

# GLP-1 Receptor Agonists: A Comprehensive Guide for Primary Care

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# Meet Lisa

- *Family History of obesity*
- *Hard-working mother of two*
- *Years of failed diets and workout plans*



**DNA is My  
Destiny**



# Beyond DNA: Epigenetics

## Maternal Nutrition's Role

*can alter offspring DNA methylation, impacting future health.*

## Programming Metabolism

*influencing adiposity and insulin sensitivity.*

## Long-Term Health Effects

*These epigenetic changes risk for obesity and metabolic dysfunction later in life.*

# Prenatal Stress: A Hidden Driver of Obesity

**1.20x - 1.68x**

Increased Obesity Risk

**1.24x**

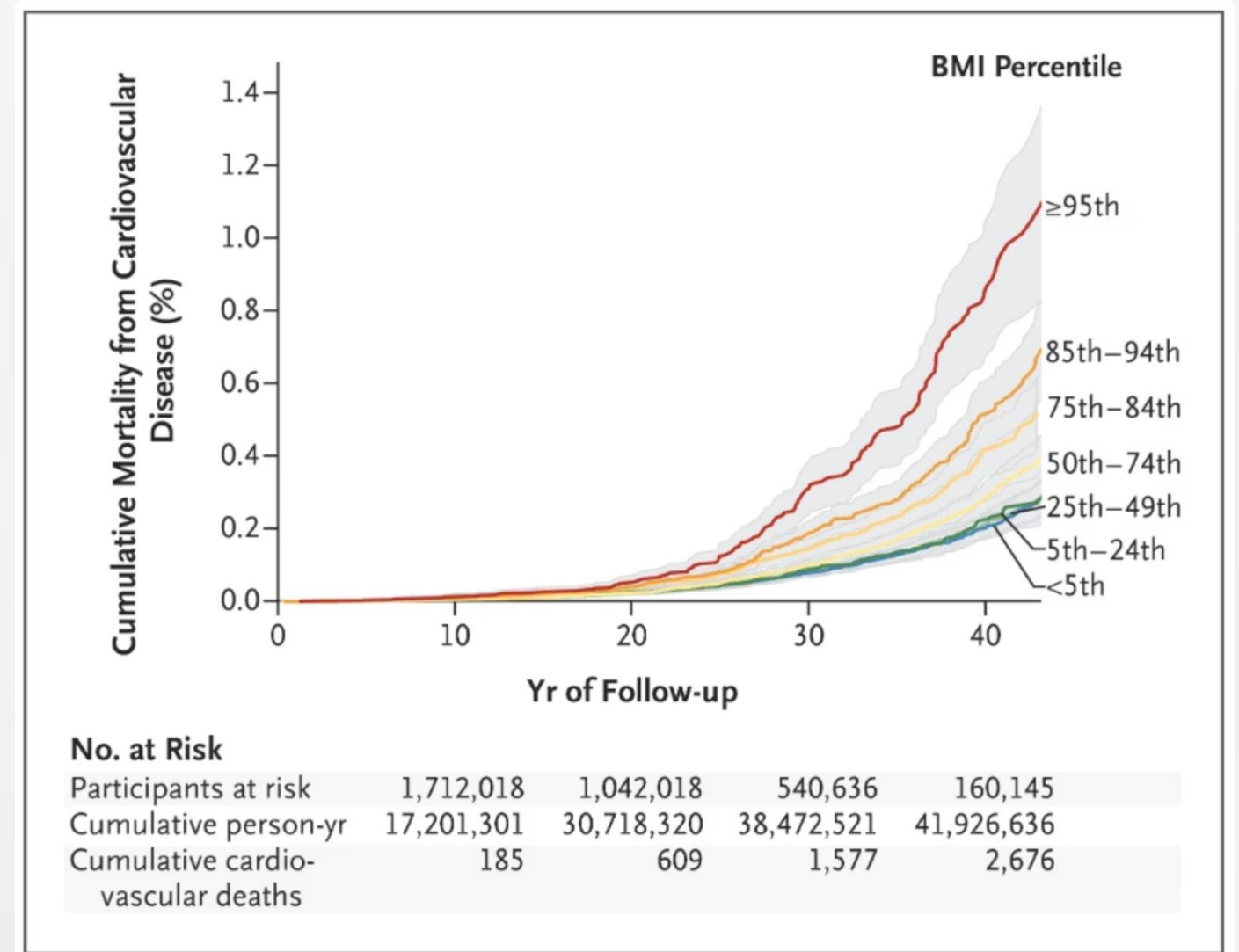
Broad Health Implications

*Source: Obes Rev. 2015 May;16(5):351-361*

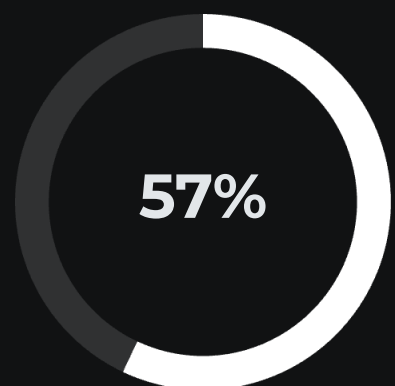


# Childhood Obesity Risks

*Overweight and obesity in adolescence was strongly associated with **increased cardiovascular mortality** in adulthood*

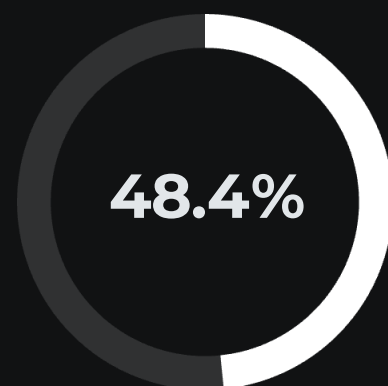


# Disparities in Obesity Prevalence



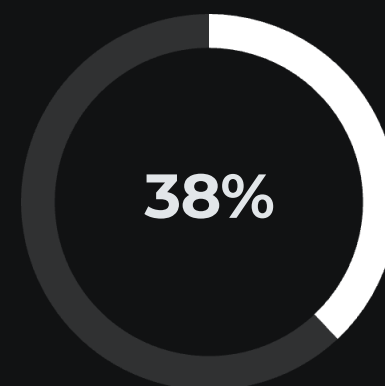
**Black Women**

*Highest prevalence*



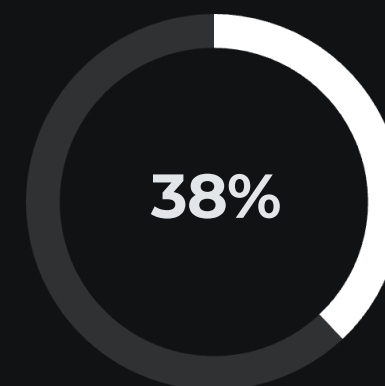
**Hispanic Women**

*Significant rates*



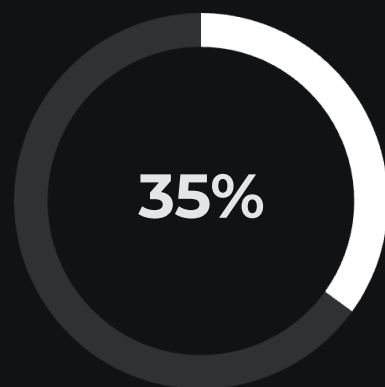
**Black Men**

*High prevalence*



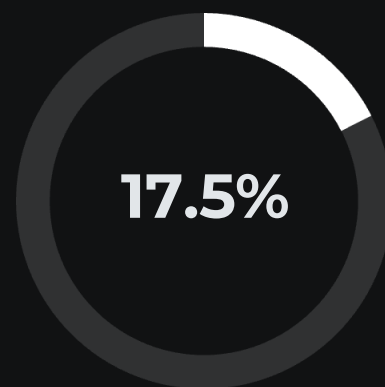
**White Men**

*Comparable to Black men*



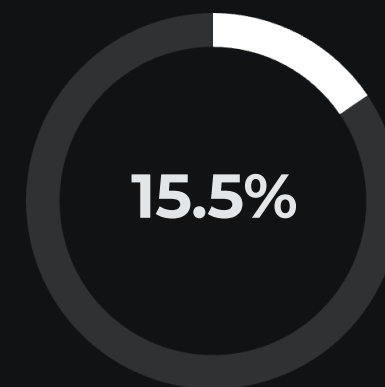
**White Women**

*Above average*



**Asian Men**

*Lowest rates*



**Asian Women**

*Lowest rates*

# Rethinking BMI for Diverse Populations

*Research indicates that metabolic risk equivalent to a BMI of 30 kg/m<sup>2</sup> in White individuals often occurs at significantly lower BMI values in other populations.*

| <i>Ethnic Group</i>      | <i>Equivalent BMI for Metabolic Risk(Compared to White BMI 30kg/m<sup>2</sup>)</i> |
|--------------------------|------------------------------------------------------------------------------------|
| <i>South Asian</i>       | <i>24 kg/m<sup>2</sup></i>                                                         |
| <i>Chinese</i>           | <i>25 kg/m<sup>2</sup></i>                                                         |
| <i>Black Individuals</i> | <i>26 kg/m<sup>2</sup></i>                                                         |
| <i>White Individuals</i> | <i>30 kg/m<sup>2</sup></i>                                                         |

*Source: Annals of Internal Medicine. 2022;175(6):765-773.*





Protect  
your tomorrow.



**HeartWise**  
HEALTH

# Why Obesity Matters to Cardiologists

IT'S  
ALIVE!

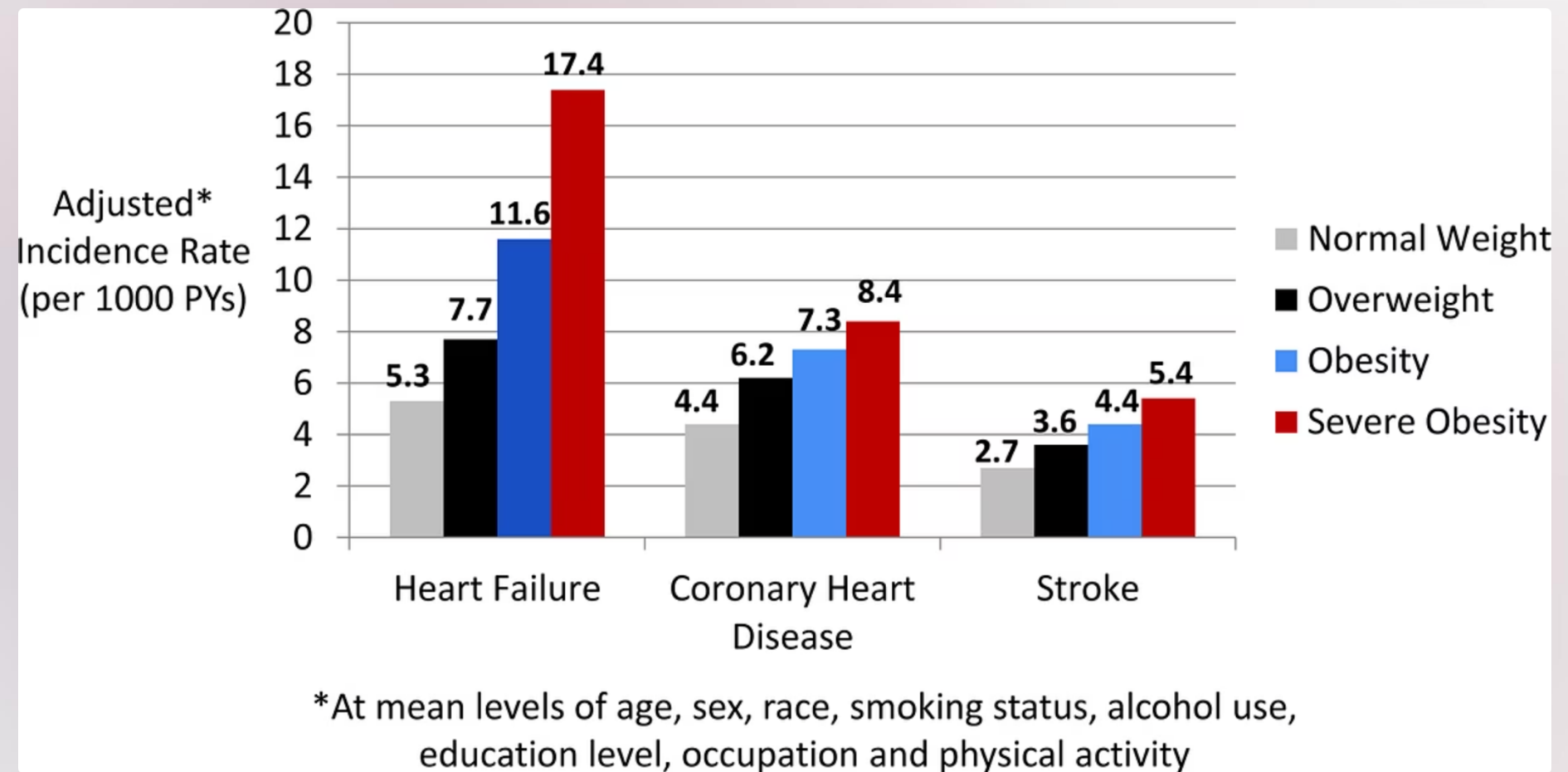




# The Medical Reality

*Obesity is a significant contributor to **hypertension**, accounting for approximately **40% of cases in women** (Nurses' Health Study) and **up to 78% in men and 65% in women** (Framingham Offspring Study).*

