

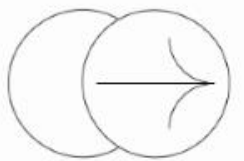
THE BRAIN & GUT MOVEMENT™



The Microbiome's Direct Impact On Our Trauma Response, Nervous System & Mental Health.



All Slides will be made available for download



ABOUT

B-G Mancini

Neurodevelopmental specialist and Functional Medicine Practitioner with 27 years of experience helping children and adults find neurological balance in an unbalanced world.

- Neurological Connections to the Gut & Mobility
- Functional Nutrition- History: MK
- Acupuncture Physician/Primary Care Provider

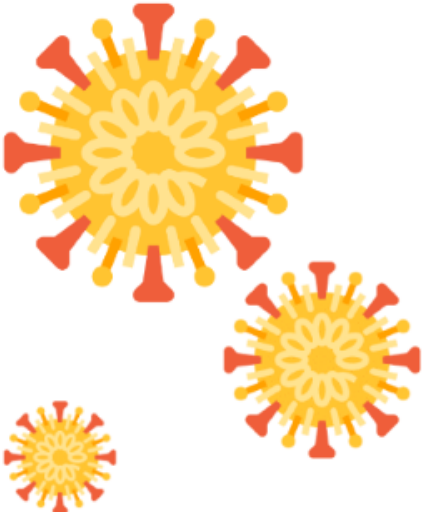
- ✔ Co-regulation
- ✔ Equilateral mobility
- ✔ Food sensitivities
- ✔ Hemispheric integration
- ✔ Microbiome/gut health
- ✔ Sensory Integration



WE ARE NOT SEPARATE PARTS

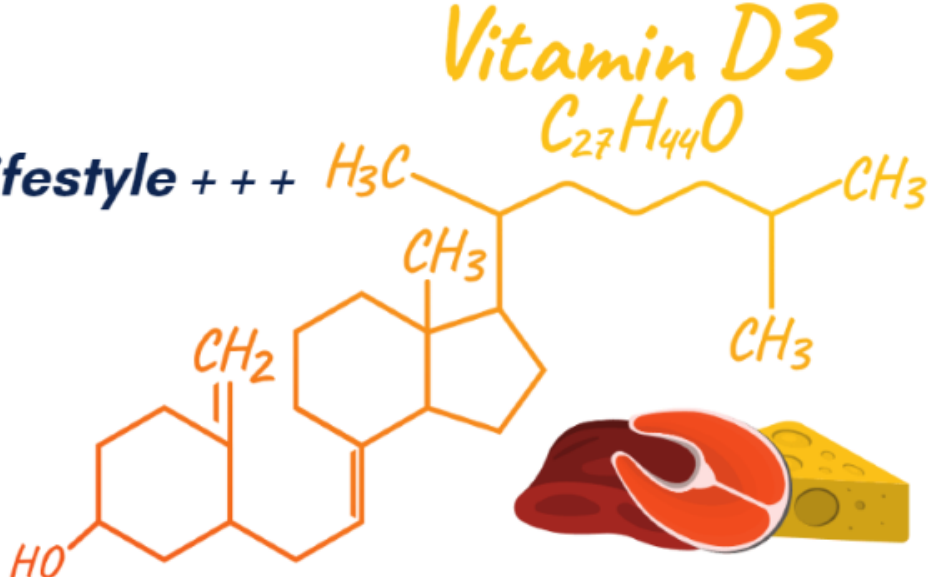
We are mental, emotional, behavioral, physical, neurological, and our nervous systems, all connected, nourished and created in real time by each other, *and* the vagus nerves' connection to the microbiome and brain.

THERE IS NO SINGLE WAY TO ADDRESS THE COMPLEXITIES FACING US AND OUR PATIENTS.



- 30 years ago, just changing diet was almost always enough
- 15 years ago, diet and supplementation
- 10 years ago diet, supplementation, lifestyle
- Now we need all of those things plus somatic understanding, and vagus nerve work.

Since Covid, diet, supplementation, lifestyle + + +

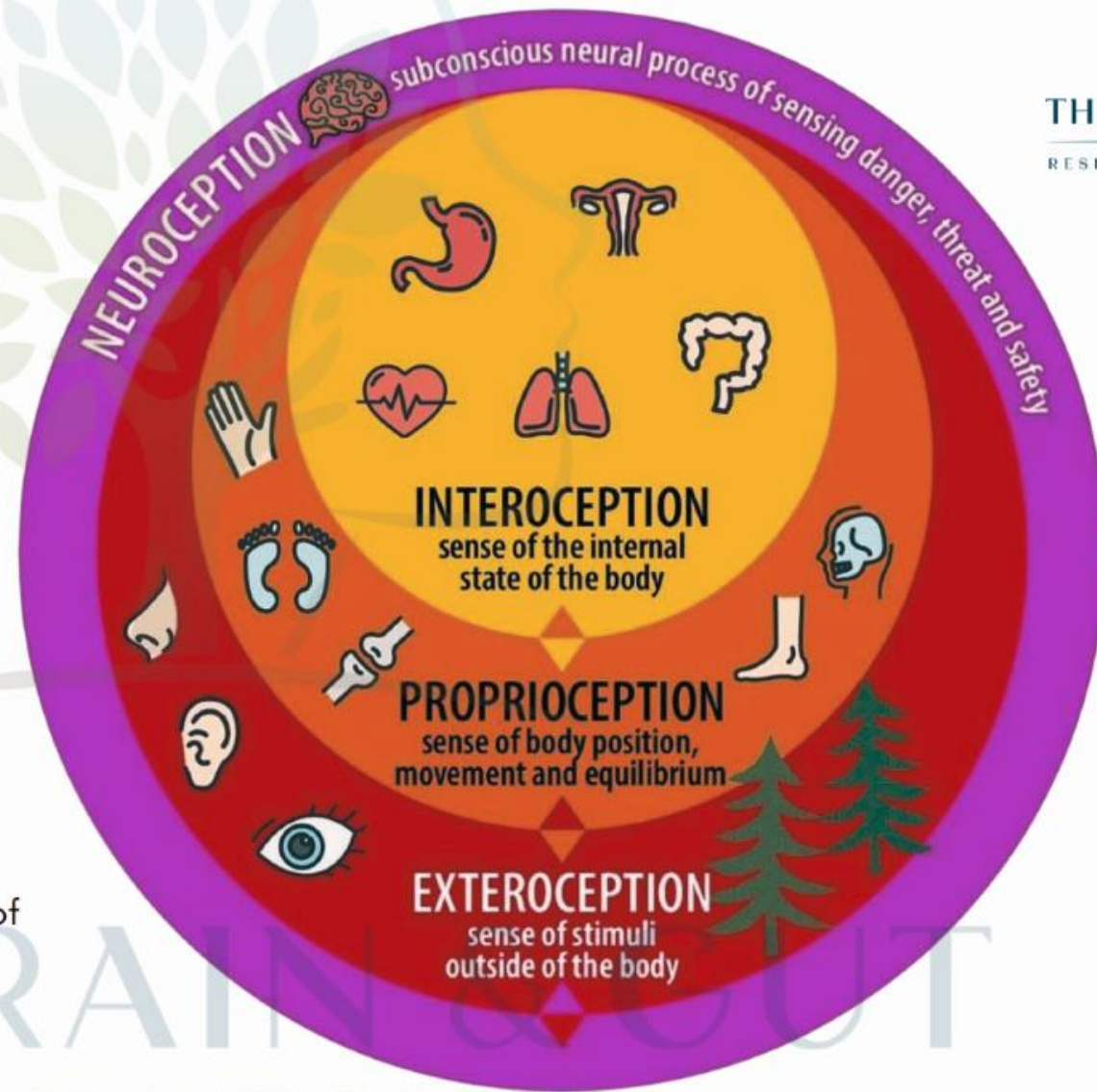


SYSTEMATIC PERCEPTION

Exteroception:

The brain operates by constructing a model of the external world based on sensory input, including light waves, pressure changes, and chemicals. This model is constantly updated as the brain anticipates and checks predictions against incoming sensory data from eyes, ears, skin etc, shaping our ongoing experience of the world.

**Reading this text depends on seeing, which is one form of exteroception. To perform this activity, your brain makes metabolic investments to model the world outside your body. Brain is constantly choosing its investment.

