TOS' Best Practices in Obesity Management Regional Meeting Series (Go Local)

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Disclosures

- **Angela Golden, DNP, FNP-C, FAANP, FOMA, FTOS (planner)**
  - Advisor relationship with Acella (pharmaceuticals), Boehringer Ingelheim (pharmaceuticals), Currax (pharmaceuticals), Eli Lilly (pharmaceuticals), Novo Nordisk (pharmaceuticals), and Weight Watchers (medical food)
  - Speaker relationship with Acella (pharmaceuticals), Currax (pharmaceuticals), Eli Lilly (pharmaceuticals), and Novo Nordisk (pharmaceuticals)
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  - Advisor relationship with Boehringer Ingelheim (pharmaceuticals) and Novo Nordisk (pharmaceuticals)
  - Consulting relationship with Currax (pharmaceuticals)
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- **Robert Kushner, MD, FTOS, DABOM (planner)**
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  - Researcher relationship with Novo Nordisk (pharmaceuticals)
- **Thomas George, DNP, FNP-C, NASM-CPT, FOMA (speaker)**
  - Speaker relationship with Currax (pharmaceuticals)
- **Angela Ritten, DNP, APRN, FNP-BC (speaker)**
  - Speaker relationship with Eli Lilly (pharmaceuticals)
- **TOS staff and educational partner, Synergist Medical Communications,** have no relevant financial relationships to disclose.
- **All relevant relationships have been mitigated.**

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Commercial Support

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- This activity is supported by an educational grant from Boehringer Ingelheim, Lilly, and Novo Nordisk.

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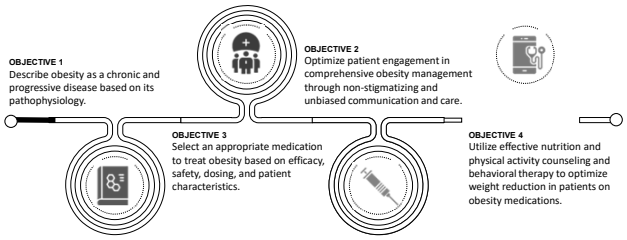
Learning Objectives



OBJECTIVE 1
Describe obesity as a chronic and progressive disease based on its pathophysiology.

OBJECTIVE 2
Optimize patient engagement in comprehensive obesity management through non-stigmatizing and unbiased communication and care.

OBJECTIVE 3
Select an appropriate medication to treat obesity based on efficacy, safety, dosing, and patient characteristics.

OBJECTIVE 4
Utilize effective nutrition and physical activity counseling and behavioral therapy to optimize weight reduction in patients on obesity medications.

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Obesity as a Disease

Pathophysiology and Biologic Adaptation

THE OBESITY SOCIETY
Professionals Collaborating to Overcome Obesity

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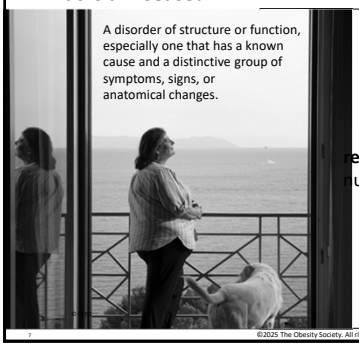
What Is a Disease?



A disorder of structure or function, especially one that has a known cause and a distinctive group of symptoms, signs, or anatomical changes.

Obesity is a **chronic, progressive, relapsing** disease that is associated with numerous complications, comorbidities, and heightened mortality risk.

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Let's Meet Kathleen

48-year-old woman who describes herself as "heavy since adolescence"
Has never seen a provider for weight/obesity treatment

- **Social history:** works as an executive assistant; married with 2 teenaged children; smoker (1 pack/day × 30 years)
- **Family history:** mother, father, and siblings described as "heavy"; mother has hypertension and type 2 diabetes; father has epilepsy; no history of thyroid cancer
- **Personal history:** no history of alcohol or drug abuse; no known allergies; no personal history of pancreatitis
- **Nutrition history:** usually skips breakfast or grabs yogurt on the go; eats out frequently since her teenagers often aren't home; prefers savory foods over sweets
- **Physical activity:** likes to walk outside in the morning; usually walks 2-3 times per week for 15 minutes

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Kathleen: Medical History and Medications

Medical History

- Juvenile myoclonic epilepsy diagnosed at 16 years of age
- GERD
- Insomnia
- Type 2 diabetes
- Stage 2 obesity

Medications

- Valproate 500 mg BID
- Metformin 1000 mg BID
- Omeprazole OTC 40 mg QD
- Pregnancy prevention: IUD

GERD, gastroesophageal reflux disease; IUD, intrauterine device; OTC, over the counter.

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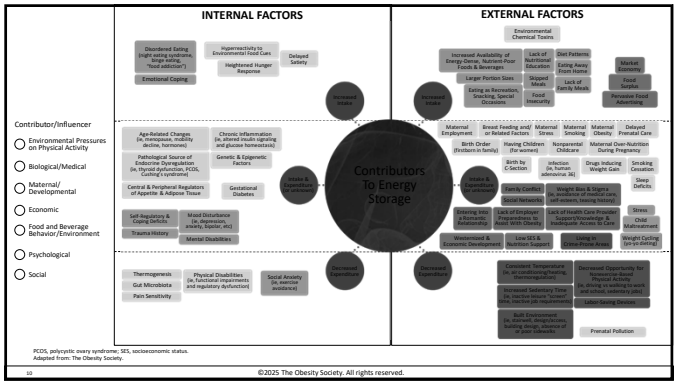

PCOS, polycystic ovary syndrome; SES, socioeconomic status.
Adapted from: The Obesity Society.

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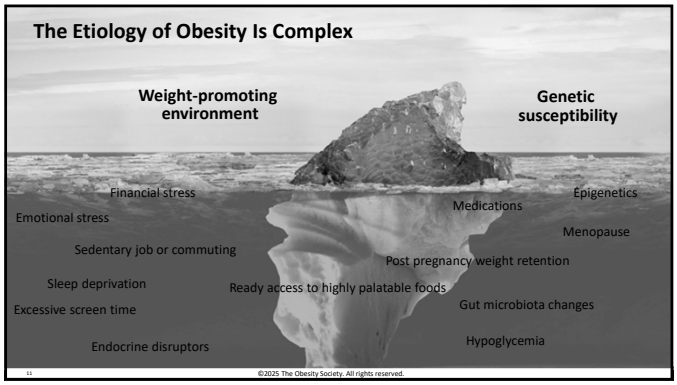

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Genetic Obesity Risk

MONOGENIC

- There are rare single-gene variants that greatly increase obesity, especially in childhood, and make it nearly impossible to lose weight
- Inactivating mutations in key MC4R pathway genes result in early-onset obesity
- This cause of obesity is treatable, but it is not common

POLYGENIC

43% of Americans have a high polygenic risk for obesity, but this genetic risk does not guarantee obesity

16% to 20% of those with very high polygenic obesity risk scores are not affected by obesity, but this high risk may make it harder to lose unwanted weight

Those with the *FTO* gene variant are **67%** more likely to develop obesity

- But have a 27% greater ability to achieve weight reduction with regular physical activity

DNA is not destiny.

FTO, fat mass and obesity-associated protein; MC4R, melanocortin 4 receptor.
Thaker VV. *Adolesc Med State Art Rev.* 2017;28(2):379-405.

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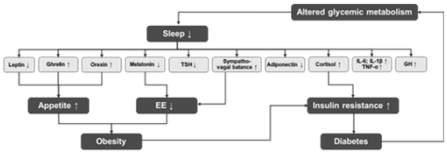
Insufficient Sleep Is a Metabolic Stressor Associated With Weight Gain and Obesity[1]

Short sleep duration (<5 to 6 h/day) associated with 38% ↑ in incidence of obesity,[1] and results in:



- Increased production of proinflammatory cytokines[2]
- Changes in energy expenditure and energy intake, resulting in a positive energy balance and weight gain[2,3]
- Upregulation of hedonic (pleasure seeking) mechanisms that increase the drive to eat high-calorie foods[3]
- Changes in hunger hormones such as leptin and ghrelin[2,3]

EE, energy expenditure; GH, growth hormone; IL, interleukin; TNF-α, tumor necrosis factor-alpha; TSH, thyroid-stimulating hormone.
1. Chaput JP, et al. *Appl Physiol Nutr Metab*. 2020;45(10-suppl 2):S218-S231. 2. Rodrigues GD, et al. *Eur J Intern Med*. 2021;92:11-16. 3. Chaput JP, et al. *Nat Rev Endocrinol*. 2023;19(2):82-97.
Figure adapted from: Lucassen EA, et al. *Ann N Y Acad Sci*. 2012;1264(1):110-134.

