

“Unify Efforts to Empower Equitable Obesity Care”

A Summit Meeting of the ACP Council of
Subspecialty Societies

October 24, 2023, Philadelphia, PA



Welcome and Summit Overview

Darilyn V. Moyer, MD, MACP, FRCP, FIDSA, FAMWA, FEFIM
Chief Executive Officer, Executive Vice President

Alicia I. Arbaje, MD, MPH, PhD
Chair, Council of Subspecialty Societies

Adrienne White-Faines, MPA FACHE
Chief Strategy Officer



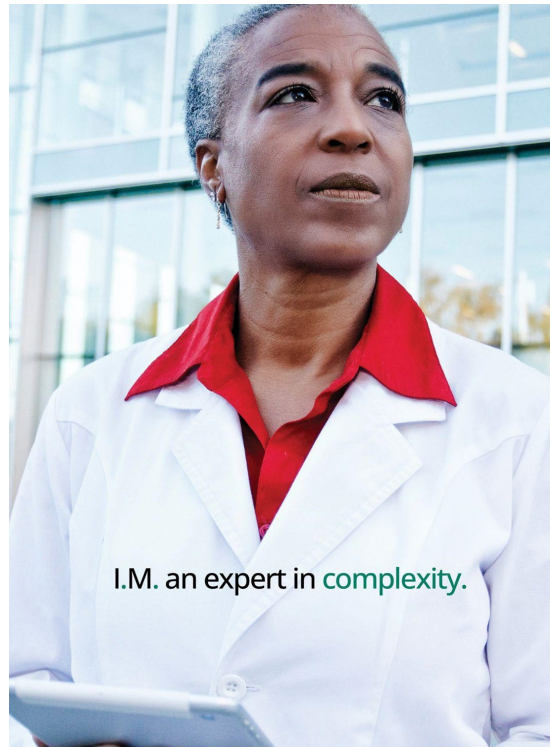
Welcome

Darilyn V. Moyer MD, MACP, FRCP-L, FIDSA, FAMWA, FEFIM
EVP/CEO American College of Physicians
Adjunct Professor of Medicine, LKSOM at Temple University
dmoyer@acponline.org



ACP's Strategic Priority Themes (2021 – 2024)

Valued Professional Identity



Membership Growth and Engagement



Diversity, Equity, and Inclusion



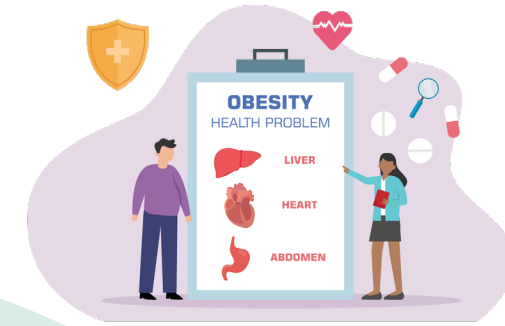
Innovation and Strategic Alignment



Goal to advance **Visibility** and **Focus** on the IMPACT of Internal Medicine Physicians



Advancing Equitable Obesity Care Initiative



Designed to help:

Create a stigma-free culture in which patients, clinicians, and policymakers collaborate to prevent and address obesity as a chronic disease, recognizing embedded health inequities that contribute to obesity and pose as barriers to its treatment.



Visit acponline.org/obesity-care to learn more about our efforts to advance equitable obesity care



Thank you . . .in advance...

...for your continued support of ACP and your commitment to internal medicine and the patients we serve!



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CSS OBESITY SUMMIT

October 24, 2023, Philadelphia, PA

Christina C. Wee, MD, MPH, FACP

Senior Deputy Editor, Annals of Internal Medicine

VP, American College of Physicians (Annals Division)

Associate Professor (Part-time), Harvard Medical School

Adjunct Faculty, Beth Israel Deaconess Medical Center



OBESITY

- Defined by body mass index (weight in kg/height in m²)

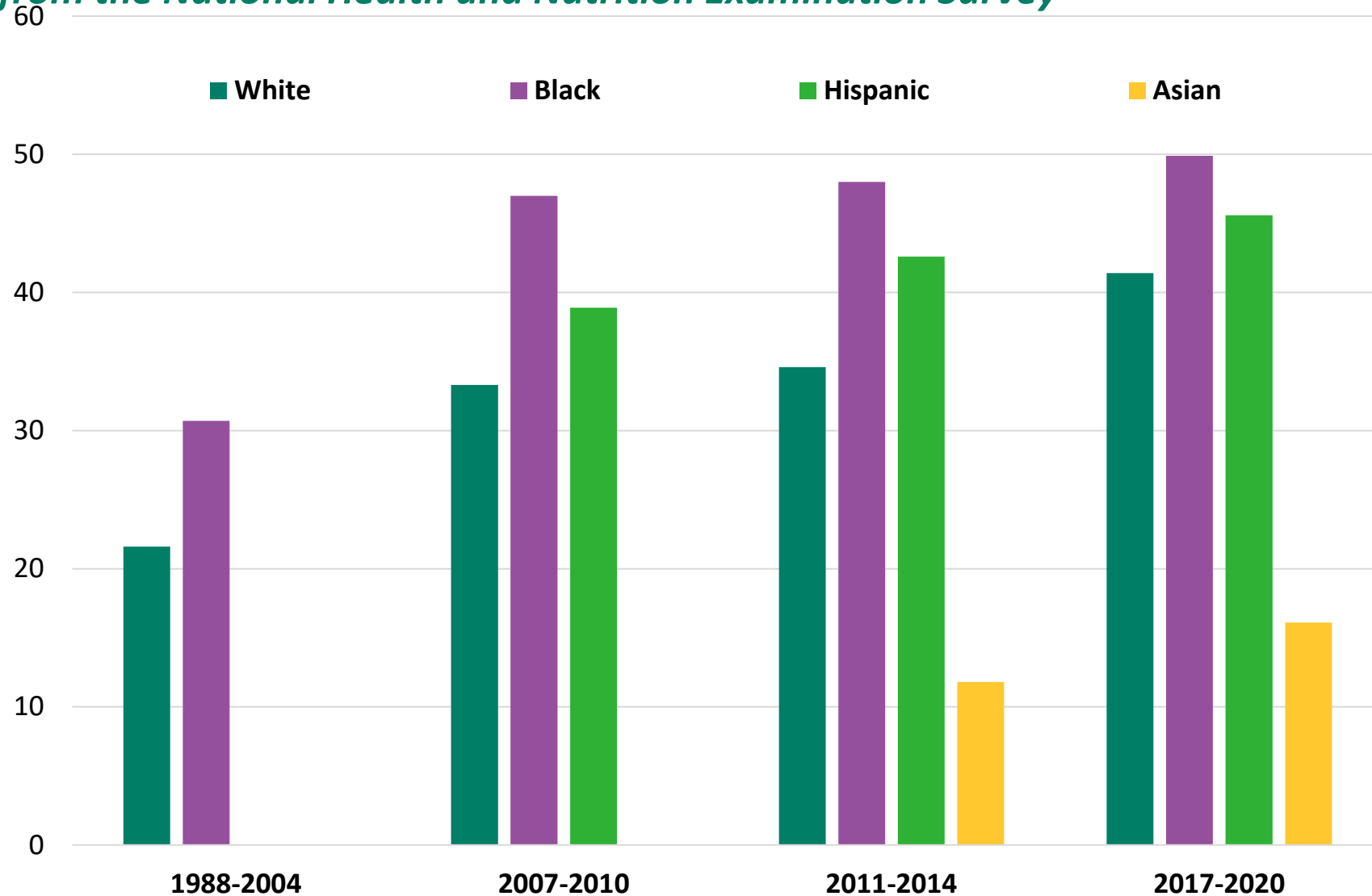
	Standard	WHO Criteria Asian
populations		
Normal weight:	BMI 18.5-24.9	19-22.9
Overweight:	BMI 25-29.9	23.0-27.4
Obesity:	BMI 30+	27.5+

- Leads to myriad of comorbidities, disability
- 2nd leading cause of preventable deaths in the U.S.
- Rise prevalence in U.S. and globally since the 1990s



PREVALENCE (%) OF OBESITY BY RACE AND ETHNICITY IN THE U.S.

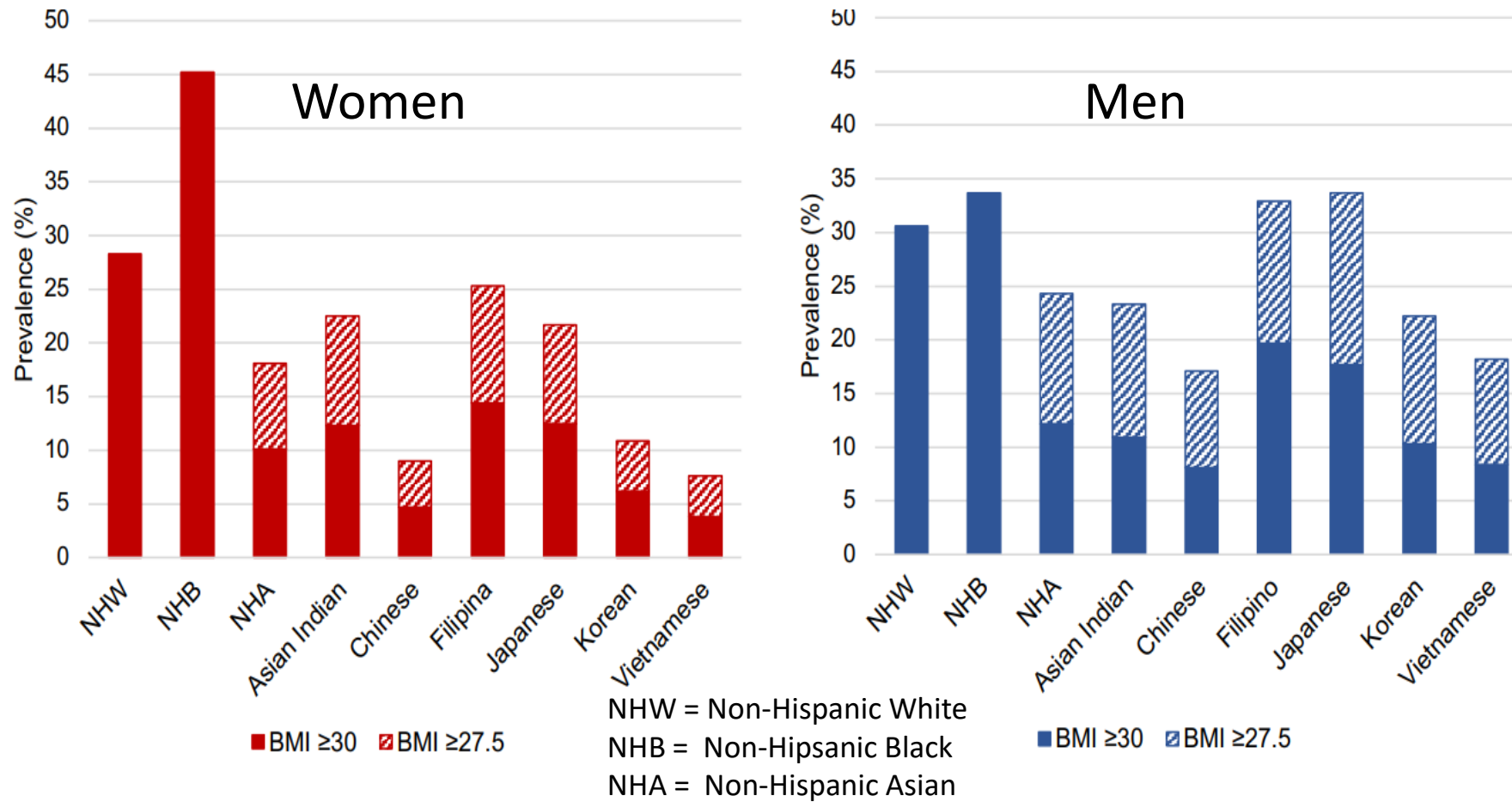
Data from the National Health and Nutrition Examination Survey



PREVALENCE OF OBESITY IN ASIAN AMERICAN SUBGROUPS USING STANDARD AND MODIFIED BMI CRITERIA

Self-reported Data from 2013-2018 Behavioral Risk Factor Surveillance Survey

Shah et al, Annals 2022



SECULAR CHANGES CONTRIBUTING TO RISING OBESITY PREVALENCE:

1. Resulting in rise in unhealthy eating and sedentary lifestyle -
 - ↑ cheap unhealthy foods
 - ↓ affordable healthy foods
 - Consequences of policies like the “Farm Bill” (subsidizes corn syrup)
 - Mixed messages and bias from scientific/public health/medical communities about what constitutes healthy diet
 - ↑ Technology, Δ Fixed environment \rightarrow Δ work and play
2. Disadvantages already disadvantaged groups
3. Interplay of Genes and Physiology with Secular Changes
 - Hedonic response to certain unhealthy foods (genetic interplay)



SPECTRUM OF CLINICAL TREATMENTS



- Behavioral change
 - Requires **intensive** behavioral intervention
 - **Modestly effective, inaccessible** to disadvantaged
 - Focus on individual decision-making but on not more powerful genetic and environmental contributors



- Pharmacotherapy
 - Increasingly **more effective**, addresses biologic underpinnings
 - **Cost-prohibitive**, not universally covered by many payers
 - ACP Clinical Guidelines are not up to date with recent scientific evidence – including assessment of **long-term safety**



- Bariatric Surgery
 - Effective but invasive w/ side-effects/complications
 - Better coverage but many administrative impediments that disadvantages low SES populations



Today's Keynote Panel

Linda Blount, MPH

President

Black Women's Health Imperative

Scott Kahan, MD, MPH

Director

National Center for Weight and Wellness

Faculty

George Washington University School of
Medicine

Joshua J. Joseph, MD, MPH, FAHA

Associate Professor of Internal Medicine,
Division of Endocrinology, Diabetes and
Metabolism

Ohio State University College of Medicine

Caroline Apovian, MD, FACP, FTOS, DABOM

Co-director, Center for Weight Management
and Wellness

Brigham Women's Hospital & Harvard
Medical School

Christina Wee, MD, MPH, FACP (Moderator)

Senior Deputy Editor and VP

Annals of Internal Medicine



Workgroup Breakouts

Please refer to the color on your nametag sticker for your topic group.

Physician Education

Incorporating equitable obesity care and treatment into every level of physician education

Care Teams

Why interdisciplinary or multidisciplinary care teams are needed, and where

Addressing Weight Bias

Creating a welcoming environment: words, attitudes, the environment and actions



On behalf of ACP... THANK YOU!



United, we will forge a brighter, inclusive future.





Equity in Obesity

Joshua J. Joseph, MD, MPH, FAHA

Associate Professor of Medicine

Division of Endocrinology, Diabetes and Metabolism

The Ohio State University Wexner Medical Center



@joshuajosephmd



@joshuajosephmd



Chair, Clinical Affairs Core Committee



Science Advisory Group for the Know Diabetes by Heart Initiative



CARDI-OH

Ohio Cardiovascular and Diabetes Health Collaborative

Co-Chair, Social Determinants of Health Committee

Biography

Joshua J. Joseph, MD, MPH, FAHA



Boston University School of Medicine
NIH-Clinical Research Training Program (PI Michael Sack, Mitochondrial Biology)
Internal Medicine Residency, Yale University School of Medicine
Founded Yale-Primary Care Weight Management Clinic, Yale University
Endocrinology Fellowship, Johns Hopkins University School of Medicine
Assistant Professor of Medicine, The Ohio State University School of Medicine

- Clinical Focus: Diabetes, Obesity and Cardiovascular Disease
- Research Focus: Diabetes, Obesity and Cardiovascular Disease Health Equity through evaluation of:
 - 1) Stress Hormones
 - 2) Clinic-Community Linkages
 - 3) Community-Based Participatory Research

Relevant Disclosures

Financial Disclosures: None

Unlabeled/Unapproved Uses Disclosure: None

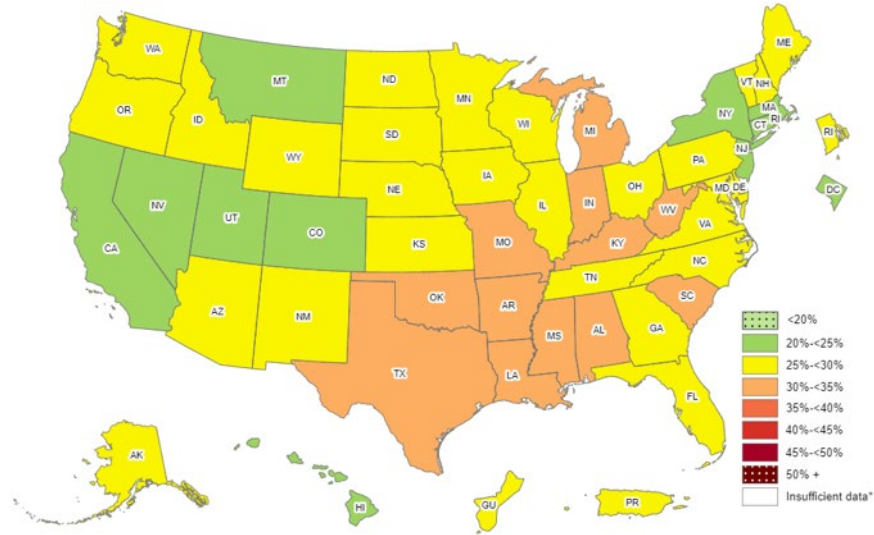
Grant Funding:

- NIH-NIDDK (R01, K23)
- AHRQ (R01)
- Robert Wood Johnson Foundation
- US Department of Defense
- Caresource

