

The Brain on Stress

Understanding stress, the brain, and nervous system in order
to shift from survive to thrive

Grounding Exercise

Become aware of the sights, sounds, smells, tastes and sensations around you.

Feel into your body (feet and seat) and notice it in connection to and grounded in the environment

Notice the breath

Deepen the breath

Re-orient the attention outwards



What is Stress

- Originally called General Adaptation Syndrome (GAS) to define a series of changes that the body experienced as a result of external stimulus or demand placed on it.
- The term **Stress** replaced **GAS** and describes the body's reaction (physical, mental, emotional, spiritual) to any changes or pressures that requires an adjustment or response. **Stress** is your body's way of responding to any kind of demand or threat
- Stress is a normal part of life. You can experience stress from your environment, your body (sensations and emotions), and your thoughts.
- Challenge makes us stronger however the harder you are on anything the faster it breaks down. While Some stress can lead to positive adaptations keeping us alert, focused, motivated, and safe, stress becomes negative when it is too much, too fast or too often and this can lead to hypervigilance, increased tension, exhaustion, and depletion.
- The body's built-in stress response system automatically creates physiological changes that allow us to survive at all costs which in the case of an emergency is amazing. However, this response can become chronically activated during prolonged periods of stress. Prolonged activation of the stress response causes distress which can disturb the bodies ecosystem leading to reduced health and wellness outcomes over time.
- The human brain can respond to both real and imagined danger so whether we are actually in danger or we are worried about something that might happen the body responds the same way.

Evolution of 3 Brains

- **The Survival/reptilian brain:** controls the body's vital functions such as heart rate, breathing, body temperature and balance. OS= SURVIVAL
- **The Limbic brain/mouse:** emerged in the first mammals. records memories of behaviors that produced agreeable and disagreeable experiences. Emotions are physiological shifts which motivate us to act. Typically negative/uncomfortable emotions are avoidant and positive/pleasurable emotions are attachment focused. OS=AVOID PAIN SEEK PLEASURE
- **The Cortex/primates and humans:** language, abstract thought, planning, imagination, problem solving, focus, integration, and consciousness. OS=CONNECTION AND MEANING



Upstairs Brain

Cortex

(human/primate)

Rational, thinking, planning, organizing, regulating and integrating brain

Downstairs Brain

Limbic system

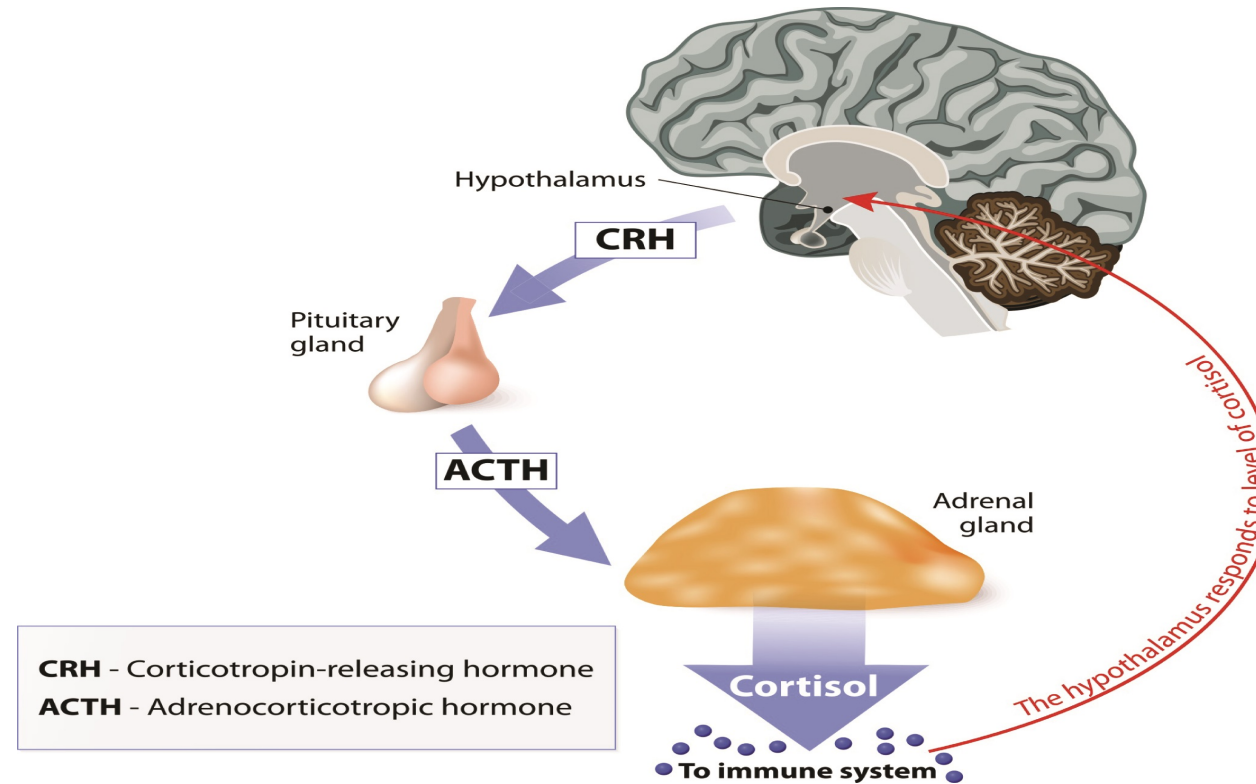
(Mammal)

Emotional Brain
Securing attachment

Brain stem

(Reptile Brain)

Brain Stem



stress response

Brain Perceives “Threat”



