



Stress Management

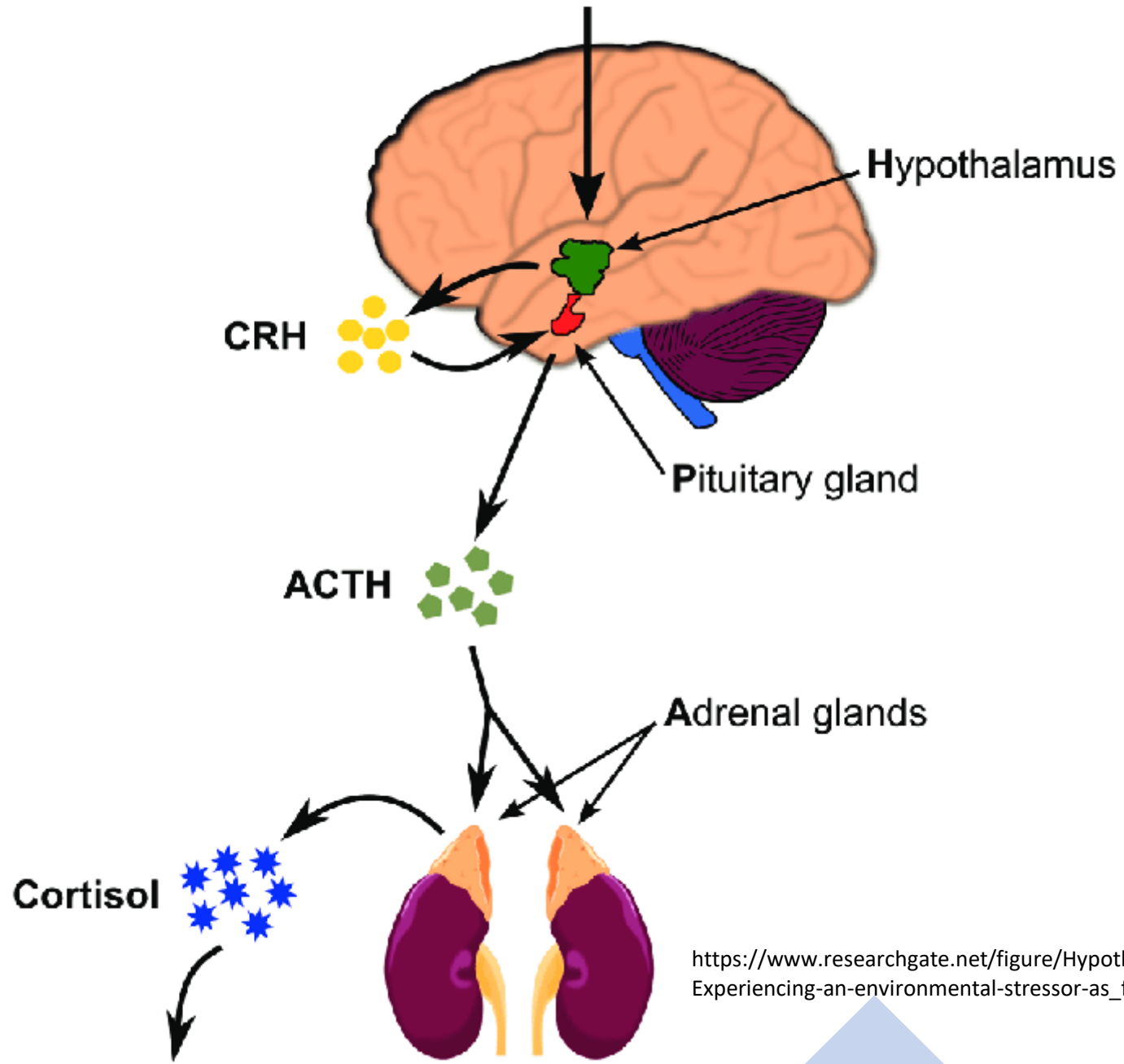
Jessica Knese, MS



What is Stress?

- Your body's "**fight or flight**" response
 - Acute stress actually serves a purpose when it comes to exercise, danger, memory, completing tasks, etc.
- Stress tells your body to prepare for danger or "perceived danger", **spiking levels of adrenaline and cortisol**- your stress hormone- so you can react quickly

Environmental stressor



https://www.researchgate.net/figure/Hypothalamic-pituitary-adrenal-HPA-axis-Experiencing-an-environmental-stressor-as_fig1_261951085

What Causes Stress?

Stress is typically broken down into physical, mental, and emotional stress

These can be caused by work, relationships, finances, anxiety or depression, toxins, illness, underlying viruses and infections, and much more.



When our bodies are stressed, our HPA axis communicates in order to release cortisol from the adrenal glands. When our adrenals are exhausted from being overworked, the cortisol patterns are disrupted, leading to inflammation and other hormone imbalances.