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Drugs That Promote Weight Gain[1-4]

Category	Drugs that may cause weight gain	Possible alternatives
Neuroleptics	Thioridazine, haloperidol, olanzapine, quetiapine, risperidone, clozapine	Ziprasidone, aripiprazole
Antidiabetic agents	Insulin, sulfonylureas, thiazolidinediones	AGIs, DPP4is, SGLT2is, GLP-1 RAs, metformin
Steroid hormones	Glucocorticoids, progestational steroids and contraceptives	Barrier methods, NSAIDs
Tricyclic antidepressants	Amitriptyline, nortriptyline, imipramine, doxepin	Protriptyline, bupropion, nefazodone
MAOIs	Phenelzine	
SSRIs	Paroxetine	Fluoxetine, sertraline
Other antidepressants	Mirtazapine, duloxetine	Bupropion
Anticonvulsants	Valproate, carbamazepine, gabapentin, pregabalin, vigabatrin	Topiramate, lamotrigine, zonisamide, felbamate
Antihistamines	Cyproheptadine	Inhalers, decongestants
β- and α-blockers	Propranolol, doxazosin	ACEI, CCBs

ACEI, angiotensin-converting enzyme inhibitor; AGI, alpha-glucosidase inhibitor; CCB, calcium channel blocker; DPP4i, dipeptidyl peptase-4 inhibitor; GLP-1 RA, glucagon-like peptide-1 receptor agonist; MAOI, monoamine oxidase inhibitor; NSAID, nonsteroidal anti-inflammatory drug; SSRI, selective serotonin reuptake inhibitor; SGLT2i, sodium-glucose cotransporter 2 inhibitor.
1. Kushner RF, Ryan DH. *JAMA*. 2014;312(9):943-952. 2. Apovian CM, et al. *J Clin Endocrinol Metab*. 2015;100(2):342-362. 3. Dewaelemos A, et al. *Obesity (Silver Spring)*. 2020;27(5):716-723. 4. Tondt J, et al. 2024. Accessed March 10, 2025. https://obesitymedicine.org/obesity-algorithm/

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Physiology of Appetite Regulation

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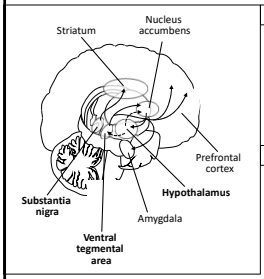
Integrated CNS Pathways Play a Key Role in Regulating Eating, Appetite, Cravings, and Body Weight



Homeostatic System – Hunger / Satiety

- Primarily driven by the arcuate nucleus of the **hypothalamus**
- Detection and integration of energy state information
  - Leptin, insulin
- Lateral hypothalamus projects to the VTA and receives input from the nucleus accumbens

Hedonic or Reward System

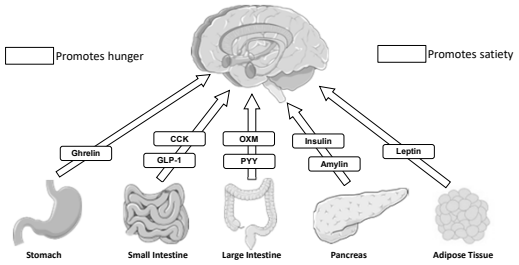
Dopaminergic pathways from the **VTA or substantia nigra** to regions such as:

- Striatum (movement, reward salience)
- Nucleus accumbens (reward, addiction)
- Prefrontal cortex (decision making, executive function)
- Amygdala (memory, emotion)

CNS, central nervous system; VTA, ventral tegmental area.
Billes SK, et al. *Pharmacol Res*. 2014;84:1-11.

16

Weight Is Centrally Regulated by the Hypothalamus but Is Influenced by Peripheral Signals[1,2]



CCK, cholecystokinin; GLP-1, glucagon-like peptide-1; OXM, oxyntomodulin; PYY, peptide YY.
1. Saladin K. *Anatomy & Physiology: The Unity of Form and Function*. 8th ed. McGraw Hill; 2018. 2. Sumithran P, et al. *N Engl J Med*. 2011;365(17):1597-1604.

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Disruption of Hypothalamic Arcuate Nucleus Is a Cause of Obesity

NPY and AgRP Neurons:

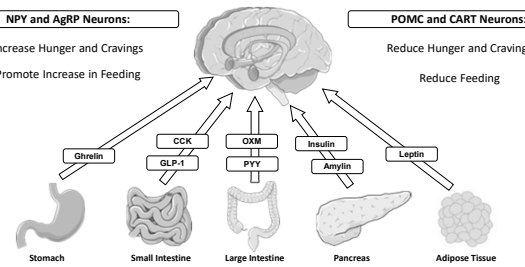
Increase Hunger and Cravings

Promote Increase in Feeding

POMC and CART Neurons:

Reduce Hunger and Cravings

Reduce Feeding



AgRP, agouti-related protein; CART, cocaine- and amphetamine-regulated transcript; NPY, neuropeptide Y;POMC, proopiomelanocortin.
Saladin K. *Anatomy & Physiology: The Unity of Form and Function*. 8th ed. McGraw Hill; 2018.

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Pathophysiology of Adiposity

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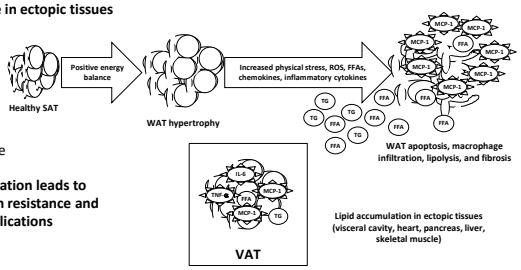
Ectopic White Adipose Tissue and Consequences of Expansion

Due to limited subcutaneous adipose tissue (SAT) expandability, white adipose tissue (WAT) may accumulate in ectopic tissues

- Viscera
- Heart
- Liver
- Pancreas
- Omentum
- Skeletal muscle



Ectopic accumulation leads to increased insulin resistance and metabolic complications

Lipid accumulation in ectopic tissues (visceral cavity, heart, pancreas, liver, skeletal muscle)

FFA, free fatty acid; MCP-1, monocyte chemoattractant protein 1; ROS, reactive oxygen species; TG, triglycerides.
Gustafson B, Smith U. *Atherosclerosis.* 2015;241(1):27-35.

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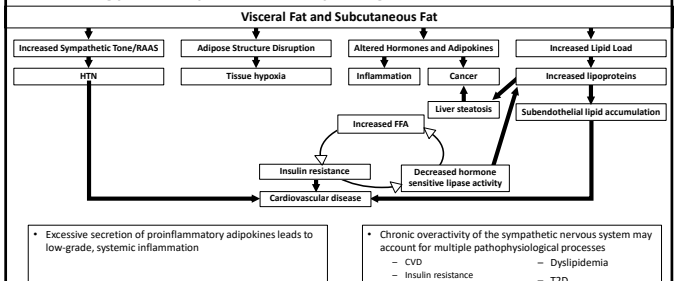
Pathology of Complications: Physiological[1-3]



- Excessive secretion of proinflammatory adipokines leads to low-grade, systemic inflammation

- Chronic overactivity of the sympathetic nervous system may account for multiple pathophysiological processes
  - CVD
  - Insulin resistance
  - MASH/MASLD
  - Dyslipidemia
  - T2D

CVD, cardiovascular disease; HTN, hypertension; MASH, metabolic-associated steatohepatitis, MASLD, metabolic dysfunction-associated steatotic liver disease; RAAS, renin-angiotensin-aldosterone system; T2D, type 2 diabetes.
1. Busebee B, et al. *Mayo Clin Proc.* 2023;98(12):1842-1857.2. Klocek S, et al. *Pharmacol Ther.* 2023;251:108549. 3. Lingvay I, et al. *Lancet.* 2024;404(10456):972-987.

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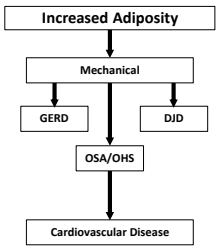
Pathology of Complications and Comorbidities: Mechanical[1-3]



Mechanical stress of obesity and overweight also leads to pathophysiology

- Obstructive sleep apnea
- Osteoarthritis
- Hypoventilation
- Gastroesophageal reflux disease
- Internal organ compression
  - Kidneys
  - Lungs

DJD, degenerative joint disease; GERD, gastroesophageal reflux disease; OHS, obesity hypoventilation syndrome; OSA, obstructive sleep apnea.
1. Busebee B, et al. *Mayo Clin Proc.* 2023;98(12):1842-1857. 2. Kloock S, et al. *Pharmacol Ther.* 2023;251:108549. 3. Lingvay I, et al. *Lancet.* 2024;404(10456):972-987.

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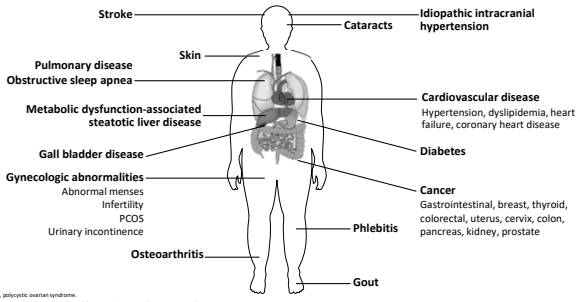
Complications and Comorbidities of Obesity



PCOS, polycystic ovarian syndrome.
Coelho M, et al. *Arch Med Sol.* 2013;9(2):191-200. Zhang X, et al. *Semin Cancer Biol.* 2023;92:16-27.

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Metabolic and Biologic Adaptation

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Biologic and Physiologic Adaptations to the Weight-Reduced State

Alterations in appetite regulation[1]	Alterations in energy expenditure[2,3]
↑ Ghrelin (hunger hormone)	↓ Resting energy expenditure
↓ GLP-1, GIP, CCK, PYY, insulin, and amylin (satiety hormones)	↑ Muscle efficiency
	Related to ↓ leptin levels

GIP, gastric inhibitory peptide.

1. Sumithran P, et al. *N Engl J Med.* 2011;365(17):1597-1604. 2. Johannsen DL, et al. *J Clin Endocrinol Metab.* 2012;97(7):2489-2496. 3. Ravussin E, Ryan, DH. *Obesity (Silver Spring).* 2016;24(8):1607-1608.

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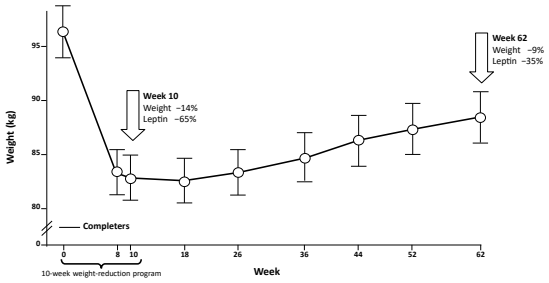
Long-Term Persistence of Hormonal Adaptations to Weight Reduction



Sumithran P, et al. *N Engl J Med.* 2011;365(17):1597-1604.

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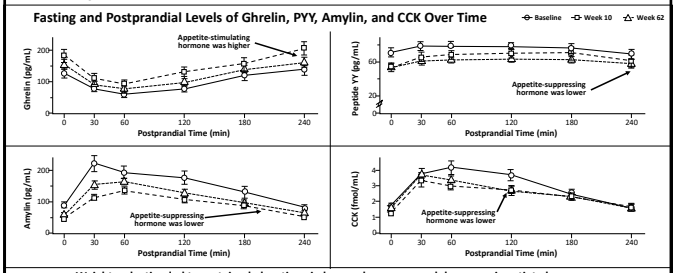
As We Lose Weight, Hunger Hormones Go Up and Satiety Hormones Go Down!

