

Designing a Successful Weight Management Program

Brandon LaGreca, LAc, MAcOM

10/04/2025



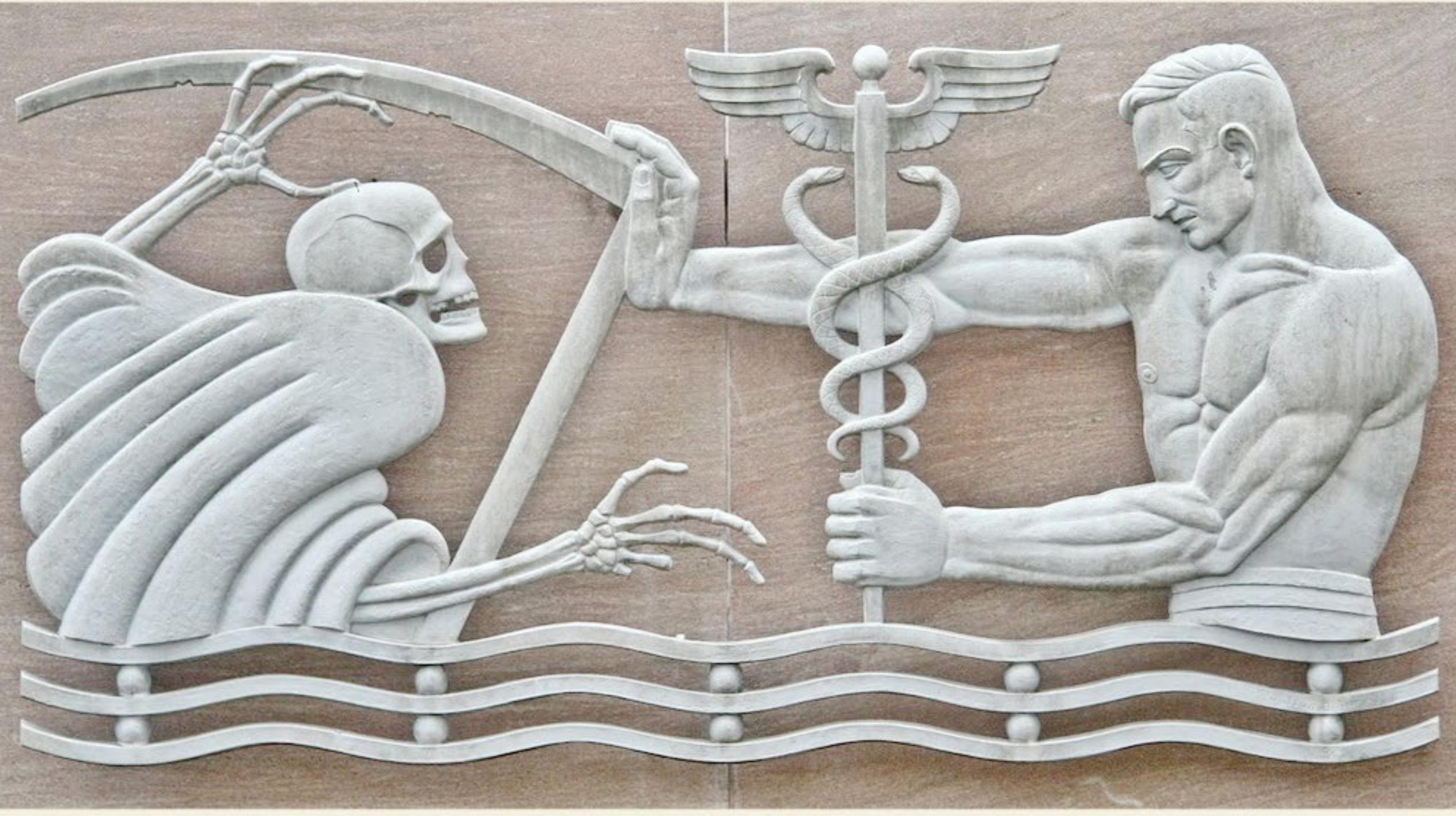
Why This Talk?



US Healthcare

- * Spending (2024): 5 trillion dollars (18% of GDP); 69th in health outcomes in the world^{1,2}
- * Research: 96% funds go to new drugs/devices; 2% to preventative medicine³
- * DOJ: 38 billion in fines to drug companies over the last 20 years⁴

¹ CMS.gov ² IHME ^{3,4} Dr. John Abramson, author of *Overdosed & Sickening*

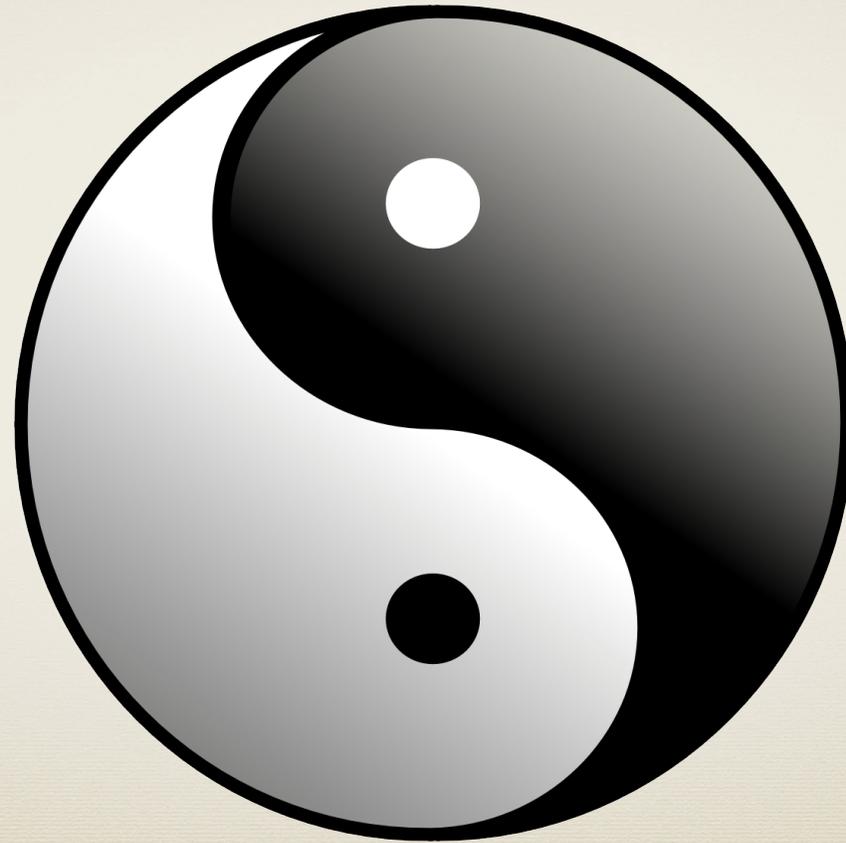


The Cause of All Disease



The 2 Phases of Disease

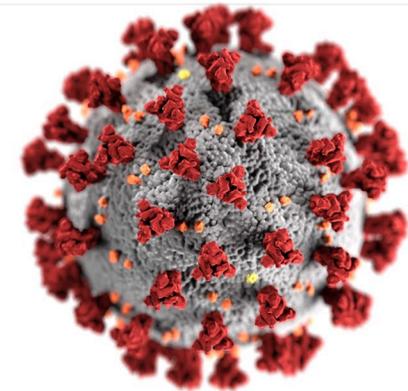
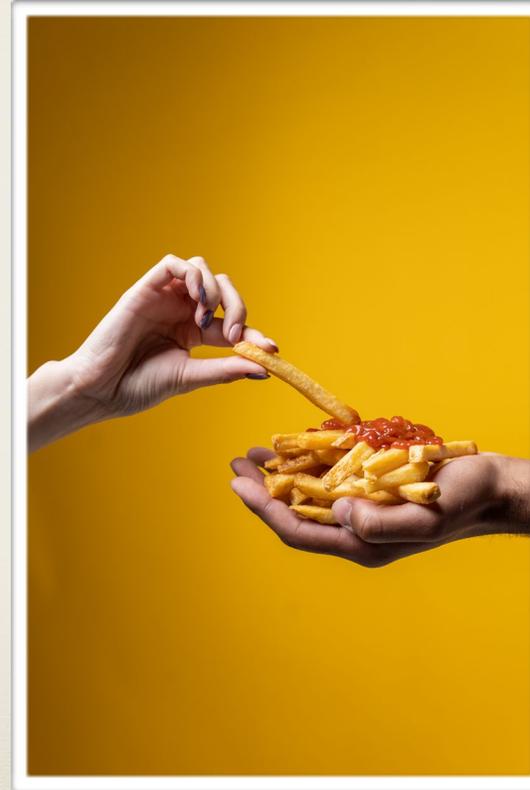
External
(Environment)

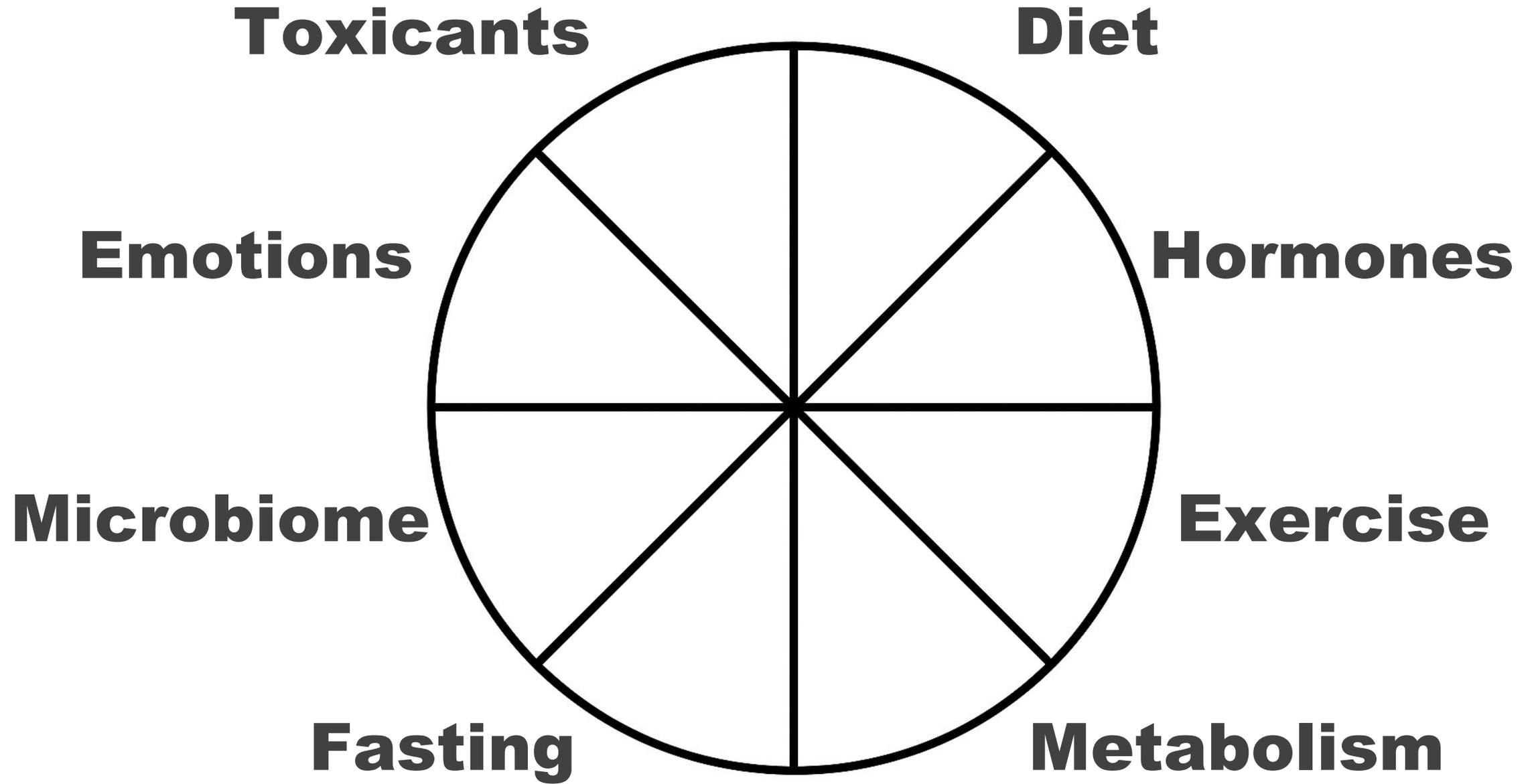


Internal
(Emotions)

The 4 Roots of Disease

- * Malnourishment
- * Toxicity
- * Trauma
- * Infections





Preparatory Work - Setting the Stage

01

No Silver
Bullets

02

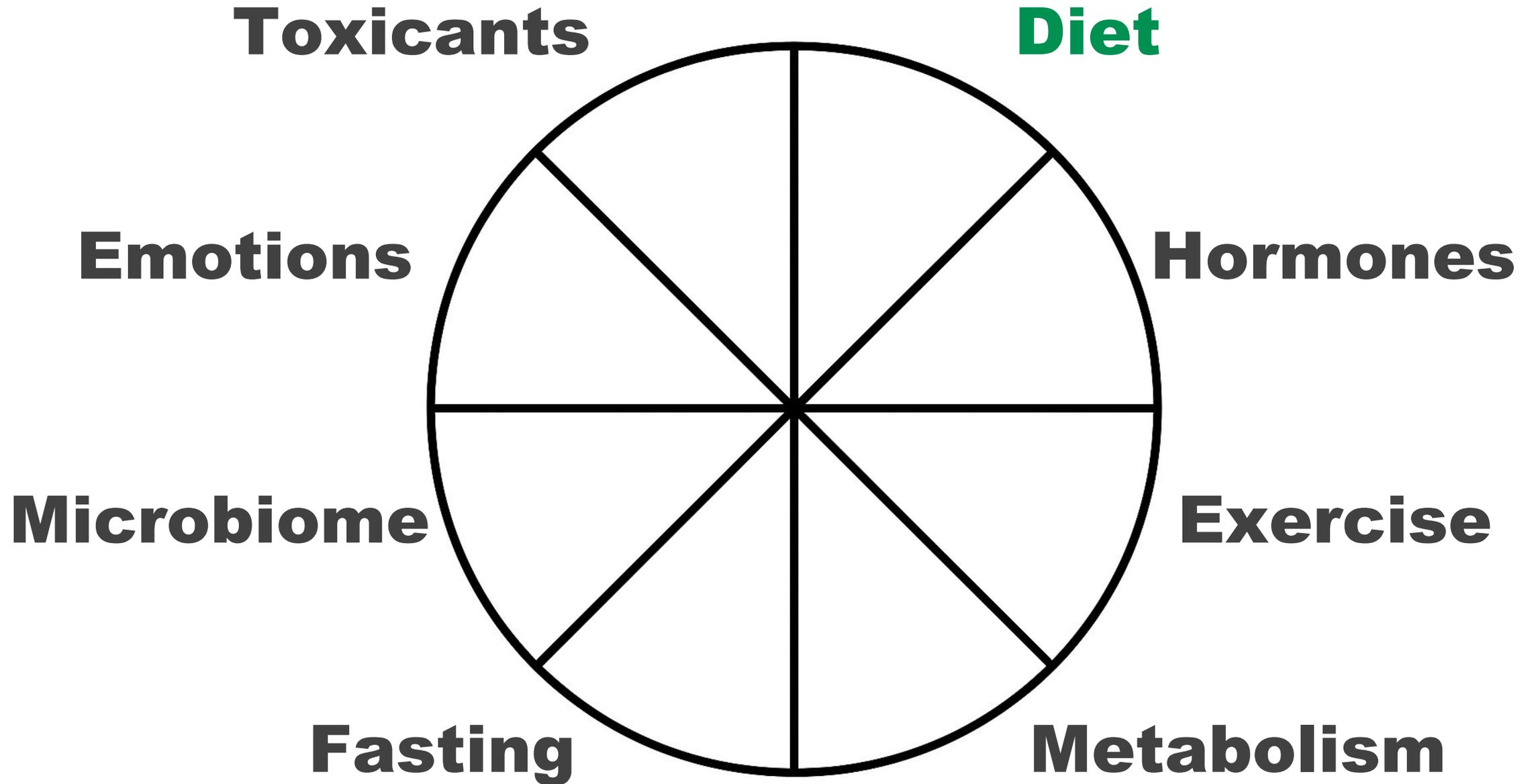
Hard Work

03

No
Gimmicks

Focus on Health







Diet?



Diet: What Works?

- Traditional vs S.A.D.



Traditional Diet



Diet: What Works?