- **According to a study conducted by Frontiers in Human Neuroscience, "75–90% of human diseases are related to the activation of the stress system."**

- *“Every stress leaves an indelible scar, and the organism pays for its survival after a stressful situation by becoming a little older.”*

- Hans Selye, MD, PhD



Stages of General Adaptation Syndrome

1

1: Alarm

Upon perceiving a stressor, the body reacts with a “fight-or-flight” response and the sympathetic nervous system is stimulated

2

2: Resistance

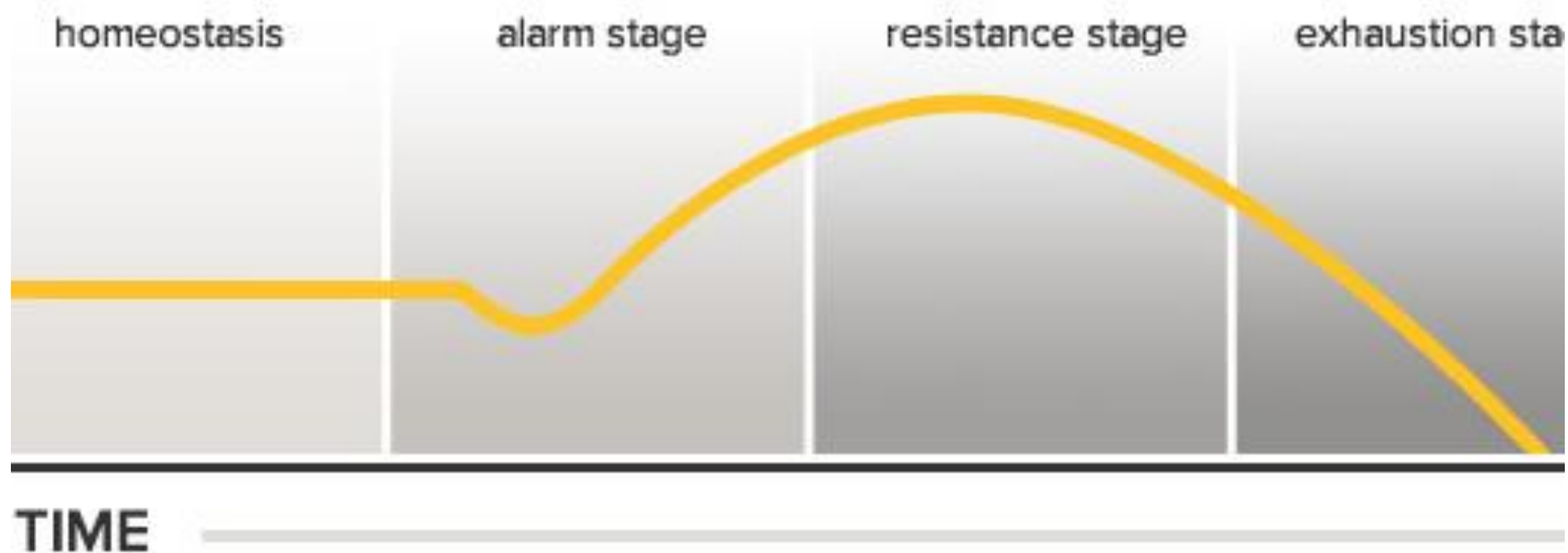
The body resists and compensates as the PNS attempts to return to normal physiological levels while the body focuses on the stressor

3

3: Exhaustion

If the stressor continues or the body is in a chronic state of stress, the resources become exhausted. The body is then susceptible to disease and death

Selye's General Adaptation Syndrome



EFFECTS OF **STRESS** ON THE BODY



Lack of concentration and energy, headaches, dizziness, panic, depression and anger.



Increased heart rate and blood pressure leading to increased risk of high cholesterol and heart attack.



Upset stomach, acid reflux, pain ulcers and change in appetite leading to weight gain.



Suppressed immune system leading to illness and high levels of inflammation.