Fasting and Postprandial Levels of Ghrelin, PYY, Amylin, and CCK Over Time



Weight reduction led to sustained elevations in hunger hormones and decreases in satiety hormones.

Sumithran P, et al. *N Engl J Med.* 2011;365(17):1597-1604.

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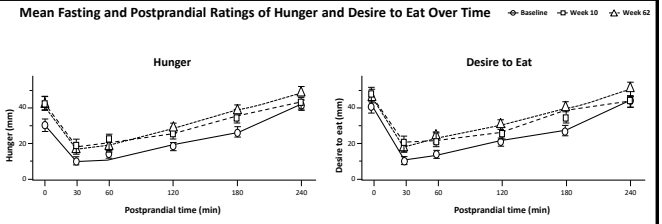
Sustained Changes in Reports of Hunger and Desire to Eat Over Time

Mean Fasting and Postprandial Ratings of Hunger and Desire to Eat Over Time



Significant changes in hunger and desire to eat persist for up to 1 year after weight reduction.

Sumithran P, et al. *N Engl J Med.* 2011;365(17):1597-1604.

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Metabolic Adaptation: Weight Reduction and Changes to Energy Expenditure

Reduction in resting metabolic rate greater than that predicted with weight loss alone

Reduction in leptin triggers decreased energy expenditure and fat oxidation

Greater and/or faster weight reduction = greater metabolic adaptation

Subject to individual variability

Metabolic adaptation after weight reduction has been demonstrated to remain 6 years later

Rosenbaum K, Ryan, DH. Obesity (Silver Spring). 2016;24(8):1607-1608.

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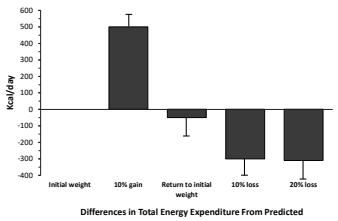
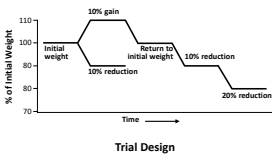
Changes in Energy Expenditure From Altered Weight

23 participants with normal weight and 18 participants with obesity were studied after gaining or losing 10% body weight and after returning to initial weight



Differences in Total Energy Expenditure From Predicted



Trial Design

Leibel RL, et al. *N Engl J Med.* 1995;332(10):621-628.

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Summary

- Obesity is a chronic disease with a complex etiology that includes genetic susceptibility and environmental factors
- Excess adipose tissue is a defining factor of obesity, and abnormal adipose tissue drives cardio-kidney-metabolic and liver risk factors, disease, and complications
- Body weight regulation is a central function of the brain, which controls food intake and energy expenditure, that seems to have a settling point
- Many factors contribute to the development of obesity, but once excess adiposity occurs, it is difficult to lose because the body defends its highest fat mass, making weight reduction difficult and weight regain likely

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Reducing Obesity Bias and Stigma

Improving Communication Strategies and the Office Environment

THE OBESITY SOCIETY
Professionals Collaborating to Overcome Obesity

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Defining Bias and Stigma

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Implicit vs Explicit Biases

IMPLICIT BIASES

- Automatically activated and may occur unconsciously
- Not necessarily personally endorsed and may be contradictory to conscious belief
- Predict nonverbal communication and decisions under cognitive burden
- Should not be used to absolve responsibility; reflecting can provide the opportunity to mitigate or challenge these associations and attitudes

EXPLICIT BIASES

- Intentional and conscious negative opinions or behaviors
- May be identified and assessed using self-report measures
- Influence verbal behaviors and decisions that are within conscious control

Phelan SM, et al. *Obesity (Silver Spring)*. 2014;22(4):1201-1208. Phelan SM, et al. *Obes Rev*. 2015;16(4):319-326.

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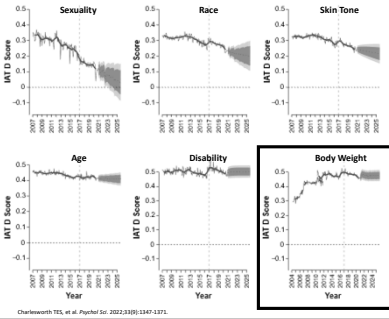
Implicit Weight Bias Over Time



- >7 million responses total from Project Implicit, with ~1 million responses for body weight
- Many biases trend toward neutrality over time, but implicit bias toward body weight has increased over the last 20 years

Charlesworth TES, et al. *Psychol Sci*. 2022;33(9):1347-1371.

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Weight Bias and Stigma: Media

Media play an important role in promoting weight bias and stigma

IMAGES THAT PROMOTE WEIGHT STIGMATIZATION

Heuer CA, et al. *J Health Commun*. 2011;16(9):976-987. Pearl RL, et al. *Health Psychol*. 2012;31(8):821-829. Wott CB, Carels RA. *J Health Psychol*. 2010;15(4):608-614. Fruh SM, et al. *J Nurse Pract*. 2016;12(7):425-432.

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Weight Bias and Stigma: Media (cont'd)

Positive portrayals of individuals with obesity can help to decrease obesity stigmatization

IMAGES THAT HELP TO COMBAT WEIGHT STIGMATIZATION

Heuer CA, et al. *J Health Commun.* 2011;16(9):976-987. Pearl RL, et al. *Health Psychol.* 2012;31(8):821-829. Wott CB, Carels RA. *J Health Psychol.* 2010;15(4):608-614. Fruh SM, et al. *J Nurse Pract.* 2016;12(7):425-432.

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Weight-Based Stigma Starts Early

- Obesity has increased exponentially in children
  - Projected that 57% will be affected by obesity by age 34 years
- Children often shamed/teased by parents, siblings, and peers
- Long-term negative emotional consequences
- Viewed as the number 1 reason for bullying in youth

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Olshansky SJ, et al. *N Engl J Med.* 2005;352(11):1138-1145. Ward ZJ, et al. *N Engl J Med.* 2017;377(22):2145-2153. Goldfield G, et al. *Paediatr Child Health.* 2010;15(5):283-288.

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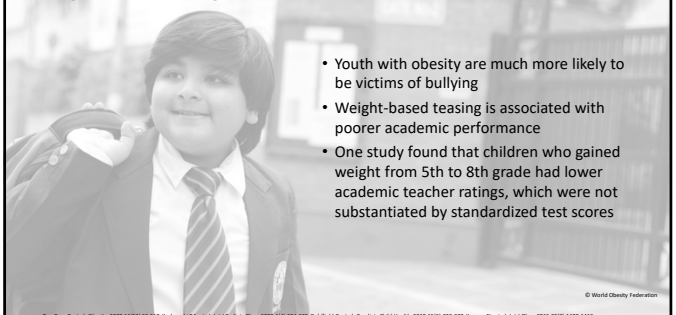
Weight Bias and Stigma: Education



- Youth with obesity are much more likely to be victims of bullying
- Weight-based teasing is associated with poorer academic performance
- One study found that children who gained weight from 5th to 8th grade had lower academic teacher ratings, which were not substantiated by standardized test scores

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van Den Berg P, et al. *Obesity.* 2008;16(S2):S3-S10. Krukowski RA, et al. *Int J Pediatr Obes.* 2009;4(4):274-280. Goldfield G, et al. *Paediatr Child Health.* 2010;15(5):283-288. Kenney EL, et al. *Int J Obes.* 2015;39(9):1408-1413.

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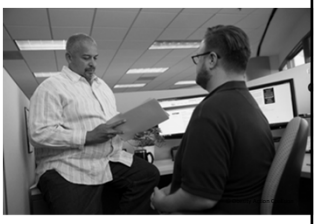
Weight Bias and Stigma: Employment

- Individuals with obesity:
  - Have higher unemployment rates
  - Spend fewer years employed
- Women experience weight discrimination at lower body weights than men
- In a study of women with obesity:
  - 54% reported weight stigma from coworkers or colleagues
  - 43% reported weight stigma from employers or supervisors



Morris S. Labour Econ. 2007;14(3):413-433. *Spahlholz J, et al. Obes Rev.* 2016;17(1):43-55. *Puhl RM, et al. Health Educ Res.* 2008;23(2):347-358.

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Weight Bias and Stigma: Healthcare Provider Bias

Documented in studies of:

- Dietitians
- Psychologists
- Nurses
- Medical students
- Physicians
- Clinicians/researchers specializing in obesity

Lawrence BJ, et al. *Obesity.* 2021;29(11):1802-1812. Puhl RM, Brownell KD. *Obesity.* 2006;14(10):1802-1815.

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Weight Bias and Stigma: Healthcare Provider Bias

Providers with obesity bias spend less time with patients, engage in less "patient-centered" communication, and are less likely to perform screenings and discuss health issues with patients[1,2]

Providers may over-attribute physical symptoms and problems to obesity and neglect referring patients for appropriate diagnostic testing and treatments, including pharmacotherapy for obesity and bariatric surgery[1,3-5]

One study found that 50% of primary care providers described patients with obesity as "awkward, ugly, and noncompliant"[4]

A study found that some nurse practitioners described patients with overweight and obesity as "not fit for marriage, messy, and not healthy"[6]

1. Puhl RM, et al. *Clin Diabetes.* 2016;34(1):44-50. 2. Hebl MR, Xu J. *Int J Obes Relat Metab Disord.* 2001;25(8):1246-1252. 3. Phelan SM, et al. *Obes Rev.* 2015;16(4):319-326.
4. Foster GD, et al. *Obes Res.* 2003;11(10):1168-1177. 5. Ferrante JM, et al. *Obesity (Silver Spring).* 2009;17(9):1710-1716. 6. Ward-Smith P, Peterson JA. *J Am Assoc Nurse Pract.* 2016;28(3):125-129.