- Traditional vs S.A.D.
- Nutrient Density vs Empty Calories

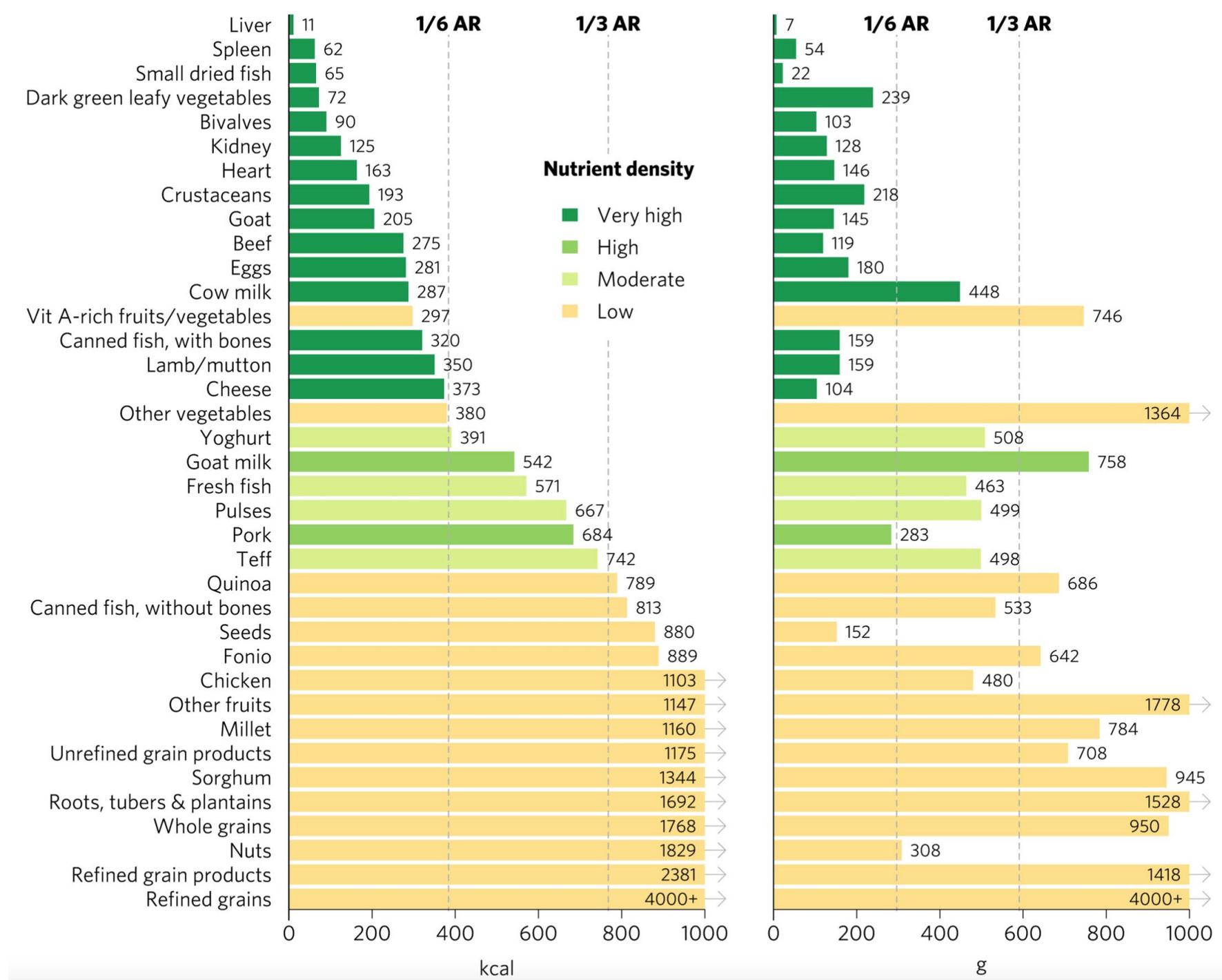




Priority Micronutrient Density in Foods

Ty Beal^{1,2} and Flaminia Ortenzi³*

Results: We find that the top sources of priority micronutrients are organs, small fish, dark green leafy vegetables, bivalves, crustaceans, goat, beef, eggs, milk, canned fish with bones, mutton, and lamb. Cheese, goat milk, and pork are also good sources, and to a lesser extent, yogurt, fresh fish, pulses, teff, and canned fish without bones.



Diet: What Works?

- Traditional vs S.A.D.
- Nutrient Density vs Empty Calories
- Calories vs Carbs

**I'M ON A
PALEO DIET**



BUT I CHEAT

Effect of Low-Fat vs Low-Carbohydrate Diet on 12-Month Weight Loss in Overweight Adults and the Association With Genotype Pattern or Insulin Secretion

The DIETFITS Randomized Clinical Trial

Christopher D. Gardner, PhD; John F. Trepanowski, PhD; Liana C. Del Gobbo, PhD; Michelle E. Hauser, MD; Joseph Rigdon, PhD; John P. A. Ioannidis, MD, DSc; Manisha Desai, PhD; Abby C. King, PhD

IMPORTANCE Dietary modification remains key to successful weight loss. Yet, no one dietary strategy is consistently superior to others for the general population. Previous research suggests genotype or insulin-glucose dynamics may modify the effects of diets.

OBJECTIVE To determine the effect of a healthy low-fat (HLF) diet vs a healthy low-carbohydrate (HLC) diet on weight change and if genotype pattern or insulin secretion are related to the dietary effects on weight loss.

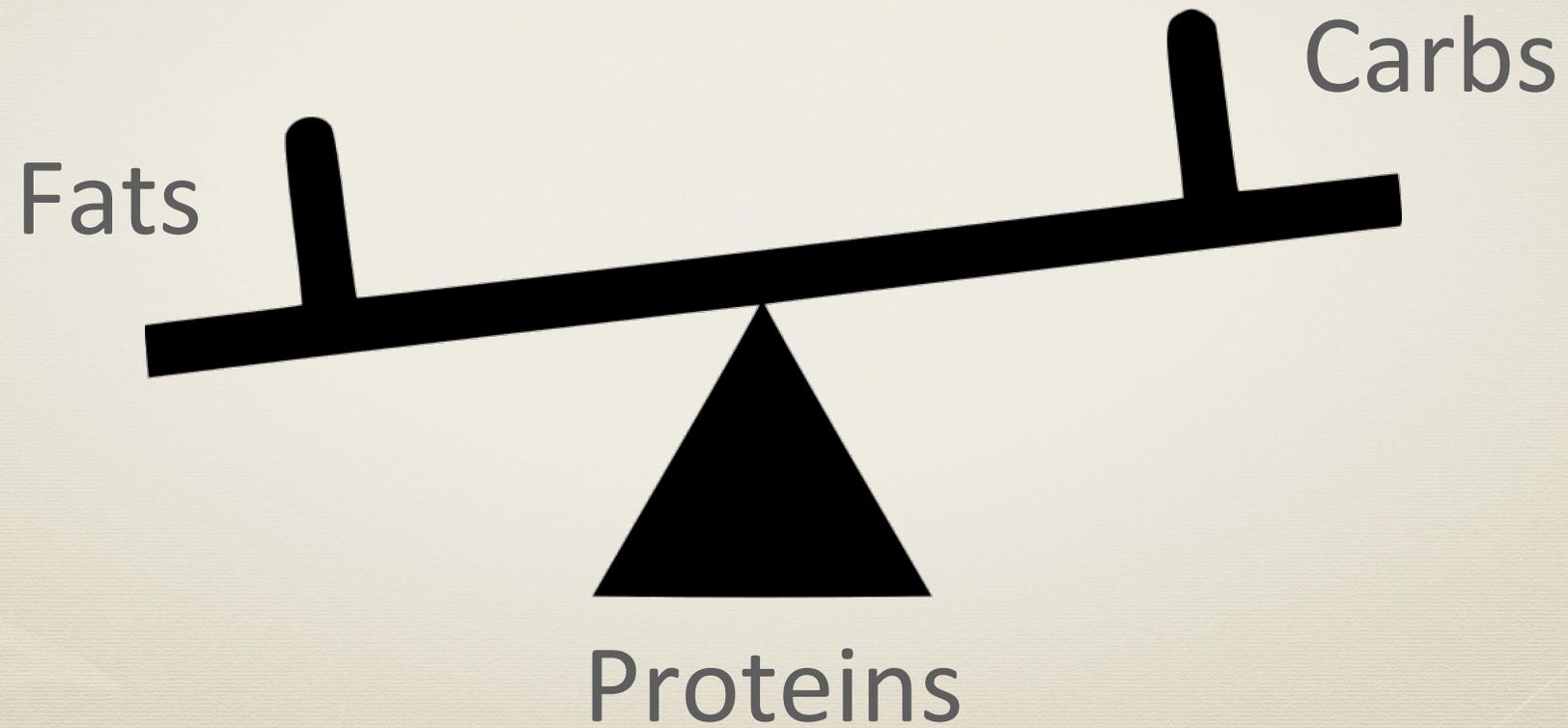
DESIGN, SETTING, AND PARTICIPANTS The Diet Intervention Examining The Factors Interacting with Treatment Success (DIETFITS) randomized clinical trial included 609 adults aged 18 to 50 years without diabetes with a body mass index between 28 and 40. The trial enrollment was from January 29, 2013, through April 14, 2015; the date of final follow-up was May 16, 2016. Participants were randomized to the 12-month HLF or HLC diet. The study also tested whether 3 single-nucleotide polymorphism multilocus genotype responsiveness patterns or insulin secretion (INS-30; blood concentration of insulin 30 minutes after a glucose challenge) were associated with weight loss.

INTERVENTIONS Health educators delivered the behavior modification intervention to HLF (n = 305) and HLC (n = 304) participants via 22 diet-specific small group sessions administered over 12 months. The sessions focused on ways to achieve the lowest fat or carbohydrate intake that could be maintained long-term and emphasized diet quality.

 [Supplemental content](#)

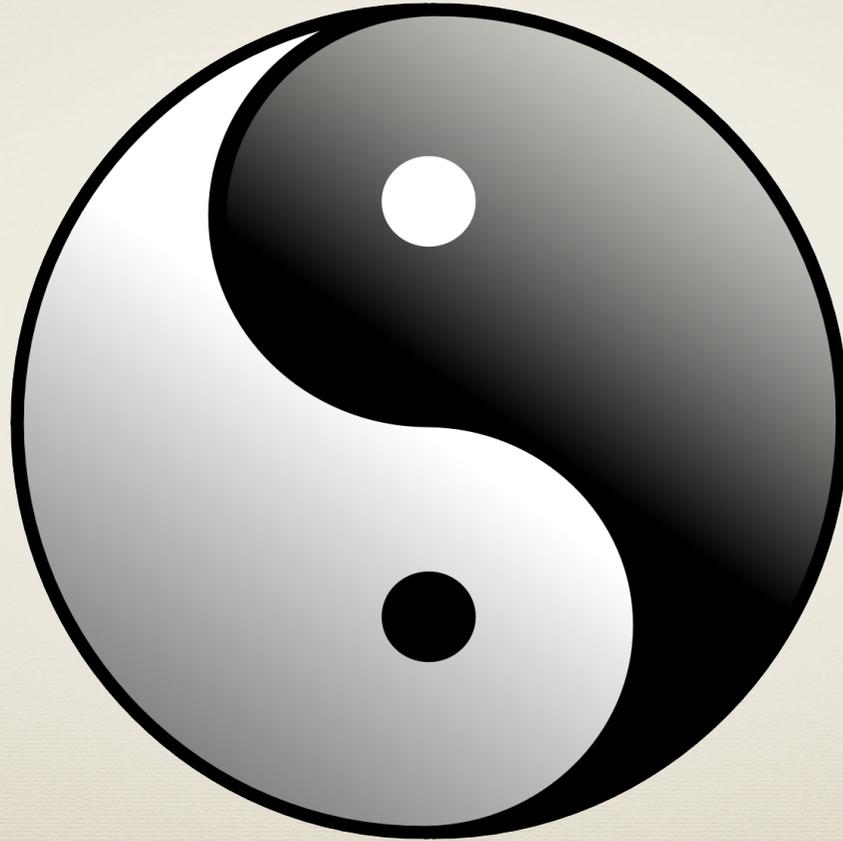
 [CME Quiz at \[jamanetwork.com/learning\]\(http://jamanetwork.com/learning\) and CME Questions page 715](#)

Macronutrients



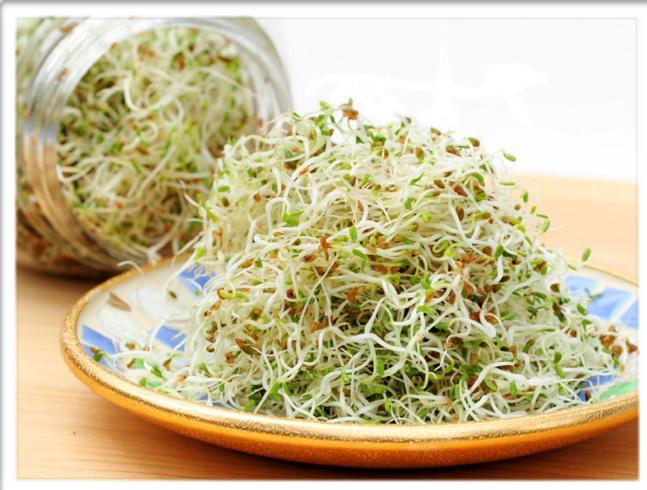
Animal Foods vs Plant Foods

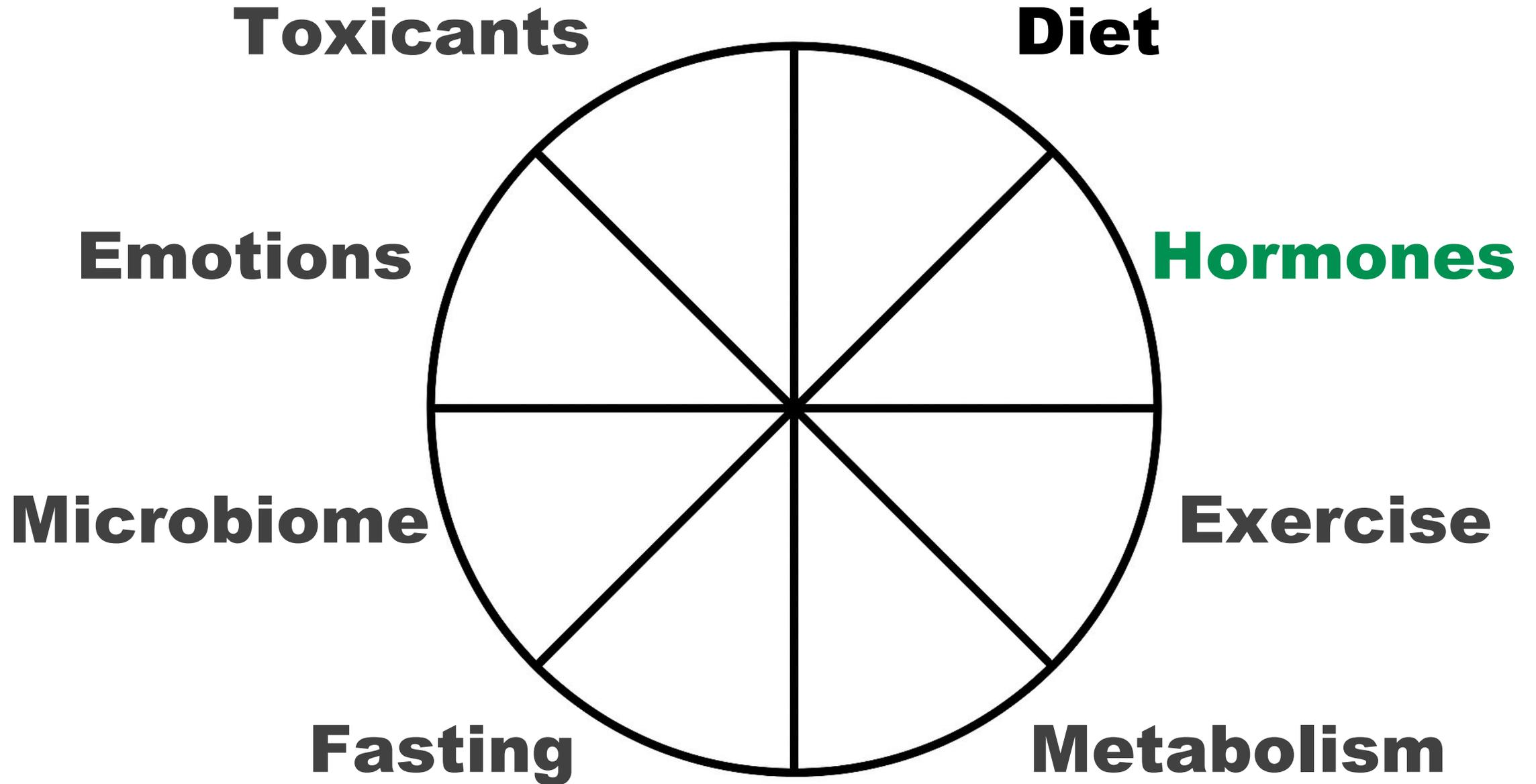
Build



Cleanse

Power Foods







Hormones?



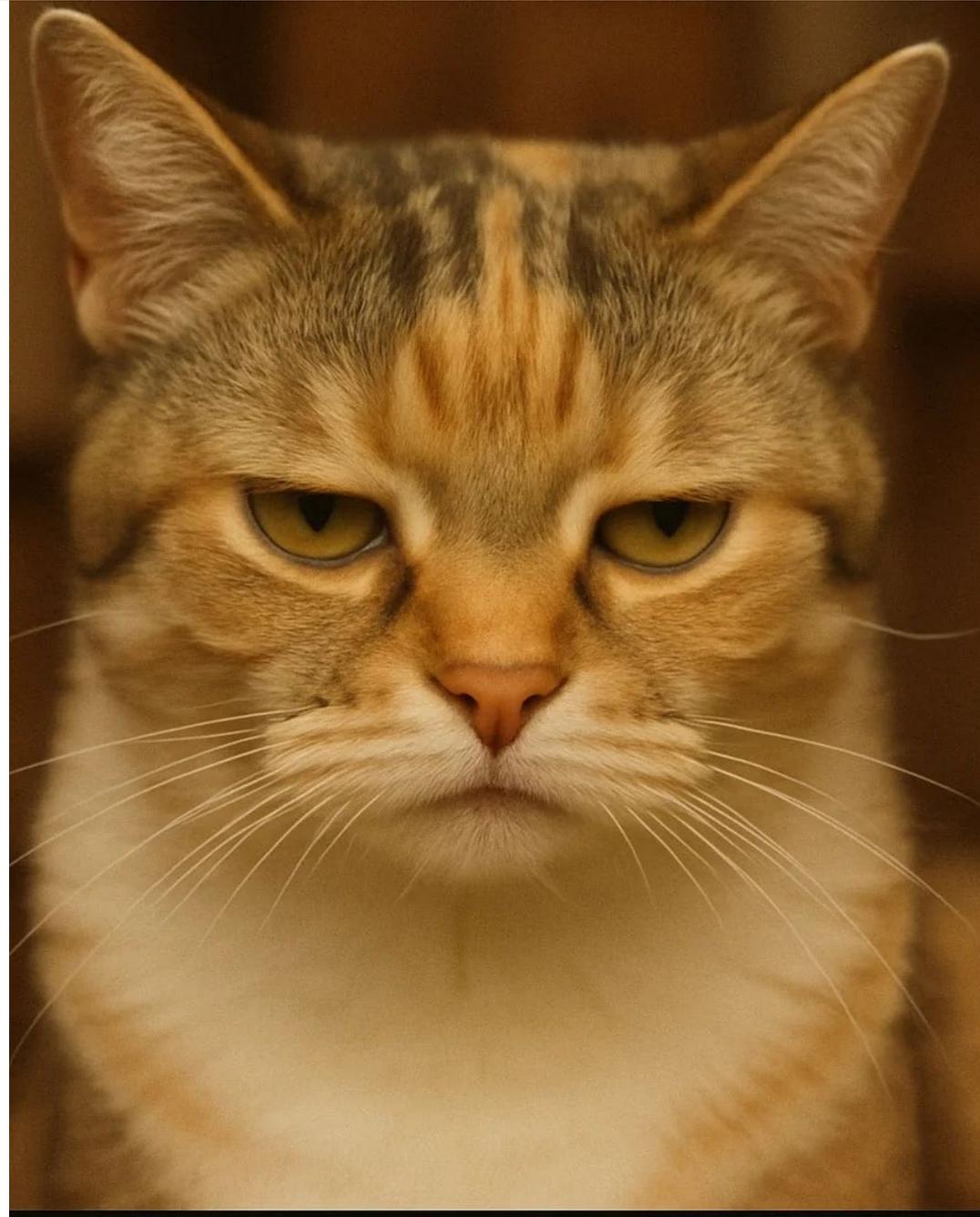
Hormones

- Insulin (Blood Sugar)

