

# How Your Food Choices Affect Your Mental Health

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# The Neurotransmitter Theory

**Serotonin**

(depression, anxiety)

**Norepinephrine**

(depression, ADHD)

**Dopamine**

(psychosis, ADHD)

**Glutamate / GABA**

(excitation/inhibition)

# Psychopharmacology

No reliable neurotransmitter tests

No truly new medication options

Low response rates:

**Antipsychotics: 23%**

(Placebo: 14%)

**Antidepressants: 50%**

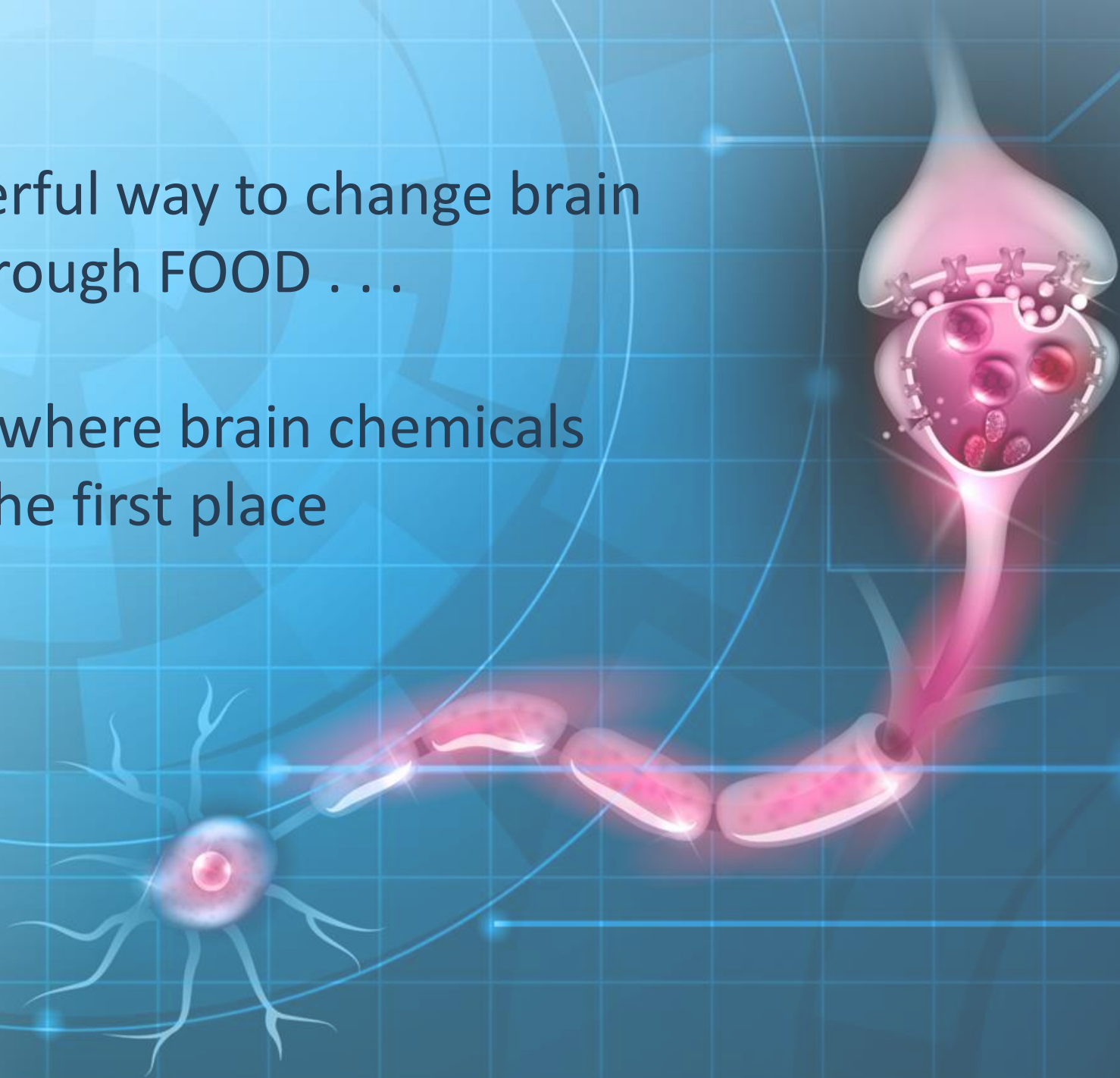
(Placebo: 40%)

miniscule improvements



The most powerful way to change brain chemistry is through FOOD . . .

because that's where brain chemicals come from in the first place



# Nutritional Psychiatry: Mediterranean Diet

**HIGH** in whole grains, vegetables, fruit, nuts, legumes, and olive oil

**MODERATE** in seafood, poultry, eggs, low-fat dairy and red wine

**LOW** in sweets, red meat, and processed meats



# Metabolic Psychiatry: Ketogenic Diet

ANY way of eating that

**lowers insulin** levels enough to turn on **fat-burning** and

generate **clinically meaningful levels of ketones** in the blood

(Beta-hydroxybutyrate 0.5 – 5.0 mM)

**Very low-carbohydrate**

**Moderate protein**

**Higher in fat**



# Brain-Healthy Diet Principles

1

Nourish

**Include** adequate amounts of all essential nutrients

2

Protect

**Exclude** ingredients which damage the brain

3

Energize

**Provide** reliable energy in ways that support healthy brain metabolism over the lifespan

A vibrant collage of fresh food items including salmon, chicken, fish, avocados, carrots, broccoli, and various fruits like grapes and strawberries. The items are arranged on a wooden surface, creating a rich, natural aesthetic.

**1**

**Nourish**



# The Brain Needs Animal Foods

Nutrient Deficiency	Mental Health Risks
Vitamin B12	Behavior change, psychosis, cognitive impairment <sup>1</sup>
Iron	ADHD, <sup>2</sup> anxiety, depression, psychosis, sleep disorders <sup>3</sup>
Zinc	ADHD, <sup>4</sup> depression, <sup>5</sup> psychosis <sup>5</sup>
Iodine	Hypothyroidism, anxiety <sup>6</sup>
DHA/EPA	ADHD, autism, mood disorders, schizophrenia, dementia <sup>7</sup>

1. Kennedy DO. *Nutrients*. 2016; 2. Granero R et al. *Nutrients*. 2021; 3. Lee H-S et al. *BMC Psychiatry*. 2020; 4. Ghoreishy SM et al. *Sci Rep*. 2021. 5. Petrilli MA et al. *Front Pharmacol*. 2017; 6. Turan E, Karaaslan O. *Oman Med J*. 2020; 7. Lange KW. *Glob Health J*. 2020.