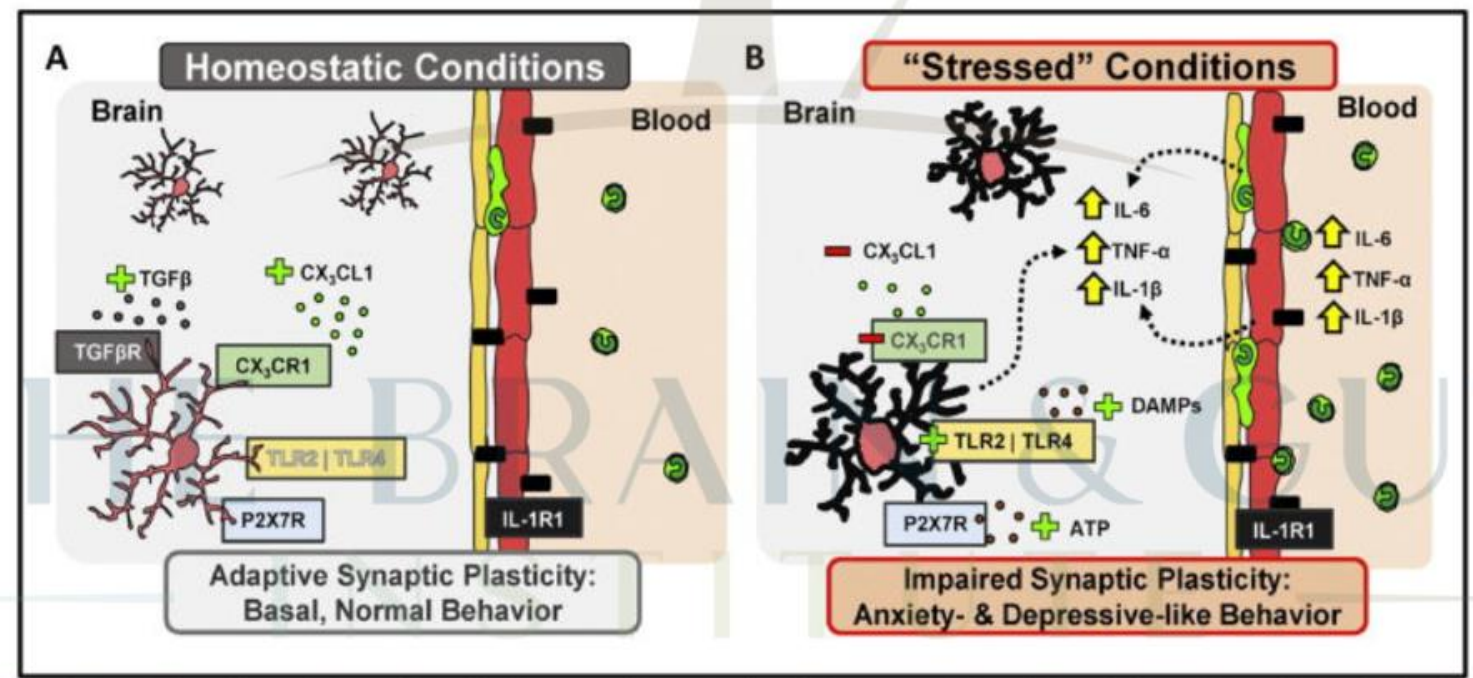


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Interoception

Interoception (perception of the internal state of the body through organ feedback) Symptom perception, it means that an eventual percept of a symptom comes about through the interaction between somatic input from the body and predictions (priors) by the brain. From: Reference Module in Biomedical Sciences, 2023.

