

The Neuroscience within Trauma and Addiction

Presented at
Developmental Pediatrics
on my last day in DHA
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Back in the Olden Days

I had the privilege to train and work with some of the greats:

Tom Clingan, M.D.

Mark Stephan, M.D.

Pat Kelly, M.D.

Steve Parkison, Ph.D.

Coming soon and
free digital copy
upon request

NeuroFaith

The Intersection of Science and Faith in the
Healing of Trauma and Addiction



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An Addiction Hits Close to Home

https://www.youtube.com/watch?v=r26Gvb8RpkU&ab_channel=WafflesXP



We initially
love the
addiction
more than
anything else





And although we love the addiction initially, we become enslaved to it.

Plan for this morning

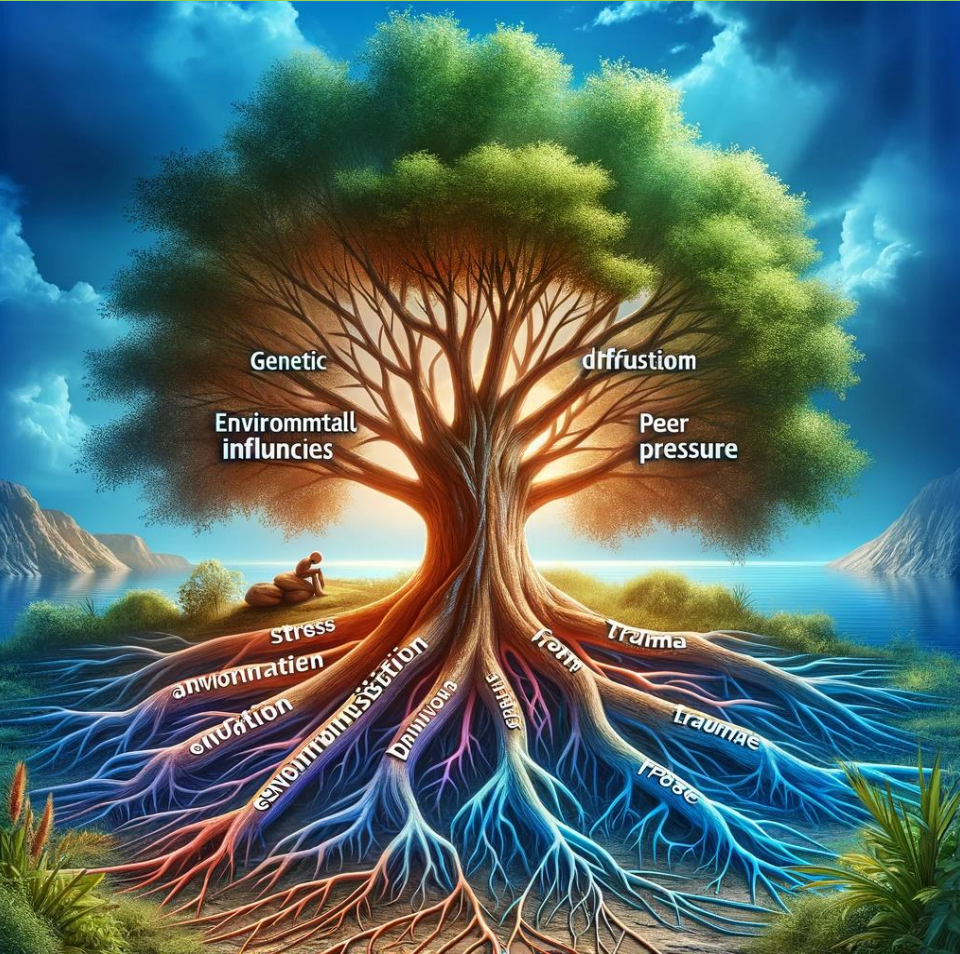
- Epigenetics
- Attachment
- Adverse Child Experiences
- Polyvagal Theory
- Brain changes in trauma and addiction
- What to do about it

Roots of the word ADDICTION

Adam Slater (2018)
Irresistible



In Rome being “**addicted**” meant that you had just been sentenced to slavery.



If you owed someone money and couldn't repay, a judge would sentence you to work as a slave until you could repay the debt.

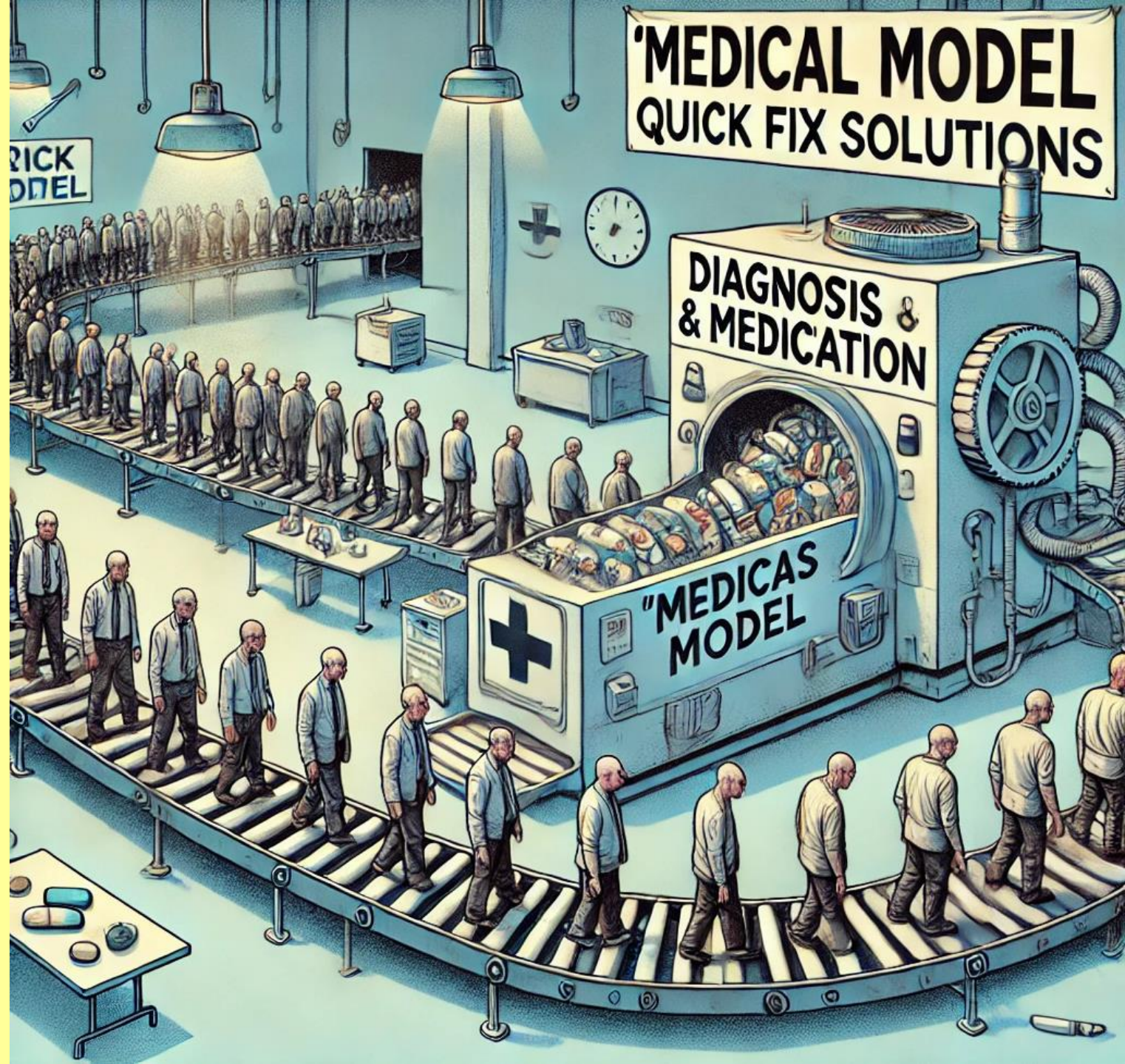


Addiction later evolved to describe any bond that was difficult to break.

ASAM Medical/Disease Model of Addiction

The ASAM (American Society of Addiction Medicine) disease model of addiction defines addiction as:

- A chronic, relapsing brain disease
- Characterized by compulsive substance use despite harmful consequences
- According to ASAM, addiction affects both the brain and behavior, involving complex interactions between genetic, environmental, and psychosocial factors.



The National Institute on Alcohol Abuse (NIAA) definition of addiction

Addiction is defined as a **chronic, relapsing disorder** characterized by:

1. Compulsive drug seeking
2. Loss of control in limiting intake
3. Continued use despite harmful consequences
4. The emergence of a negative emotional state when access to the drug or stimulus is limited



LEARNING MODEL OF ADDICTION



Learning Model of Addiction

Professor Mark Lewis views addiction as a chronic brain disorder, Lewis's model conceptualizes addiction as a learned behavior influenced by neuroplasticity and personal experiences.

Neuroplasticity and Learning:

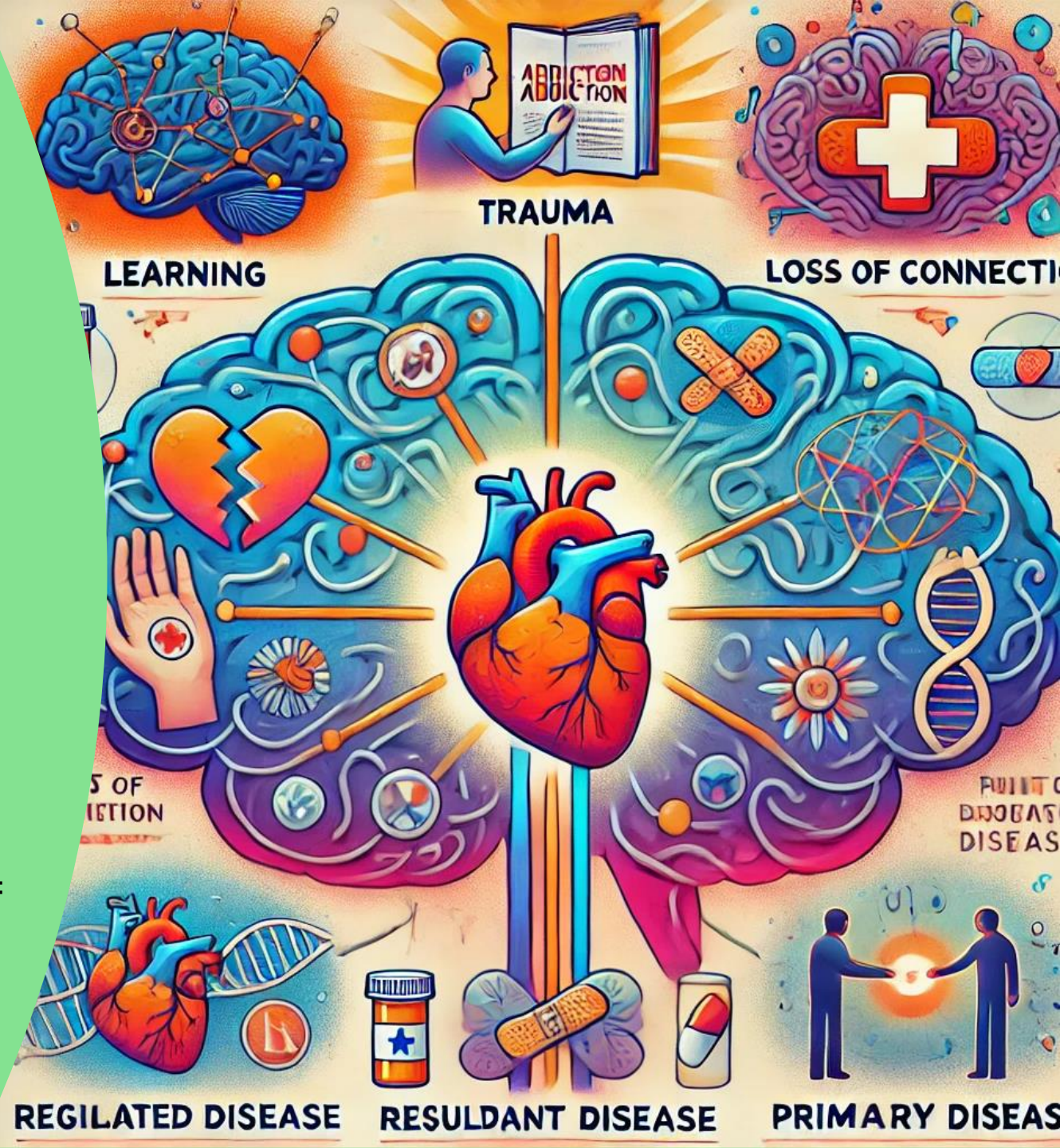
1. Addiction is seen as a result of the brain's capacity to adapt and change in response to repeated experiences.
2. The brain's reward system becomes highly sensitive to cues associated with substance use, leading to strong cravings and compulsive behaviors.