# Grains and Legumes: (P)anti-nutrients

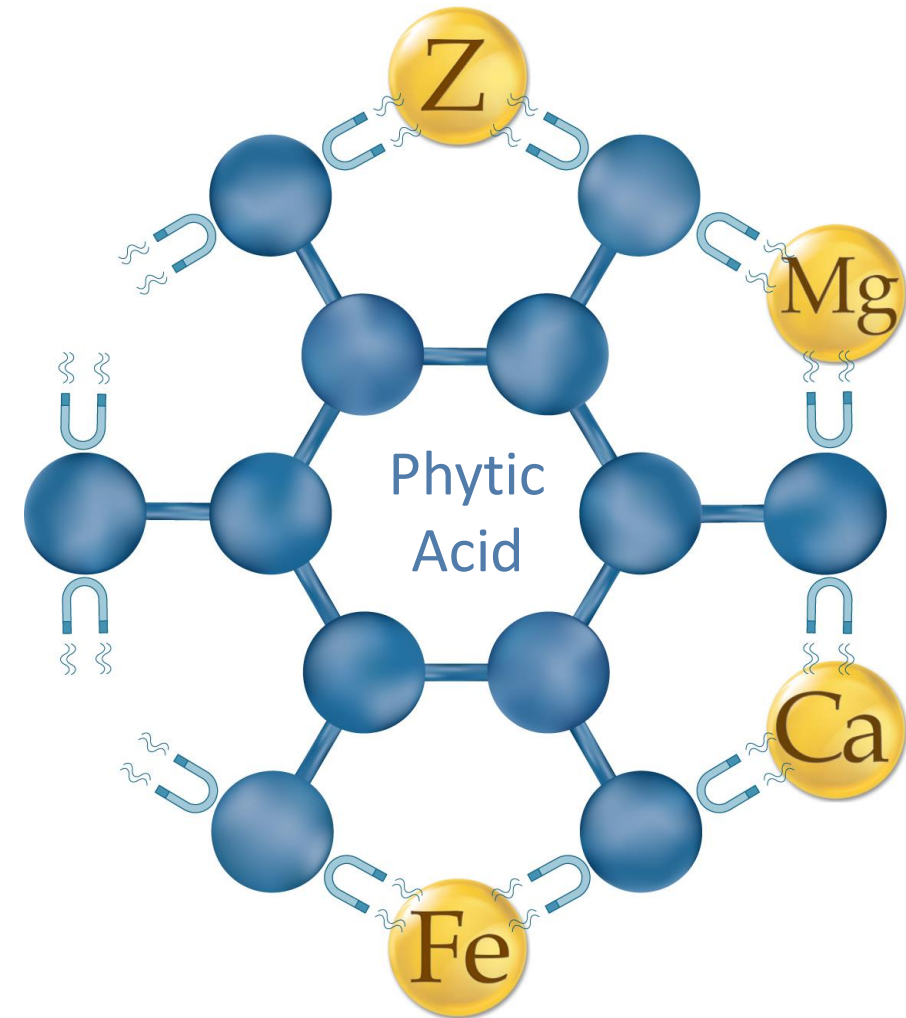
Protease inhibitors: ↓ Protein

Oxalates: ↓ Iron

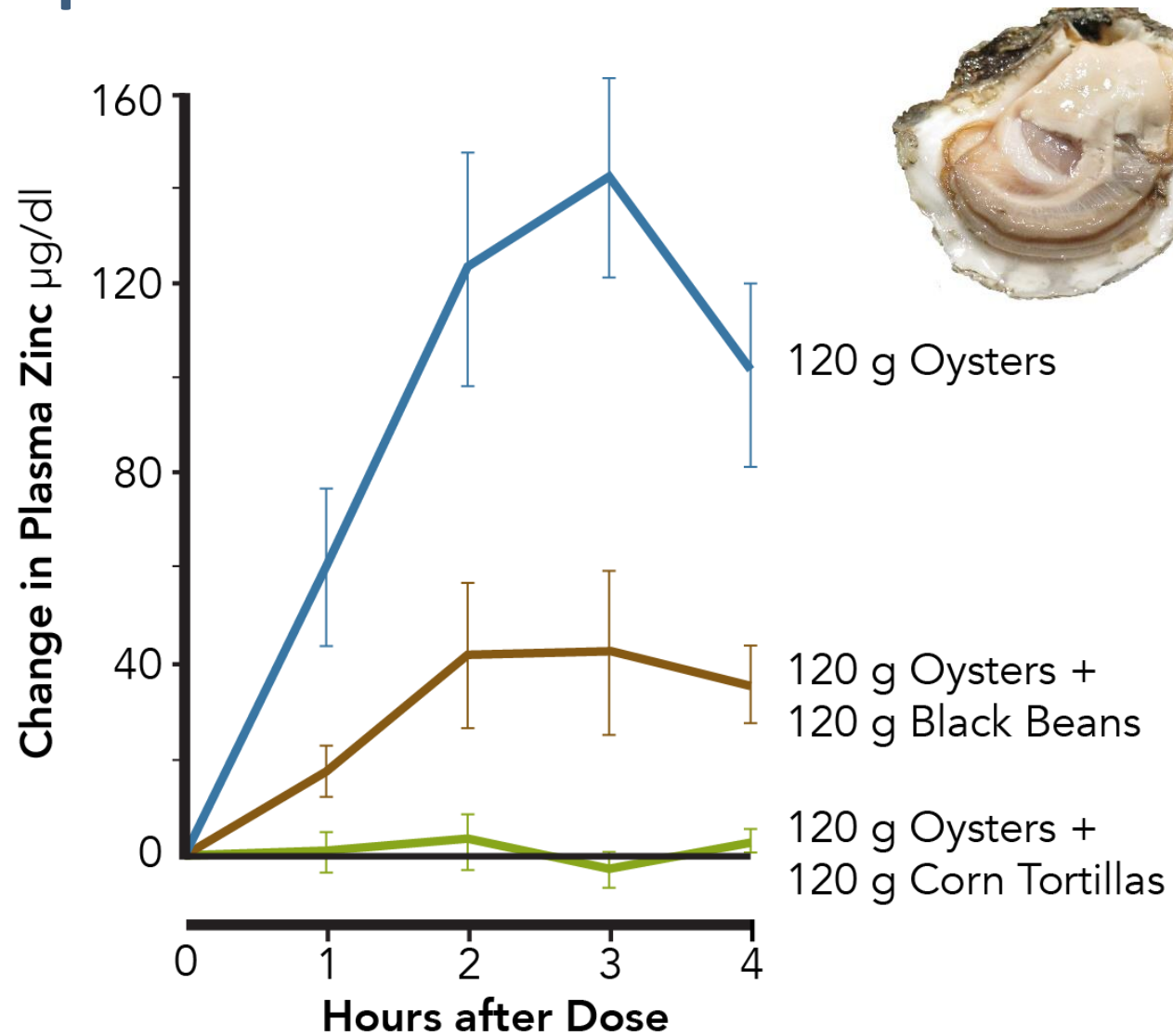
Tannins: ↓ Iron

Goitrogens: ↓ Iodine

Phytic acid: ↓ Iron, Zinc, Calcium,  
Magnesium



# Zinc Absorption



# Mind Minerals



Serotonin synthesis, dopamine transport, memory, buffers against glutamate excitotoxicity, activates vitamin B6