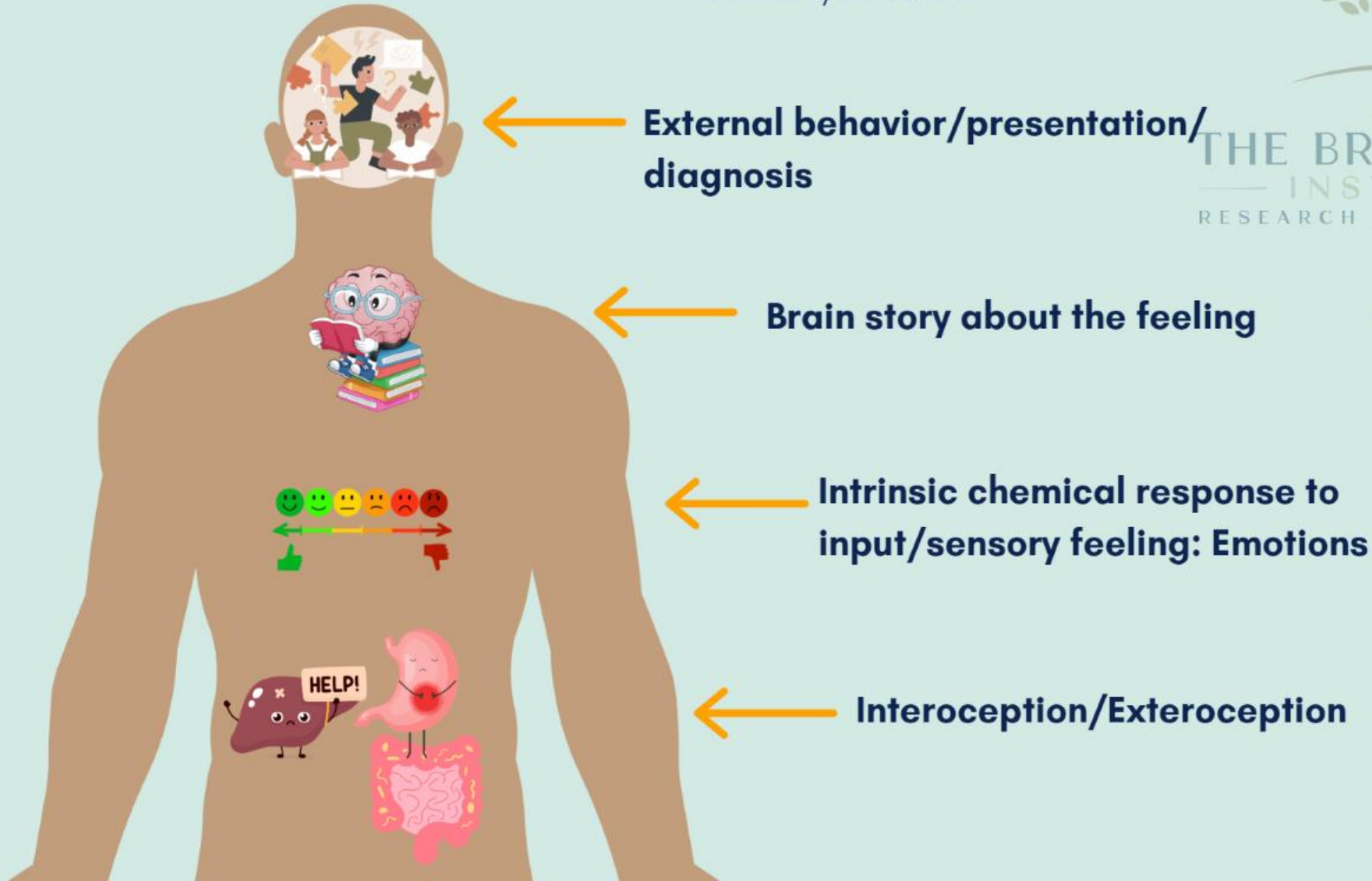


Behavioral Experience Hierarchy

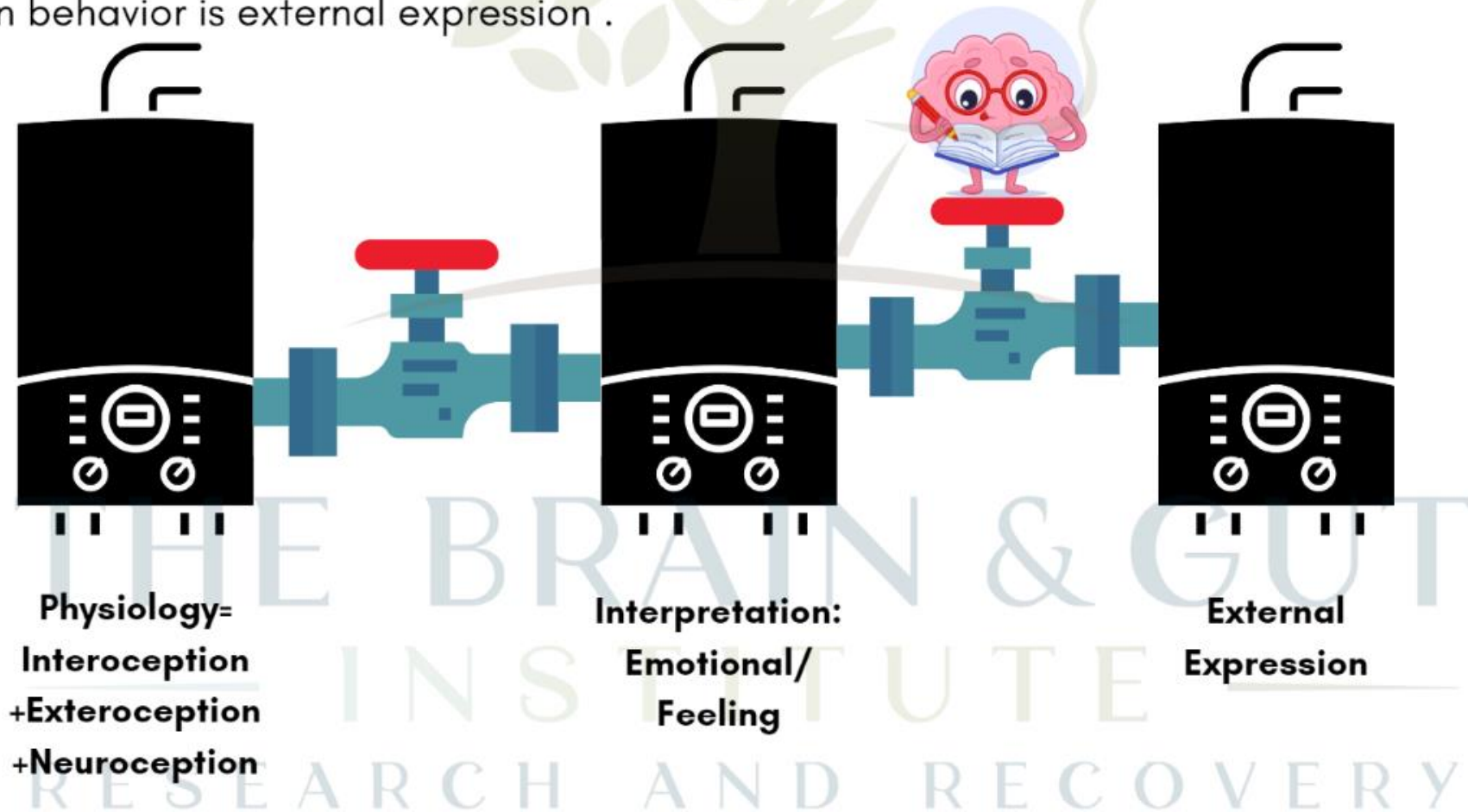
Created by BG Mancini



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Physiology is creating sensations; the next boiler starts a process of interpretation, creating emotions and feelings; these can be processed through movement, expression, sharing, etc. The brain writes a story almost immediately based on prior experience **OR** physiological signals it predicts as positive or negative. Then behavior is external expression .





The Vagus Nerve: A Gateway to Well-Being

- The vagus nerve is a key component of the parasympathetic nervous system.
- It oversees crucial bodily functions, including mood regulation, immune response, digestion, and heart rate.
- Recent scientific work has shown that the microbes in our gut, as well as their products, are able to influence the firing rate & efficacy of the vagus nerve and therefore the message it's sending the brain.
- Afferent fibers of the vagus nerve send essential information about the state of inner organs to the brain.

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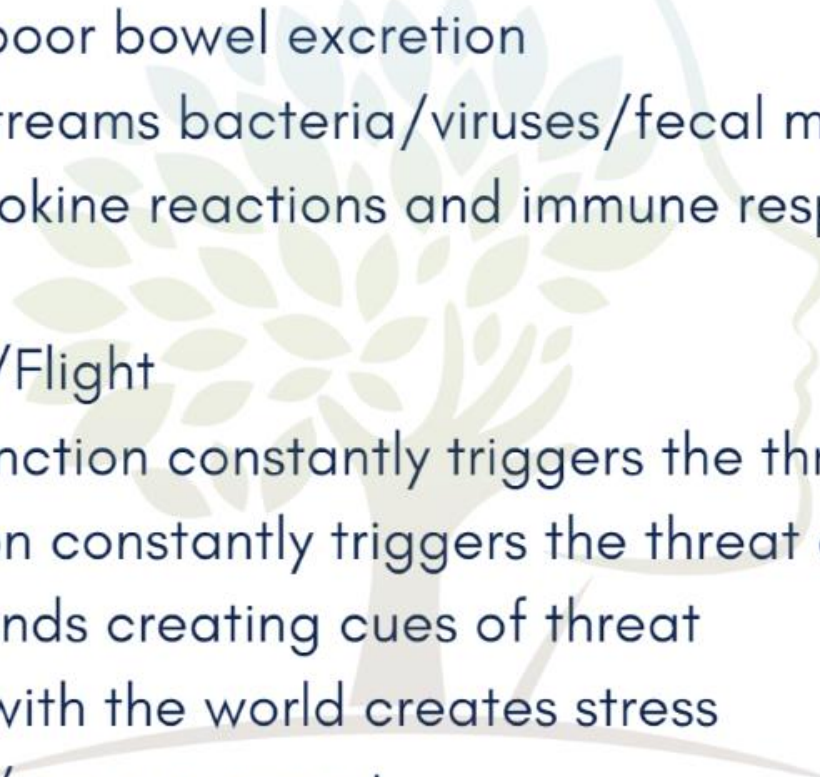
INTERNAL MICRO-TRAUMAS

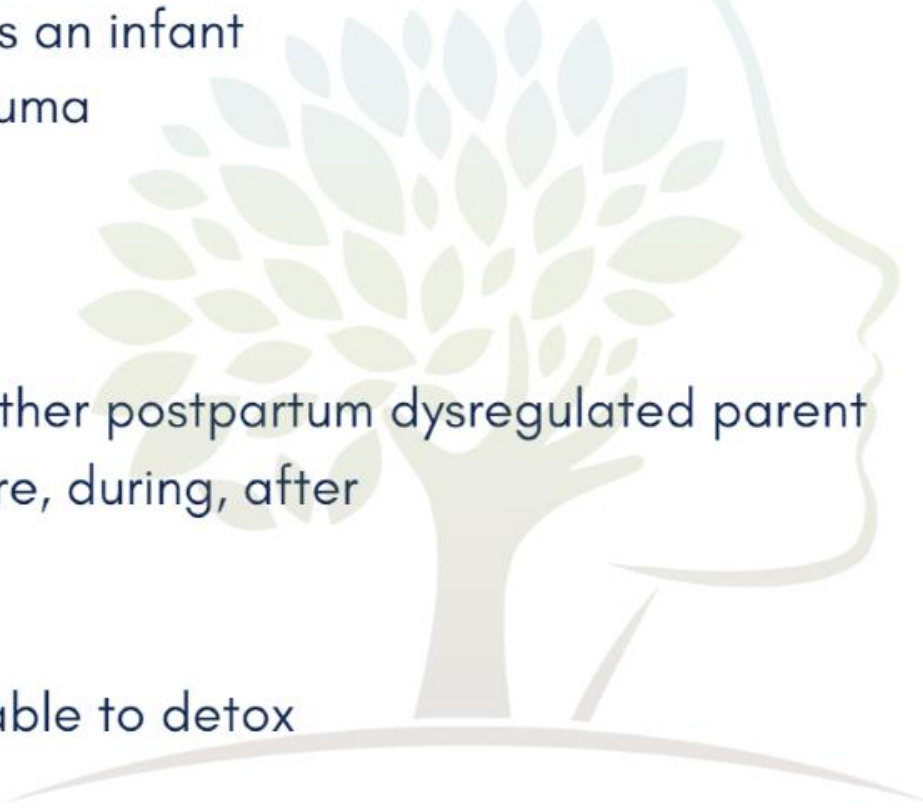
put our physiology in a state of **ALARM!!!**

All trauma, internal/ external creates acute and/or chronic stress which lowers immunity and leads to pro-inflammatory cytokines that impact both the gut and brain barrier.

We are living with brain and gut on fire, we disassociate/tune-out to survive.



- 
- Auto-intoxication from poor bowel excretion
 - A leaky gut constantly streams bacteria/viruses/fecal matter/food particles into the body, setting off cytokine reactions and immune responses.
 - Negative thinking loops
 - Living in Constant Fight/Flight
 - Vestibular System dysfunction constantly triggers the threat center in the brain.
 - Visual system dysfunction constantly triggers the threat center in the brain.
 - Misophonia- neutral sounds creating cues of threat
 - APD- not being in sync with the world creates stress
 - No feeling of autonomy/empowerment
 - In trying to fulfill their survival needs, real or imagined, they feel the separation from their parents when their parents don't understand.
 - Nutrient deficiencies
 - Toxic burden- BPA, PFAS, drinking water, inhaled,
 - "Leaky Brain," Blood-Brain Barrier