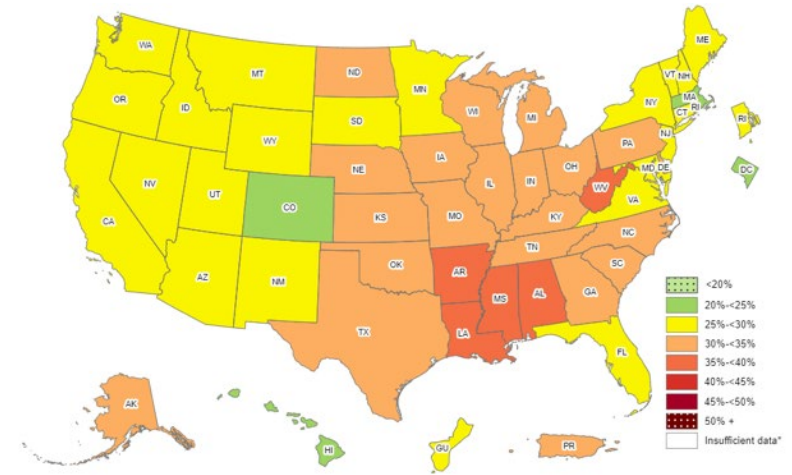
Obesity Trends* Among U.S. Adults

BRFSS, 2011, 2016, 2021

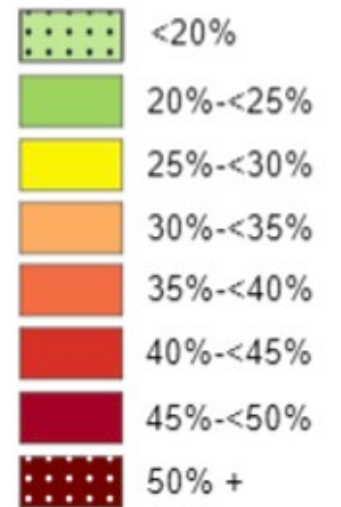
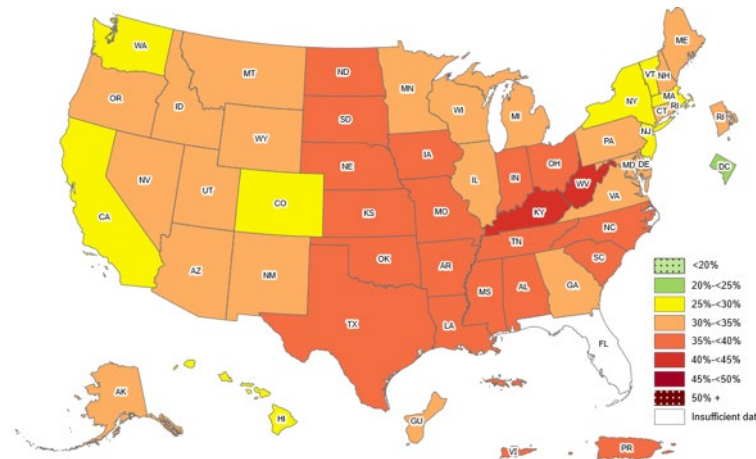
2011



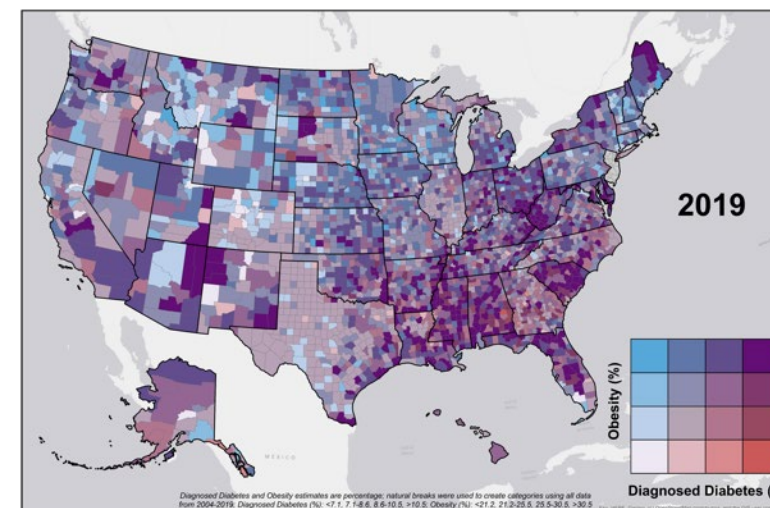
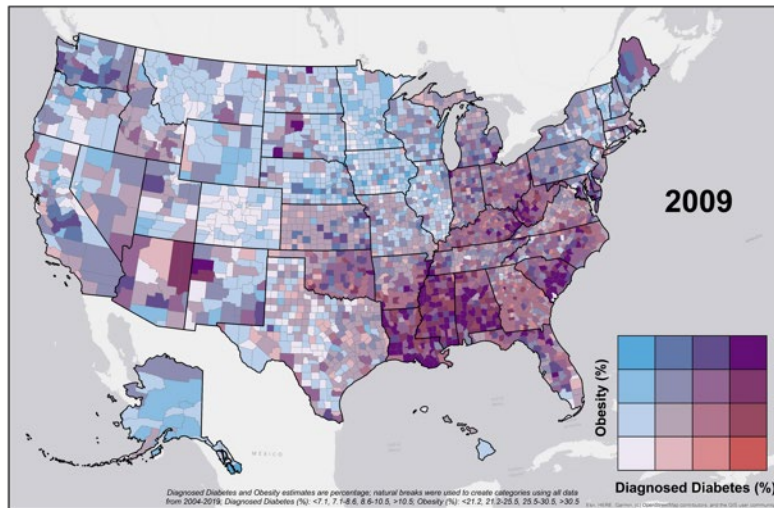
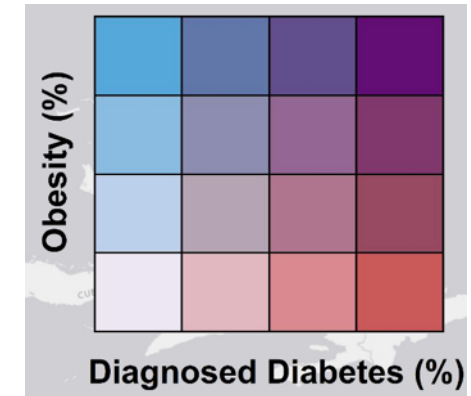
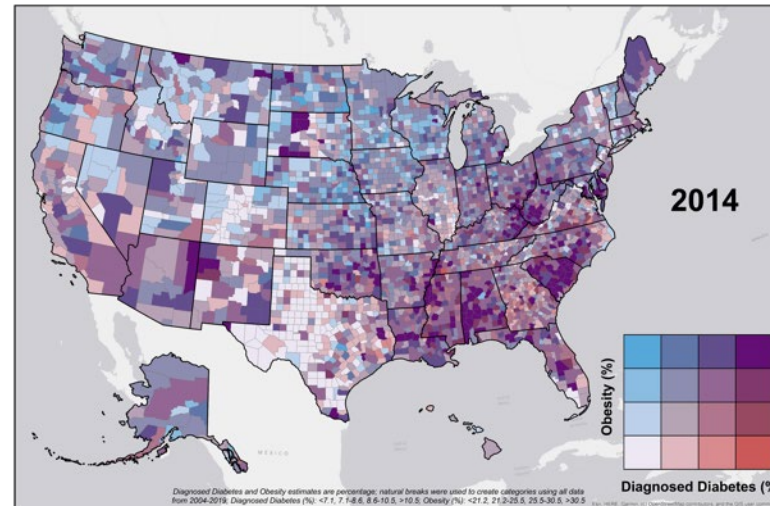
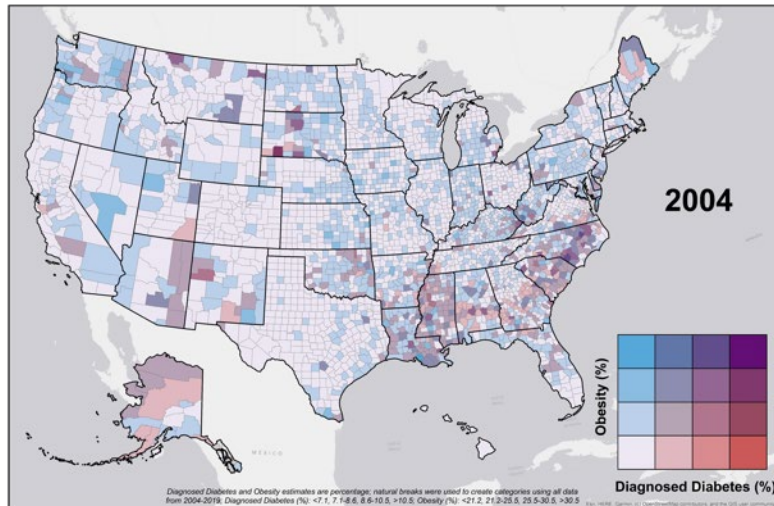
2016



2021



Why Adiposity?



https://www.cdc.gov/diabetes/statistics/slides/maps_diabetesobesity_county-508.pdf

Comprehensive Management of CV Risk Factors in T2D

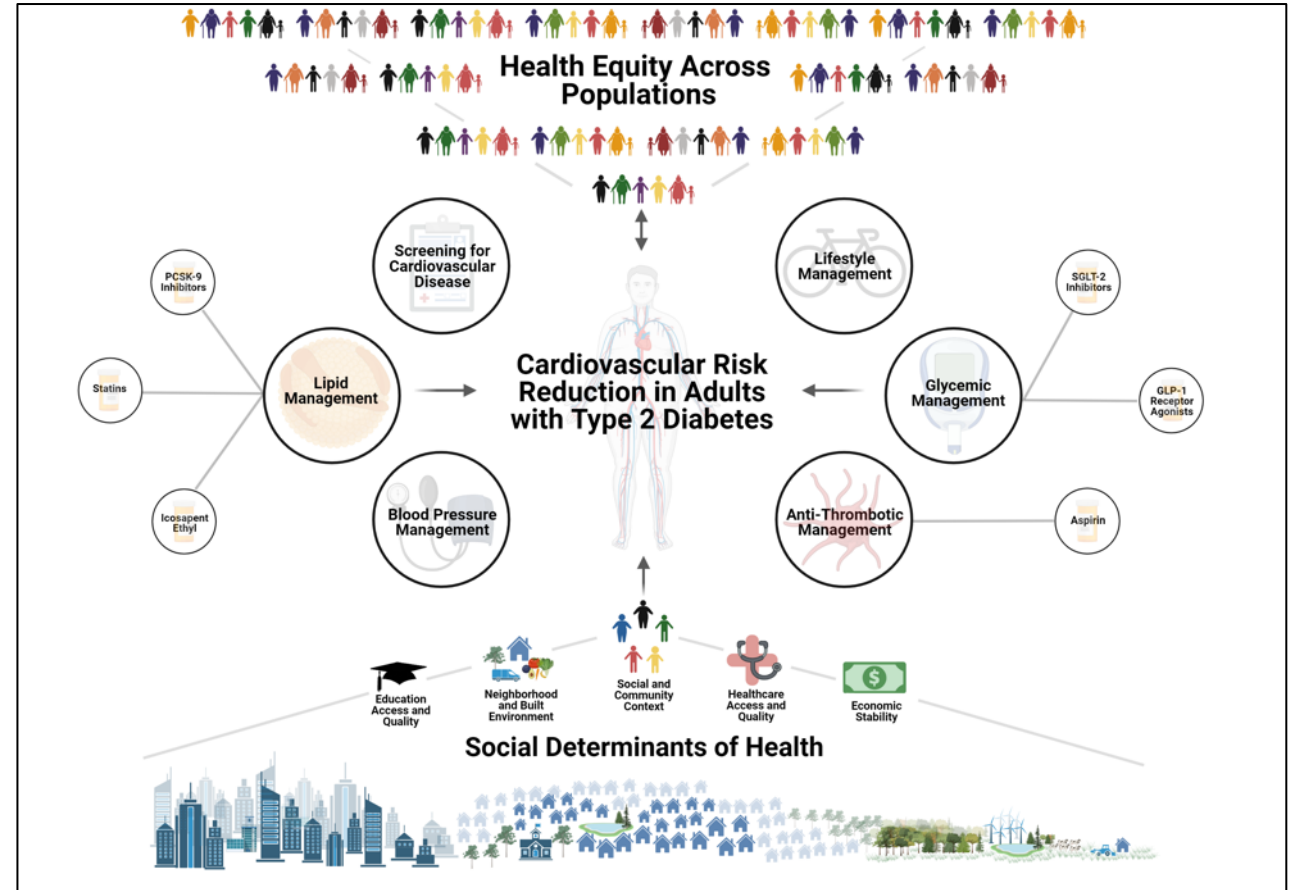
Circulation

AHA SCIENTIFIC STATEMENT

Comprehensive Management of Cardiovascular Risk Factors for Adults With Type 2 Diabetes: A Scientific Statement From the American Heart Association

Joshua J. Joseph MD, MPH, FAHA, Chair; Prakash Deedwania, MD, FAHA, Vice Chair; Tushar Acharya, MBBS, MPH; David Aguilar, MD, MSc, FAHA; Deepak L. Bhatt, MD, MPH, FAHA; Deborah A. Chyun, PhD, RN, FAHA; Katherine E. Di Palo, PharmD, BCACP, BCGP, FAHA; Sherita H. Golden, MD, MHS, FAHA; Laurence S. Sperling, MD, FAHA; on behalf of the American Heart Association Diabetes Committee of the Council on Lifestyle and Cardiometabolic Health; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Clinical Cardiology; and Council on Hypertension

ABSTRACT: Cardiovascular disease remains the leading cause of death in patients with diabetes. Cardiovascular disease in diabetes is multifactorial, and control of the cardiovascular risk factors leads to substantial reductions in cardiovascular events. The 2015 American Heart Association and American Diabetes Association scientific statement, "Update on Prevention of Cardiovascular Disease in Adults With Type 2 Diabetes Mellitus in Light of Recent Evidence," highlighted the importance of modifying various risk factors responsible for cardiovascular disease in diabetes. At the time, there was limited evidence to suggest that glucose-lowering medications reduce the risk of cardiovascular events. At present, several large randomized controlled trials with newer antihyperglycemic agents have been completed, demonstrating cardiovascular safety and reduction in cardiovascular outcomes, including cardiovascular death, myocardial infarction, stroke, and heart failure. This AHA scientific statement update focuses on (1) the evidence and clinical utility of newer antihyperglycemic agents in improving glycemic control and reducing cardiovascular events in diabetes; (2) the impact of blood pressure control on cardiovascular events in diabetes; and (3) the role of newer lipid-lowering therapies in comprehensive cardiovascular risk management in adults with diabetes. This scientific statement addresses the continued importance of lifestyle interventions, pharmacological therapy, and surgical interventions to curb the epidemic of obesity and metabolic syndrome, important precursors of prediabetes, diabetes, and comorbid cardiovascular disease. Last, this scientific statement explores the critical importance of the social determinants of health and health equity in the continuum of care in diabetes and cardiovascular disease.



Joseph, J. J., Comprehensive Management of Cardiovascular Risk Factors for Adults With Type 2 Diabetes: A Scientific Statement From the American Heart Association. *Circulation*, 2022.

Cardiovascular-Kidney-Metabolic Health

Circulation

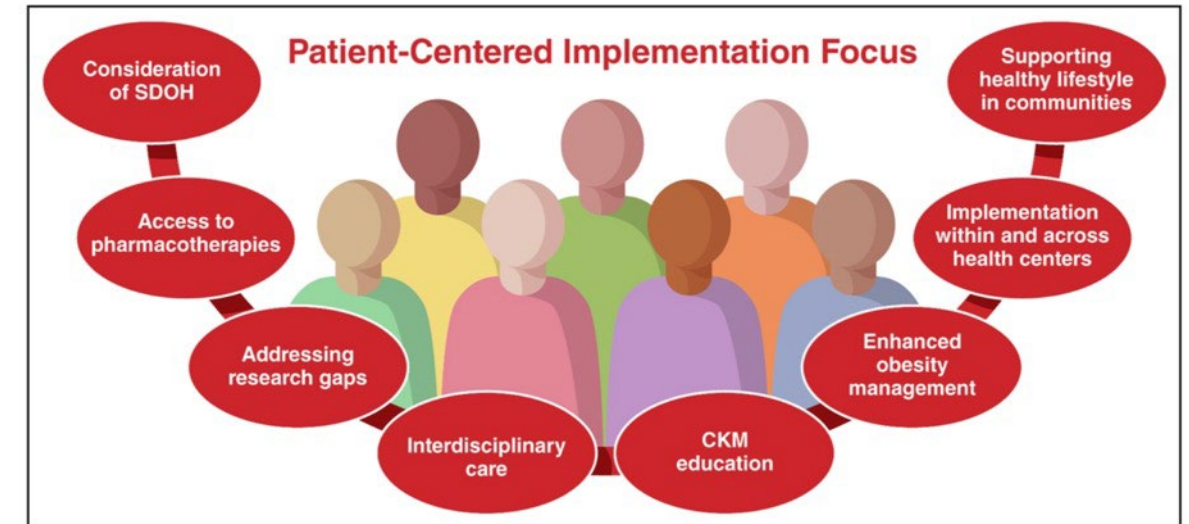
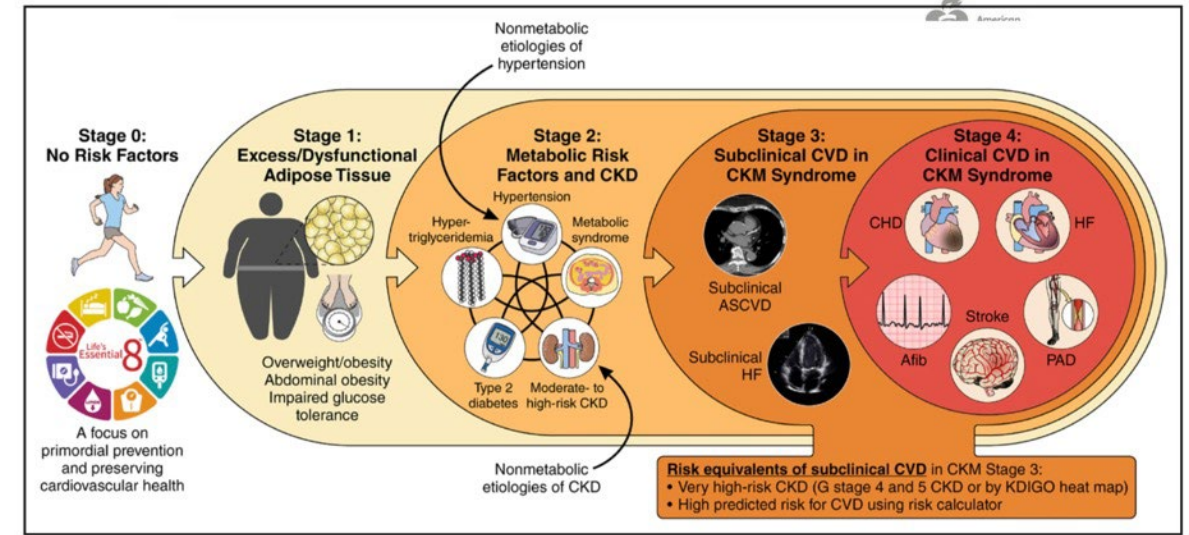
AHA PRESIDENTIAL ADVISORY