AnchorPoint's Integrated Definition Directs us to the Most Cutting-Edge Treatments

At AnchorPoint and Holdfast Recovery, addiction is primarily understood as a **response to trauma, emotional pain, and a lack of meaningful connections in life.**

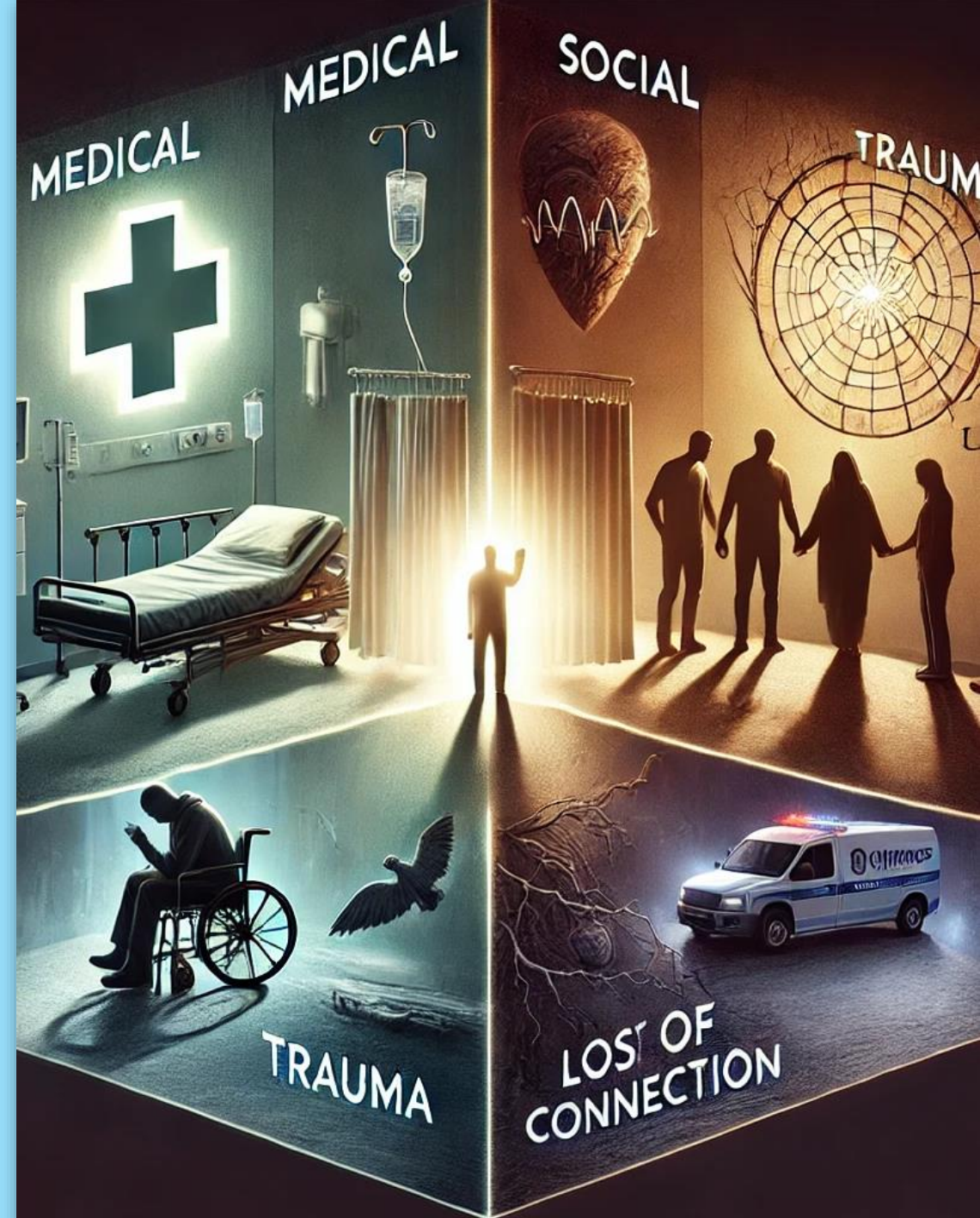
As such addiction serves as a **coping mechanism** for individuals dealing with these deep-seated issues and social isolation.

This perspective emphasizes the role of unmet emotional needs and the impact of traumatic experiences in driving addictive behaviors.



AnchorPoint's Integrated Definition Directs us to the Most Cutting-Edge Treatments, cont.

- While we recognize that these forms of psychological and social problems can lead to a **disease state or problems in the brain**, and that certain forms of addiction may exhibit characteristics of a primary disease, these factors are not considered the primary drivers of addiction.
- We appreciate that the disease model acknowledges a level of **genetic** and **medical influence**, but it is not seen as the deciding or dominant factor in addiction.
- Instead, the focus is on addressing the underlying **psychological, social, spiritual, and trauma-related factors** that contribute to the development and persistence of addiction.



The Four Cs of Addiction

Wilson (2014) notes that all addictions, regardless of their differences, result in an established set of “**core brain changes**” which, in turn, present as recognized signs, symptoms, and behaviors such as those listed in the **Four Cs**:

1. **Craving and Preoccupation** with obtaining, engaging in or recovering from the use of the substance or behaviors in question.
2. amounts or intensity, and/or increasing the risk and behavior in an effort to obtain the desired effect.
3. **Negative Consequences** in physical, social, occupational, financial, or psychological areas.
4. **Compulsive in nature**



What is a process addiction?

- ▶ Process addiction, also called behavioral addiction, is characterized by an overwhelming impulse to engage in a certain behavior despite negative consequences.
- ▶ While involved in the behavior, the individual experiences an elevated mood often followed by a sense of shame or guilt once the behavior ends.



Common Process Addictions

Shopping

Gambling

Sexual activity

Pornography

Eating disorders


Internet use

Exercise

Work

Chaos





Similarities between
Chemical/Substance
Addictions and
Behavioral
Addictions



SIMILARITIES

- ▶ Cause chemical reactions in the brain
- ▶ Are a tool to escape or avoid pain
- ▶ Produce a tolerance
- ▶ Have psychological withdrawal symptoms
- ▶ Can have devastating biopsychosocial consequences

Differences between Chemical/Substance Addictions and Behavioral Addictions

Chemical Addictions

- ▶ Substances directly impact the brain and/or nervous system



Behavioral Addictions

- ▶ Activities that impact the pleasure centers
 - Adrenaline rush
 - Dopamine rush
 - Endorphin rush
 - Oxytocin

- No actual substance needed
- The addiction is to the process, the ritual
- Role of tech
- Process addictions can be much more invisible
- Abstinence may not be possible nor desirable
 - Emphasis is on healthy use
 - Healthy and unhealthy use intertwined

Trauma, Mental
Illness, and Addiction.
Which comes first?



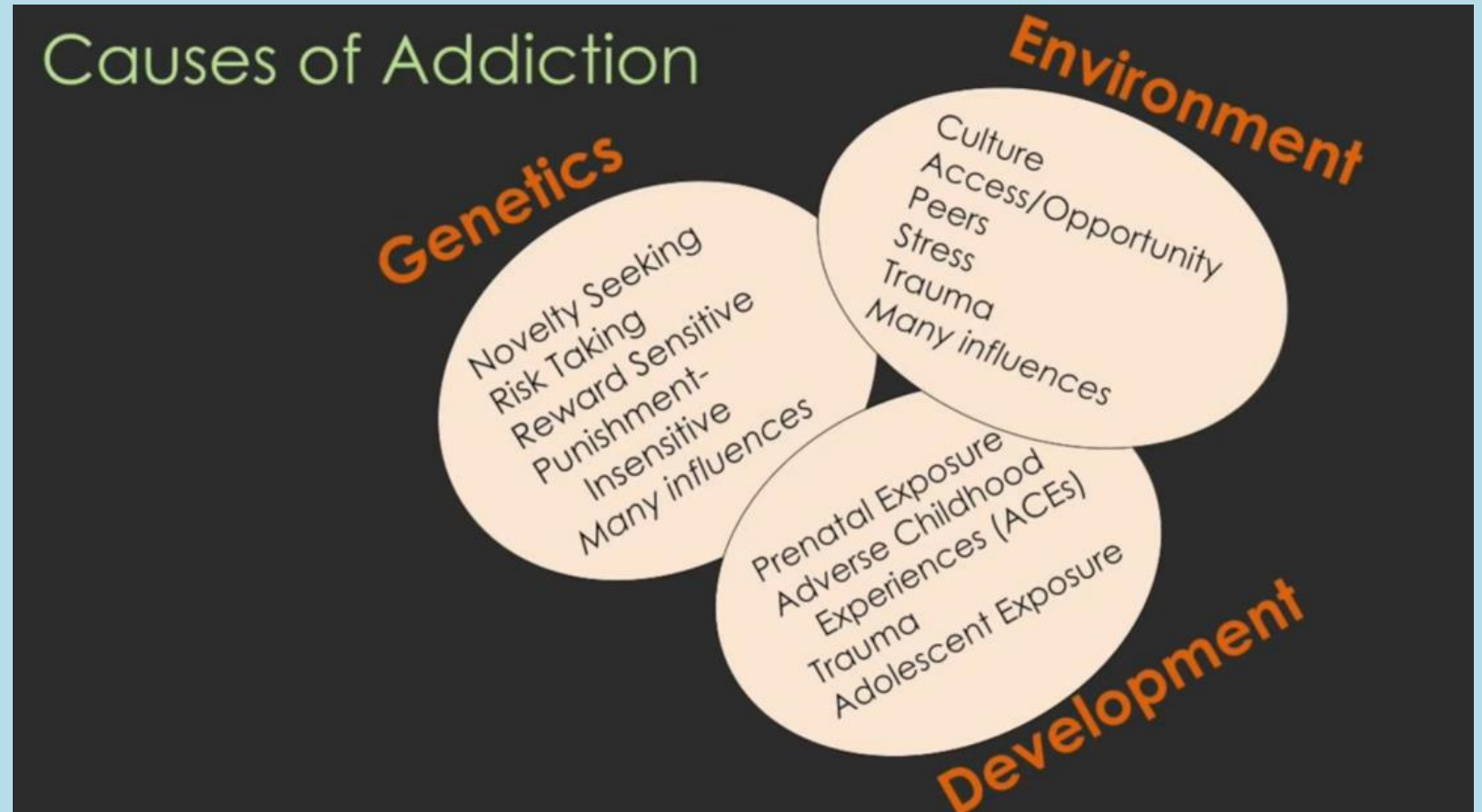


Trauma is almost always at the core of serious addiction which leads way to mental illness and then addiction to mask it.

We appreciate that the causes of addiction are multifaceted and complex and require sophisticated therapies as detailed by Dr. Judith Grisel.

