Obesity:
Patient Assessment and Engagement

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Disclosure

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Learning Objectives

- Describe the impact of obesity on health
- Discuss communication and engagement issues including weight bias
- Review the assessment process
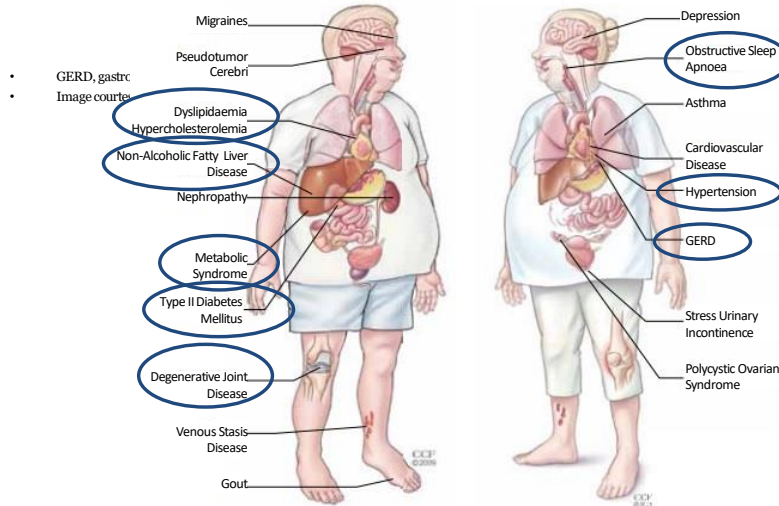- Discuss foundational concepts of diet and physical activity

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Case Study

- 52-year-old man returns for follow-up visit. He is being treated for T2DM, hypertension,   dyslipidemia, GERD, OA of the knees, OSA, and obesity. No changes to his health over past 6 months. He lost 10 lbs. when he was initially diagnosed with T2DM 6 years ago and lost 25 lbs. two years ago when he participated in a commercial weight loss program. However, he slowly regained his weight.

- **Medications:** enalapril/hydrochlorothiazide, omeprazole, atorvastatin, meloxicam, metformin, glimepiride. Uses CPAP at night.

- **On exam:** Weight 234 lbs, height 70 in, BMI 34 kg/m², waist circumference 45 in, BP 130/80 mm Hg bilaterally, HR 88/minute; Cardiac exam normal; Palpable crepitus of the knees

- **Most recent labs:** Glucose 118 mg/dL, A1C 6.8%, TC 170 mg/dL, LDL-C 102 mg/dL, HDL-C 38 mg/dL, TG 155 md/dL, eGFR >60 mL, ALT 65 U/L, AST 42 U/L, ECG normal. 10-year ASCVD risk 5.3%
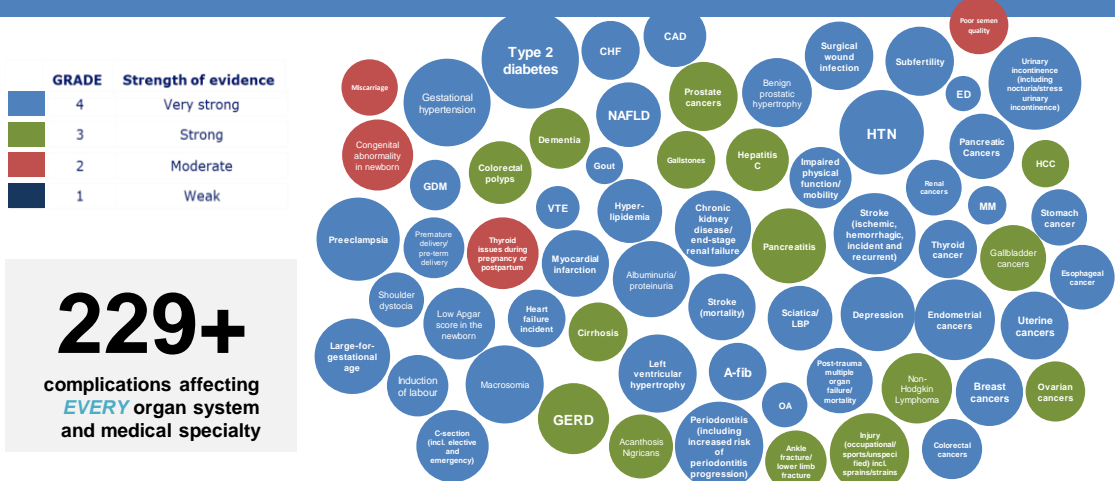
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Obesity Affects Every Organ System

Migraines
Pseudotumor Cerebri
- GERD, gastro
- Image courte
Dyslipidaemia Hypercholesterolemia
Non-Alcoholic Fatty Liver Disease
Nephropathy
Metabolic Syndrome
Type II Diabetes Mellitus
Degenerative Joint Disease
Venous Stasis Disease
Gout

Depression
Obstructive Sleep Apnoea
Asthma
Cardiovascular Disease
Hypertension
GERD
Stress Urinary Incontinence
Polycystic Ovarian Syndrome

Changing the paradigm from treating separate medical problems to addressing the underlying cause of multiple medical problems

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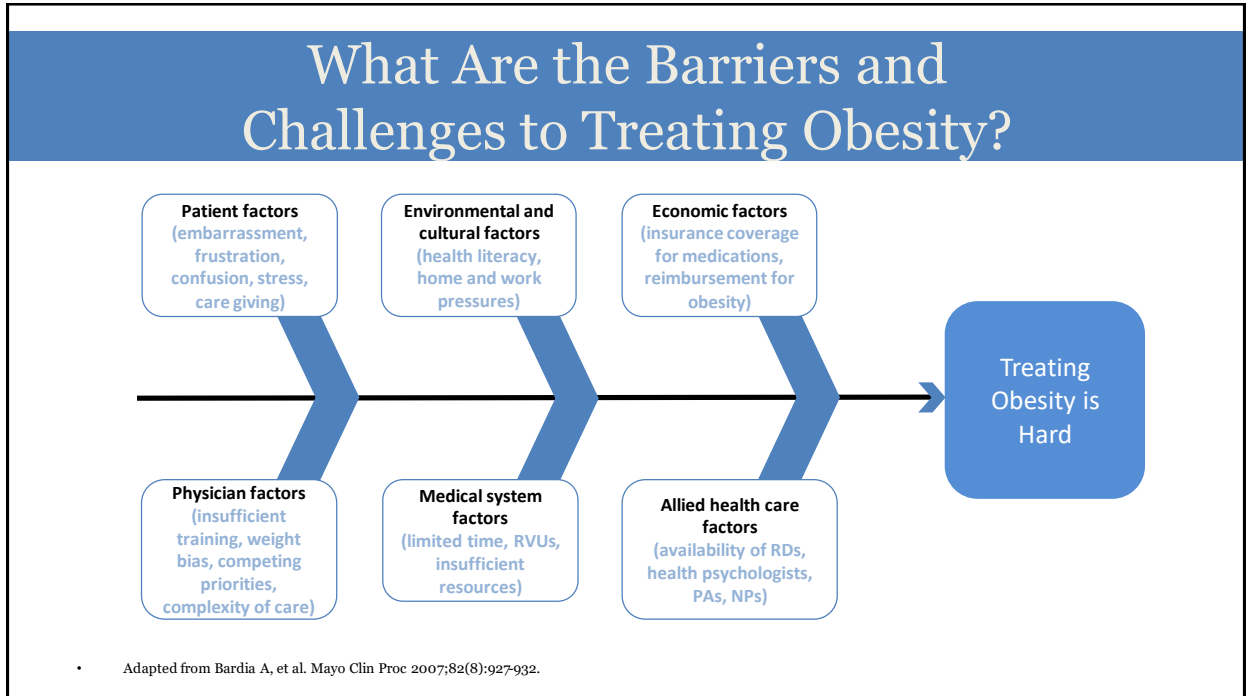# Obesity Is Associated with Multiple Complications