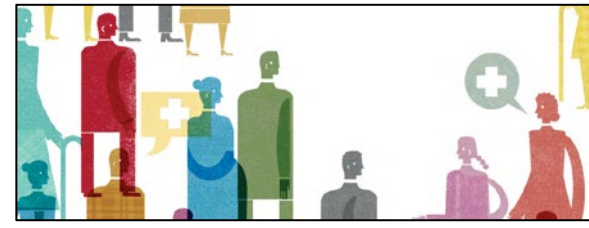
Cardiovascular-Kidney-Metabolic Health: A Presidential Advisory From the American Heart Association

Chiadi E. Ndumele, MD, PhD, FAHA, Chair; Janani Rangaswami, MD, FAHA, Vice Chair; Sheryl L. Chow, PharmD, FAHA, Vice Chair; Ian J. Neeland, MD, FAHA; Katherine R. Tuttle, MD; Sadiya S. Khan, MD, MSc, FAHA; Josef Coresh, MD, PhD; Roy O. Mathew, MD; Carissa M. Baker-Smith, MD, MPH, FAHA; Mercedes R. Carnethon, PhD, FAHA; Jean-Pierre Despres, PhD, FAHA; Jennifer E. Ho, MD, FAHA; Joshua J. Joseph, MD, MPH, FAHA; Walter N. Kernan, MD; Amit Khera, MD, MSc, FAHA; Mikhail N. Kosiborod, MD; Carolyn L. Lekavich, PhD; Eldrin F. Lewis, MD, MPH, FAHA; Kevin B. Lo, MD; Bige Ozkan, MD, ScM; Latha P. Palaniappan, MD, MS, FAHA; Sonali S. Patel, MD, PhD; Michael J. Pencina, PhD; Tiffany M. Powell-Wiley, MD, MPH, FAHA; Laurence S. Sperling, MD, FAHA; Salim S. Virani, MD, PhD, FAHA; Jackson T. Wright, MD, PhD; Radhika Rajgopal Singh, PhD, FAHA; Mitchell S.V. Elkind, MD, MS, FAHA; on behalf of the American Heart Association

ABSTRACT: Cardiovascular-kidney-metabolic health reflects the interplay among metabolic risk factors, chronic kidney disease, and the cardiovascular system and has profound impacts on morbidity and mortality. There are multisystem consequences of poor cardiovascular-kidney-metabolic health, with the most significant clinical impact being the high associated incidence of cardiovascular disease events and cardiovascular mortality. There is a high prevalence of poor cardiovascular-kidney-metabolic health in the population, with a disproportionate burden seen among those with adverse social determinants of health. However, there is also a growing number of therapeutic options that favorably affect metabolic risk factors, kidney function, or both that also have cardioprotective effects. To improve cardiovascular-kidney-metabolic health and related outcomes in the population, there is a critical need for (1) more clarity on the definition of cardiovascular-kidney-metabolic syndrome; (2) an approach to cardiovascular-kidney-metabolic staging that promotes prevention across the life course; (3) prediction algorithms that include the exposures and outcomes most relevant to cardiovascular-kidney-metabolic health; and (4) strategies for the prevention and management of cardiovascular disease in relation to cardiovascular-kidney-metabolic health that reflect harmonization across major subspecialty guidelines and emerging scientific evidence. It is also critical to incorporate considerations of social determinants of health into care models for cardiovascular-kidney-metabolic syndrome and to reduce care fragmentation by facilitating approaches for patient-centered interdisciplinary care. This presidential advisory provides guidance on the definition, staging, prediction paradigms, and holistic approaches to care for patients with cardiovascular-kidney-metabolic syndrome and details a multicomponent vision for effectively and equitably enhancing cardiovascular-kidney-metabolic health in the population.

Key Words: AHA Scientific Statements ■ chronic kidney disease ■ diabetes ■ metabolic syndrome ■ obesity ■ risk prediction ■ social determinants of health

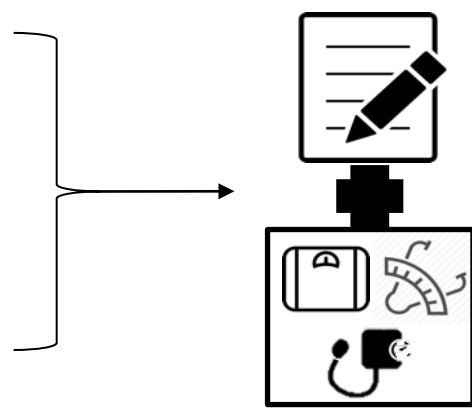




Center on Equity with Community Engaged Diverse Teams



Advancing Equity in Diabetes Management: *Delivering on our Values through Patient-Centered Care Team Models*



Week #1

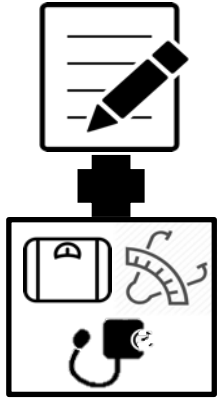
Weeks #1 - #2



Weeks #3 - #11



Week #11



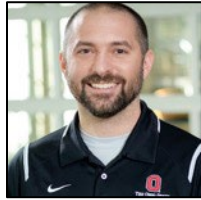
6 Months



12 Months



Exercise is Medicine



Physician Referral

	IPAQ-SF7, SF-36, DHQ-III, Medical History, Demographic Information	Primary Objective: ↑ Physical Activity (Long Term)
	2x 1:1 Personal Training	
	2x/week Group Exercise	
	height, weight, BMI, blood pressure, heart rate, waist & hip circumference, waist-hip ratio, and body fat %	

Exercise is Medicine

Exercise is Medicine

Increases:

- Exercise per week by 64.2 minutes ($p < 0.001$)
- Mental and Physical Quality of Life (SF-36, $p = 0.07$ and $p = 0.001$)

Decreases:

- Weight (2.3 pounds, $p < 0.001$)
- Waist Circumference (3.4 cm, $p < 0.001$)
- Systolic Blood Pressure (3.6 mmHg, $p < 0.001$)
- Diastolic Blood Pressure (1.8 mmHg, $p = 0.004$)
- Depressive Symptoms ($p < 0.001$)
- Perceived Stress ($p < 0.001$)

• BLACK IMPACT •

100



Improving Cardiovascular Health in Black Men Through a 24-week Community-Based Lifestyle Change Intervention: The Black Impact Program

Authors: Joshua J. Joseph, MD, MPH, FAHA,^{1*} Timiya S. Nolan, PhD, APRN-CNP,^{2*} Amaris Williams, PhD,¹ Alicia McKoy, MHA,^{1,3} Songzhu Zhao, MS,¹ Emmanuela Aboagye-Mensah, BS,¹ Bjorn Kluwe, BS,¹ James B. Odei, PhD,⁴ Guy Brock, PhD,¹ Dana Lavender,⁵ John Gregory,⁵ Darrell M. Gray, II, MD, MPH, FACG^{1,3}

1. The Ohio State University College of Medicine; 2. The Ohio State University College of Nursing; 3. The Ohio State University James Center for Cancer Health Equity; 4. The Ohio State University College of Public Health; 5. The African American Male Wellness Agency, National Center for Urban Solutions

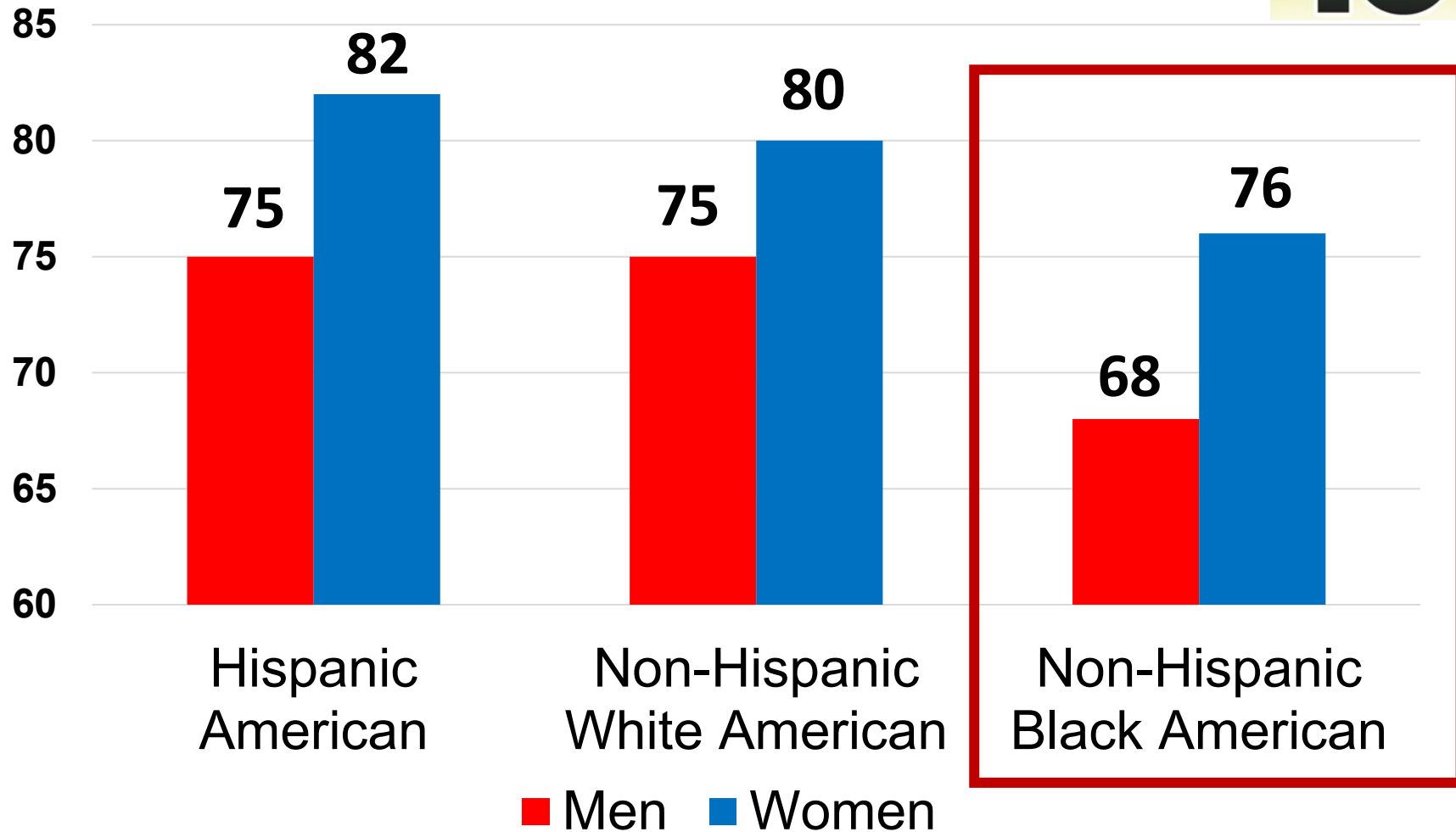
THE NATIONAL
**AFRICAN
AMERICAN
MALE**
WELLNESS WALK INITIATIVE



THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER



Life Expectancy at Birth



SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality data, Arias, 2021.

Inequities. Equitable Solutions. Patient-Centered Teams.

AMERICAN HEART ASSOCIATION'S LIFE'S SIMPLE 7



G/MYLIFECHECK

Life's Simple 7

HEALTH FACTORS



Blood sugar
<100 mg/dl



Blood pressure
<120/<80 mmHg

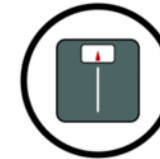


Blood cholesterol
<200 mg/dl

HEALTH BEHAVIORS



Smoking status
No smoking



Healthy weight
BMI<25 kg/m²



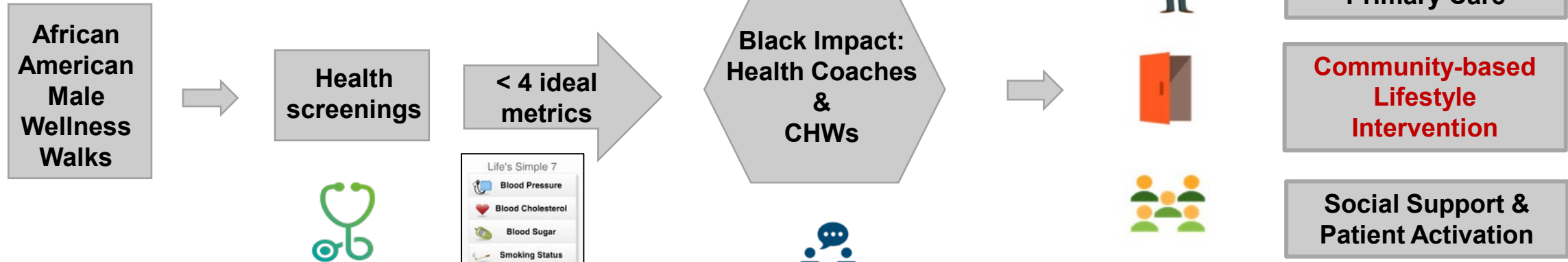
Physical activity
150 min/wk
moderate intensity
or 75 min/wk
vigorous intensity



Healthy diet
Fruits and vegetables
≥ 4.5 cups/day
Non-Fried Fish ≥
≥ two 3.5 oz. servings/week
Fiber-rich whole grains ≥
≥ three 1 ounce servings/day
Sodium < 1500 mg/day
Sugar-sweetened beverages
≤ 36 ounces/week

Creating Healthier Communities through Meaningful Partnerships

A National African American Male Wellness Initiative – OSU Partnership

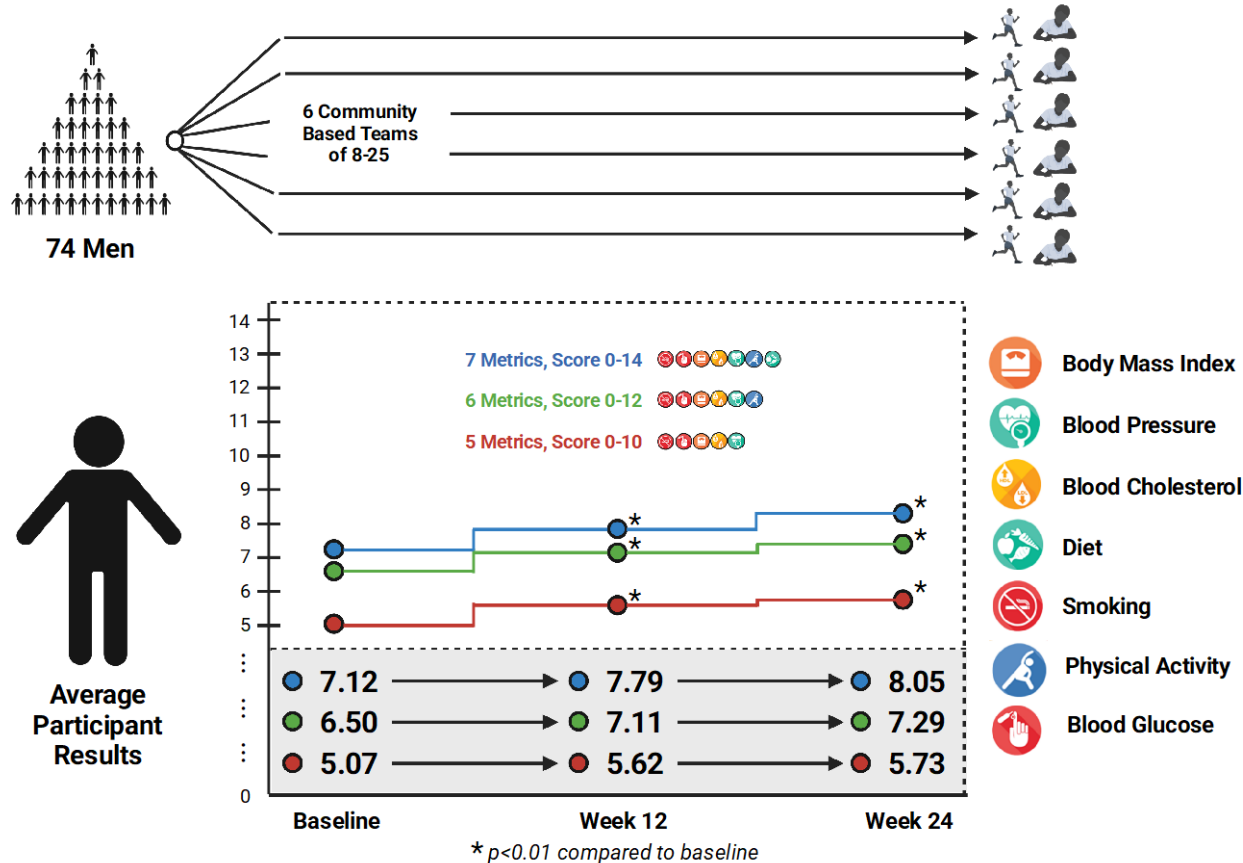


Partners



Black Impact

Black Impact - 24 Week Community-Based Physical Activity and Education Intervention



At 24 Weeks:

- Reduced BMI
- Reduced Weight
- Reduced Fasting Glucose 22 mg/dL
- Reduced Total Cholesterol 16 mg/dL
- Improved Diet
- **19% LOWER RISK OF MORTALITY!!!**



Joseph et al., AJPC 2022

Clinic to Community Interventions Addressing Social Needs



LINK - Linking education, produce provision, and community referrals to improve diabetes care

Funder: NIH – NIDDK-R01 - 5 Year Award



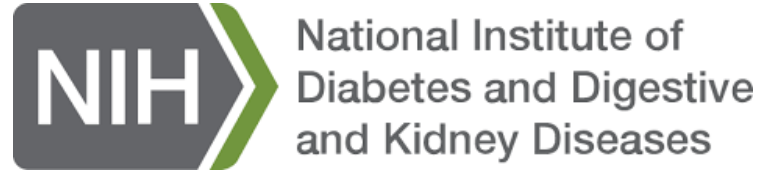
Goal: Improve glycemic control among individuals with type 2 diabetes and food insecurity, linking Ohio State with Community Partners including the Mid-Ohio Food Collective, Health Impact Ohio and Cooking Matters for Diabetes



Health Equity through Diversity: Action and Learning Conference – October 2023



Thank You!