Image from Judith Grisel

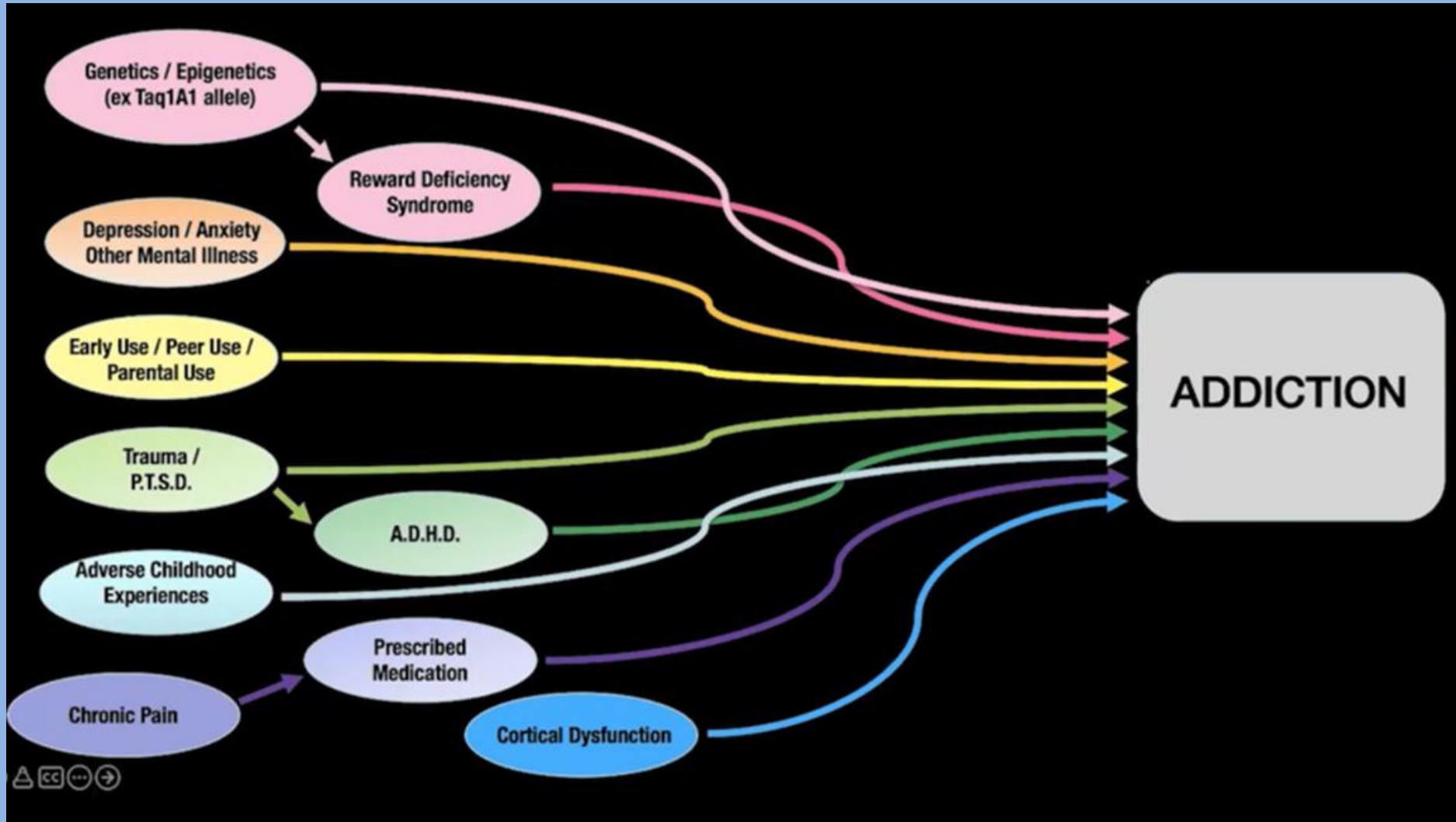
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Like Dr. Grisel, Dr. Kevin McCauley's model encompasses several pathways that can lead to addiction

Image from Kevin McCauley

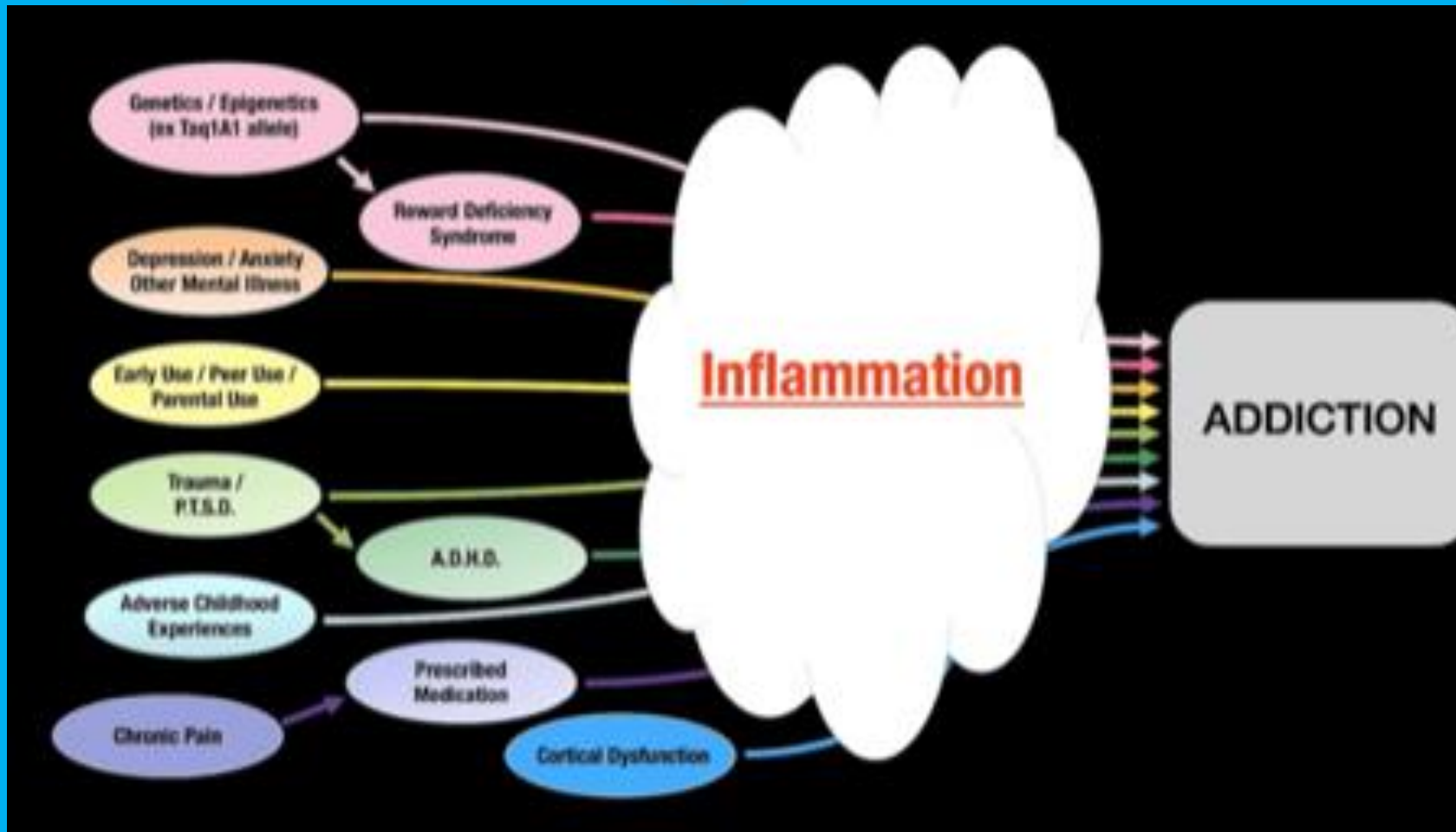
https://www.youtube.com/watch?v=zYphZvRHm6Y&list=PLvpkbo8ssyriex9eUKI6JGaR1UX2NGdtn&ab_channel=KTOO360TV



All addiction pathways lead to inflammation in the brain and body and inflammation is the big killer

Image from Kevin McCauley

https://www.youtube.com/watch?v=zYphZvRHm6Y&list=PLvpkbo8ssyriex9eUKI6JGaR1UX2NGdtn&ab_channel=KTOO360TV

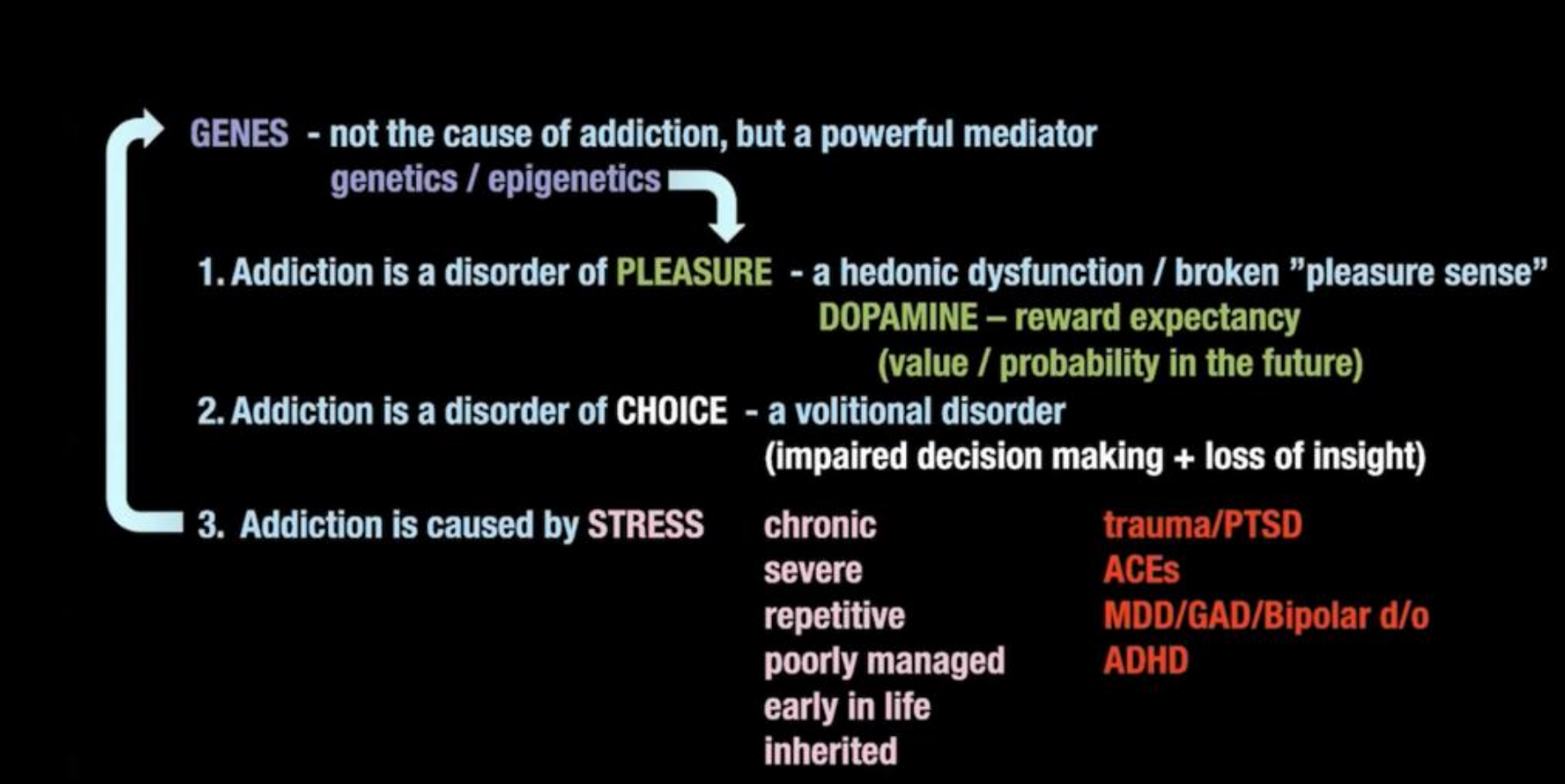


Dr. McCauley's Integrative Model of Addiction

Disorder of pleasure/hedonic system

Disorder of choice

Caused by stress



Epigenetics

- These are exciting times.
- New science is enabling us to better understand what external and internal factors alter us.
- Our physical health, our emotional well-being, and our longevity are not only impacted by the hard-wired genetic code we inherit, but our genome is impacted by environmental influences to include as well as the way we live.



Epi (greek): in addition to, on

- The study of heritable changes in gene expression without a change in DNA sequence.

Increasingly highlighted in the public

media a number of social, legal



Definition please:

- Epigenetics literally means **"above" or "on top of"** genetics. It refers to external modifications to DNA that turn genes "on" or "off."
- These modifications **do not change the DNA sequence**, but instead, they affect how cells **"read" genes**. A very exciting trend in epigenetic research involves investigating the process by which our genetic tendencies are altered or influenced in their expression by outside exposure or stimuli.
- These epigenetic changes can last through **multiple cell divisions for the duration of the cell's life** but what is particularly compelling is that these changes may persist for **multiple generations** within our family line (Kain & Terrell, 2018).

Trauma's Impact on Epigenetics

- Early trauma, for example, is one of the factors that can cause epigenetic changes and these changes can be passed on to the next generation and beyond.
- Researchers have come to appreciate that the horrors of the **Holocaust** did not only impact those who suffered the terror of the concentration camps.
- As one would expect, the survivors of the Holocaust often suffered from **PTSD**, but this did not stop there.
- Their children were more likely themselves to develop PTSD and other **mood and anxiety disorders**, whether or not they were exposed to traumatic events in their own lives (Yehunda et al. 1998).



Dutch Famine in World War II

Another sad example of the impact of trauma on subsequent generations is the **Dutch Famine in World War II**. In September 1944, trains in the Netherlands ground to a halt. Dutch railway workers were hoping that a strike could stop the transport of Nazi troops and help the advancing Allied forces.

Sadly, the Allied campaign failed, and the Nazis punished the Netherlands by blocking food supplies, plunging much of the country into famine. By the time the Netherlands was liberated in May 1945, more than **20,000 people died** of starvation.

Pregnant women, it turns out, were uniquely vulnerable, and the children they gave birth to were influenced by famine throughout their lives.