GRADE	Strength of evidence
4	Very strong
3	Strong
2	Moderate
1	Weak

229+

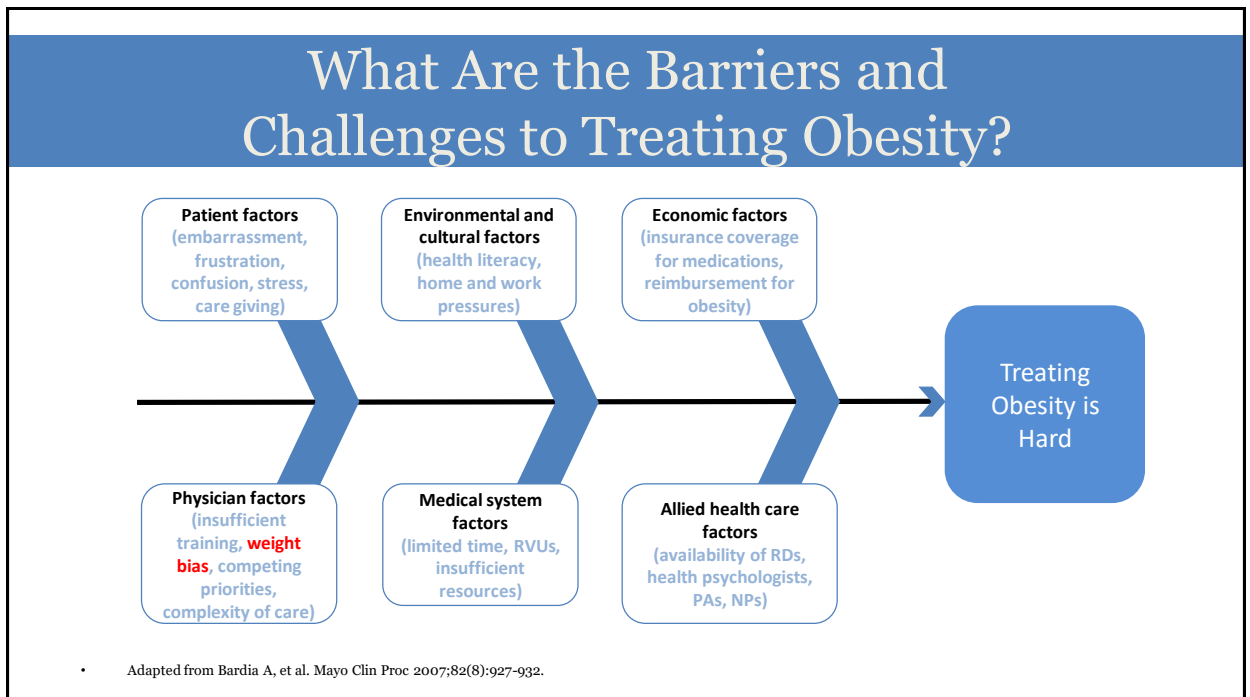complications affecting *EVERY* organ system and medical specialty

A-fib, atrial fibrillation; CAD, coronary artery disease; CHF, congestive heart failure; ED, erectile dysfunction; GDM, gestational diabetes mellitus; GERD, gastroesophageal reflux disease; HCC, hepatocellular carcinoma; HTN, hypertension; LBP, lower back pain; MM, multiple myeloma; NAFLD, non-alcoholic fatty liver disease; OA, osteoarthritis; VTE, venous thromboembolism
Yuen MM. Gastroenterol Clin N Am 2023;52:363-380

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What Are the Barriers and Challenges to Treating Obesity?

Patient factors (embarrassment, frustration, confusion, stress, care giving)

Environmental and cultural factors (health literacy, home and work pressures)

Economic factors (insurance coverage for medications, reimbursement for obesity)

Physician factors (insufficient training, weight bias, competing priorities, complexity of care)

Medical system factors (limited time, RVUs, insufficient resources)

Allied health care factors (availability of RDs, health psychologists, PAs, NPs)

Treating Obesity is Hard

- Adapted from Bardia A, et al. Mayo Clin Proc 2007;82(8):927-932.

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Stigma Among Healthcare Professionals

It's not just the public—

Clinicians have anti-obesity attitudes too

Physicians are the 2nd most common source of stigma (69%)[1]

- Many clinicians believe patients with obesity are lazy, undisciplined, and unlikely to be adherent to recommended changes[2-3]

- Patients viewed as a "waste of time"—healthcare professionals spend less time with patients with obesity[4]

- Even clinicians with obesity themselves have anti-obesity attitudes![5]

1. Puhl R, Brownell K. *Obesity (Silver Spring)*. 2006;14(10):1802-1815. 2. Tomiyama AJ et al. *BMC Med*. 2018;16:123; 3. Phelan SM et al. *ObesRev*. 2015;16:319-326. 4. Huizinga MM et al. *J Gen Intern Med*. 2009;24:1236-1239; 5. Sabin JA et al. *PLOS One*. 2012;109:195701.