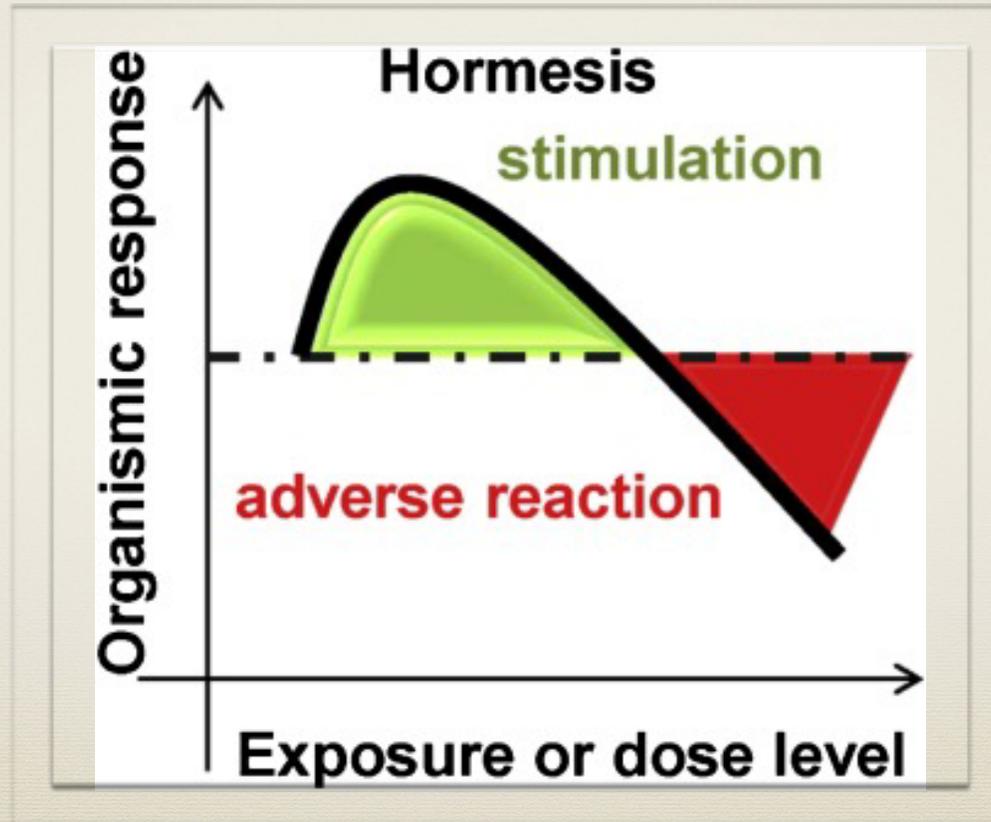


Hormones

- Insulin (Blood Sugar)
- Cortisol

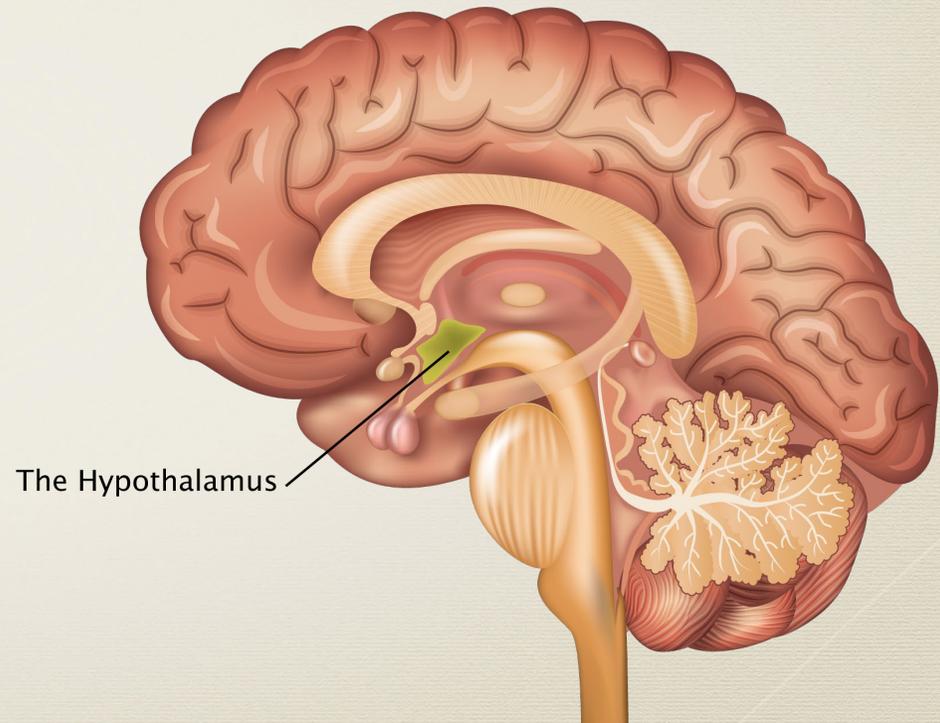


Stress vs. Eustress



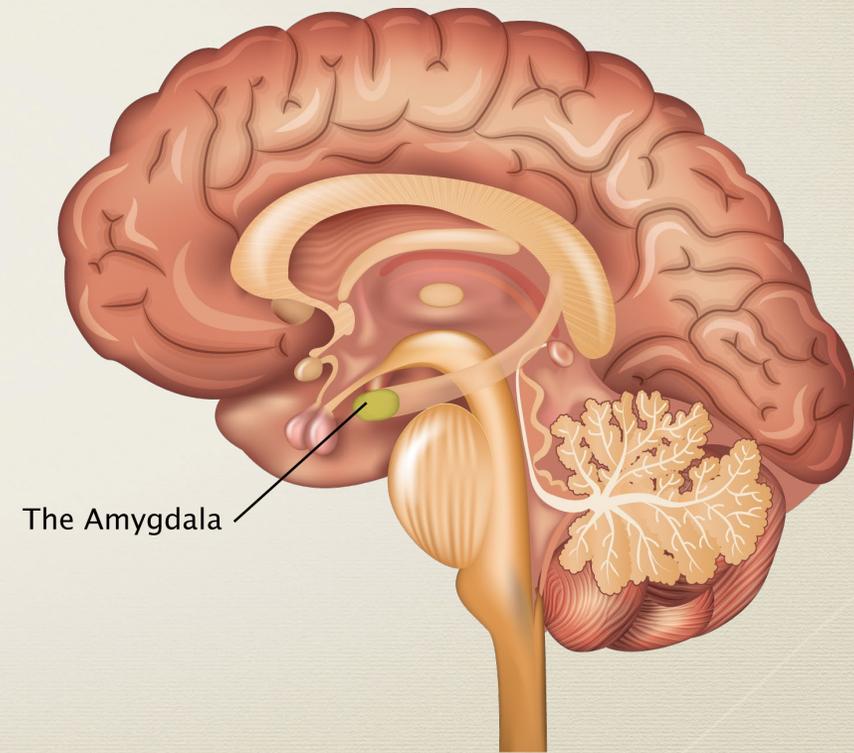
Stress Processing—Hypothalamus

- Brainstem input
 - Low blood sugar
 - Dehydration
 - Overexertion



Perceived Stress

- Acute Response
- Chronic Response



Acute SNS Response

- ✿ Sympathomedullary (SAM) pathway
- ✿ Catecholamine mediated: epinephrine, norepinephrine (adrenal medulla)
- ✿ ↑ Heart rate, respiration; ↓ digestion
- ✿ Immune activation

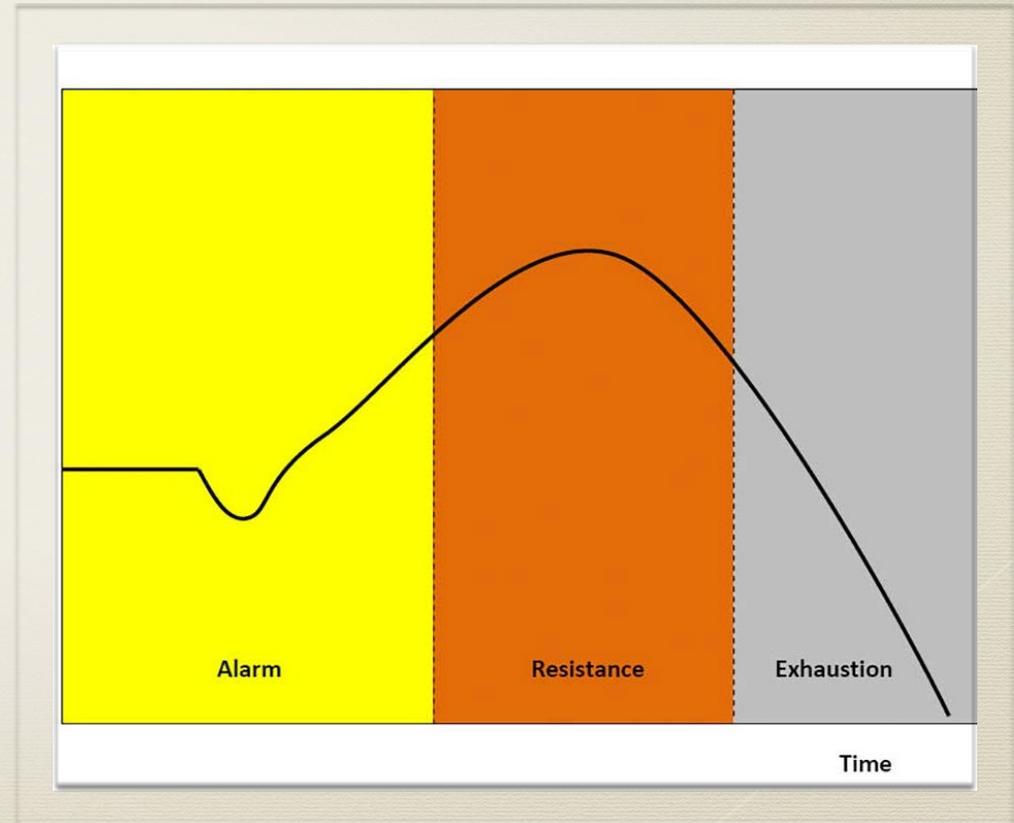


Chronic SNS Response

- ✿ Hypothalamus Pituitary Adrenal (HPA) axis
- ✿ Cortisol mediated (adrenal cortex)
- ✿ ↑ Blood sugar
- ✿ Immune suppression

General Adaptation Syndrome (Selye)

* Alarm → Resistance →
Recovery/Exhaustion



Parasympathetic Nervous System

- ✿ Rest/Digest/Procreate
- ✿ Acetylcholine mediated
- ✿ ↓ Heart rate/respiration
- ✿ Restores gut peristalsis



Evaluating the Stress Response

- Heart Rate Variability (HRV)
- Testing adrenal function (proxy)

Heart Rate Variability



Low HRV

"Fight or Flight"
Easily exhausted
Low Adaptability
Decreased Cognition

High HRV

"Rest & Digest"
Improved Performance
High Adaptability
Improved Cognition

Evaluating Adrenal Function

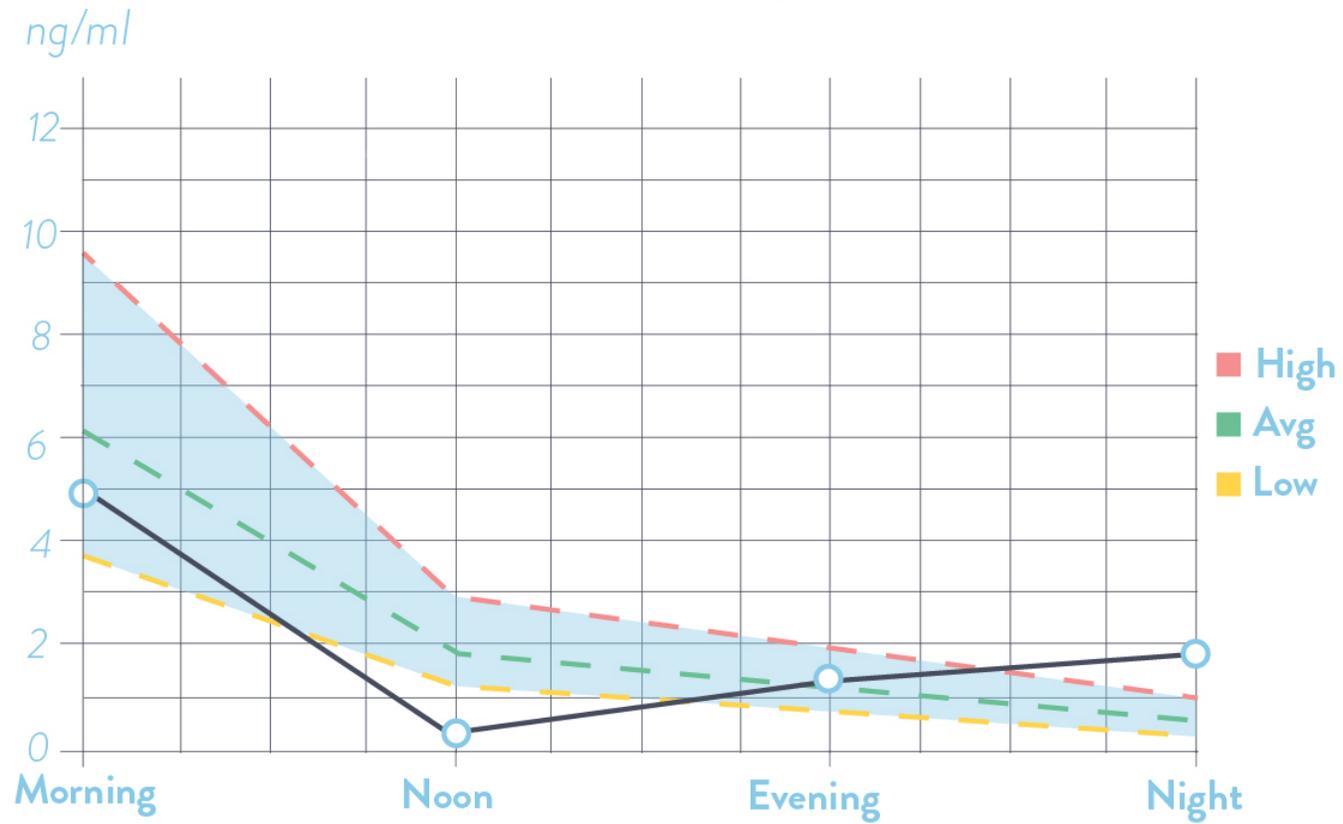
- ✿ Palatal rise
- ✿ Pupil dilation
- ✿ Ragland's test
- ✿ Pulse, tongue, and case history → Ki deficiency

Evaluating Adrenal Function

- ✿ Serum cortisol (protein bound)
- ✿ Saliva cortisol (free)

THE ADRENAL STRESS INDEX (ASI)