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ACP-CSS Obesity Summit

Scott Kahan, MD, MPH

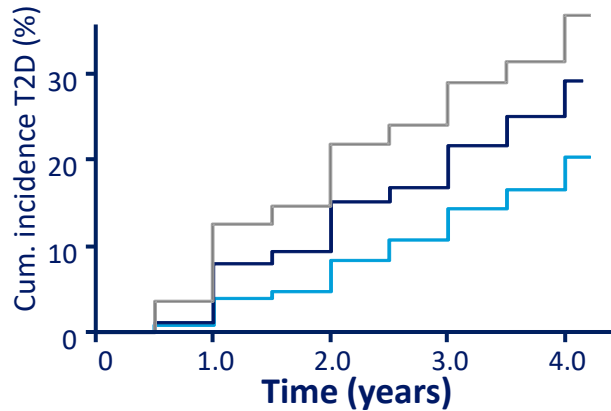
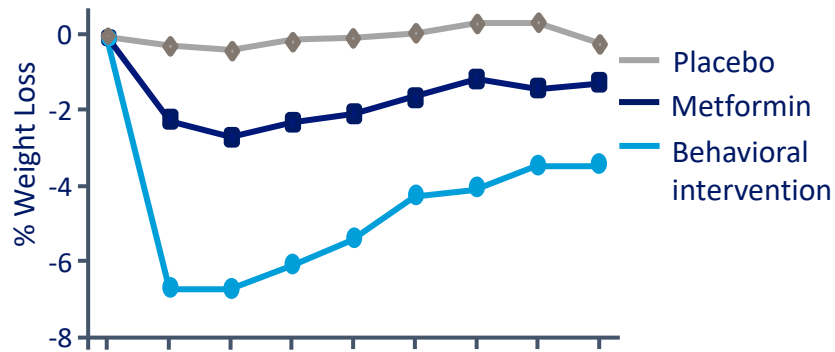
National Center for Weight and Wellness

George Washington University School of Medicine

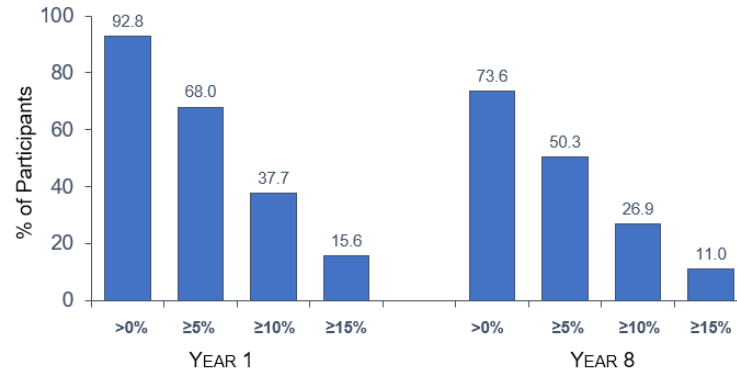
kahan@gwu.edu

Behavioral Intervention for Obesity

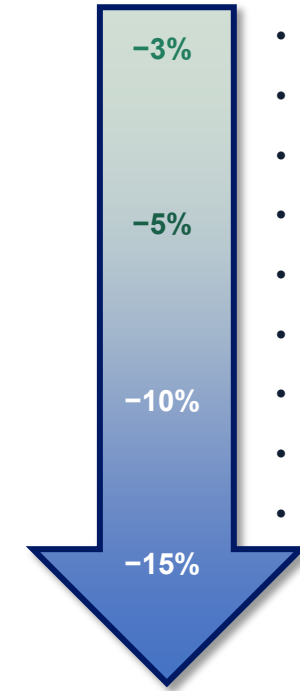
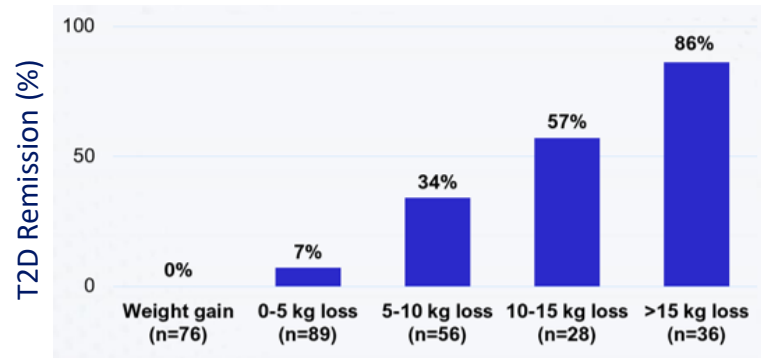
Diabetes Prevention Program



Look AHEAD Study

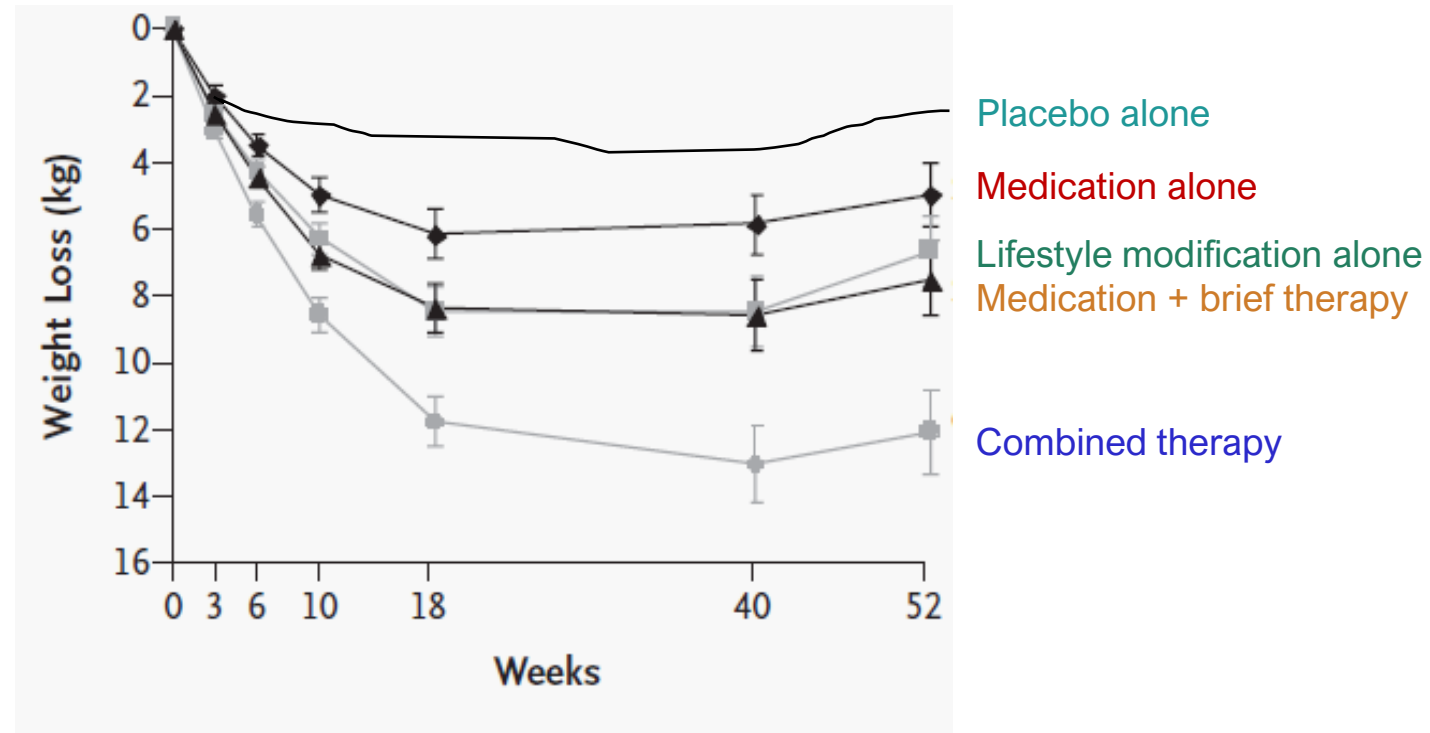


DiRECT Study

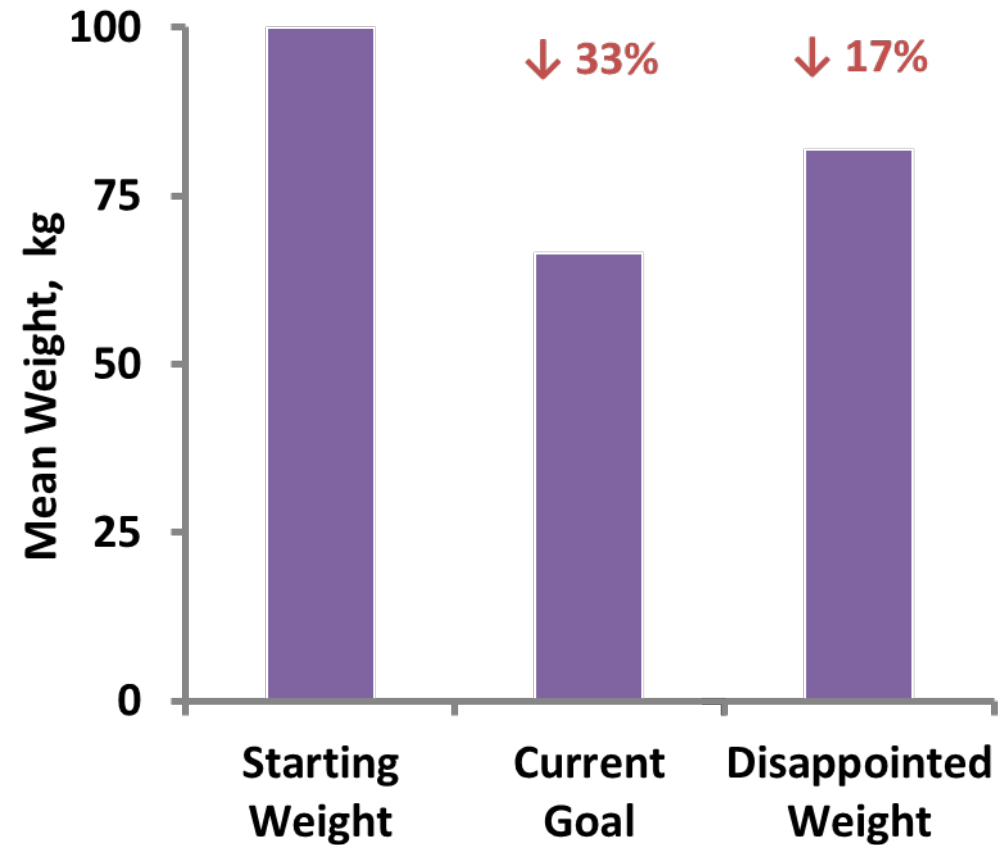


- Glycemia/T2D prevention
- Hyperlipidemia
- Hepatic steatosis
- Mobility/physical functioning
- Incontinence, OA, GERD
- Health-related quality of life
- OSA/AHI
- T2D remission
- CVD reduction/mortality

Combination Intervention for Obesity



Patient Expectations from Obesity Treatment



ACP-CSS Obesity Summit

Scott Kahan, MD, MPH

National Center for Weight and Wellness

George Washington University School of Medicine

kahan@gwu.edu



Moving Forward:
**MULTIDISCIPLINARY TREATMENT
of Obesity**

Caroline M. Apovian, MD, FACN, FACP, FTOS, DABOM

Co-director, Center for Weight Management and Wellness
Brigham and Women's Hospital

Professor of Medicine
Harvard Medical School

Past President, The Obesity Society, 2018



Designation of Obesity as a Disease

Medical Associations and Societies¹

- American Association of Clinical Endocrinologists
- American Academy of Family Physicians
- American College of Cardiology
- American College of Surgeons
- American Medical Association
- American Society for Reproductive Medicine
- American Urological Association
- The Endocrine Society
- The Obesity Society
- The Society for Cardiovascular Angiography and Interventions

World / National Health Organizations^{1,2}

- World Health Organization
- Food and Drug Administration
- National Institutes of Health

Obesity is a disease:
leading obesity
groups agree
June 19
2013

1. ASMBS, TOS, ASBP, AACE Joint Statement. Obesity is a disease: leading obesity groups agree. June 19, 2013. <http://asmbs.org/2013/06/obesity-is-a-disease-leading-obesity-groups-agree/>. Accessed September 11, 2013.

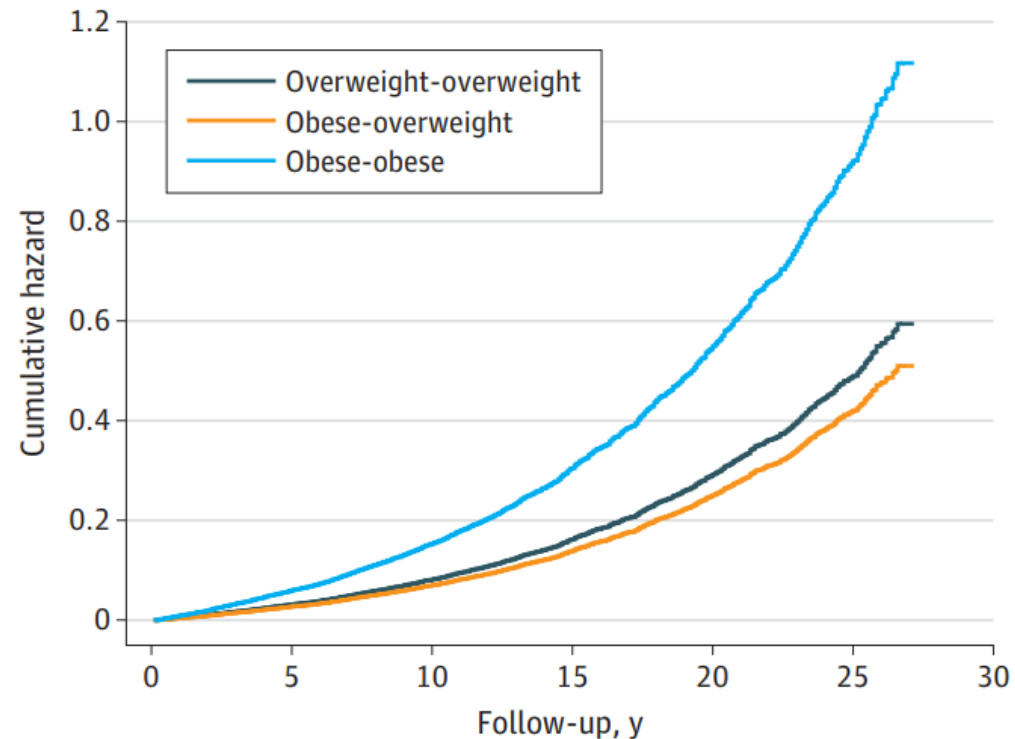
2. American Medical Association. AMA Resolution No. 420 (A-13). June 19, 2013. www.ama-assn.org/assets/meeting/2013a/a13-addendum-refcomm-d.pdf.