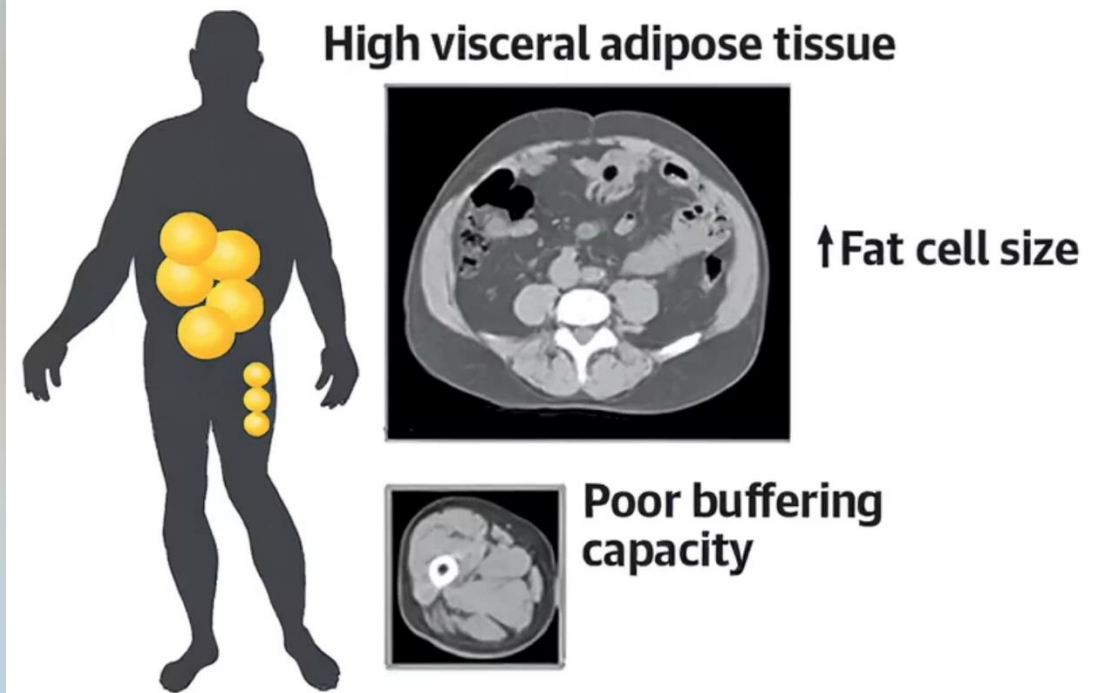
# Medical Reality



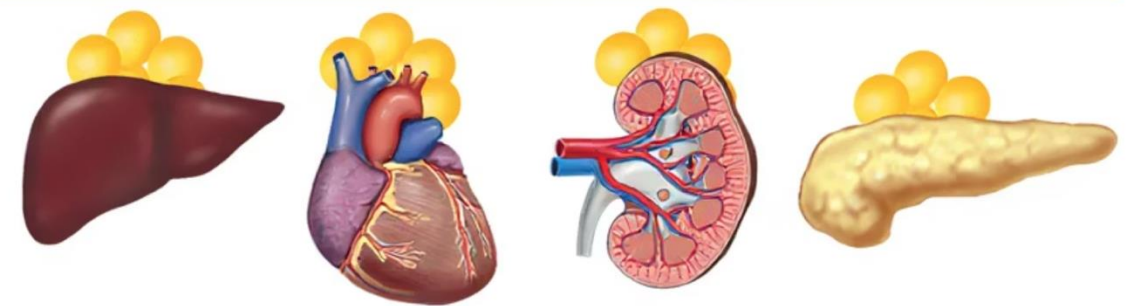
# The Medical Reality

*Fat storage location critically impacts health. **Dysfunctional subcutaneous fat leads to "lipid spillover," forcing excess fat into vital organs (heart, liver, pancreas).** This "ectopic fat deposition" causes serious metabolic and CVD complications, often independently of overall weight.*

## Dysfunctional Subcutaneous Adipose Tissue



## FFA Spillover Unhealthy Adipokine Secretion



Increased CVD and Type 2 Diabetes Risk

# Vascular Inflammation & Adipose Dysfunction

## Systemic Inflammation

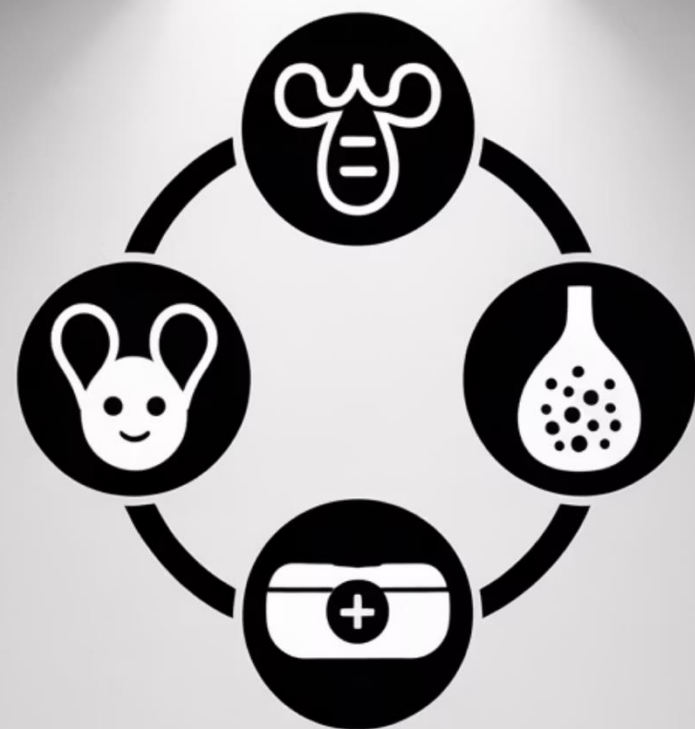
Chronic low-grade inflammation  
Elevated CRP predicts CV events

## Visceral Fat

Secretes pro-inflammatory  
cytokines  
  
TNF- $\alpha$ , IL-6 production

## Macrophage Infiltration

Creates pro-inflammatory  
environment  
  
Promotes atherosclerosis



**METABOLIC  
SYNDROME**

# Metabolic Syndrome

## 6X Amplification

### Hypertensi on Risk

Increased risk  
with obesity

### T2DM Risk

Progressive increase  
with BMI

### CAD Risk

Direct vascular  
effects

# Insulin Resistance & Lipotoxicity



## **Excess Adipose**

Increased circulating free fatty acids



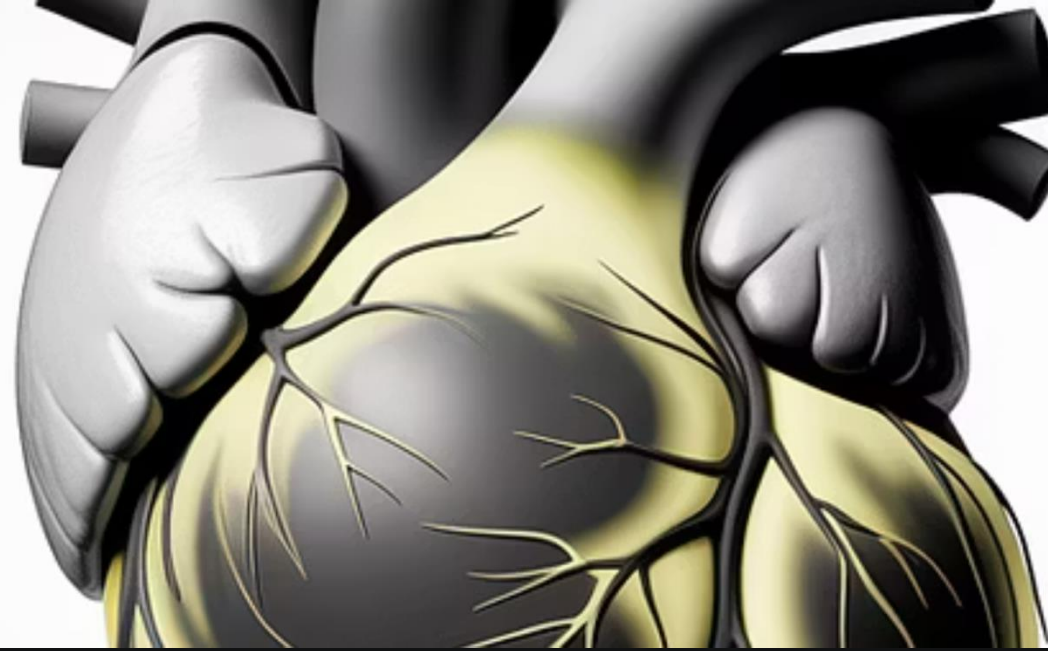
## **Ectopic Fat**

Deposition in liver, pancreas, muscle



## **Lipotoxicity**

Oxidative stress, metabolic dysregulation



# Epicardial Fat & Cardiac Remodeling

## Epicardial Fat

Promotes coronary atherosclerosis

Contributes to atrial fibrillation

## Cardiac Remodeling

Local adipokine expression

Inflammatory cytokine production

Concentric and eccentric LV hypertrophy

# Accelerated Cardiovascular Aging

## Vascular Aging

Accelerated atherosclerotic remodeling

Intima-media thickening

Earlier endothelial dysfunction

## Inflammatory Acceleration

NLRP3 and TLR4 pathway activation

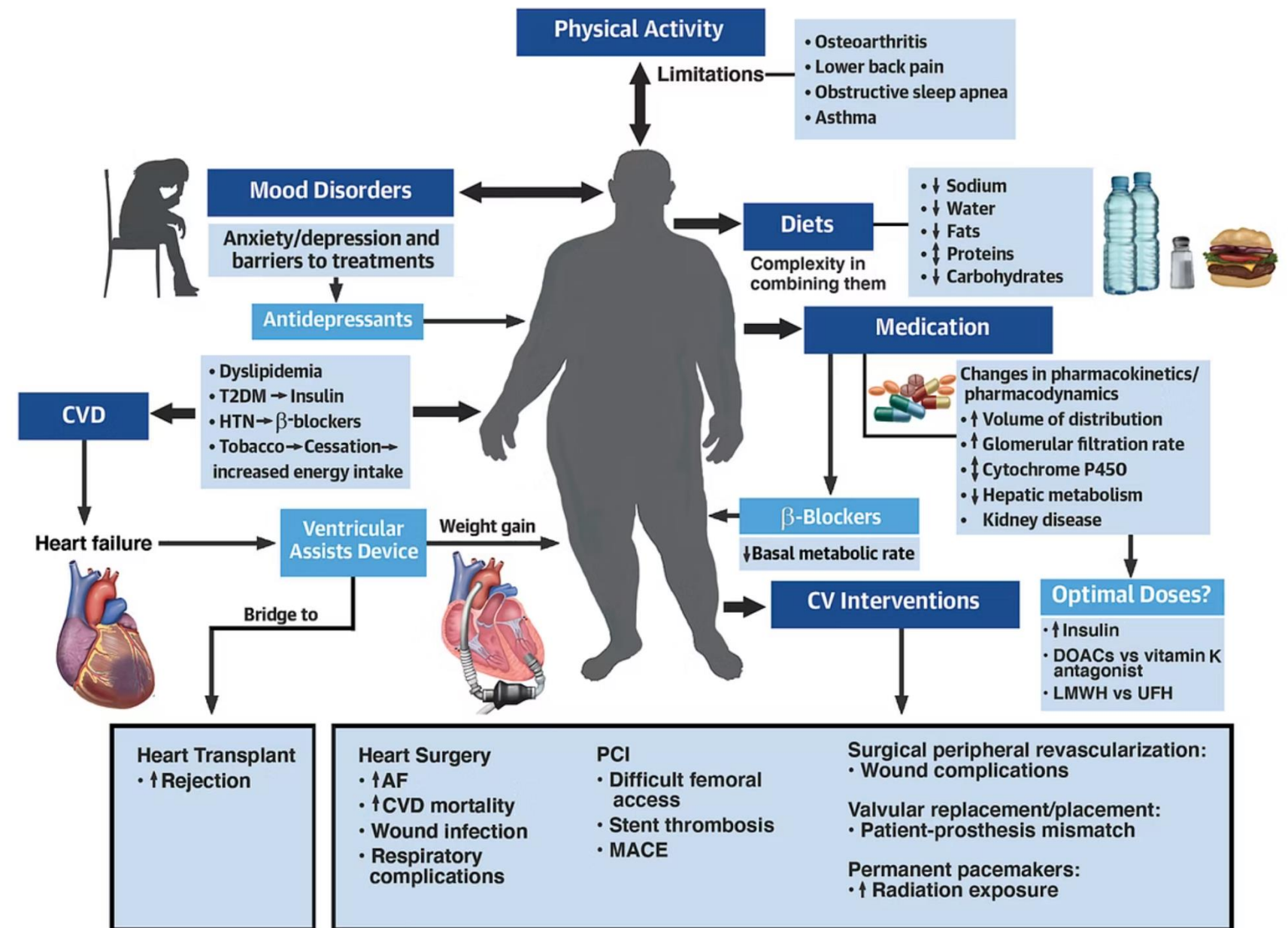
Early onset of age-related CV diseases

Reversible with weight loss

# Impact of Obesity on Treatment of CVD

*Diagnostic accuracy in CVD medicine can be hampered by the presence of obesity.... pharmacological treatments or cardiac procedures require careful adjustment to optimize efficacy.*

## CENTRAL ILLUSTRATION: Clinical Challenges in People With Obesity and CVD



Bianchettin RG, et al. J Am Coll Cardiol. 2023;81(5):490-504.