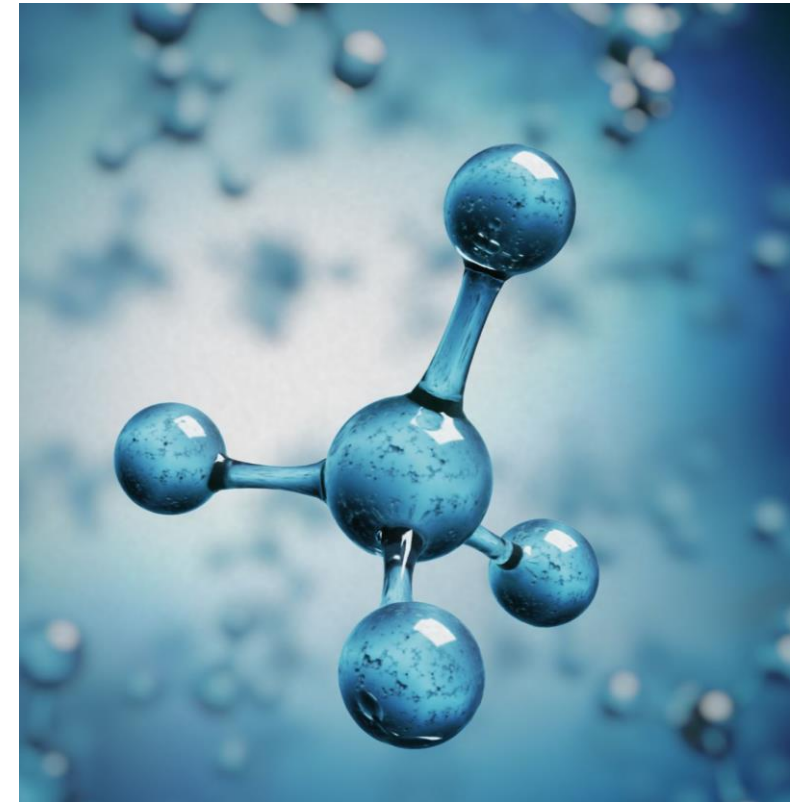
When these children became adults, they ended up **heavier** than average. In middle age, they had **higher levels of triglycerides and LDL cholesterol and they experienced higher rates of obesity, diabetes, and schizophrenia**.



Food rations that were dropped into the Netherlands in 1945. Credit...Dutch National Archive

For the science nerds among us:

- There are three primary mechanisms through which epigenetic changes in gene expression occur. But first a **biology refresher**:
- DNA from humans is made up of approximately 3 billion nucleotide bases.
- There are four fundamental types of these bases that comprise DNA: Adenine, Cytosine, Guanine, and Thymine, commonly abbreviated as A, C, G, and T, respectively.
- The sequence, or the order, of the bases is what determines our life instructions.
- There are about 20,000 genes in total. Genes are specific sequences of bases (parts of DNA) that provide unique and tailored instructions on how to make important proteins
- Proteins are large and very complex molecules that play many critical roles in the body and do most of the work in cells. Proteins are required for the structure, function, and regulation of the body's tissues and organs and are made up of hundreds and thousands of smaller units called amino acids.
- The sequence of amino acids is what determines each protein's unique 3-dimensional structure and its specific function. Proteins can be described according to their very large range of functions in the body to include antibody, enzyme, messenger, and structural component.



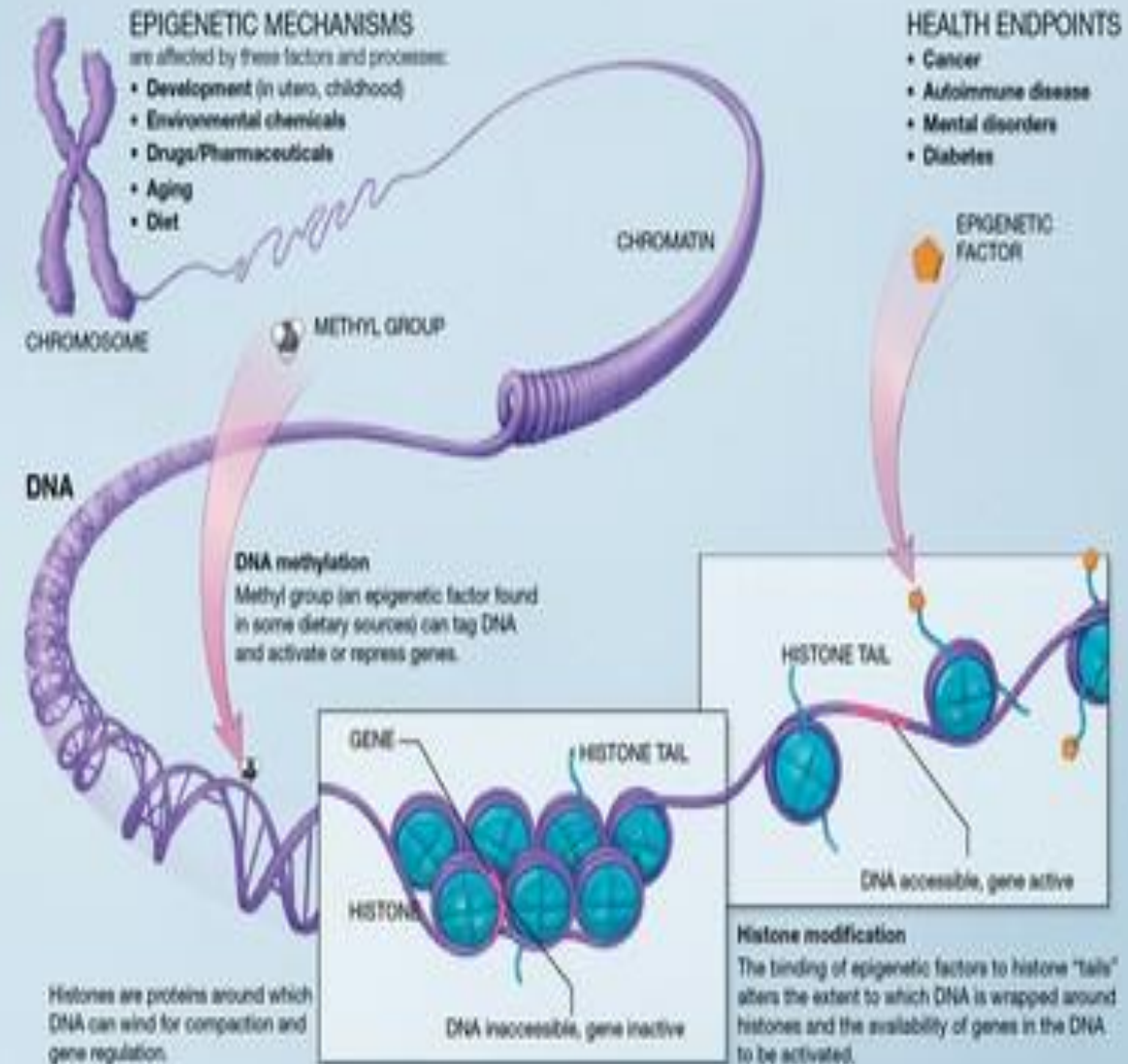
Epigenetic Changes – The Big Three

Histone modifications:

The second two types of modifications involve histones. Histones are the proteins that hold chromosome together. In histone modification, genes are actually wrapped up tightly so the genes cannot be accessed (essentially turned off) or unwrapped so they can be accessed or activated (essentially turned on). There are multiple types of histone modifications which are catalyzed by a number of enzyme families; the most well characterized modifications include acetylation and methylation:

Histone Acetylation is performed by *histone acetyltransferases (HATs)* which add an acetyl group to lysine amino acids (which are positively charged) in the histone tail which acts to mask the positive charge. This causes loosening of chromatin to promote **gene activation** (Strahl and Allis, 2000).

Histone Methylation can occur on lysine or arginine amine acids and can occur in mono-, di- or tri-methylation events by *histone methyltransferases*. This mark does not substantially alter the charge of amino acids and can be associated with both **gene activation and inactivation** (Laura,2008).

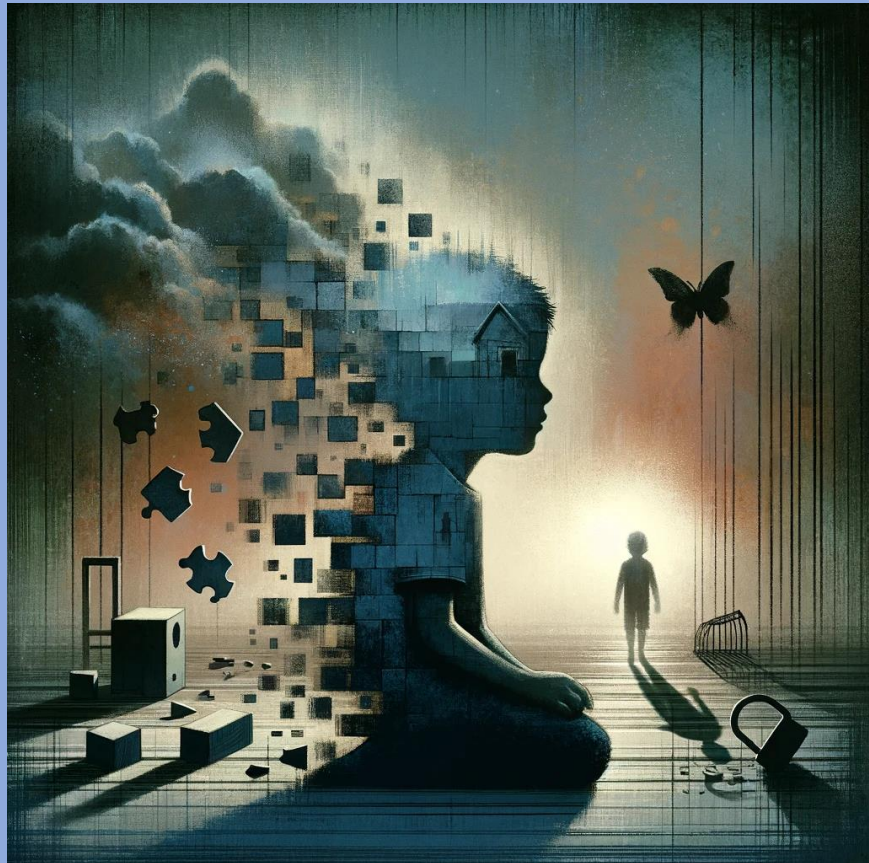


Epigenetics Takeaway

- Knowing about epigenetics is both scary and amazing at the same time.
- Terrifying in that we know that if we live poorly, paying little attention to how we live, i.e., the impact of poor diet, lack of exercise, living in stress, exposing ourselves to environmental toxins, overreliance on medications, etc., our genome will be altered, resulting in poor physical and/or emotional health and that this effect can be passed on to our progeny for generations to come.
- On the other hand, good choices bless us and our future generations. Bearing this in mind, we can appreciate more fully how discussions in the pages ahead about attachment, adverse childhood experiences, Polyvagal Theory, and disconnected living impact us in mind, body, soul, and genome.

the
Takeaway

Trauma and Adverse Childhood Experiences



Trauma exposure, particularly child maltreatment (e.g., neglect, emotional, physical and sexual abuse), has been established as one of the main determinants of emotional dysregulation and is also a known risk factor for psychiatric disorders, especially depression and PTSD (McLaughlin et al., 2012; McLaughlin et al., 2013).

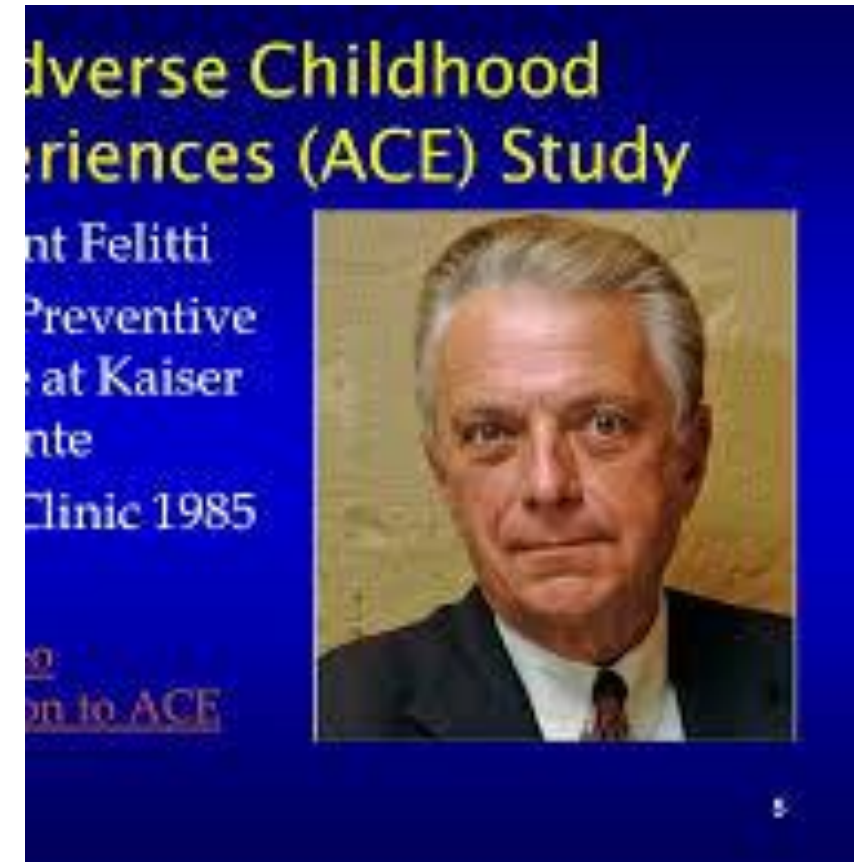
Moreover, several prior studies have shown that trauma exposure is clearly associated with **profound deficits in emotional regulation** across the entire lifespan, including during preschool (Langevin, Hebert, Allard-Dansereau; Bernard-Bonin, 2016), adolescence (Shields & Cicchetti, 1997; Vettese, Dyer, Li, & Wekerle, 2011) and even adulthood (Briere & Rickards, 2007; Thompson, Hannan, & Miron, 2014; Dunn et al., 2018).