Dopamine synthesis, infant brain development, hippocampal function, energy production, cell signaling



Neurotransmission, buffers against glutamate excitotoxicity, binds serotonin and dopamine to their receptors

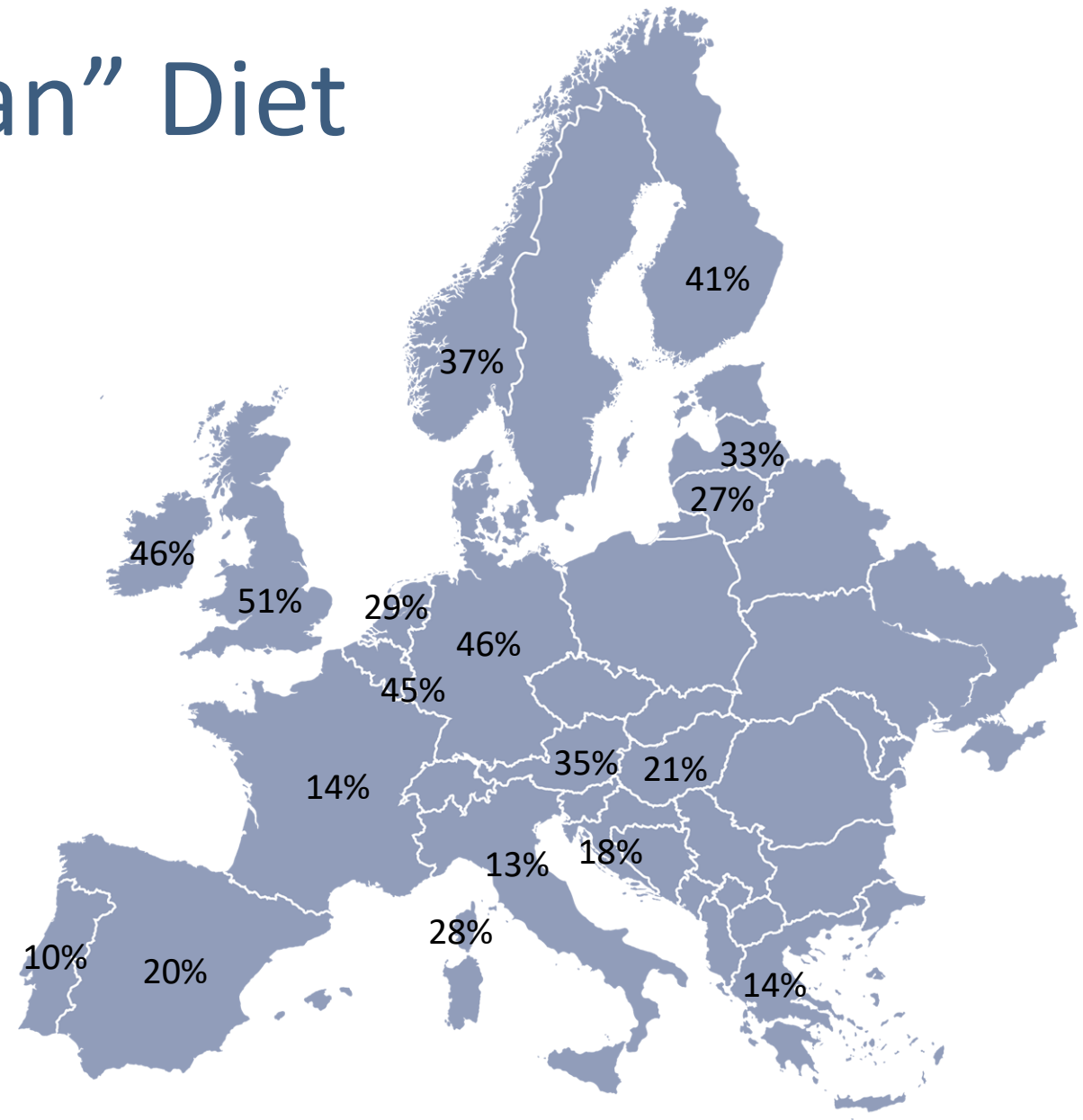


Neurotransmitter release, memory formation, glutamate and GABA function, neuronal integrity, cell survival

# 2 Protect

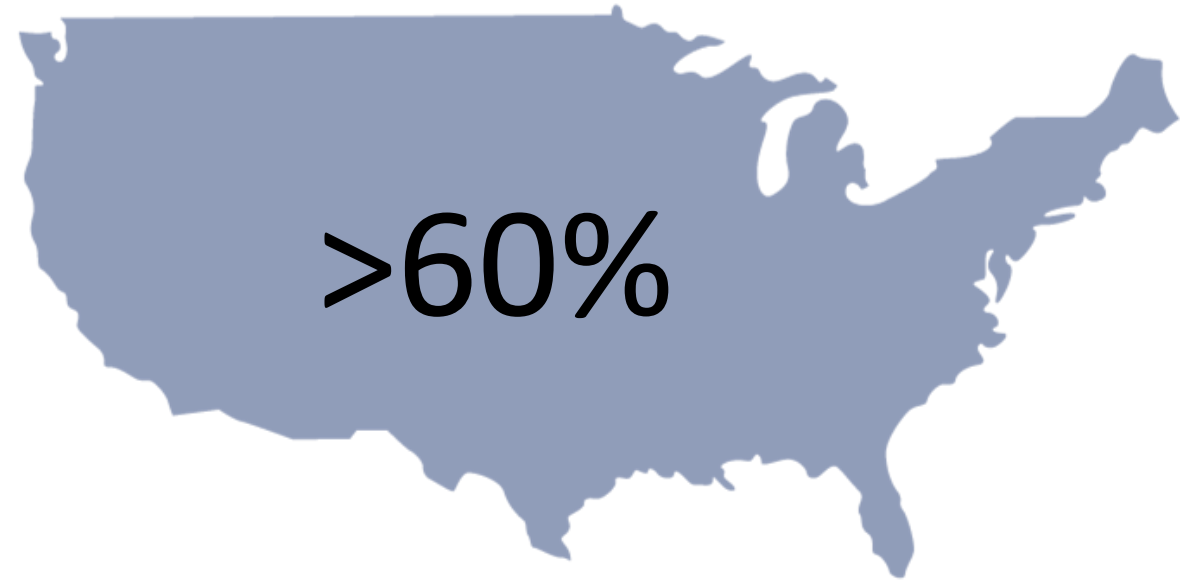


# The Standard “American” Diet



Percentage of Food Consumed as Ultra-Processed Foods

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Percentage of Food Consumed as Ultra-Processed Foods