Alarm bells go off and we are owned by the downstairs brain



The body mobilizes resources to save our life



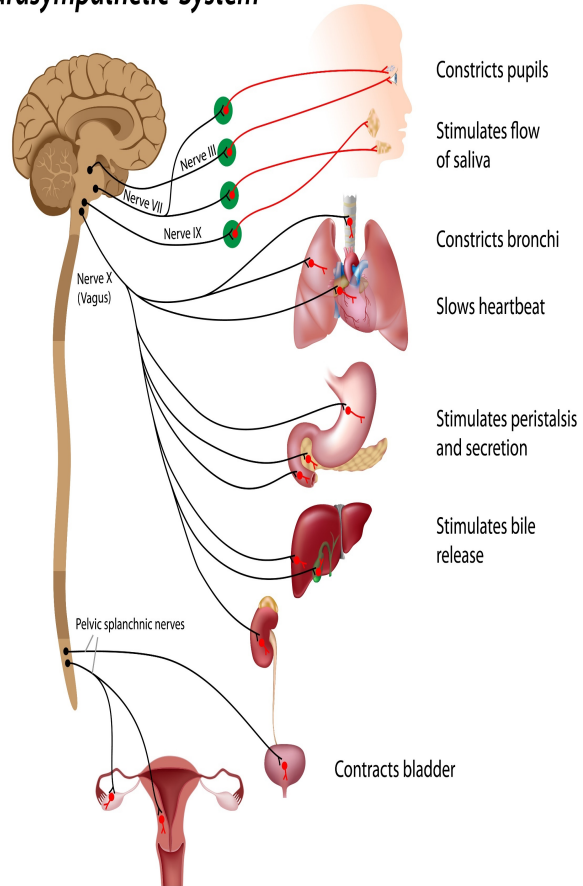
When threat has been overcome we return to rest and the upstairs brain can come back online

Break

Rest/Digest/Social

Connection/Soothing

Parasympathetic System

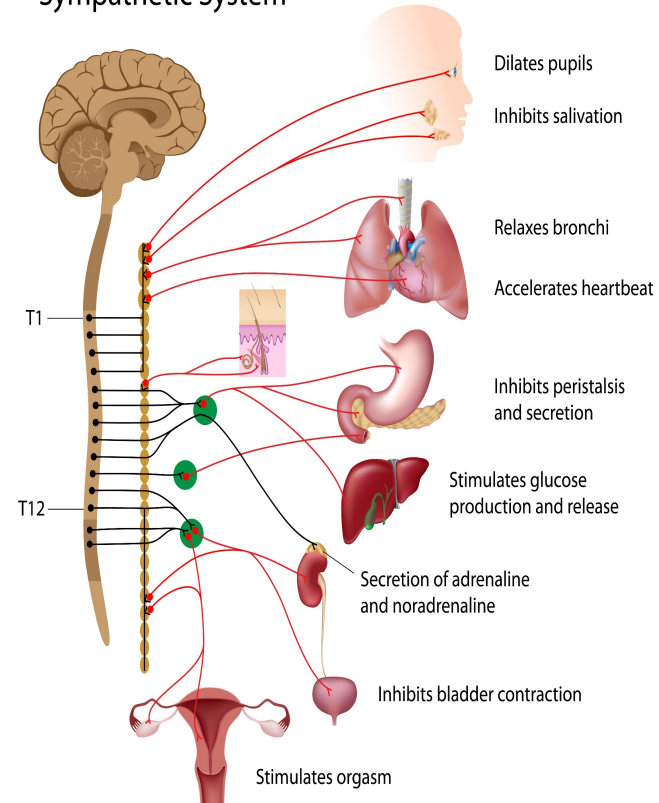


Gas Pedal

Fight/Flight/Freeze

Fawn/ Feed/Forage (chronic)

Sympathetic System



The Hand Model of the Brain

The Pre-frontal Cortex of the brain develops into our mid 20's as a result of our interactions with the world around us. As a regulator its job is to take in the information and decide on the appropriate response. This is something it learns over-time through interactions with care-givers and social interactions.

GREATLY IMPACTED BY ADVERSE CHILDHOOD EXPERIENCES (ACE'S) Watch 'How Brains are Built' :<https://www.youtube.com/watch?v=LmVWOe1ky8s>

Upstairs Brain



Pre-frontal cortex (PFC)
"the wise leader"
integrates information from downstairs brain to make wise choices.
Emotions and sensations are messengers