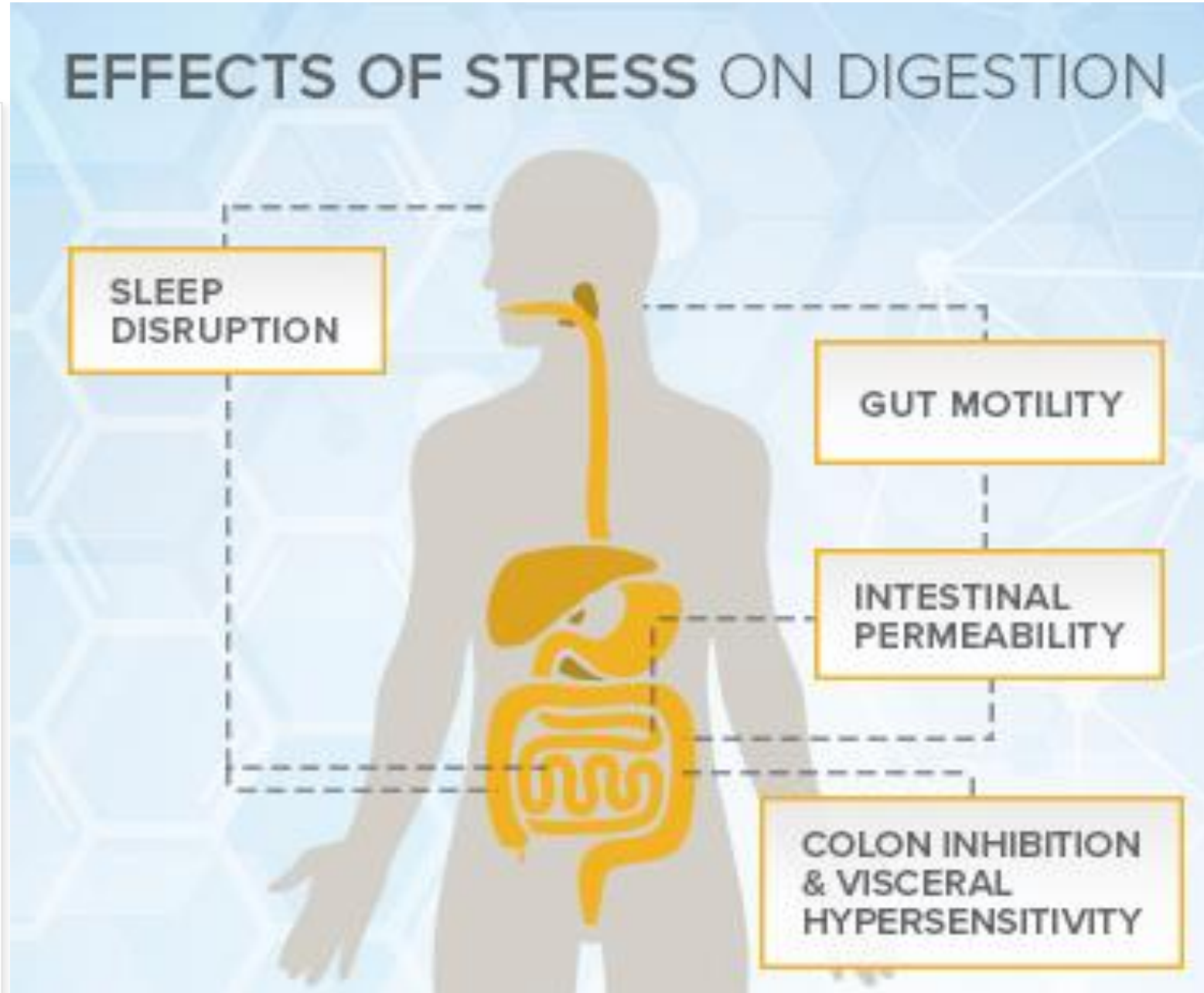
Joint pain and lowered bone density, muscle tension, tightness, and protein breakdown.



Decreased hormone production leading to reduced fertility and sex drive.

EFFECTS OF STRESS ON DIGESTION

- **Motility:** Ginger, 5-HTP, artichoke, D-limonene
- **Intestinal mucosa support:** Glutamine
- **Cytokine balance:** Anti-inflammatory support agents such as fish oil, curcumin



Cortisol and Adrenal Glands

- **Cortisol**- one of your body's key stress hormones
- Decreases at night and spikes in the morning to wake you up
 - May also spike throughout the day or at night as a response to stress
 - Can prevent proper melatonin levels from being released

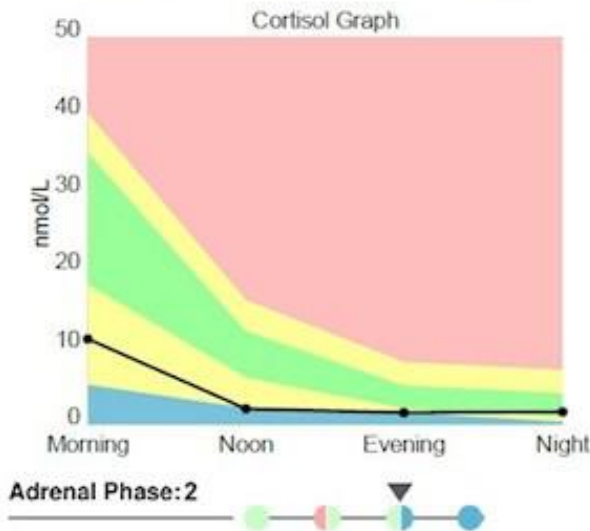


Hormones and Sleep

- Sleep helps the body make the right levels of important hormones including:
 - **Cortisol** - released to help you wake up in the morning and during times of stress.
 - **Melatonin** - the “circadian rhythm hormone”
 - Based on time of day and light levels
 - Helps you prepare for sleep
 - **Gamma-Aminobutyric acid (GABA)** – Amino acid that works as an inhibitory neurotransmitter
 - Helps with relaxation and allows for communication between nerve cells
 - **Growth Hormone** - helps cells grow and repair damage

Testing Often Helpful

| Analyte | Result | Unit | L | WR | H | Optimal Range | Reference Interval |
|------------------|--------|--------|---|----|---|---------------|--------------------|
| Cortisol Morning | 11 | nmol/L | | ◆ | | 18 - 35 | 5.1 - 40 |
| Cortisol Noon | 2.0 | nmol/L | ↓ | | | 6.0 - 12 | 2.1 - 16 |
| Cortisol Evening | 1.5 | nmol/L | | ◆ | | 2.0 - 5.0 | 1.5 - 8.0 |
| Cortisol Night | 1.6 | nmol/L | | ◆ | | 1.0 - 4.0 | 0.33 - 7.0 |
| DHEA* | 104 | pg/mL | ↓ | | | | 137 - 336 |
| Secretory IgA* | 383 | µg/mL | | | ↑ | | 75 - 330 |