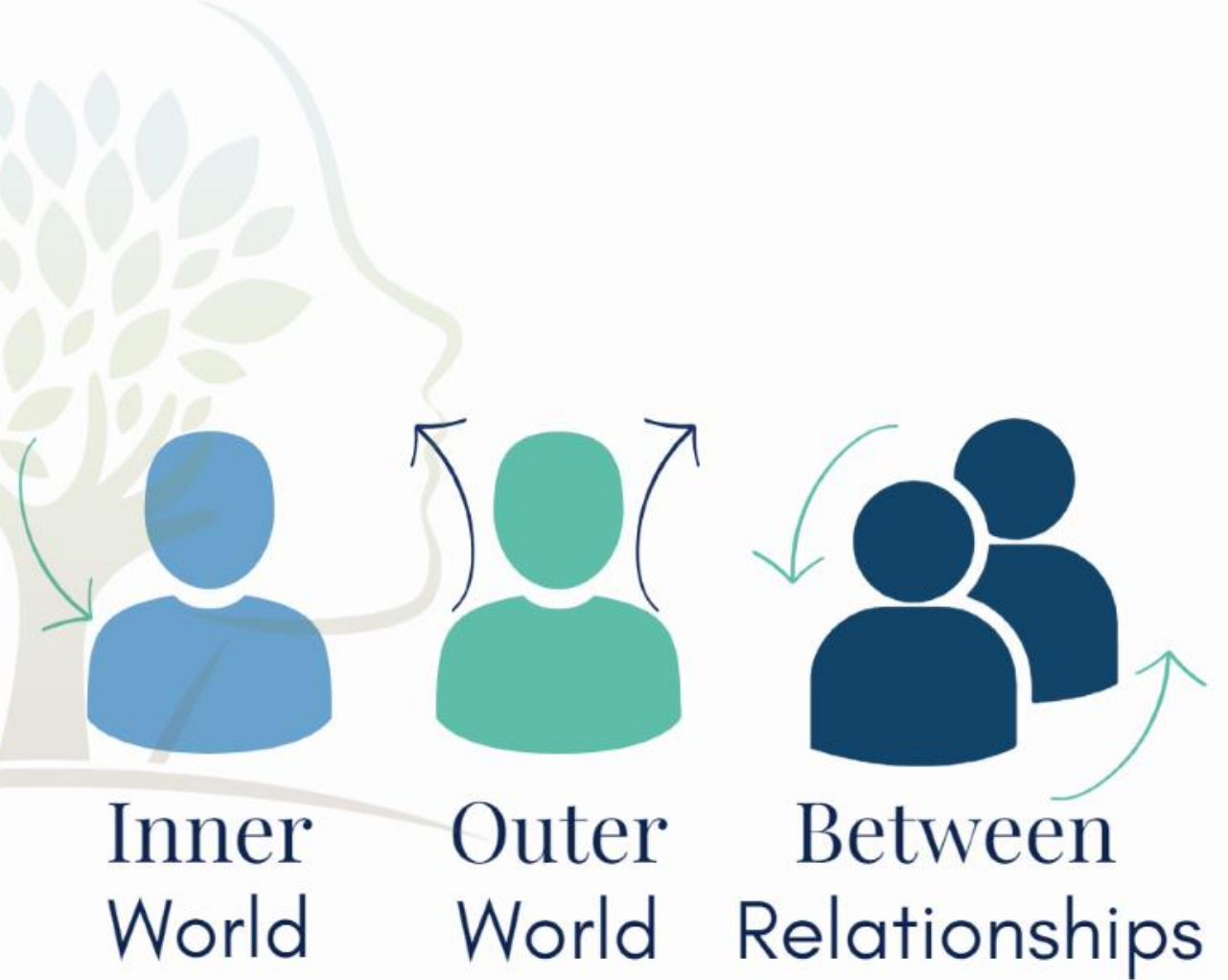
- 
- Movement restrictions as an infant
 - Pregnancy and birth trauma
 - NICU stay
 - Medical illness/trauma
 - Oral ties
 - Separation from the mother postpartum dysregulated parent
 - domestic violence-before, during, after
 - ACES
 - EMFs
 - Methylation/not being able to detox
 - Seizures
 - Reflux
 - Repeated ear infections which result from food sensitivities and environmental triggers
 - Lack of attachment/lack of engaged parent for whatever reason
 - inherited/epigenetic trauma
 - Reactions to immune modulation through medications/vaccinations
 - Use of medications never studied/ approved for children: ex, Miralax

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NEUROCEPTION

Neuroception a term coined by Dr. Stephen Porges is the subconscious process by which our nervous system detects cues of safety or danger in the environment, preparing our body for fight, flight, or relaxation response accordingly.

Faulty neuroception can be contributed to by inflammation in the nervous system creating a threat based lens through which the world is perceived and confirms the negative bias further creating more stress.



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Adapted from Dr. Stephen Porges & Deb Dana



EXTERNAL
MICRO-TRAUMAS

Incomplete and Growing List: What would you add?

- Isolation/ lack of connection/lack of community
- Excessive Scroll time/Binge Watching/Video Games
- Screen Time in general (flicker rates and blue lights are changing hormones and sleep rhythms)
- Detergent/Chemicals/Cleaning Products/Artificial Scents- Plug-ins, Laundry detergent
- Not having the ability to communicate
- Mold
- EMF Sensitivity
- Stressful home life
- Poor air/water quality
- Surgical/pharmaceutical interventions that don't align with needs
- Family/ Work Stress
- Financial Insecurity
- Lack of Being in Nature
- Chemical Exposure in air, food, water

The image features a stylized illustration of intestinal epithelial cells. The top portion shows several cells with rounded apical surfaces and short, finger-like microvilli. The cells are light pink with darker pink outlines. The bottom portion is a solid red horizontal band containing several dark red, oval-shaped structures, likely representing nuclei or organelles. The text 'LEAKY GUT/LPS RESEARCH' is centered in the middle of the image.

LEAKY GUT/LPS RESEARCH

Introduction to Lipopolysaccharides (LPS) and Inflammation

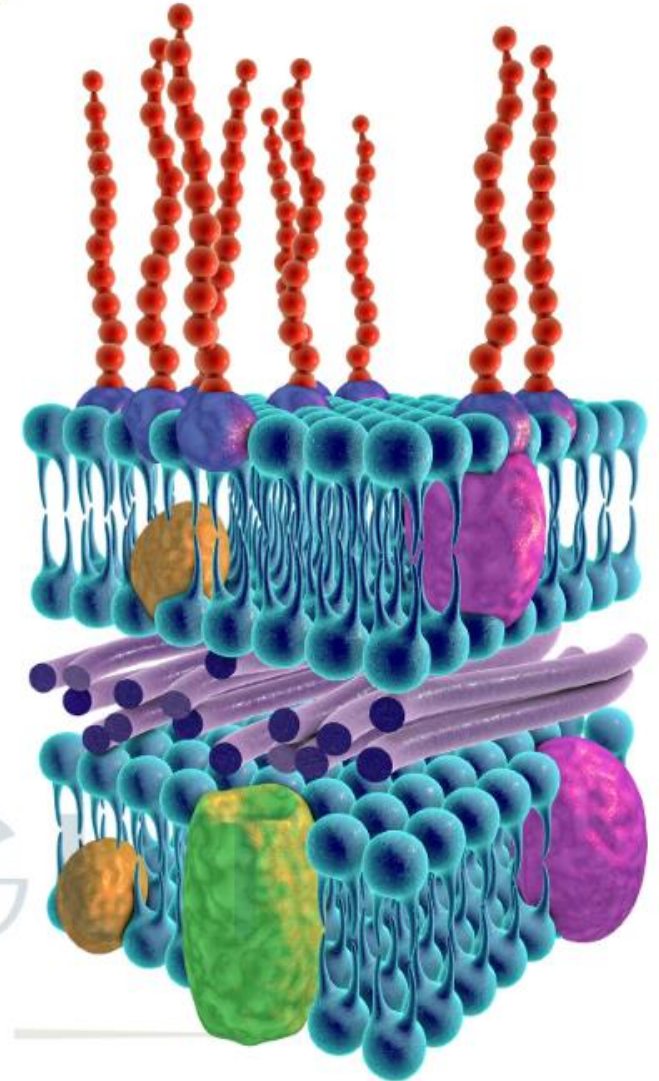
Detectable by Vibrant
Wellness- Wheat ZoomerTM

Background

- Lipopolysaccharides (LPS) are large molecules found in the outer membrane of gram-negative bacteria.
- Exposure to LPS can trigger an immune response, leading to inflammation.

Inflammation and its Impact:

- Research has shown that LPS-induced inflammation is associated with various health implications.
- Citation: Smith et al. (2019) demonstrated that LPS activates pro-inflammatory pathways, contributing to systemic inflammation.