"Flipping your lid"
takes the wise leader off-line

Downstairs Brain

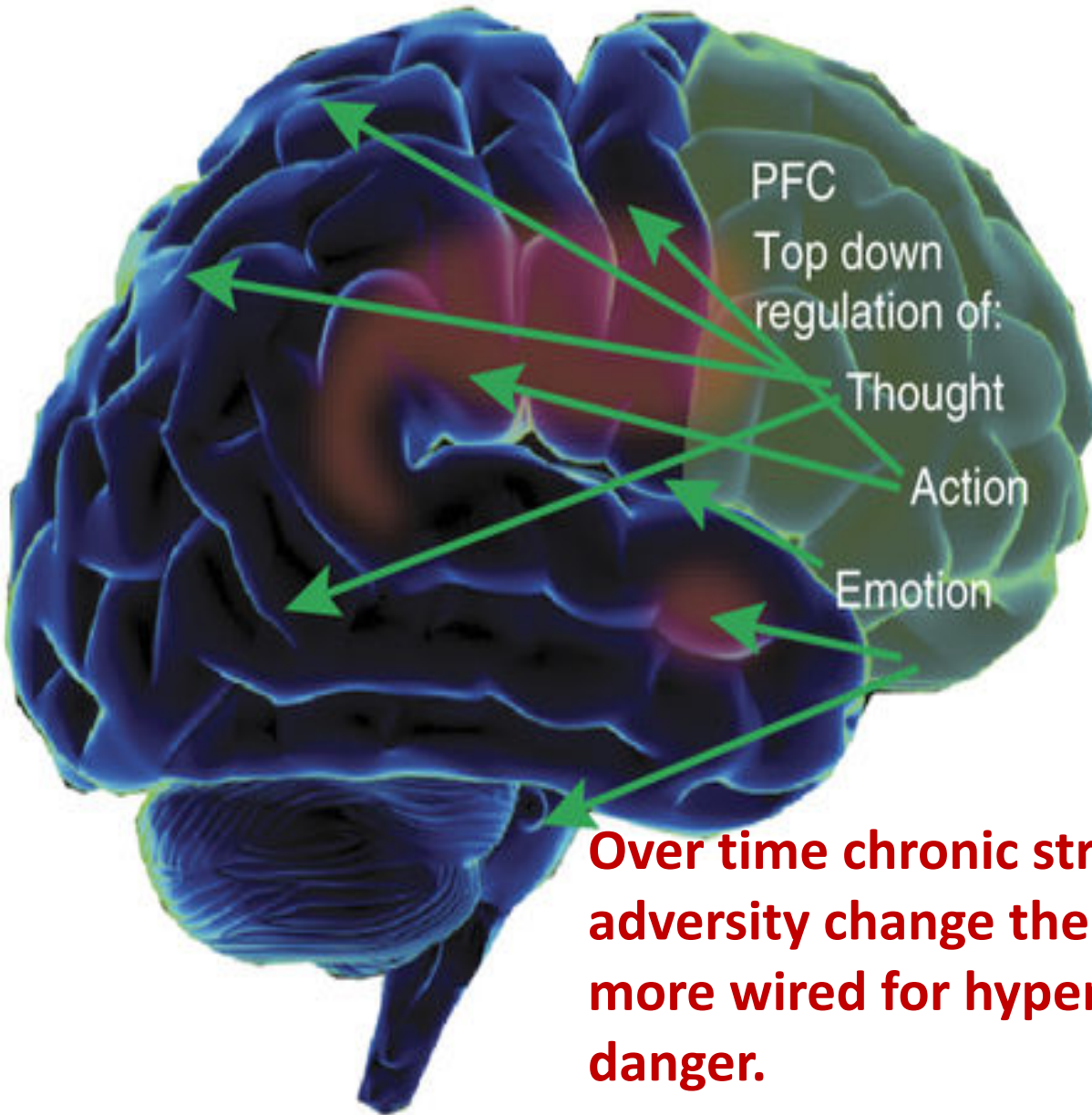
Hijacked by big emotions such as fear, anxiety, and anger
Amygdala sounds the alarm to 'fight, flight, or freeze'

Adapted from Dr. Dan Siegal "flipping your lid"

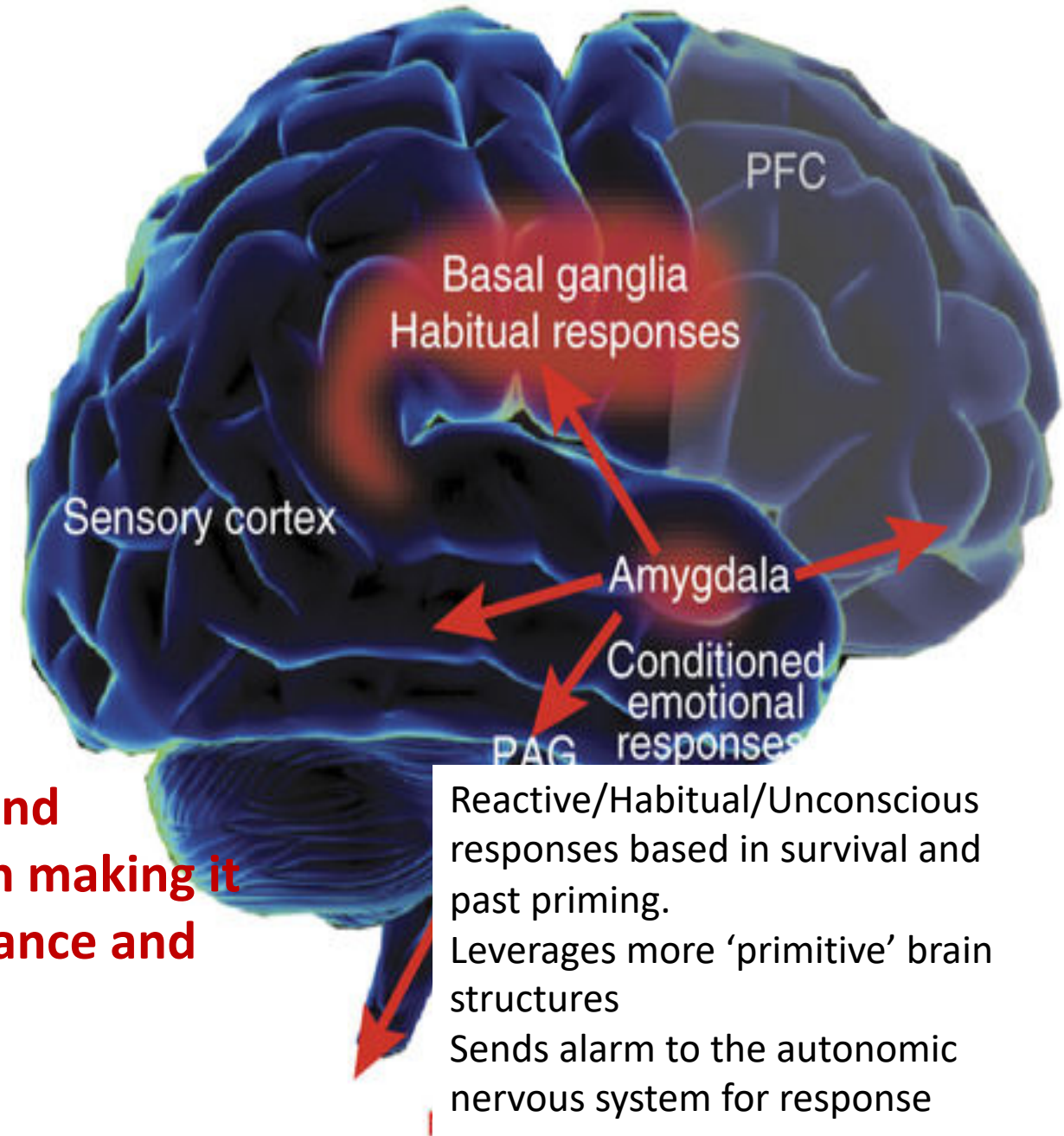
Alert Brain

Stress and the Brain

The Brain on Stress



Over time chronic stress and adversity change the brain making it more wired for hypervigilance and danger.