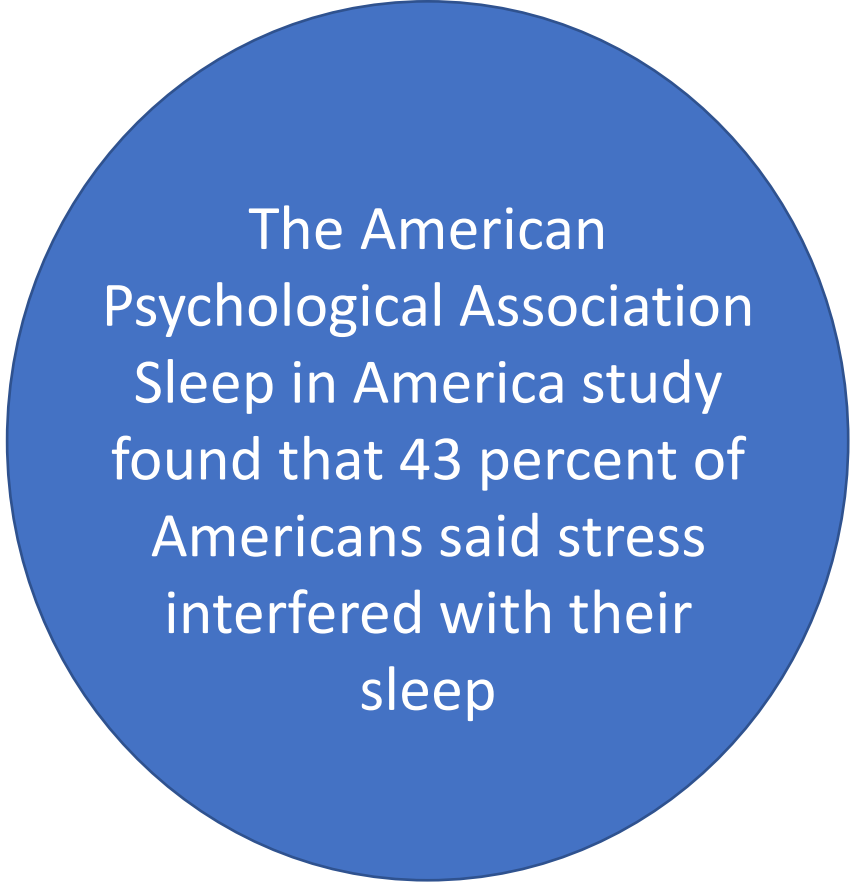


Hormone Comments:

- DHEA levels typically decline with age and the level measured here is below the reference range. The low DHEA level may warrant supplementation for optimal well-being. Note: Supplementation with DHEA may increase testosterone and/or estradiol levels.
- Diurnal cortisol pattern is consistent with evolving (Phase 2) HPA axis (adrenal gland) dysfunction.
- Note: The current samples are routinely held three weeks from receipt for additional testing.
- Elevated levels of SIgA are associated with an upregulated, active immune or inflammatory response, and may be reflective of acute psychological and/or physical stressors. Every mucosal membrane surface such as the eyes, nose, throat, and gastrointestinal system represent a large portal of entry for pathogenic bacteria, viruses, and yeasts. Secretory IgA (sIgA) is the predominant antibody found on these mucosal membranes, and represents the body's first line of defense. SIgA levels change in response to stress.

Sleep Hygiene

- **Sleep is incredibly important for stress reduction and cell regeneration and repair, and balances hormones**
- People that do not get enough sleep or have frequent disrupted or poor quality sleep are more likely to have poor cognitive functioning, pain, get sick easily, and have a hard time managing other diseases.
- Aim for **7-9 hours of restful sleep per night**



The American Psychological Association Sleep in America study found that 43 percent of Americans said stress interfered with their sleep

Sleep Hygiene Tips

- Turn off electronics 1 hour before bed
- Read a book
- Meditate
- Drink non-caffeinated herbal tea
- Have a consistent night-time routine
- Listen to relaxing music or sounds
- Sleep in a dark room and keep the room a comfortable temperature
- Essential oils- lavender
- California poppy, L-Theanine, melatonin, magnesium and passiflora extract