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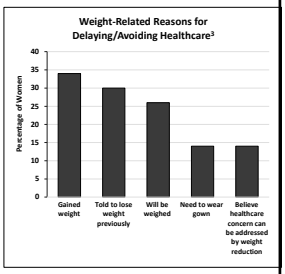
Weight Bias and Stigma: Patient Experiences

- Patients reported in one study that, after family members, healthcare providers are the top source of obesity bias[1]
  - 53% of women with obesity reported receiving inappropriate comments from their healthcare providers related to their weight
  - Patients also report weight stigma from nurses (47%), dieticians (37%), and mental health professionals (21%)
- Younger women with obesity reported more stigma than individuals who were older[2]
- As BMI increases in women, the likelihood of delaying or avoiding healthcare also increases[3]



1. Puhl RM, Brownell KD. *Obesity (Silver Spring).* 2006;14(10):1802-1815. 2. Kirk SF, et al. *Qual Health Res.* 2014;24(6):790-800. 3. Drury CA, Louis M. *J Am Acad Nurse Pract.* 2002;14(12):554-561.

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Internalized Stigma and Health Behaviors

In large samples of commercial weight reduction participants (approximately 14,000-19,000), internalization correlated with:

- Lower belief in ability to successfully achieve nutrition goals
- Less frequent self-monitoring
- Less weight reduction/more weight gain
- Poorer health-related quality of life

- More avoidance of physical activity
- Greater use of eating as a coping strategy
- Greater stress
- Greater body dissatisfaction

Pearl RL, et al. *Ann Behav Med.* 2020;54(11):904-914. Pearl RL, et al. *SSM Popul Health.* 2021;13:100755.

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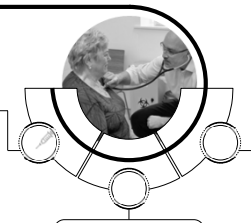
Potential Impact of Medication Access on Bias and Stigma



Medication Availability

As medication availability improves, those who choose not to use it may face increased stigma and bias

Unequal Access

Unequal access to obesity medication results in those who can afford medication experiencing reduced stigma, whereas those who cannot continue to face it

- Those who cannot afford medication may be perceived as unwilling or unmotivated to manage their obesity
- Those who do choose to use it may experience stigma associated with the idea that they "took the easy way out"

Weight Regain

Weight regain after cessation of medication may enhance both external and internalized bias

Heitmann BL. *Curr Obes Rep.* 2025;14:18. Jolin JR, et al. *Milbank Q.* 2024;102(2):336-350. Washington TR, et al. *Gastroenterol Clin North Am.* 2023;52(2):429-441.

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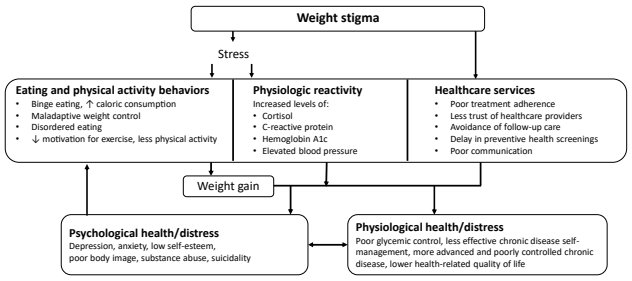
Health Consequences of Weight Stigma



Puhl RM, et al. *Clin Diabetes*. 2016;34(1):44-50.

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Strategies to Reduce Bias and Stigma

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Addressing a Culture of Blame

The first way to address bias is to identify that obesity is a disease

The American Medical Association (AMA) recognized obesity as a disease in 2013.
The benefits of the AMA decision:
- Increased expansion for coverage
- Reduced exclusions of obesity-related treatment

The American Diabetes Association states that obesity is a chronic, often relapsing disease with numerous metabolic, physical, and psychosocial complications, including a substantially increased risk for the development and progression of type 2 diabetes.

The Obesity Society (TOS) Council statement regarding obesity as a disease states that obesity:
- Is a complex condition that has many causal contributors
- Causes much impairment and suffering
- Often contributes to the development or worsening of other chronic diseases
- Leads to obesity-related stigma and bias

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Reasons Obesity Is a Disease

Diagnosed by:	Contributes to:	Caused by:	Treated with:	Managed by:
• Signs and symptoms of illness, sickness, or ailment	• Increased morbidity	• Genetic or development errors	• Medical nutrition therapy	• Primary care clinicians
• Adverse anatomic changes to an organ system of the body	• Increased mortality	• Inflammation or infection	• Routine physical activity	• Specialists
• Dysfunction of an organ or system of the body		• Poisons, toxicity, or pharmaceutical AEs	• Behavior modification	• Multidisciplinary care teams
		• Nutritional abnormalities	• Medication	
		• Unfavorable environmental/ behavioral factors	• Surgery	
			• Patient education	

Bays HE, et al. *Obes Pillars*. 2022;3(100034):100034.

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Reducing Obesity Bias and Stigma

Greater Knowledge:

- Providers should learn as much as possible about the pathophysiology and complex mechanisms that underlie obesity
- Increased understanding reduces negative attitudes and bias

Identify Own Bias:

- The Obesity Society has helpful questions to identify bias
- The Rudd Center has resources to reduce weight bias in clinical care www.supportiveobesitycare.com
- The Harvard Implicit Association Test measures attitudes and beliefs that people may be unwilling or unable to report https://implicit.harvard.edu/implicit/takeatest.html

Puhl RM, et al. *Health Psychol*. 2005;24(5):517-525.

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Identifying One's Own Bias

The Obesity Society

1. Do I make assumptions based only on weight regarding a person's character, intelligence, professional success, health status, or lifestyle behaviors?
2. Am I comfortable working with people of all shapes and sizes?
3. Do I give appropriate feedback to encourage healthful behavior change?
4. Am I sensitive to the needs and concerns of individuals affected by obesity?
5. Do I treat the individual or only the condition?

UConn Rudd Center

1. What have I learned about weight stigma?
2. Did any information surprise me? Why or why not?
3. How might weight stigma be contributing to poor health in my patients?
4. How might weight stigma affect the lives of those around me?
5. What assumptions have I made about people with obesity?
6. Where might these assumptions come from?
7. What examples challenge these assumptions?
8. How will I use what I've learned in the future?

Frush SM, et al. *J Nurse Pract*. 2016;12(7):425-432.

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Reducing Obesity Bias and Stigma

Promote Positive Perceptions of Individuals With Obesity:
Individuals' attitudes are influenced by the perceived attitudes of groups they value, and attitude change is more likely when information comes from social groups with whom a person identifies

Understand the Patient's Point of View:
History of negative experiences with healthcare providers, have tried to lose weight repeatedly, unsupportive office environments, etc

Respectful and Compassionate Communication:
Providers need to communicate with patients in a respectful, compassionate, and judgment-free manner that uses person-first language

Puhl RM, et al. *Health Psychol.* 2005;24(5):517-525.

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Clinical Office Setting (Waiting and Clinic Rooms)

- Wider chairs to accommodate all sizes
- Chairs and seating without armrests
- Ample space between each chair
- Avoid reading materials that contain discriminating images
- Respectful communication with office staff and other healthcare providers (office staff and other healthcare providers need to be educated)

Puhl RM, et al. *Health Psychology.* 2005;24(5):517-525. Fruh SM, et al. *J Nurse Pract.* 2016;12(7):425-432.

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Puhl RM, et al. *Health Psychology.* 2005;24(5):517-525. Fruh SM, et al. *J Nurse Pract.* 2016;12(7):425-432.

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Weighing Procedures

- Avoid weighing patients in the hallway
- Never call out weight
- Wide-based scale with capacity >500 lb

Puhl RM, et al. *Health Psychology.* 2005;24(5):517-525. Frush SM, et al. *J Nurse Pract.* 2016;12(7):425-432.

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Medical and Office Equipment

- Sturdy, wide examination tables with sturdy stool or step with handles
- Measuring tape
- Blood pressure cuffs of all sizes (regular, large, thigh)
- Properly sized gowns
- Bathrooms equipped with handrails that can comfortably accommodate individuals of all sizes
- Appropriate vaginal speculum size
- Hand-held Doppler assessment of fetal heart rate may not be feasible in some cases before 16-20 weeks; sometimes a transabdominal ultrasound is needed
- Laboratory draw chair that will fit all individuals

Puhl RM, et al. *Health Psychology.* 2005;24(5):517-525.

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Asking Permission to Discuss Weight

- Make improved health the reason for the discussion
- Consider the following language before discussing weight with patients:

What words would you like to use when we talk about weight?

Could we talk about your weight today?

Would you be willing to have a discussion about your weight?

How do you feel about your weight?

Do I have your permission to discuss your weight?

Frush SM, et al. *Nurse Pract.* 2016;12(7):425-432.

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Respectful and Compassionate Communication: Terminology

Encouraged Terms

- Weight
- Excess weight
- Unhealthy weight
- Overweight
- Body mass index
- Affected by obesity
- Eating habits/nutrition
- Physical activity

Discouraged Terms

- Morbidly obese
- Obese
- Fat
- Heaviness
- Large size
- Diet
- Exercise

Adapted from: Tondt J, et al. Obesity Algorithm eBook. Accessed August 28, 2024. https://obesitymedicine.org/resources/obesity-algorithm/

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Respectful and Compassionate Communication: People-First Language

- People-first language avoids labeling people with their disease
- It was first commonly used in the context of chronic disease, mental health, and disability but is now championed more broadly

Instead of…	Say…
✗ The woman was obese	✓ The woman was affected by obesity
✗ The overweight man came in	✓ The man with overweight came in

The Obesity Action Coalition. Accessed March 11, 2025. https://www.obesityaction.org/advocacy/what-we-fight-for/people-first-language/

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Opportunities for Empathy

Type of Opportunity	What It Is	What You May Hear
Emotional Statement	The patient describes feeling an emotion.	"I'm worried about my recent weight gain even though I've been trying to eat more healthy meals." "I'm upset that I don't have much to wear for work."
Progress Statement	The patient talks about a positive development in his/her health condition, in his/her own or family's life, or a recent, very positive, life-changing event.	"I've improved by 1000 steps over the last week." "I have less cravings since I changed medications."
Challenge Statement	The patient speaks about the negative effect a physical or psychosocial problem is having on the quality of his/her life, or a recent, devastating life-changing event.	"Since my Mom got sick, I've had a hard time with sleep." "With my recent knee injury, it's been difficult to get around, be active, and take care of myself. I continue to gain weight."