Resources and Resilience

- According to **Biopsychosocial Model** and Diathesis-Stress Model psychological, social, and biological factors interact with a person's unique vulnerabilities and predispositions to create disease and disorder.
- Resilience may be the result of being able to mobilize resources (internal and external) in order to withstand the demands placed on it. In this way challenge makes us stronger but the harder you are on anything the faster it breaks down.
- Community, social/spiritual supports as well as social justice help provide external resources (having just one protective factor has a huge impact on a youths future wellness)
- Self-care practices help to build internal resources

Inner Resource Exercise

- Imagine a time or a place where you have felt relaxed, at ease, or peaceful. This could be a place or even a memory of a time when you have felt relaxed, at ease, and peaceful. If nothing comes to mind, maybe there is an animal, pet, or symbol that represents relaxation, ease, or peace. Whatever comes up for you see if you can enhance the imagery by using your senses to bring it to life. Notice what you see...colors, shapes, textures. Notice what you hear...Notice if there are any smells or maybe tastes present. Notice what you feel...temperature, movement of the air around you, textures of firm, soft, fluffy etc. Finally notice what you feel in your body and where you feel it. Allow the image to fall away and see if you can stay with the felt experience in your body. When you are ready use the butterfly hug or some tapping to integrate it into your body

Three Types of ACEs

ABUSE



Physical



Emotional



Sexual

NEGLECT



Physical



Emotional

HOUSEHOLD DYSFUNCTION



Mental Illness



Incarcerated Relative



Mother treated violently

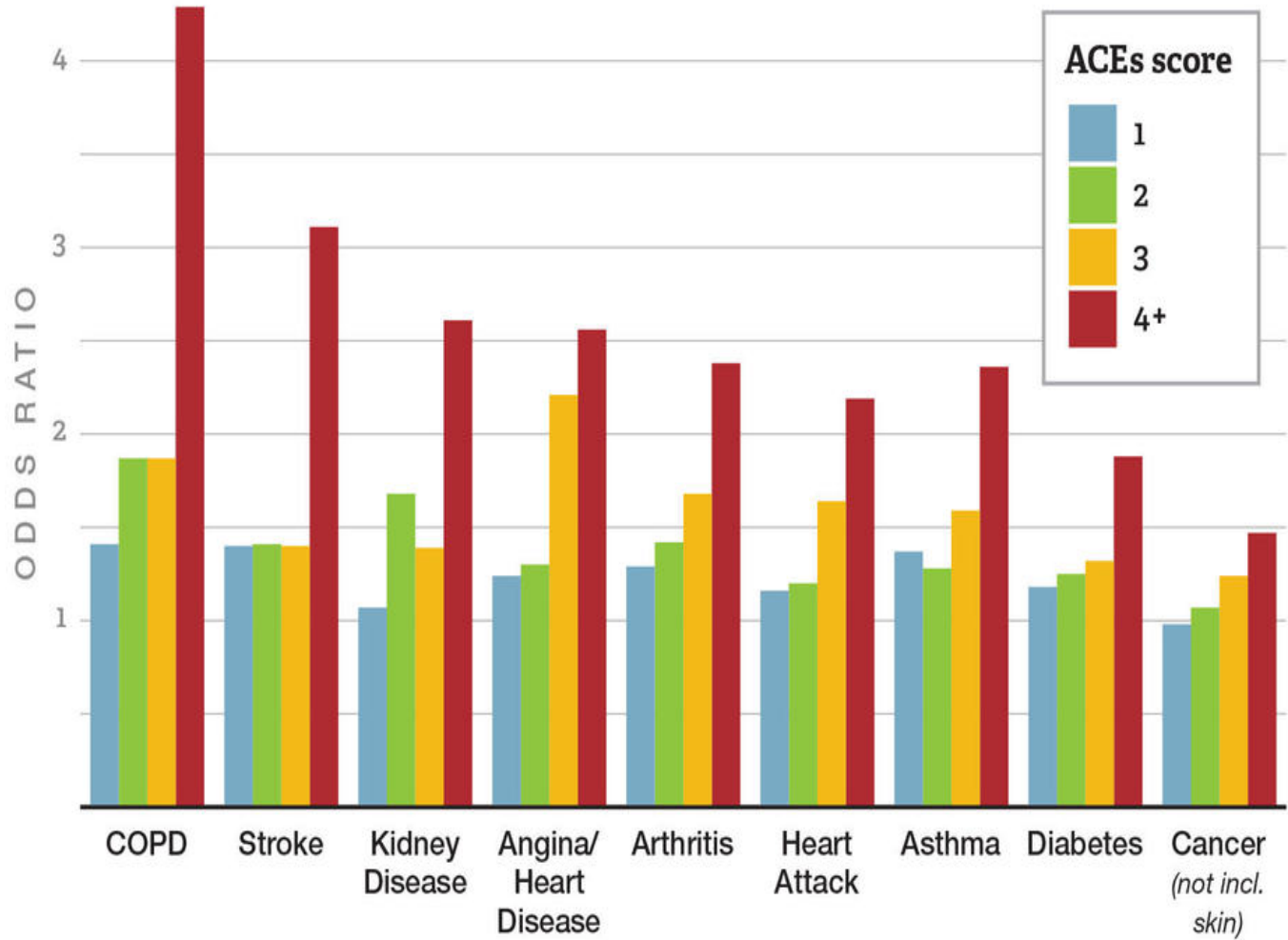


Substance Abuse



Divorce

LIKELIHOOD TO DEVELOP HEALTH CONDITIONS BASED ON ACEs



This chart represents odds ratios, or how many times more likely an adult with ACEs is to experience a given health outcome compared to those without ACEs. For example, those with four or more ACEs are 4.3 times more likely to have chronic obstructive pulmonary disease (COPD), 2.4 times more likely to develop asthma, and 2.2 times more likely to have a heart attack than those without ACEs.