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Weight Bias Internalization

- When individuals engage in self-blame and self-directed weight stigma because of their weight. Internalization includes agreement with stereotypes and application of these stereotypes to oneself and self-devaluation

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Weight Bias Internalization

Weight stigma that is internalized

Stress

Eating and Physical Activity Behaviors
Behaviors, binge eating, ↑caloric consumption, maladaptive weight control, disordered eating, ↓motivation for exercise, less physical activity

Physiologic Reactivity
Increased levels of:
- Cortisol
- C-reactive protein
- A1C
Elevated blood pressure

Health Care Services
Poor treatment adherence
Less trust of health providers
Avoidance of follow-up care
Delay in preventive health screenings
Poor communication

Weight Gain

Psychological Health/Distress
Depression, anxiety, low self-esteem, poor body image, substance abuse, suicidality

Physiological Health/Distress
Poor glycemic control, less effective chronic disease self-management, more advanced and poorly controlled chronic disease, lower health-related quality of life

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

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How to Discuss Obesity

Discussion about a patient's weight should be:

- Patient-centered
- Empathetic
- Unbiased—free of judgement, shame, and guilt
- Focused on health rather than weight
- Performed using appropriate terminology and people-first language. Examples:
  - Use "person/patient with obesity" or "affected by obesity"
  - Avoid "obese patient" or "you are fat"
  - "Morbid obesity" is no longer an accepted term

- Focused on shared decision-making and providing practical options to assist with weight loss

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Discussing Weight Loss with Patients
Words Matter

Use	Avoid
Terms that are least stigmatizing/blaming	Terms that are most stigmatizing/blaming
• Weight • Unhealthy or Excess weight • High BMI	• Fat or fatness • Morbidly obese • Obese
Most motivating for weight loss	Least motivating for weight loss
• Unhealthy weight • Overweight	• Fat • Morbidly obese • Chubby • Large size

Source: Obesity Action Coalition "People First Language for Obesity" Fact Sheet. Accessed online https://www.obesityaction.org/action-through-advocacy/weight-bias/people-first-language/

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Recommended Dos and Don'ts for Preventing and Reducing Bias and Stigma in Clinical Practice

Do	Don't
• Ask patients for permission to weigh and to discuss weight	• Give unsolicited advice to lose weight
• Assess and consider metrics of health beyond weight	• Attribute all health problems to weight
• Ask open-ended questions about health habits	• Lecture patients about their weight or accuse them of engaging in poor health habits
• Listen to patients how their weight might affect their health and well-being	• Base advice to patients on your own experience without considering how their needs or priorities may differ from yours
• Focus predominately on health rather than weight or appearance	• Assume that patients are unmotivated or do not care about their health based on their weight
• Examine your own biases related to weight	• Assume that you are immune to bias

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Broaching the Topic and Having a Conversation About Weight

- A 38-yr old female patient returns for a routine follow up visit. She has as history of hypertension (losartan) pre-diabetes, depression (escitalopram), and obesity. She has been in your practice for 5 years and see that she has gained 20 lbs. over this time. On exam, BP 128/78, BMI 30 kg/m2, waist circumference 36 in.

- How would you broach the topic of body weight with her?

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How Would You Broach the Topic of Body Weight with Her?

A. I would like to talk to you about your weight. It is impacting your blood pressure, elevated blood sugar and depression – medial problems we are actively treating.

B. You know, I have been seeing you now for 5 years and you never brought up your weight for conversation. I think it something you should consider.

C. I know that obesity runs in your family, and it must be a concern for you as well. I am here to help you if you want help.

D. I noticed that you gained 20 lbs. over the past 5 years. I think it may be impacting some of the medical problems we are treating. Is this a good time to talk about your weight?

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Assessment

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AACE/ACE ALGORITHM FOR THE MEDICAL CARE OF PATIENTS WITH OBESITY

1. Obesity Screening

1. Screen positive for overweight or obesity
   BMI ≥25 kg/m² (≥23 kg/m² in some ethnicities)

2. Presence of weight-related disease or complication that could be improved by weight loss therapy

https://www.aace.com/files/guidelines/ObesityExecutiveSummary.pdf

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Body Mass Index (BMI)

- Developed by a Belgian statistician Adolphe Quetelet (1790-1874)
- Wanted to discover the mathematical laws that govern physical phenomena – relation of weight to height in adults (Quetelet Index later renamed BMI)

$$BMI = \frac{weight\ (kg)}{height^2(m^2)}$$

$$BMI = 703 \times \frac{weight\ (lb)}{height^2\ (in^2)}$$

- Used as an indicator of risk for life insurance in 1943 by Metropolitan Life Insurance company. Presented as "Ideal Weights". Further adapted by Ancel Keys in his inter-country studies in the 1970s

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Association of BMI with All-cause Mortality, by Sex
230 Prospective Studies in 4 Continents

Although BMI may not accurately indicate % of fat in an individual, population data is robust showing relationship between BMI and mortality.

Bottom line: BMI is a practical and useful determinant for increased risk of morbidity & mortality on the population level.

	Studies	Participants	Deaths	HR per 5 kg/m²
Men	157	913 174	115 328	1·51 (1·46–1·56)
Women	141	2 743 371	264 657	1·30 (1·26–1·33)
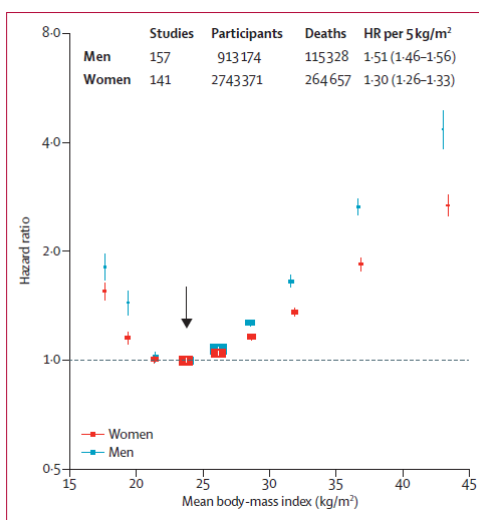
The BMI Global Mortality Collaborative. Lancet 2016;388:776-786

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Body Mass Index (BMI)

- Definitions of overweight and obesity in terms of BMI created in 1985 by NIH and in 1993 by WHO.
- Used by ICD for coding and billing, and indications for delivering different therapies (drugs and bariatric surgery)
- The problem with BMI is that it defines body size with no regard to an individual's health, body composition (fat and lean), or fat distribution.
- People are classified as having a disease without having ever received a diagnosis or a medical encounter

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https://www.aace.com/files/guidelines/ObesityExecutiveSummary.pdf

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AACE/ACE ALGORITHM FOR THE MEDICAL CARE OF PATIENTS WITH OBESITY

Diagnosis: Evaluation

Evaluate Patient

1. Medical history
2. Physical examination
3. Clinical laboratory tests
4. Review of systems, emphasizing weight-related complications
5. Obesity history: graph weight vs age, lifestyle patterns/preferences, previous interventions

https://www.aace.com/files/guidelines/ObesityExecutiveSummary.pdf

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Chart Your Weight History

People gain weight differently over time. Please chart your history with weight changes and the life events and diet attempts that were related to those changes.

Example

Commercial weight-loss program

Children

Longer drive to work

College

WEIGHT

YEAR

Value of Using a Life-Events Graph

- Narrative medicine
- Autobiographical approach
- Heuristics (pattern recognition)
- Patient-centered care

Rethink Obesity® http://www.rethinkobesity.com/more-resources/educational-downloads.html

Charon R. *JAMA.* 2001;286:1897-1902; Laine C et al. *JAMA.* 1996;275:152-156;
Norman G. *N Engl J Med.* 2006;355:2251-2252; Maldonato A et al. *Patient Educ Couns.* 2010;79:287-290.