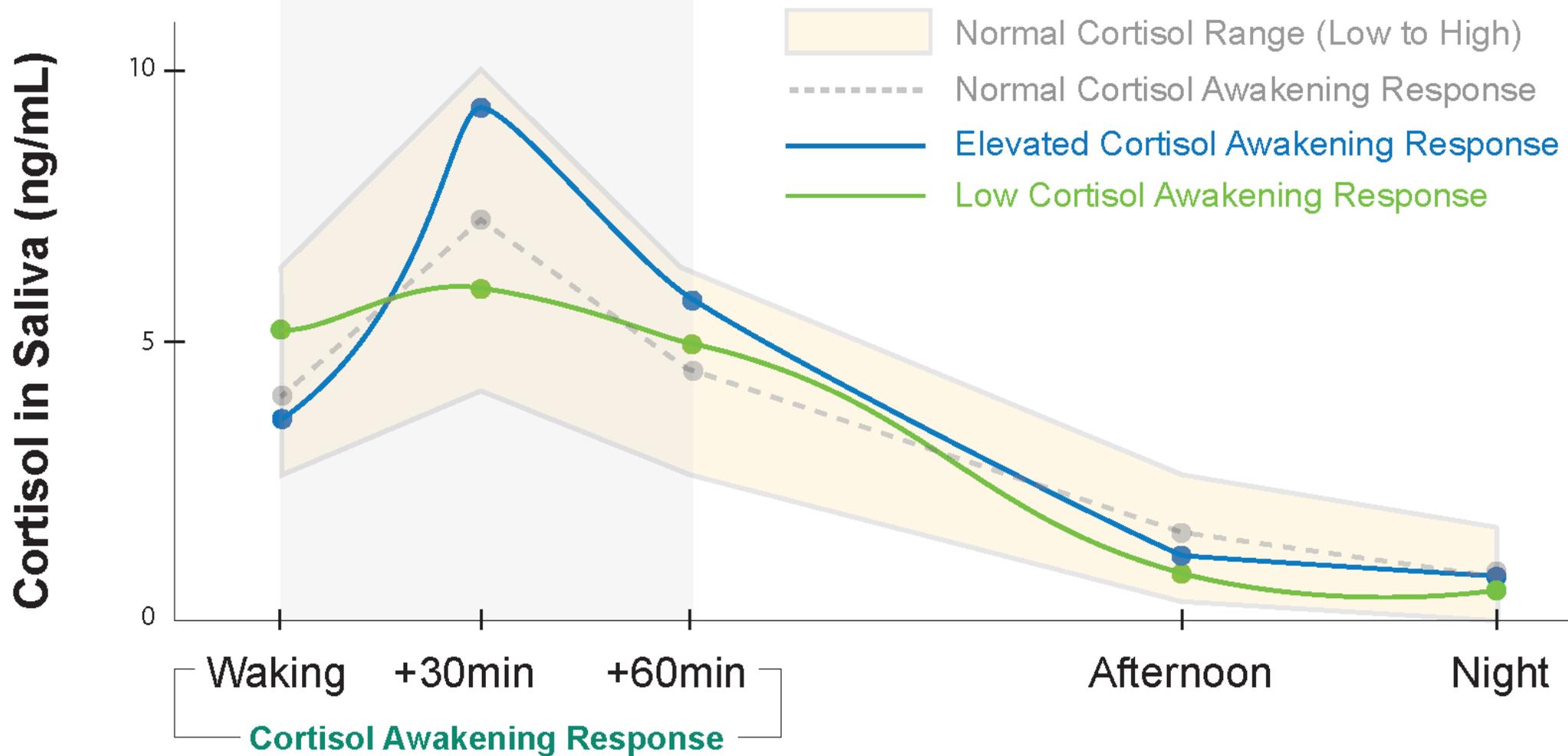
CORTISOL



Evaluating Adrenal Function

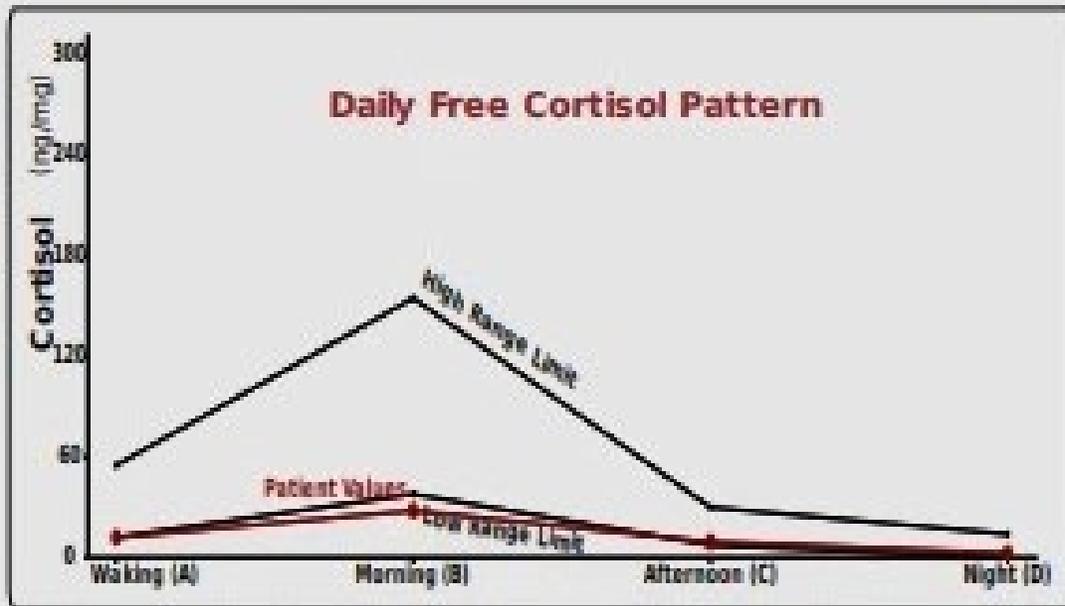
- ✿ Serum cortisol
- ✿ Saliva cortisol
- ✿ Cortisol awakening response (CAR)
- ✿ Urinary cortisol metabolites

Daily Free Cortisol with Cortisol Awakening Response



Combined Urine/Saliva

Adrenal Hormones See pages 4 and 5 for a more complete breakdown of adrenal hormones



Free cortisol best reflects tissue levels. Metabolized cortisol best reflects total cortisol production.

Total DHEA Production

Age	Range
20-39	1300-3000
40-60	750-2000
>60	500-1200



Total DHEA Production
(DHEAS + Etiocholanolone + Androsterone)



24hr Free Cortisol
(A+B+C+D)

cortisol
metabolism

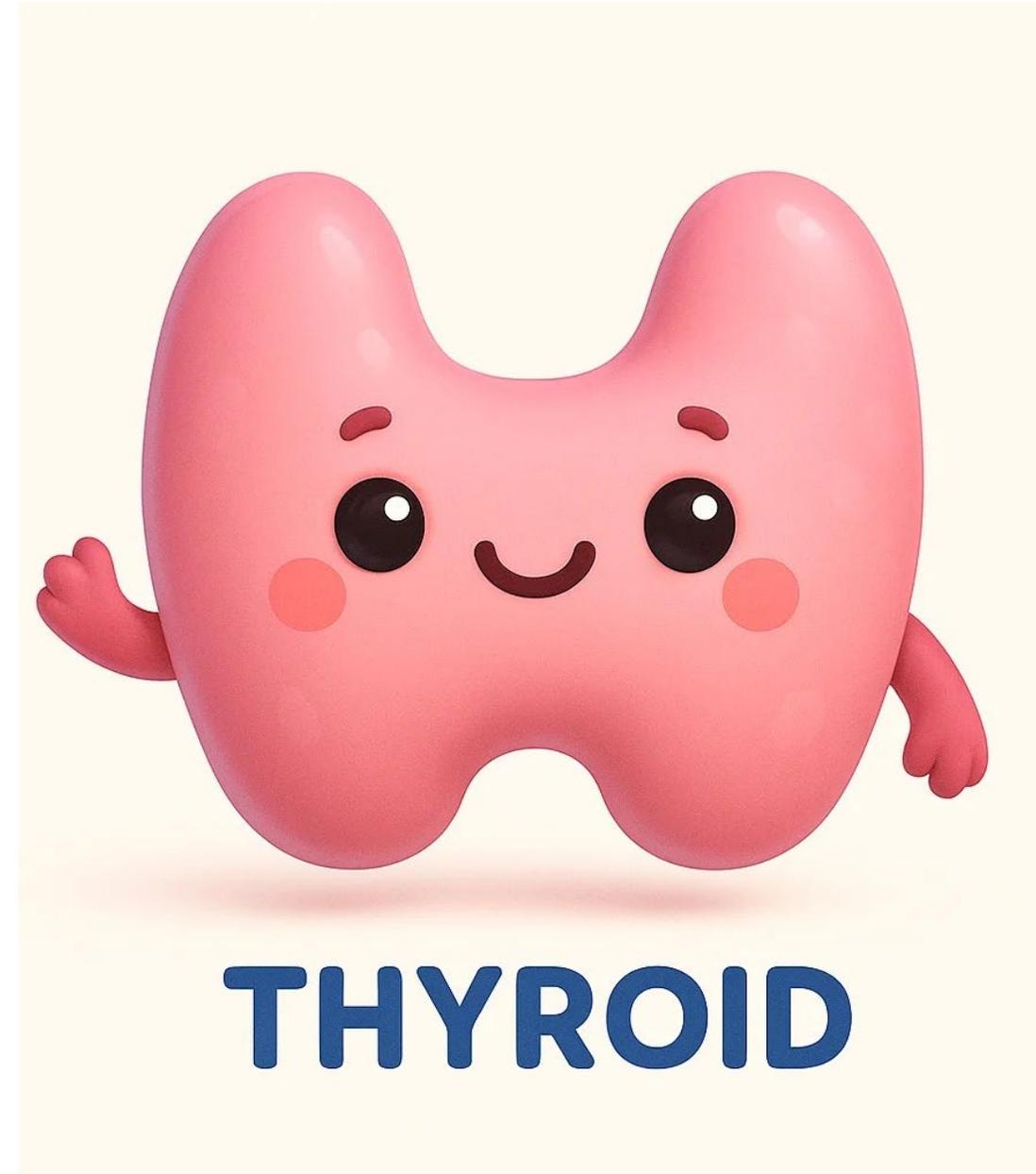


Metabolized Cortisol (THF+THE)
(Total Cortisol Production)

The following videos (which can also be found on the website under the listed names along with others) may aid your understanding:

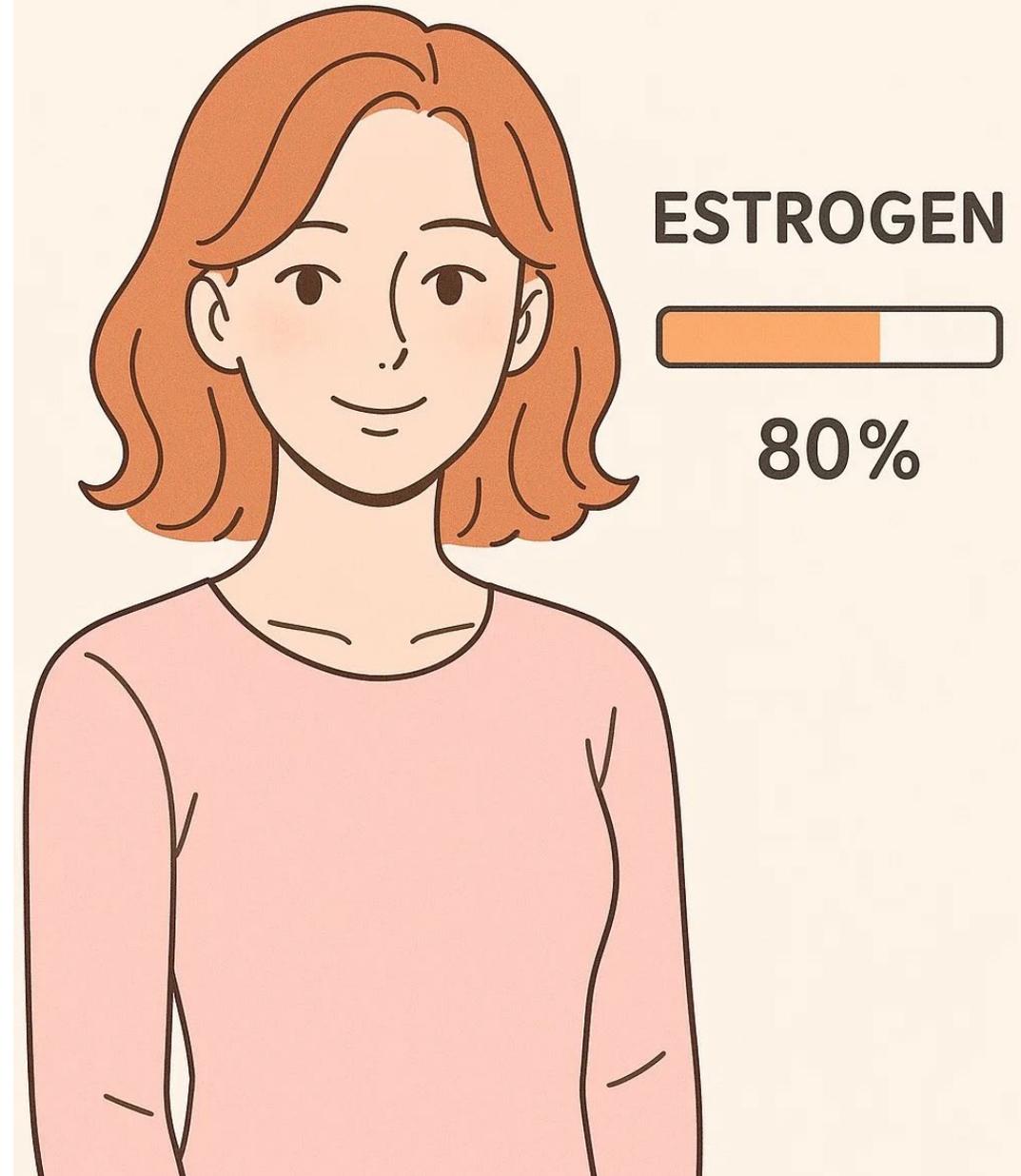
Hormones

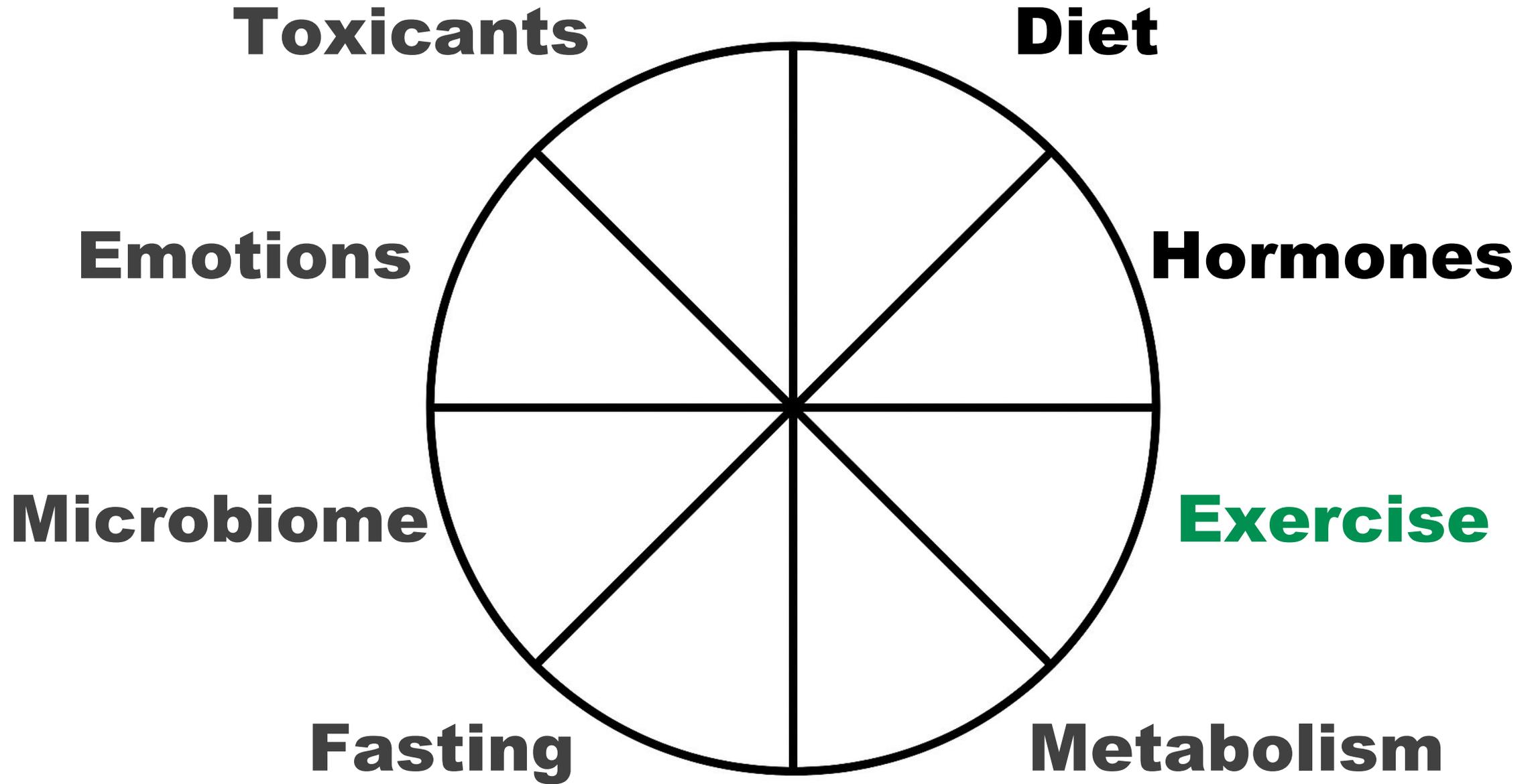
- Insulin (Blood Sugar)
- Cortisol
- Thyroid



Hormones

- Insulin (Blood Sugar)
- Cortisol
- Thyroid
- Sex Hormones







Exercise?



Exercise

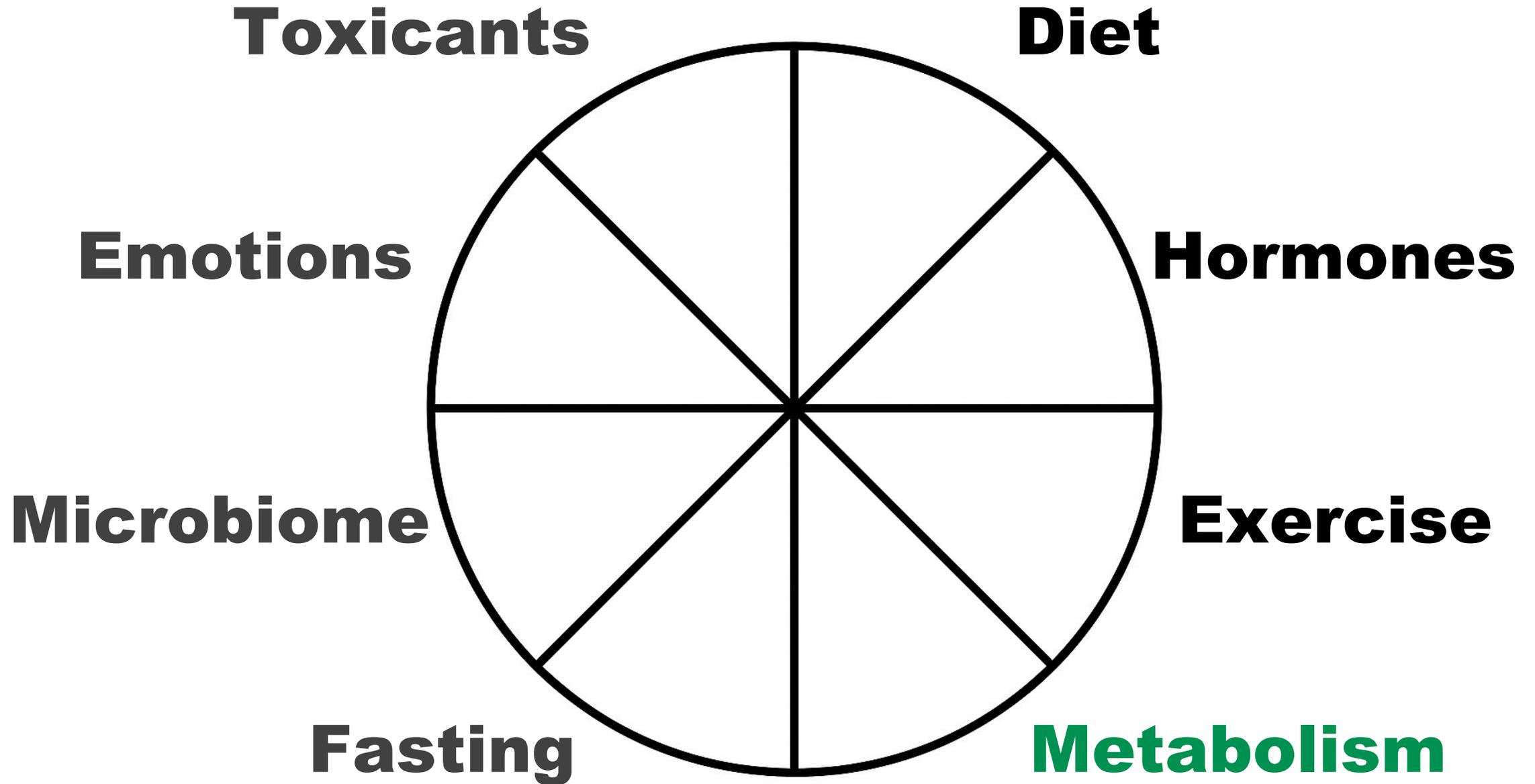
- Active vs Sedentary
- Cardio vs Resistance



Exercise? Fitness? Movement!