# Preoperative Evaluation Considerations



# Gastroparesis Risk & Anesthesia

1

## Mechanism

Delayed gastric emptying persists after fasting

Increased aspiration risk during anesthesia

2

## Evidence

56% of GLP-1 users have increased gastric contents

Risk persists even after 7 days off medication

# Day-of-Procedure Management

## **Asymptomatic + Appropriate Hold**

Proceed as planned

## **Symptomatic Patients**

Delay procedure, discuss  
aspiration risk

## **Inappropriate Medication Timing**

Use full stomach precautions

# The Wake-Up Call

- *Alarming chest pain led to emergency room visit*
- *Diagnosed with high blood pressure and heart disease*
- *Doctor's warning: "Your weight is putting your life at risk"*





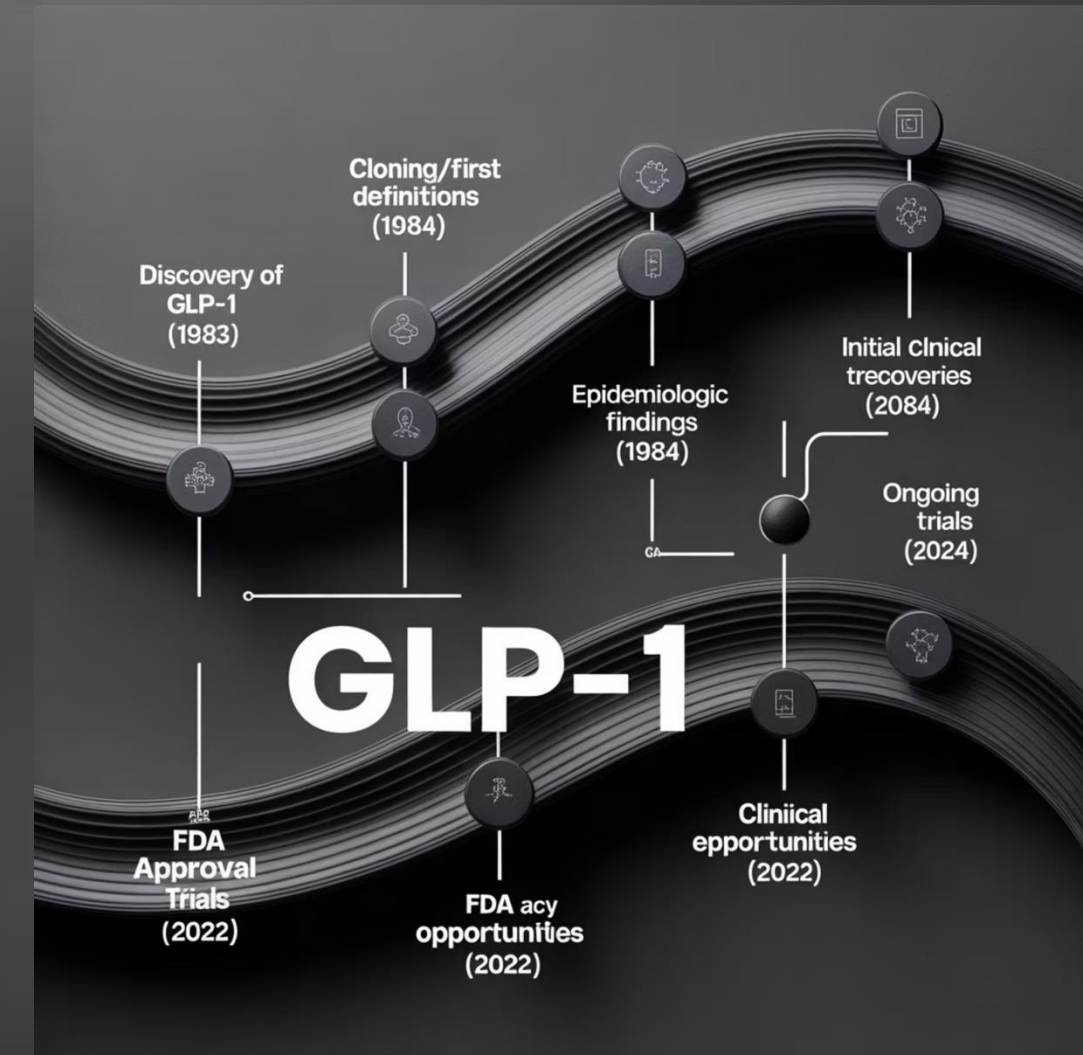
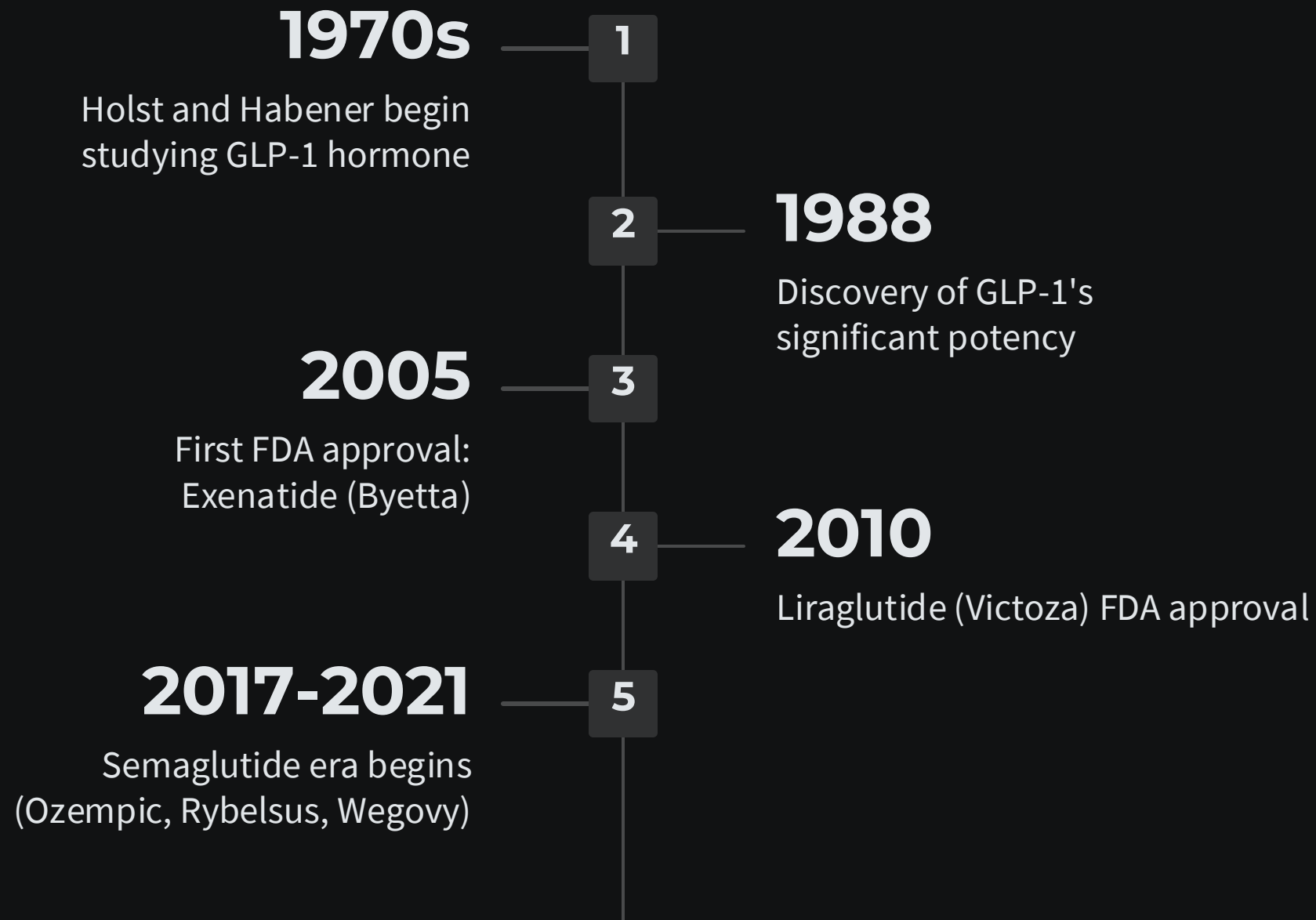
# Turning to GLP-1

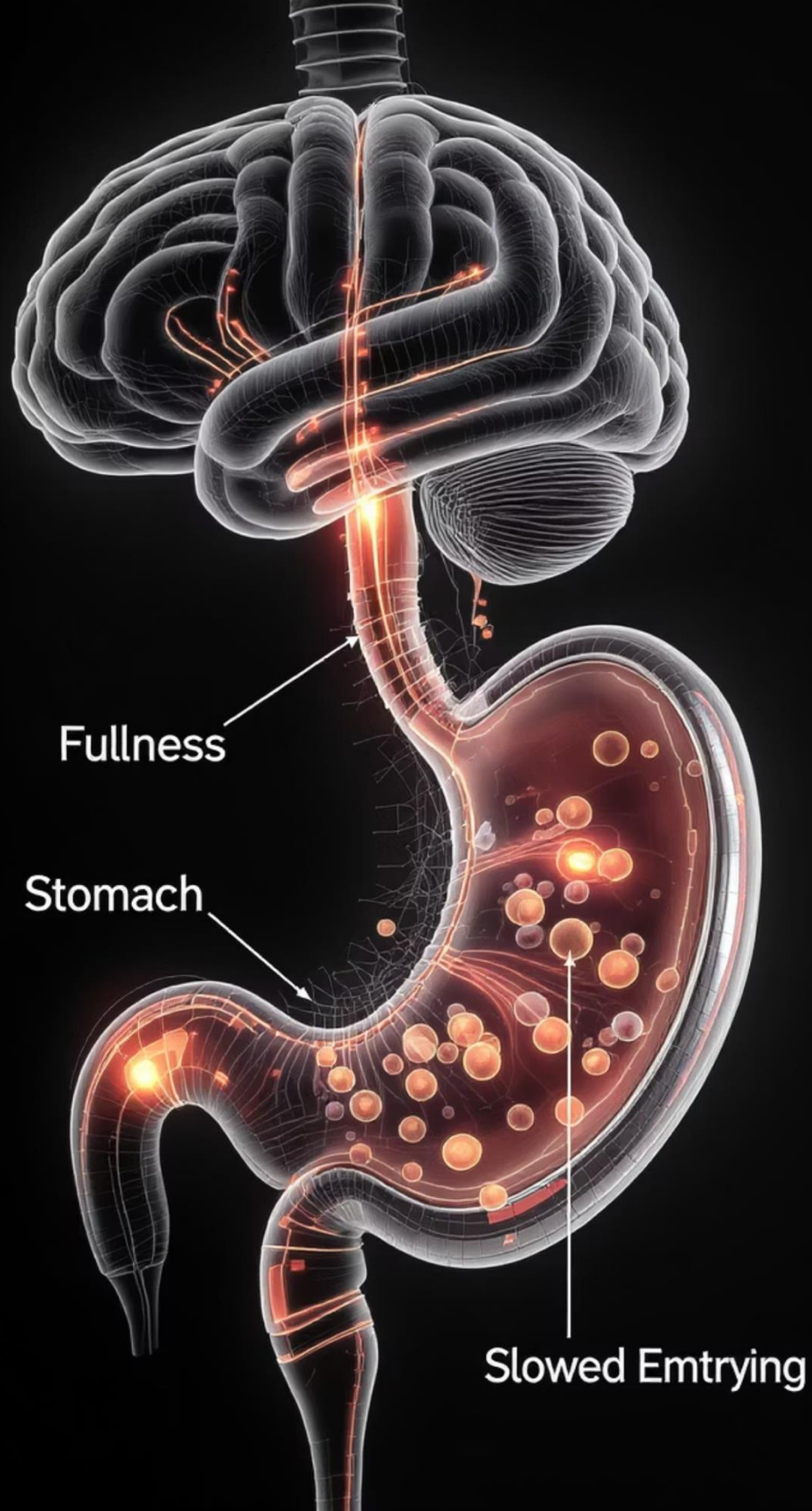
*Desperate for change, Lisa tried medication*

*Initial results seemed miraculous*

- *Appetite suppressed*
- *Energy increased*
- *Weight began dropping*
- *Blood pressure started lowering*

# History of GLP-1 Receptor Agonists





# How GLP-1 Agonists Work

- *Mimic natural hormones that regulate hunger and fullness*
- *Slow stomach emptying and reduce appetite*