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Communication Strategies

Reflect back. Normalize. Focus on partnership. Highlight the effort!

What You May Hear	How to Respond
"I'm worried about my recent weight gain even though I've been trying to eat more healthy meals."	**Reflect back:** It sounds like you're concerned about your recent weight gain. **Normalize:** It can be difficult to find the right nutrition plan, and different things work for different individuals. **Partnership:** Let's discuss what you've tried and work together to develop a plan to help you reach your goals.
"I've improved by 1000 steps over the last week, but I'm worried about keeping it up."	**Reflect back:** It sounds like you've increased your physical activity, but you're worried about it being sustainable. **Highlight effort:** That is great news that you reached your goal for the week. **Normalize:** But it's normal to be concerned about keeping it up. Many people worry about that because life gets busy and challenging at times. **Partnership:** Let's develop some strategies in advance to overcome any anticipated challenges so you can continue to achieve your goals.

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How Can We Avoid Perpetuating Weight Bias?

- **Use** nonstigmatizing and person-first language
- **Use** the medical definition of obesity
- **Emphasize** screening and assessment tools beyond BMI and weight
- **Recognize** that obesity is a complex disease and avoid framing it as a personal choice
- **Emphasize** health and quality of life for people of all sizes, recognizing that health can happen across a range of BMI levels
- **Advocate** for improved overall health as primary goal; avoid exclusive goal of weight reduction
- **Avoid** measuring the impact of healthy eating and physical activity behaviors in terms of weight reduction
- **Dispel** the oversimplified view that obesity is solely determined by unhealthy eating and lack of exercise, and highlight the complexity of obesity management

European Association for the Study of Obesity. Accessed June 5, 2025. https://easo.org/wp-content/uploads/2024/05/Person-First-Language-guide-addressing-Weight-Bias.pdf

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The Obesity Bill of Rights

1. **The right to accurate, clear, trusted, and accessible information on obesity as a treatable, chronic disease**
2. **The right to respect by all members of the integrated care team when screening, counseling, and providing treatment**
3. **The right to make treatment decisions about one's health goals and obesity care and consultation with the individual's health providers**
4. **The right to treatment from qualified health providers, including counseling and ongoing care from health providers with expertise in obesity care**
5. **The right to person-centered care that is personalized, respects the individual's cultural beliefs, meets their specific health goals, and considers the person's whole health and not just their weight status**
6. **The right to accessible obesity treatment from health systems, so those with severe obesity receive care and settings that allow for privacy, using size- and weight-accessible equipment and diagnostic scans**
7. **The right for older adults to receive quality obesity care that comprises a respectful, comprehensive care approach consistent with their personalized medical needs**
8. **The right to coverage for treatment with access to the full range of treatment options for the person's disease as prescribed by the individual's health**

Right 2 Obesity Care. Accessed June 5, 2025. https://right2obesitycare.org/#action-plan

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Summary

- Recognize and advocate that obesity is a complex disease
- Reflect on one's own potential biases to improve patient-centered care
- Weight bias is pervasive and has a negative effect on health behaviors
- Reducing weight bias and stigma can help improve health outcomes for individuals with obesity
- Employ strategies to provide the best possible care
  (people-first language, self-reflection, environmental accommodations, and training in obesity management)

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Comprehensive Obesity Management

Practical Strategies for Individualizing Treatment

THE OBESITY SOCIETY
Professionals Collaborating to Overcome Obesity

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Screening, Diagnosis, and History

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Let's Go Back to Kathleen

48-year-old woman who describes herself as "heavy since adolescence"
Has never seen a provider for weight/obesity treatment

- **Weight:** 202 lb **Height:** 5'4"
- **BMI:** 34.7 kg/m^2 **A1c:** 7.9%
- **Current medications:**
  - Valproate 500 mg BID for juvenile myoclonic epilepsy diagnosed at 16 years of age
  - Metformin 1000 mg BID for T2D
  - Omeprazole OTC once daily for GERD
  - IUD for pregnancy prevention

BMI, body mass index; GERD, gastroesophageal reflux disease; IUD, intrauterine device, OTC, over the counter; T2D, type 2 diabetes.

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Benefits and Limitations of BMI

- Recommended first step in evaluating patients for obesity
- Easy assessment and no need for weight tables
- The most useful population-level measurement of overweight and obesity for risk assessment
- Correlates with other estimates of adiposity

- Cannot distinguish between weight associated with muscle vs fat
- High specificity for diagnosing obesity but low sensitivity for identifying adiposity
- Cannot distinguish body fat distribution, which may lead to underestimates of metabolic risk

Fitch AK, *et al. Obesity Pillars.* 2022;1:100004.

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Other Criteria for Diagnosis of Obesity

The **amount**, **distribution**, and **health** of body fat are more important measures of obesity and health risk than BMI alone.

Waist Circumference
Men
≥40 in (102 cm)
Asian ≥35.4 in (90 cm)
Women
≥35 in (88 cm)
Asian ≥31.5 in (80 cm)

Waist to Height Ratio
≥0.5
Does not require age, sex, or ethnic cutoffs
Accurate ≥6 years of age

Percent Body Fat
Men: ≥30%
Women: ≥35%

Waist to Hip Ratio
Men
≥0.95
Asian ≥0.90
Women
≥0.80
Asian ≥0.80

Tondt J, et al. Obesity Algorithm eBook, presented by the Obesity Medicine Association. 2025. Accessed August 5, 2025. https://obesitymedicine.org/resources/obesity-algorithm Rao G, et al. *Circulation.* 2015;132(5):457-472.Lear SA, et al. *Eur J Clin Nutr.* 2010;64(1):42-61.

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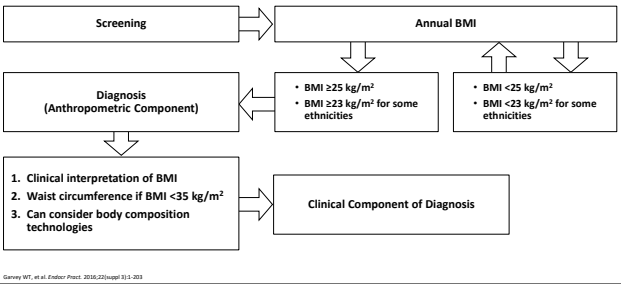
Anthropometric Component of the Medical Diagnosis of Obesity



Garvey WT, *et al. Endocr Pract.* 2016;22(suppl 3):1-203

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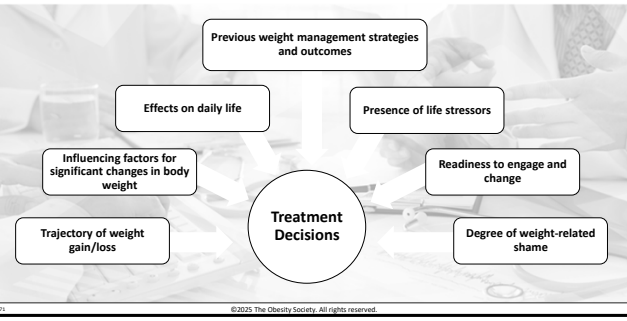
Weight History Is Embedded With Valuable Clinical Information That Will Guide Treatment



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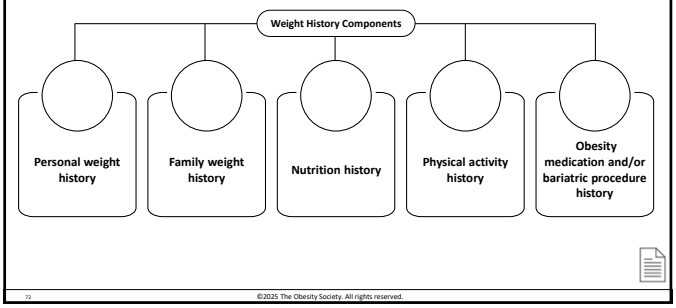
Major Components of a Complete Weight History



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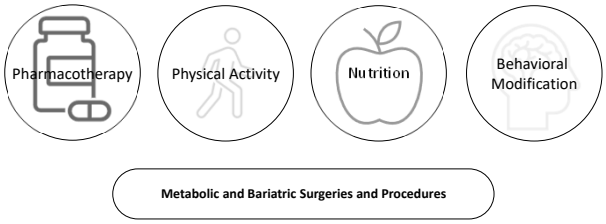
Components of an Effective Obesity Management Program



Metabolic and Bariatric Surgeries and Procedures

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Obesity Management

Lifestyle and Behavioral Interventions

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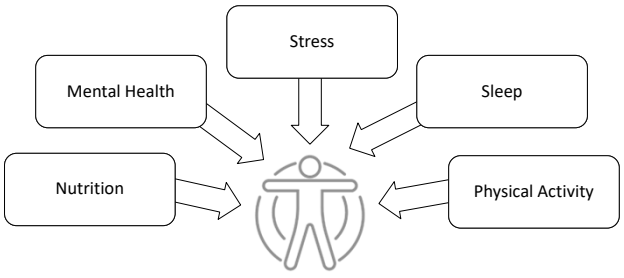
Lifestyle Interventions



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Nutrition History

A detailed nutrition history should include:

Previous attempts at nutrition or dietary changes to change weight or body composition	Preferences, triggers, and challenges	Timing/frequency of food intake
• What was the response to dietary changes? Were they sustainable?	• Triggers for eating, barriers to healthy eating, cultural influences	• Methods: – Clinician-conducted interview of 24-hour dietary recall or typical day – Food diary or log for at least 3-4 days – Targeted questions for food frequency (eg, "How often do you eat foods that…?") • Discuss portion sizes


Burridge K, et al. *Obesity Pillars*. 2022;1:100007. International Dietary Data Expansion Project. Accessed June 19, 2025. https://inddex.nutrition.tufts.edu/data4diets/data-source/24-hour-dietary-recall-24hr

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Nutritional Approaches for Weight Reduction

- **Low-calorie nutrition plans (1200-1800 kcal/day)**
- **Manipulation of macronutrients (eg, carbohydrate, fat)**
- **Meal replacements can be used with any plan**
- **Time-restricted eating**

Choice of plan should consider:

- Eating behaviors and meal patterns
- Cultural influences
- Food availability and financial limitations
- Time constraints
- Nutritional knowledge
- Cooking skills
- Comorbidities

Alexander L, et al. *Obes Pillars*. 2022;1:100005.