Trauma occurs when we are faced with an experience that **overwhelms our ability to process incoming information** both at the time of that experience and in future situations (Barta, 2018).

Dr. Michael Barta suffered from trauma himself as a child which led him to addictions that ultimately landed him in jail and almost destroyed his life. In his book, *TINSA*, he wrote that trauma occurs when our natural defenses are unable to keep us safe from physical, emotional, or mental threats or harm (Barta, 2018).

Trauma - Adverse Childhood Experiences

- In the mid-1980's, Dr. Vincent Felitti noticed a puzzling and paradoxical trend in the obesity clinic he was heading.
- Specifically, many of his participants who were having the most success in losing weight were dropping out only to gain the weight back. He interviewed the nearly 300 participants and discovered a surprising pattern: almost all of the dropouts had suffered some form of childhood trauma (Kain & Terrell, 2018).
- This initial study grew into a major public health study with Dr. Felitti teaming up with Dr. Anda at the Centers for Disease Control (CDC) that continues to this day, involving more than 17,000 individuals.
- This research came to be known as the Adverse Childhood Experiences (ACE) Study (Felitti et al., 2014). In this study, people were asked about ten different types of traumatic events that happened to them when they were children to include physical and sexual abuse, family problems, and neglect.



Trauma - Adverse Childhood Experiences (ACE)

The background of the slide is a stylized, painterly illustration. It depicts a path or road that winds through a sky filled with soft, white and blue clouds. The path is illuminated by a bright light source, possibly the sun, which creates a strong lens flare and casts long, dark shadows of people and birds onto the path. The silhouettes of people are shown in various poses, some walking, some standing, and some sitting. Birds are scattered throughout the sky, some in flight. The overall color palette is dominated by blues, whites, and yellows, with dark silhouettes providing contrast.

Abuse

- Emotional – recurrent threats, humiliation (11%)
- Physical - beating, not spanking (28%)
- Contact sexual abuse (28% women, 16% men, 22% overall)

Household dysfunction

- Mother treated violently (13%)
- Household member was alcoholic or drug user (27%)
- Household member was imprisoned (6%)
- Household member was chronically depressed, suicidal, mentally ill, or in psychiatric hospital (17%)
- Not raised by both biological parents (23%)

Neglect

- Physical (10%)
- Emotional (15%) The ten reference categories experienced during childhood or adolescence are as below, with their prevalence in parentheses (Felitti and Anda, 2009):

Trauma - Adverse Childhood Experiences

- Somewhat surprising in the Felitti studies was that **emotional abuse** was more likely to cause depression than any other kind of trauma – even sexual abuse.
- This suggests that the kind of treatment children receive from parents is a tremendously powerful **predictor of positive outcome** and when that **trust is broken**, devastation surely ensues.



Dr. Michael Barta's Adverse Childhood Experiences

Barta (2018) in his book, *TINSA*, defines ACEs a little differently as summarized below:

- Sexual assault or abuse
- Physical assault or abuse
- Psychological or emotional trauma
- Serious accidents, medical procedures, or illnesses
- Manmade or natural disasters
- Witnessing violence to include domestic abuse
- School violence to include bullying
- Traumatic grief or unwanted separation
- Terrorism or war
- Betrayal by others to include relational trauma



Big T Trauma and Little t Trauma

The experts in the field divide trauma into two categories:

Big T trauma: Traumas that are associated with horrific single events such as natural disasters, terrorism, and war.

Little t trauma: Trauma that are smaller in nature such as bullying, neglect, and betrayal.



Review of Trauma

BIG T

little t

- War
- Disasters
- Childhood sexual abuse
- Physical abuse
- Car wreck
- Crime victimization
- Witnessing death
- Domestic violence
- Emotional abuse
- Neglect
- Failure experiences
- Phobia related experiences
- Losses
- Stress at work or school
- Bullying
- Domestic violence

ACE Scores and Outcomes

As Dr. Felitti in a 2009 lecture points out, studies reveal many shocking long-term horrible outcomes when we are exposed to ACEs and this raises exponentially according to how many of them, we have been exposed to.

The results indicate that for every category of traumatic experience we have had as a child, we are dramatically more likely to be depressed as an adult.

If we have ACE scores of **4** we are:

- 260% more likely to have chronic obstructive pulmonary disease than someone with a score of 0
- 240% more likely to contract hepatitis, 460% more likely to experience depression
- 1,220% more likely to attempt suicide

If we have ACE scores of **6** we are:

- Five times more likely to become depressed as an adult and if we have had

If we have ACE scores of **7** we are:

- 3,100 percent more likely to attempt suicide as an adult (Felitti et al., 2014; Felitti 2004; Felitti and Anda, 2009; Felitti et al., 1998).

Dr. Felitti offered the following graphs which nicely detail the dramatic impact that ACEs have on our society:



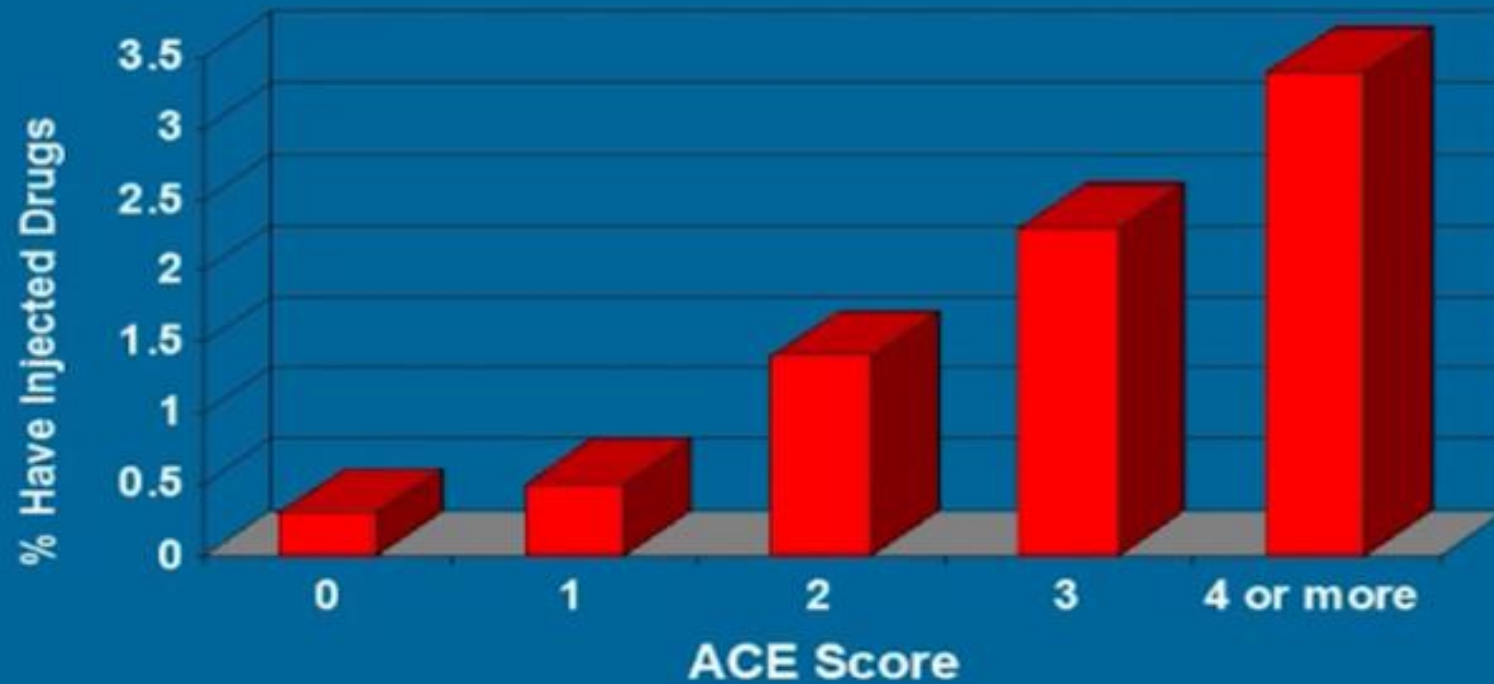
Health Risks, Emotional Benefits

Childhood Experiences vs. Adult Alcoholism



Health risks, Emotional Benefits

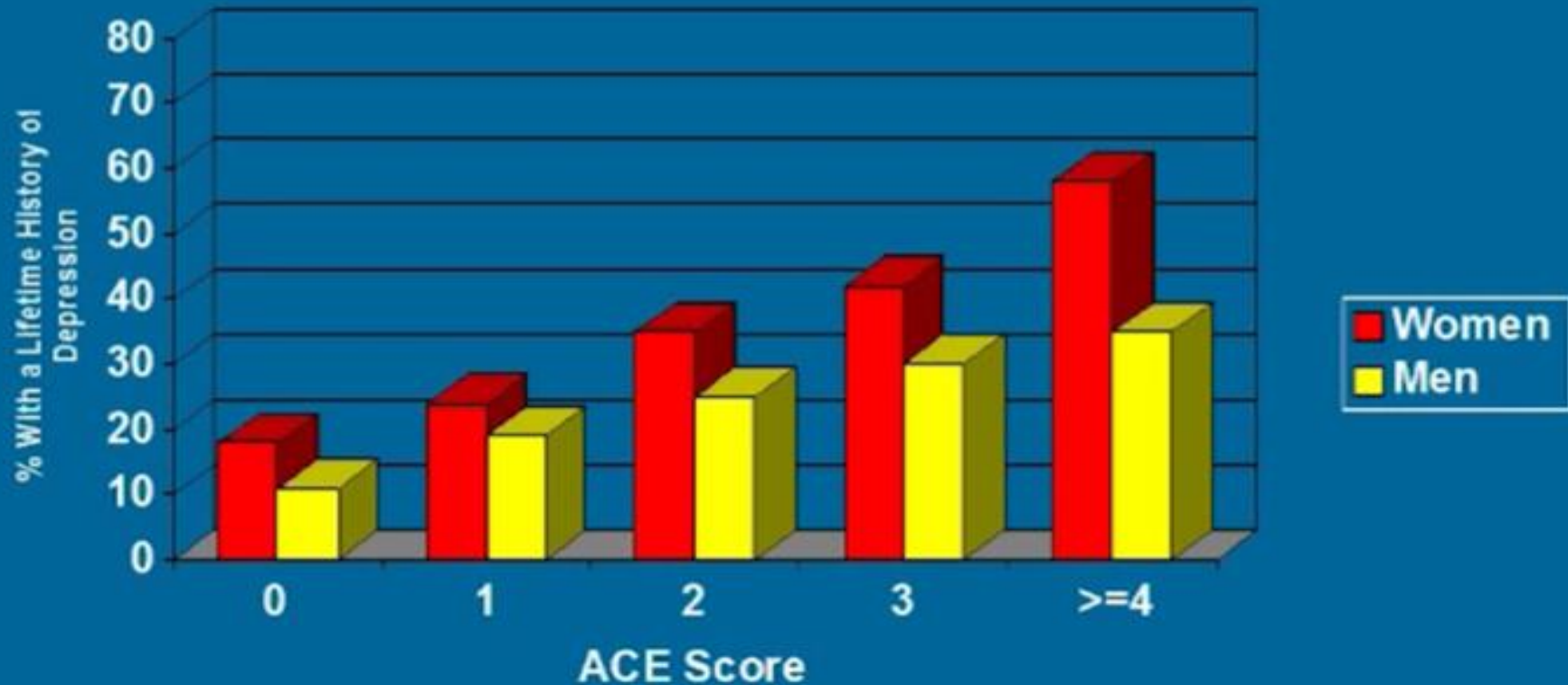
ACE Score vs Intravenous Drug Use



$p < 0.001$

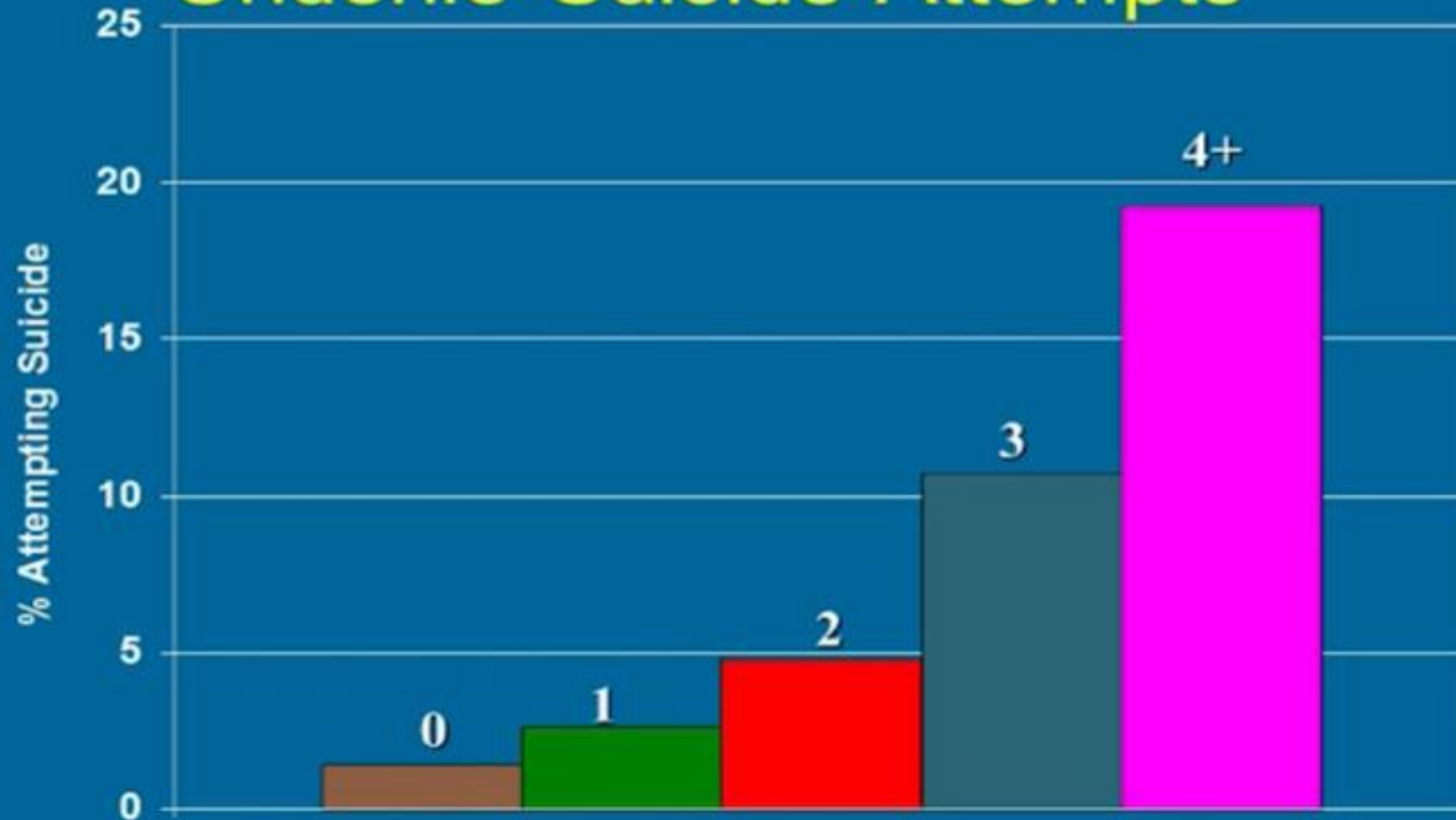
Damaged well-being

Childhood Experiences Underlie Chronic Depression



Death

Childhood Experiences Underlie Suicide Attempts



ACEs Increase the Likelihood of Heart Disease*

- **Emotional abuse** 1.7x
- **Physical abuse** 1.5x
- **Sexual abuse** 1.4x
- **Domestic violence** 1.4x
- **Mental illness** 1.4x
- **Substance abuse** 1.3x
- **Household criminal** 1.7x
- **Emotional neglect** 1.3x
- **Physical neglect** 1.4x

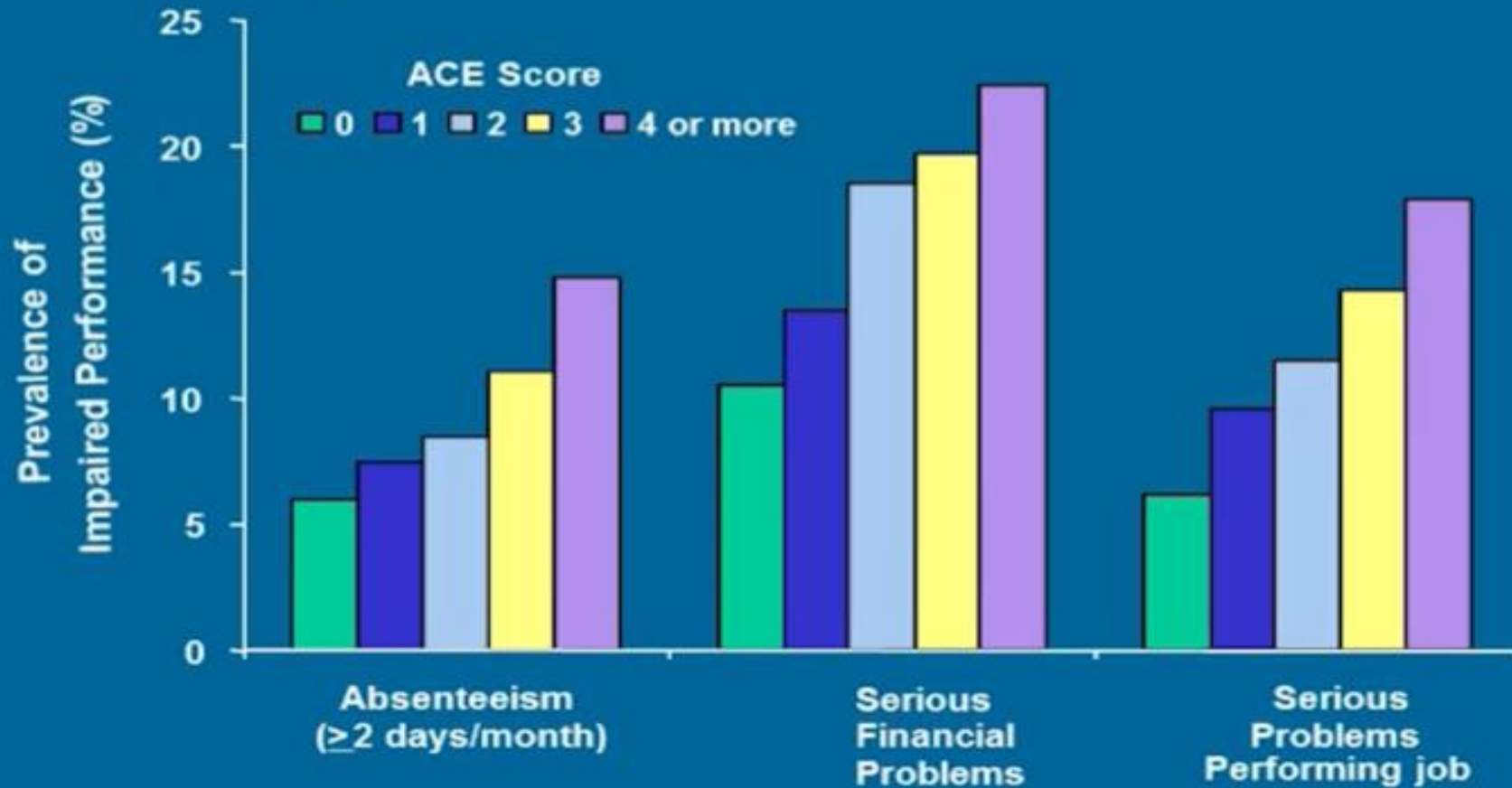


*After correction for age, race, education, and conventional risk factors like smoking & diabetes.

Circulation, Sept. 2004

Social malfunction:

ACE Score and Indicators of Impaired Worker Performance



A Few Trauma Takeaways to Think About

- Most of us will have at least one ACEs in our developmental years, and, if not extreme, this will not necessarily harm us. However, if any one ACE is extreme or if there are too many, we can be marked for problems in life.
- It is essential that we do not sweep our traumas under the rug but, rather, deal with them before they deal with us. I admit that I minimized my ACEs and naively prided myself in my ability to manage them. In hindsight, I would now have chosen to seek good therapy earlier in my life by a trauma-informed therapist. This would have improved my capacity to deal with the stressors that eventually unhinged me.
- I respectfully and lovingly urge any of us who are raising children to be ever so mindful of the impact of excessive adversity on our children. We parents should not assume that, even though our children appear to be doing well, that they are necessarily internally well if they have been exposed to excessive ACEs.
- We do our children right by getting the help to heal the dysfunction in our lives, in our marriages, and/or in our family dynamics and, in so doing, freeing our children from having to pay the price in their own lives and in their progeny for possibly generations to come.



Trauma's Impact on Social Engagement

- My own clinical experience suggests that the most common forms of trauma are due to a lack of attunement or connection with parental or adult figures while growing up.
- As Barta (2015) writes, “These deficiencies are not about bad parenting but about a parent’s inability or diminished ability to respond to the child’s emotional needs. Most parents are doing the best they can with the tools they have, but whether deliberately or inadvertently, the traumas of our childhood can have tremendous impact on our lives (Barta, 2018, p. 17)
- As trauma expert, Dr. Peter Levine notes in his book, *Healing Trauma*, “**Trauma is much about loss of connection – to ourselves, to our bodies, to our families, to others, and to the world around us.** This loss of connection is often hard to recognize because it doesn’t happen all at once. It can happen slowly over time, and we adapt to these subtle changes sometimes without even noticing them.
- **These are the hidden effects of trauma, the ones most of us keep to ourselves...**Our choices become limited as we avoid certain, feelings, people, and situations. The result of a gradual constriction of freedom is the loss of vitality and potential for the fulfilment of our dreams” (Levine, 2008, p. 9).

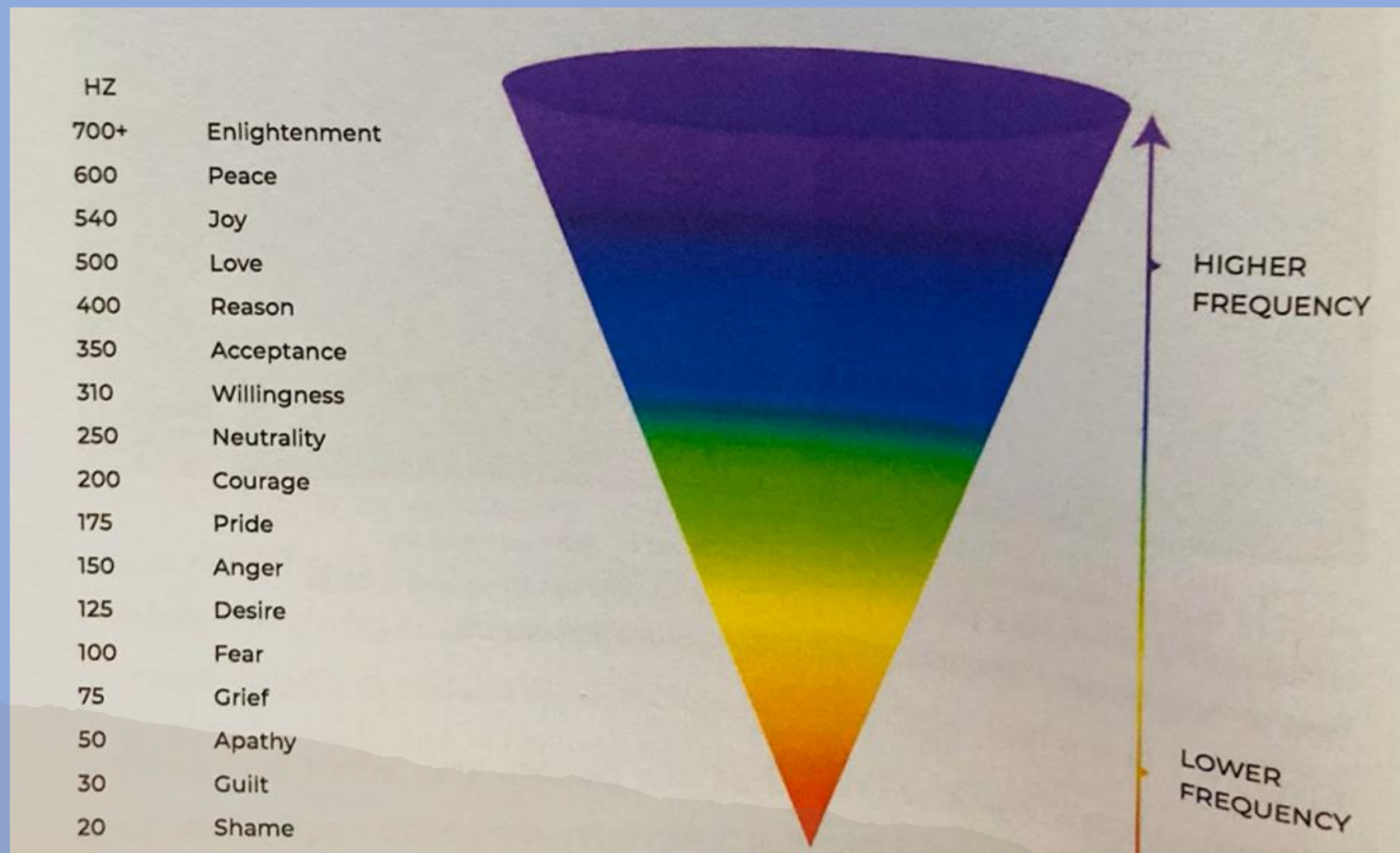


Emotional Frequencies and Health

Unresolved Toxic Shame **Kills** US!