Metabolism?

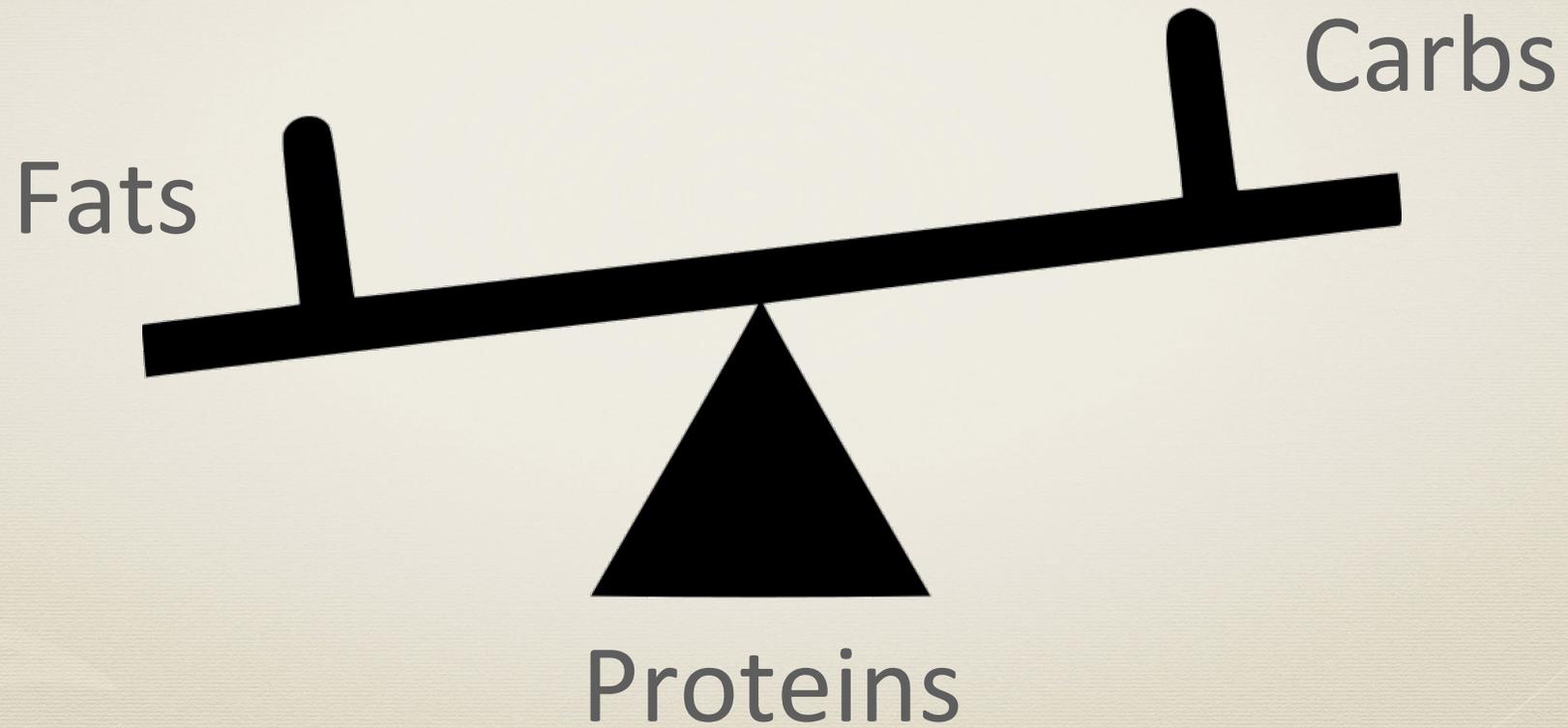


Metabolism

- Focus on Protein

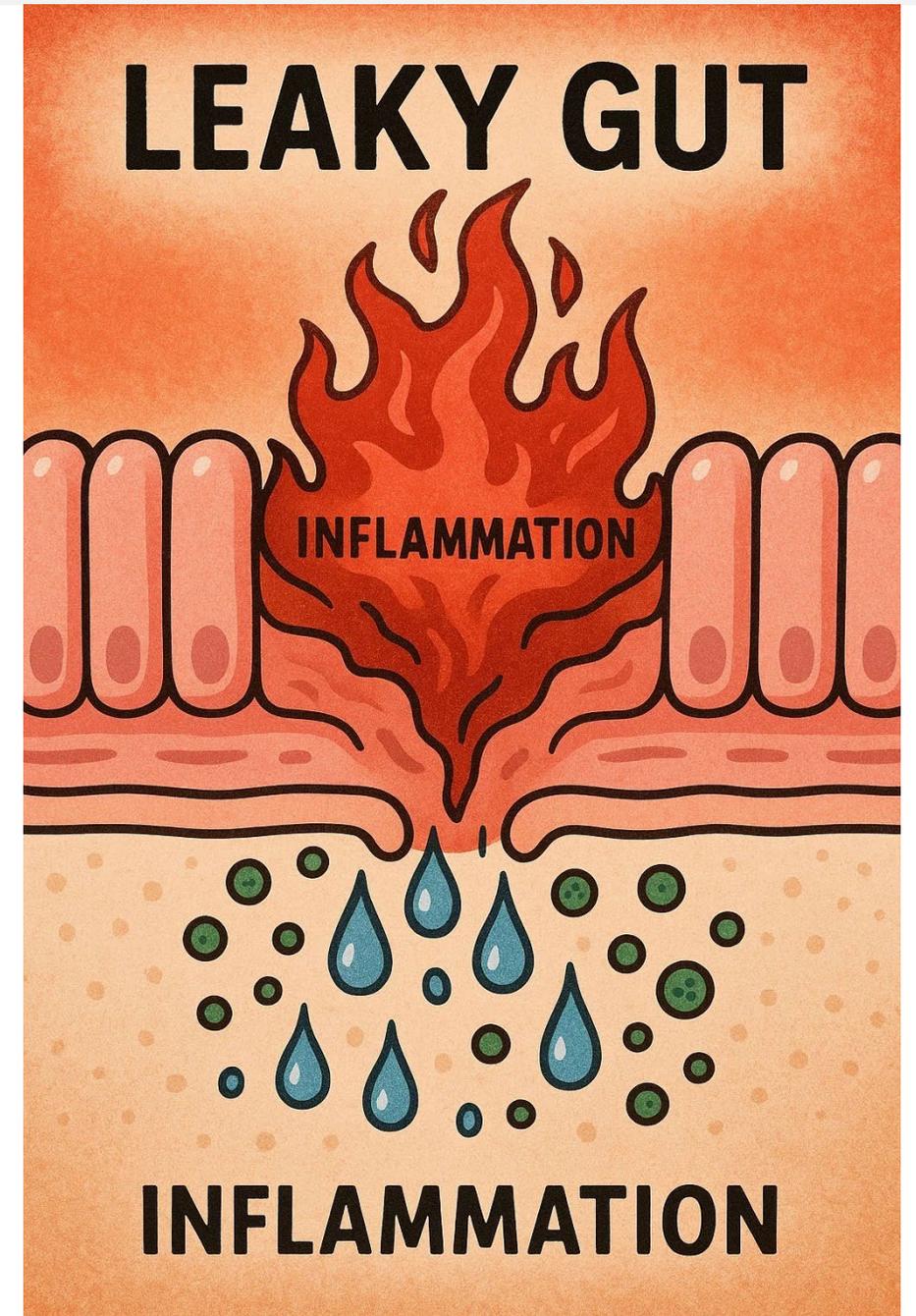


The Protein Pivot Point



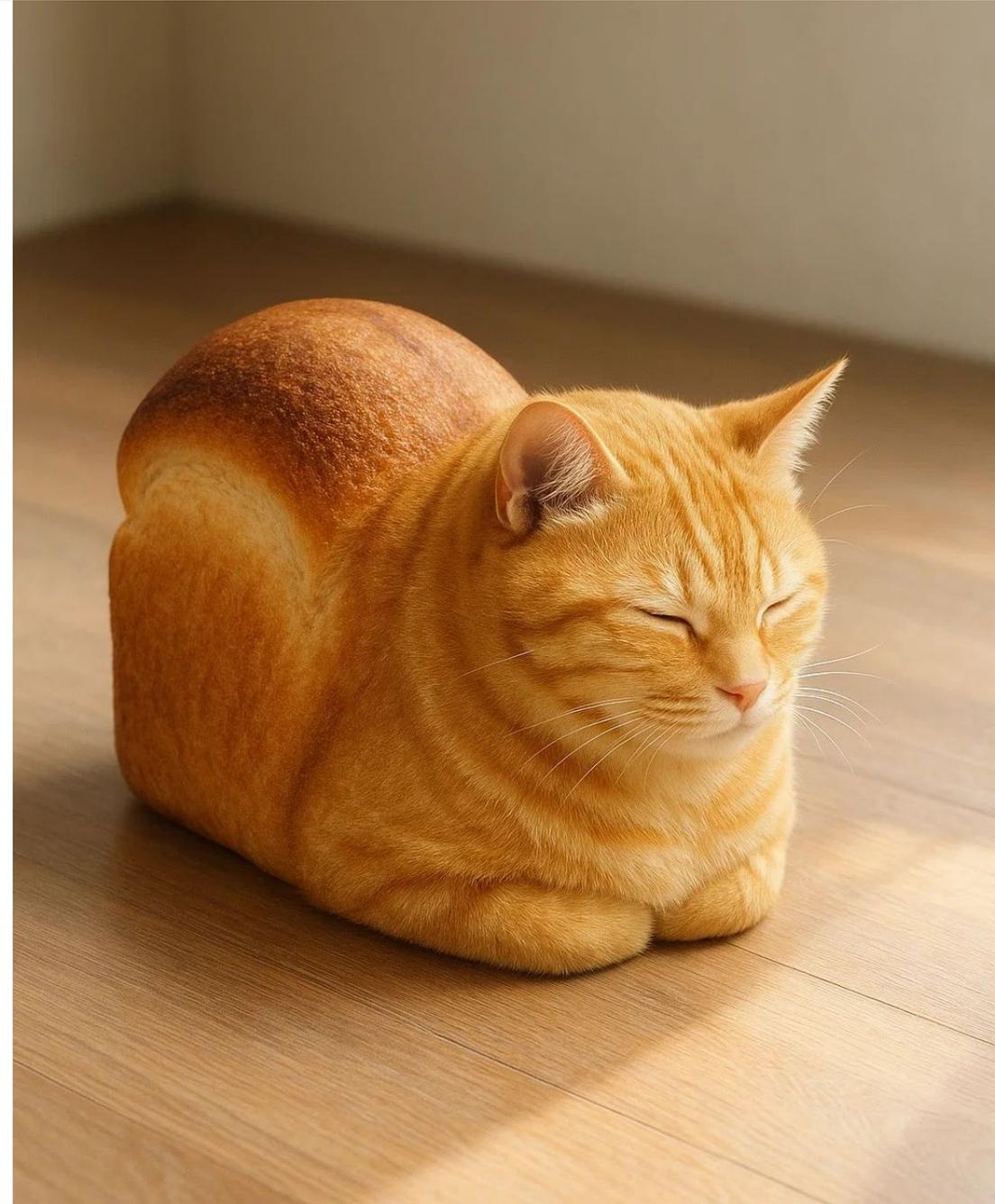
Metabolism

- Focus on Protein
- Elimination Diet



Metabolism

- Focus on Protein
- Elimination Diet
- Digestive Health



Clinical Digestion Therapy



Stomach—Acid

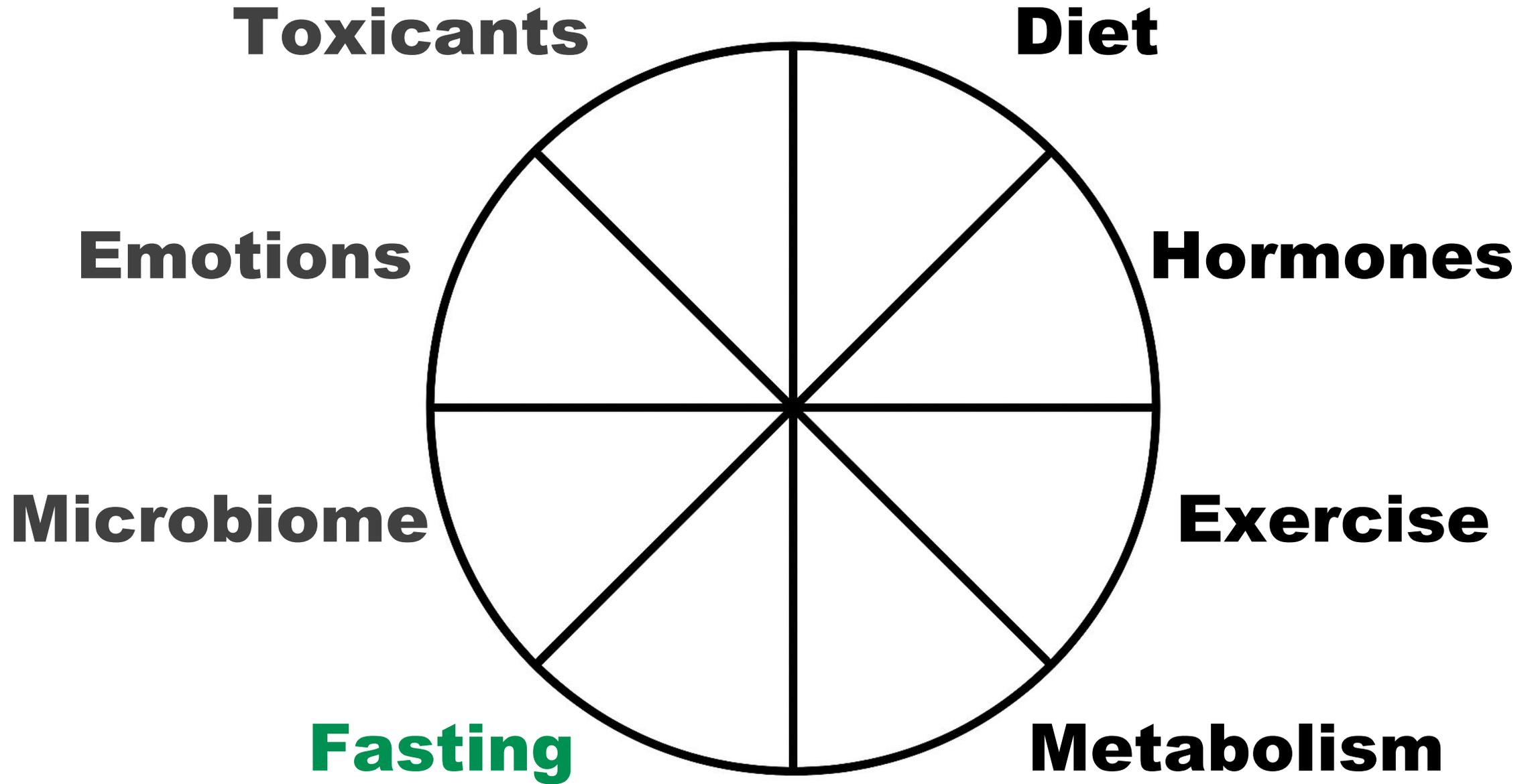
Liver/Gallbladder—Bile

Intestines—Microbiome

Pancreas—Enzymes

Metabolism





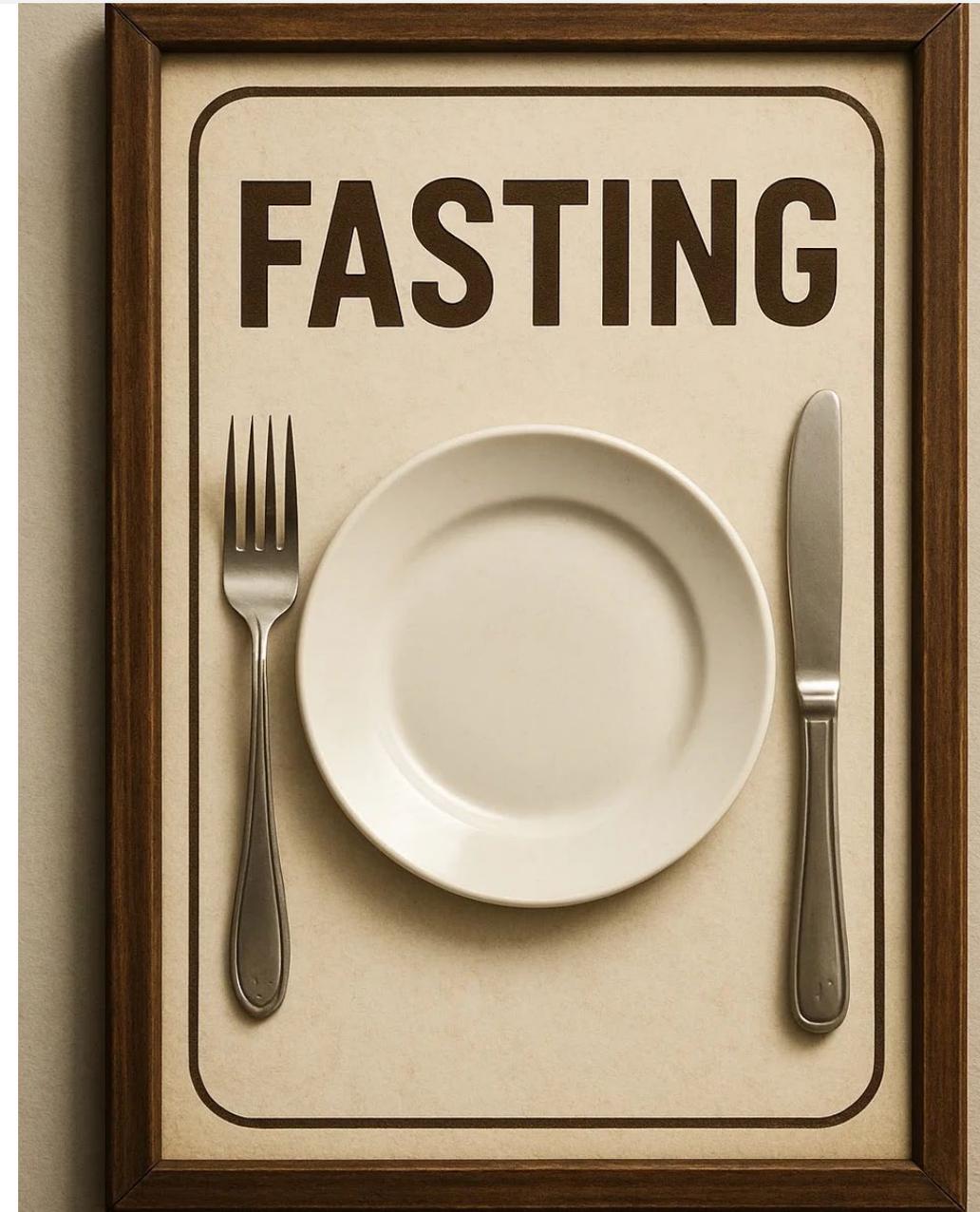


Fasting?