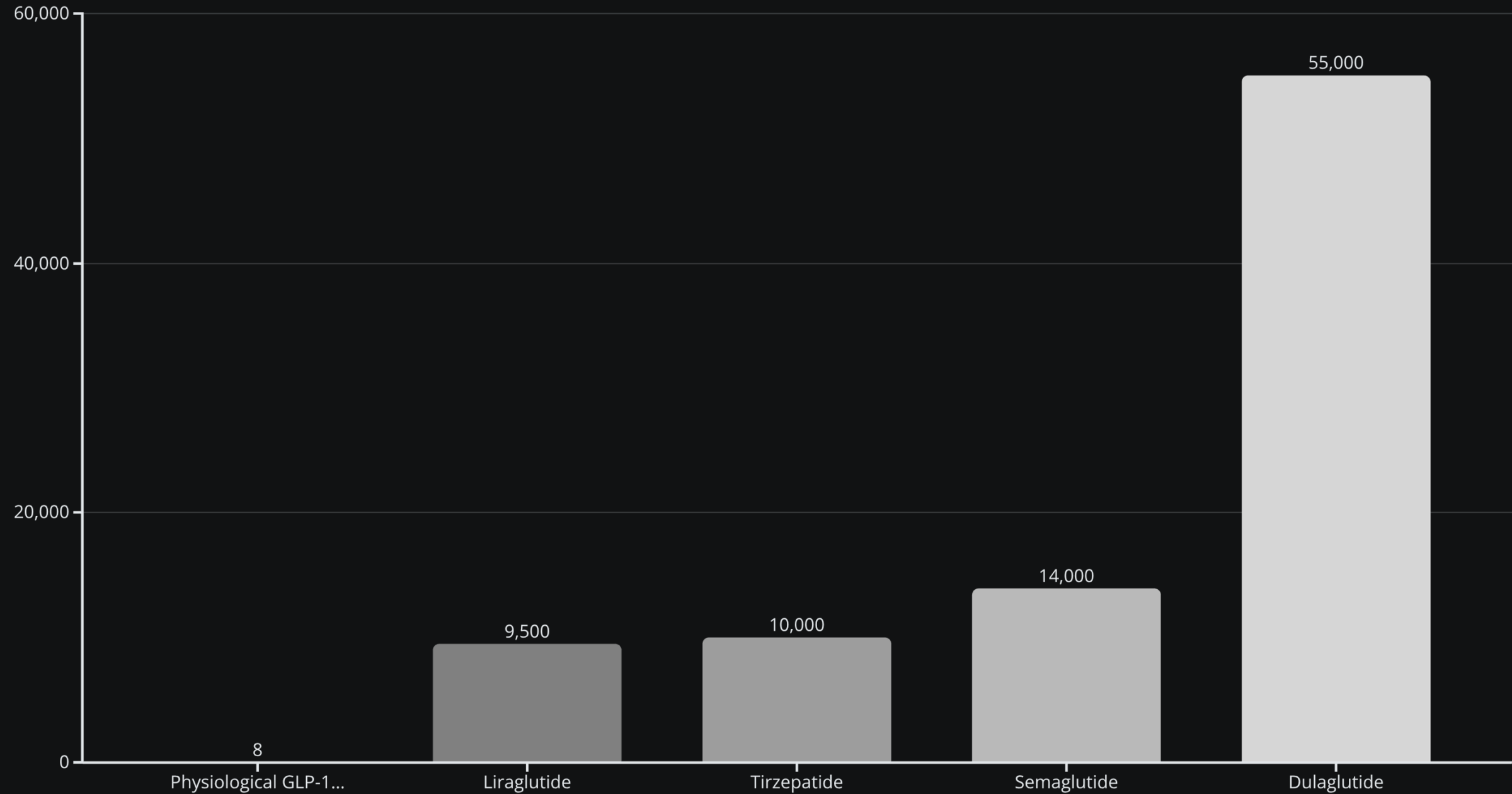
# The GLP-1 Dose Difference

*Naturally occurring GLP-1 is a **hormone released by your gut in response to food**. It acts as a subtle signal to your brain, pancreas, and stomach, helping to regulate hunger, blood sugar, and digestion at **physiological levels**.*

*Pharmaceutical GLP-1 agonists, however, are designed to create **supraphysiological levels** of this hormone.*

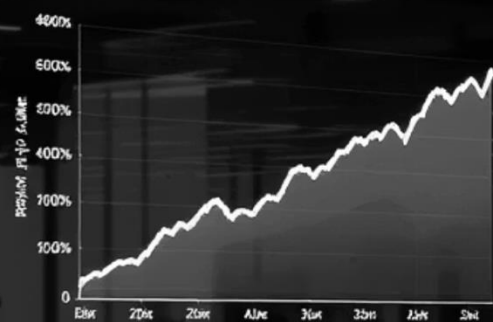


# The GLP-1 Dose Difference



## CLINICAL TRIAL DATAS

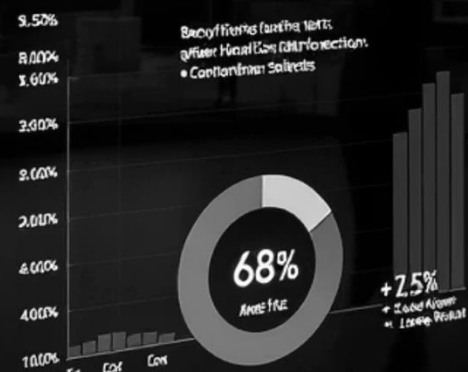
Significant Average  
Average Body Weight Reduction  
Forma Reduction



Body Weight Matters



Improved Health Health Matters



Improved Health Matters

60%

Anticancer

455%

+ 257%

430%

+ 65%



# The STEP Trials: Clinical Breakthrough

The STEP trials were global clinical studies validating GLP-1 agonists.

They consistently demonstrated significant and **sustained weight loss**, with participants achieving an average reduction of **15-20% of their initial body weight**, alongside **improvements in cardiovascular risk factors, blood pressure, and blood sugar control**.

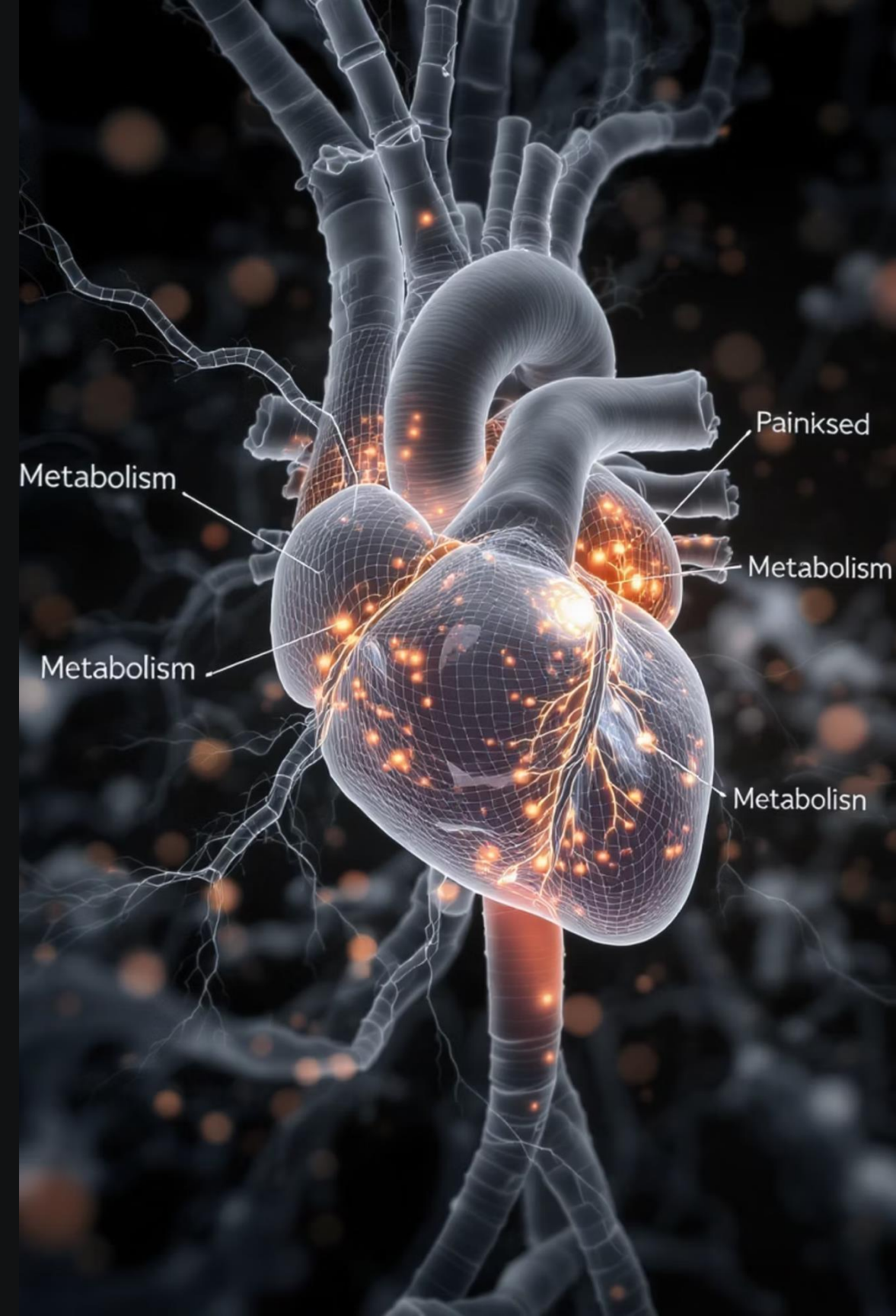
# Landmark GLP-1 Trials

## LEADER Trial (Liraglutide)

*This study showed a significant reduction in major adverse cardiovascular events (MACE) in patients with type 2 diabetes at high cardiovascular risk.*

## SUSTAIN-6 Trial (Semaglutide)

*Demonstrated a significant reduction in the risk of cardiovascular death, non-fatal myocardial infarction, and non-fatal stroke.*

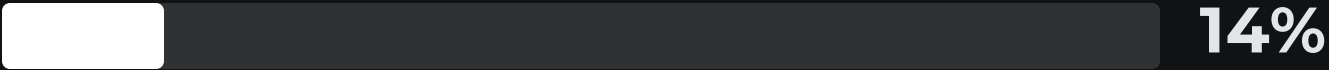




# The STEP HFpEF Trial

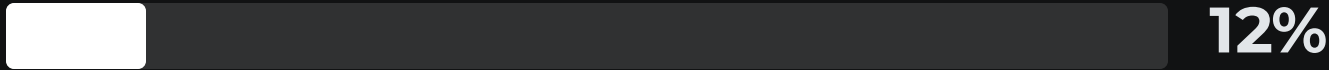
*This landmark study showed **semaglutide** significantly improved heart failure symptoms, physical function, and exercise capacity, even beyond its weight loss benefits.*

# Meta-Analysis Results



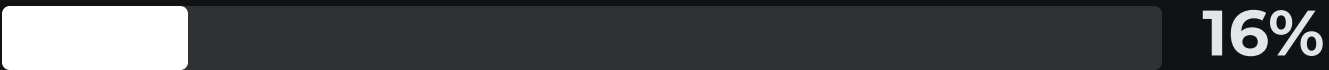
## MACE Reduction

Three-point MACE (HR 0.86)



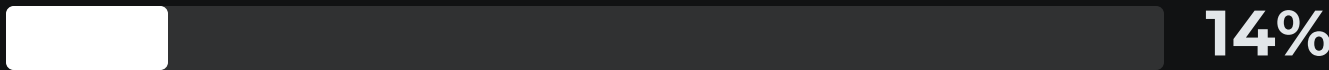
## All-Cause Mortality

HR 0.88, 95% CI 0.82-0.96



## CV Death

HR 0.84, 95% CI 0.73-0.97



## Nonfatal Stroke

HR 0.86, 95% CI 0.77-0.97

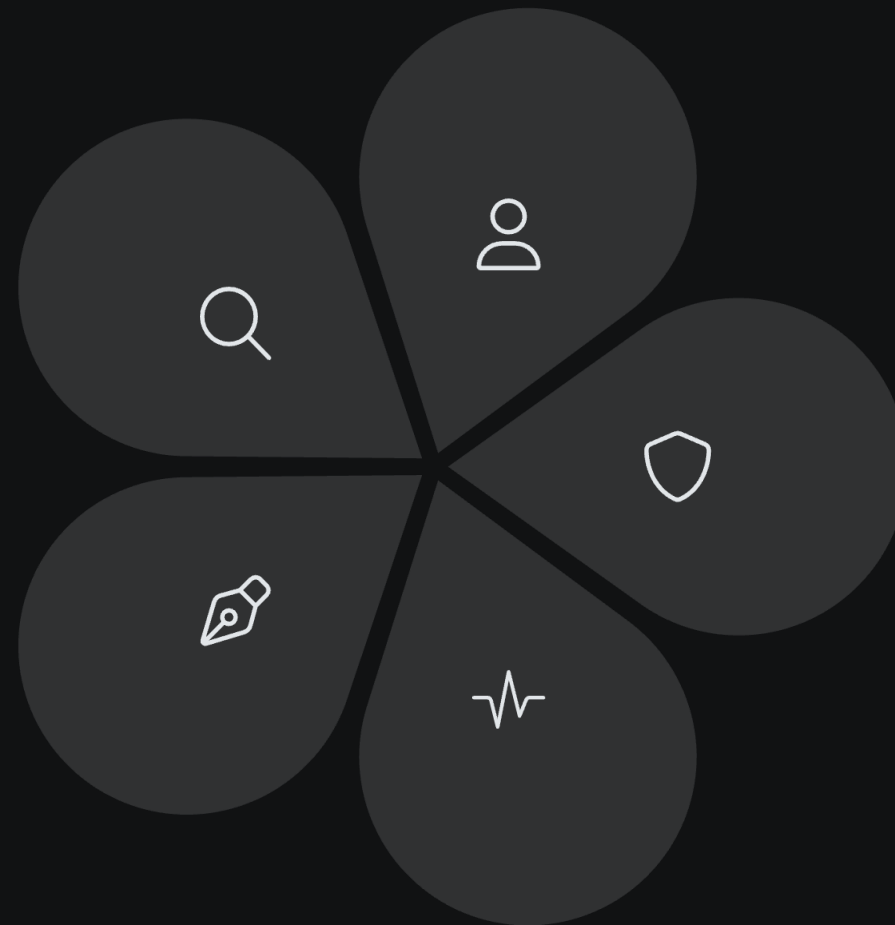
# Mechanisms of Cardiovascular Protection

## Anti-inflammatory

Reduced CRP and inflammatory markers

## Lipid Profile

Beneficial effects on lipoproteins



## Endothelial Function

Enhanced nitric oxide bioavailability

## Plaque Stabilization

Reduced inflammation and oxidative stress

## Blood Pressure

Modest but consistent BP lowering

# The True Cost: Value vs. Price

*JAMA Health Forum study concluded that GLP-1 medications like tirzepatide and semaglutide are **not cost-effective** at their current U.S. prices.*

*To meet typical cost-effectiveness benchmarks of \$100,000 per quality-adjusted life year, these drugs would require substantial price reductions:*

## **Tirzepatide**

*Needs a 30% price reduction*

## **Semaglutide**

*Needs over an 80% price reduction*



# The True Cost: Compounded GLP-1 Agonists

*Compounded GLP-1 agonists lack FDA review for safety, efficacy, and quality, raising significant concerns for patients.*