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Practical Strategies for Helping Patients Reach Their Nutrition Goals

- Provide resources
  - Grocery lists
  - Portion sizes
- Teach patients to critically read food labels
- Suggest nutrition trackers
- Encourage progress over perfection
- Refer to nutritionists/dietitians

- Counsel patients to limit:
  - Ultra-processed food
  - Trans fats
  - Alcohol and high-calorie beverages
  - Added sugars
  - Refined carbohydrates
- Encourage:
  - High-protein foods
  - Vegetables and leafy greens
  - Fruits and berries
  - Nuts, seeds, legumes, and whole grains
  - High-fiber foods
  - Complex carbohydrates

Greater exposure to ultra-processed food is associated with increased cardiometabolic and mortality risks.[1,2]

1. Hall KD, et al. *Cell Metab*. 2019;30(1):67-77.e3. 2. Lane MM, et al. *BMJ*. 2024;384:e077310.

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Nutrition Plan	General Description	Types of Foods Recommended	Types of Foods to Avoid	Advantages	Disadvantages
Low Fat	Less than ~20%-30% of calories from fat	Vegetables, whole grains, legumes, fruits, low-fat or fat-free dairy, and lean meats and fish	Fat, red meats, sugar, and refined carbohydrates (ultra-processed foods)	Reduces glucose, insulin, and BP when accompanied by weight reduction; decreases LDL	May decrease HDL Potential risk of deficiencies in essential fatty acids and fat-soluble vitamins if <30 g of fat/day
Low Carbohydrate	<130 g of carbohydrates/day or <26% of calories/day Very low carbohydrate: <50 g of carbohydrates/day	Non-starchy vegetables, leafy greens, low-sugar fruits, nuts, seeds, eggs, meats and fish, some full-fat dairy, and natural oils and fats	Starchy foods, sugar, refined carbohydrates, trans fats, and ultra-processed foods	Reduces triglycerides, insulin, glucose, and BP with or without weight reduction; increases HDL Greater weight reduction in the first 6 months vs other nutrition plans	May increase LDL; may induce gout flares May result in malaise Monitor for hypoglycemia and hypotension in treated patients treated with medications
Mediterranean	40% of calories from fat Dietary pattern of citizens of Mediterranean countries	Olive oil, vegetables, fruits, legumes, whole grains, nuts, seeds, fish, and a moderate intake of red wine, seafood, poultry, fermented dairy (cheese and yogurt), and eggs	Ultra-processed carbohydrates, sugar, and red meat	Countries following a Mediterranean lifestyle tend to have low rates of heart disease and long life expectancies The most robust data to support reductions in cardiovascular disease risk	May produce less weight reduction and less reductions in hunger vs a low carbohydrate eating plan

Tondt J, et al. Obesity Algorithm eBook, presented by the Obesity Medicine Association. 2025. Accessed August 5, 2025. https://obesitymedicine.org/resources/obesity-algorithm

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Let's Go Back to Kathleen

48-year-old woman who describes herself as "heavy since adolescence"
Has never seen a provider for weight/obesity treatment

- **Weight:** 202 lb **Height:** 5'4"
- **BMI:** 34.7 kg/m^2 **A1c:** 7.9%
- **Lipid panel:** WNT
- **Current medications:**
  - Valproate 500 mg BID for juvenile myoclonic epilepsy diagnosed at 16 years of age
  - Metformin 1000 mg BID for T2D
  - Omeprazole OTC once daily for GERD
- **Nutrition history:** usually skips breakfast or grabs yogurt on the go; eats out frequently as her teenagers often aren't home and it's just her and her spouse; prefers savory foods over sweets

WNT, within normal limits.

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Let's Meet Todd

42-year-old man who was previously active but was injured
Concerned about weight gain and overall health

- **Weight:** 205 lb **Height:** 5'11" **BMI:** 28.6 kg/m^2
- **Total cholesterol:** 263 mg/dL **Triglycerides:** 215 mg/dL
  LDL-C: 165 mg/dL **HDL-C:** 35 mg/dL **BP:** 137/86 mm Hg
- **Current medications:** initiating atorvastatin 20 mg QD
- **Medical history:** pancreatitis 5 years w/ cholecystitis; major depressive disorder (mild) being treated with counseling; no anxiety
- **Weight history:** competitive weightlifter throughout life but stopped 5 years ago due to a back injury; has gained weight and lost muscle strength over the intervening 5 years
- **Nutrition history:** cut meat from diet 5 years ago; eats a lot of seafood; eats late at night out of boredom and has strong cravings

BP, blood pressure, HCTZ, hydrochlorothiazide; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol.

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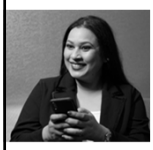
Discussion: What Is an Appropriate Nutrition Plan for Each of These Patients?



Low carbohydrate diet

- Evidence that low carbohydrate diet has positive effect on insulin and A1c
- Prefers savory foods, so may be a realistic option with her preferences
- Some evidence that very low carbohydrate diet may reduce seizure frequency

Mediterranean diet

- Substantial evidence that Mediterranean diet has positive effect on metabolic syndrome and dyslipidemia
- Mediterranean diet consistent with preference of seafood and avoidance of red meat

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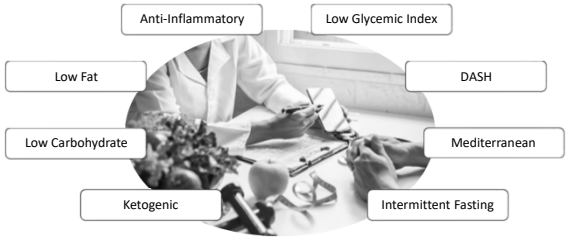
Prescribing an Appropriate Nutrition Plan



The best nutrition plan is one your patient adheres to.

DASH, Dietary Approaches to Stop Hypertension.

83

According to World Health Organization: Risks of Sedentary Lifestyle

- **2 million deaths** per year are attributed to physical inactivity
- One of the **10 leading causes of death and disability** in the world
- Increases all causes of mortality
- Doubles the risk of cardiovascular diseases, diabetes, and obesity
- Increases the risks of colon cancer, high blood pressure, osteoporosis, lipid disorders, depression, and anxiety
- **60% to 85%** of people in the world lead a sedentary lifestyle, making it one of the more serious yet ***insufficiently addressed*** public health problems of our time

World Health Organization. Accessed July 16, 2024. https://www.who.int/news/item/04-04-2002-physical-inactivity-a-leading-cause-of-disease-and-disability-warns-who

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Physical Activity Improves Health Beyond Weight Reduction

- Improves neurologic health
- Promotes better sleep
- Boosts energy
- Increases stamina and strength
- Improves cognitive health
- Improves pulmonary health
- Prevents and treats some mental health conditions
- Improves cardiometabolic health
- Reduces risk of cancer and improves response to cancer treatments
- Regulates weight

Alexander L, et al. *Obes Pillars*. 2022;1:100005.

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Key Physical Activity Guidelines for Adults

- At least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) per week of **moderate-intensity** aerobic physical activity

  OR

- 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) per week of **vigorous-intensity** aerobic physical activity

  AND

- Muscle-strengthening activities 2 or more days per week

- Additional health benefits are seen beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity per week
- Activity should be spread out over the week

Adapted from: US Department of Health and Human Services. Accessed June 20, 2025. https://www.cdc.gov/physical-activity-basics/guidelines/adults.html#:~:text=Physical%20activity%20is%20one%20of,muscle%2Dstrengthening%20activity%20each%20week

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How to Take a Physical Activity History

- **Physical Activity Vital Sign (PAVS)**
  - "On average, how many days per week do you engage in moderate to strenuous exercise, like a brisk walk?"
  - "On average, how many minutes do you engage in exercise at this level?"
- Readiness
- Perceived barriers
- Previous activities: likes/dislikes
  - Reason for discontinuing
    - When? What? Why?
- Access to safe places to be active
- Risk of falls

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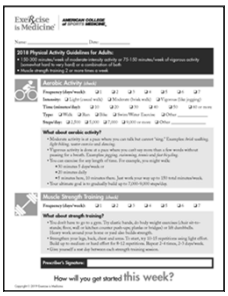
Prescribing Physical Activity

An exercise prescription generally includes:

- Type of exercise or activity (eg, walking, swimming, cycling)
- Specific workloads (eg, watts, walking speed)
- Duration and frequency of the activity or exercise session



American College of Sports Medicine. Exercise is medicine. Accessed July 24, 2025. https://www.exerciseismedicine.org/eim-in-action/health-care/health-care-providers/

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Let's Revisit Kathleen

48-year-old woman who describes herself as "heavy since adolescence"
Has never seen a provider for weight/obesity treatment

- **Weight:** 202 lb **Height:** 5'4"
- **BMI:** 34.7 kg/m^2 **A1c:** 7.9%
- **Physical activity history:** likes to walk outside in the morning; usually walks 2-3 times per week for 15 minutes

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Example of a Physical Activity Prescription for Kathleen

FITTE-VP: frequency, intensity, type, time, enjoyment, volume, progression
Frequency: 3 times per week (Mon, Wed, Fri)
Intensity: brisk, able to talk but not sing
Type: walking
Time: 20 minutes (7:00 AM)
Enjoyment: listen to favorite podcast
Volume: 60 minutes of moderate-intensity physical activity per week
Increase by 5 minutes every 2 weeks

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Let's Revisit Todd

42-year-old man who was previously active but was injured
Has never seen a provider for weight/obesity treatment

- **Weight:** 205 lbs **Height:** 5'11" **BMI:** 28.6 kg/m^2
- **Total cholesterol:** 263 mg/dL **Triglycerides:** 215 mg/dL
  LDL-C: 165 mg/dL **HDL-C:** 35 mg/dL **BP:** 137/86 mm Hg
- **Physical activity:** former weightlifter; currently limited to daily activities due to back injury leading to mild depression

Refer to physical therapy

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Interventions to Facilitate Behavior Change

Interventions designed to affect the actions that individuals take regarding their health

Integrated into lifestyle interventions

5As

Motivational Interviewing

Cognitive Behavioral Therapy

5As, ask, assess, advise, agree, arrange/assist.
Anderson NB, et al. Accessed July 24, 2024. https://www.ncbi.nlm.nih.gov/books/NBK25532/

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5As of Behavior Change

ASK	ASSESS	ADVISE	AGREE	ARRANGE/ ASSIST
whether there is a health-related behavior they would like to change	behavior/habit, cues/triggers, and readiness to change	on health outcomes of behaviors and strategies to change health habits	on a plan	with tools, resources, referrals, and follow-up

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5As of Behavior Change: Nutrition Example

ASK	ASSESS	ADVISE	AGREE	ARRANGE/ ASSIST
Do you have questions or concerns about your eating habits? Would you be interested in working together on a nutrition plan?	Are there areas of your diet that you struggle with? Are there any lifestyle or food changes you've made in the past that worked well for you?	Nutrition plays an important role in our overall health. Let's talk about replacing processed foods with whole foods.	What do you think about replacing 3 processed foods per day with whole foods as our goal for the next month?	Here's a list of whole foods to give you some ideas. Let's discuss any barriers you might face. Let's plan to follow up in 1 month.