# Root Causes of Poor Mental Health

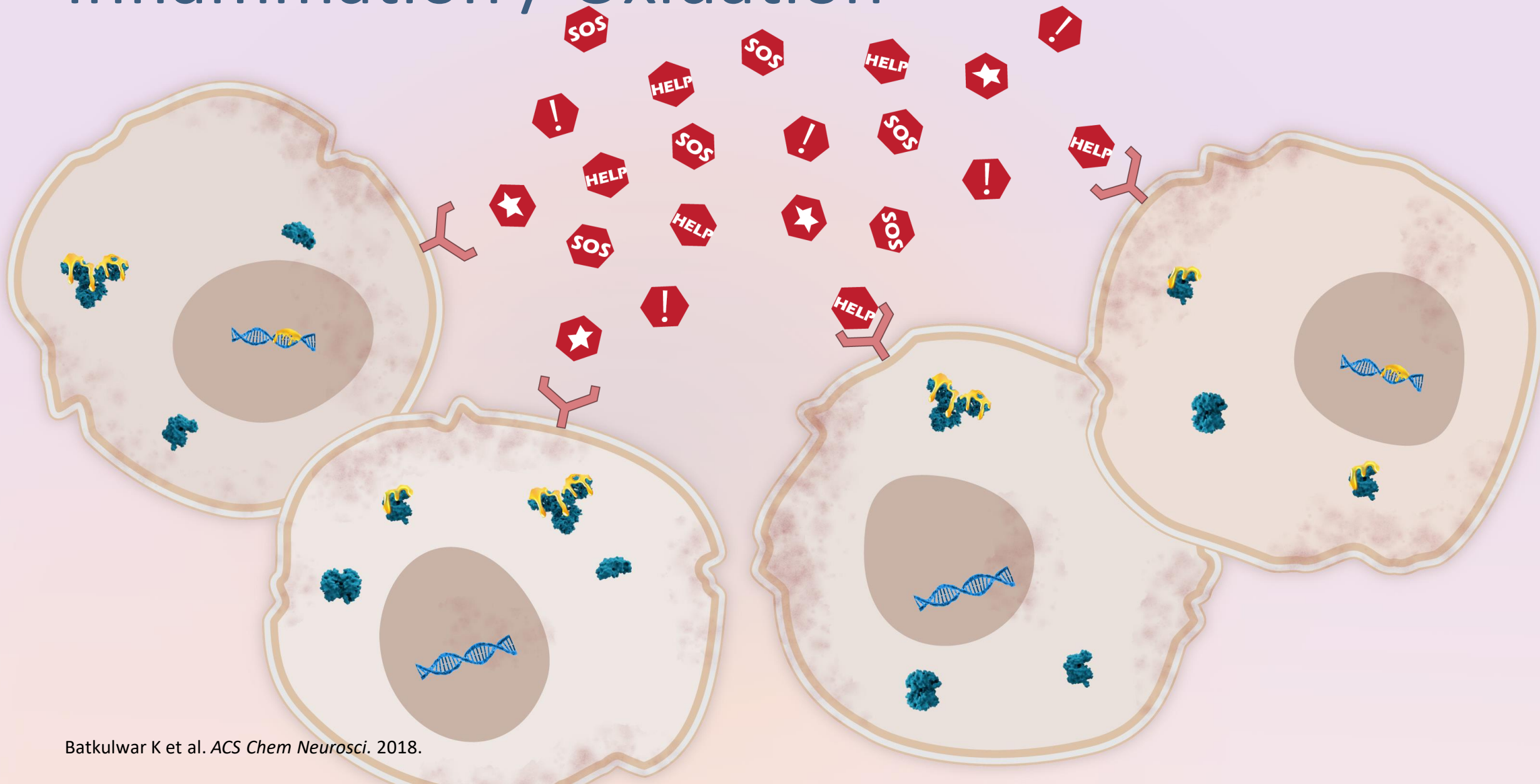
**Inflammation**

**Oxidative Stress**

**Insulin Resistance**



# Inflammation / Oxidation



# “Vegetable Oils” and Linoleic Acid Toxicity

An aerial photograph of a large industrial facility, likely a refinery or chemical plant. The image shows several large, cylindrical storage tanks, complex piping systems, and several large blue buildings. The facility is surrounded by greenery and a road with some vehicles. The overall scene is industrial and somewhat hazy.