## No Regulatory Oversight

*Not evaluated for safety, efficacy, or quality by the FDA.*

## Product Variability

*Concerns over inconsistent ingredients, chemical forms, and bioequivalence.*

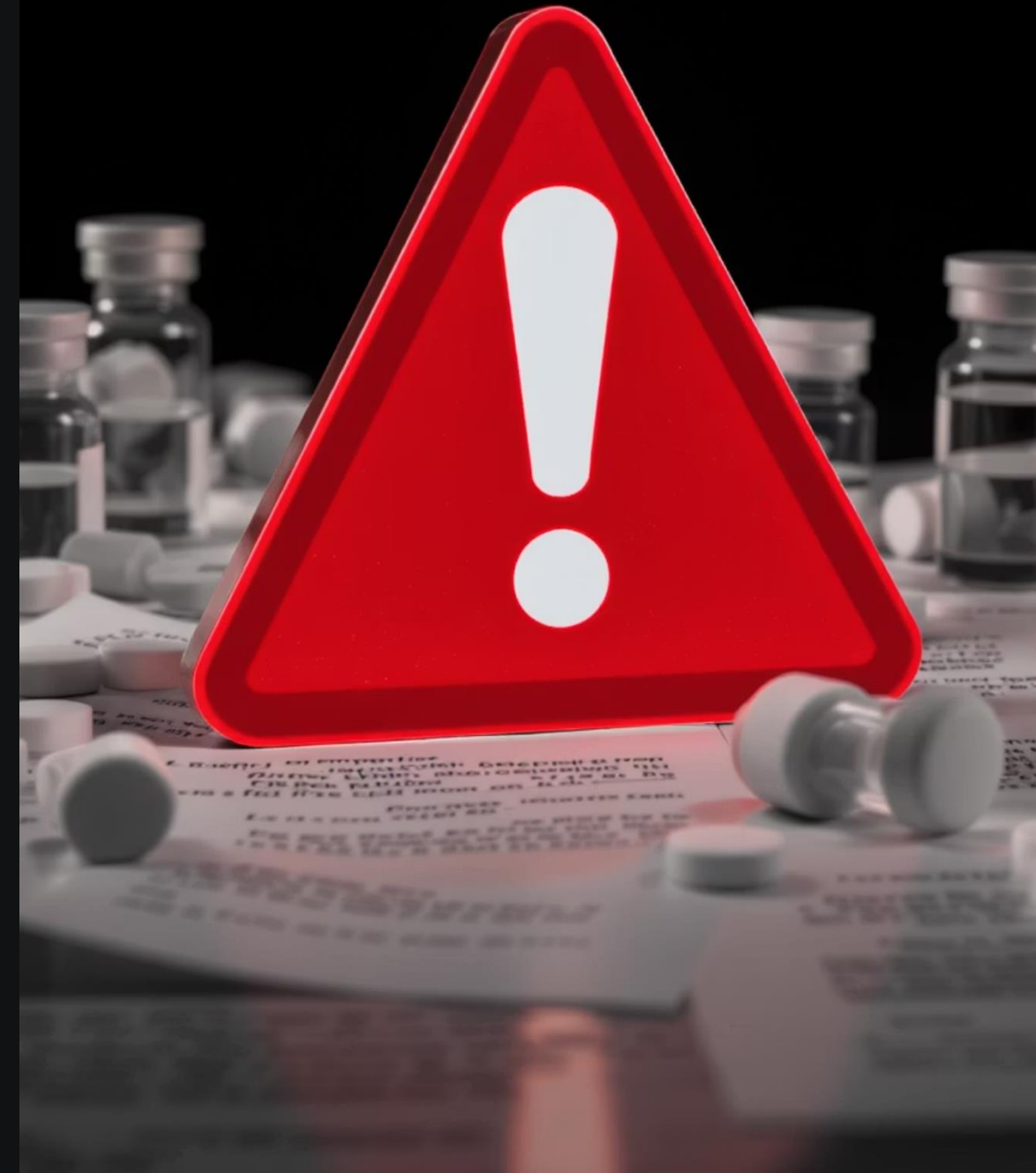
## Increased Adverse Events

*Pharmacovigilance data suggests higher rates of safety issues.*

## ADA Recommendation

*The American Diabetes Association advises against their use.*

Source: [1] American Diabetes Association; [2] Pharmacovigilance data.



# The True Cost: Side Effects

*While GLP-1 agonists offer powerful benefits, it's crucial to understand their common and potential side effects.*

## Gastrointestinal Distress

*Nausea, vomiting, diarrhea, and constipation are common, especially during dose increases.*

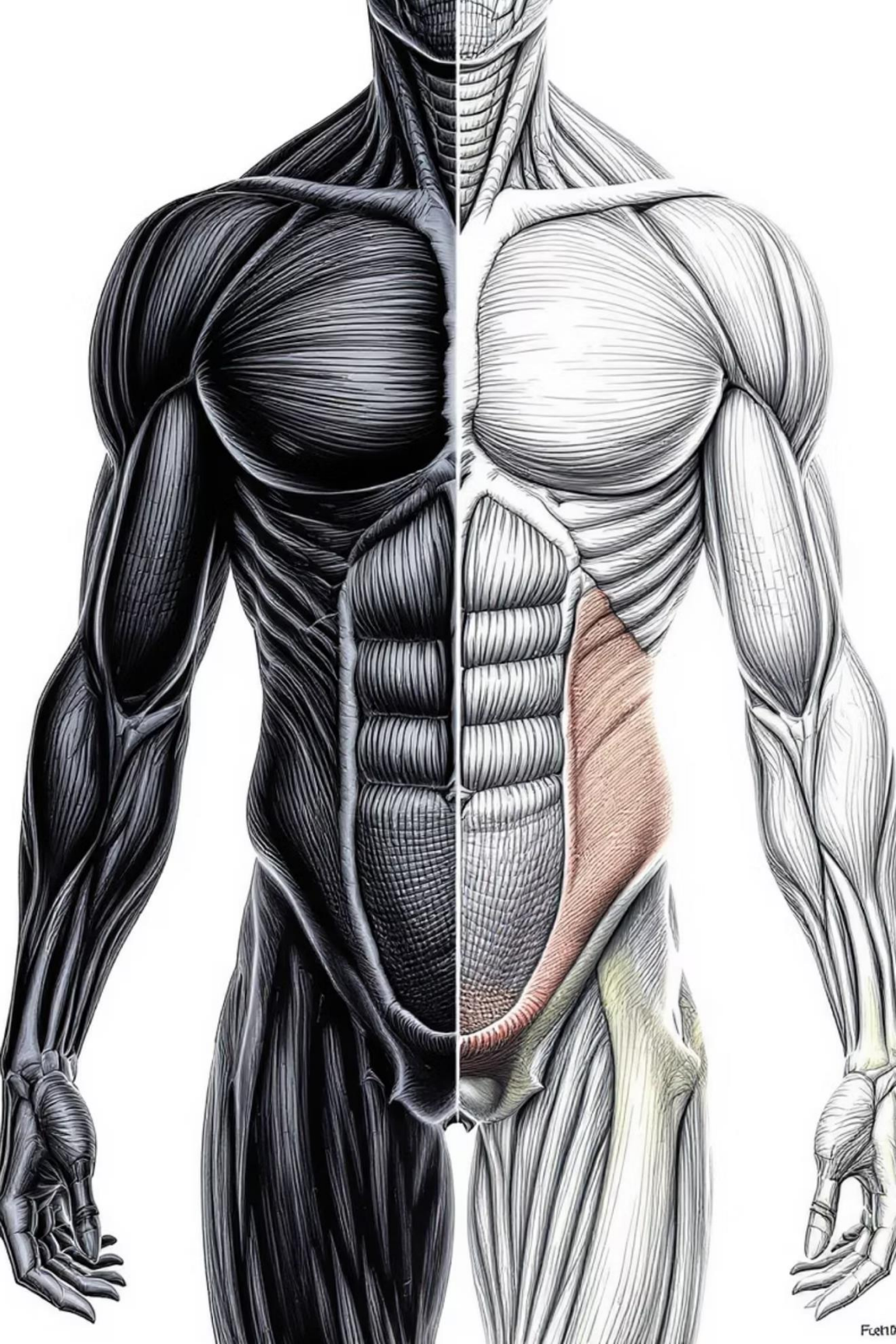
## Fatigue & Discomfort

*Patients may experience tiredness, lightheadedness, or general stomach discomfort.*

## Serious Adverse Events (Rare)

*Rare but serious concerns include pancreatitis, gallstones, and thyroid C-cell tumors (in rodents).*





# The True Cost: Muscle Loss

*While GLP-1 agonists promote significant weight loss, studies reveal a critical hidden cost: muscle loss. Up to **20-40% of this weight reduction can be lean body mass**, leading to sarcopenia.*

*This is primarily driven by rapid weight loss, often compounded by reduced protein intake and physical inactivity, diminishing overall metabolic health and long-term well-being.*

# The Cost of Health



## Insurance Denial

*Coverage suddenly stopped*



## Financial Reality

*\$900-1,500 monthly cost<sup>5</sup>*



## Weight Regain

*Even worse than before*

**Lisa's weight loss stopped the  
moment her medication did**

# The Weight Regain Reality

A 2025 meta-analysis by Berg et al. revealed a critical insight: **weight regained after stopping GLP-1 therapy was proportional to the initial weight lost.**

## Liraglutide Discontinuation

Patients regained an average of **2.2 kg**.

## Semaglutide & Tirzepatide Discontinuation

Patients regained an average of **9.7 kg**.



**Obesity = Resiliency/Stress**

# The Downward Spiral

*Without the medication, Lisa's familiar coping mechanisms resurfaced. The demands of work, family, and daily life mounted, bringing back old habits.*

**"Stressed" = "Desserts"**



# The Downward Spiral



## Stress Returns

*Work and family pressures remain unaddressed*



## Emotional Eating

*Food becomes comfort again*



## Defeat

*Feeling like a failure*



## Weight Gain

*Rapid regain plus additional pounds*



# The Science Behind Stress & Fat Storage

*Chronic stress significantly alters our body's metabolism, specifically influencing where and how we store fat.*

01

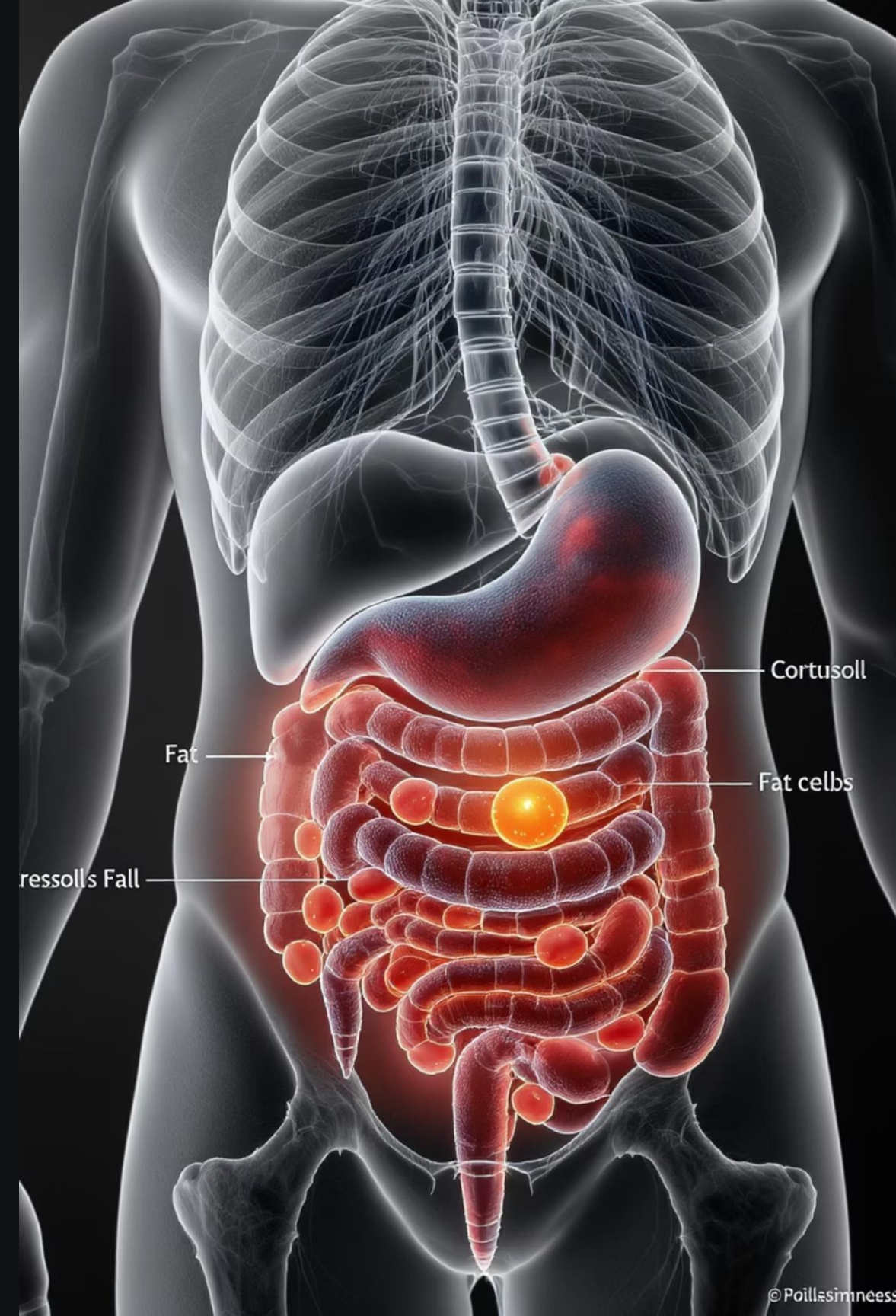
## The Cortisol Connection

*Under chronic stress, the adrenal glands **continuously release cortisol***

02

## Visceral Fat Accumulation

*Elevated cortisol levels **promote the accumulation of visceral fat***



# The Science of Emotional Eating

*Emotional eating, a common response to stress and negative emotions, significantly impacts weight and overall health. Here's why it's more than just a bad habit:*

