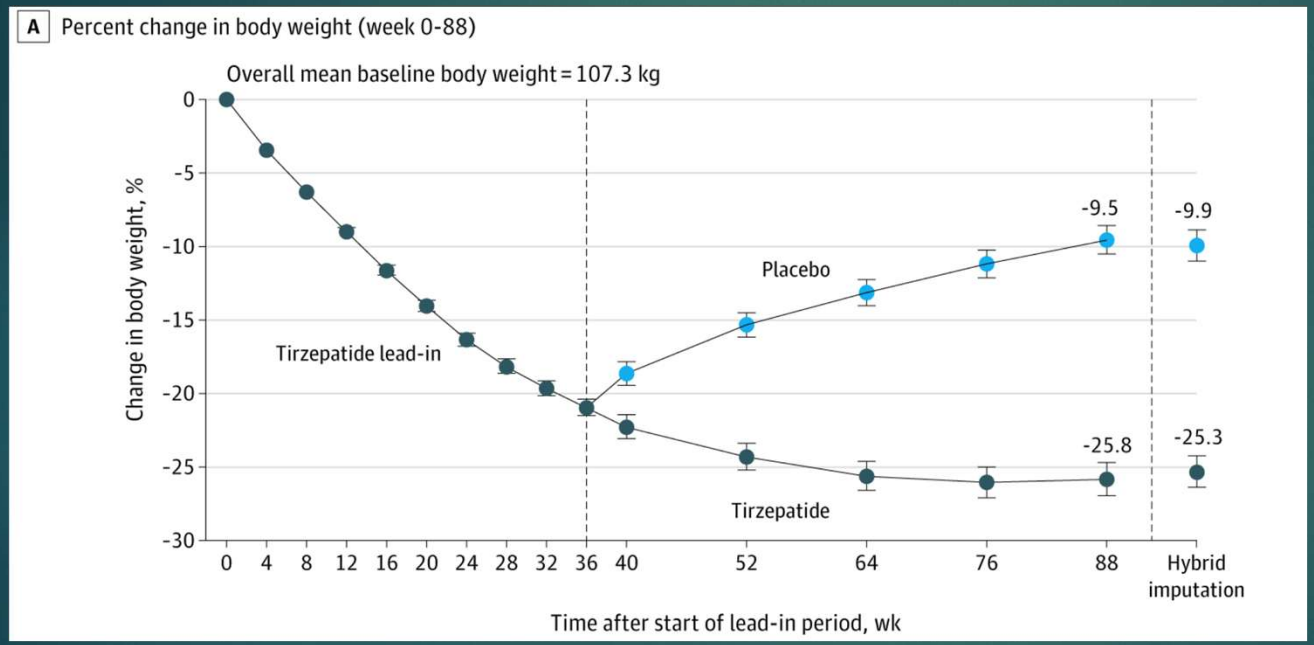


- Phase 3 double-blind RCT, N = 2539
- Mean age 45y, 67% women, 70% White, Mean BMI 38
- Intervention x 72 weeks;
  - +Lifestyle counseling re: -500kcal diet and 150 min/week activity +
    - Tirzepatide 5, 10, 15 mg weekly
    - Or Placebo
- Primary outcomes: weight, 5% weight loss
- Adverse effects: Primarily GI (4-7% discontinued)

Jastreboff et al. N Engl J Med 2022; 387:205-216

SURMOUNT-4: Stopping treatment with tirzepatide leads to weight regain

SURMOUNT



- Phase 3 RCT
- 36-week open label run-in (N = 783)
- 52 week double-blind, placebo-controlled period (N = 670 randomized)
- Max tolerated dose of tirzepatide (10 or 15 mg weekly)

Aronne et al. JAMA. 2024;331(1):38-48.

ORIGINAL ARTICLE

Semaglutide and Cardiovascular Outcomes in Obesity without Diabetes

Authors: A. Michael Lincoff, M.D. , Kirstine Brown-Frandsen, M.D., Helen M. Colhoun, M.D., John Deanfield, M.D., Scott S. Emerson, M.D., Ph.D., Sille Esbjerg, M.Sc., Søren Hardt-Lindberg, M.D., Ph.D., +9, for the SELECT Trial Investigators* Author Info & Affiliations

Published November 11, 2023 | N Engl J Med 2023;389:2221-2232 | DOI: 10.1056/NEJMoa2307563