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What Are the Biopsychosocial Factors That Cause Weight Gain?
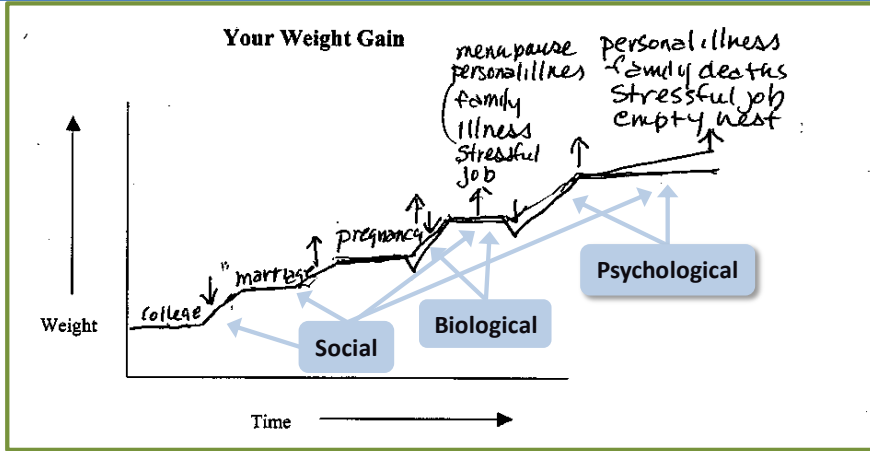
Kushner RF. American Medical Association, 2003.
Kushner RF et al. American Dietetic Association, 2009.
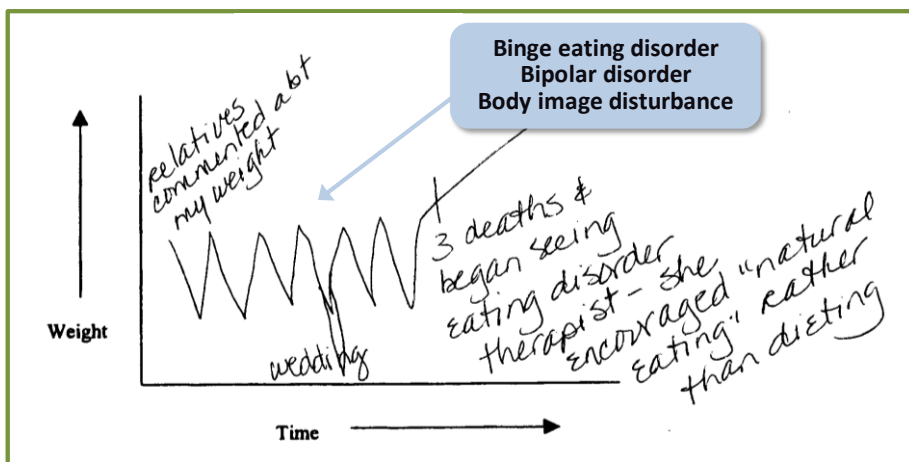Kushner RF et al. *JAMA*. 2014;312(9):943-952.
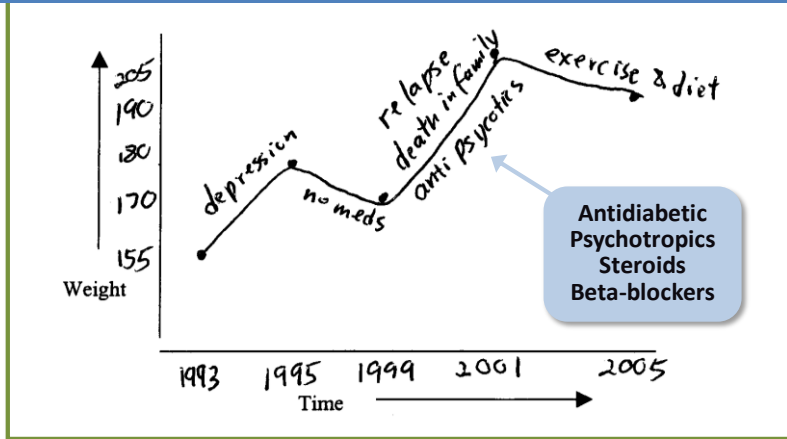
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Kushner RF. American Medical Association, 2003.
Kushner RF et al. American Dietetic Association, 2009.
Kushner RF et al. *JAMA*. 2014;312(9):943-952.

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Life Events – Weight Graph

Kushner RF. American Medical Association, 2003.
Kushner RF et al. American Dietetic Association, 2009.
Kushner RF et al. *JAMA*. 2014;312(9):943-952.

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Weight Gaining Side Effects of Medications

Category	Drugs That May Cause Weight Gain	Possible Alternatives
Neuroleptics	Thioridazine, haloperidol, olanzapine, quetiapine, risperidone, clozapine	Ziprasidone, aripiprazole
Antidiabetic agents	Insulin, sulfonylureas, thiazolidinediones	AGIs, DPP-4i, SGLT2i, GLP-1 RAs,GLP-1/GIP RAs, metformin
Steroid hormones	Glucocorticoids, progestational steroids & contraceptives	Barrier methods, NSAIDs
Tricyclics (ADs)	Amitriptyline, nortriptyline, imipramine, doxepin	Protriptyline, bupropion, nefazodone
MAOIs (ADs)	Phenelzine	
SSRIs (ADs)	Paroxetine	Fluoxetine, sertraline
Other (ADs)	Mirtazapine, duloxetine	Bupropion
Anticonvulsants	Valproate, carbamazepine, gabapentin, pregabalin, vigabatrin	Topiramate, lamotrigine, zonisamide, felbamate
Antihistamines	Cyproheptadine	Inhalers, decongestants
β- and α-adrenergic blockers	Propranolol, doxazosin	ACEIs, CCBs

Kushner RF, et al.*JAMA*. 2014;312(9):943-52; Apovian CM, et al. *J Clin Endocrinol Metab*. 2015;100(2):342-62.

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What Are the Biopsychosocial Factors That Cause Weight Gain?