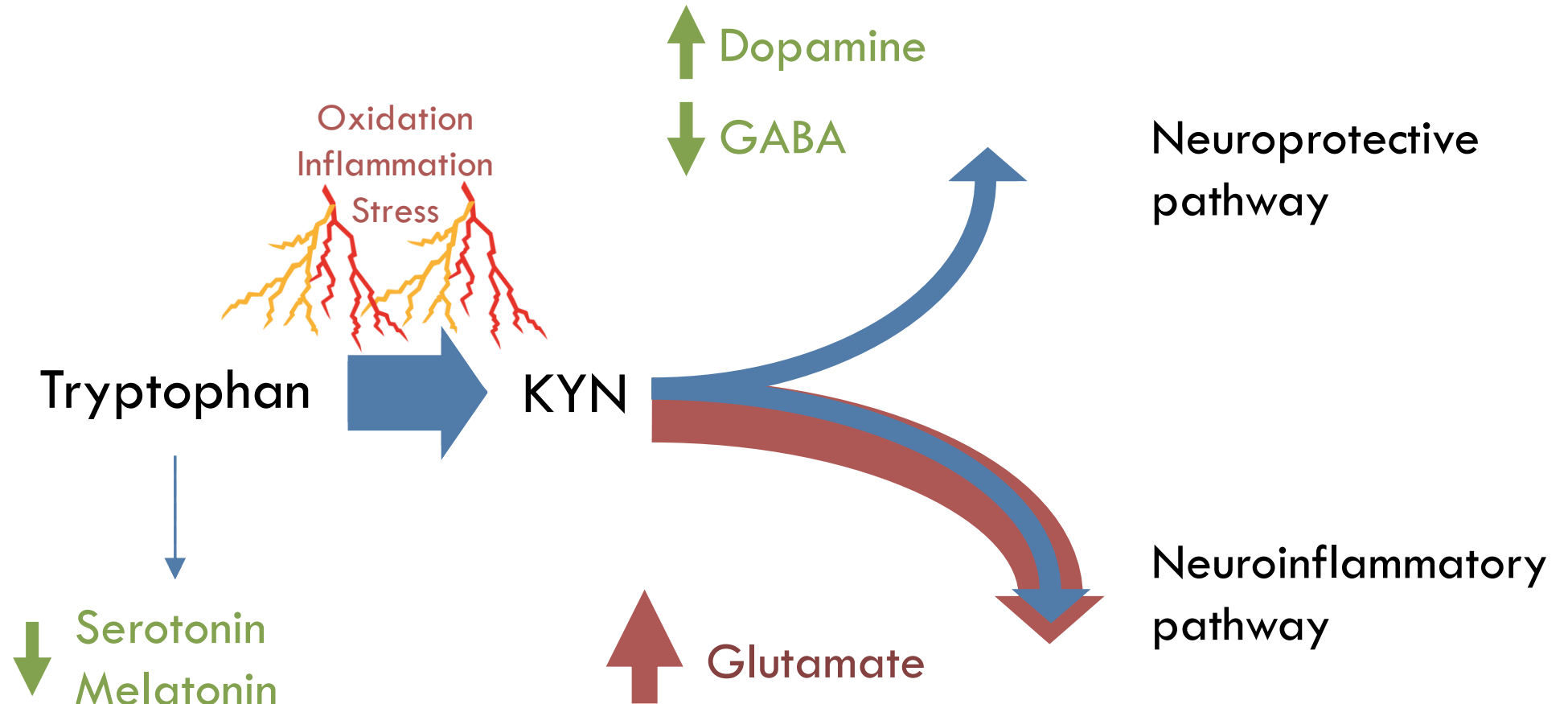
**3 – 6 X increase in consumption  
in the past century<sup>1</sup>**

**Content in body fat steadily rising  
(U.S. 21%, Europe 11%)<sup>2</sup>**

1. Dyall SC et al. *Prog Lipid Res.* 2022.

2. Guyenet SJ & Carlson SE. *Adv Nutr.* 2015.

# Neurotransmitter Imbalances



# Glutamate Excitotoxicity

Damages:

proteins

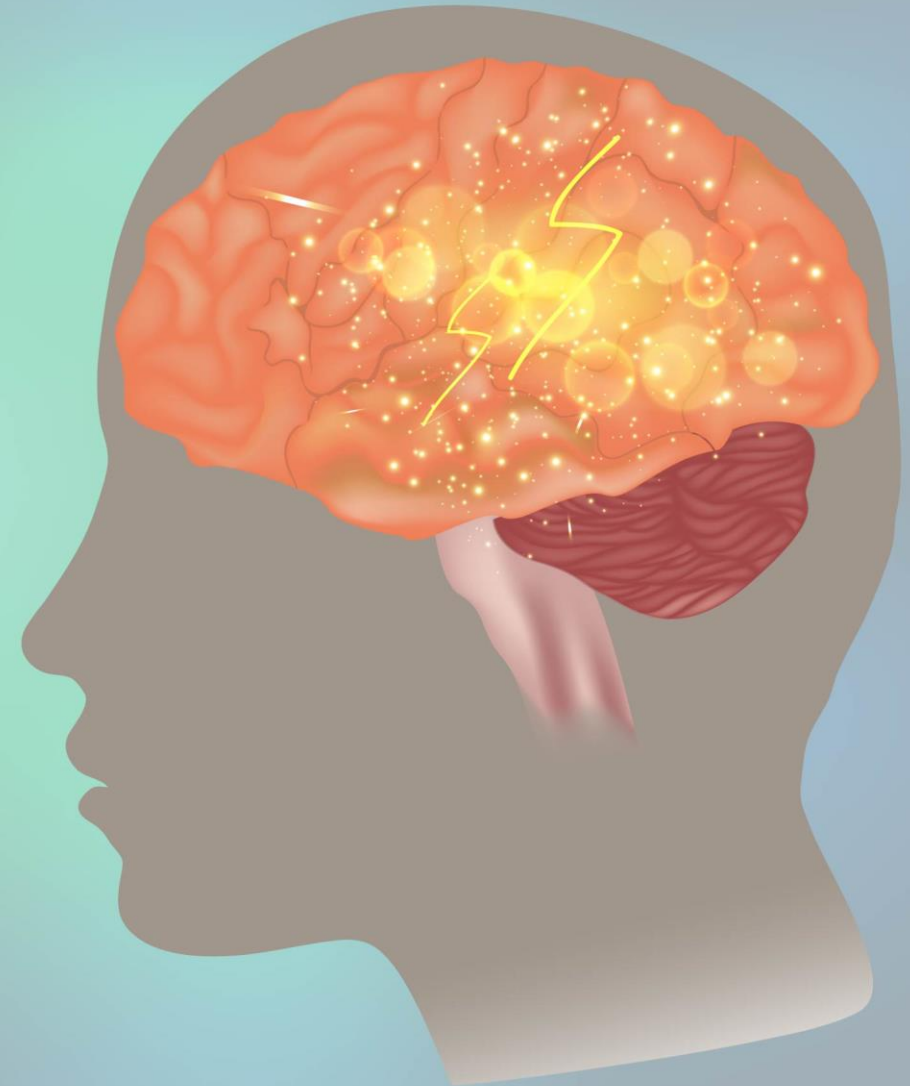
lipids

nucleic acids (DNA/RNA)