4 or more ACEs

3x

the levels of lung disease and adult smoking

11x

the level of intravenous drug abuse

14x

the number of suicide attempts

4x

as likely to have begun intercourse by age 15

4.5x

more likely to develop depression

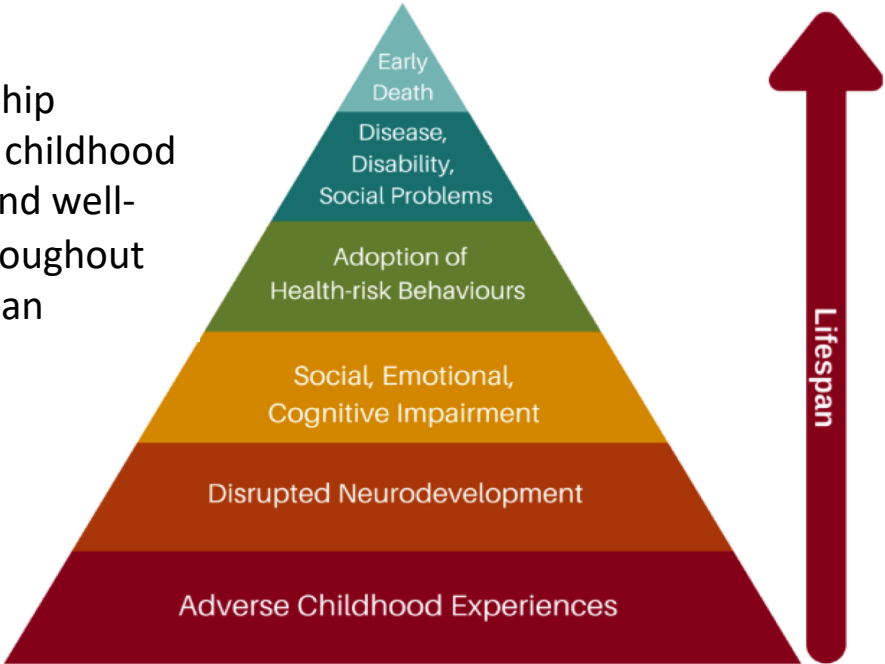
2x

the level of liver disease

“ Adverse childhood experiences are the single greatest unaddressed public health threat facing our nation today ”

Dr. Robert Block, the former President of the American Academy of Pediatrics

Relationship between childhood trauma and well-being throughout the lifespan

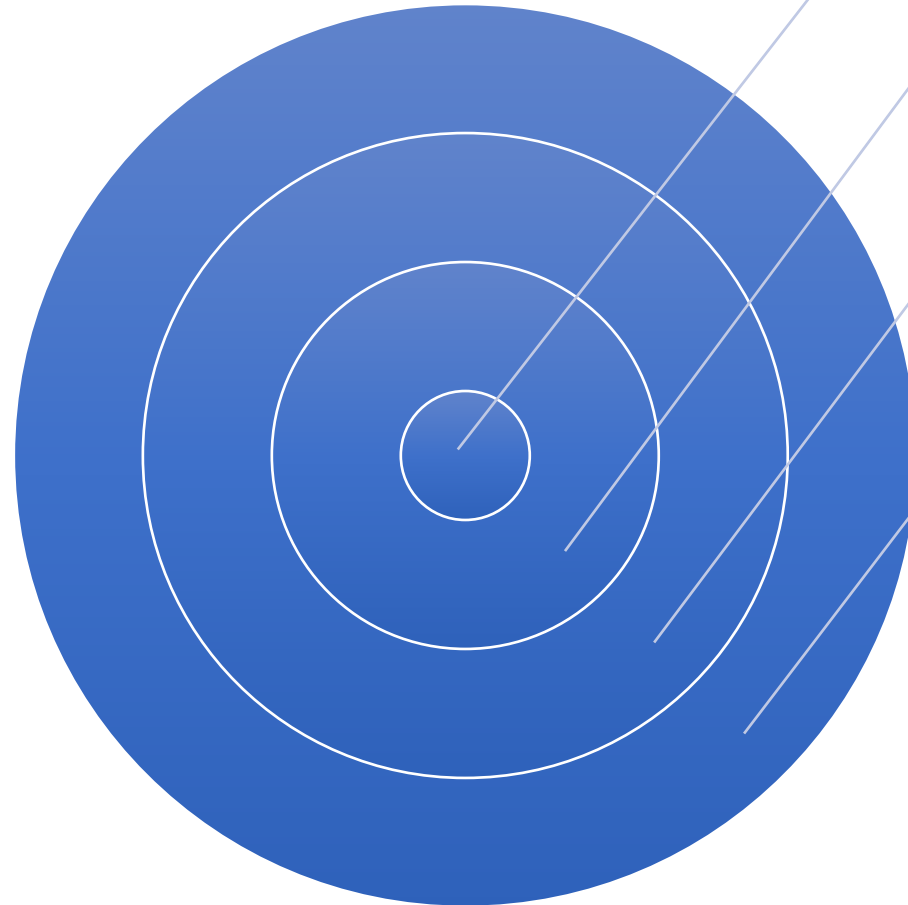


PEMS Check In

“Name it to Tame it”

Noticing what is there,
observing, labeling without
adding any judgment,
analysis, narrative or
preferences.

Whatever is there is there



Spirit/Nature connection

- Existential beleifs or ideas around existance, meaning and connection?

Mental/Thoughts/Stories/Beleifs

- What is the general environment of my mind?
- Is there a current theme or story?