VOL. 389 NO. 24

ORIGINAL ARTICLE

Semaglutide in Patients with Obesity-Related Heart Failure and Type 2 Diabetes

Authors: Mikhail N. Kosiborod, M.D., Mark C. Petrie, M.D., Barry A. Borlaug, M.D., Javed Butler, M.D., Melanie J. Davies, M.D., G. Kees Hovingh, M.D., Dalane W. Kitzman, M.D., +25, for the STEP-HFpEF DM Trial Committees and Investigators* Author Info & Affiliations

Published April 6, 2024 |

ORIGINAL ARTICLE

Effects of Semaglutide on Chronic Kidney Disease in Patients with Type 2 Diabetes

Authors: Vlado Perkovic, M.B., B.S., Ph.D., Katherine R. Tuttle, M.D. , Peter Rossing, M.D., D.M.Sc. , Kenneth W. Mahaffey, M.D., Johannes F.E. Mann, M.D., George Bakris, M.D. , Florian M.M. Baeres, M.D., Thomas Idorn, M.D., Ph.D., Heidrun Bosch-Traberg, M.D., Nanna Leonora Lausvig, M.Sc., and Richard Pratley, M.D., for the FLOW Trial Committees and Investigators* Author Info & Affiliations

Published May 24, 2024 | N Engl J Med 2024;391:109-121 | DOI: 10.1056/NEJMoa2403347 | VOL. 391 NO. 2

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Semaglutide and Cardiovascular Outcomes in Obesity without Diabetes

Authors: A. Michael Lincoff, M.D., Kirstine Brown-Frandsen, M.D., Helen M. Colhoun, M.D., John Deanfield, M.D., Scott
SELECT Trial Investigat

Published November
VOL. 389 NO. 24

FDA-APPROVED INDICATIONS FOR SEMAGLUTIDE

- 2017- Ozempic approved for treatment of T2DM
- **2021 – Wegovy approved for treatment of Obesity/Overweight**
- **2022 –Wegovy approved for treatment of Obesity/Overweight in children ≥ 12 years old**
- **2024 – Wegovy approved for secondary prevention of CV death and myocardial infarction, stroke in patients with Overweight/Obesity**
- 2025 – Ozempic Approved to reduce risk of CKD progression in patients with T2DM with CKD

Authors: Vlado Perkovic, M.B., B.S., Ph.D., Katherine R. Tuttle, M.D., Peter Rossing, M.D., D.M.Sc., Kenneth W. Mahaffey, M.D., Johannes F.E. Mann, M.D., George Bakris, M.D., Florian M.M. Baeres, M.D., Thomas Idorn, M.D., Ph.D., Heidrun Bosch-Traberg, M.D., Nanna Leonora Lausvig, M.Sc., and Richard Pratley, M.D., for the FLOW Trial Committees and Investigators* Author Info & Affiliations

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ORIGINAL ARTICLE

Tirzepatide for Metabolic Dysfunction–Associated Steatohepatitis with Liver Fibrosis

Authors: Rohit Loomba, M.D. , Mark L. Hartman, M.D., Eric J. Lawitz, M.D., Raj Vuppalanchi, M.D., Jérôme Boursier, M.D., Ph.D., Elisabetta Bugianesi, M.D., Ph.D., Masato Yoneda, M.D., Ph.D., +9, for the SYNERGY-NASH Investigators* Author Info & Affiliations

Published June 8, 2024 |

ORIGINAL ARTICLE

Tirzepatide for the Treatment of Obstructive Sleep Apnea and Obesity

Authors: Atul Malhotra, M.D., Ronald R. Grunstein, M.D., Ph.D., Ingo Fietze, M.D., Terri E. Weaver, Ph.D., Susan Redline, M.D., M.P.H., Ali Azarbarzin, Ph.D., Scott A. Sands, Ph.D., +5, for the SURMOUNT-OSA Investigators* Author Info & Affiliations

Published June 21, 2024 | **DOI: 10.1056/NEJMoa2404881**

ORIGINAL ARTICLE

Tirzepatide for Metabolic Dysfunction–Associated Steatohepatitis with Liver Fibrosis

Authors: R
Jérôme Bo
NASH Inve

Published

FDA-APPROVED INDICATIONS FOR TIRZEPATIDE

- 2022 – Mounjaro approved for treatment of T2DM
- **2023 – Zepbound approved for treatment of Obesity/Overweight**
- **2024 – Zepbound approved for treatment of moderate to severe OSA (AHI ≥15) in adults with Obesity/Overweight**