All-cause Mortality for Weight Change Patterns

Estimated **12.4% OF EARLY DEATHS** may be attributable to having weight in excess of the normal BMI range at any point between early and mid-adulthood (95% CI, 8.1%-16.5%)

For all participants, maintaining an obese BMI from early adulthood to midlife increased the risk of all-cause mortality vs. stable normal weight, with an HR of 2.17 (95% CI, 1.85-2.53)

- Weight gain from a normal to overweight BMI was not associated with risk, normal-obese (HR, 1.32; 95% CI, 1.15-1.52)
- Overweight to obese (HR, 1.47; 95% CI, 1.28-1.69) weight changes were associated with elevated mortality risks



No. at risk	0	5	10	15	20	25	30
Overweight-overweight	2836	2142	1328	701	426	148	
Obese-overweight	215	168	99	44	26	4	
Obese-obese	1415	962	535	267	154	34	

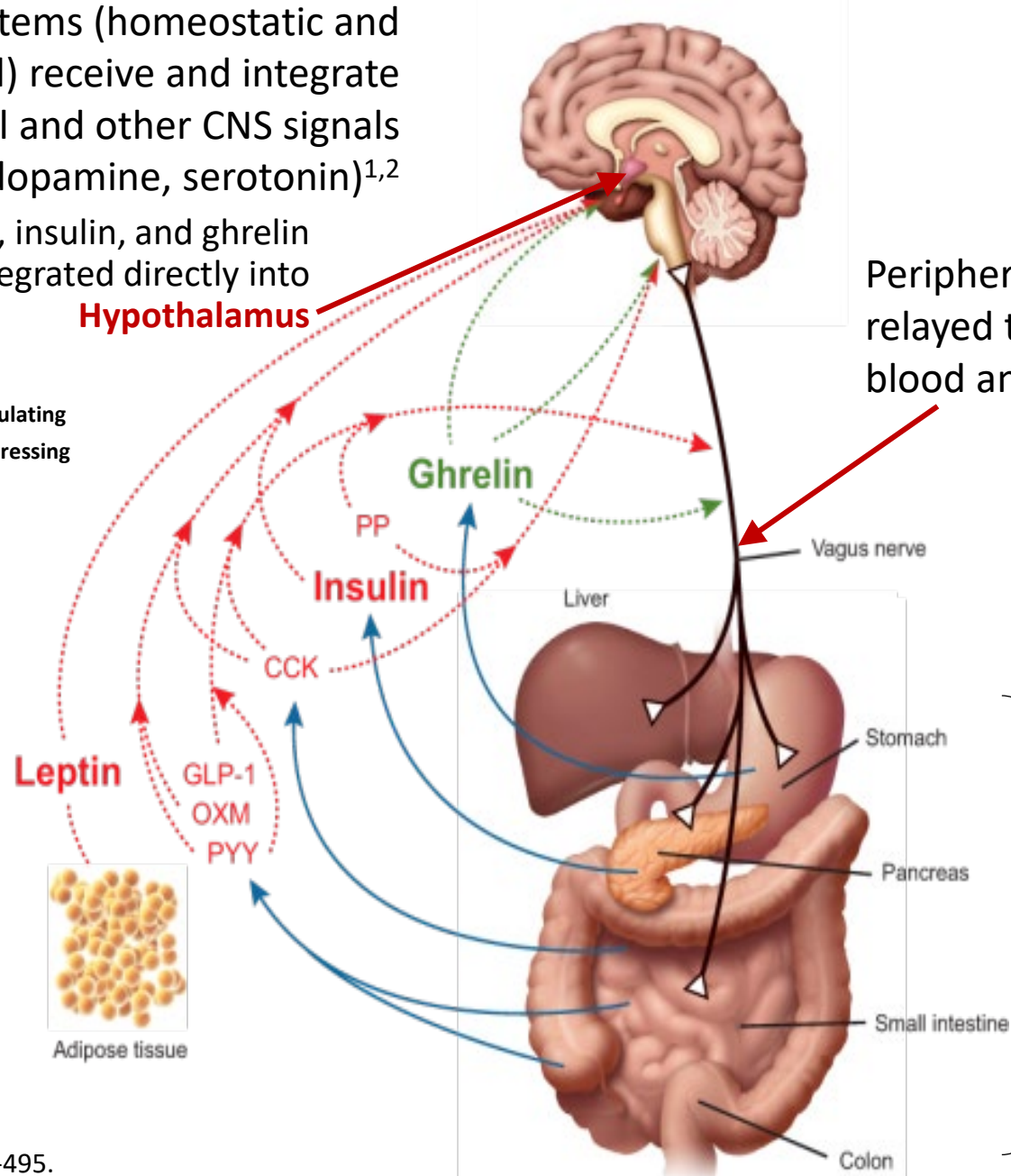
Central control of Body Weight: Peripheral Signals are Integrated Into CNS Systems – tightly regulated

Brain systems (homeostatic and reward) receive and integrate peripheral and other CNS signals (eg, dopamine, serotonin)^{1,2}

Leptin, insulin, and ghrelin are integrated directly into **Hypothalamus**

Peripheral signals are relayed to brain systems via blood and **vagus nerve**^{1,2}

--- Appetite Stimulating
 --- Appetite Suppressing



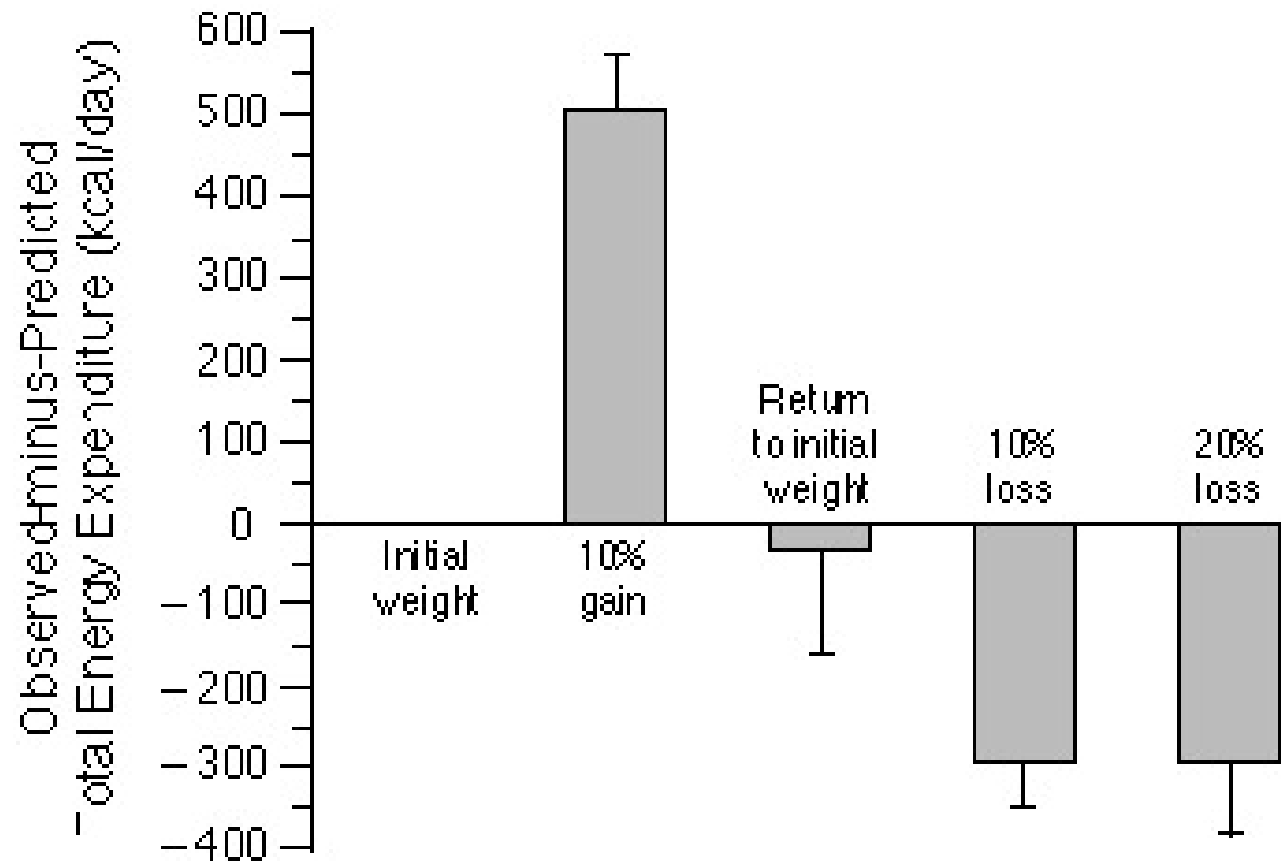
Peripheral signals are released by pancreas, gastrointestinal system, and adipose tissue^{1,2}

CNS, central nervous system
 PFC, prefrontal cortex
 NAc, nucleus accumbens
 VTA, ventral tegmental area
 PP, pancreatic polypeptide
 CCK, cholecystokinin;
 GLP-1, glucagon-like peptide 1
 OXM, oxymodulin
 PYY, peptide YY.

Primarily based on data from animal studies.

1. Yu JH et al. *Diabetes Metab J.* 2012;36(6):391-398.
 2. Mendieta-Zerón H et al. *Gen Comp Endocrinol.* 2008;155:481-495.

Compensation for an Increase or Decrease in Body Weight by Increase or Decrease in Total Energy Expenditure Until Weight Is Regained or Lost – Leptin* Defends Adipose Mass



DEFENSE OF A
BODY WEIGHT
“SET POINT”

*The feedback mechanism for the effect of fat mass on energy metabolism is not known.

A candidate gene for such a signal from fat has recently been cloned.

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

Neuronal and hormonal pathways influencing food intake and satiety in the brain

Determinants affecting the cognitive or emotional brain

Biological influences:

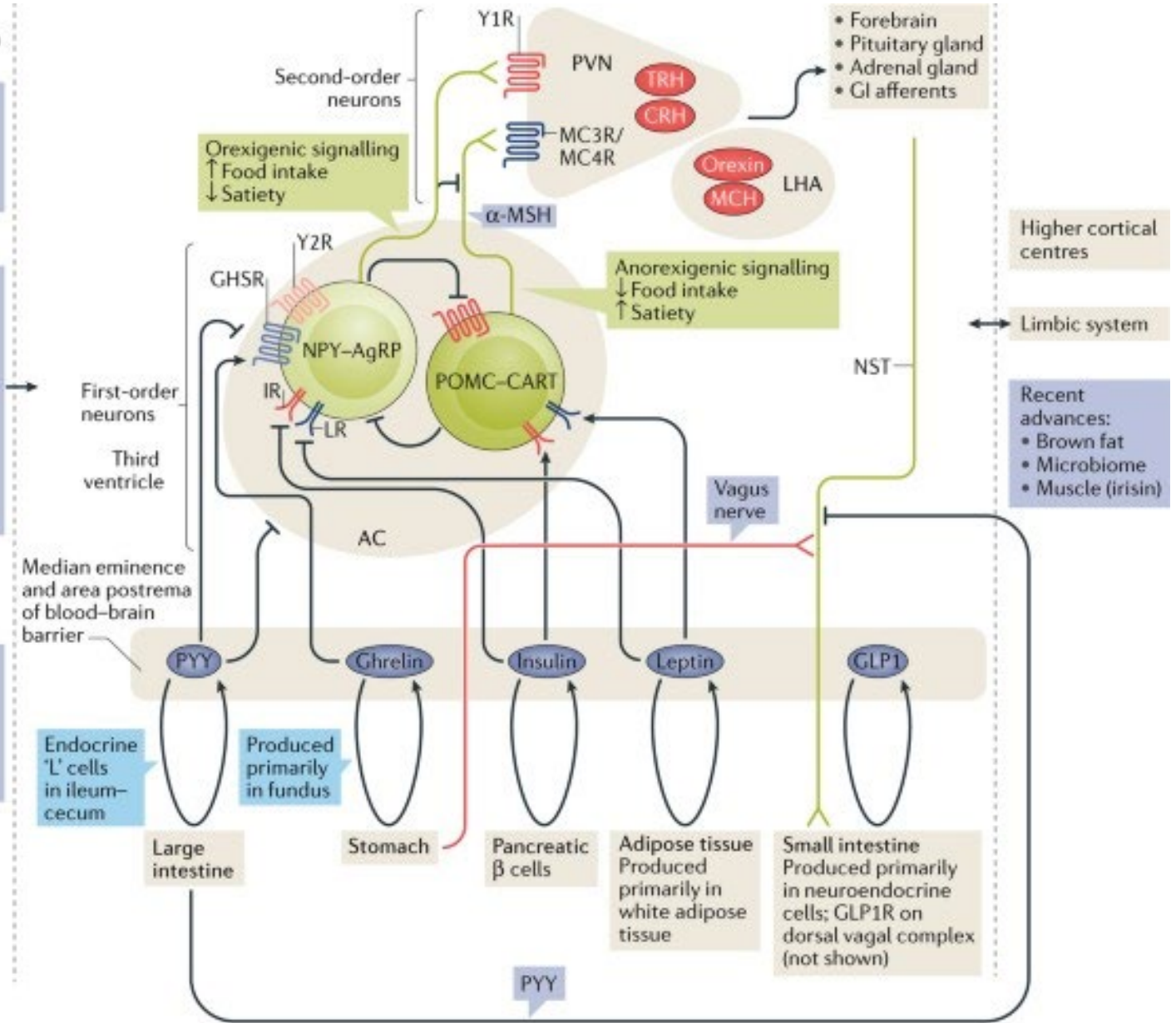
- Early-life events
- Imprinting
- Epigenetics
- Genetics

Modern macroenvironment:

- Food production, consumption and availability
- Social structure and cues
- Weather or outdoor temperatures influencing physical activity
- Television and technology
- Cultural norms
- Endocrine disruptors

Modern microenvironment:

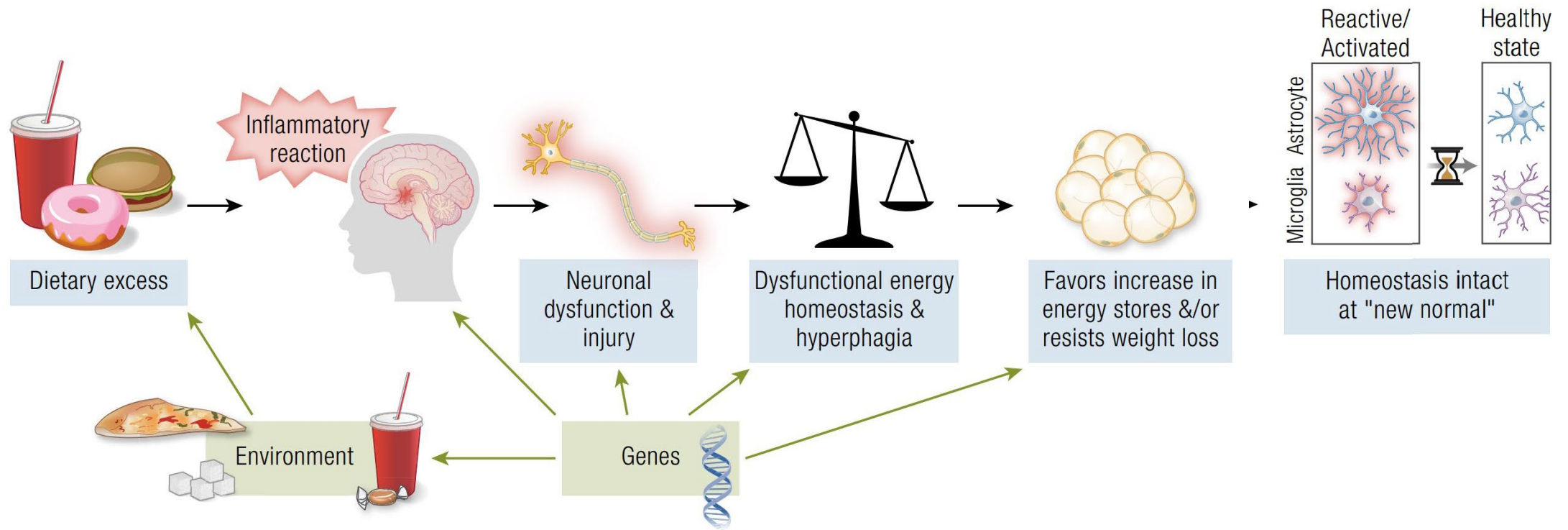
- Nutrition
- Exercise
- Sleep
- Stressors
- Circadian rhythm



Theoretical model of the role of hypothalamic gliosis in obesity pathogenesis

Adaptive Model

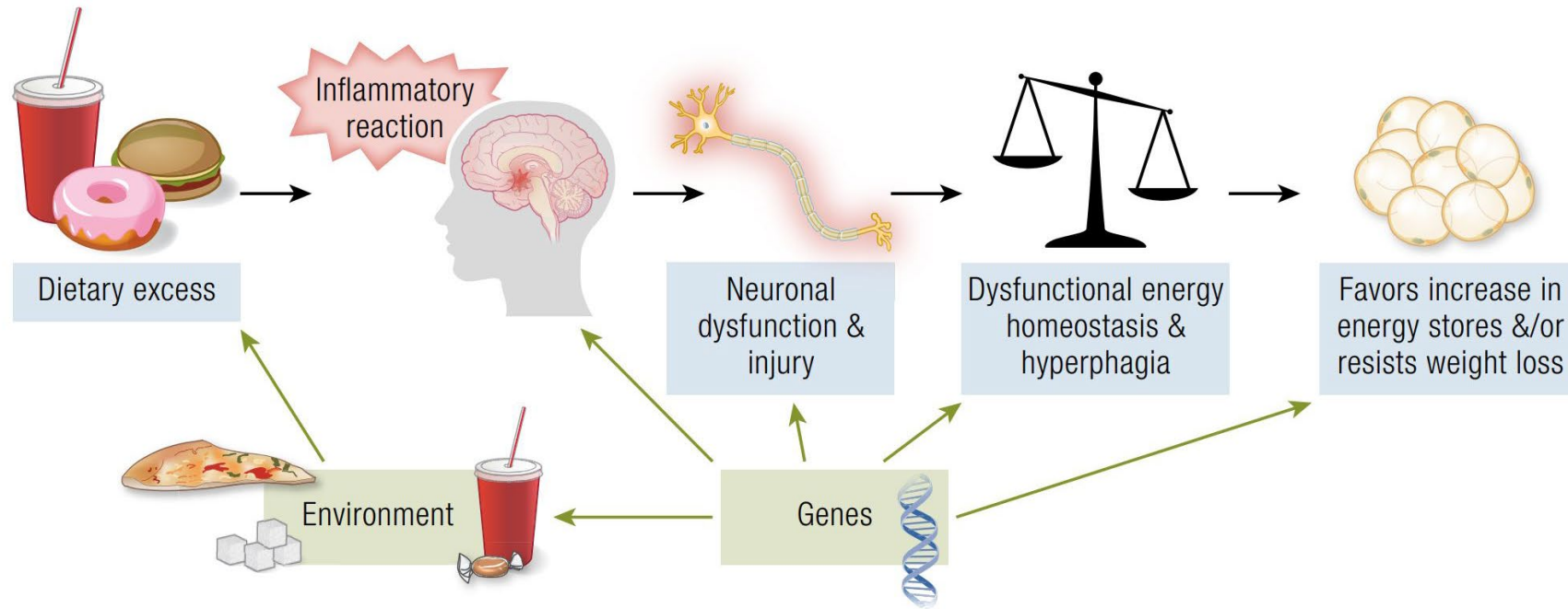
Allows body fat gain when nutrition is abundant