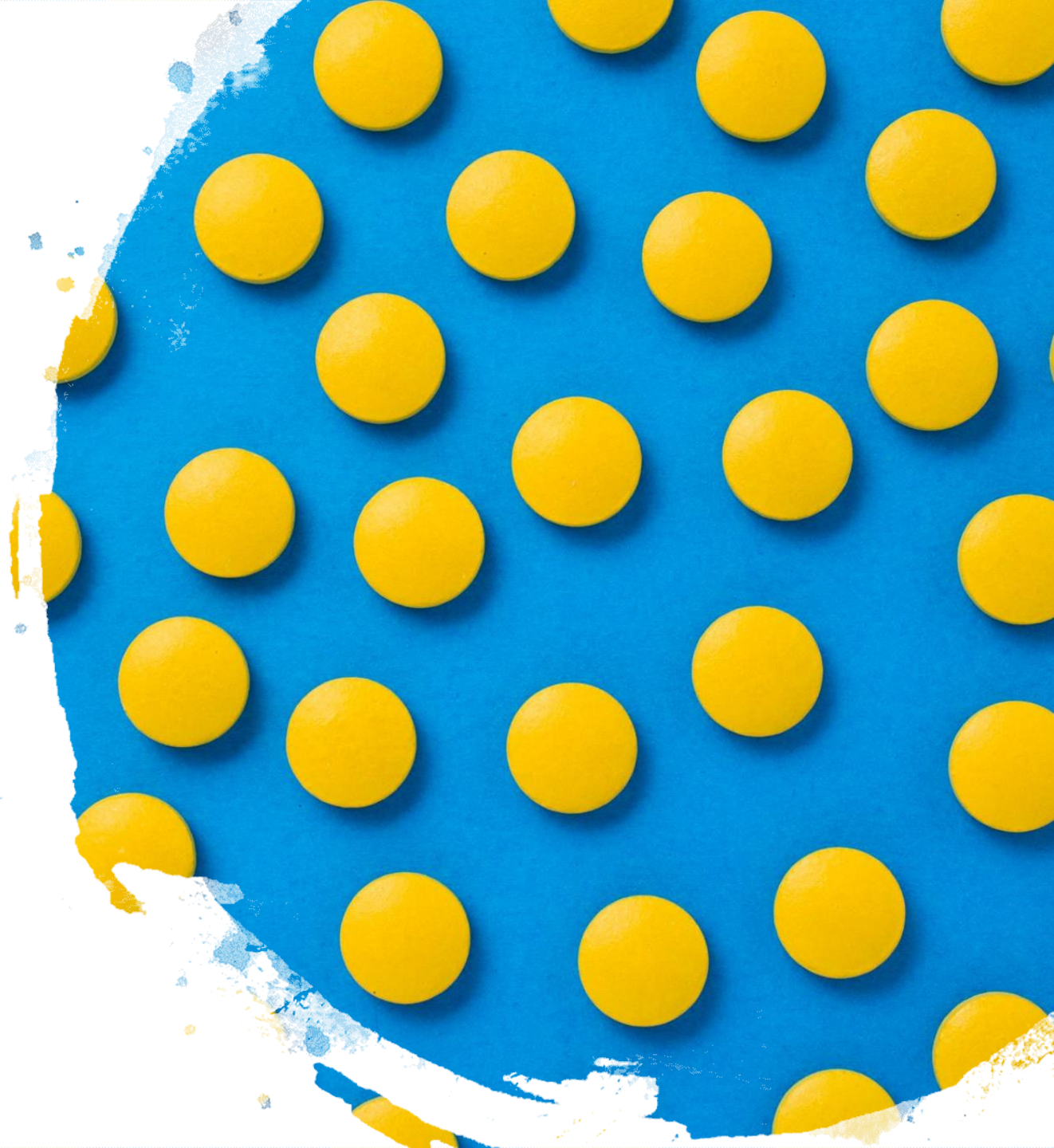


Avoid These Before Bed

- Alcohol
- Caffeine
 - Coffee, green/black tea, sodas, energy drinks
- Ginseng
- Nicotine and tobacco
- SAMe
- Weight loss supplements such as Ma huang/ephedra, bitter orange, etc.

Sleep-disrupting Medications

- Amphetamines (and other medicines to treat ADD or ADHD)
- Antidepressants (many classes)
- Asthma “rescue” inhalers
- Beta Blockers (medications ending in “lol”)
- Decongestants
- Diuretics (also called “water pills”)
- Histamine blockers and antihistamines
- Steroids (prednisone etc.)
- Some thyroid replacement medicines (natural and other thyroid supplements containing T3/triiodothyronine)



Exercise for Stress Reduction

- **Exercise releases endorphins to help decrease pain and improve mood.**
 - Over time, exercise releases healthy amounts of cortisol, which reduces inflammation in our body
- Improves sleep quality
- Research found that working out with others lowered stress levels by 26%