M.D., M.P.H., Ali Azarbarzin, Ph.D., Scott A. Sands, Ph.D., [45], for the SURMOUNT-OSA Investigators — Author Info & Affiliations

Published June 21, 2024 | DOI: 10.1056/NEJMoa2404881

Coming soon:

- Oral GLP1 agonists - Semaglutide, Orforglipron and others
  - >90% of patients have ≥5% weight loss
  - Average weight loss up to ~15%
- Dual agonists with other incretin hormones
- Triple agonists (e.g. Retatrutide - GLP1, GIP, glucagon)
  - >90% of patients have ≥5% weight loss
  - Average weight loss up to ~25%


FDA accepts filing application for oral semaglutide 25 mg, which if approved, would be the first oral GLP-1 treatment for obesity

NEWS PROVIDED BY
NOVO NORDISK INC. →
May 02, 2025, 14:27 ET

Outline

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  - Oral medications
  - Injectables: GLP1 and dual GLP1/GIP agonists – the data
- **Clinical Approach to Overweight and Obesity**
  - **Weight Bias**
  - **Obtaining a history**
  - **Setting Expectations**
  - **Monitoring for complications**

Addressing Weight Bias and An Approach to Discussing Weight

Weight bias = Implicit or explicit negative attitude towards someone because of their weight

- Weight bias
  - Exists among healthcare professionals
  - Impacts patient outcomes
- Create a supportive/welcoming environment:
  - Appropriately sized chairs in the waiting room and clinic without arms
  - Scale in a private or semi-private location
  - Appropriate-sized equipment such as blood pressure cuffs
- Discussing weight during the visit:
  - Ask permission
  - Avoid attributing all health issues to a person's weight
  - Less emphasis on weight and greater emphasis on beneficial effects of healthy lifestyle (diet, sleep, mental health and physical activity)

Obtaining a Weight History

- Was weight a concern for you as a child?
  - Early onset (< 5-10 yo)+ hyerphagia → consider genetic testing
- When did you feel like weight first became a concern?
- What has been your usual adult weight?
- What is your highest adult weight?
- What approaches have you tried and what has/hasn't worked?
- Were there any life events or medications/medical problems that led to weight gain/loss?
- Establish **health-related** goals

Initiating GLP1a and dual agonist therapy

- Contraindications to use (boxed warning)
  - Personal or family history of Medullary Thyroid Cancer
    - 1 to 2 % of thyroid cancers in the United States
    - 75% sporadic, 25% associated with MEN2
  - Multiple endocrine neoplasia syndrome type 2 (MEN 2).
    - *Rare:* 1:30,000, Autosomal Dominant
  - *Relative contraindication: Pancreatitis*
    - *Gallstone-related pancreatitis is a concern with rapid weight loss.*
- Titration - **start low, go slow**
  - Weekly for liraglutide and monthly for semaglutide/tirzepatide
  - No side effects
  - No excess/rapid weight loss

Injectables: Setting Expectations

- Real-world discontinuation rates are high (>40-60%)
  - Side effects
  - Cost/Coverage
- Side effects are common (>80-90%)
- In clinical trials, weight loss is initially rapid but plateaus at 6-12 months
- Long-term therapy (similar to treatment of other metabolic disease)
  - Discontinuation leads to weight regain
- Medications are an adjunct to aid success with lifestyle change (it's still hard work!)

Follow up and Monitoring: Lifestyle intervention is key to long-term success

- Physical activity for weight loss: 150-300 min per week
- Monitor for Sarcopenia / Osteopenia
  - Optimize protein intake* (lean dairy/meat, plant-based proteins)
    - 1-1.5g/kg IBW for weight loss in addition
  - Resistance exercises – lift weights/use resistance bands to build muscle
    - 15-20 minutes 2x per week
- Monitor for Excess weight loss, nutrition deficiency
  - -1-2 lbs per week is recommended pace
  - Dietician referral to set macronutrient goals
- Optimize sleep
- Adjust medications for other conditions:
  - HTN, Diabetes, Thyroid disease or other weight-based medications

* if your pt has CKD – consult with their nephrologist

3 final thoughts…

1. Medical therapy is approaching the efficacy of metabolic and bariatric surgery

Approximate cost per month*:

		Weight loss reported	Health benefits
	Retatrutide 24%		
$1304**	**Tirzepatide 21%**		
$1620**	Semaglutide 15%		
$250/$750	Qsymia/Contrave 6 -10%		
$180***	Orlistat 5 - 8%		
	Bariatric surgery[5]	25%-35%	Remission: DM 2, HTN, OSA
	Endoscopic procedures[7]	15%-20%	
	Medications for weight loss[6]	5%-15%	Improved: DM 2 HTN Triglycerides NASH
	Intensive lifestyle interventions[6]	5%-10%	
	Low- to moderate-intensity[5] lifestyle interventions	<5%	

*With insurance (Lexicomp accessed 6/30/25)
**Out-of-pocket from the manufacturer $500/mo)
***OTC = $36/mo

Collazo-Clavell Mayo Clin Proc. n June 2019;94(6):933-935

2. These medications are less expensive in other countries

List prices of drugs used for weight loss in the U.S. and peer nations

	Ozempic (semaglutide, injection)	Rybelsus (semalglutide, tablets)	Wegovy (semaglutide, injection)	Mounjaro (tirzepatide, injection)
U.S.	**$936**	**$936**	**$1,349**	**$1,023**
Japan	$169	$69	-	$319
Canada	$147	$158	-	-
Switzerland	$144	$147	-	-
Germany	$103	-	$328	-
Netherlands	$103	$203	$296	$444
Sweden	$96	$103	-	-
United Kingdom	$93	-	-	-
Australia	$87	-	-	-
France	$83	-	-	-

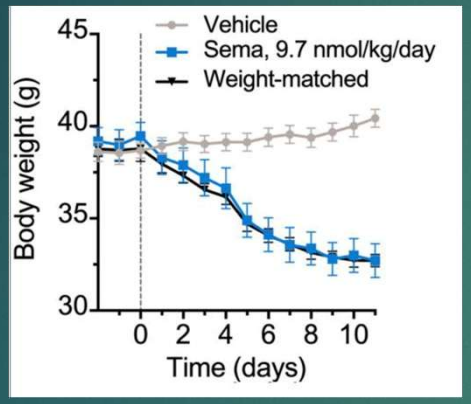
Note: List prices in $USD based on web searches as of August 15, 2023. Prices are for one-month supply of Ozempic 1mg, Rybelus 7mg, Wegovy 2.4mg, and Mounjaro 15mg. Some drugs are not available in all countries and prices were unable to be found in other countries. Some drugs are approved for diabetes and prescribed off-label for weight loss.

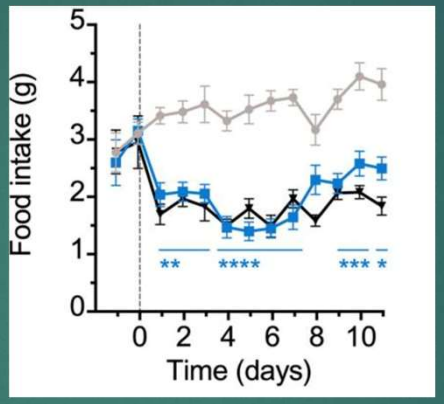
Source: KFF analysis • Get the data • PNG