Shame and guilt are seen as the heaviest emotions and are the lowest in frequency, where we feel contracted and stuck.

In contrast, emotions like **love and joy** are lighter, with more energy and movement, creating a sense of openness and lightness. (Dispenza, 2017)



A man with a beard and grey hair, wearing a light grey suit jacket over a purple striped shirt and a dark tie, is pointing his right index finger towards a screen on the right. The screen displays a blue, glowing, anatomical diagram of a human torso. In the background, a blurred anatomical chart of a human figure is visible on the wall. The scene is set in a professional, possibly medical or research, environment.

So, how does trauma impact the mind, body and soul?
The best contributor to that question is
Polyvagal Theory

Polyvagal Theory

The Autonomic Nervous System



The autonomic nervous system is our **personal surveillance system**.



In an effort to keep us out of danger, it is **always on guard**; asking the question, “Is this safe?” Its dedicated goal is to protect us by sensing safety and risk.



It achieves this by listening moment by moment to what is happening in and around our bodies and in the connections we have to others (Dana, 2018).



This listening happens far below awareness and far away from our conscious control.



Dr. Porges, understanding that this is not awareness that comes with perception which is conscious, coined the term **neuroception** to describe the way our autonomic nervous system scans for cues of safety, danger, and life threat, without involving the thinking parts of our brain or the unconscious parts of the brain (Porges, 2017).



Dr. Steve Porges

Polyvagal Theory

The Autonomic Nervous System

Briefly stated, our response to threat will move us toward one of **three defensive responses**. Two of which keep us in perpetual defense and one of which moves us toward health and restoration.

Sympathetic Division: Prepares the body for stressful or emergency situations – fight or flight. The sympathetic nervous system originates in spinal nerves (nerves that arise from the spinal cord) and is our system of mobilization. The sympathetic nerves are found in the middle of our backs in the thoracic and lumbar regions of the spinal cord. There are two mobilization systems in our sympathetic nervous system.

- **Sympathetic Adrenal Medullary (SAM)**: The SAM system is activated very quickly, within 100 milliseconds and brings up a burst adrenaline for a fast response to a stressor. SAM activation triggers a short-term and rapid response to a stressor which is followed by a return to regulation (Dana, 2018).
- **Hypothalamic-Pituitary-Adrenal (HPA) Axis**: The HPA axis takes over when the quick, adrenaline surge of energy of the SAM does not resolve the distress. The HPA releases cortisol (AKA stress hormone). This release takes longer and is much slower in taking effect, requiring minutes to take effect rather than seconds (Dana, 2018).



Parasympathetic Division

- The parasympathetic division **conserves and restores calm/homeostasis**. It slows the heart rate and decreases blood pressure. It stimulates the digestive tract to process food and eliminate wastes. Energy from food is processed and used to restore and build tissues (Merck Manual).
- Dr. Porges discovered that the parasympathetic division of the Autonomic Nervous System consists of two branches which lead to two different responses.
- The main nerve in the parasympathetic nervous system is the **10th cranial nerve**, aka vagus nerve, which is the largest of the 12 cranial nerves and has huge implications for our well-being and health.
- The name vagus comes from the Latin word *vagary* which means **wanderer**, and this nerve is definitely a vagabond.
- The vagus travels downward from the brainstem to the heart and stomach and then back upward to the face and its connection with other cranial nerves.
- This amazing wandering nerve is a **mixed nerve** which communicates bidirectionally between the body and the brain. **80% percent of its fibers are sensory (afferent)** sending information from the body to the brain, and **20% are motor (efferent)**, sending action information from the brain to the body (Dana, 2018).





The vagus nerve has two very distinct branches: **Dorsal vagal nerve** and the **ventral vagal nerve**.

Dorsal Vagal Nerve: Barta (2018) notes that the most primitive form of defense occurs when the dorsal vagal nerve is activated.

- It is not sophisticated in that it is unmyelinated and slow. When activated, the dorsal vagal nerve promotes. shutdown, freeze, and collapse
- An example of this shutdown is when a gazelle, for example, is being stalked by a lion and when trapped with no possible way to flee, drops down and appears to be deadlier than a doornail.
- This is not a conscious process but is, rather, a very primitive and unconscious one. When we are in this physical state, we can feel emotions such as sadness, depression, grief, shame and/or disgust (Rothschild, 2017).



Ventral Vagal Nerve: Barta (2018) writes that the second response of our parasympathetic nervous system (the first being freeze and collapse as noted above) is responsible for our ability to engage socially and to handle social relationships.

- According to Barta, the social engagement system is controlled by our ventral vagus nerve which is a very smart myelinated nerve with a rapid response time. As such, it allows us to “know” if we are safe enough so we can calm our defenses through a process of “**neuroception**” which, as noted earlier, is translated as the brain’s ability to sense safety.
- This serves not only bonding needs but allows us to shift out of sympathetic arousal and move into parasympathetic calm or to downshift from activation to calm. When we are in this emotional state, we can feel emotions such as calm, pleasure, love, sexual arousal, and “good” grief (Rothschild, 2017)

Polyvagal Theory

Made simple

Autonomic Nervous System

Sympathetic

Activated, anxiety, fear, terror, anger

Parasympathetic

Ventral Vagal

Connected, calm, safety

Dorsal Vagal

Shut-down, depressed

The chart below adapted by Dr. Rothschild nicely demonstrates the shifting in body sensations, physiological symptoms, and emotions as we move between autonomic states (Rothschild, 2017).

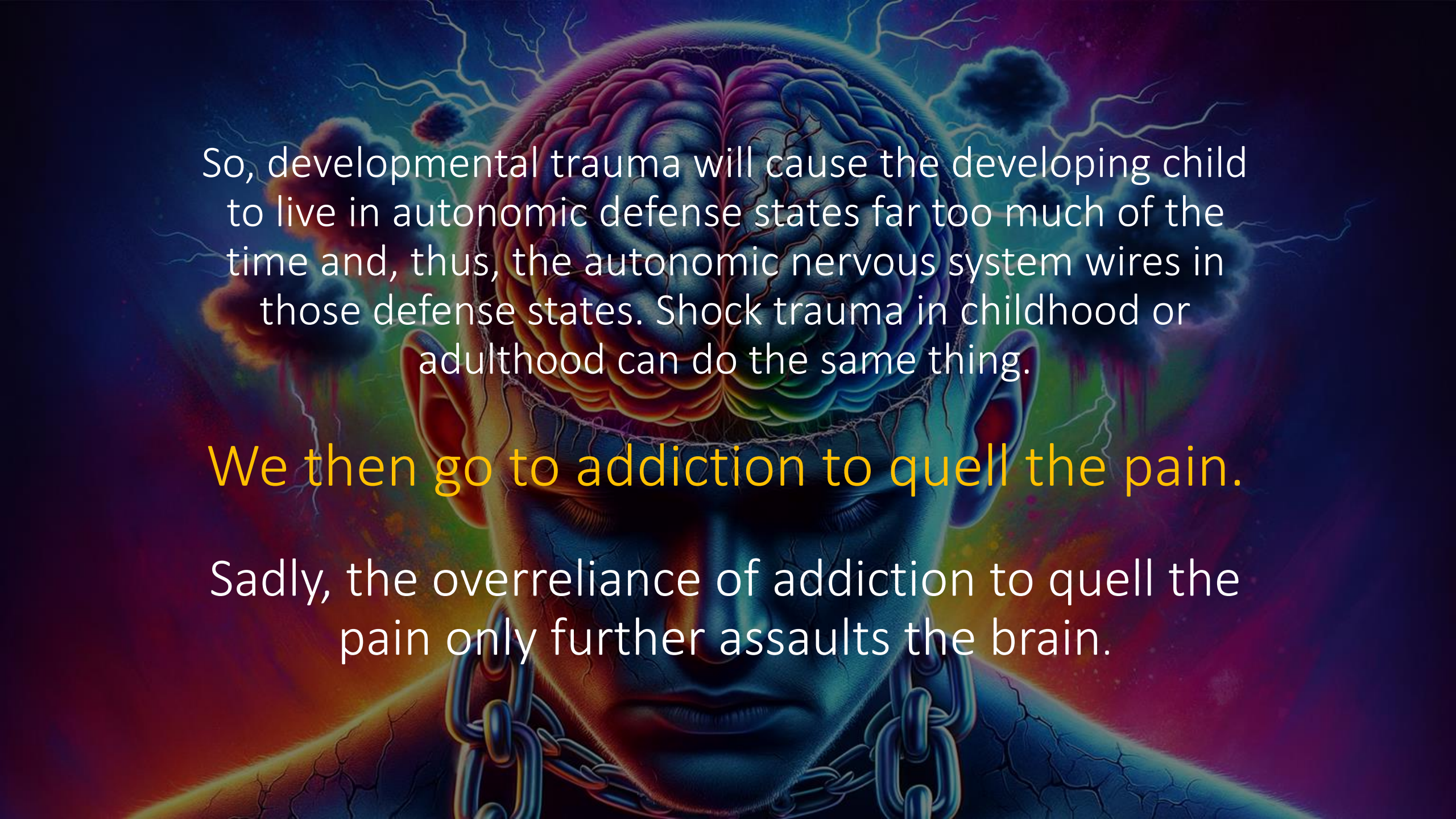
AUTONOMIC NERVOUS SYSTEM: PRECISION REGULATION

** WHAT TO LOOK FOR **

	LETHARGIC Parasympathetic I (PNS I)	CALM Parasympathetic II (PNS II) <i>Ventral Vagus</i>	ACTIVE/ALERT Sympathetic I (SNS I)	FLIGHT/FIGHT Sympathetic II (SNS II)	HYPeR FREEZE Sympathetic III (SNS III)	HYPo FREEZE Parasympathetic III (PNS III) <i>Dorsal Vagus Collapse</i>
		◀ "Normal" Life ▶			◀ Threat to Life ▶	
PRIMARY STATE	Apathy, Depression	Safe, Clear Thinking, Social Engagement	Alert, Ready to Act	React to Danger	Await Opportunity to Escape	Prepare for Death
AROUSAL	Too Low	Low	Moderate	High	Extreme Overload	Excessive Overwhelm Induces Hypoarousal
MUSCLES	Slack	Relaxed/toned	Toned	Tense	Rigid (deer in the headlights)	Flaccid
RESPIRATION	Shallow	Easy, often into belly	Increasing rate	Fast, often in upper chest	Hyperventilation	Hypo-ventilation
HEART RATE	Slow	Resting	Quicker or more forceful	Quick and/or forceful	Tachycardia (very fast)	Bradycardia (very slow)
BLOOD PRESSURE	Likely low	Normal	On the rise	Elevated	Significantly high	Significantly low
PUPILS, EYES, EYE LIDS	Pupils smaller, lids may be heavy	Pupils smaller, eyes moist, eye lids relaxed	Pupils widening, eyes less moist, eye lids toned	Pupils very dilated, eyes dry, eye lids tensed/raised	Pupils very small or dilated, eyes very dry, lids very tense	Lids drooping, eyes closed or open and fixed
SKIN TONE	Variable	Rosy hue, despite skin color (blood flows to skin)	Less rosy hue, despite skin color (blood flows to skin)	Pale hue, despite skin color (blood flow to muscles)	May be pale and/or flushed	Noticeably pale
HUMIDITY						
Skin	Dry	Dry	Increased sweat	Increased sweat, may be cold	Cold sweat	Cold sweat
Mouth	Variable	Moist	Less moist	Dry	Dry	Dry
HANDS & FEET (TEMPERATURE)	May be warm or cool	Warm	Cool	Cold	Extremes of cold & hot	Cold
DIGESTION	Variable	Increase	Decrease	Stops	Evacuate bowel & bladder	Stopped
EMOTIONS (LIKELY)	Grief, sadness, shame, disgust	Calm, pleasure, love, sexual arousal, "good" grief	Anger, shame, disgust, anxiety, excitement, sexual climax	Rage, fear	Terror, may be dissociation	May be too dissociated to feel anything
CONTACT WITH SELF & OTHERS	Withdrawn	Probable	Possible	Limited	Not likely	Impossible
FRONTAL CORTEX	May or may not be accessible	Should be accessible	Should be accessible	May or may not be accessible	Likely inaccessible	Inaccessible
INTEGRATION	Not likely	Likely	Likely	Not likely	Impossible	Impossible
RECOMMENDED INTERVENTION	Activate, Gently Increase Energy	Continue Therapy Direction	Continue Therapy Direction	Put on Brakes	Slam on Brakes	Medical Emergency CALL PARAMEDICS

The Autonomic Nervous System Precision Regulation Chart is Available for purchase on Amazon for \$8.99 (a very high recommend):

Babette Rothschild (2017) https://www.amazon.com/Autonomic-Nervous-System-Table-Laminated/dp/039371280X/ref=sr_1_15?dchild=1&keywords=deb+dana&qid=1590326813&s=books&sr=1-15



So, developmental trauma will cause the developing child to live in autonomic defense states far too much of the time and, thus, the autonomic nervous system wires in those defense states. Shock trauma in childhood or adulthood can do the same thing.