Kushner RF. American Medical Association, 2003.
Kushner RF et al. American Dietetic Association, 2009.
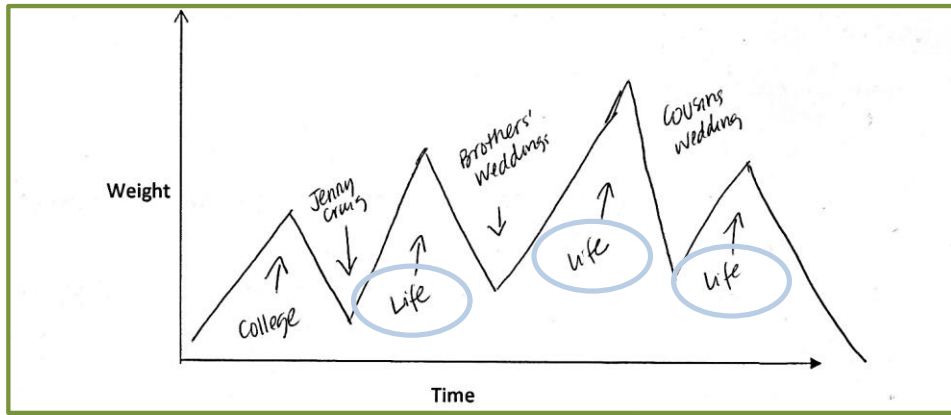Kushner RF et al. *JAMA*. 2014;312(9):943-952.

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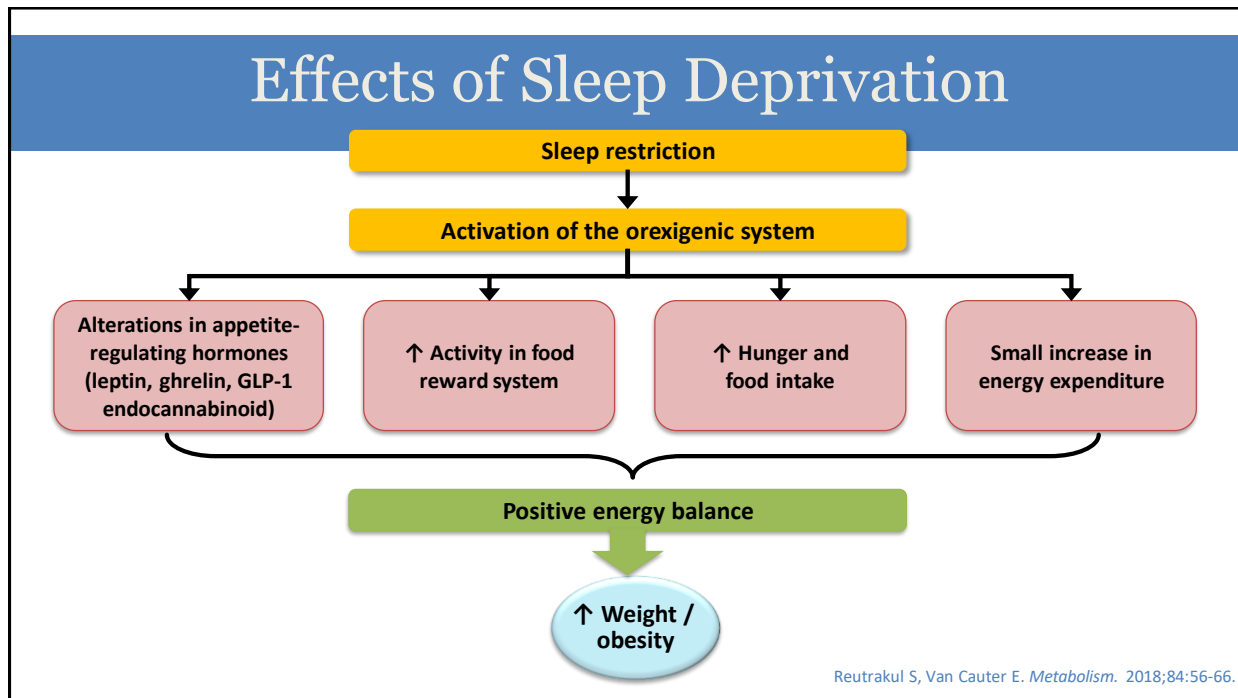# Depletion of Self-regulatory Resources Leads to Loss of Self-control
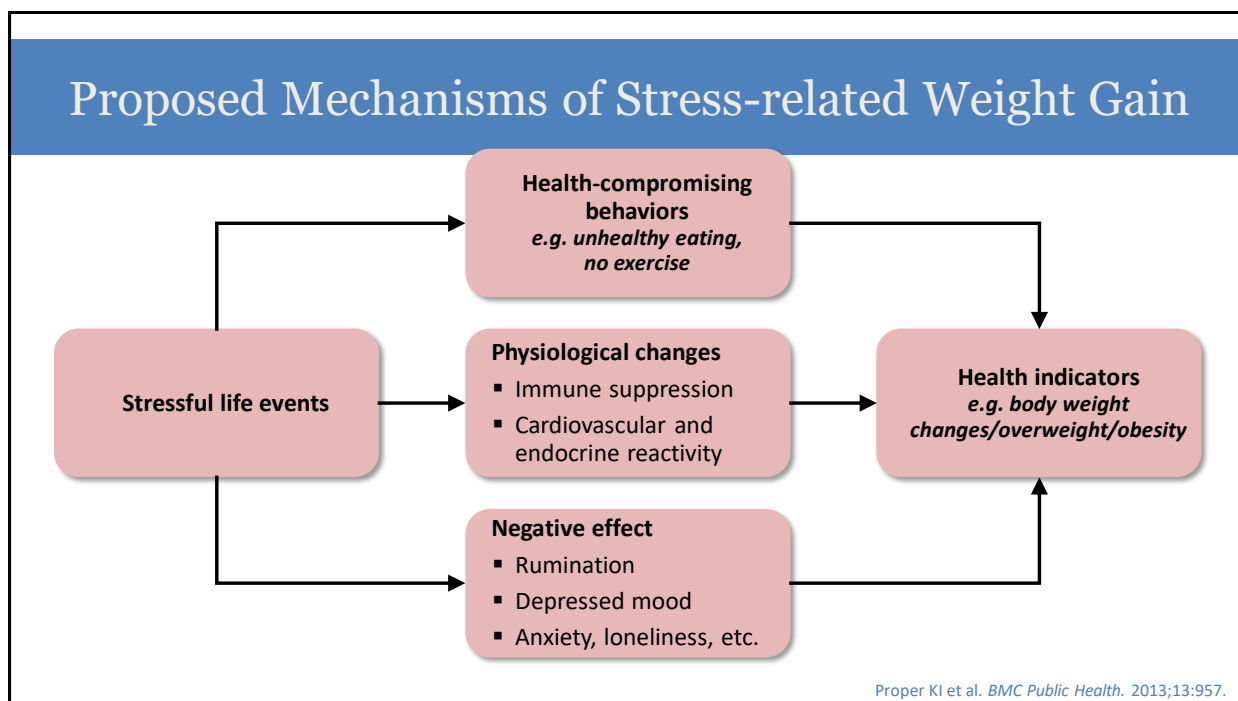

Sleep deprivation   **Stress**

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Effects of Sleep Deprivation

Sleep restriction

↓

Activation of the orexigenic system

- **Alterations in appetite-regulating hormones (leptin, ghrelin, GLP-1 endocannabinoid)**
- **↑ Activity in food reward system**
- **↑ Hunger and food intake**
- **Small increase in energy expenditure**

Positive energy balance

↑ Weight / obesity

Reutrakul S, Van Cauter E. *Metabolism.* 2018;84:56-66.