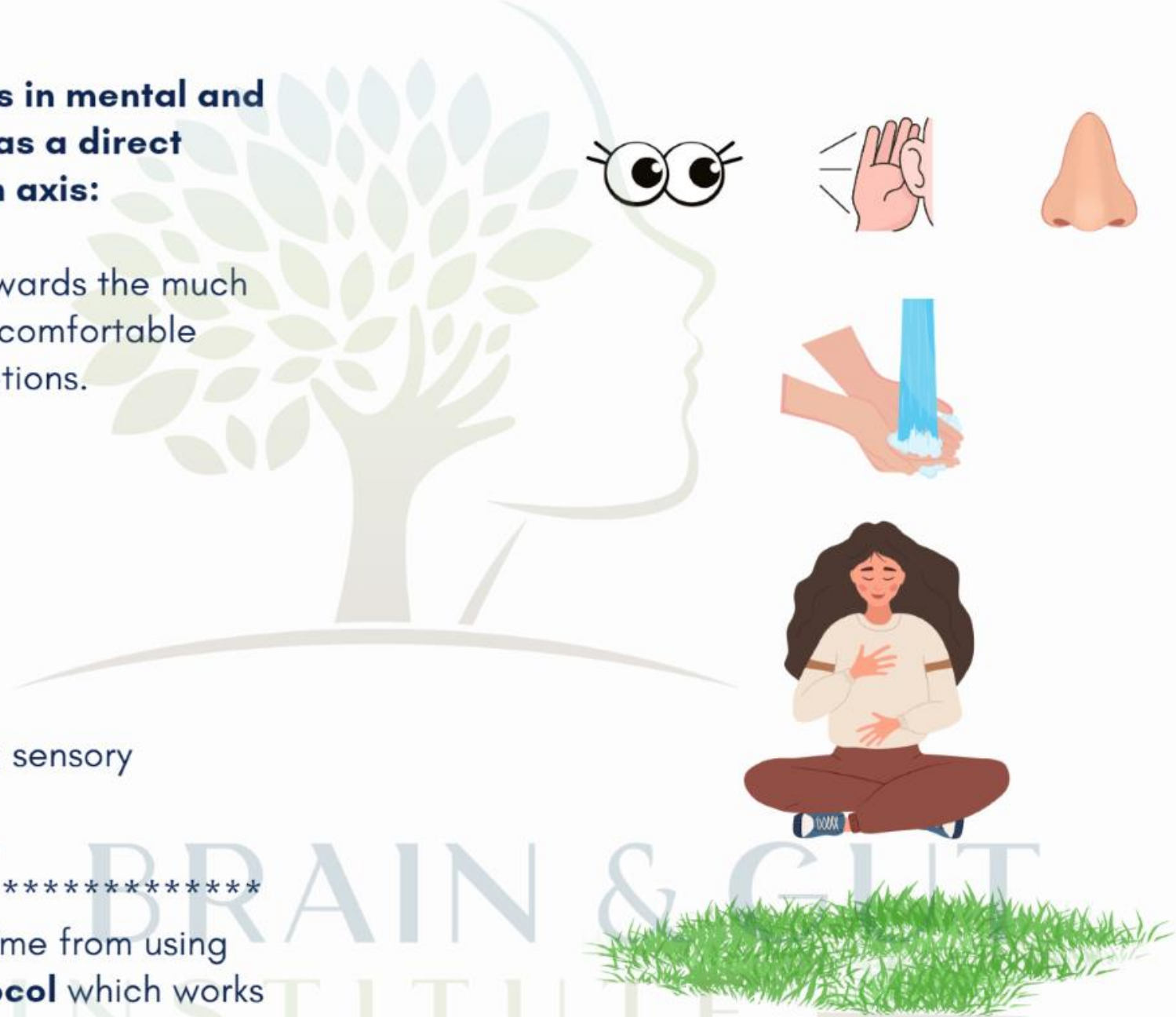
Somatic Experience matters in mental and emotional well being and has a direct impact on the gut and brain axis:

It helps us to cue our body towards the much needed safety to actually be comfortable experiencing our signals/emotions.

For acute & chronic:

- 1) Grounding
- 2) Run Water over hands
- 3) Naming things around you
- 4) Body Scan
- 5) Breathwork
- 6) Naming in the environment: sensory
- 7) Intentional Yoga
- 8) Felt-Sense: Jan Winhall

Help for cueing safety can come from using the SSP: **Safe & Sound Protocol** which works directly with the Vagus Nerve:



LAB TESTING

Critical Testing because of their direct impact on all inflammation and neurological development and recovery:

Wheat Zoomer: Provides LPS and Gluten/Gliadin Sensitivity markers that directly impact the Cerebellum, Myelin in the brain, and Synapsin.

Dairy Zoomer: Cross reactive and molecular mimicry of gluten

Gut Zoomer: Where to look first



VibrantWellness



Wheat
Zoomer™



Dairy
Zoomer™



Gut Zoomer™

Effects of LPS on Brain Function and Mental Health

Behavior/Motor Skills:

- Studies indicate that LPS can impact behavior and motor skills by affecting the central nervous system.

• Citation: Johnson et al. (2020) found that LPS administration in rodents resulted in altered locomotor activity and exploratory behavior.

Motivation/Reward Systems:

- LPS-induced inflammation has been linked to disruptions in motivation and reward processing in the brain.

• Citation: Brown et al. (2018) reported that LPS exposure led to reduced activation in brain regions associated with reward.

MDD/Chronic Pain:

- The relationship between LPS, inflammation, and mental health conditions like Major Depressive Disorder (MDD) is gaining attention.

• Citation: Zee et al. (2021) found a correlation between elevated LPS levels and chronic pain in individuals with MDD.

Psychobiotics

Prebiotic, probiotic: System Overview

Prebiotics: Support the bodies own growth of positive bacteria.

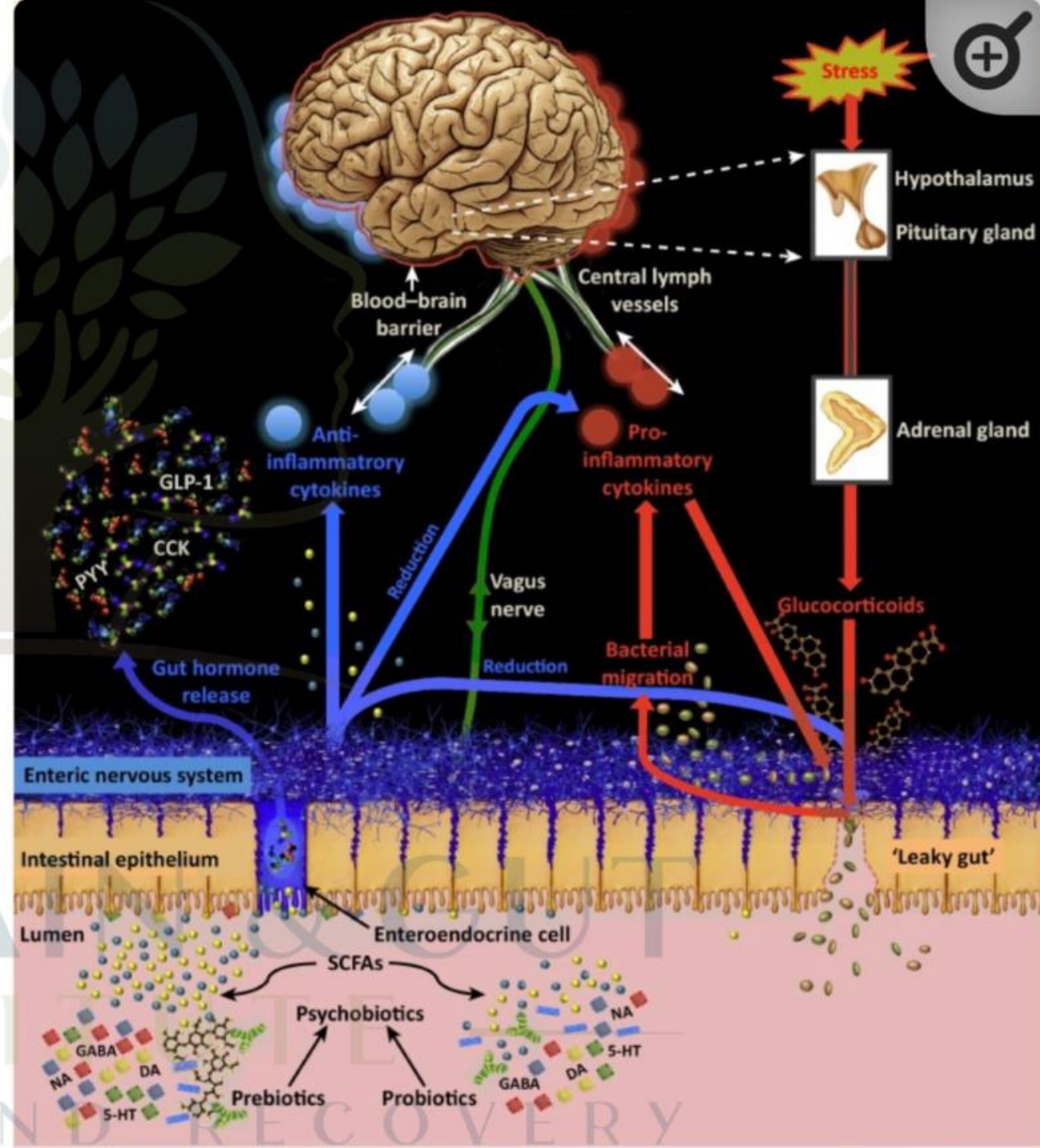
SCFA/gut hormone: Pre +Pro = increase in SCFA
Neurotransmitters: Psychobiotics enhance production of:
Dopamine, Serotonin (5-HT), GABA.
(Feel GOOD)

Vagus Nerve relies on enteric synapses for functional bidirectional communication B-->G-->B