## **Strong Correlation to BMI**

*Emotional eating is highly prevalent in adults with obesity and directly correlates with higher BMI across studies.*

## **Predictive of Weight Gain**

*It proactively predicts increases in BMI and waist circumference, with a magnified effect in individuals who get less sleep.*

## **Mediates Distress to Adiposity**

*Often, it serves as a behavioral link, explaining how psychological distress or depression can lead to increased body fat.*

## **Reinforces Weight Gain**

*This behavior frequently involves energy-dense foods and is associated with dysregulated emotion processing, reinforcing cycles of weight gain.*

# Ultraprocessed Foods & Obesity

*Consumption of ultraprocessed foods (UPFs) is strongly linked to obesity, independent of other dietary factors.*

## Consistent Association

*Higher UPF intake is consistently associated with increased risk of overweight, general obesity, and abdominal obesity.*

## Dose-Dependent Risk

*Each 10% increase in UPF consumption is linked to a 5–7% higher risk of obesity, even after adjusting for total energy intake.*

## Mechanisms Beyond Nutrition

*The obesogenic effect relates to UPFs' hyperpalatability, high energy density, and their impact on satiety and eating behavior.*

## Clinical Recommendations

*The American Heart Association recommends minimizing UPF intake to reduce obesity and cardiometabolic disorders.*



# Salt, Sugar, & Fat Synergy

## Synergistic Palatability

*Salt, sugar, and fat combine to create highly palatable foods that trigger intense reward responses, overriding homeostatic appetite regulation.*

## Enhanced Energy Density

*High sugar and fat content dramatically increase energy density, while salt amplifies flavor, making these foods irresistibly appealing.*

## Poor Satiety

*This powerful combination, often with low fiber and protein, reduces the feeling of fullness and promotes greater overall caloric consumption.*

# Vanishing Caloric Density



## Rapid Dissolution

*Foods melt quickly, reducing the perception of volume.*



## Tricks the Brain

*Less chewing means fewer satiety signals are sent.*



## Delays Fullness

*The brain doesn't register true caloric intake effectively.*



## Promotes Overeating

*Leads to consuming more calories than needed.*





# The Crunch Factor

*Ultraprocessed foods are meticulously engineered for an optimal "**Crunch Factor**"—the satisfying snap or crackle that enhances freshness and flavor through auditory and tactile sensations.*

*This sensory feedback activates brain pleasure centers, overriding natural satiety cues and encouraging rapid overconsumption.*

# Food Swamps & Obesity



**High Density of UPFs**



**Aggressive Marketing**



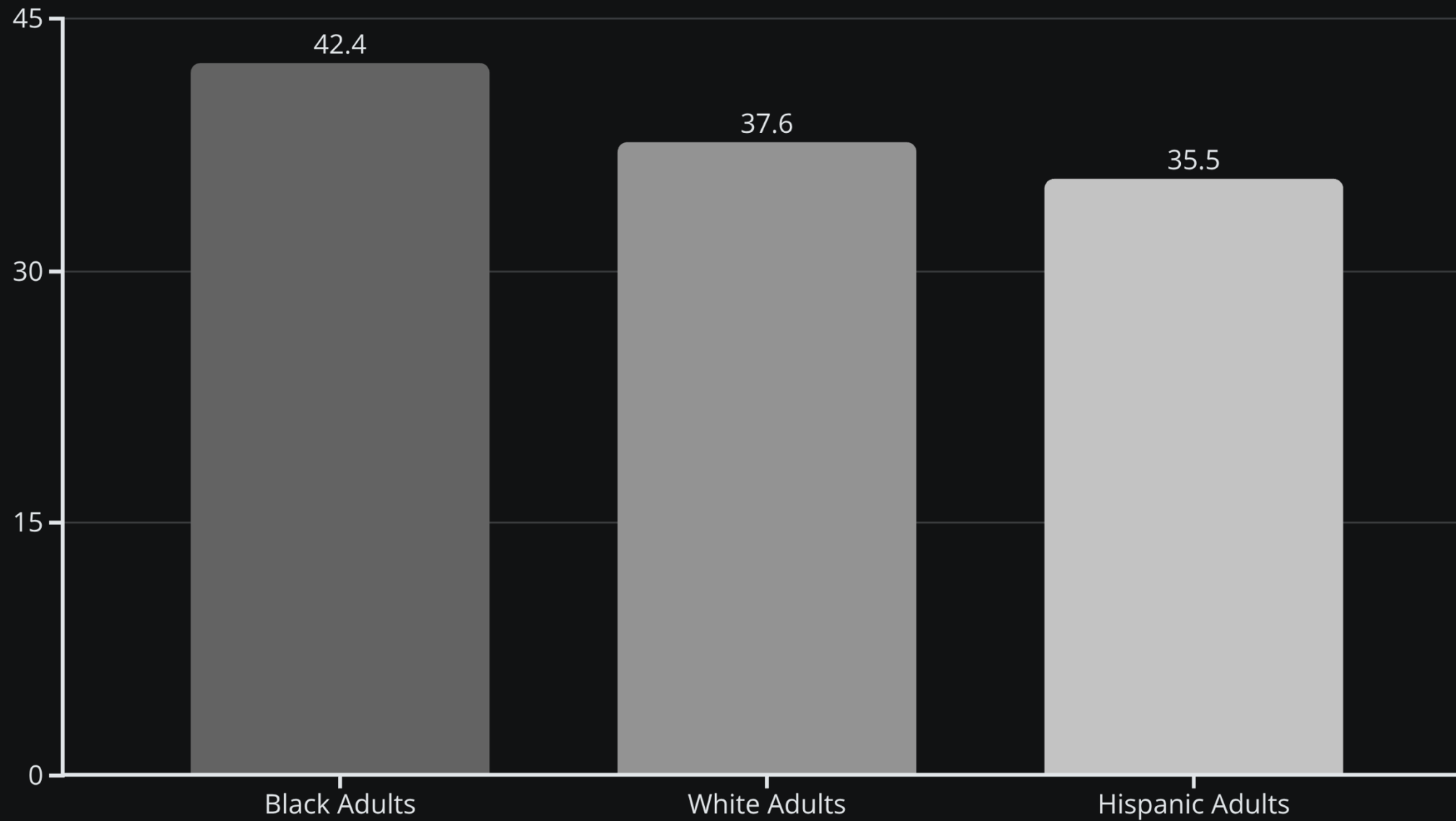
**Unhealthy Dietary Patterns**



**Exacerbated Obesity Risk**



# Fast Food Consumption



*Food deserts and predatory marketing expose communities to harmful products*



# Beyond Personal Responsibility

*"Food choices may be beyond our control when products are systematically engineered"*

— Michael Moss investigation

# Food Addiction Criteria

## **1 Tolerance**

*Needing more to achieve satisfaction*

## **2 Withdrawal**

*Irritability, cravings when stopping*

## **3 Loss of Control**

*Cannot moderate consumption*

## **4 Continued Use**

*Despite negative health consequences*

# The Tobacco Connection

1

## Tobacco Companies

*Philip Morris, R.J. Reynolds*

2

## Acquired Food Brands

*Kraft, Nabisco, General Foods*

3

## Applied Addiction Science

*Cigarette dependency tactics to food*

# Industry Exploitation Tactics

## Neuroscience Weaponized

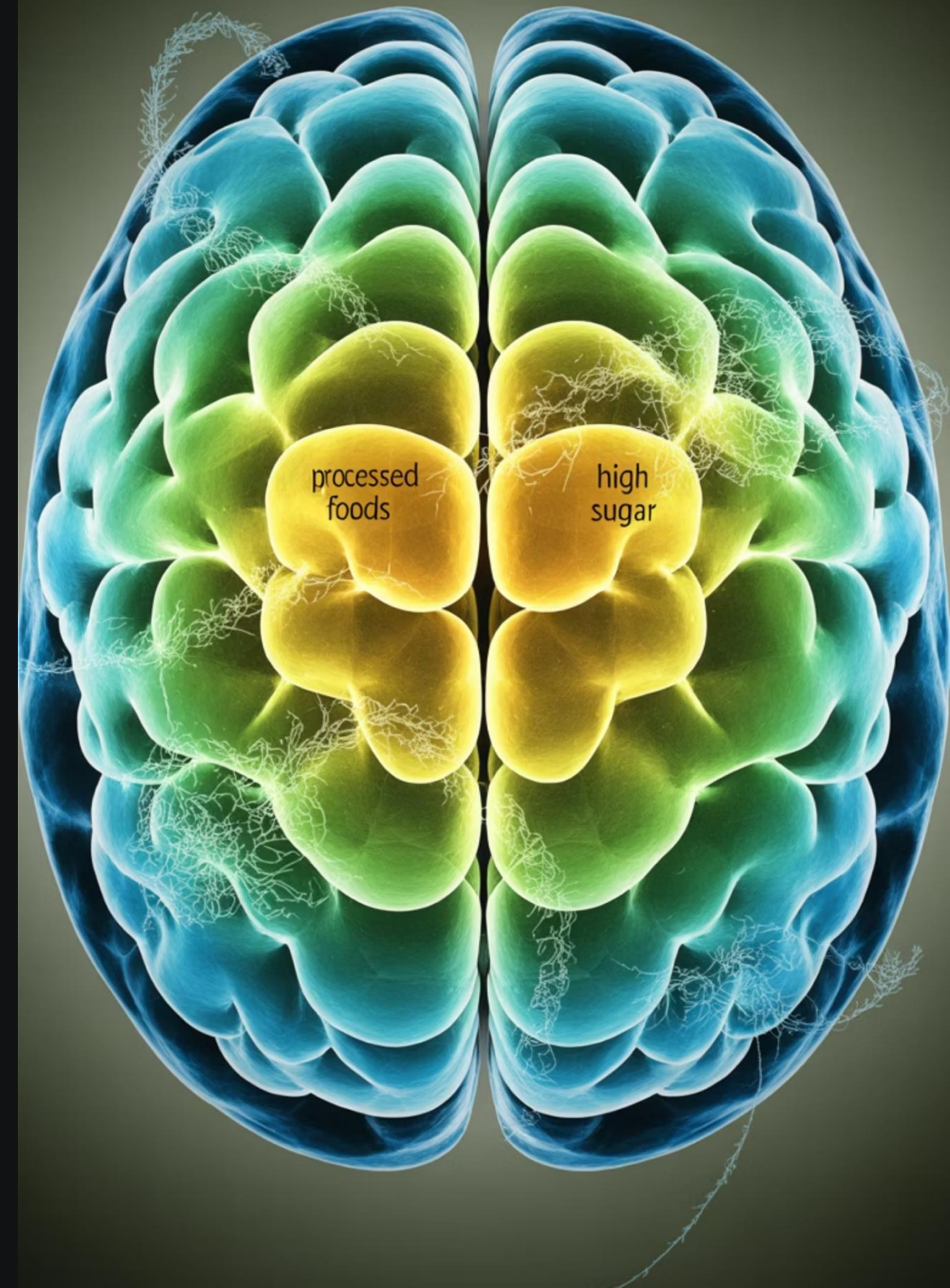
*fMRI studies identify  
brain activation  
patterns*

## Emotional Manipulation

*Nostalgic marketing  
creates lifelong  
loyalty*

## Hyper- Palatability

*Combinations that  
don't exist in nature*



# Targeted Food Advertising to Vulnerable Youth

## Disproportionate TV Ads



*In 2017, Black children (ages 2-11) viewed **at least 80% more food-related TV ads***

## Multi-Platform Targeting



*Hispanic children and other minoritized groups are also disproportionately **exposed to unhealthy food ads** across television, digital, and outdoor media*



# The Missing Piece

**Medication treated the symptoms  
But not the underlying causes**

A black and white photograph of a puzzle. The puzzle is mostly assembled, but one piece is missing, creating a large, irregular white space. The word "lifestyle" is written in a bold, sans-serif font within this white space. The puzzle pieces are dark, and the lighting creates a strong contrast between the dark pieces and the bright white space where the piece is missing. The background is dark, and the puzzle pieces are arranged in a grid-like pattern.

**lifestyle**

# The Upstream Analogy

*“There comes a point where we need to stop just pulling people out of the river. We need to go upstream and find out why they’re falling in.”*

— Desmond Tutu



# A New Discovery

Lisa attended a local health seminar

Introduced to a framework called *Selfish*



# **7 Strategies to Reduce Weight, Inflammation and Cardiac Risk**

# Selfish

*A framework for sustainable health transformation*

# The *Selfish* Framework



**Spirituality**



**Exercise**



**Love**



**Food**



**Intimacy**



**Sleep**



**Humor**

# Strategy #1: Spirituality

*Cultivating meaning, purpose, and mindfulness*



# The Science of Spiritu



## **Reduces Reward-Driven Eating**

*MBIs significantly reduce reward-driven eating.*

## **Improves Eating Behaviors**

*They enhance controlled eating and fullness awareness.*

## **Context Matters**

*Clinical settings show greater effectiveness for emotional eating.*



Source: *Obesity Reviews*, 2017; *Journal of Human Nutrition and Dietetics*, 2025

# Science of Spirituality & Obesity

*Mindfulness Based Intervention typically result in **average weight losses ranging from about 3 to 7.5 pounds** at post-treatment and follow-up, and they are particularly effective in **reducing problematic eating behaviors such as uncontrolled, external, and reward-driven eating.***

*Obesity Reviews : An Official Journal of the International Association for the Study of Obesity.  
2018;19(2):164-177.*



# The Science of Spirituality

*A study by Yücel et al. demonstrated that an 8-week mindfulness program integrated into a diet intervention led to **nearly double the weight loss: -5.2 kg** compared to **-3.1 kg** in the diet-only group.*

*This approach also led to profound improvements in eating behaviors, including reductions in emotional eating, directly linked to BMI reductions within the mindfulness group.*



*Source: Journal of Human Nutrition and Dietetics: The Official Journal of the British Dietetic Association, 2025*

# How Lisa Applied Spirituality

- 1. 10-minute morning meditation*
- 2. Weekly community service*
- 3. Nature walks for reflection*



# Strategy #2: Exercise



# The Science of Exercise As a Keystone Habit

*Exercise enhances tenacity and resilience by inducing neuroplastic changes in key brain regions, including the anterior mid cingulate cortex (aMCC), which is central to effort-based decision-making, motivation, and intentional motor control*

*Cortex; A Journal Devoted to the Study of the Nervous System and Behavior. 2020;123:12-29.*



# Exercise Belief

*A seminal study found that hotel room attendants, informed their work constituted adequate exercise, showed reductions in weight, blood pressure, body fat, and BMI after four weeks, despite no change in activity levels.*



# Exercise and Obesity

*Both exercise and caloric restriction reduced visceral adipose tissue among adults with overweight and obesity, but **only exercise had a dose-dependent effect**, according to researchers.”*

*Recchia F, et al. Br J Sports Med. 2023*



# Exercise and Appetite

Exercise **suppresses appetite** through hormone regulation, resulting in *reduced hunger and a shift towards healthier food choices*.