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Proposed Mechanisms of Stress-related Weight Gain

Health-compromising behaviors
e.g. unhealthy eating, no exercise

Stressful life events

Physiological changes
- Immune suppression
- Cardiovascular and endocrine reactivity

Negative effect
- Rumination
- Depressed mood
- Anxiety, loneliness, etc.

Health indicators
e.g. body weight changes/overweight/obesity

Proper KI et al. *BMC Public Health.* 2013;13:957.

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Link Between Pathophysiology of Obesity and Comorbid Conditions

Central Adiposity

Secreted Adipocyte Factors

DYSLIPIDEMIA
- **Increased large VLDL**
- **Increased small LDL**
- **Increased LDL particles**
- **Decreased large HDL**

VASCULAR DYSFUNCTION
- **Vascular reactivity**
- **Dysfibrinolysis**
- **Inflammation**
- **Foam cell**

INSULIN RESISTANCE
- **Glucose intolerance**
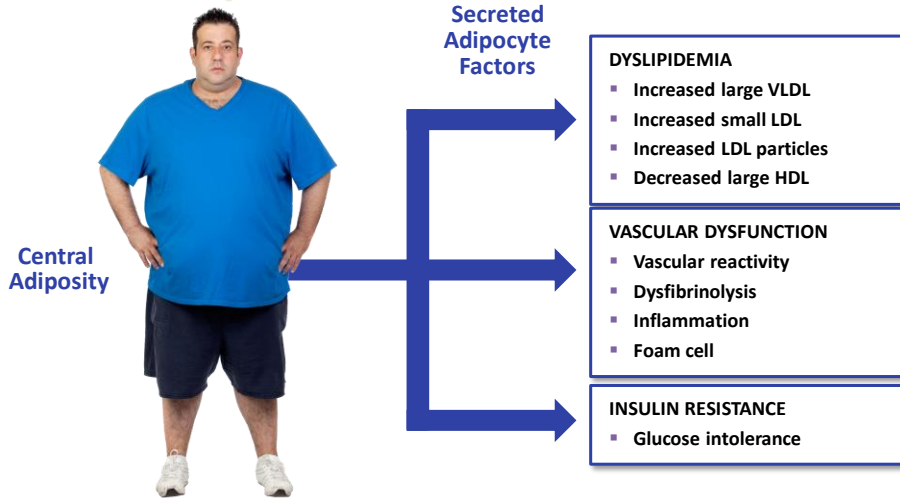
Allende-Vigo MZ. Endocr Pract. 2010;16(4):692-8.

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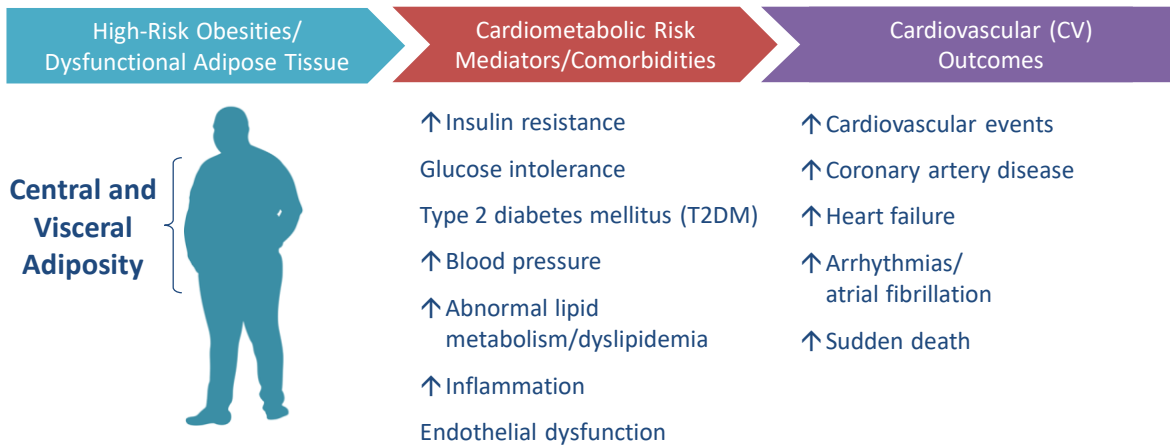# Hazard Ratios for WC and All-cause Mortality
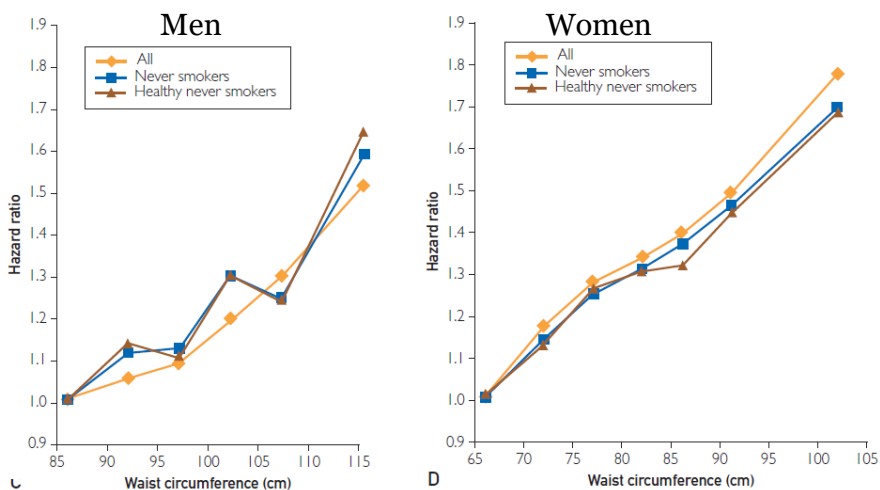
Ratios adjusted for smoking status, physical activity, and BMI

Cerhan JR et al. Mayo Clin Proc 2014;89:335-45

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Identifying the High-Risk Obesity Phenotype

High-Risk Obesities/ Dysfunctional Adipose Tissue	Cardiometabolic Risk Mediators/Comorbidities	Cardiovascular (CV) Outcomes

Central and Visceral Adiposity

↑ Insulin resistance

Glucose intolerance

Type 2 diabetes mellitus (T2DM)

↑ Blood pressure

↑ Abnormal lipid metabolism/dyslipidemia

↑ Inflammation

Endothelial dysfunction

↑ Cardiovascular events

↑ Coronary artery disease

↑ Heart failure

↑ Arrhythmias/ atrial fibrillation

↑ Sudden death

- Marie-Eve Piché. *Circulation Research*. 2020;126,11:1477-1500. Adapted from American Heart Association, Inc., 2020.