Emotional/Energetic

- What emotions are present?
- Is there a current mood present
- breath and energy levels

Physical Sensations

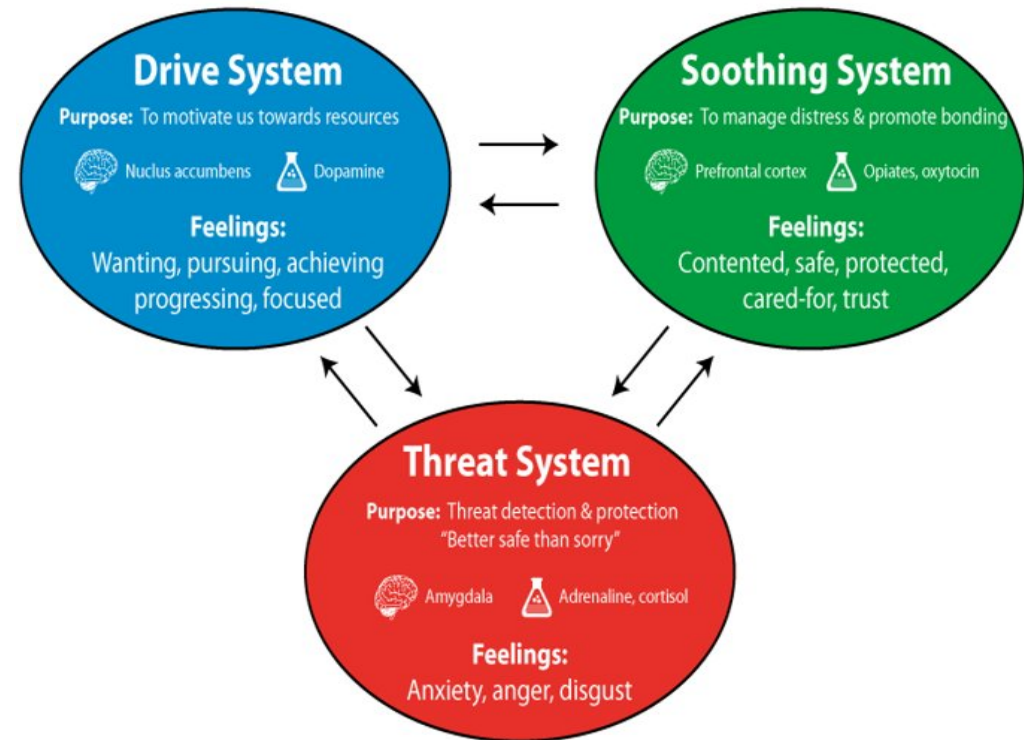
- How does my body feel?

Observe without being hijacked

Being and Doing State

- Doing state:
constantly compares what is happening now with either what we want to have happen or what we want to avoid
- Being state: Intimate with what is happening right now without the need to fix or change

Emotional Regulation Systems

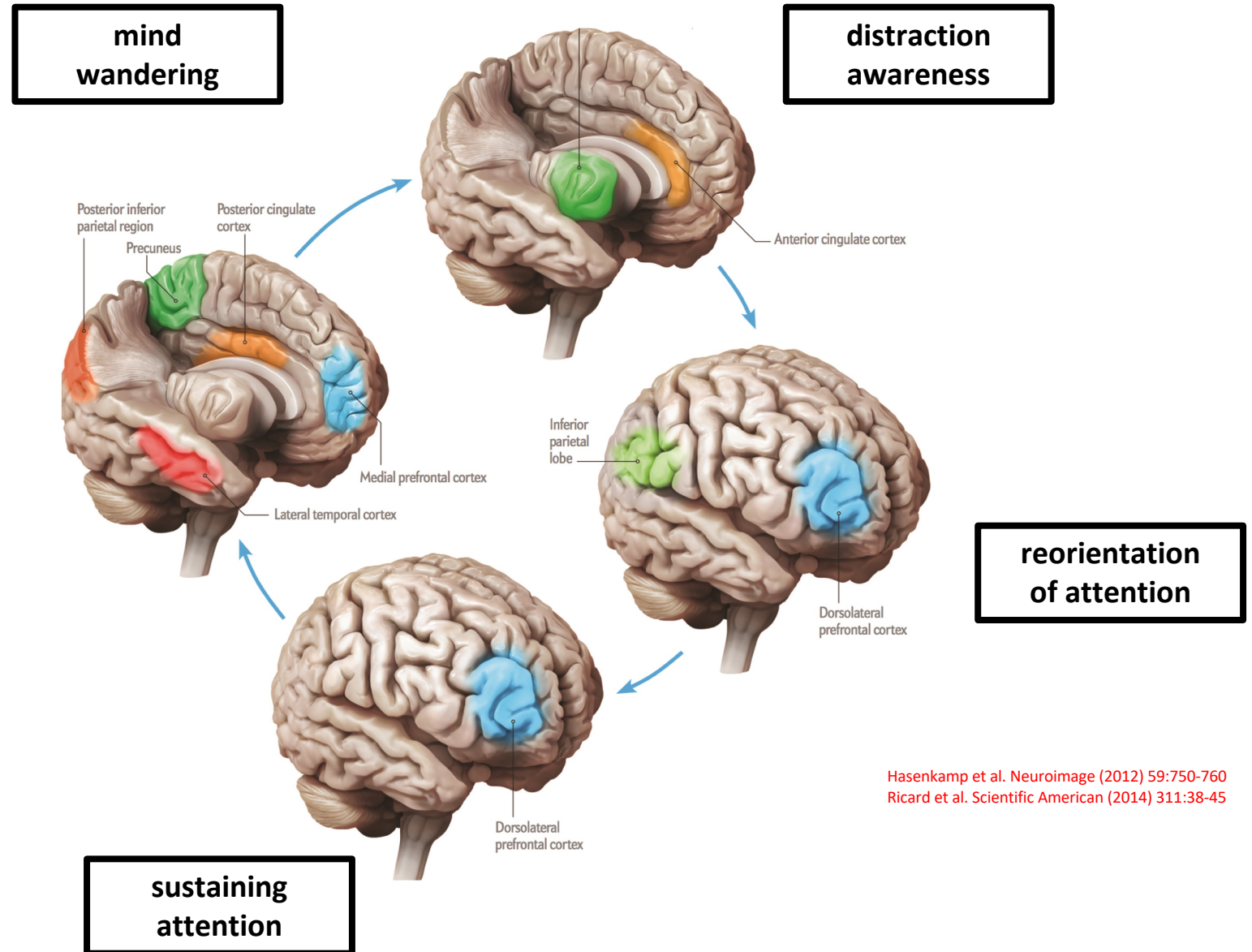


Training the Brain

We spend on average 50% of the day Mind wandering.