*International Journal of Sport Nutrition and Exercise Metabolism. 2025;:1-17.  
doi:10.1123/ijsnem.2025-0078.*



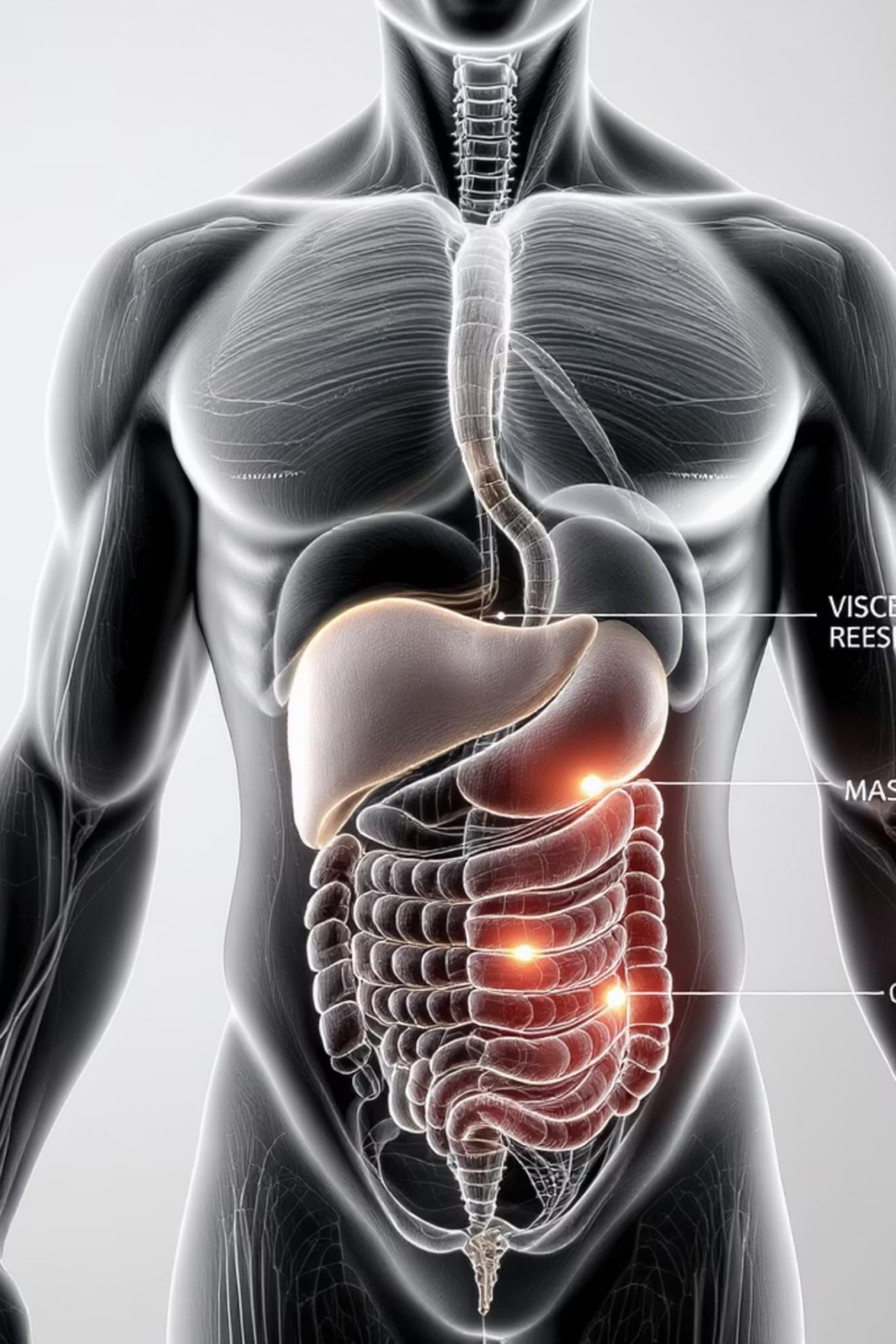
# **Muscle Mass Preservation**

## **Critical Need**

- **GLP-1s can cause loss of lean muscle mass along with fat**

## **Recommendation**

- 1. Strength training: 2-3 sessions weekly**
- 2. Focus on major muscle groups**
- 3. Resistance exercises: bodyweight, dumbbells, bands**



# Movement as Medici

*Combining structured exercise with diet or lifestyle changes profoundly impacts body composition and health:*

**Superior Fat Loss**

**Visceral Fat Reduction**

**Muscle Preservation**



*Source: General health and exercise physiology research*

# Lisa's Movement Journey

- 1. Started with 10-minute evening walks*
- 2. Gradually increased to 30 minutes daily*
- 3. Added gentle strength training twice weekly*





# Strategy #3: Love

*Self-compassion as medicine*

# The Science of Love

*Research highlights self-compassion, especially self-forgiveness, for successful weight management and well-being.*



## Weight & Eating

*Reduces BMI, emotional eating,  
and weight self-stigma.*



## Mental Well-being

*Decreases self-criticism, shame,  
and improves quality of life.*



## Activity Levels

*Increases physical activity  
engagement.*

*These improvements are mediated by reduced shame and self-criticism, making self-compassion a powerful path to lasting health changes.*



*Source: Journal of Health Psychology, 2019*

# Lisa's Self-Compassion Practice

- 1. Forgiveness for past struggles*
- 2. Speaking to herself as she would a friend*
- 3. Celebrating non-scale victories*



# Strategy #4: Food

*Persistence over perfection*





# Fiber-Rich, Plant-Predominant Diet

## Mechanism

*High-fiber foods increase endogenous GLP-1 production*

## Recommendation

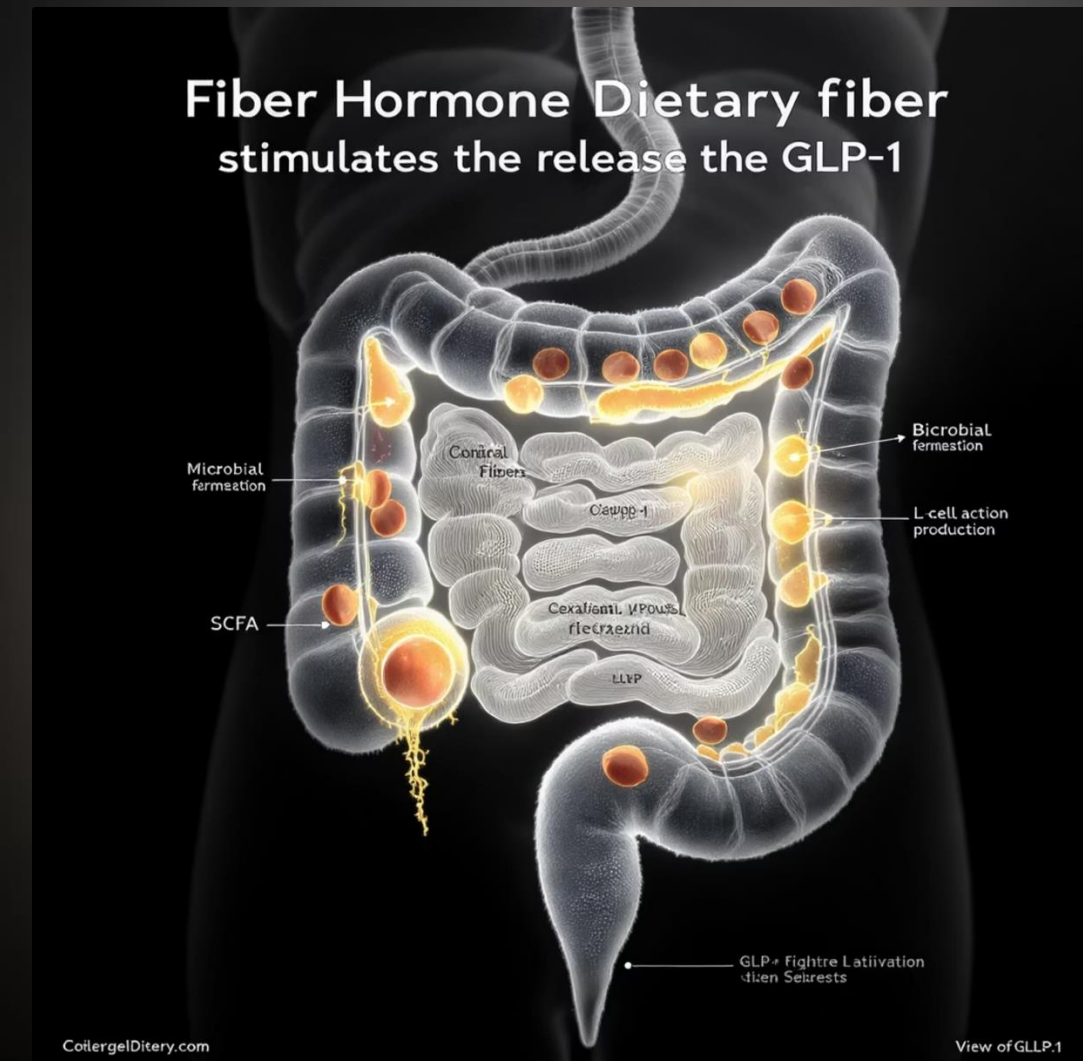
*25-38g fiber daily (93% of Americans don't meet this)*

## Benefits

*Reduces side effects while enhancing satiety*



*This triggers the release of endogenous GLP-1.*



# Optimal Macronutrient Balance



## Legume Priority

*Maintains muscle mass and  
prolongs satiety*



## Healthy Fats

*Monounsaturated fats may  
increase GLP-1 secretion*



## Complex Carbs

*Whole grains provide steady  
energy and fiber*

# Top Foods to Emphasize



# Intuitive Eating & Weight Management

## Core Principles

*Eating in response to internal hunger and satiety cues, rather than external or emotional triggers.*

## Key Subscales

*"Eating for physical rather than emotional reasons" and "reliance on hunger/satiety" are strongest protective factors.*



## Obesity & BMI

*Consistently associated with lower BMI, reduced odds of overweight and obesity, and less total/abdominal adiposity.*

## Weight Stability

*Linked to greater weight stability over time, particularly in women, independent of dieting behaviors.*

*While **mostly observational**, this evidence supports intuitive eating as a valuable strategy for obesity prevention and weight management.*

# The Plant-Based Advantage

*Research consistently demonstrates the effectiveness of plant-based diets in promoting significant weight reduction:*

## General Plant-Based Diets

*An umbrella review found an average weight reduction of approximately **2 kg** when compared to non-plant-based diets.*

## Vegan Diets

*Specifically, vegan diets showed even greater impacts, leading to weight reductions of up to **4 kg over 12 weeks** in overweight adults.*



Source: *Nutrients*. 2023;15(10):2331. doi:10.3390/nu15102331.