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Formulating a Treatment Plan

- Synthesize elements from obesity focused history, exam and lab/diagnostic studies
- Use shared decision making to arrive at a treatment course

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What Do You Need to Know About Lifestyle Management?

- You are seeing a 42-yr old patient for an annual preventive care visit. Only medical problem is seasonal allergies. No new medical problems over the past year. On exam, vital signs are normal. BMI 29 kg/m2. Labs show a fasting blood glucose of 108 mg/dl and HbA1 5.9%
- After talking about the lab tests, the patient asks what he can do bring the blood sugar down and lose some weight as well?
- What is the best response to the patient's question?

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What Is the Best Response to the Patient's Question?

A. There is a lot you can do to reduce the risk of getting diabetes. Let me refer you to registered dietitian who can take it from there.

B. I would like to start by taking a brief dietary and physical activity history.

C. I recommend the Mediterranean diet since it has the best overall evidence for diabetes prevention and can help you lose weight as well.

D. You pick what is most important to you, but it must emphasize robust exercise since that will make the biggest difference in getting your weight down.
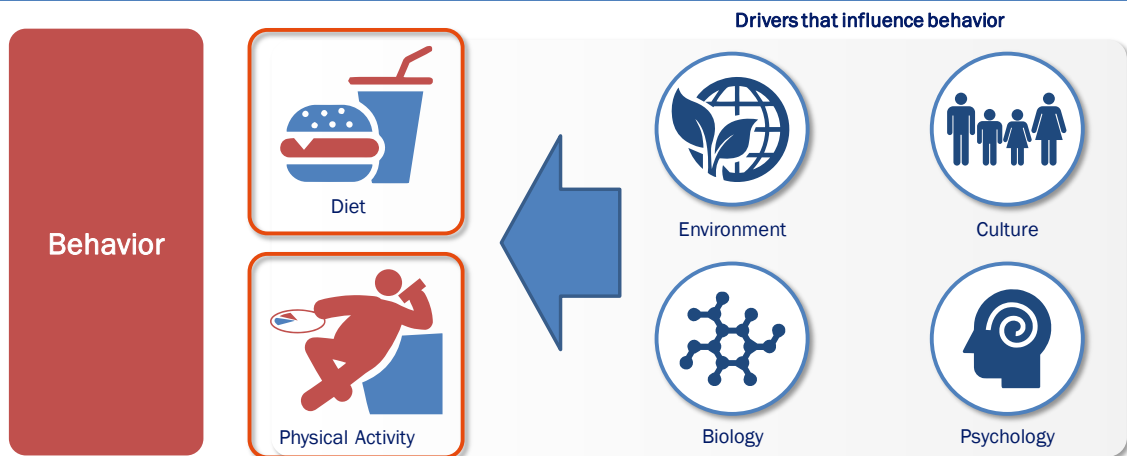
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Components of an Effective Obesity Management Program
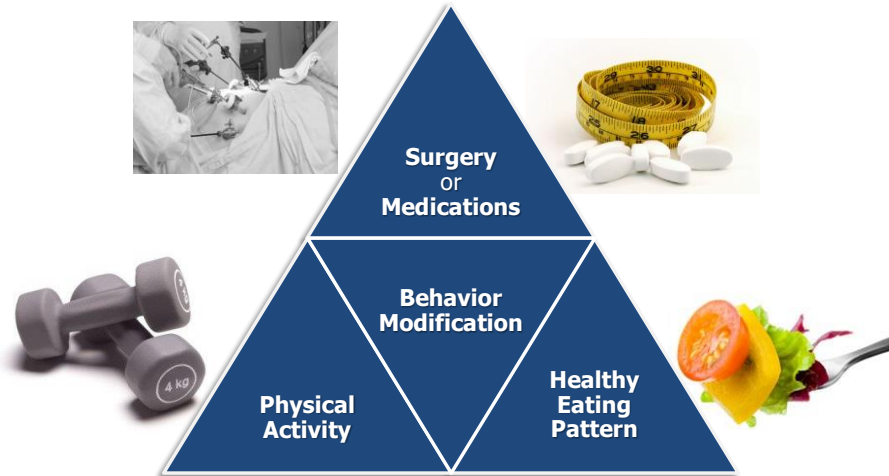
Wadden TA, et al. *Med Clin North Am*. 2000;84(2):441-461; Stumbo P, et al. *Surg Clin North Am*. 2005;85(4):703-723.

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## Eating and Moving Do Not Occur in a Vacuum

Sharma AM, et al. *Obes Rev.* 2010;11:362–370; Chesi A, et al. *Trends Endocrinol Metab.* 2015;26:711–721.

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Dietary Intervention: Which One Is Best?

2013 American Heart Association (AHA)/American College of Cardiology
(ACC)/The Obesity Society (TOS) Guidelines[1]

- Systematic review of 17 dietary patterns: none was superior in ability to produce and sustain weight loss
- Negative energy balance is the key objective
  - 1200-1500 kcal/d for women and 1500-1800 kcal/d for men, or
  - 500 kcal/d or 750 kcal/d energy deficit from baseline diet
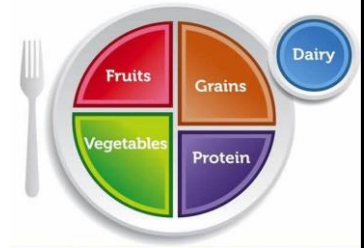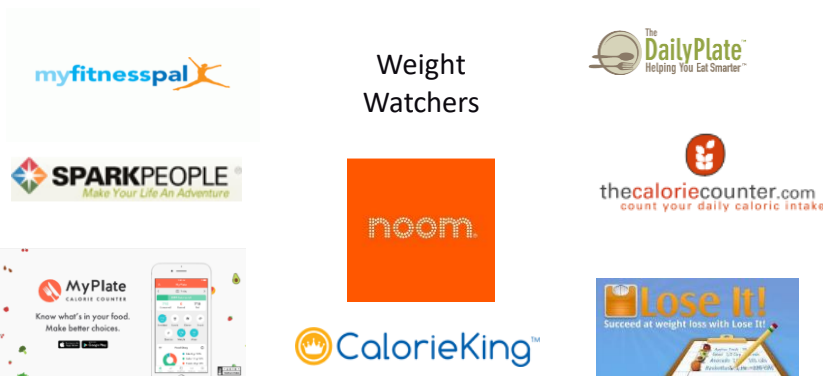
The best dietary intervention is the one to which the patient adheres[2]

- Assessing patient preference is critical

1. Jensen MD, et al. *Circulation*. 2014;129(25 Suppl 2):S102-S138. 2. Ryan DH, et al. *Med Clin N Am*. 2018;102:49-63.

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Electronic Tracking and Interactive Programs

myfitnesspal

Weight Watchers

The DailyPlate — Helping You Eat Smarter

SPARKPEOPLE — Make Your Life An Adventure

noom

thecaloriecounter.com — count your daily caloric intake

MyPlate CALORIE COUNTER — Know what's in your food. Make better choices.