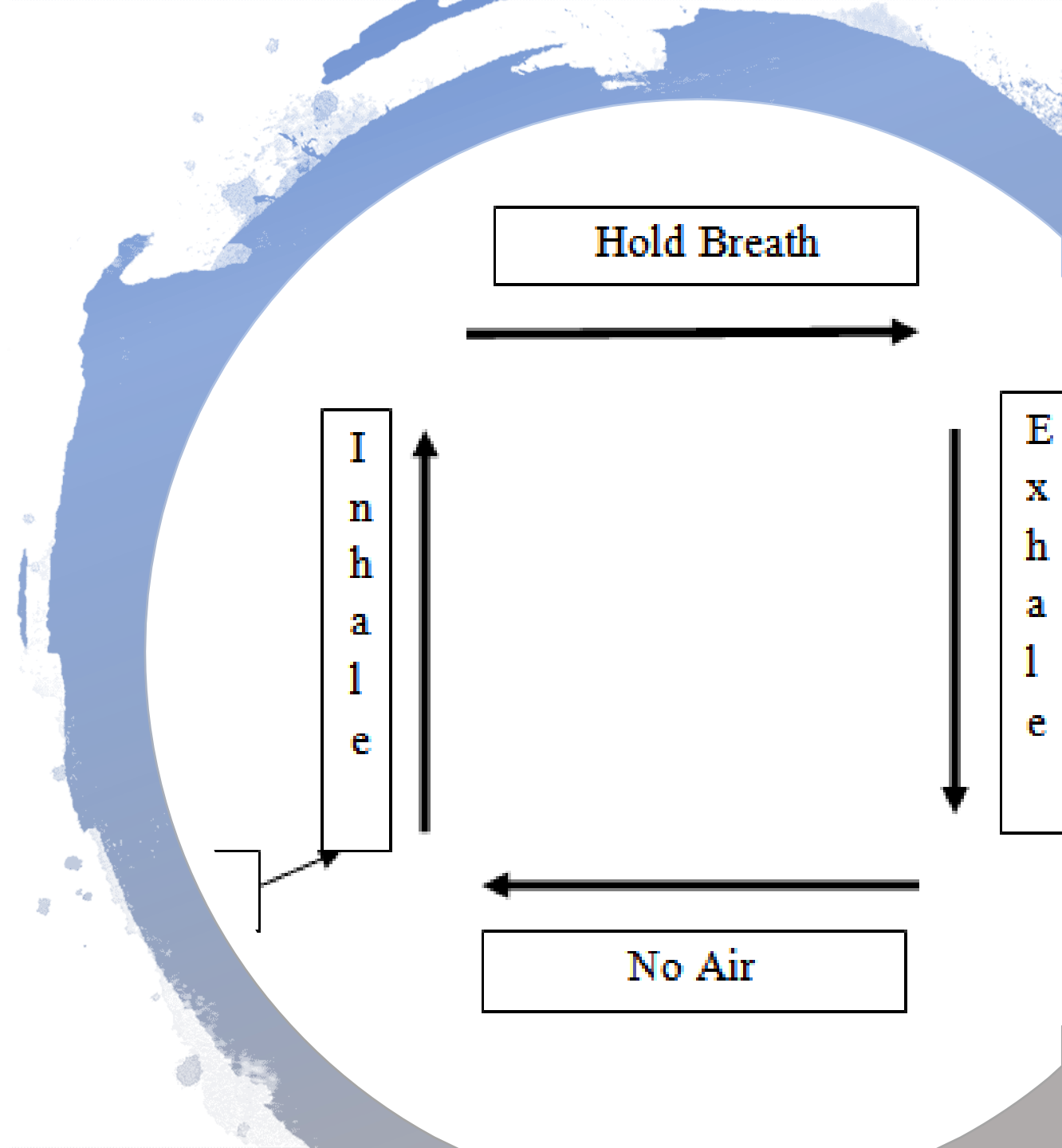


Low Impact Exercises

- According to Harvard Health Publishing, "Exercise cuts the risk of heart attack, stroke, diabetes, colon and breast cancers, osteoporosis and fractures, obesity, depression, and even dementia (memory loss). **Exercise slows the aging process, increases energy, and prolongs life.**"
- Some low impact exercises are walking, stretching, swimming, water aerobics, bicycling, and yoga
- Virtual apps- Down Dog

Deep Breathing (4 fold breath)

- Increases the supply of oxygen to your brain and stimulates the parasympathetic nervous system, which promotes a state of calmness
 - Close your eyes and put your hand on your belly
 - Breathe in deeply, expanding your stomach and diaphragm, through your nose for four counts, hold for four counts and out for four counts
 - Continue 5-10 times and focus on breathing slow and deep



Progressive Muscle Relaxation Steps

Tighten



Tighten each muscle, starting with your forehead and ending with your toes, and maintain the contraction 20 seconds before slowly releasing it.

Focus



Focus on yourself and on getting full relaxation in specific body muscles. Tune out all other thoughts.

Contract and relax

If any muscle still remains tense, contract and relax that specific muscle three or four more times

Practicing Gratitude

- **Practicing gratitude daily can help you cope with stress, and improve both your emotional and physical well-being. One study found that "gratitude was linked to fewer signs of heart disease." (1).**
- Decreased stress levels, lowered blood pressure, better sleep quality, stronger immune systems, and increased feelings of joy, happiness, forgiveness, and compassion
 - Redwine LS, Henry BL, Pung MA, et al. Pilot Randomized Study of a Gratitude Journaling Intervention on Heart Rate Variability and Inflammatory Biomarkers in Patients With Stage B Heart Failure. *Psychosom Med.* 2016;78(6):667–676. doi:10.1097/PSY.0000000000000316



Biofeedback



The idea is to become more aware of heart rate, breathing patterns, and other physiological functions that you might not always be noticing