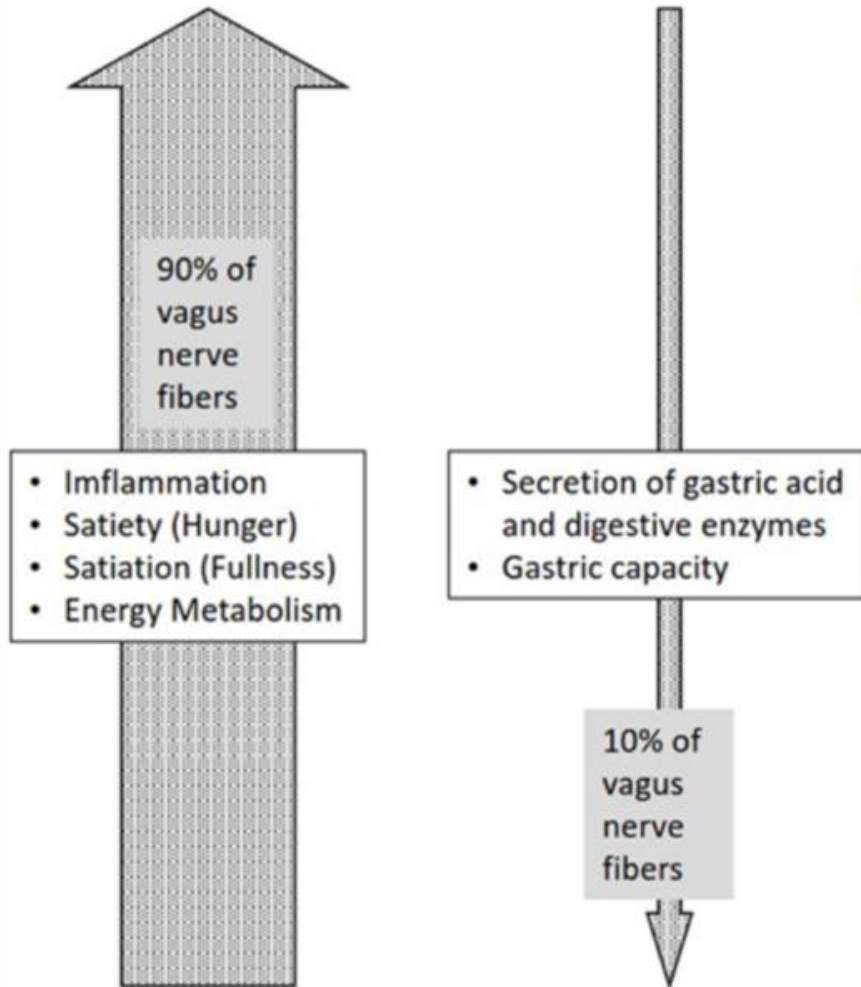
Stress/Barrier/Cytokines: Leaky gut exaerbated by stress/glucocorticoid exposure.

Bacteria (pro-inflammatory) increases inflammation directly and raises pro-inflammatory cytokines thru immune response.

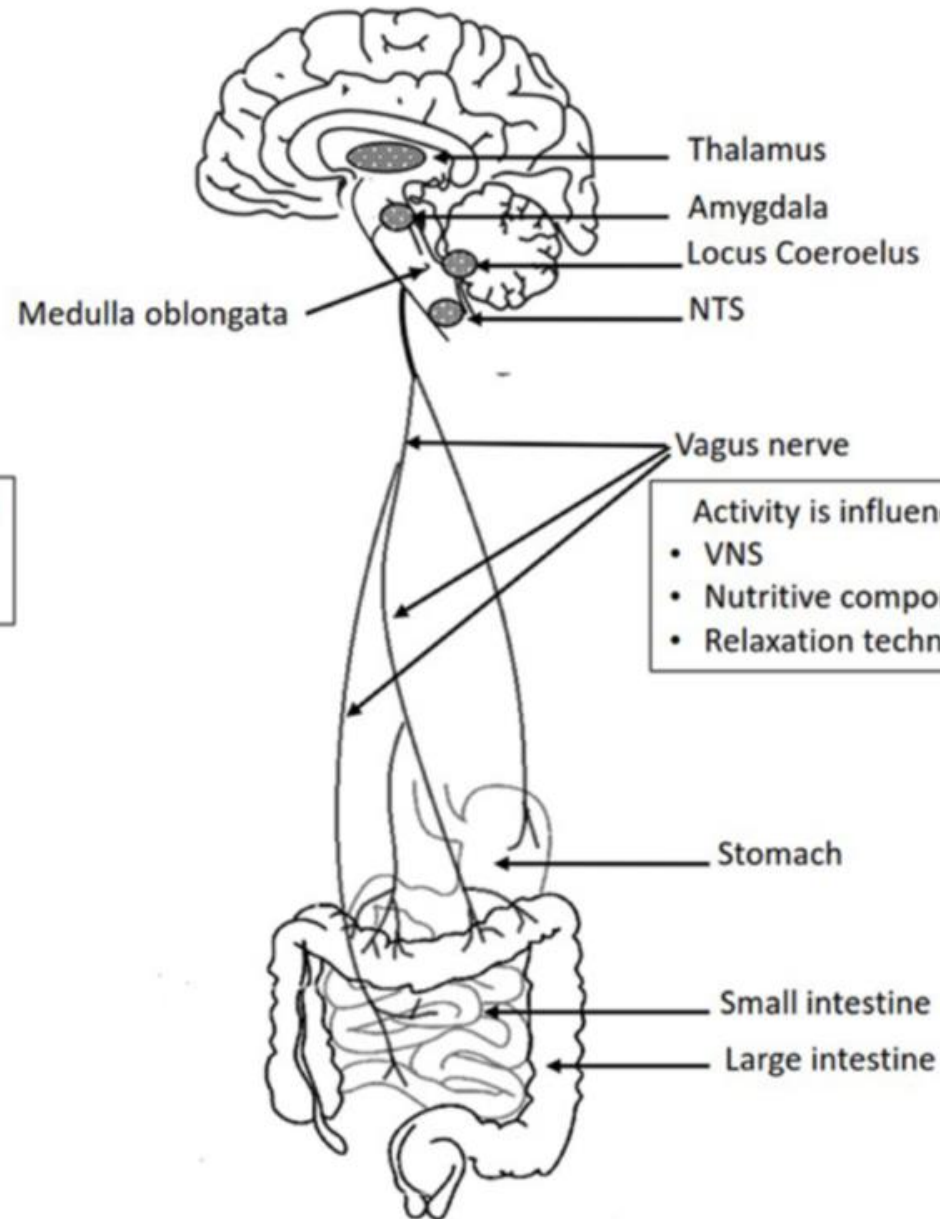
Affects BBB, Leaky gut, overall inflammation, neurological inflammation and mental/behavioral health.



Afferent and efferent connections



Anatomy



Disorders

- Psychiatric disorders
- Major depression
 - PTSD

- Inflammatory GI Disorders
- Ulcerative Colitis
 - Crohn's Disease



AUTONOMIC NERVOUS SYSTEM



MANY PATIENTS ARE EXPERIENCING:

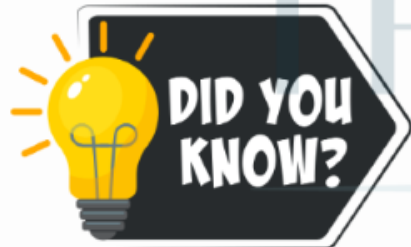
Brain Fog, dizziness, heart palpitations, weakness, poor sleep and frequent waking, frequent urination, anxiety...

*These are also all signs of **ANS dysfunction**:*

You wake up dehydrated, so much condensation is lost:

- BP starts rising as you wake up
- A big glass of water
- Do leg lifts before getting out of bed

- Ala 600 mg 2-3 times a day
- 200 mg 3 times day
- Every 2 hours, Water with salt if 160/90 to rebalance - sodium raises BP, potassium lowers BP
- Extra potassium 2 prunes
- ¼ - 1/3 banana
- 64 oz, 1 TBLS salt drink throughout the day



**Your Body
makes ALA**

- There are very few studies on ALA and ANS
- As we age, we use it faster than we can make it.
- When you have enough ALA: A C E Glutathione, get recycled,

THE NERVOUS SYSTEM WITH A PERCEPTION OF SAFETY

SOCIAL ENGAGEMENT

Connection • Safety • Oriented to the Environment

- Calmness in Connection
- Compassionate
- Curiosity/Openness
- Groundedness
- Mindful/In The Present
- Settled

VVC is the beginning and end of stress response. When VVC is dominant, SNS and DVC are in transient blends which promote healthy physiological functioning.

VENTRAL VAGAL SAFETY

PARASYMPATHETIC NERVOUS SYSTEM

Increases

Ability to Relate and connect Movement in eyes and head-turning, Circulation to non-vital organs (skin/extremities), Digestion, Health and vitality, Immune Response, Intestinal Motility, Prosody in Voice, Resistance to Infection, Rest and Recuperation.

Decreases

Defensive Responses

THE NERVOUS SYSTEM WITH A PERCEPTION OF THREAT

FIGHT

Movement Towards

- Anger
- Anxiety
- Fear
- Frustration

FLIGHT

Movement Away

- Irritation
- Panic
- Rage
- Worry & Concern

SYMPATHETIC DANGER

Hyper-activated

"I CAN"

"I CAN'T"

DORSAL VAGAL LIFE THREAT

Hypo-activated

SYMPATHETIC NERVOUS SYSTEM

Increases

Adrenaline, Blood Clotting, Blood Pressure, Defensive Responses, Dilation of Bronchi, Fuel Availability, Heart Rate, Pupil Size, and Oxygen Circulation to Vital Organs.

Decreases

Digestion, Fuel Storage, Immune Response, Insulin Activity, Relational Ability and Salivation

FREEZE

Collapse • Immobility • Conservation of Energy

- Depression
- Dissociation
- Helplessness
- Hopelessness
- Numbness
- Preparation for Death
- Raised Pain Threshold
- Shame
- Shut-Down
- Trapped

PARASYMPATHETIC NERVOUS SYSTEM

Increases

Conservation of Metabolic Resources, Fuel Storage and Insulin Activity, Immobilization Behavior (with fear), Endorphins that Help Numb and Raise the Pain Threshold.