Positive emotions are more correlated with attention than external circumstance

95% of our cognition is said to be unconscious
lease can lead to increase in unconscious defense mechanisms



Hasenkamp et al. Neuroimage (2012) 59:750-760
Ricard et al. Scientific American (2014) 311:38-45

Mind-wandering and Paying Attention on Purpose

The default mode network

Information regarding the self:

- *Autobiographical information:* Memories of collection of events and facts about one's self
- *Self-reference:* Referring to traits and descriptions of one's self
- *Emotion of one's self:* Reflecting about one's own emotional state
- ❖ Thinking about others:
 - *Predicting what others are thinking and feeling (based in based experiences)*
 - *Moral reasoning*
 - *Social evaluations*
 - *Social categories:* Reflecting on important social characteristics and status of a group
- ❖ Remembering the past and thinking about the future:
 - *Remembering the past:* Recalling events that happened in the past
 - *Imagining the future:* Envisioning events that might happen in the future

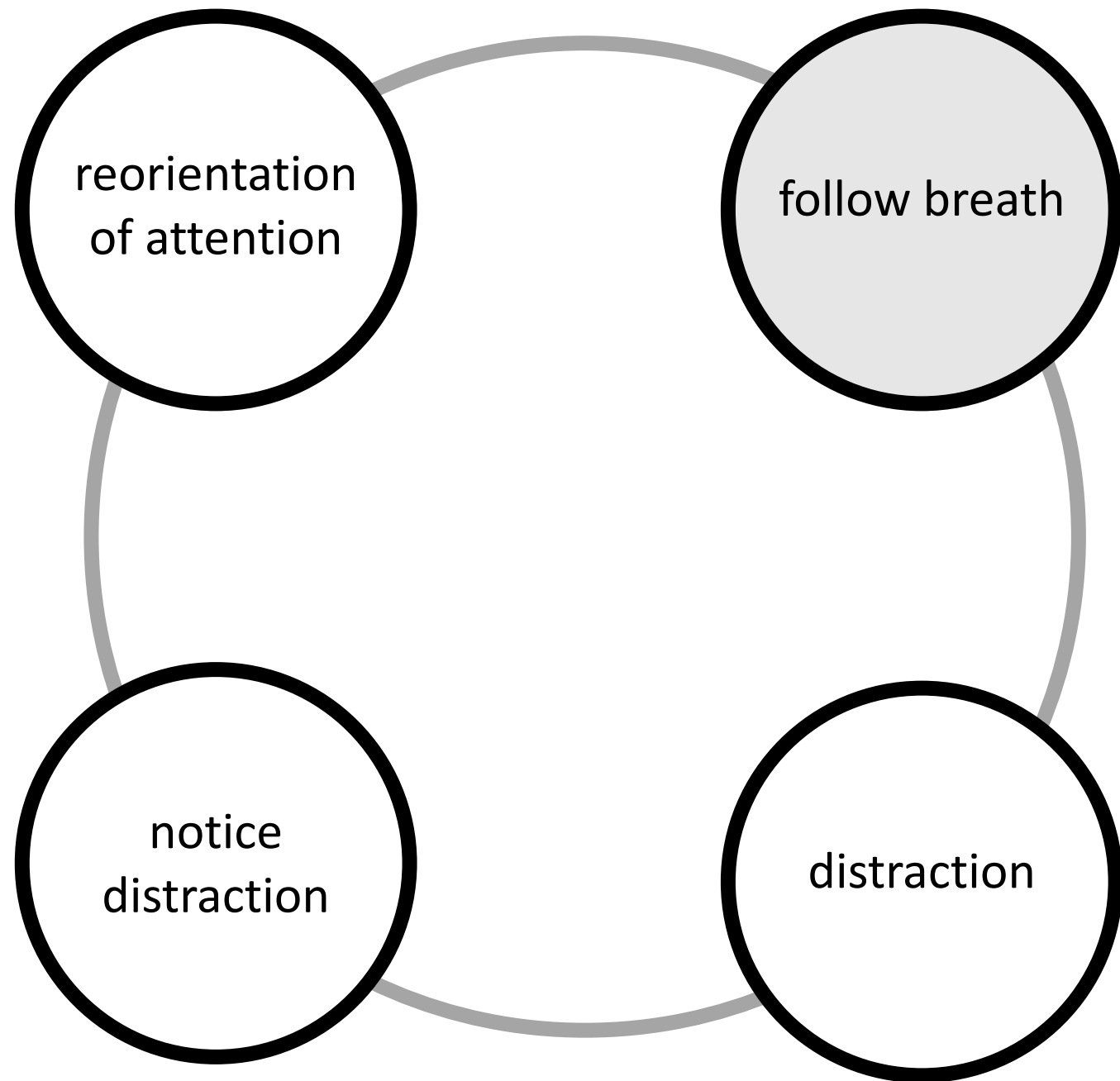
The Present Centered Network

- Paying attention on purpose
- Being State
- Somatosensory cortex (feeling and moving the body on purpose) Introspection (feeling inside like breathing)
- Gives rise to creative thinking and feeling that's free of recursive, self-referential, I-me-mine, negative cognitions about ones self.
- Less influenced by narratives and judgments
- Research shows that meditation deactivates the DMN, eliminates self-referential narrative, increases our ability to remain task focused, and increases our ability to engage creative insight-oriented thinking.
- Long-term meditation transforms the resting-state Default Mode Network of our brain into the Present Centered Mode.

mindfulness

A woman with long brown hair is sitting in a meditative lotus position in a grassy field. She is wearing a light grey cardigan over a dark patterned top and a long necklace. Her eyes are closed, and she has a peaceful expression. The background shows a soft sunset with a warm orange glow and silhouettes of trees in the distance. The overall atmosphere is calm and serene.