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5As of Behavior Change: Physical Activity Example

ASK	ASSESS	ADVISE	AGREE	ARRANGE/ ASSIST
Physical activity is an important component of your overall health. Is it okay if we talk about your physical activity today?	On average, how many days per week do you engage in moderate to strenuous exercise, like a brisk walk? On average, how many minutes do you engage in exercise at this level?	It's great that you are already walking for 15 minutes 3 times per week. Maintaining muscle is also important to your health. Let's talk about adding 15 minutes of strength training once or twice per week.	Would you be able to add 15 minutes of strength training using body weight and/or resistance bands once per week for the next month and then once more per week the next month?	Here are 2 handouts with some body weight and resistance band exercises. What do you anticipate might be a barrier to reaching this goal? Let's plan to follow up in 2 months.

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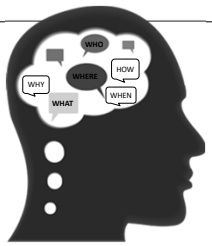
The Motivational Interview



Fundamental Principles: DARES
- **D**evelop discrepancy
- **A**void argumentation
- **R**oll with resistance
- **E**xpress empathy
- **S**upport self-efficacy

OARS for Communication
- **O**pen-ended questions
- **A**ffirmations
- **R**eflections
- **S**ummaries

Other Tools
- Decisional balance grids
- Readiness rulers
- Ask about extremes
- Explore past successes

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

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Cognitive Behavioral Therapy (CBT)

CBT is a type of psychotherapy that helps individuals recognize and address thoughts and feelings that influence their behavior.

7 components of CBT commonly used in obesity management:

1) Self-Monitoring: nutrition/activity logging, self-weighing
2) Stimulus Control: reduction of triggers or cues that lead to undesired behaviors or increase triggers that promote the desired behaviors
3) Problem Solving: overcoming barriers
4) Goal Setting: SMART goals
5) Contingency Management: development of strategies to overcome setbacks and encourage patients to plan for lapses and relapses
6) Enlisting Social Support: accountability partner, support groups
7) Stress Management: healthful coping strategies that do not involve food

SMART, specific, measurable, achievable, realistic, timely.

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Realistic Outcomes of Lifestyle Modification Alone

Lifestyle modification alone has its limitations, and patients should have realistic expectations of weight reduction.

- Weight reduction plateaus on average at 7% at 6 to 9 months, even with continued counseling
- Individuals regain, on average, one-third of lost weight in the year following discontinuation of behavioral intervention
  Durable weight reduction is only 4% with continued lifestyle adjustments
- Long-term weight reduction is approximately 4.4 lb; ↓ 2% total body weight
- More intensive, multicomponent behavioral interventions require referrals to specialists outside of primary care, such as dietitians and trainers

Wadden TA, et al. *Curr Obes Rep*. 2023;12(4):453-473.

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Set Realistic Expectations With Patients

- 1 to 2 lb of weight loss per week is realistic; less if patient has been dieting for years
- Weight reduction may be slower, but less restrictive is more sustainable
- Find the middle ground—no all or nothing!
- "Goal weight" or "ideal weight" may not be achievable and may feel overwhelming—focus on smaller, attainable goals
- Focus on health behavior goals as opposed to scale goals
- Ask "Is it working?" and "Is it sustainable?"

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Obesity Management

Pharmacotherapy

© ECPO

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Chronic Disease Management

Lifestyle

- Nutrition, physical activity

2%-4% weight reduction

Obesity medications

- When treating other chronic diseases such as T2D or HTN, we do not:
  - Withhold medications while waiting for patients to "fail" dietary interventions
  - Discontinue pharmacotherapy once a patient has reached a relevant clinical goal
- Treatment intensity is matched with the severity of the disease at the time of presentation

10%-20% weight reduction

HTN, hypertension.

Lewis KH, et al. *Obesity (Silver Spring).* 2024;32(2):237-239.

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Therapeutic Goals

- Weight reduction of 5%-10% of body weight
- >25% weight reduction now possible with some medications
- Different health conditions require varying amounts of weight reduction to see improvement

→ Reduces obesity-associated complications within 6 months → Improves patient health and quality of life

↓ Reduces CVD risk factors, prevents/delays T2D, and improves osteoarthritis

↓ Reduces sleep apnea, depression and improves physical functioning

CVD, cardiovascular disease.

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.

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FDA-Approved Short-Term Obesity Medications

Medication	Mechanism of Action
Benzphetamine	Sympathomimetic
Diethylpropion	Sympathomimetic
Phendimetrazine	Sympathomimetic
Phentermine[a]	Sympathomimetic

[a]Phentermine is often prescribed off-label for long-term use, but clinicians should be aware of their state laws.

FDA, US Food and Drug Administration.
Bray GA, et al. *Circulation.* 2012;125(13):1695-1703.

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FDA-Approved Long-Term Obesity Medications

Medication	Mechanism of Action
Liraglutide (subcutaneous injection)	GLP-1 receptor agonist
Naltrexone/bupropion ER (oral)	Opioid receptor antagonist; dopamine and noradrenaline reuptake inhibitor
Orlistat (oral)	Pancreatic lipase inhibitor—impairs gastrointestinal energy absorption, causing excretion of approximately 30% of ingested triglycerides in stool
Phentermine/topiramate ER (oral)	Noradrenergic + GABA-receptor activator, kainite/AMPA glutamate receptor inhibitor causing appetite suppression
Semaglutide (subcutaneous injection)	GLP-1 receptor agonist
Tirzepatide (subcutaneous injection)	GIP and GLP-1 dual receptor agonist
Setmelanotide	Melanocortin 4 receptor agonist

AMPA, α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid; ER, extended release; GABA, gamma-aminobutyric acid; GIP, gastric inhibitory protein; GLP, glucagon-like peptide.
DailyMed. Accessed August 10, 2025. https://dailymed.nlm.nih.gov/dailymed/index.cfm

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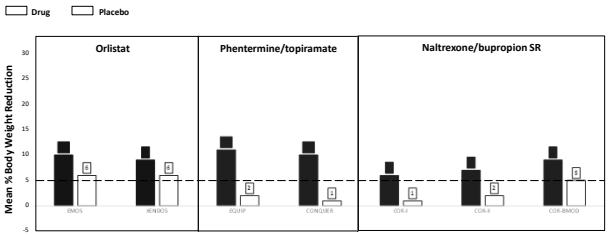
Average Percent Weight Reduction (Drug vs Placebo) From Randomized, Controlled Trials[a] (T2D Excluded)



[a]These are not head-to-head trials.
SR, sustained release.
Sjöström L, et al. *Lancet.* 1998;352(9123):167-172. Davidson MH, et al. *JAMA.* 1999;281(3):235-242. Allison DB, et al. *Obesity (Silver Spring).* 2012;20(2):330-342.
Gadde KM, et al. *Lancet.* 2011;377(9774):1341-1352. Greenway FL, et al. *Lancet.* 2010;376(9741):595-605. Apovian CM, et al. *Obesity (Silver Spring).* 2013;21(5):935-943.
Wadden TA, et al. *Obesity (Silver Spring).* 2011;19(1):110-120.

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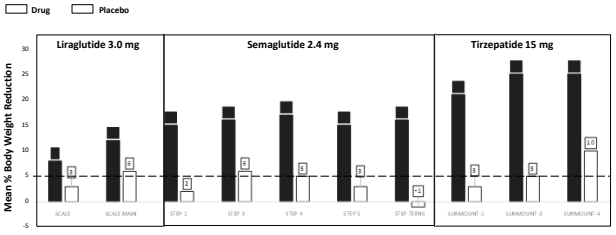
Average Percent Weight Reduction (Drug vs Placebo) From Randomized, Controlled Trials[a] (T2D Excluded) (cont'd)



[a]These are not head-to-head trials.
Pi-Sunyer X, et al. *N Engl J Med*. 2015;373:11-22. Wadden TA, et al. *Int J Obes (Lond)*. 2013;37(11):1443-1451. Wilding JPH, et al. *N Engl J Med*. 2021;384(11):989-1002.
Wadden TA, et al. *JAMA*. 2021;325(14):1403-1413. Rubino D, et al. *JAMA*. 2021;325(14):1414-1425. Garvey WT, et al. *Nat Med*. 2022;28(10):2083-2091.
Weghuber D, et al. *N Engl J Med*. 2022;387:2245-2257. Jastreboff AM, et al. *N Engl J Med*. 2022;387(3):205-216. Wadden TA, et al. *Nat Med*. 2023;29(11):2909-2918. Aronne LT, et al. *JAMA*. 2024;331(1):38-48.

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General Considerations in Pharmacologic Initiation

Pharmacologic interventions may be helpful as adjunct therapy with lifestyle interventions for patients with BMI ≥30 kg/m² or ≥27 kg/m² with ≥1 obesity-related complication(s).