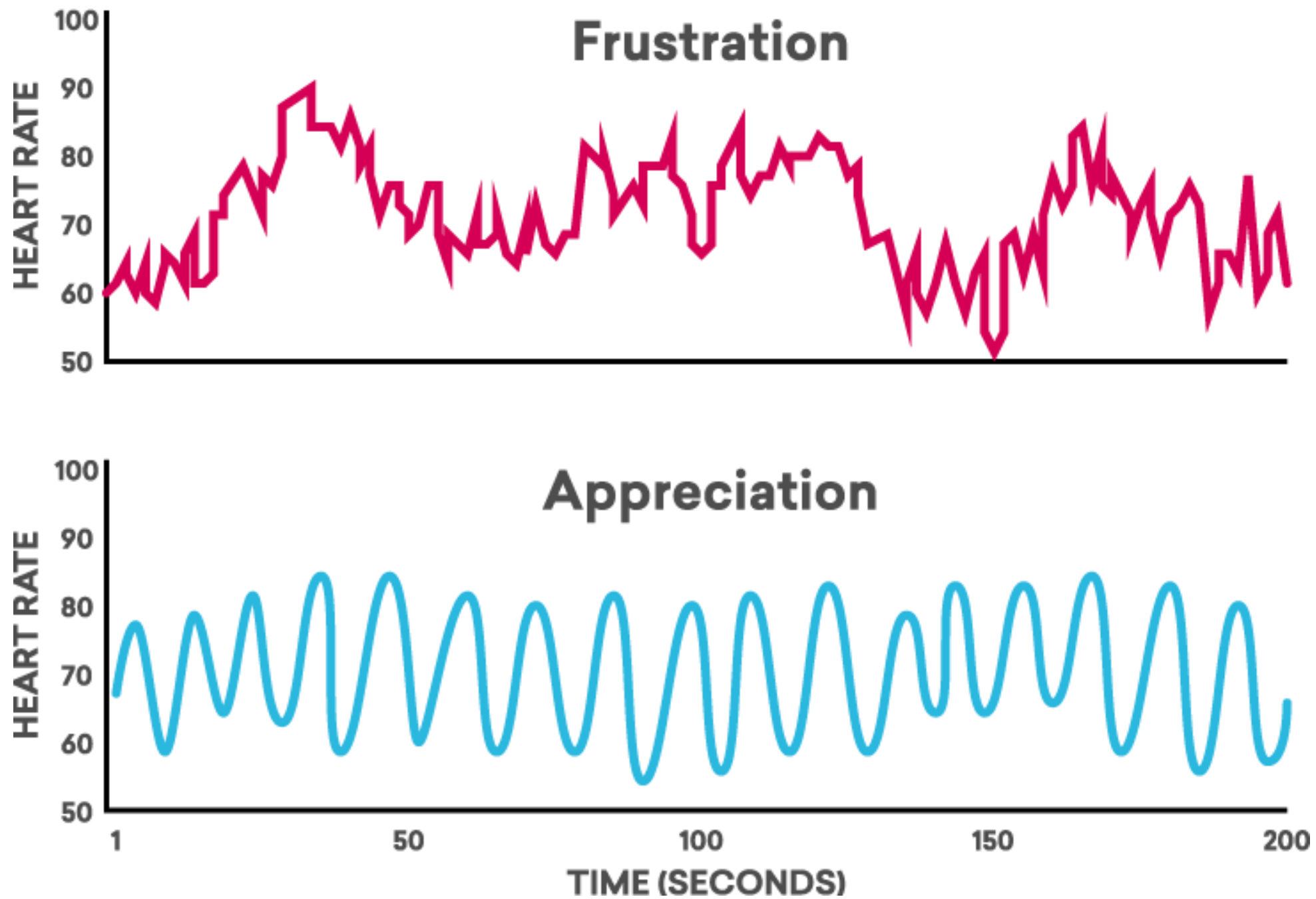


As you become more aware of these functions, you learn to have more control over them.

Biofeedback Devices

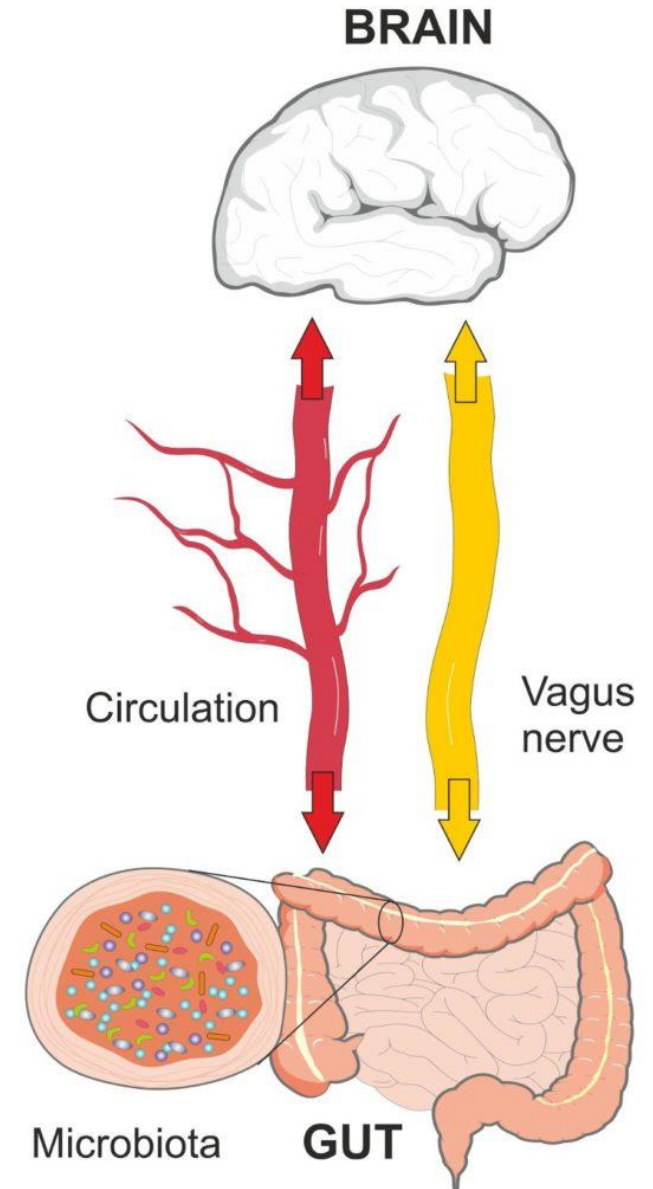
- Biofeedback devices can help you move your body from a “fight or flight” state to a place of more relaxation
- Better mood, focus, blood flow, and overall well-being
- Heart rate variability
 - Stress Eraser, HeartMath, FitBit, Oura Ring





Stimulate the Vagus Nerve

- Helps to target the Gut-Brain axis
 - Main parasympathetic nerve of the body
- Humming, gargling, singing, diaphragmatic breathing, exercise, heart rate variability
- Basic Exercise by Stanley Rosenberg
 - *Accessing the Healing Power of the Vagus Nerve*
- Probiotics and omegas