Decreases

Attunement To Human Voice, Blood Pressure, Depth of Breath, Facial Expressions & Eye Contact, Heart Rate, Immune Responses, Muscle Tone, Sexual Responses, and Temperature

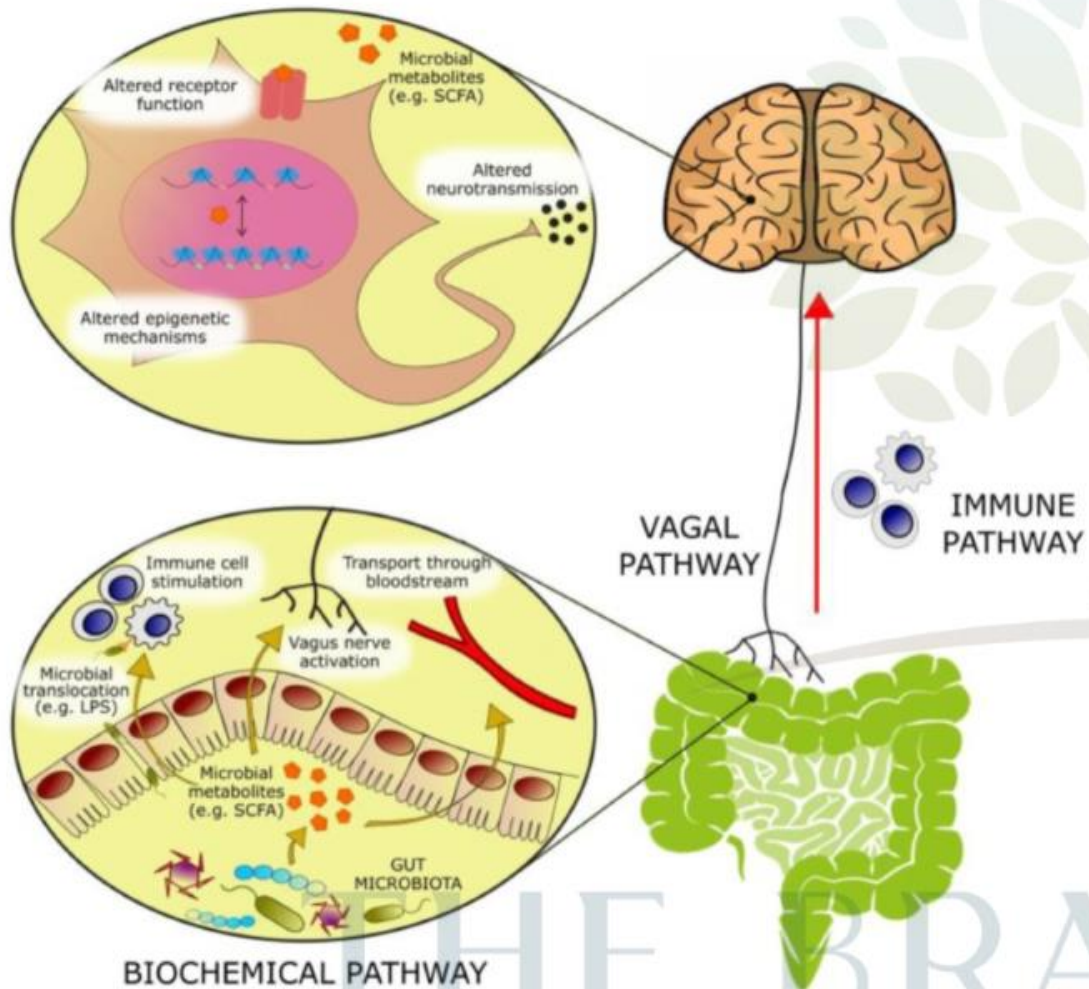
↑ DEACTIVATION ↑

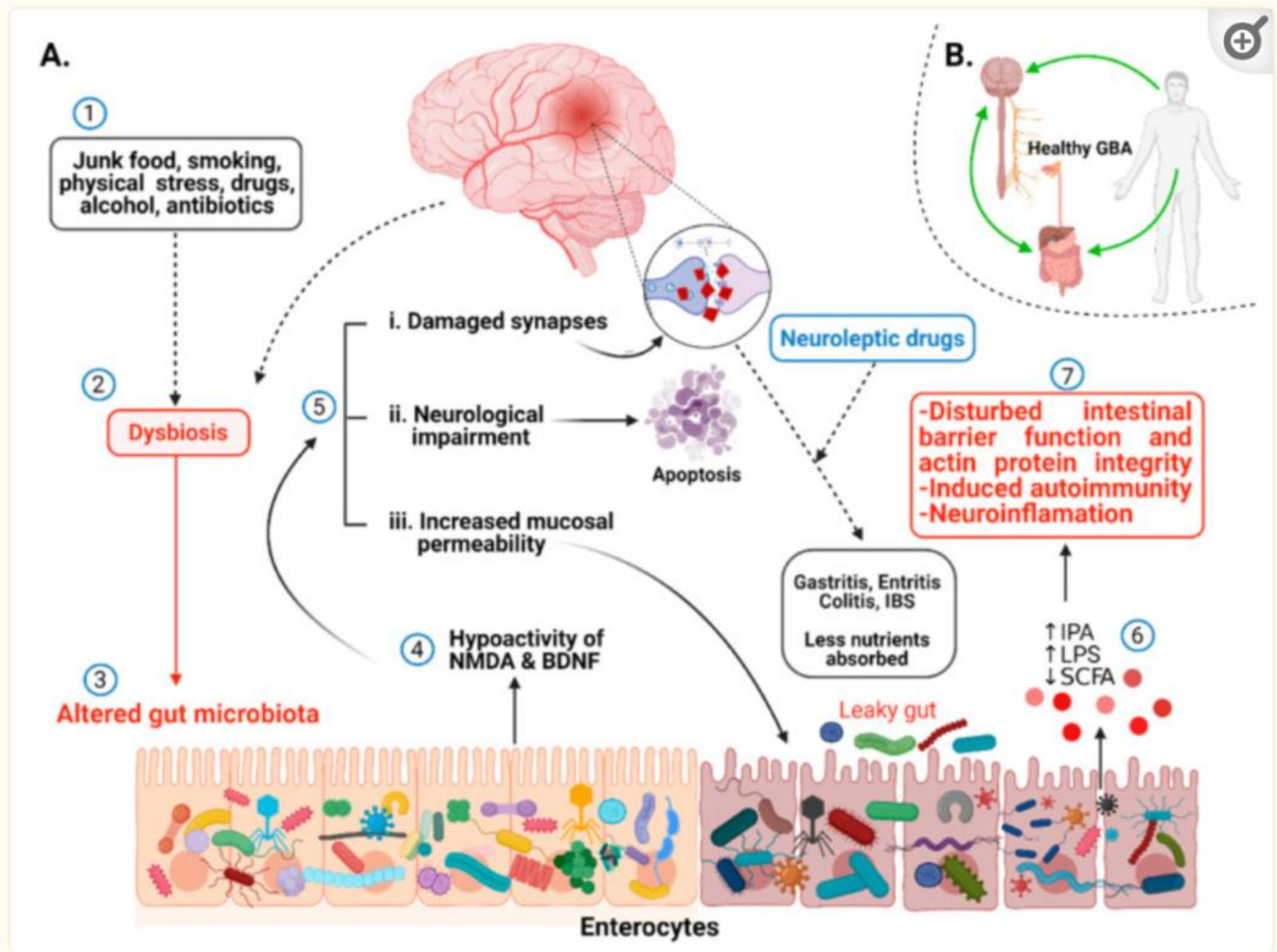


Mental Health

Bioactive molecules originating from microbial metabolism are thought to modulate emotional behavior through several mechanisms:

- Activation of afferent vagal nerve fibers.
- Stimulation of the mucosal immune system or of circulatory immune cells after translocation from the gut into the circulation.
- Absorption into the bloodstream, and biochemical interaction with a number of distal organs. In the brain, such metabolites may be able to activate receptors on neurons or glia, modulate neuronal excitability, and change expression patterns by means of epigenetic mechanisms.







Mental Health Lab Testing

Neural ZoomerPlus: Baseline for understanding if there are infections/bacterial components & BBB function/inflammation.

Whole Blood with Omega: We are all Omega 3 deficient. 500 studies showing Omega def linked to mental health challenges.

NutriProZ: Great baseline! Easy to use and explain.



Neural
Zoomer
PlusTM



Whole
Blood &
Omega



NutriProZ

SUPPLEMENTATION



Body hacks do not work for the emerging reactive and more sensitive population.

Supplements are often extracted with toxic chemicals like PEG, and patients can react. Know the source of your herbs and nutraceuticals.

Even Branded names may use chemical extraction:

Effective protocols can include:

Berberine, Microbiome mashup

Very slow introduction of prebiotic fibers:

Think foods first, then supplementation.