“The awareness that arises from paying attention on purpose, in the present moment, non-judgmentally.”



Self Care: Taking Care of our Core Needs

Safety



pet

Satisfaction and
contentment



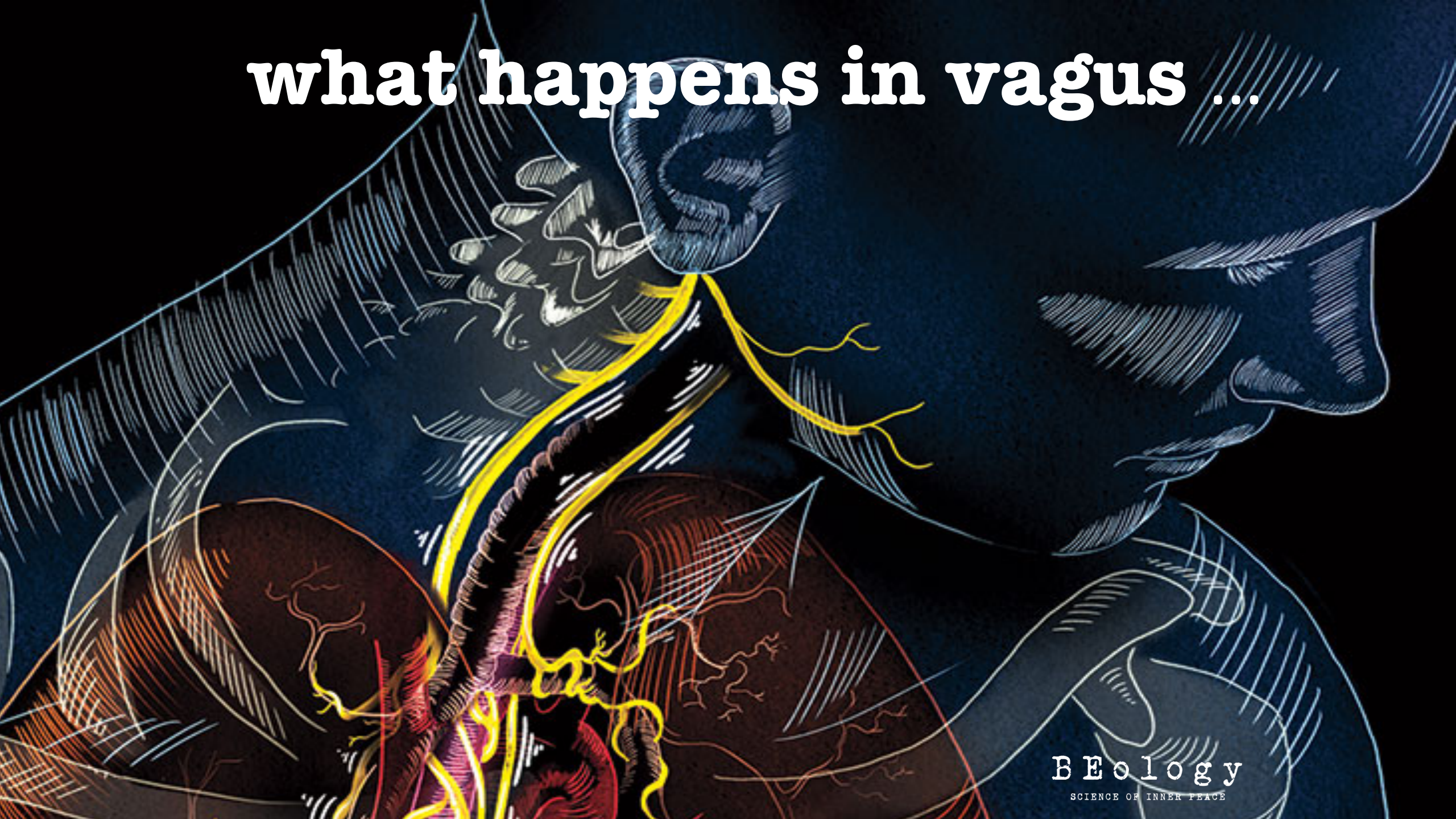
feed

Connection and
Meaning/Purpose



hug

what happens in vagus ...



Self-Compassion:

Acknowledgment of suffering with intention to alleviate

Recognition of humanness

Kindness and love

Holding space for suffering like a caregiver provides soothing and attunement for a child

SOUL Meditation

Stop: Notice you are hijacked or suffering

Observe: Allow/Acknowledge. This is a practice of radical self-acceptance and welcoming. Allowing and acknowledging whatever is arising in your awareness.

Understand: Compassionate inquiry. This step involves non-judgmental listening. If there is a recurring voice, tendency or theme that keeps arising, instead of pushing it away you may want to explore open questions like: Who are you? Where do you come from? What do you want?

Love: This step occurs almost simultaneously with the above steps. We are welcoming every experience into our house. Every voice is allowed to be heard through a lens of kindness and compassion, but this does not mean we have to believe every story. Invite the experiences over for dinner but you don't have to get in bed with them. It may also be helpful here to visualize a compassionate self, an internal resource which allows you to meet intense feelings without feeling overwhelmed. This could be your own image or perhaps an image of someone who symbolizes compassion, warmth and unconditional love. Gentle touch may also be used. Try placing a hand on heart of butterfly hug.

Self-Compassion Letter



Gratitude Meditation

A faint, artistic background image of a person's hands holding a bouquet of flowers, including daisies and long-stemmed white flowers, against a light, bokeh-filled background.

Take time each day to deliberately
focus on all the things in your life you
are grateful for



CommUNITY

From Me to WE.
Let your self be SEEN