# Nutrient Density vs. GLP-1 Agonists

## GLP-1 Approach

*Suppresses appetite*

*Often leads to nutrient deficiencies*

*Doesn't address food quality*

## Nutrient-Dense Approach

*Natural appetite regulation*

*Nutrient sufficiency*

*Addresses food quality*

# Lisa's Food Evolution

- 1. Started with one plant-based meal daily*
- 2. Learned simple, satisfying recipes*
- 3. 80/20 approach, not perfection*
- 4. Reconnected with hunger/fullness cues*





# Strategy #5: Intimacy

*Connection as prevention*

# The Connection Prescription

**57%**

## **Success Rate**

*People with strong social support are 57% more likely to maintain weight loss*

**50%**

## **Mortality Risk**

*Social isolation increases mortality risk comparable to smoking 15 cigarettes daily*

**30%**

## **Stress Reduction**

*Strong social connections reduce stress hormones by 30%*

# The Science of Intimacy

*A study showed that structured social support (participants recruited with friends) led to **66% weight loss maintenance**. This was a **175% relative increase** over the **24% maintenance** achieved without support.*

*Source: American Journal of Public Health, 2011*



# Lisa's Connection Strategy

- 1. Joined weekly walking group*
- 2. Started cooking club with neighbors*
- 3. Regular family meals without screens*
- 4. Vulnerable conversations with trusted friends*



# Strategy #6: Sleep

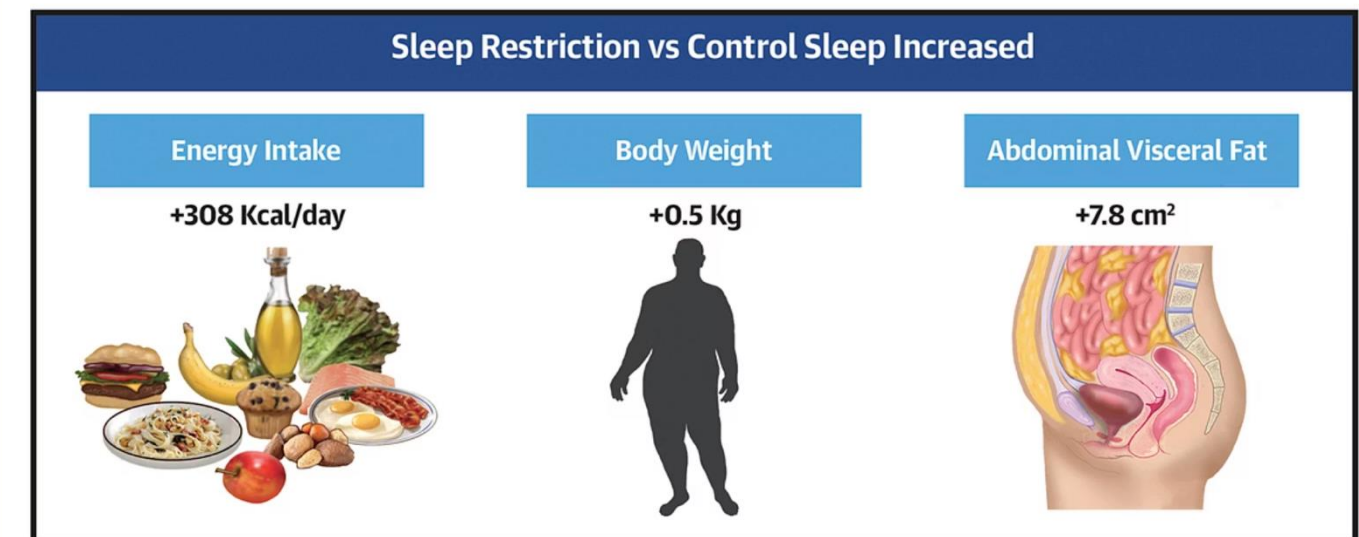
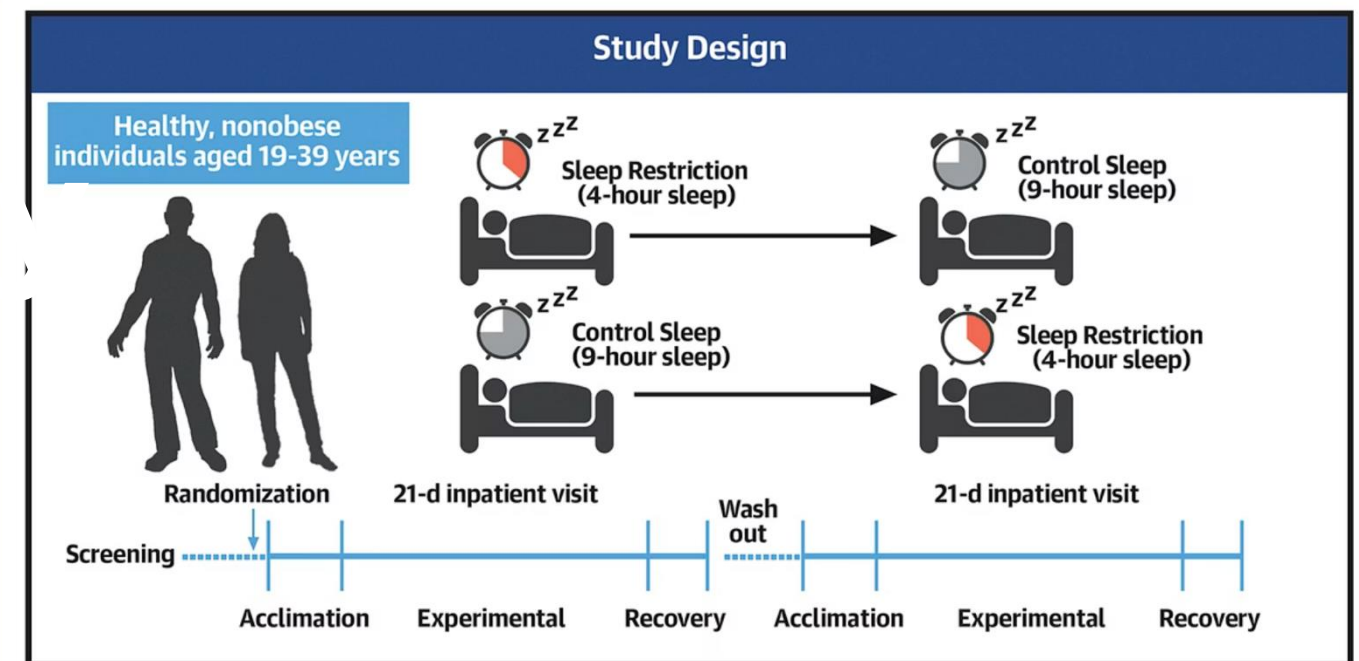
*The foundation of health*



# Sleep and Obesity

*Sleep restriction combined with ad libitum food promotes excess energy intake without varying energy expenditure. Weight gain and particularly central accumulation of fat indicate that sleep loss predisposes to abdominal visceral obesity.*

## CENTRAL ILLUSTRATION: Effects of Experimental Sleep Restriction on Obesity Risk



Covassin N, et al. J Am Coll Cardiol. 2022;79(13):1254-1265.

# The Science of Sleep

*Randomized clinical trials demonstrate that extending sleep duration has a direct, measurable impact on caloric intake and can lead to significant weight management benefits.*

## Reduced Energy Intake

*Sleep extension interventions have shown a decrease in daily energy intake by approximately **270 kcal**.*

## Clinically Meaningful Weight Loss

*This sustained reduction in caloric intake can translate into **modest and clinically meaningful weight loss** over time.*



Source: JAMA Internal Medicine. 2022;182(4):365-374. doi:10.1001/jamainternmed.2021.8098.

# Sleep: The Forgotten Pillar

**55%**

## **Hunger Hormones**

*One night of poor sleep increases hunger hormone ghrelin by 55%*

**20%**

## **Insulin Resistance**

*Sleep deprivation increases insulin resistance by 20%*

**45%**

## **Weight Gain**

*People sleeping less than 6 hours are 45% more likely to develop obesity*

# Lisa's Sleep Revolution

- 1. Created consistent sleep/wake schedule*
- 2. Prioritized 7-8 hours nightly*
- 3. Started stretching for sleep*



# Strategy #7: Humor

*Joy as medicine*



# The Science of Laughter

*A 12-week laughter intervention program led to significant improvements in key health metrics:*

## Weight & BMI Reduction

*Significant decreases in **body weight** ( $p=0.008$ ) and **BMI** ( $p=0.006$ ) were observed, particularly among individuals with metabolic syndrome risk factors.*

## Stress & Well-being

*Participants experienced reduced **subjective stress** ( $p=0.004$ ) and increased **subjective well-being** ( $p=0.002$ ) and **optimism** ( $p=0.03$ ).*



Source: BMC Geriatr. 2022 Apr 23;22:361. doi: 10.1186/s12877-022-03038-y.

# Lisa's Joy Practice

- 1. Comedy nights with friends*
- 2. Playful movement (dance parties)*
- 3. Funny podcasts during commute*
- 4. Not taking herself too seriously*



# The *Selfish* Advantage

*Addressing root causes, not just symptoms*

# *Selfish* vs. GLP-1: Side Effects

## GLP-1 Side Effects

- *Nausea (44%)*
- *Vomiting (25%)*
- *Diarrhea (30%)*
- *Constipation (24%)*
- *Potential pancreatitis*
- *Thyroid concerns*

## *Selfish* Side Effects

- *Improved mood*
- *Better sleep*
- *Increased energy*
- *Enhanced relationships*
- *Greater life satisfaction*
- *Sustainable wellbeing*

# *Selfish* vs. GLP-1: Cost

## **GLP-1 Annual Costs**

*Medication: \$10,800-18,000*

*Medical monitoring: \$1,200-3,600*

*Side effect management: \$500-2,000*

*Total: \$12,500-23,600 annually*

## ***Selfish* Annual Costs**

*Healthier groceries: 19% lower costs*

*Exercise: \$0 (walking is free)*

*Mindfulness: \$0 (free apps available)*

*Total: Net Savings*

# *Selfish* vs. GLP-1: Sustainability

## **GLP-1 Long-Term Results**

*Weight regain after stopping: 66% within 1 year<sup>31</sup>*

*Requires indefinite use*

*No lifestyle skill development*

## ***Selfish* Long-Term Results**

*Skill-based approach maintains results*

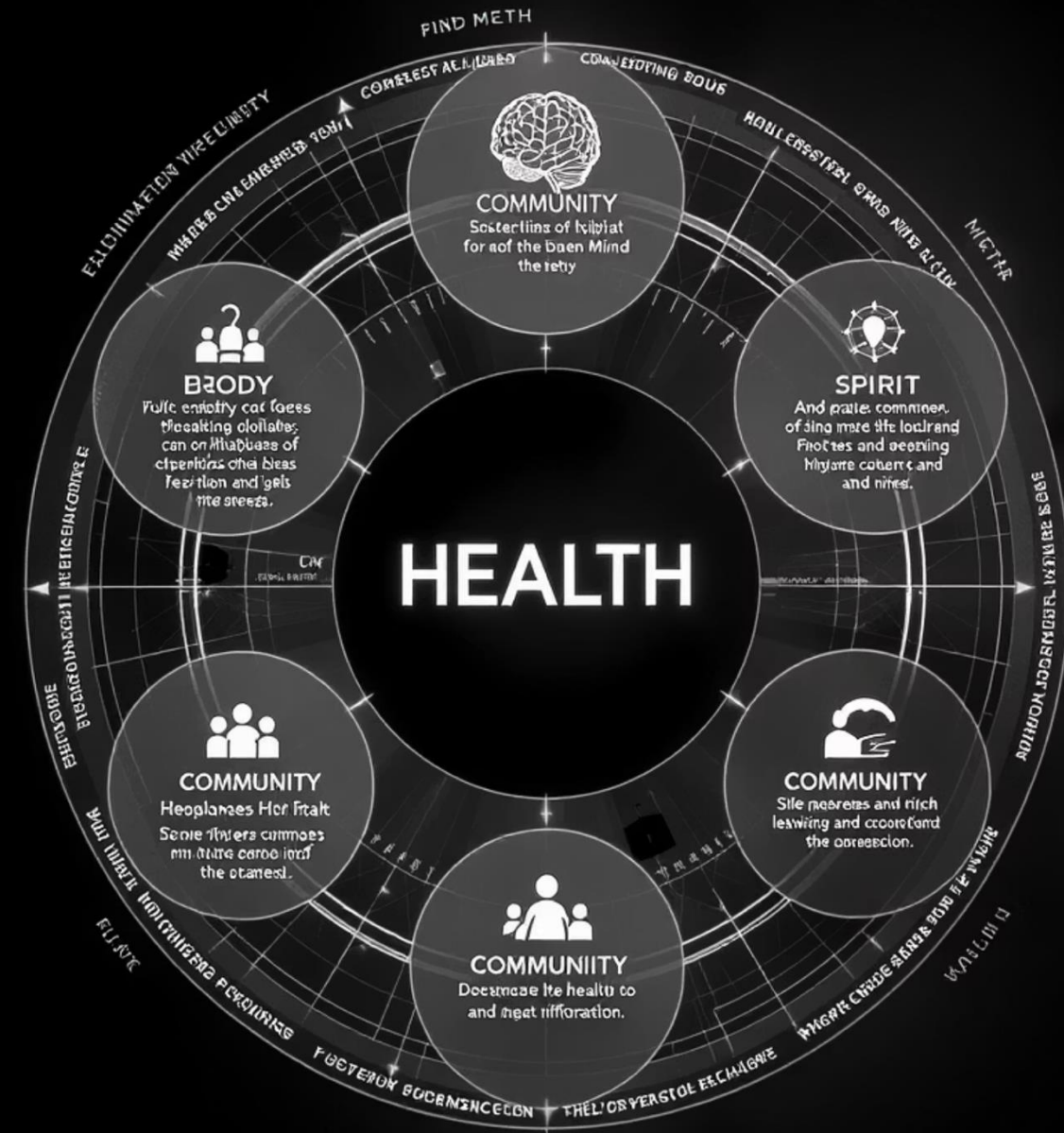
*Creates lasting behavior change*

*Addresses underlying causes*

# Why *Selfish* Works When Other Approaches Fail

# It's Holistic, Not Reductionist

*Addresses the whole person, not just weight*





# It's Sustainable, Not Quick-Fix

*Builds habits and skills for lasting change*



# It's Abundant, Not Restrictive

*Focuses on what to add, not just what to avoid*

# It's Personal, Not Prescriptive

*Adapts to individual needs, preferences, and situations*



# 3 Principles If You're Taking GLP-1



## Prioritize Plant Protein & Nutrients

*Combat muscle loss with adequate protein*



## Maintain Muscle Mass

*Regular resistance training prevents weakness*



## Build Sustainable Habits

*Prepare for life after medication*

# Preparing for Transition Off Medication

## While on GLP-1

*Use appetite suppression as opportunity to establish healthy habits*

## As You Consider Stopping

*Implement SELFISH principles gradually*

## After Medication

*Rely on established lifestyle skills to maintain progress*

# Lisa's Most Important Lesson

*"The medication gave me a jump-start, but SELFISH gave me my life back. One was temporary; the other is forever."*

*- Lisa, age 48*

**Remember**

**It's not selfish to be Self**

*It's the most generous thing you can do for yourself and those you love*

[www.DrBatiste.com](http://www.DrBatiste.com)