Injures mitochondria

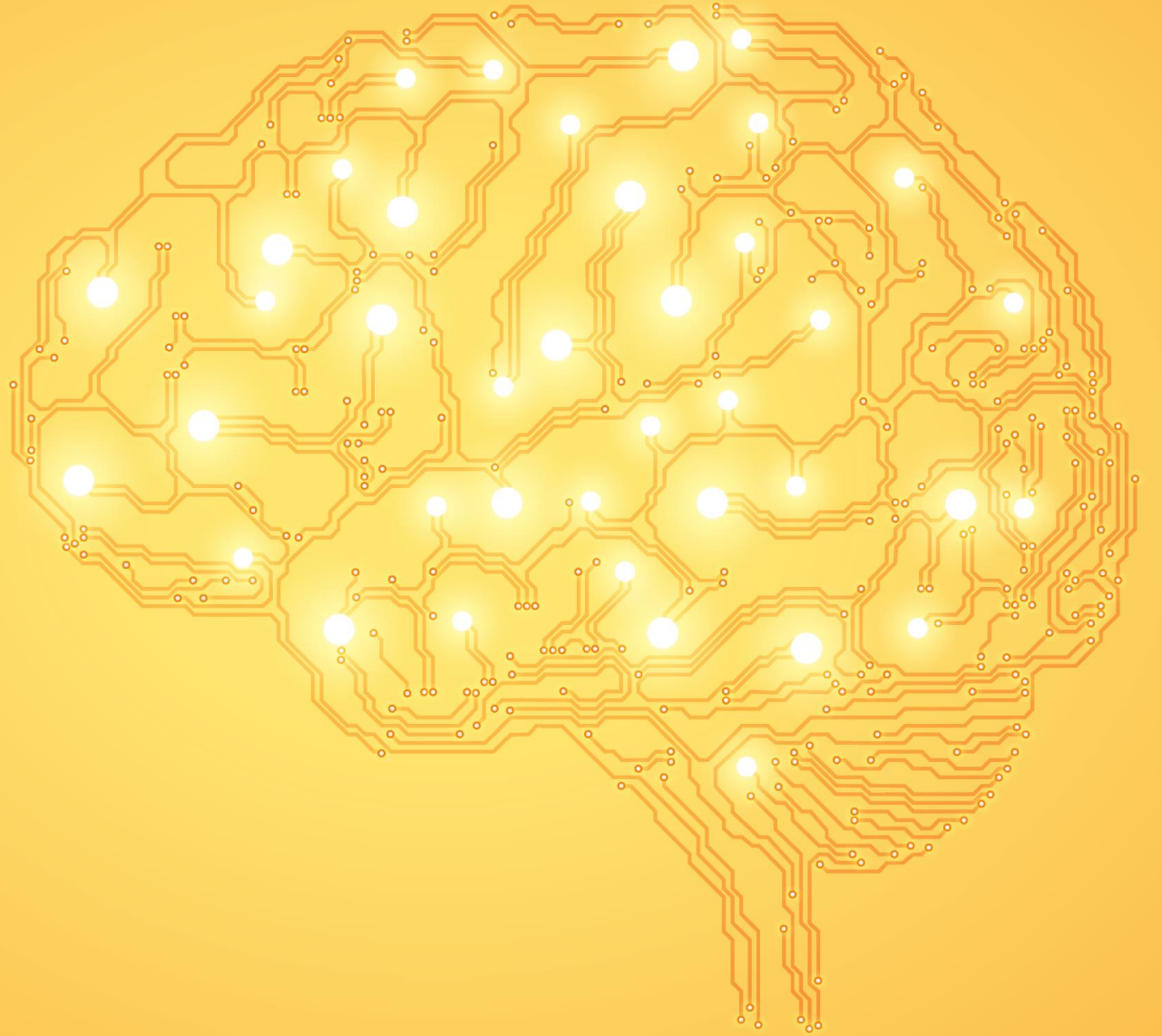
Weakens the blood-brain barrier

Shrinks the hippocampus

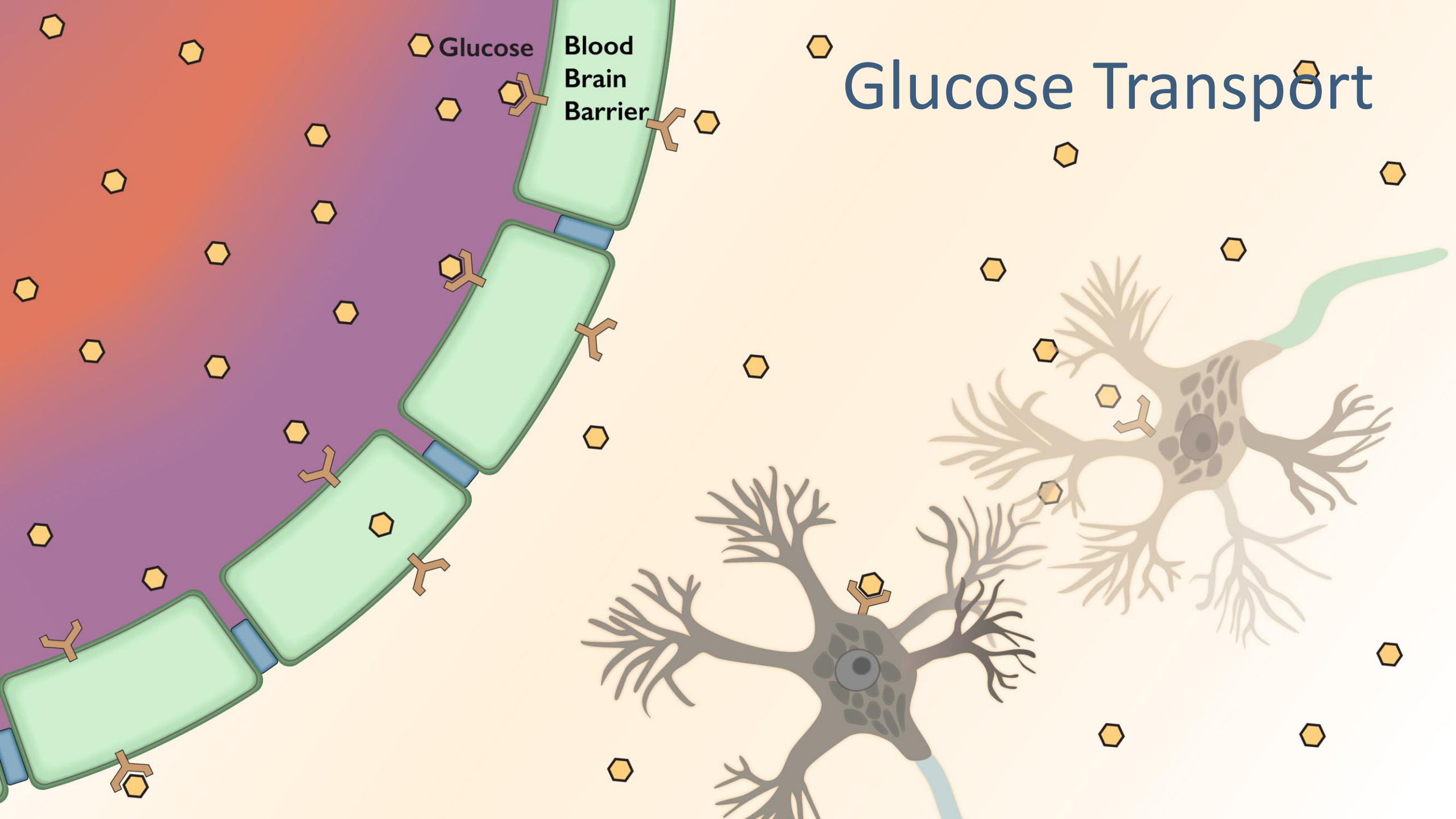


3

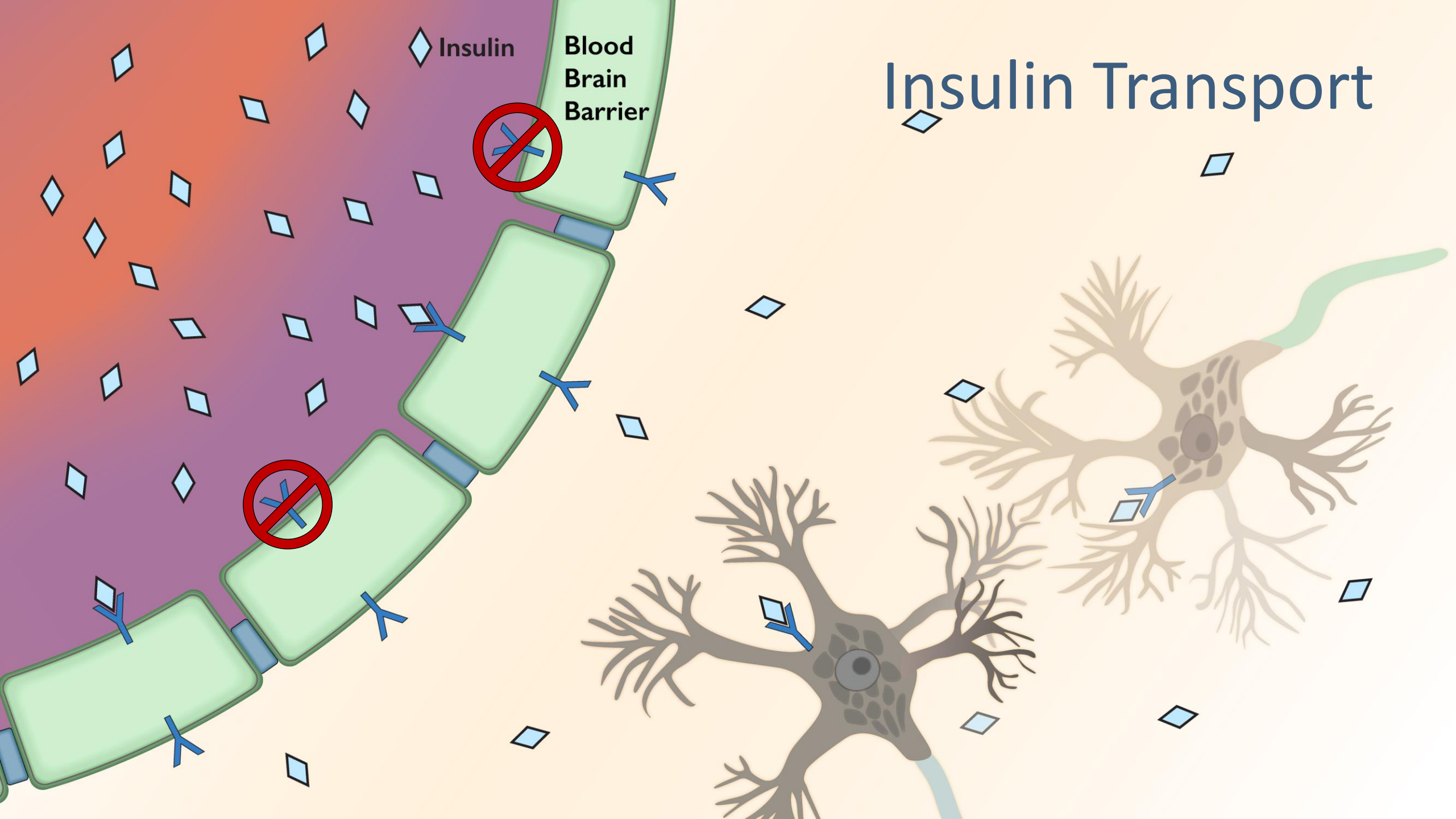
Energize



# Glucose Transport

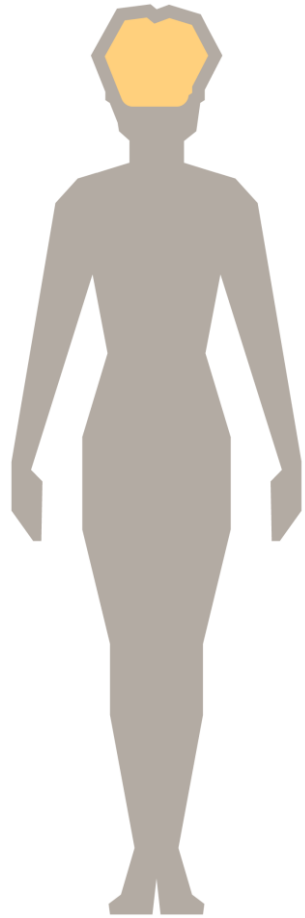


# Insulin Transport





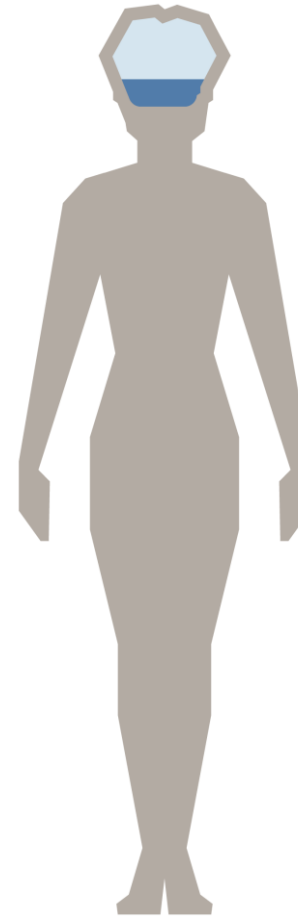
# The Blood-Brain Paradox



↑ High brain glucose

↑ High blood glucose

Glucose

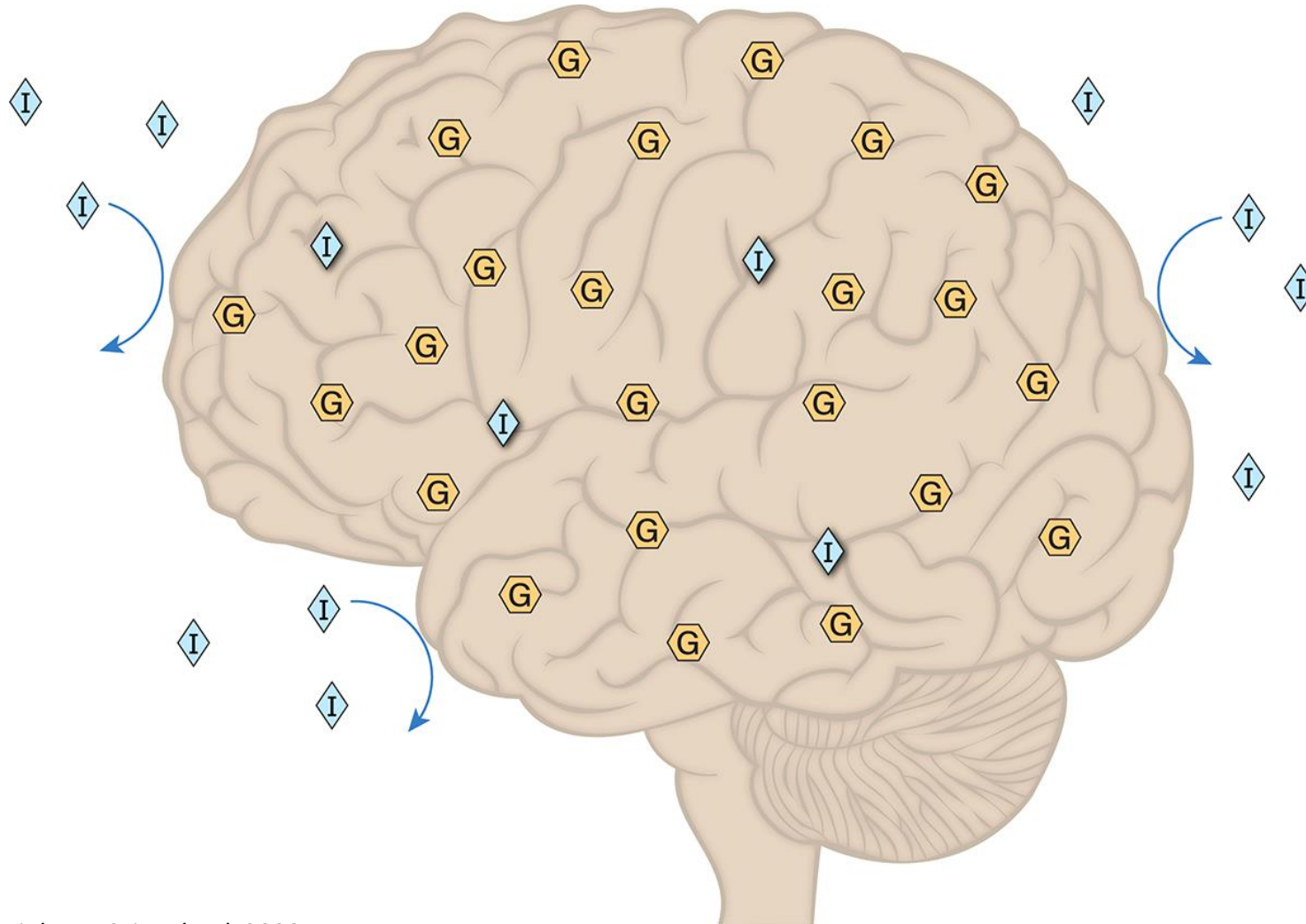


↓ Low brain insulin

↑ High blood insulin

Insulin

# Cerebral Glucose Hypometabolism



# Insulin Resistance and/or Cerebral Glucose Hypometabolism

Depression<sup>1</sup>

Post-traumatic stress disorder<sup>2</sup>

Bipolar disorder<sup>3</sup>

Schizophrenia<sup>4</sup>

Attention deficit hyperactivity disorder  
(childhood onset)<sup>5</sup>

Borderline personality disorder<sup>6</sup>

Obsessive compulsive disorder  