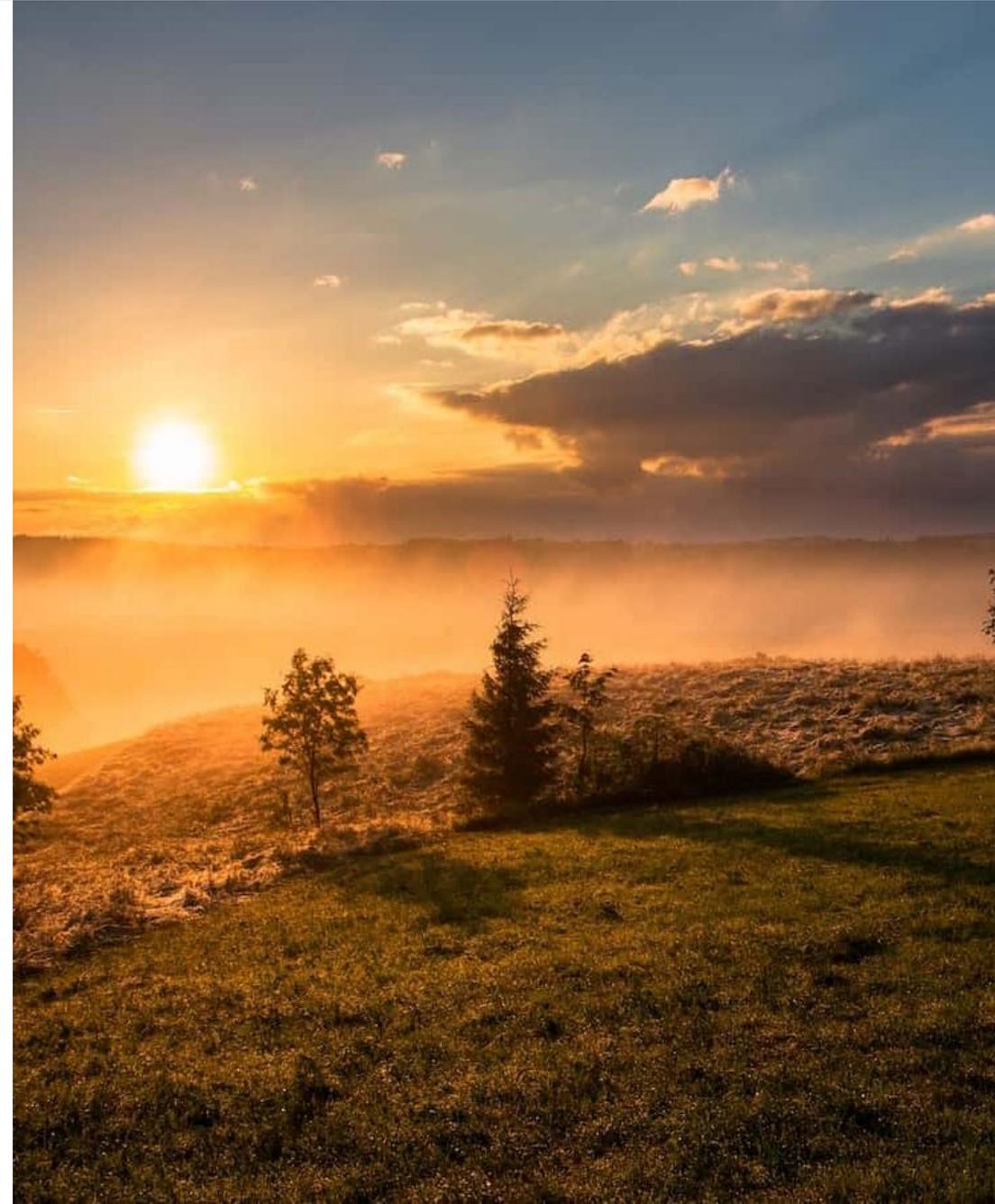
Fasting

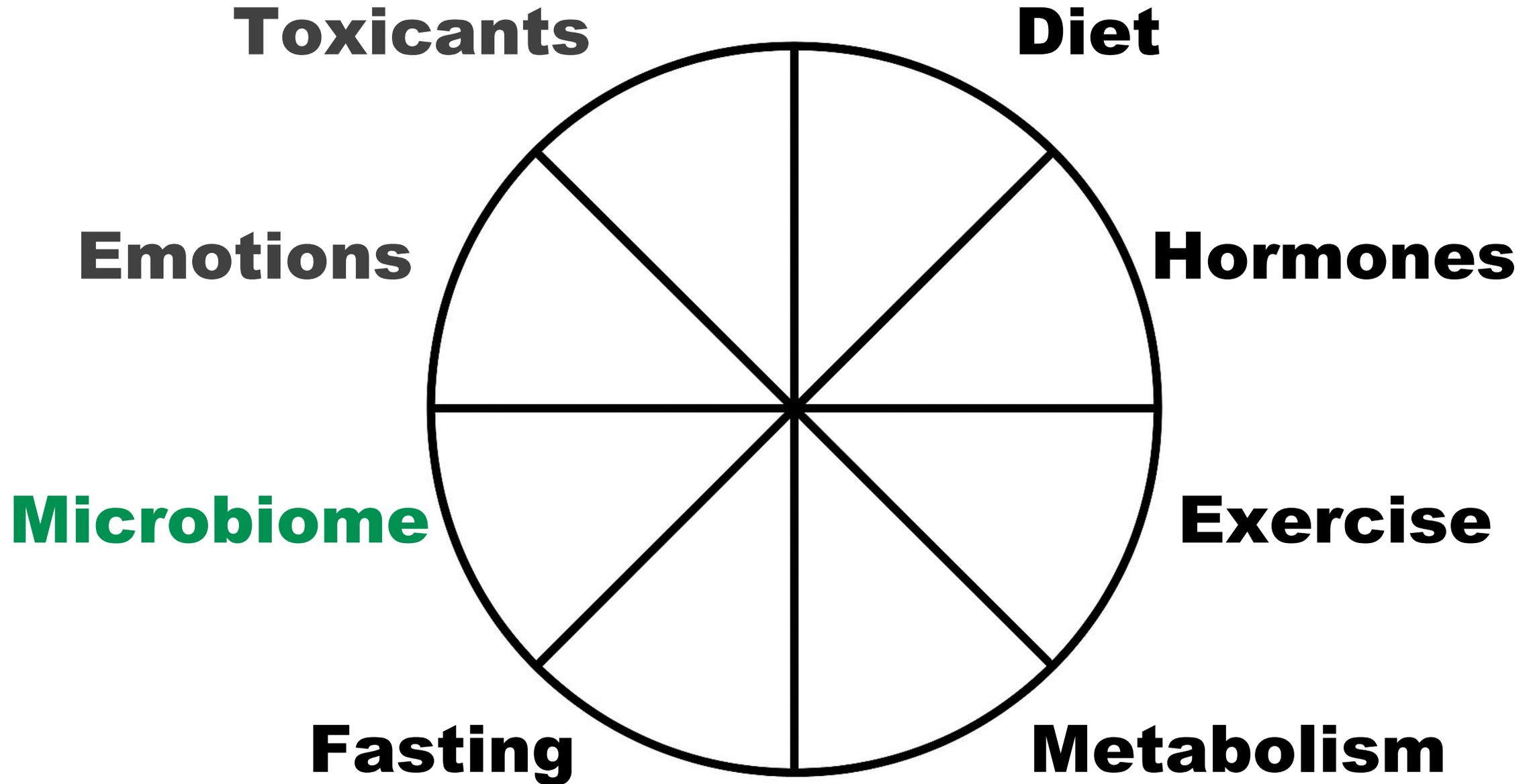
- Intermittent Fasting
- Time-Restricted Eating



No Fasting

- Dawn phenomenon?
- 20g protein within the first 30 minutes of being awake







Microbiome?



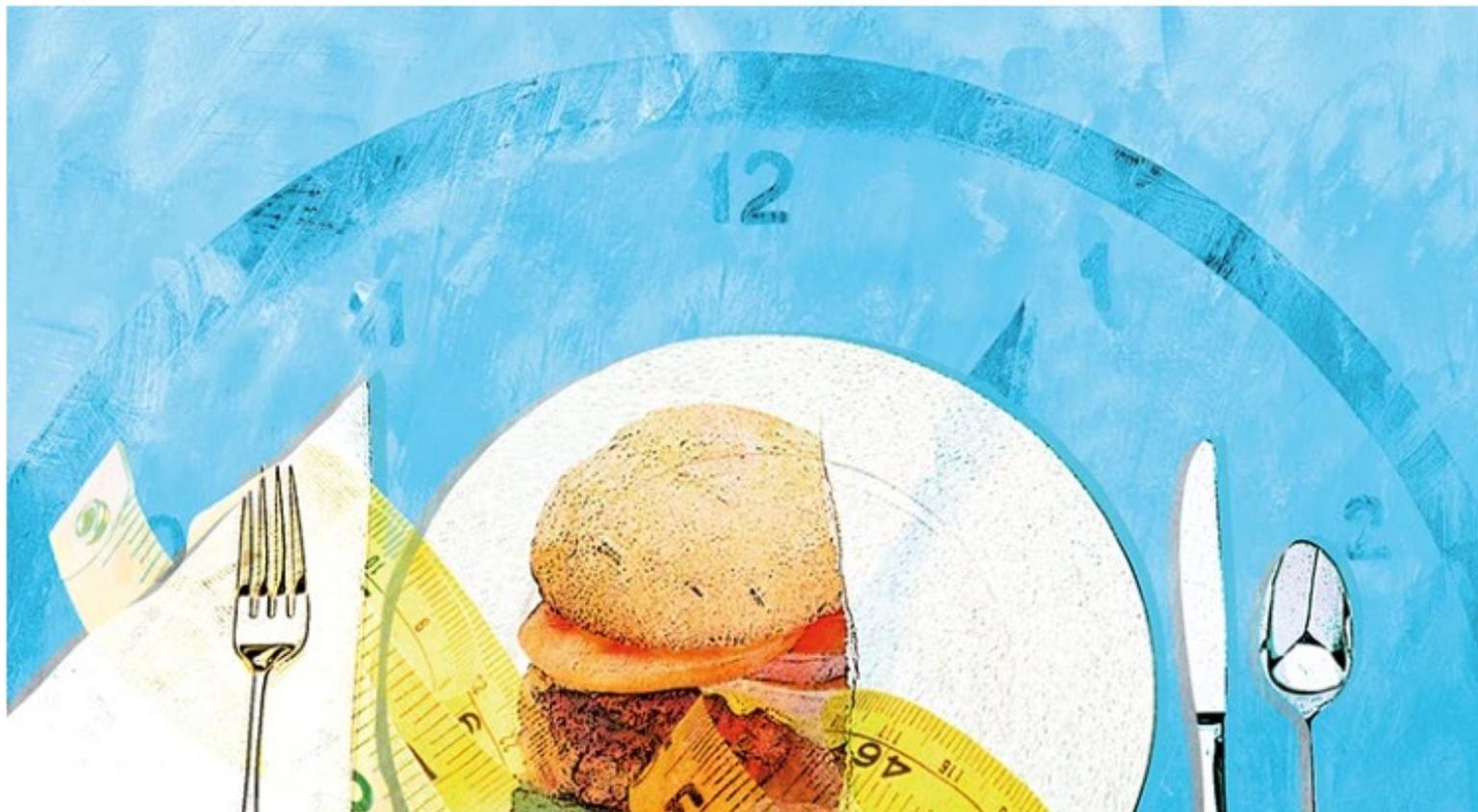
Microbiome

- Mouse Research



MILESTONES | 28 March 2019

The microbiota's guide to weight gain



An obesity-associated gut microbiome with increased capacity for energy harvest

[Peter J. Turnbaugh](#), [Ruth E. Ley](#), [Michael A. Mahowald](#), [Vincent Magrini](#), [Elaine R. Mardis](#) & [Jeffrey I. Gordon](#) 

[Nature](#) **444**, 1027–1031 (2006) | [Cite this article](#)

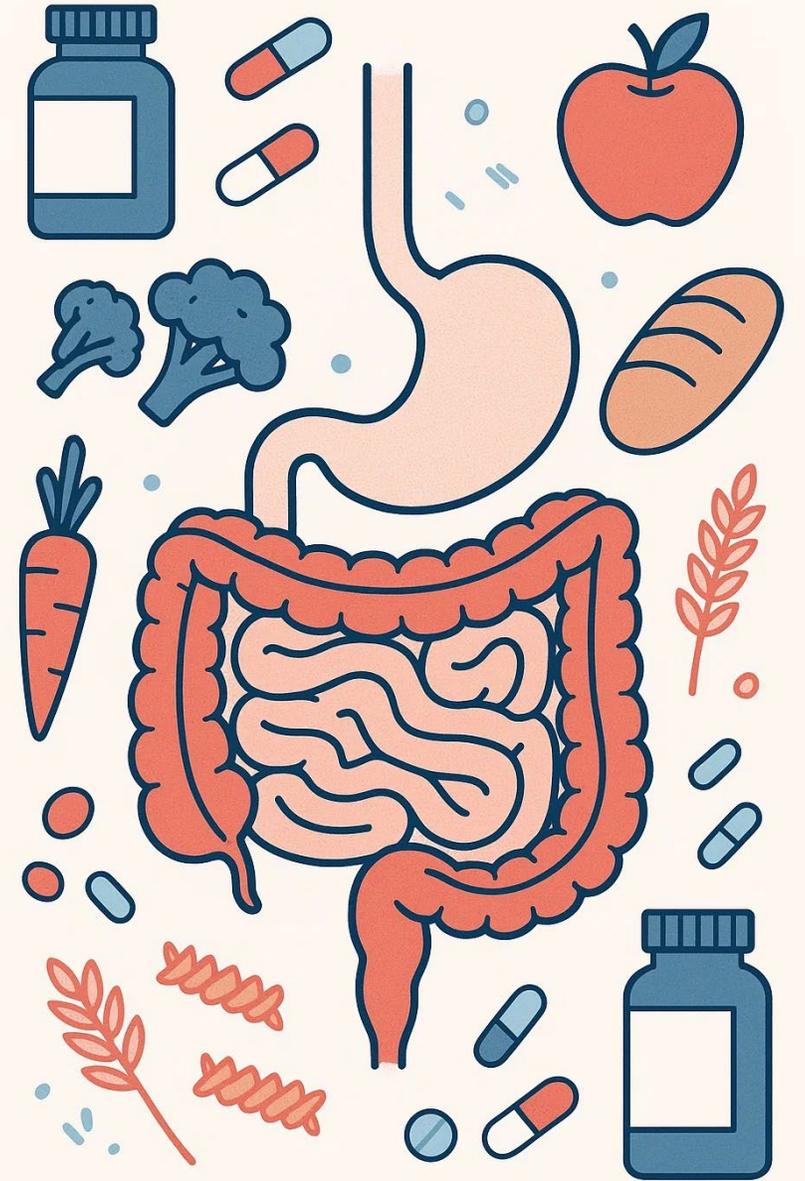
135k Accesses | **10k** Citations | **1203** Altmetric | [Metrics](#)

Abstract

The worldwide obesity epidemic is stimulating efforts to identify host and environmental factors that affect energy balance. Comparisons of the distal gut microbiota of genetically obese mice and their lean littermates, as well as those of obese and lean human volunteers have revealed that obesity is associated with changes in the relative abundance of the two dominant bacterial divisions, the Bacteroidetes and the Firmicutes. Here we demonstrate through metagenomic and biochemical analyses that these changes affect the metabolic potential of the mouse gut microbiota. Our results indicate that the obese microbiome has an increased capacity to harvest energy from the diet. Furthermore, this trait is transmissible: colonization of germ-free mice with an 'obese microbiota' results in a significantly greater increase in total body fat than colonization with a 'lean microbiota'. These results identify the gut microbiota as an additional contributing factor to the pathophysiology of obesity.