Eating for Stress Reduction

- Food to support adrenal glands
- Blood sugar stabilization
- Healthy fat, fiber, and protein at each meal
- Include foods high in vitamin C, B vitamins (esp. B-5 and B-6), and magnesium to help support healthy adrenal glands
- Hydration
- Detoxifying foods



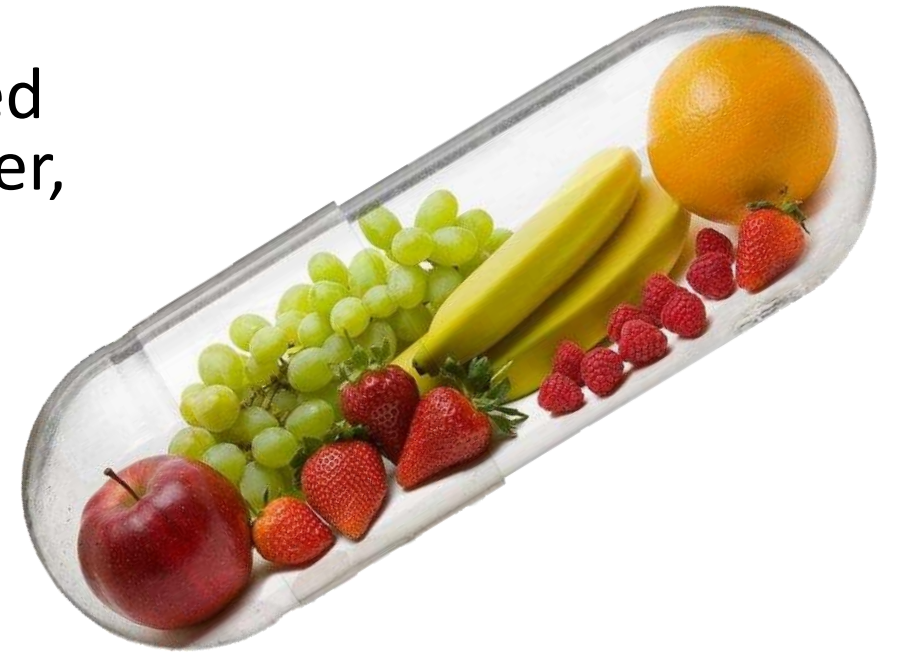
Foods to Avoid

- Caffeine
- Alcohol
- Sugar and artificial sweeteners
- Processed dairy
- Trans fats
- Refined grains/gluten



Nutrients to Support Adrenals

- **Vitamin B5** - In the 1950s research first linked B5 to the body's main stress regulatory center, the HPA axis
- Pantothenic acid helps the adrenal glands produce healthy amounts of cortisol
- Chicken, sunflower seeds, mushrooms, avocado
- Dosage: 500 to 1,000 milligrams a day, can be divided





Eleuthero Root- (Siberian Ginseng)

- The adaptogenic properties linked to two of the herb's active ingredients — rosavin and salidroside
- Helps support healthy energy levels, mental focus, and attention span during times of stress
 - Physical performance and endurance
 - Neuroprotective effects

Ashwagandha

- Works on GABA receptor sites
- Helps support weight management under stress
- Dosage: 300 mg day
- Studies found supplementing with ashwagandha was “strongly associated with greater reductions in stress, anxiety, and depression. Ashwagandha was also linked to a 23% reduction in morning levels of cortisol”.

- Lopresti AL, Smith SJ, Malvi H, Kodgule R. An investigation into the stress-relieving and pharmacological actions of an ashwagandha (*Withania somnifera*) extract: A randomized, double-blind, placebo-controlled study. *Medicine (Baltimore)*. 2019;98(37):e17186. doi:10.1097/MD.00000000000017186



Rhodiola (arctic or golden root)

- Works on the HPA axis, effects NO production
 - May also have an effect on beta-endorphins
- Found to have cellular and system wide benefits similar to positive lifestyle interventions
- A 4-week study with *Rhodiola rosea* suggested 200 mg twice daily (400 mg/day) was a safe dose

• Edwards D, Heufelder A, Zimmermann A. Therapeutic effects and safety of *Rhodiola rosea* extract WS 1375 in subjects with life-stress symptoms – results of an open-label study. *Phytother Res.* 2012 Aug;26(8):1220-5. doi: 10.1002/ptr.3712.



Laughter is the Best Medicine

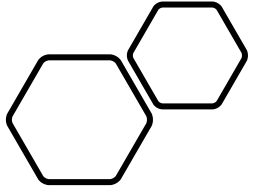
Laughter is the tonic, the relief, the surcease for pain -Charlie Chaplin

- Relaxes the body
- Releases endorphins
- Supports the immune system
- Increases blood flow and improves blood vessel function

- A study in Norway found that “people with a strong sense of humor outlived those who don’t laugh as much”

- Authors: Lawrence Robinson, Melinda Smith, M.A., and Jeanne Segal, Ph.D. Last updated: November 2019.





To Summarize...

Proper Sleep

Nourishing
foods

Deep
breathing

PMR

Exercise

Adrenal
supporting
nutrients

Gratitude

Test hormones

Biofeedback

Eliminating
toxins

Laughter

Vagal Nerve
Stimulation