Theoretical model of the role of hypothalamic gliosis in obesity pathogenesis

Neuron Injury Model

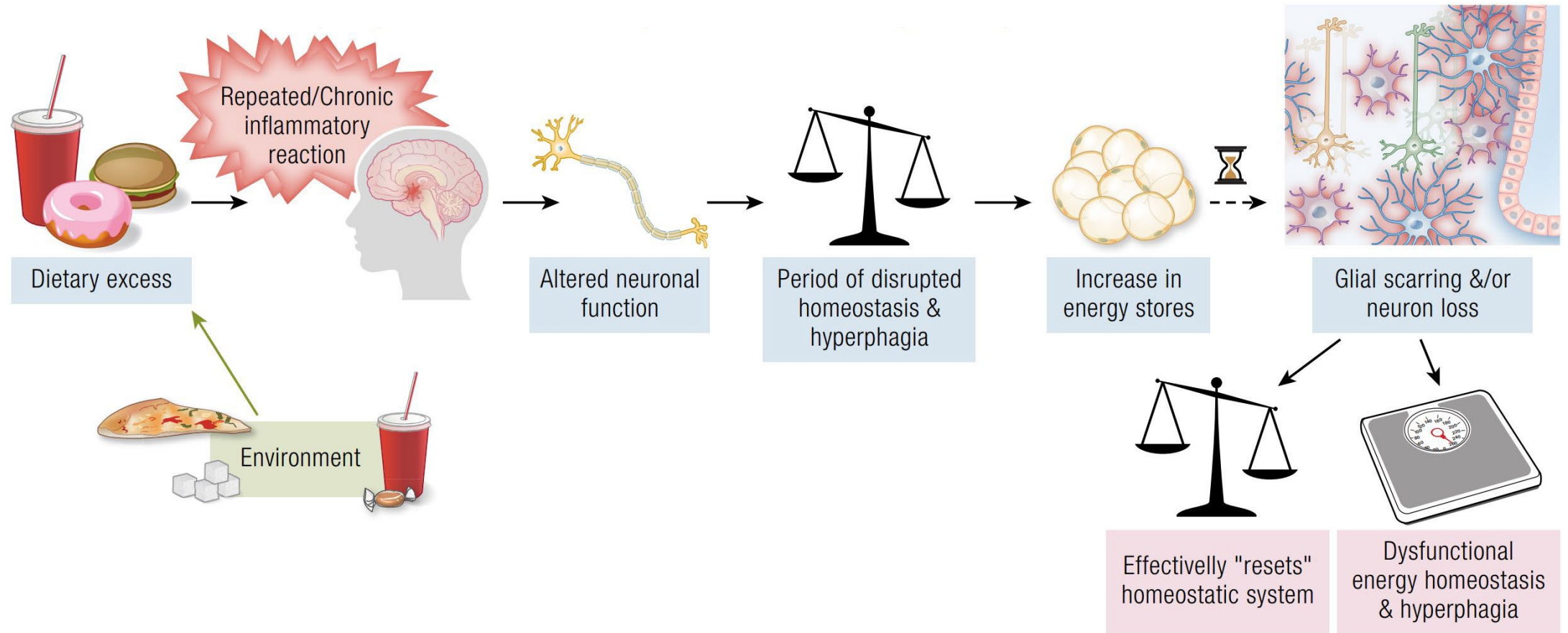
Body fat gain occurs due to abnormal process of neuronal inflammation and injury



Theoretical model of the role of hypothalamic gliosis in obesity pathogenesis

Chronic Disease Model

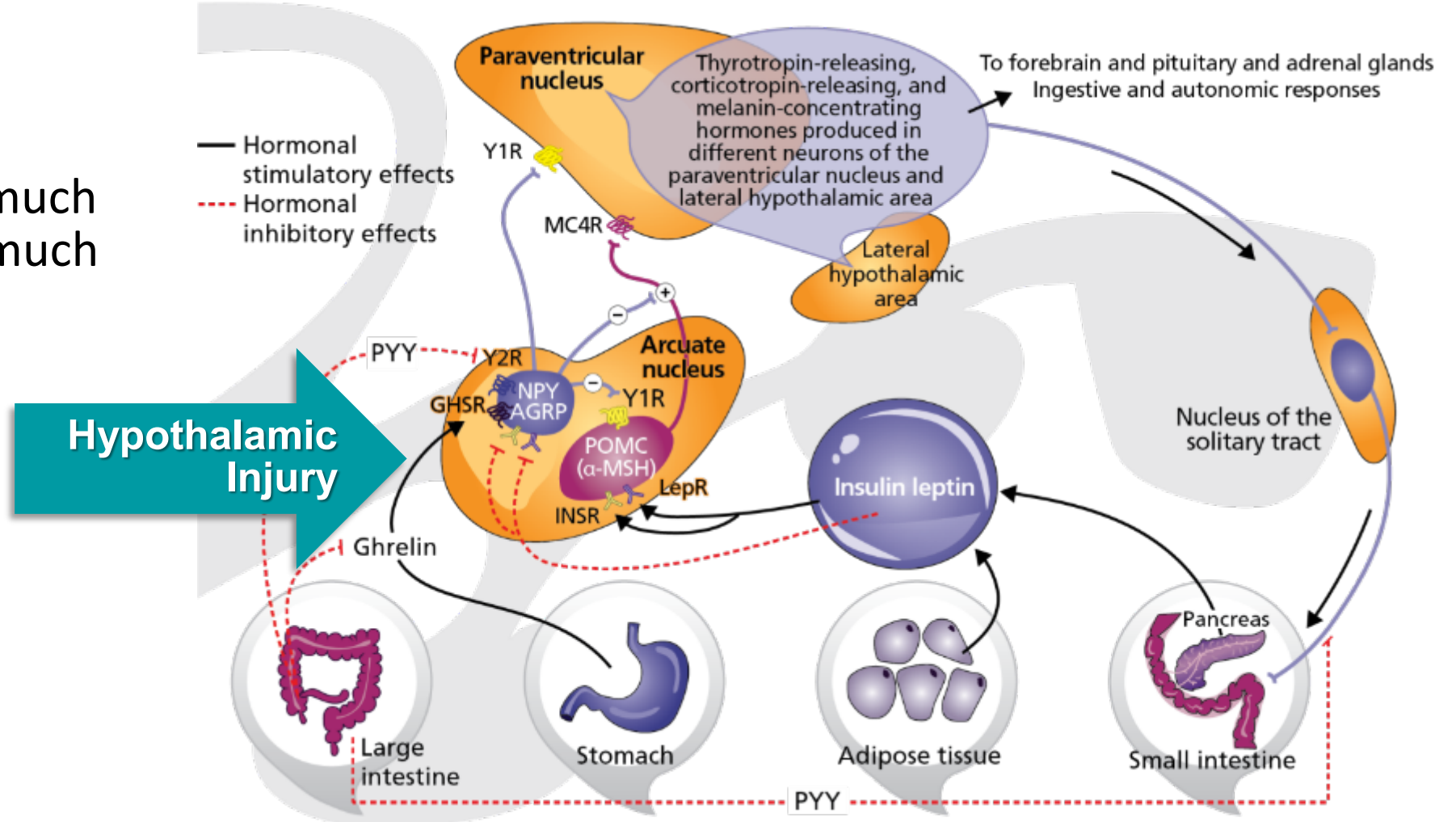
Adaptive process becomes maladaptive when chronic or repeated exposures occur



Hypothalamic Injury Diminishes Signaling to Cortex and NTS, Leading to Greater Weight Gain

When damaged, the brain can't tell how much fat is stored or how much has been eaten

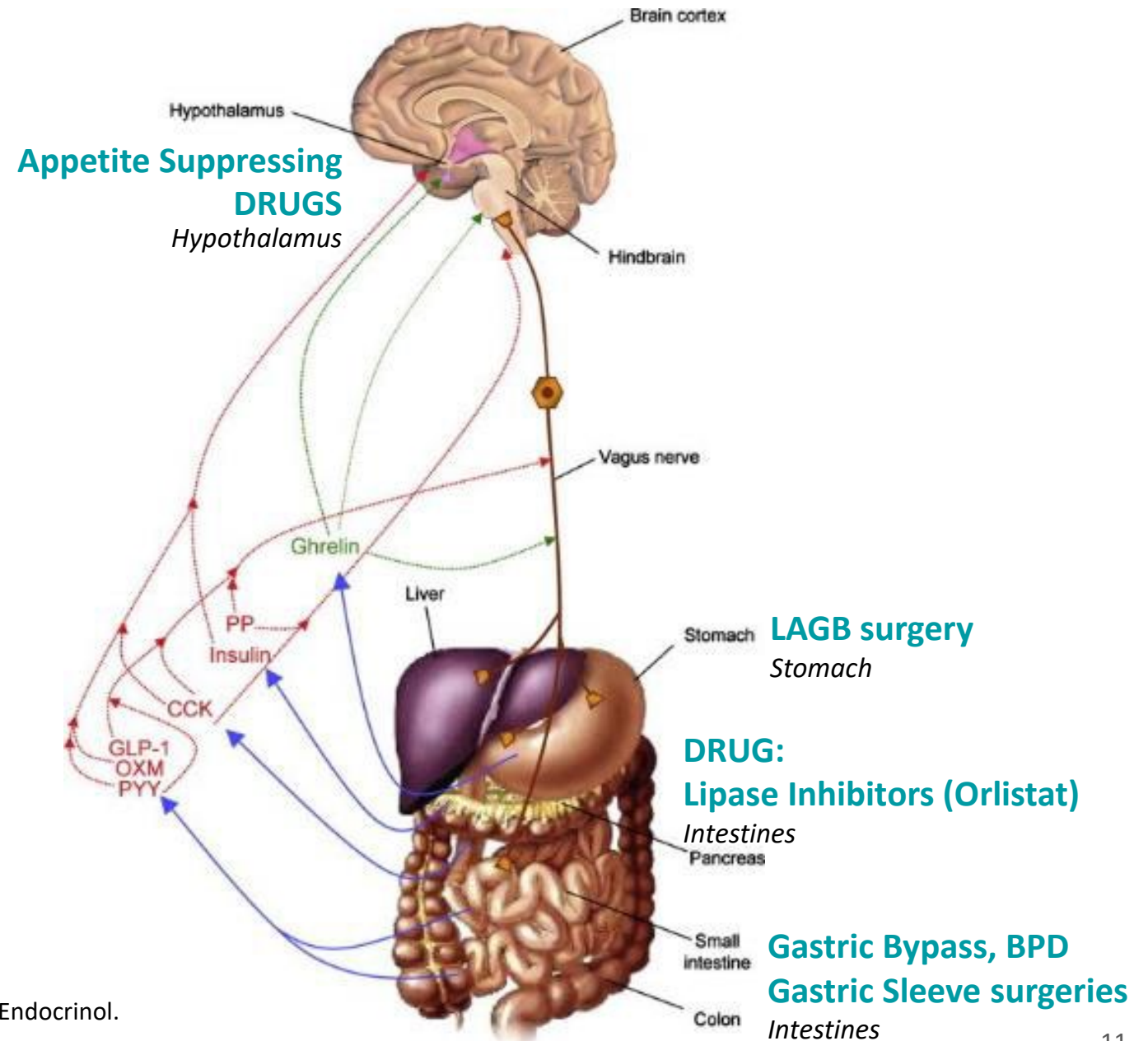
Brain becomes resistant to key hormone, leptin



AGRP: agouti-related peptide; α-MSH: α-melanocyte-stimulating hormone; GHSR: growth hormone secretagogue receptor; INSR: insulin receptor; LepR: leptin receptor; MC4R: melanocortin-4 receptor; NPY: neuropeptide Y; POMC: proopiomelanocortin; PYY: peptide YY; Y1R; neuropeptide Y1 receptor; Y2R: neuropeptide Y2 receptor.

Apovian CM, Aronne LJ, Bessesen D et al. *J Clin Endocrinol Metab.* 2015;100:342-362.

Obesity Treatments and Where they Work

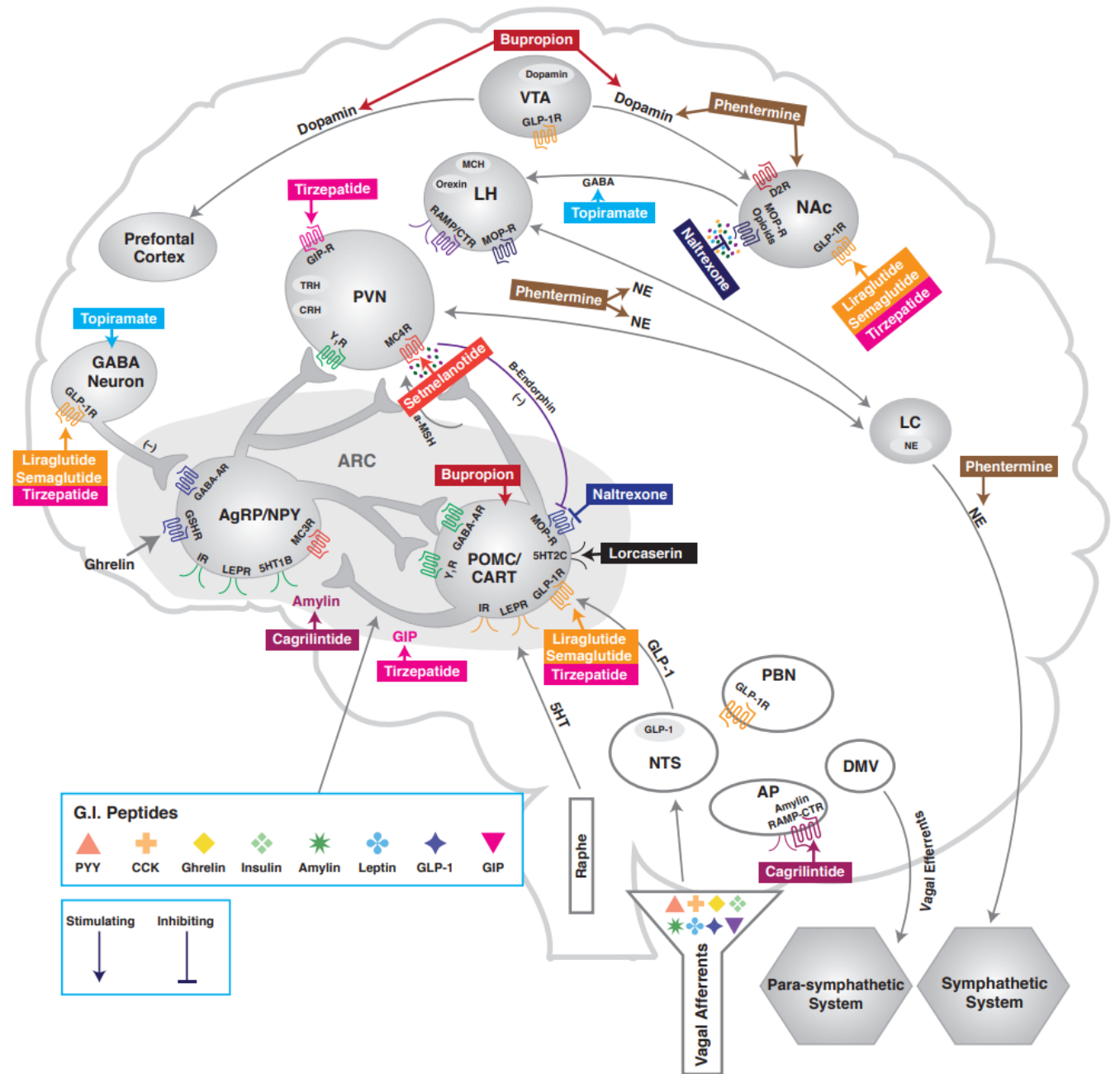


Source of photo: Mendieta-Zerón H1, López M, Diéguez C. Gen Comp Endocrinol. 2008 Feb 1;155(3):481-95.

Advances in Anti-obesity Medications (AOM) are Gaining Ground in Addressing the Complexity of Obesity

The brain is the central regulator of food intake

- Homeostatic system
- Reward system
- Executive function



Clinical Guidelines for Treatment of Obesity

If lifestyle does not yield results, escalate to pharmacotherapy, then surgery

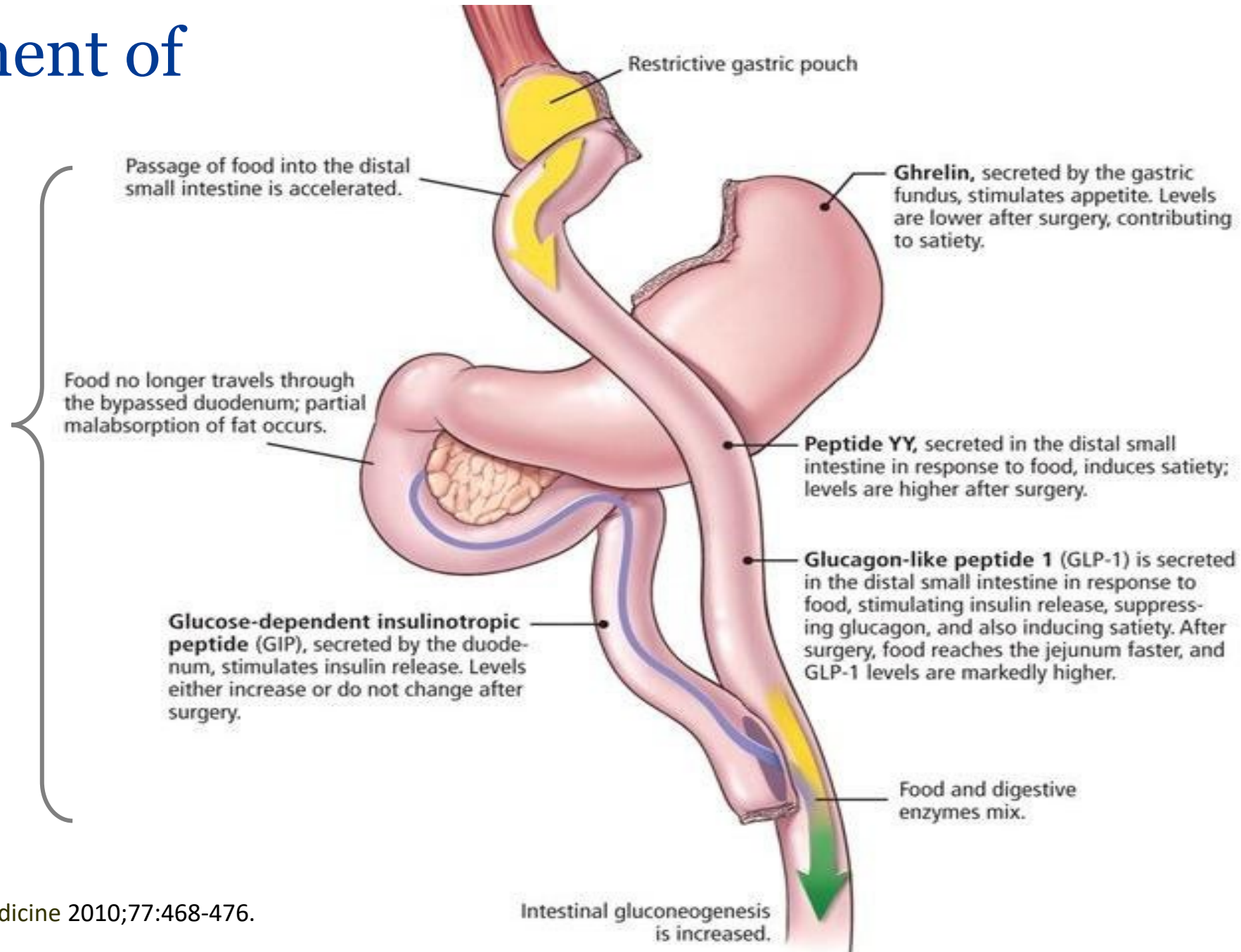
Treatment*	BMI category (kg/m ²)				
	≥25	≥27	≥30	≥35	≥40
Diet, physical activity and behavior therapy	With comorbidities	With comorbidities	+	+	+
Pharmacotherapy		With comorbidities	+	+	+
Surgery				With comorbidities	+