CalorieKing

Lose It! — Succeed at weight loss with Lose It!

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Physical Activity: A "Movement Portfolio"

Exercise
(recreation)

Aerobic   Strength
                 Training

agility, balance, coordination,
speed, power, reaction time,
flexibility

Activities of Daily Living
(work, transportation
school, household)

Sedentary Behavior
(inactivity/sedentariness)

U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans, 2nd edition. Washington, DC: U.S. Department of Health and Human Services; 2018. Accessed October 16, 2023. https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf

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Aerobic Physical Activity and Expected Weight Loss

Expected initial weight loss and possibility of clinically significant weight loss from different types of exercise training programs[1]		
Exercise type	Range of expected weight loss	Chance of clinically significant weight loss
Aerobic exercise training only	0-3%	Possible with high exercise volumes
Resistance training only	0-1%	Possible with high exercise volumes
Aerobic and resistance training	0-3%	More likely than either aerobic or resistance training alone
Caloric restriction combined with aerobic exercise training	5-15%	Possible
Aerobic physical activity amount	Weight loss amount[2]	
<150 min per week	No weight loss or minimal weight loss	
150-225 min per week	Weight loss of 2-3 kg	
225-420 min per week	Weight loss of 5-7.5 kg	
200-300 min per week	Weight maintenance after weight loss	

1. Swift DL, *et al. Prog Cardiovasc Dis*. 2018;61(2):206-213. 2. Donnelly JE, *et al. Med Sci Sports Exerc* 2009;41(2):459-471.

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Tracking Physical Activity –
Many Step Count Options
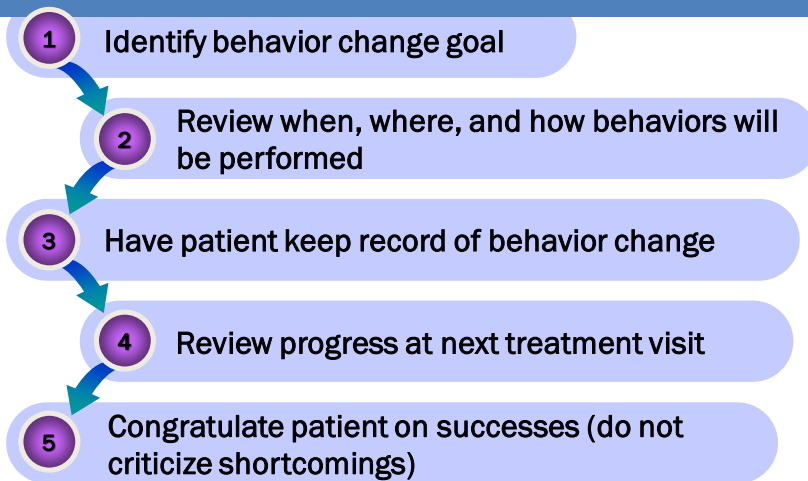

Mobile phone

Fitbit

JawBone

Garmin

BodyMedia

Apple Watch

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Five Steps to Facilitate Behavior Change

1 Identify behavior change goal

2 Review when, where, and how behaviors will be performed

3 Have patient keep record of behavior change

4 Review progress at next treatment visit

5 Congratulate patient on successes (do not criticize shortcomings)

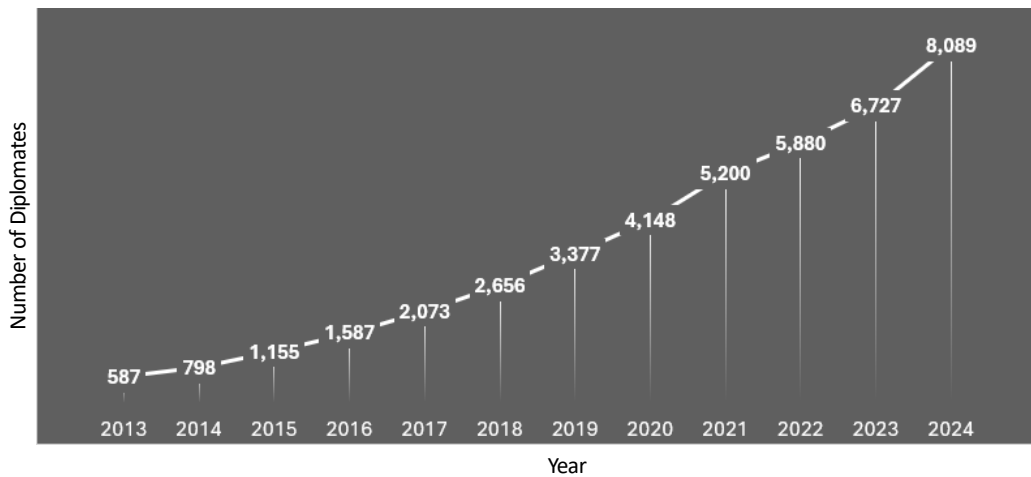Wadden TA, et al. *Med Clin North Am*. 2000;84(2):441-461.

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AMERICAN BOARD
of OBESITY MEDICINE

- The American Board of Obesity Medicine (ABOM) serves the public and the field of obesity medicine by maintaining standards for assessment and credentialing physicians. Certification as an ABOM diplomate signifies specialized knowledge in the practice of obesity medicine and distinguishes a physician as having achieved competency in obesity care.

  Abom.org

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Growth of the American
Board of Obesity Medicine (ABOM)

Number of Diplomates

Year	Number
2013	587
2014	798
2015	1,155
2016	1,587
2017	2,073
2018	2,656
2019	3,377
2020	4,148
2021	5,200
2022	5,880
2023	6,727
2024	8,089

Kushner RF, et al. Obesity 2017;25 (6):982-983

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Obesity Medicine Certification Overview

- The American Board of Obesity Medicine (ABOM) certifies physicians from all fields of medicine:

    o Currently, there are more than 8,000 ABOM diplomates.

- Applicants must: have an active, unrestricted medical license and an active certification in an ABMS board; complete 60 CME credits on the topic of obesity.

- Learn more at abom.org

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Take Home Points

- There are multiple challenges in the provision of obesity care. Be aware of the practice barriers that are most prominent for you
- Be alert to the expression of weight bias and the detrimental effect of weight bias internalization
- Practice taking an obesity-focused history and identifying higher risk patients, e.g., upper body fat distribution
- Provide foundational advice on diet and physical activity to all patients engaged in weight management

Photo Credit Source: U Conn Rudd Center for Food Policy & Obesity

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