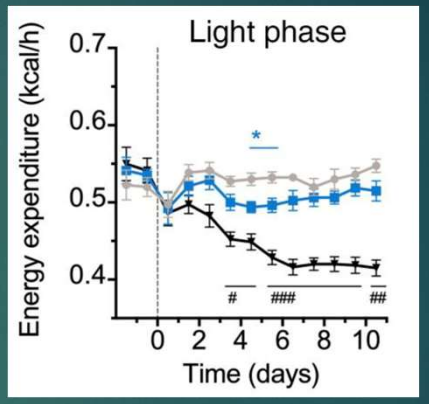
Peterson-KFF Health System Tracker

Kaiser Family Foundation Aug 2023

3. Obesity is a condition of disrupted fat metabolism - *weight is homeostatically regulated*



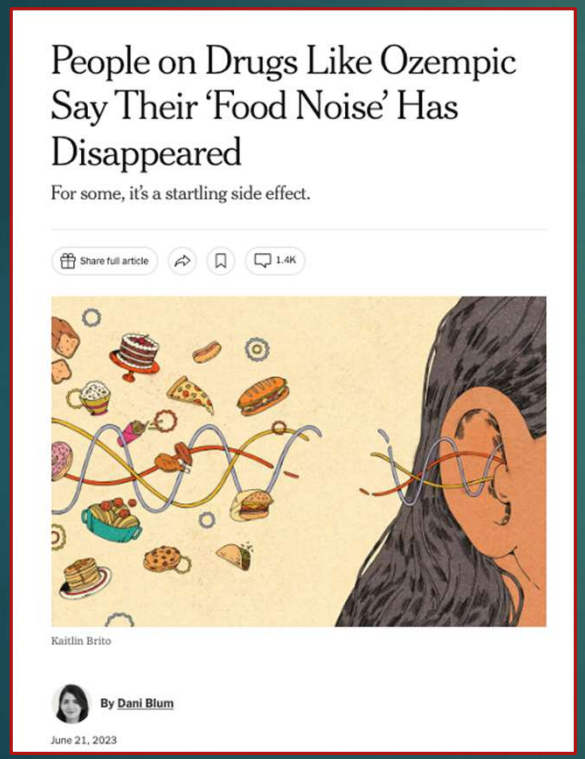




- Energy expenditure in food-restricted mice (diet) decreased
- Energy expenditure in the semaglutide-treated group **remained at baseline levels**.
  - →Semaglutide maintains metabolic activity (i.e. prevents compensatory downregulation of energy expenditure) despite weight loss

Gabery et al. Volume 5, Issue 6 on March 26, 2020 JCI Insight. 2020;5(6):e133429.

Incretin-based therapies, like bariatric surgery, modify the weight (fat mass) set point.



People on Drugs Like Ozempic Say Their 'Food Noise' Has Disappeared

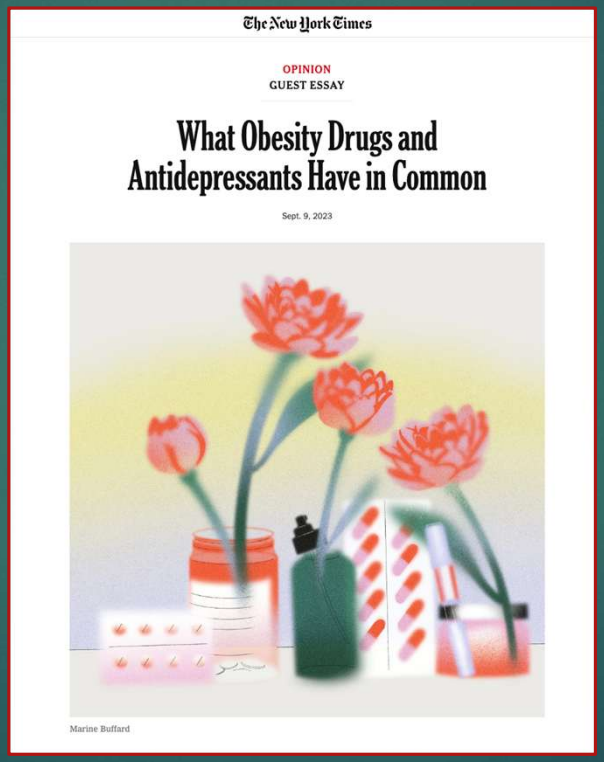
For some, it's a startling side effect.

Share full article 1.4K

Kaitlin Brito

By Dani Blum

June 21, 2023



The New York Times

OPINION

GUEST ESSAY

What Obesity Drugs and Antidepressants Have in Common

Sept. 9, 2023

Marine Buffard

"It is hard to explain what life is like on this medication to people who don't have trouble controlling their weight. I'm not hungry all the time. I'm not thinking about food incessantly. I'm not obsessing about what I wish I could eat and what I can't. My mental health, and even my temperament, improved so much that my whole family rejoiced."

Aaron E. Carroll (@aaronecarroll) is the chief health officer for and a distinguished professor of pediatrics at Indiana University.

https://www.nytimes.com/2023/06/21/well/eat/ozempic-food-noise.html
https://www.nytimes.com/2023/09/09/opinion/weight-loss-antidepressants-stigma.html

Take home points:

- **Obesity is a metabolic disease based on biology, not willpower** (calories in = calories out is NOT what the current data supports!).
- Clinically Important weight loss: **5% -10%**
- Incretin-based therapies (e.g. GLP1a/GIP) represent a new era of metabolic disease treatment and are **approaching the efficacy of bariatric surgery**
- **Long-term** therapy is important
  - Analogous to other chronic disease therapy
  - Discontinuation leads to weight regain in most patients
- **Lifestyle interventions** (including but not limited to diet, activity and sleep) are still the foundation of weight maintenance

Thank you!