Medical Treatment of Obesity

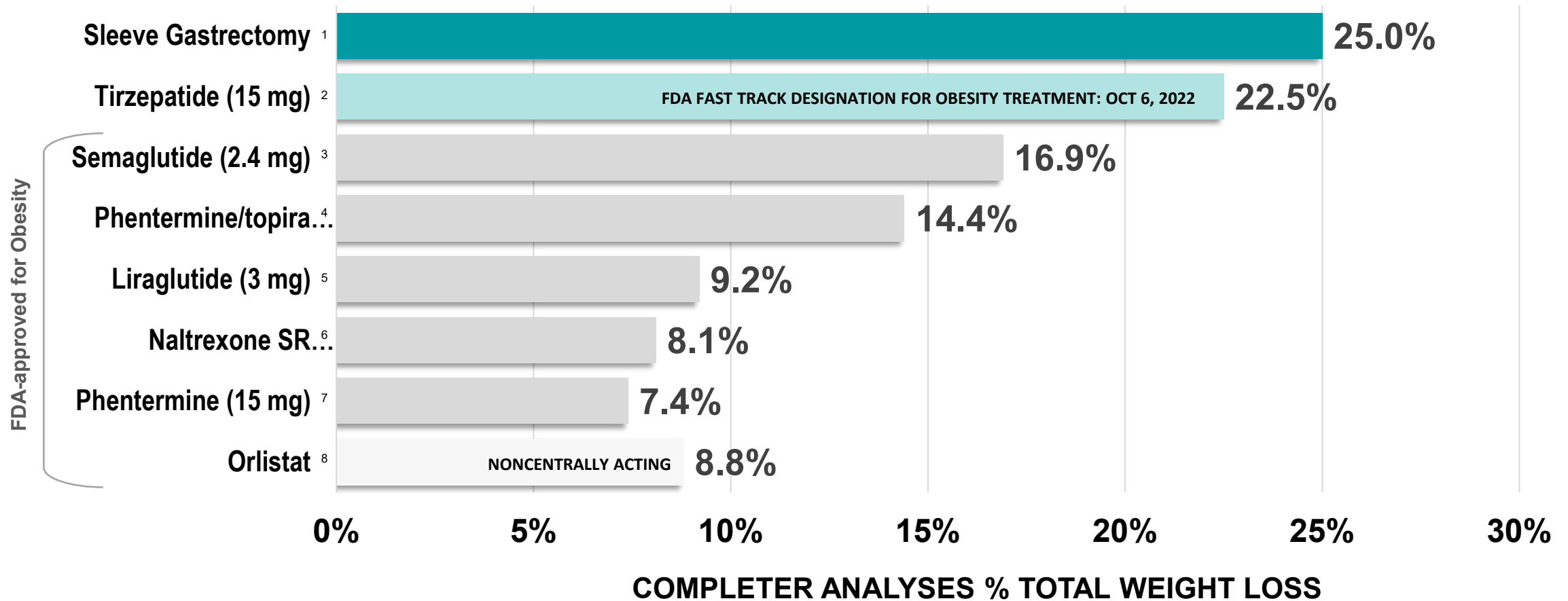
Mimic Hormonal Effects

How gut hormones may contribute to lowering the body weight set point and regression of diabetes

After roux-en-y surgery



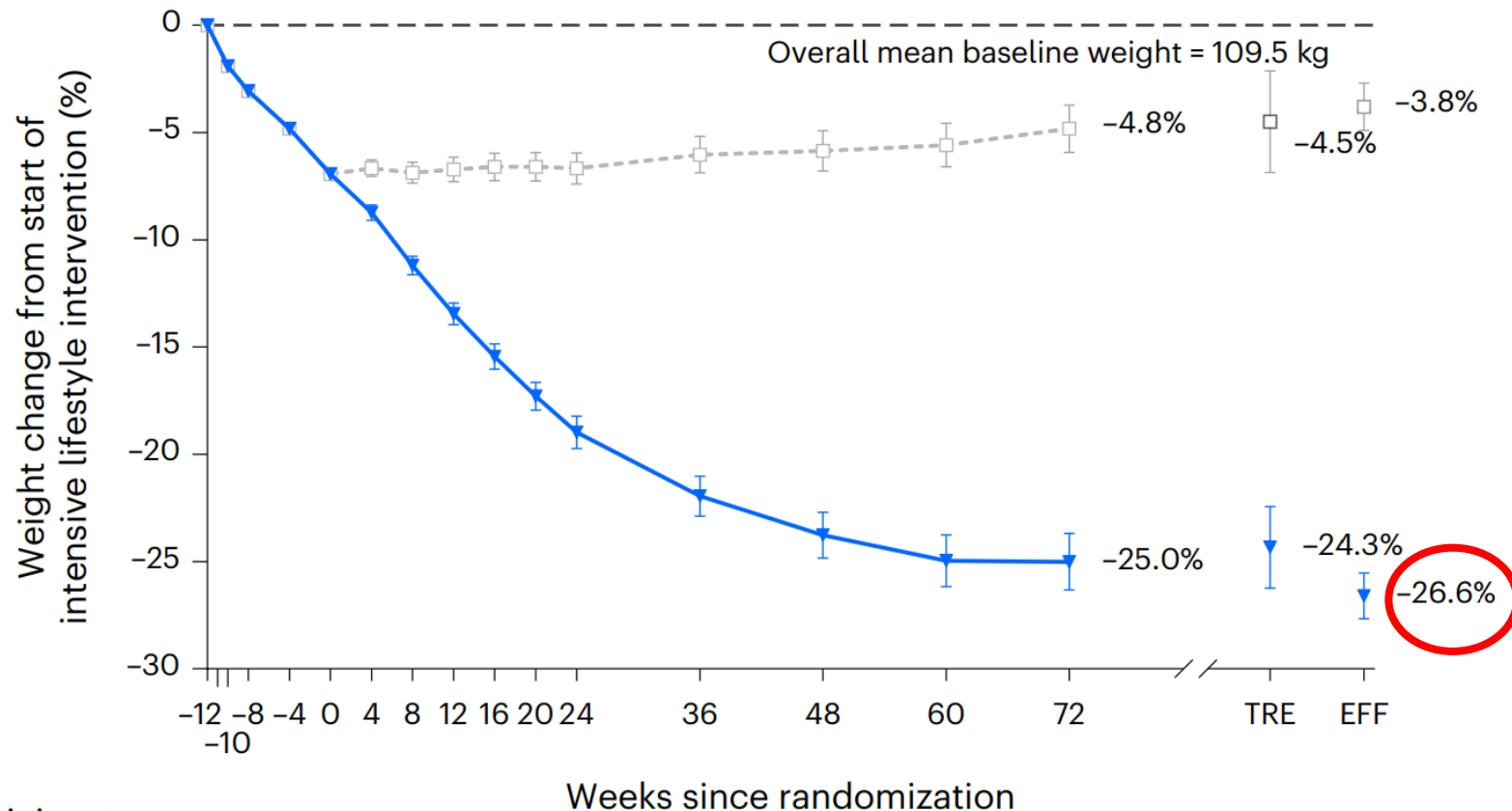
Efficacy of Current and Pending Anti-obesity Drugs as Compared to Bariatric Surgery



1. Mechanick JI, Apovian C, et al. *Endocr Pract.* 2019 Dec;25(12):1346-1359.
2. Jastreboff AM, et al. *N Engl J Med.* 2022 Jul 21;387(3):205-216.
3. Wilding JPH, et al. *N Engl J Med.* 2021 Mar 18;384(11):989.
4. Allison DB, et al. EQUIP Trial. *Obesity (Silver Spring).* 2012 Feb;20(2):330-42.
5. Pi-Sunyer X, et al. *N Engl J Med.* 2015 Jul 2;373(1):11-22.
6. Aronne LJ, et al. *Obesity (Silver Spring).* 2013 Nov;21(11):2163-71.
7. Greenway FL, et al. COR-I Trial. *Lancet.* 2010 Aug 21;376(9741):595-605.
8. Finer N, et al. *Int J Obes Relat Metab Disord.* 2000 Mar;24(3):306-13.

Tirzepatide: Body weight change by week from start of intensive lifestyle intervention

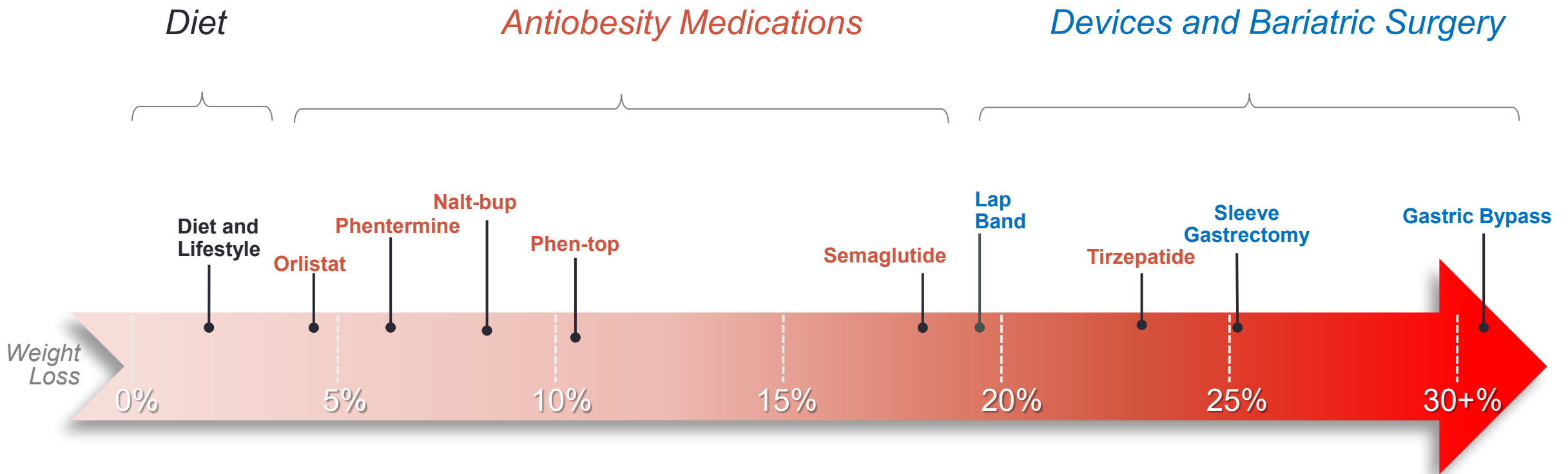
SURMOUNT-3 Phase 3 Trial



No. of participants

	-12	-8	-4	0	4	8	12	16	20	24	36	48	60	72	TRE	EFF
Tirzepatide MTD	287	287	283	279	279	273	266	261	262	287	284					
Placebo	292	292	288	268	260	242	228	218	223	292	291					

Current Treatment Landscape



Bariatric surgery currently provides the best results – though newer drugs are catching up

Multidisciplinary Team for Effective Obesity Treatment



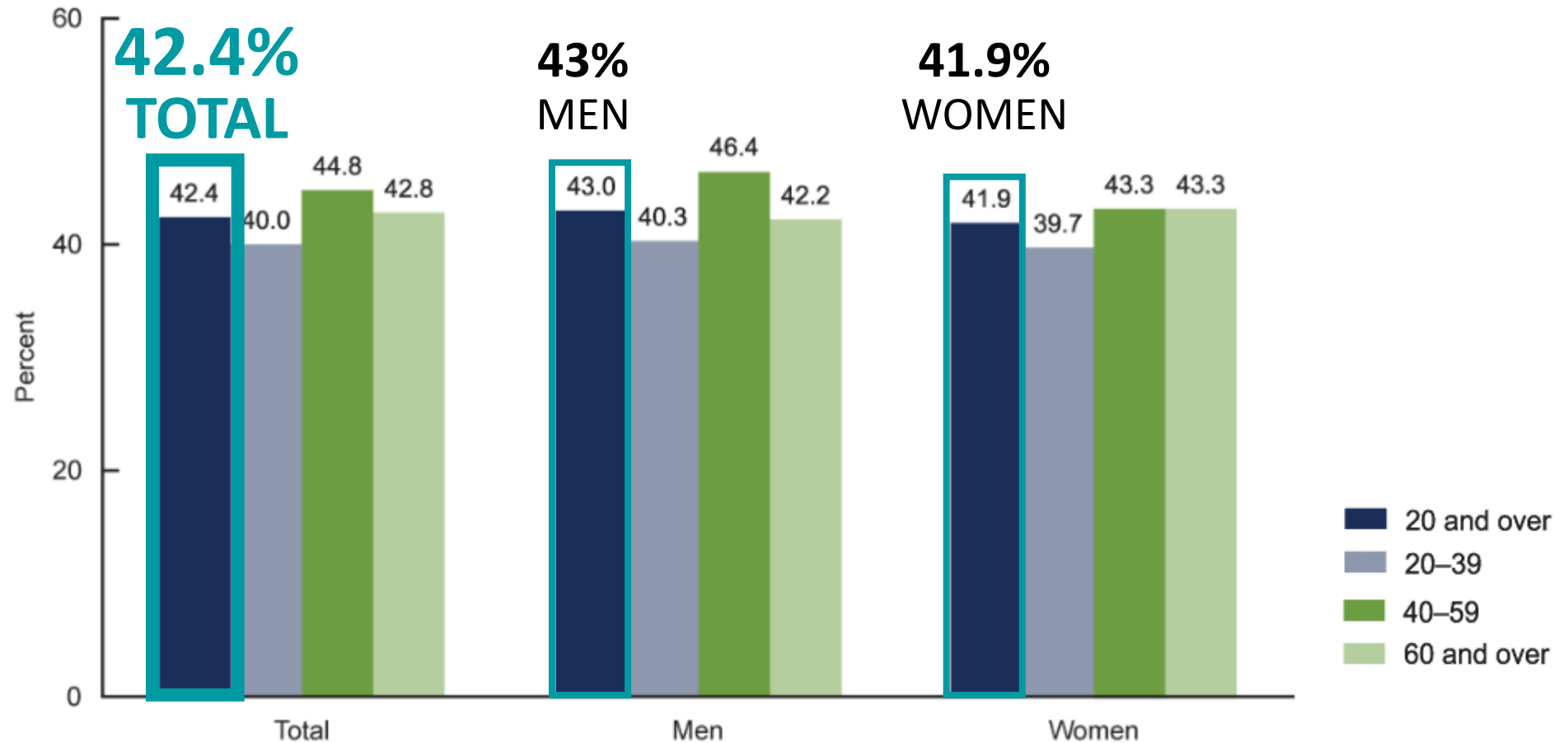
Summary

- The brain is the regulator of body weight
- Interaction between environment and genetics – epigenetics has resulted in alterations in body weight defense
- Weight loss results of new GLP drugs are similar to bariatric surgery
- Multidisciplinary team produces the most successful weight management outcomes