(hoarding type)<sup>7</sup>

Anxiety disorders in children with  
obesity<sup>8</sup>

Alzheimer's disease<sup>9</sup>

Autism<sup>10</sup>

Prevention Is Best



# Brain Food Rules

## Nourish

**Include**  
animal foods

**Avoid**  
grains and legumes

## Protect

**Avoid**  
refined carbohydrates,  
vegetable oils, and  
ultraprocessed foods

## Energize

**Avoid** refined carbohydrates  
**Tailor** whole-foods sources of  
carbohydrate to your personal  
metabolic tolerance

# Dietary Recommendations Not (Bio)Logical

MEDITERRANEAN DIET

## Nourish?

Based on nutrient-poor grains/legumes high in antinutrients

## Protect?

Encourages refined grains and alcohol

## Energize?

Too high in carbohydrate for people with insulin resistance



# Healthy Human Diet: Draw the Line at Paleo

## Nourish:

Includes animal foods

Excludes grains and legumes

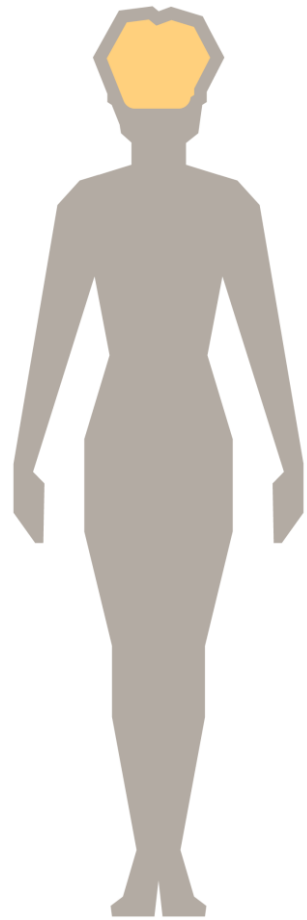
## Protect:

Exclude refined carbohydrates, refined oils, UPFs, dairy

## Energize?



# Metabolism in the Low-Insulin Brain



↑ High brain glucose

↑ High blood glucose

Sluggish brain  
metabolism

Carbohydrate-Based Diet



↑ High brain ketones

↑ High blood ketones

Improved brain  
metabolism

Ketogenic Diet



# Which Dietary Changes Are Most Worth Making?

## **Part 1: RETHINKING BRAIN FOOD**

Replacing nutrition epidemiology with brain biology

## **Part 2: OUR DESCENT INTO DIETARY MADNESS**

Inflammation, oxidative stress, hormonal havoc, neurotransmitter imbalances, and insulin resistance

## **Part 3: THE WHOLE TRUTH ABOUT WHOLE FOODS**

The risks and benefits of meat, eggs, dairy, grains, legumes, nuts, seeds, fruits, and vegetables

## **Part 4: HOPE IS ON THE MENU**

Quiet Paleo, Quiet Keto, and Quiet Carnivore plans to help uncover your best mental health