Microbiome

- Mouse Research
- Antibiotics



Research Paper

Functional consequences of microbial shifts in the human gastrointestinal tract linked to antibiotic treatment and obesity

Ester Hernández, Rafael Bargiela, María Suárez Díez, Anette Friedrichs, Ana Elena Pérez-Cobas, María José Gosalbes, ...show all

Pages 306-315 | Received 18 Apr 2013, Accepted 07 Jun 2013, Published online: 12 Jun 2013

🗨️ Cite this article 🔗 <https://doi.org/10.4161/gmic.25321>

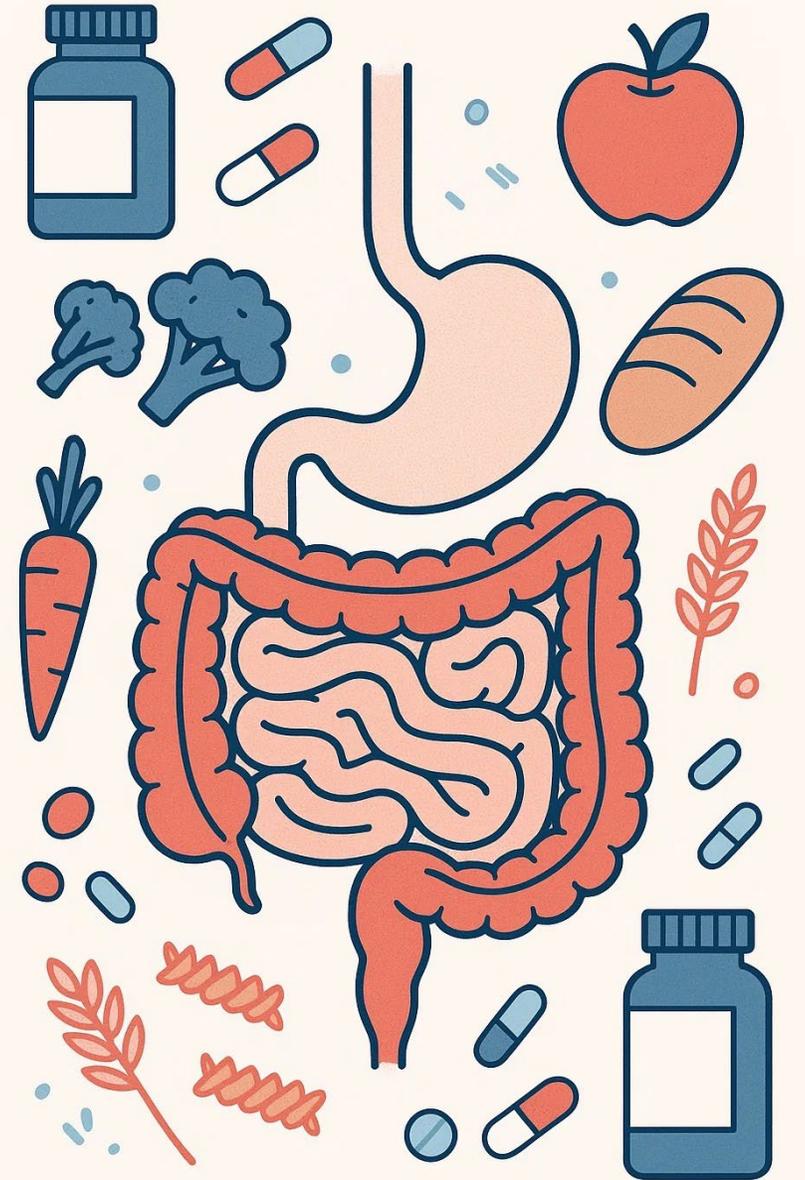
The microbiomes in the gastrointestinal tract (GIT) of individuals receiving antibiotics and those in obese subjects undergo compositional shifts, the metabolic effects and linkages of which are not clearly understood. Herein, we set to gain insight into these effects, particularly with regard to carbohydrate metabolism, and to contribute to unravel the underlying mechanisms and consequences for health conditions. We measured the activity level of GIT carbohydrate-active enzymes toward 23 distinct sugars in adults patients ($n = 2$) receiving 14-d β -lactam therapy and in obese ($n = 7$) and lean ($n = 5$) adolescents. We observed that both 14 d antibiotic-treated and obese subjects showed higher and less balanced sugar anabolic capacities, with 40% carbohydrates being preferentially processed as compared with non-treated and lean patients. Metaproteome-wide metabolic reconstructions confirmed that the impaired utilization of sugars propagated throughout the pentose phosphate metabolism, which had adverse consequences for the metabolic status of the GIT microbiota. The results point to an age-independent positive association between GIT glycosidase activity and the body mass index, fasting blood glucose and insulin resistance ($r^2 \geq 0.95$). Moreover, antibiotics altered the active fraction of enzymes controlling the thickness, composition and consistency of the mucin glycans. Our data and analyses provide biochemical insights into the effects of antibiotic usage on the dynamics of the GIT microbiota and pin-point presumptive links to obesity. The knowledge and the hypotheses generated herein lay a foundation for subsequent, systematic research that will be paramount for the design of “smart” dietary and therapeutic interventions to modulate host-microbe metabolic co-regulation in intestinal homeostasis.

From Microbiome to Metabolome



Microbiome

- Mouse Research
- Antibiotics
- GLP-1 drugs



Semaglutide

- ✦ GI Side Effects
- ✦ Loss of Lean Muscle
- ✦ Rebound Effect
- ✦ Optic Nerve Damage?
(non-arteritic anterior ischemic
optic neuropathy)



Effect of *Akkermansia Muciniphila* on GLP and Insulin Secretion

Ananta Prasad Arukha ^{1,*} and Subhendu Nayak ^{2,*} Durga Madhab Swain ^{3,*}

¹ Department of Infectious Disease and Immunology, University of Florida

² Vidya USA Corporation, Otis Stone Hunter Road, Bunnell, Florida: 32100, USA

³ Vidya USA corporation

* Correspondence: ananta.arukha@ufl.edu (A.P.A.); subhendu@vidyaherbsusa.com (S.N.); dswain@vidyaherbsusa.com (D.M.S.)

Abstract: Gut microbiota research has gained momentum in recent years broadening knowledge of microbial components and their potential effects on health and well-being. Strong association between explicit microbes and metabolic diseases associated with obesity and type 2 diabetes mellitus, gastrointestinal disorders, neurodegenerative diseases and even cancers have been established. *Akkermansia muciniphila* is a budding next-generation probiotic that plays an important role in the systemic metabolism, intestinal health, and immune regulation establishing strong implications of its use as a potent therapeutic intervention in diverse diseases. This project aimed at evaluating whether bacterial cell extracts of VH *Akkermansia muciniphila* (Vidya Strain, VS) can stimulate insulin secretion in INS-1 pancreatic beta cells and GLP-1 secretion in NCI-H716 human L-cells, both established in vitro models for studying metabolic regulation. Our study demonstrated that VH *Akkermansia muciniphila* extracts modestly increase insulin secretion from INS-1 beta cells and, more notably, induce a robust, dose-dependent rise in GLP-1 secretion from NCI-H716 L-cells, with the highest dose achieving over a 2,000% increase comparable to glutamine. These findings suggest that VH *A. muciniphila* extracts may offer metabolic benefits by enhancing GLP-1 release, highlighting their potential for managing type 2 diabetes and obesity.

Improvements to postprandial glucose control in subjects with type 2 diabetes: a multicenter, double blind, randomized placebo-controlled trial of a novel probiotic formulation

[Author affiliations](#) · [Fanny Perraudeau](#)¹ , [Paul McMurdie](#)¹ , [James Bullard](#)¹ , [Andrew Cheng](#)¹ , [Colleen Cutcliffe](#)¹, [Achal Deo](#)¹, [John Eid](#)¹ , [Jessica Gines](#)¹, ... [9 Show all authors](#) 

Abstract

Introduction A growing body of evidence suggests that specific, naturally occurring gut bacteria are under-represented in the intestinal tracts of subjects with type 2 diabetes (T2D) and that their functions, like gut barrier stability and butyrate production, are important to glucose and insulin homeostasis. The objective of this study was to test the hypothesis that enteral exposure to microbes with these proposed functions can safely improve clinical measures of glycemic control and thereby play a role in the overall dietary management of diabetes.

Research design and methods We evaluated whether a probiotic comprised of these anaerobic bacteria would enhance dietary management by (1) manufacturing two novel probiotic formulations containing three (WBF-010) or five (WBF-011) distinct strains in a Current Good Manufacturing Practice (cGMP) facility, (2) establishing consistent live-cell concentrations, (3) confirming safety at target concentrations dispensed in both animal and human studies and (4) conducting a 12-week parallel, double-blind, placebo-controlled, proof-of-concept study in which subjects previously diagnosed with T2D (n=76) were randomly assigned to a two times a day regimen of placebo, WBF-010 or WBF-011.

Results No safety or tolerability issues were observed. Compared with the placebo group, subjects administered WBF-011 (which contains inulin, *Akkermansia muciniphila*, *Clostridium beijerinckii*, *Clostridium butyricum*, *Bifidobacterium infantis* and *Anaerobutyricum hallii*) significantly improved in the primary outcome, glucose total area under the curve (AUC): -36.1

Overview

[Abstract](#)[Introduction](#)[Methods](#)[Results](#)[Discussion](#)[References](#)

[Supplementary files](#)[Footnotes](#)[Publication history](#)[Responses](#)

Probiotic Classes

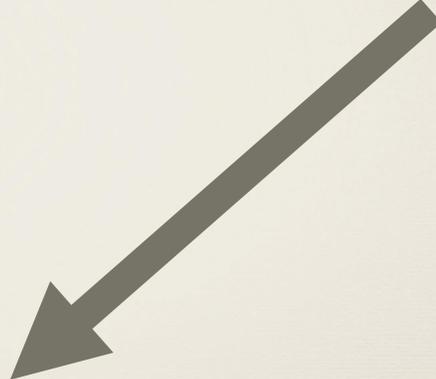
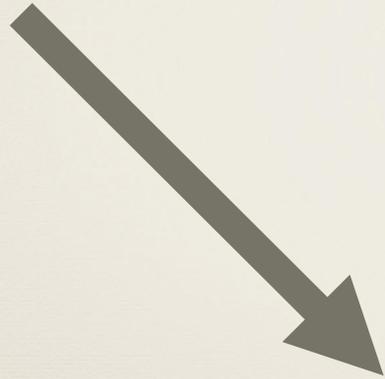
- ✿ Traditional: Lactobacillus & Bifidobacterium
- ✿ Beneficial Yeast: Saccharomyces bollari
- ✿ Next Generation: Bacillus & Akkermansia
- ✿ Wild Ferments

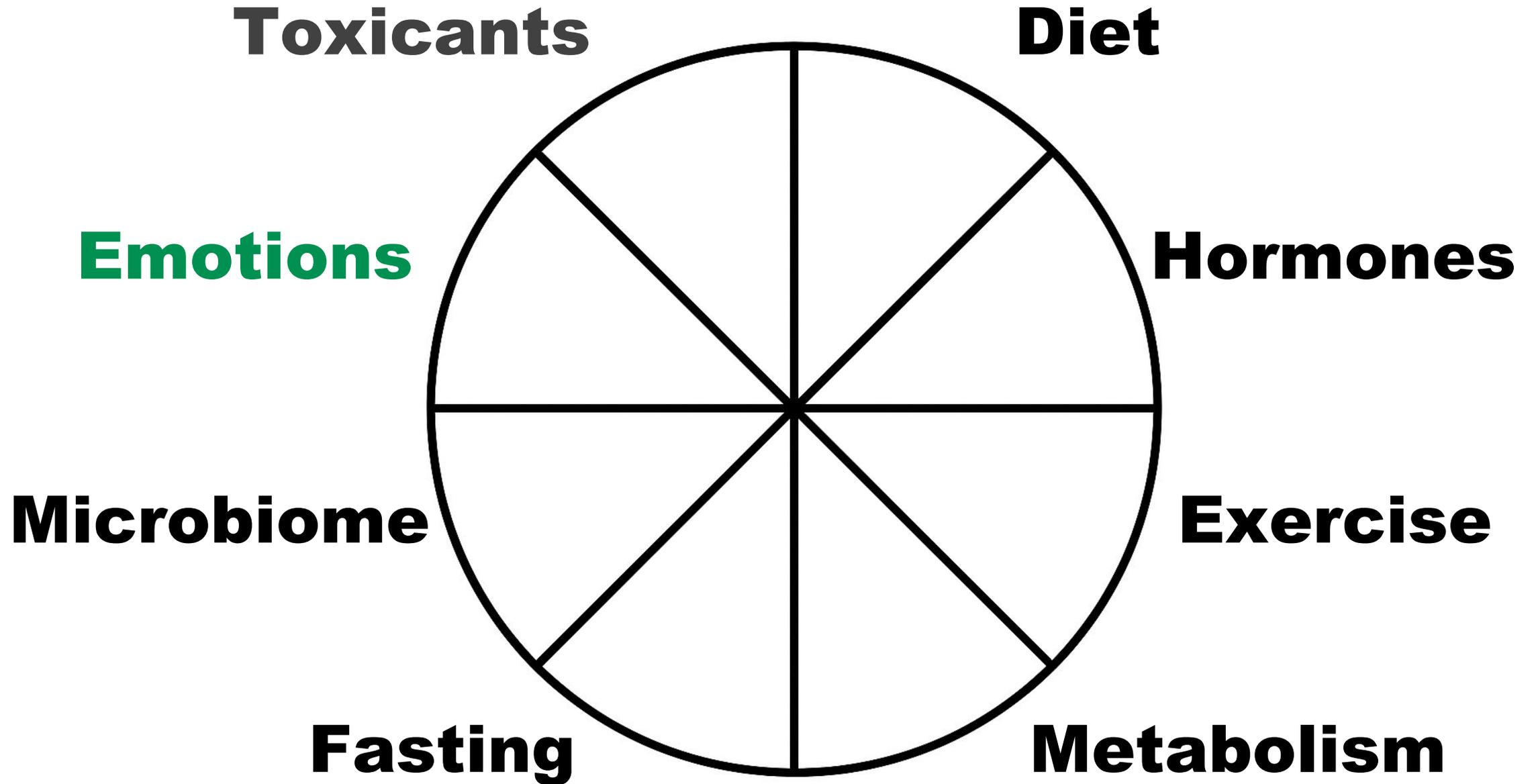
Probiotic

Prebiotic

Postbiotic

Effect





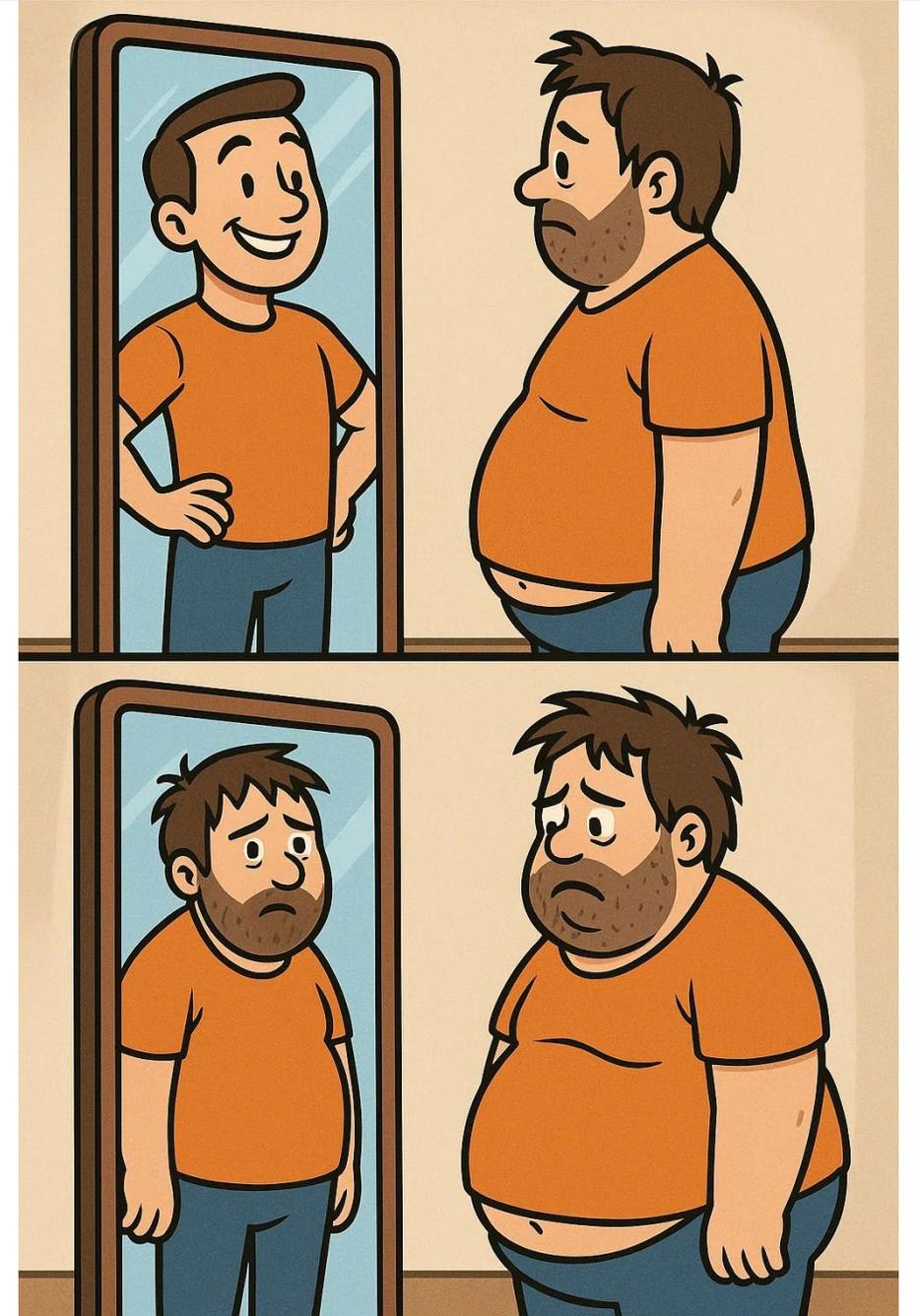


Emotions?