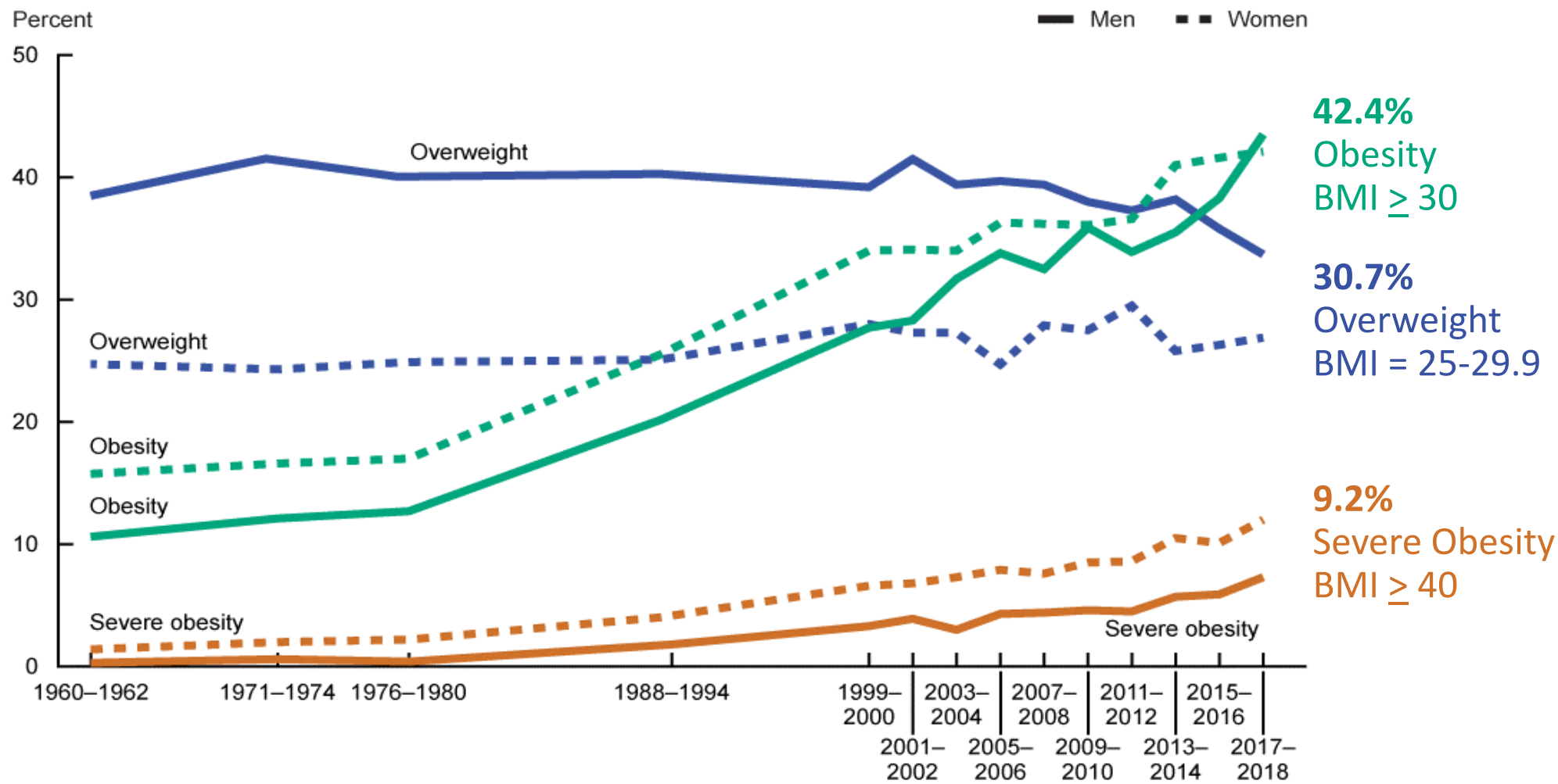
U.S. Prevalence of Obesity, 2017-2018

Adults ≥ 20 years, Obesity = BMI ≥ 30

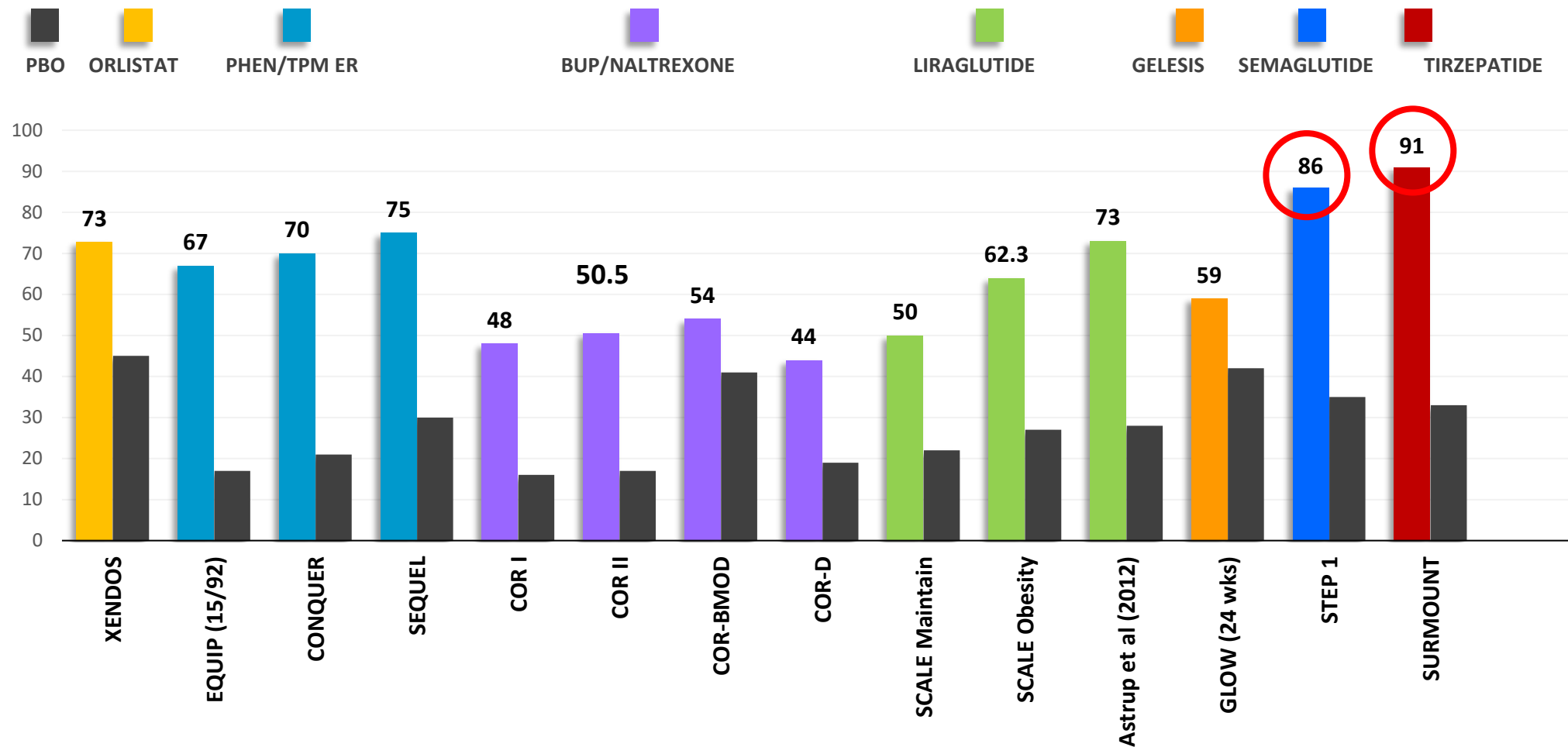


U.S. Trends in Overweight, Obesity, and Severe Obesity

Adults ≥ 20 years



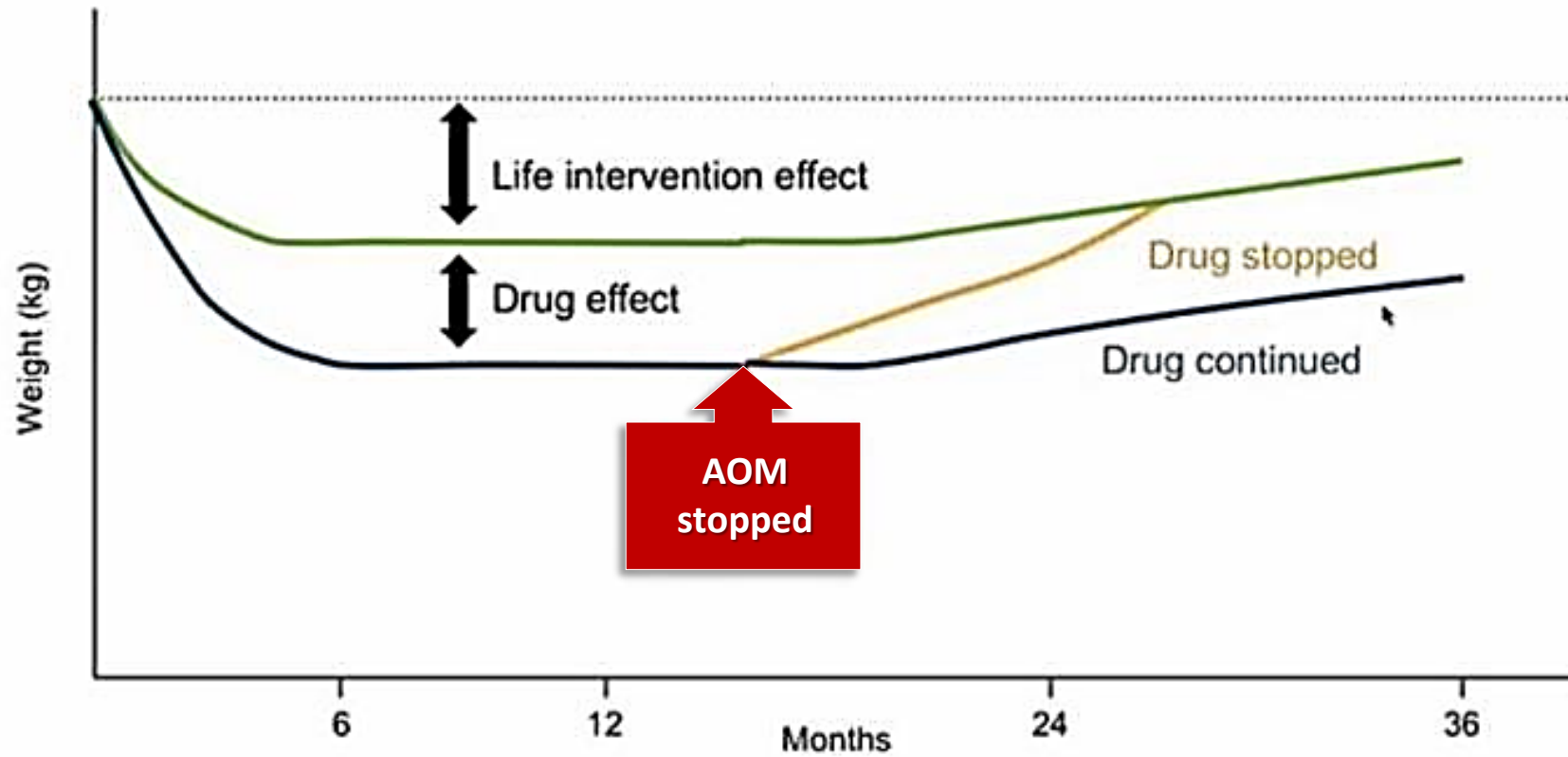
Pharmacotherapy Increases Magnitude and Likelihood of Weight Loss - Particularly Newer Drugs



ITT; SEQUEL, some changes have been derived from reported data.

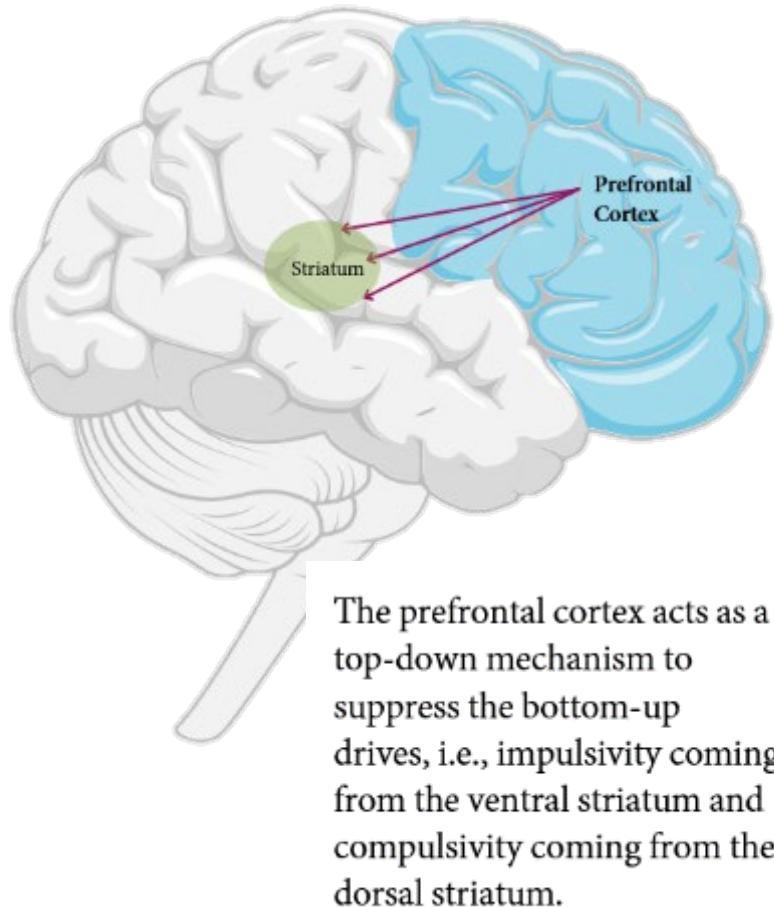
Modified by L.J. Aronne. Pucci A, et al. *Can J Cardiol*. 2015;31(2):142-152. Astrup A, et al. *Int J Obes (Lond)*. 2012;36(6):843-854. Wilding JPH, et al. *N Engl J Med*. 2021 Mar 18;384(11):989-1002. Jastreboff AM, Aronne LJ, et al. *N Engl J Med*. 2022 Jul 21;387(3):205-216.

Long-term Ongoing Therapy Needed for Obesity Treatment



- Schalles, et al. Visc Med. 2016, figure adapted by Ania Jastreboff, MD, PhD.

People with Obesity are Considered to have Altered Brain Signaling



- Brain activity in cortical neuronal networks involved in homeostatic control and hedonic responses is generally altered in obese individuals
- In particular, **decreased basal metabolism in the prefrontal cortex and striatum** as well as dopaminergic alterations have been described in subjects with obesity with simultaneously **increased activation of brain reward areas** in response to palatable food cues
- fMRI studies have also shown that obesity is associated with impaired brain activity within the striatum, insula, and prefrontal cortex

October 24, 2023

ACP Obesity Summit Summary

Linda Goler Blount, MPH

Epidemic's Start - Food Policy:

- It was explained how the obesity epidemic originated, with food policy being identified as the initial culprit. The Surgeon General's concern about the growing number of overweight Americans was discussed, and the response by the food manufacturing industry.

Sugar-Fat Replacement:

- The shift from fat to sugar by food manufacturers approximately 50 years ago is known to be the major contributor to the obesity crisis.

Additionally, socio-economic factors are cited as contributing to the obesity epidemic.

Women's Rights and Economic Empowerment:

- The connection between obesity and women's rights and economic empowerment is often blamed due to a focus on the changing lifestyles of working mothers and the need for convenience foods.

As a result, there was significant growth in processed and ultra-processed foods and obesity.

- The consumption of largely processed foods is linked to a myriad of health issues, particularly cancer.
- The rapid expansion of fast-food outlets in both inner city and ultimately in rural areas, known for their affordability and high sugar and salt content moved beyond convenience to become the de facto meal replacement for fresh fruits and vegetables largely due to cheap availability.
- The populations most severely affected by obesity included Black people, rural whites, Hispanics, and Indigenous communities, with historical oppression contributing to their vulnerability. The rural white population lagged behind the black and inner-city populations in consumption of high sugar, highly processed foods due to its proximity to farms – but that disappeared largely by the early 90's

Profit Motive:

- The food manufacturer industrial complex profit motive was declared as the main driver of the obesity epidemic. These foods were cheap to produce and purchase.

The Southern Strategy:

1972 was the point in US history when inequalities were at their narrowest: economics, health, housing, employment, education.

The Southern strategy began the systematic dismantling of the Black community – redlining, gerrymandering, three strikes rule – and the subsequent incarceration of Black men, welfare reform – forcing low-income women to leave their children and attacks on affirmative action all contributed to reducing access for Black and brown people, increasing poverty, and leading to increased stress particularly among black women. This persists today.

Perception and Stigmatization:

Obesity is portrayed as a character flaw and weakness in media and by the medical community – Obesity research has not included those who have been historically marginalized.

The fat and fit image challenges common misconceptions about overweight.

Cultural norms have arisen which suggest that, for Black women, being thicker is attractive to Black men and thus desirable. Many people who are overweight or obese don't realize it nor do those around them. (My cardiologist)

Research shows Black women are much less likely to receive obesity treatment as compared with white women.

Commercials routinely show obese Black women and thin white women – perpetuating the stereotype.

The Science:

We're all familiar with the statistic: 80% of Black women are overweight or obese. The fact is most Americans are overweight and obese.

The normalization of obesity, its under-recognition, and disparities in medical treatment, especially among various racial and economic backgrounds persists.

Arline Geronimus – coined the term, weathering. She found Black women literally age faster than white women.

Studies have shown that Black women have on average, 15% more cortisol in their blood at any point in time as compare with white women.

Tene Lewis – found a causal relationship between experiences of racial/gender discrimination and changes at the DNA level – the telomeres are frayed and shorter triggering adverse inflammatory and metabolic responses.

Fleda Mask Jackson – found a causal relationship between experiences of racial/gender discrimination and low birthweight babies and maternal deaths.

The Black Women's Health Study found that if Black and white women are given the same high fat diet, Black women gain more weight and gain it faster, and if they are given the same low-fat diet, Black women lose less weight and lose it more slowly.

Future Outlook:

The US demographic is changing – in 20 years the average adult will be something other than white. This has serious implications for therapeutic and device development, what we call evidence-based medicine and for the way healthcare is delivered if the leadership of industry does not change or learn to value those who do not look like them.

We will not pipeline our way to equitable care for obesity patients.

Training and Competence:

- The need for incorporating obesity care into medical and nursing school curricula is critical
We cannot cultural competency train our way to equitable care.

Policy

We need policy to provide incentives to ensure all people get the care they need. The current system does not allow for providers to understand the lived experiences of their patients – 8 minutes isn't enough time. If we accept that obesity is not a human failing but a disease response to the stressors of living in this society in this time, then how we provide care must change. We need quality measures to ensure needed care is delivered and we need to change the reimbursement system so providers and meet their patients' needs.

This has serious implications for those on Medicare Coverage and Medicaid

- The limitations of Medicare and Medicaid coverage for weight loss medications even if covered may still put them out of reach for most recipients.

Therapeutics:

- there will be disparities in access to effective obesity treatments, particularly GLP-1s. Effective therapeutics are always disparities producing. This has terrifying implications for low-income people.

BWHI and Change Your Lifestyle. Change Your Life.

This is CDC's top performing national diabetes prevention program – leads in weight loss and physical activity. Because we employ high-touch models where coaches are from the communities they serve, many are previous program participants, and they understand the issues contributing to obesity. They get involved with participants and develop innovative solutions to their concerns. There are three issues: our model costs about \$1300 per participant to deliver – reimbursement from Medicare and commercial insurers is about \$530 per participant. Because of the design of the intervention, it is difficult to take the program to scale. It requires meeting 1x week for 16 weeks then 2x month for 6 months. And funders do not want to provide funding for outreach. It costs on average \$15 to reach and enroll a participant and the yield is about 10% over a year. So, to get 1,000 participants, we need to reach 10,000 people at a cost of \$150,000. Even at these costs, with our 85% success rate, the benefit of preventing diabetes and obesity-related conditions far outweighs the cost to deliver the program and yet, here we are.