LIFESTYLE: Less Anxiety/Depression



Short breaths = ANXIETY AND DEPRESSION

Easy Breath: Google "Calm Breathing Bubble"

Sunlight and sky on eyes: first 10 minutes of waking=
regulates circadian rhythm/melatonin/pineal gland=
better sleep

Get in Nature: Regulates HRV or try Grounding Sheet

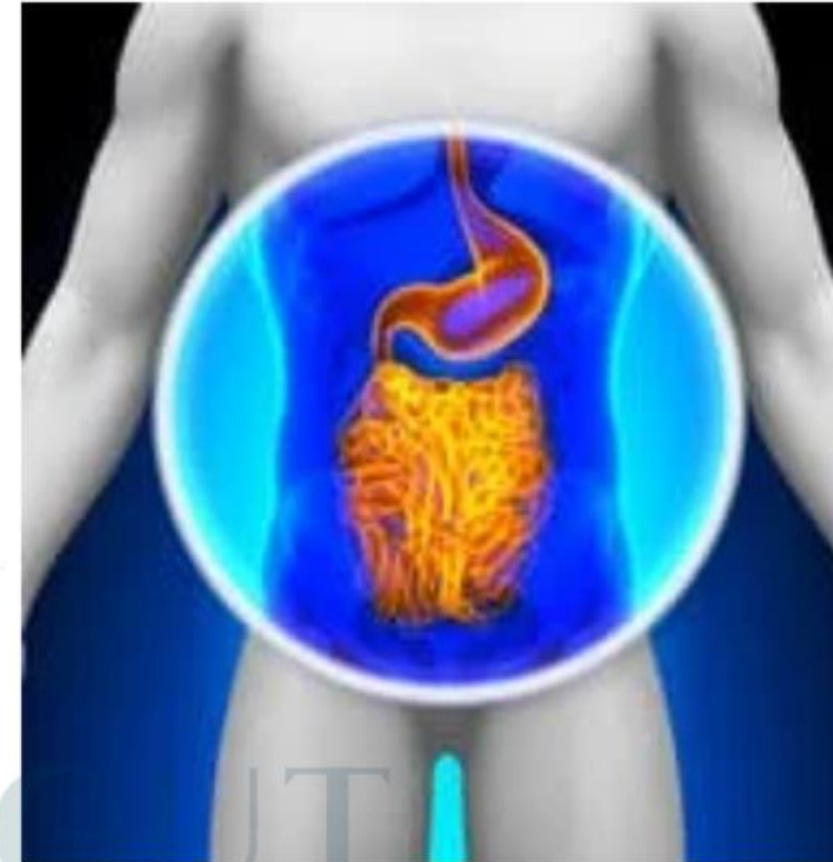
INVALUABLE FREE TOOLS: with you always:

EFT Tapping, Stanley Rosenberg Basic Reset, Rub
hands together and put over eyes.

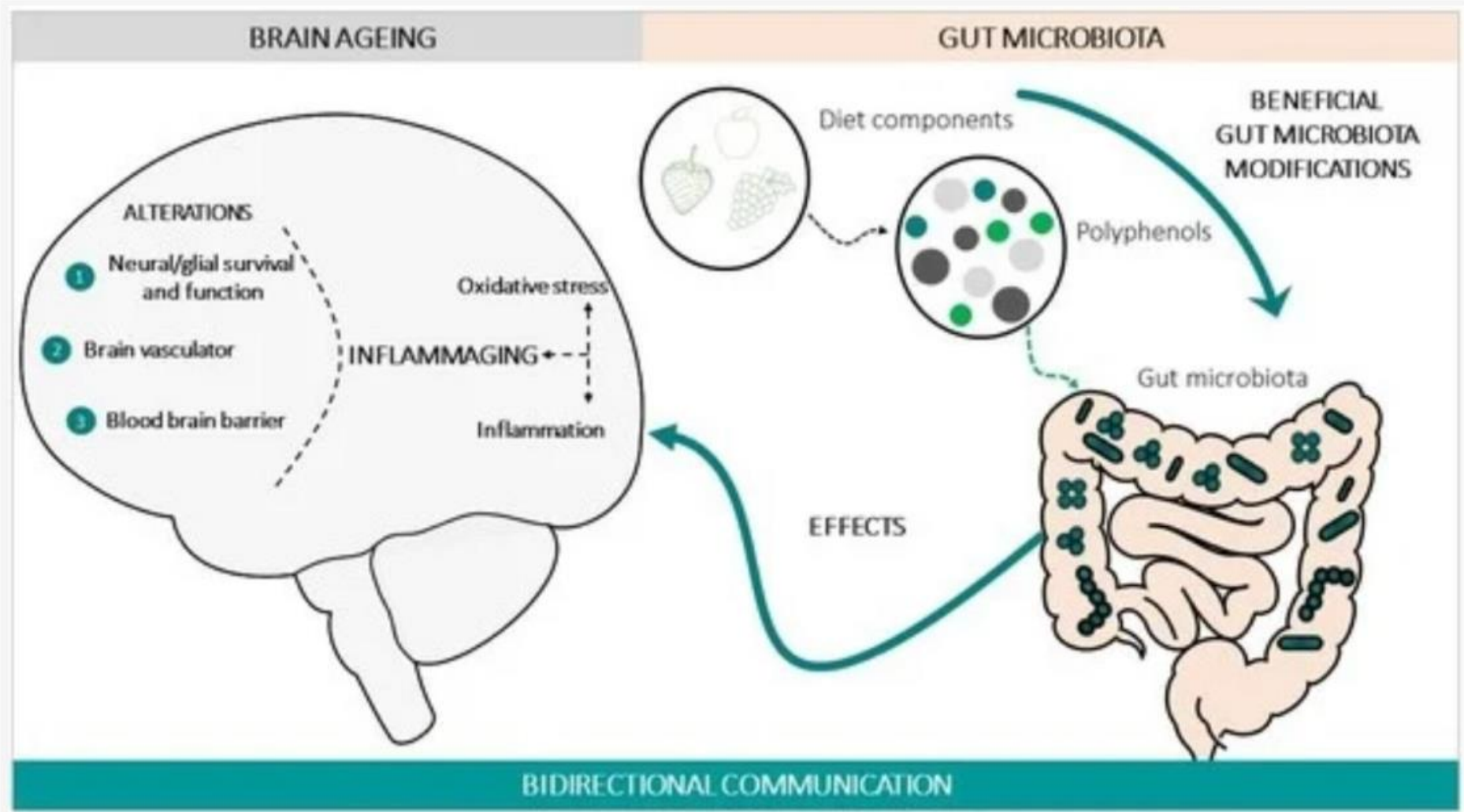
POLYPHENOLS

Gut bacteria can metabolize polyphenols into neurotransmitters and bioactive metabolites with pro-survival and anti-inflammatory effects for the neurons.

Protective effects of polyphenols also depend on how gut microbiota metabolize these compounds.



**Lab Testing helps us understand the connection here: Wheat /Dairy
Zoomer/NeuralZoomer Plus/ Omega/ Methylation/ GutZoomer 3.0**

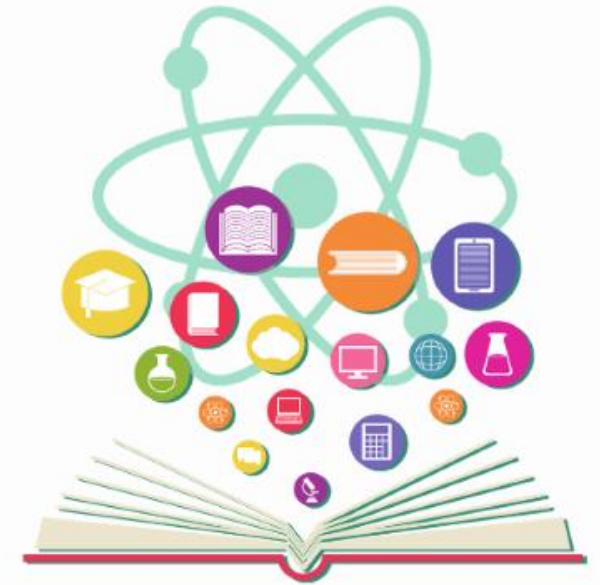


DOWNLOAD



braingutinstitute.com/microbiome

PDF



It includes an extra 30+ slides with in-depth research, useable tools, suggestions, and graphics to make it easy for patients and for ourselves to understand.

DIVE DEEPER INTO:

- Psychobiotics
- Pre-biotics
- Pro-biotics
- Post-biotics

[@braingutinstitute](#) / info@braingutinstitute.com

The microbiome and it's connection to mental health.

LEARN how to implement tools that benefit your patients/clients.

Whether you are a Functional Medicine Practitioner, therapist, provider working with adults or anyone working with or raising children this information is ***CRITICAL!***

ABOUT THE COHORT: www.braingutinstitute.com/microbiome

- Limited to 12
- March 2, 2024 10-2
- Then 3 weekly group check-ins for 60 minutes to answer any questions about implementing or for case review any patients you want to bring to the group.
- 60 Minute Group Zoom Live March 5th, 12th and 19th 12-1. Will be recorded!

[@braingutinstitute](https://www.instagram.com/braingutinstitute) / braingutinstitute.com

Thank You