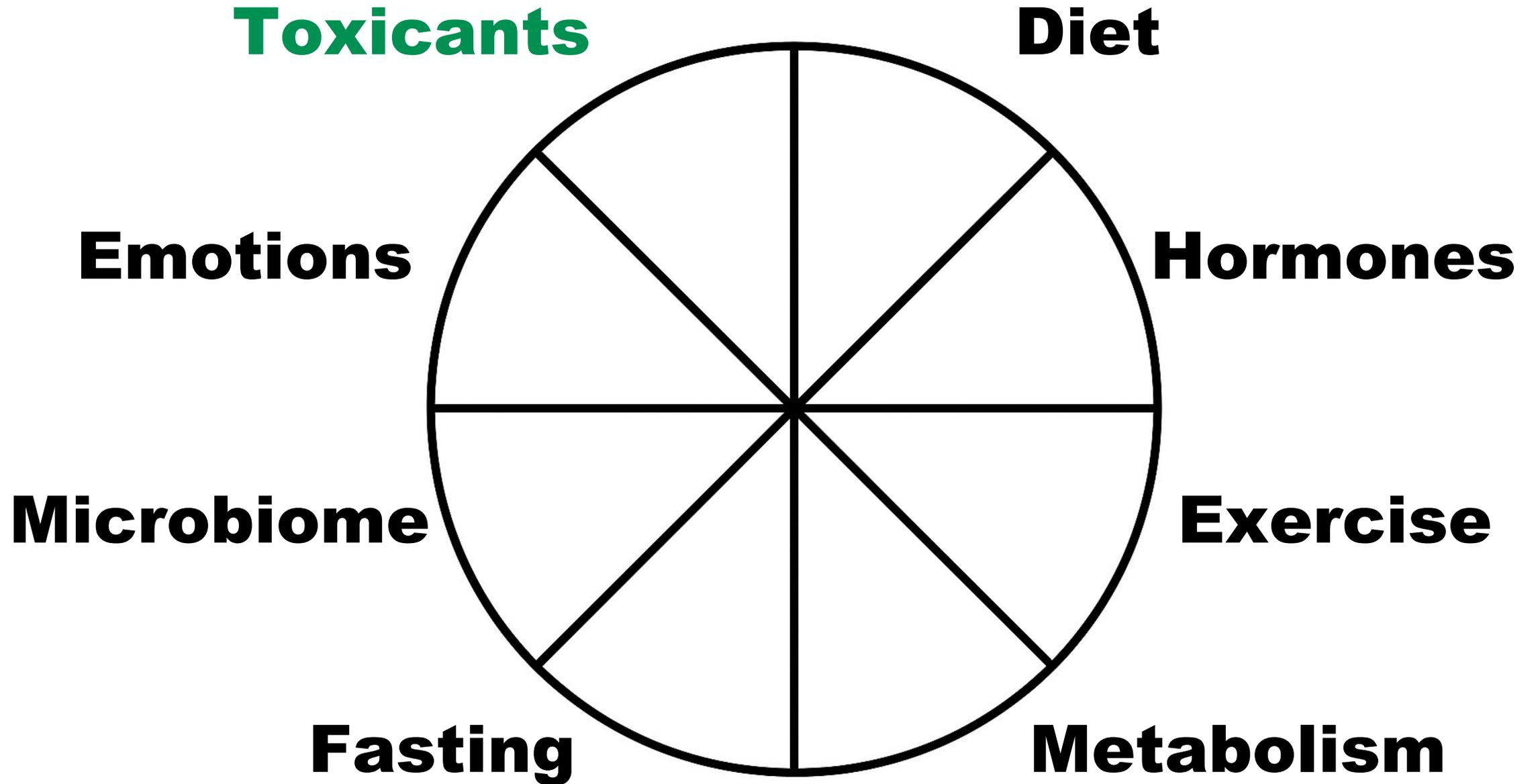
Emotions

- Stress Eating
- Body Image
- Self-Worth



Addiction as Self-Medication







Toxicants?



Toxins/Toxicants

- Toxic Metals
- Mold
- Obesogens



SCIENCE

The obesity trend isn't only affecting humans — chimps, pets, and lab rats are getting fatter too

by **Julia Belluz**

Aug 24, 2015, 9:30 AM CDT



Canaries in the coal mine: a cross-species analysis of the plurality of obesity epidemics

Yann C. Klimentidis, T. Mark Beasley, Hui-Yi Lin, Giulianna Murati, Gregory E. Glass, Marcus Guyton, Wendy Newton, Matthew Jorgensen, Steven B. Heymsfield, Joseph Kemnitz, Lynn Fairbanks and David B. Allison ✉

Published: 24 November 2010 | <https://doi.org/10.1098/rspb.2010.1890>

Abstract

A dramatic rise in obesity has occurred among humans within the last several decades. Little is known about whether similar increases in obesity have occurred in animals inhabiting human-influenced environments. We examined samples collectively consisting of over 20 000 animals from 24 populations (12 divided separately into males and females) of animals representing eight species living with or around humans in industrialized societies. In all populations, the estimated coefficient for the trend of body weight over time was positive (i.e. increasing). The probability of all trends being in the same direction by chance is 1.2×10^{-7} . Surprisingly, we find that over the past several decades, average mid-life body weights have risen among primates and rodents living in research colonies, as well as among feral rodents and domestic dogs and cats. The consistency of these findings among animals living in varying environments, suggests the intriguing possibility that the aetiology of increasing body weight may involve several as-of-yet unidentified and/or poorly understood factors (e.g. viral pathogens, epigenetic factors). This finding may eventually enhance the discovery and fuller elucidation of other factors that have contributed to the recent rise in obesity rates.



Review

Obesity II: Establishing causal links between chemical exposures and obesity

Jerrold J. Heindel^a  , Sarah Howard^a, Keren Agay-Shay^b, Juan P. Arrebola^c,
Karine Audouze^d, Patrick J. Babin^e, Robert Barouki^f, Amita Bansal^g, Etienne Blanc^f,
Matthew C. Cave^h, Saurabh Chatterjeeⁱ, Nicolas Chevalier^j, Mahua Choudhury^k, David Collier^l,
Lisa Connolly^m, Xavier Coumoul^f, Gabriella Garrutiⁿ, Michael Gilbertson^o, Lori A. Hoepner^p,
Alison C. Holloway^q...Bruce Blumberg^u

Highlights

- There is an expanding global obesity pandemic.
- Ubiquitous environmental chemicals called obesogens play a vital role in the obesity pandemic.
- Exposure to obesogens occurs throughout the life course from before conception until death.
- Development is the most sensitive time for obesogens to impact future weight gain across the lifespan and generations.
- Obesogens can act via epigenetic mechanisms.
- There is a need to expand understanding of the obesogen paradigm to clinicians and consumers.

Obesogens

- ✿ Bisphenols
- ✿ Phthalates
- ✿ Persistent Organic Pollutants (POPs)
- ✿ Parabens
- ✿ Herbicides/Pesticides/Fungicides

Bisphenols

- Toiletries/Menstrual products
- Thermal printer paper
- Food packaging
- Dental sealants
- Eyeglass lenses



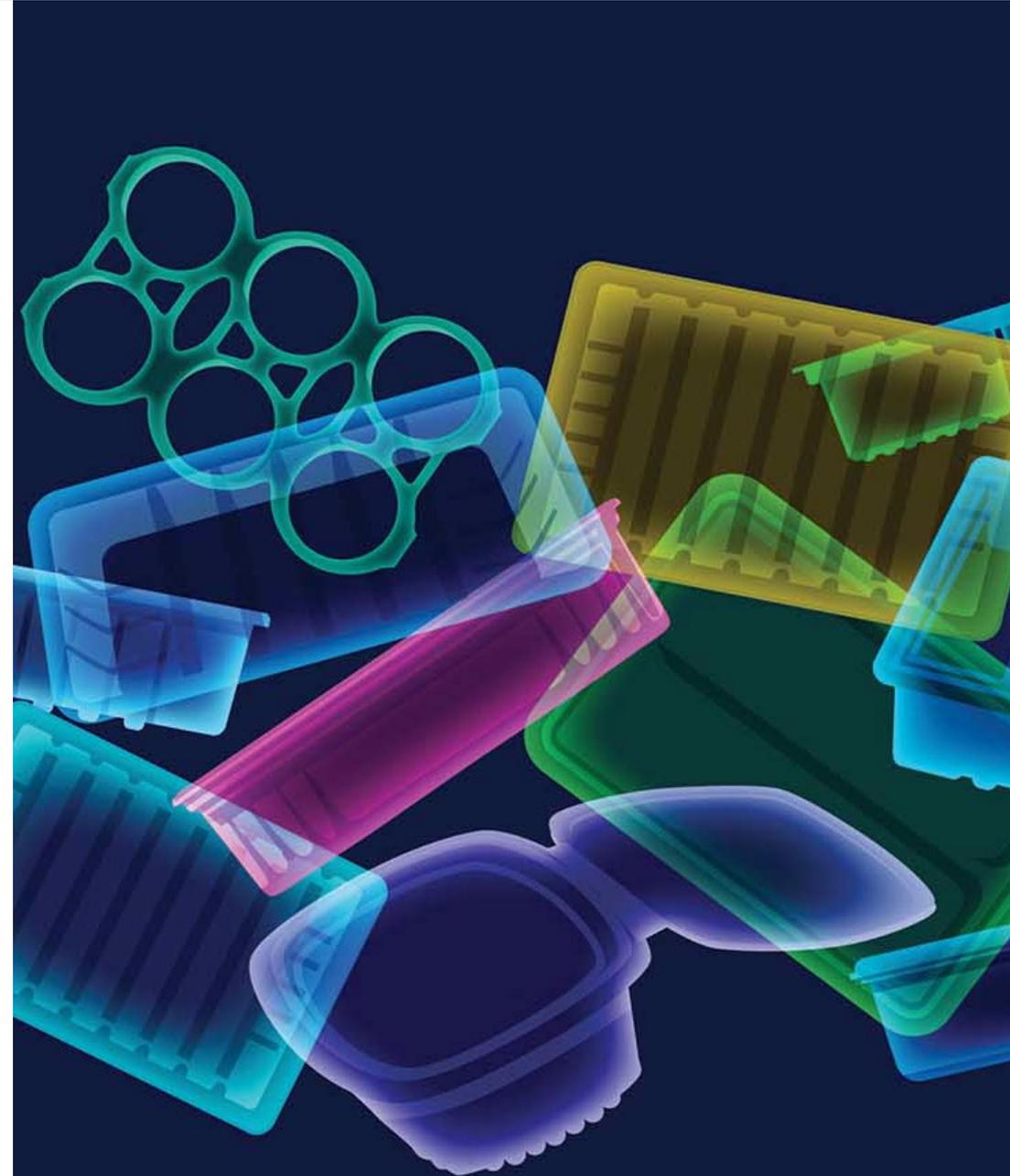
Avoiding Bisphenols

- Glass instead of plastic
- Electronic receipts
- Limit canned/packageged foods



Phthalates

- Toiletries
- Toys
- Building materials (PVC)
- Food packaging
- Nail polish
- Perfumes



Avoiding Phthalates

- Glass instead of plastic
- PVC (plastic #3)
- Limit canned/packageged foods; eating out



Herbicides

- Atrazine
- Glyphosate?



Avoiding Herbicides

- Eat organic
- Air/Water filtration
- Take off your shoes
- Don't use these chemicals



POPs

- PFAS: PFOA & PFOS
- Contaminated water
- Stain-resistant fabrics
- Carpets



Avoiding POPs

- Limit packaged foods
- Water filtration
- Natural fiber clothing
- Natural flooring



Parabens

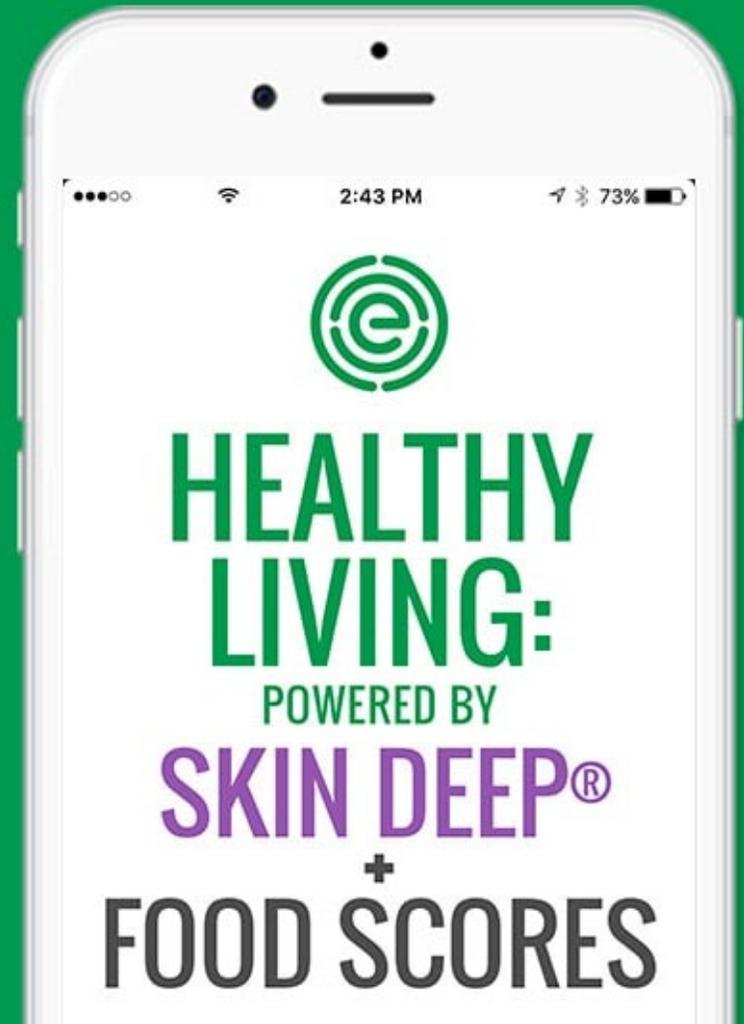
- Cosmetics
- Moisturizers
- Shaving creams
- Hair care products



Avoiding Parabens

- Check labels
- Look up toiletries
- Avoid fragrances
- Avoid preservatives

DOWNLOAD THE
HEALTHY LIVING APP
TODAY!



STEWART LONKY, MD

With Contributions by **CHRIS TALLEY, MS**

Foreword by **STEPHEN SINATRA, MD**

OUTSMARTING **OBESITY**



A Doctor Reveals Why We Gain Weight,
Why It Matters, and What We Can Do About It

Testing for Toxicants?



Purification Options



Depuration

- Water/Juice fast
- Chelation
- Sauna
- Colonics
- Binders: zeolite, clay, charcoal
- Herbal/Nutritional programs



*****Toxicants**

***Diet**

***Emotions**

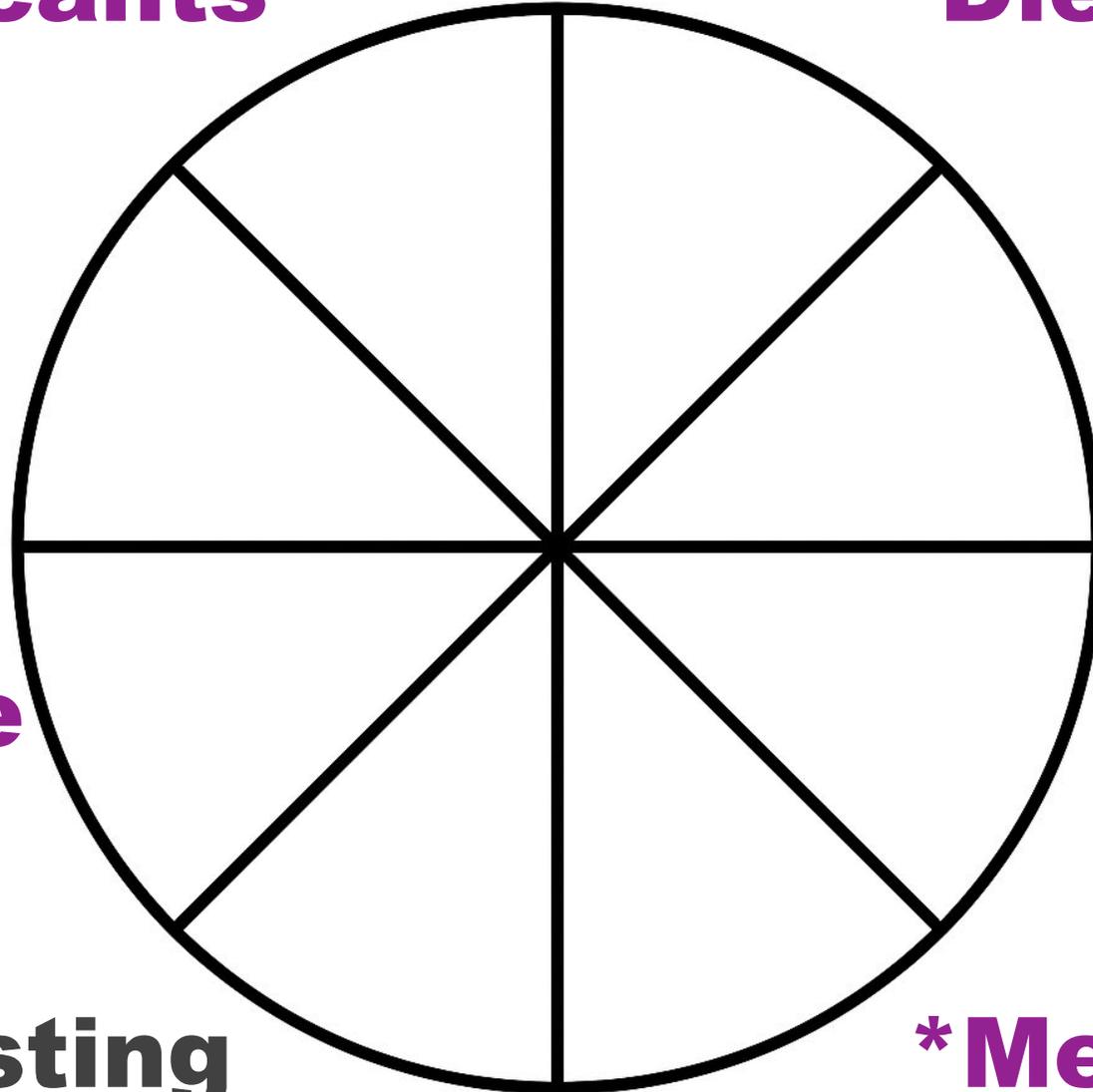
***Hormones**

***Microbiome**

Exercise

Fasting

***Metabolism**



Sign up
Promotion?

Closing

01

No Silver
Bullets

02

Hard Work

03

No
Gimmicks

A close-up photograph of green, leafy vegetables, possibly kale or spinach, covered in numerous small, clear water droplets. The leaves are vibrant green and have a slightly textured, ruffled appearance. The lighting is soft, highlighting the glistening water droplets on the leaf surfaces.

Focus on Health



Brandon
LaGreca.com

ANY
QUESTIONS?