Medication	Minimum Age (years)
Liraglutide[a]	12
Naltrexone/bupropion	18
Orlistat	12
Phentermine/topiramate	12
Semaglutide	12
Tirzepatide	18

- Different patients respond to different medications
  - If one option does not work, consider others
- Consider discontinuing medication in patients who do not respond with weight reduction of at least 5% at 12 weeks after maximum dose[b]
- Avoid in pregnancy and lactation
  - Pregnancy tests at baseline
  - Consider a disclosure signature

[a]December 2020: liraglutide label change to include 12- to 17-year-olds with body weight of >60 kg and initial BMI corresponding to 30 kg/m² or greater for adults.
[b]Liraglutide label suggests only 4% weight loss at 12 weeks after maximum dose.
Apovian CM, et al. *J Clin Endocrinol Metab* 2015;100(2):342-362.

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Steps to Prescribing an Obesity Medication

Step 1	Determine whether patient meets indications for obesity medications
Step 2	Screen for contraindications and medication interactions
Step 3	Consider complications, comorbidities, and other conditions or symptoms that would benefit from a particular medication
Step 4	Discuss options with patient, including insurance coverage and cost
Step 5	Choose, initiate, and titrate medication
Step 6	Monitor response and titrate or switch as appropriate

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Steps to Prescribing an Obesity Medication

Step 1

Determine whether patient meets indications for obesity medications

Step 2

Screen for contraindications and medication interactions

BMI ≥30 kg/m^2

BMI ≥27 kg/m^2 with ≥1 obesity-related complication(s)

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Contraindications and Clinical Considerations

Generic	Contraindications/Warnings & Precautions	Clinical Considerations
GLP-1–based medications (subcutaneous injections) Liraglutide[1] Semaglutide[2] Tirzepatide[3]	• Contraindication: personal or family history of medullary thyroid carcinoma or multiple endocrine neoplasia syndrome type 2 • Warnings and precautions: risk of thyroid C-cell tumors; GI adverse reactions; AKI, gallbladder disease, and pancreatitis • Do not use in pregnancy or when breastfeeding	• Monitor for signs and symptoms of pancreatitis, cholelithiasis • Monitor for depression and suicidal thoughts • Must stay hydrated to avoid AKI • May slow absorption of other medications
Naltrexone/bupropion ER[4] (oral)	• Contraindications: uncontrolled hypertension, seizure disorders, anorexia or bulimia, opioid use, monoamine oxidase inhibitors • Do not use in pregnancy	• Avoid taking with high-fat meal to minimize seizure risk • Monitor for increased suicidal ideation • Monitor BP and HR
Orlistat[5] (oral)	• Contraindicated for those with chronic malabsorption syndrome or cholestasis • Do not use in pregnancy or when breastfeeding • Drug interactions	• May interfere with absorption of fat-soluble vitamins/medications/OCPs, especially if experiencing diarrhea • Need vitamins A/D/E/K/beta-carotene >2 hours separated from medication and levothyroxine ≥4 hours from medication
Phentermine/topiramate ER[6] (oral)	• Monitor for reduced sweating/increased body temp • Pregnancy test (baseline & monthly) due to birth defect risk • Worsening depression/suicidal thoughts • Increased BP and HR • Do not use in pregnancy, glaucoma, hyperthyroidism	• Must be discontinued gradually to avoid increased seizure risk • Monitor kidney function • Taper doses if necessary to discontinue

AKI, acute kidney injury; HR, heart rate; OCP, oral contraceptive pills.
1. Saxenda Prescribing Information. Novo Nordisk. 2. Wegovy Prescribing Information. Novo Nordisk. 3. Zepbound Prescribing Information. Eli Lilly and Company. 4. Contrave Prescribing Information. Currax Pharmaceuticals LLC. 5. Xenical Prescribing Information. Roche Pharmaceuticals. 6. Qsymia Prescribing Information. Vivus LLC.

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Steps to Prescribing an Obesity Medication

Step 3

Consider complications, comorbidities, and other conditions or symptoms that would benefit from a particular medication

T2D, juvenile myoclonic epilepsy, smoking

Dyslipidemia, mild depression, history of pancreatitis

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Complications, Comorbidities, Symptoms, and Conditions That Would Benefit From a Particular Obesity Medication

Phentermine/ topiramate	Naltrexone/ bupropion	GLP-1/GIP agonists	Orlistat
• ADD/ADHD • Challenges with focus • Migraines • Low energy/fatigue	• Depression/dysthymia • Alcohol cravings • Seasonal affective disorder • Smoking cessation	• Prediabetes • T2D • Metabolic syndrome • Hyperinsulinemia • MASLD/MASH • CVD • HFpEF • OSA	• T2D • Dyslipidemia

ADD, attention deficit disorder; ADHD, attention-deficit/hyperactivity disorder; HFpEF, heart failure with preserved ejection fraction; MASLD, metabolic dysfunction–associated steatotic liver disease; MASH, metabolic dysfunction-associated steatohepatitis; OSA, obstructive sleep apnea.

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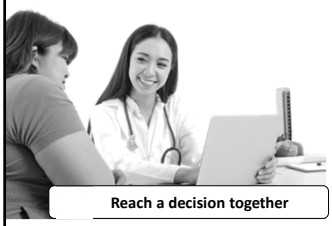
Step 4: Shared Decision-Making for Choosing Medication

- Involves choosing treatment based on both evidence and patient preferences
- Consider health literacy: information, drawings



Discuss:

- Cost/coverage
- Comorbid conditions
- Desire for childbearing
- Route of medication
- Chronic disease treatment
- Risks & benefits of each option
- Expectation of lifestyle as adjunct to medications for best success

Acosta A, et al. *Obesity* (Silver Spring). 2021;29(4):662-671.

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Cost and Insurance Coverage for Medications

With Coverage:

- Will likely require a preauthorization
  - Most require lifestyle therapies to be in place
  - Many require 3-6 months of treatment prior to approval
  - Some may require a trial/failure with other medications for obesity
- Some plans have high co-pays
  - Manufacturer savings cards can reduce co-pays
- Some Medicaid programs provide coverage, varies by state
  - California: doesn't require preauthorization
- Some Medicaid plans cover semaglutide 2.4 mg for the indication of history of CVD and overweight/obesity

Without Coverage:

- Tirzepatide and semaglutide are expensive ($1060-$1350 retail per month)
  - Manufacturer savings cards reduce the cost for those with commercial insurance without obesity medication coverage (tirzepatide $650, semaglutide $499)
  - All doses of tirzepatide are now available in vials through Lilly Direct ($499 or less) AND Medicare patients can access
  - Can be purchased from mail order pharmacies at lower cost
- Brand name phentermine/topiramate and naltrexone/bupropion are available for around $100 per month through mail order
- Generic phentermine cash price: ~$15-30 per month
- Consider prescribing generics to approximate obesity medication doses
- Utilize prescription discount cards such as GoodRx and SingleCare

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Steps to Prescribing an Obesity Medication

Step 5

Choose, initiate, and titrate medication

Semaglutide for obesity and diabetes

Naltrexone/bupropion for obesity; may improve mild depression

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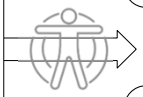
Ineffective Response to Therapy

- <4%-5% weight loss at 12 weeks of maximum dose
  - Medications with escalating doses take 16 weeks or longer
  - Patient may be unable to tolerate maximum doses
- <3%? weight reduction but with improvement in obesity-related complications



1. **Increase dose of existing obesity medication as appropriate**
2. **Switch to a different obesity medication**

Bray GA, et al. *Lancet*. 2016;387(10031):1947-1956. Apovian CM, et al. *J Clin Endocrinol Metab*. 2015;100(2):342-362.

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Best Practices Long-Term Management

Review medication for obesity; adjust as needed → Review nutrition log → Review SMART goal/behavioral change → Review physical activity goals

Review for weight-promoting medications → Review referrals (if needed) → Order labs (if needed) → Schedule next follow-up appointment

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Obesity Management

Metabolic/Bariatric Surgery

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Metabolic and Bariatric Surgery Guidelines for Patients With Obesity and Overweight

BMI ≥35 kg/m²	MBS recommended, regardless of comorbidity
BMI ≥30 kg/m²	MBS recommended for those with T2D
BMI 30-34.9 kg/m²	MBS considered in those who do not achieve substantial or durable weight reduction or comorbidity improvement with nonsurgical methods

Clinical Note: BMI criteria for bariatric procedures should be adjusted for ethnicity; MBS should be offered at BMI ≥27.5 kg/m² in patients of Asian[a] descent.

[a]Some Asian populations are susceptible to metabolic damages associated with obesity at lower BMI thresholds than other populations. Clinicians should recognize that Asians are a heterogeneous population, and self-reported Asian ancestry should raise a higher index of suspicion and serve as a starting point when considering risk in individual patients.

MBS, metabolic and bariatric surgery.

Eisenberg D, et al. *Surg Obes Relat Dis*. 2022;18(12):1345-1356.

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Pharmacotherapy May Be Appropriate After MBS

- Insufficient weight reduction and weight regain after MBS is common
  - Surgery is a tool, not a cure
  - Metabolic adaptation still occurs
- Pharmacotherapy can be effective therapy when combined with metabolic-bariatric surgery to help boost post-bariatric weight reduction or prevent weight regain
- Guideline recommendations vary on pharmacotherapy to augment or follow MBS

Mok J, et al. *JAMA Surg*. 2023;158(10):1003-1011. Horvath L, et al. *Drugs*. 2024;84(8):933-952.

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Summary

- Nutrition, physical activity, stress, sleep, and mental health are all important components of lifestyle affecting body weight
- Consider each patient's history, motivation, and preferences when prescribing lifestyle modifications
  - Physical activity and nutrition goals should be achievable and sustainable
- Obesity management is not about simply reducing numbers on the scale
- Pharmacotherapy should be considered for patients with a BMI ≥30 kg/m^2 or those with BMI ≥27 kg/m^2 with weight-related complications
  - Obesity is a chronic, progressive, and relapsing condition and medications indicated for long-term use should be used chronically
- Patient response to medications is variable
  - If a patient does not respond favorably to one medication, consider adding a medication or changing to a medication with a different mechanism of action

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