We then go to addiction to quell the pain.

Sadly, the overreliance of addiction to quell the pain only further assaults the brain.

And trauma is not the sole cause for addiction. For some, it's just Fun!

I MAY BE A BAD INFLUENCE



BUT DAMN, IM FUN.

Many young people accidentally discover pornography, many others are introduced to it by another person, usually a peer or a sibling.

And indeed, they find it tantalizing and fun.

They are not seeking to avoid pain nor are they necessarily suffering from a loss of connection to good living.

So, what starts off innocently enough, ends up changing their neurology and they "accidentally" become hopelessly addicted



A photograph showing a person lying on a wooden floor. In the foreground, there is a red lighter, a syringe, and a spoon. The image is partially obscured by a white, torn-paper-like border.

CAUSES OF ADDICTION:

Why Do Only Some Become Addicted?

How does the brain become addicted to substances or behaviors?
Let's turn to some neuroscience

Special appreciation to Dr. Kevin McCauley and Dr. Georg Koob whose brilliant work inspired important content for this presentation

Please click the links below to access their brilliant lectures:

Dr. Kevin McCauley

https://www.youtube.com/watch?v=zYphZvRHm6Y&list=PLvpkbo8ssyriex9eUKI6JGaR1UX2NGdtn&ab_channel=KTOO360TV

Dr. Georg Koob:

https://www.youtube.com/watch?v=mGqBN72sSz4&ab_channel=AddictionPolicyForum



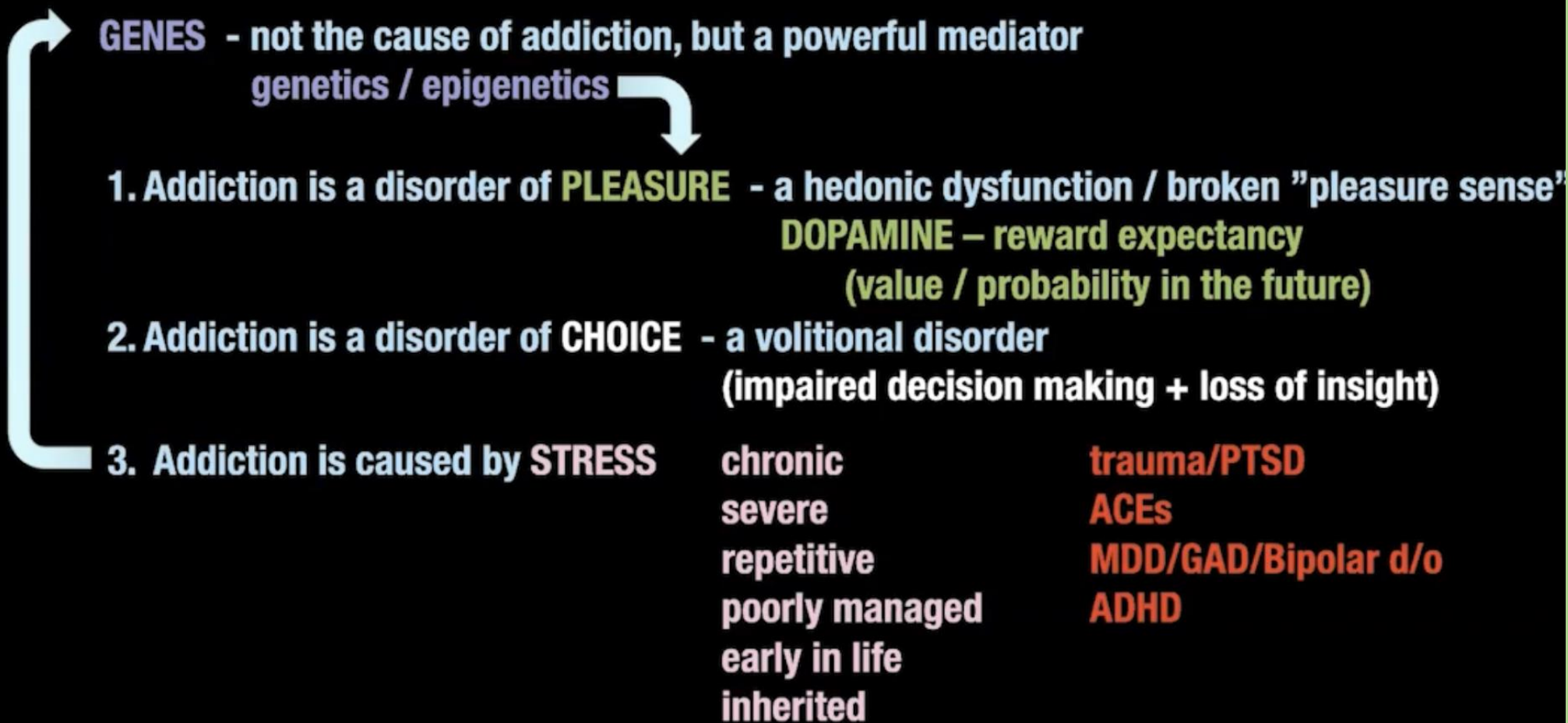
Dr. Kevin McCauley sees addiction as a disease (I don't) but multifactorial in nature

Image from Dr. Kevin McCauley: <https://youtu.be/EqGhilC0Duw?si=JN17Fg4WVbqjLxrL>

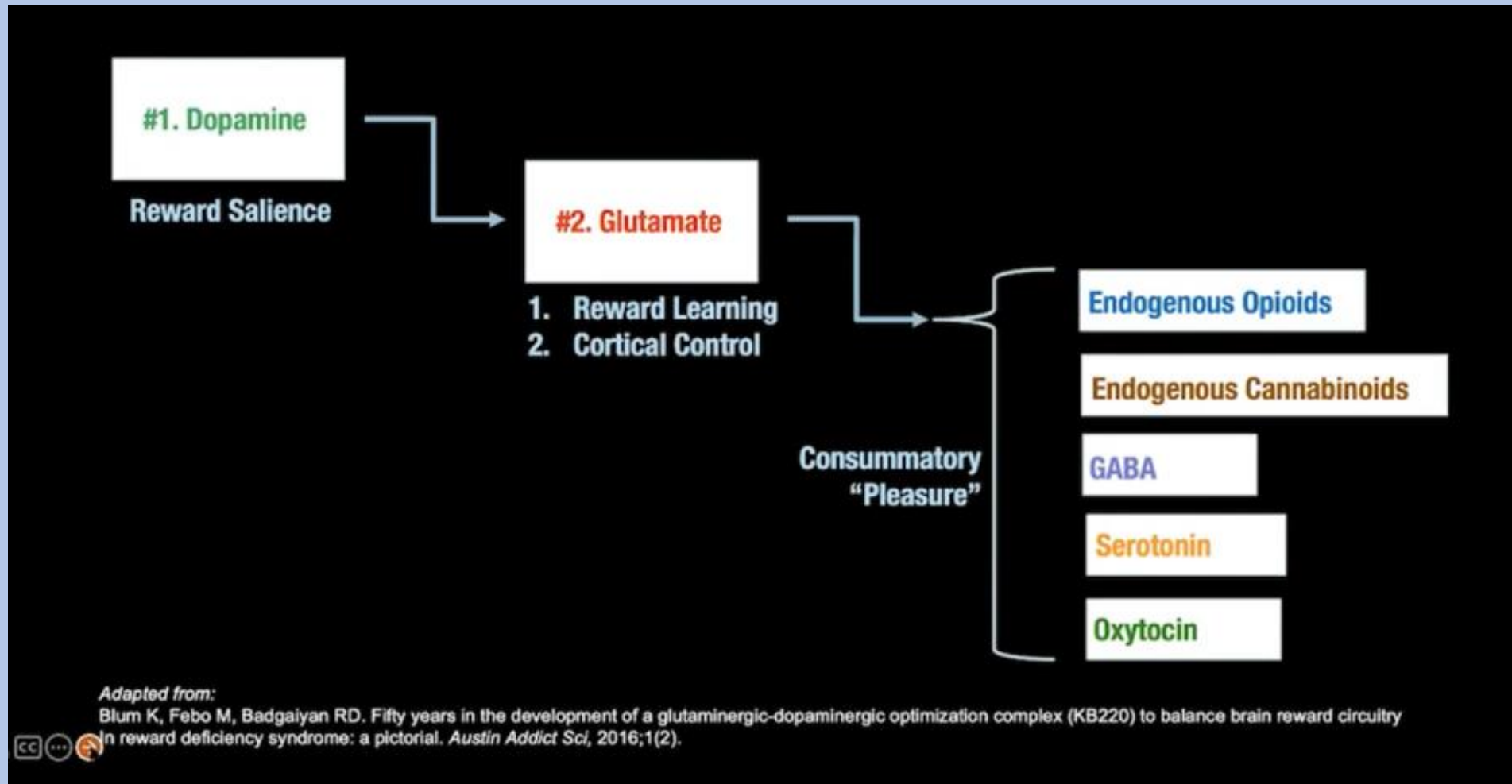
Addiction is a disorder of ...

5. CHOICE	OFC, ACC, PFC, IC	Pathology of Motivation and Choice (Volkow, Goldstein)
4. STRESS	HPA axis	Stress-induced Allostasis, Negative Emotional States (Koob & LeMoal)
3. MEMORY	glutamate synaptic remodeling	Glutamate Homeostasis & "Spillover" (Kalivas)
2. REWARD	dopamine dopamine receptors	Dopamine-signaling and Incentive-Sensitization (Volkow, Berridge & Robinson)
1. GENES	polymorphisms epigenetic changes	Genetic and Epigenetic vulnerability & resilience (Schuckit, Kandel & Kandel)

Dr. McCauley's model is brilliantly integrative



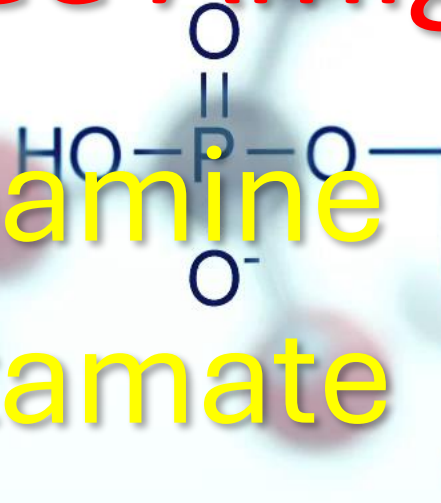
The “Brain Reward Cascade” (Blum)



In addition to impacting on site-specific to the particular substance of abuse, all addictions impact the brain in common ways as well.

“The Three Amigos”

Dopamine
Glutamate
Cortisol



The Neuroscience of Addiction

A glowing brain with colorful neural pathways in shades of blue, green, yellow, and red. The brain is set against a dark background with various medical and scientific icons floating around it, including pills, a syringe, and a pen nib. The overall aesthetic is futuristic and scientific.

- The Role of **Dopamine**

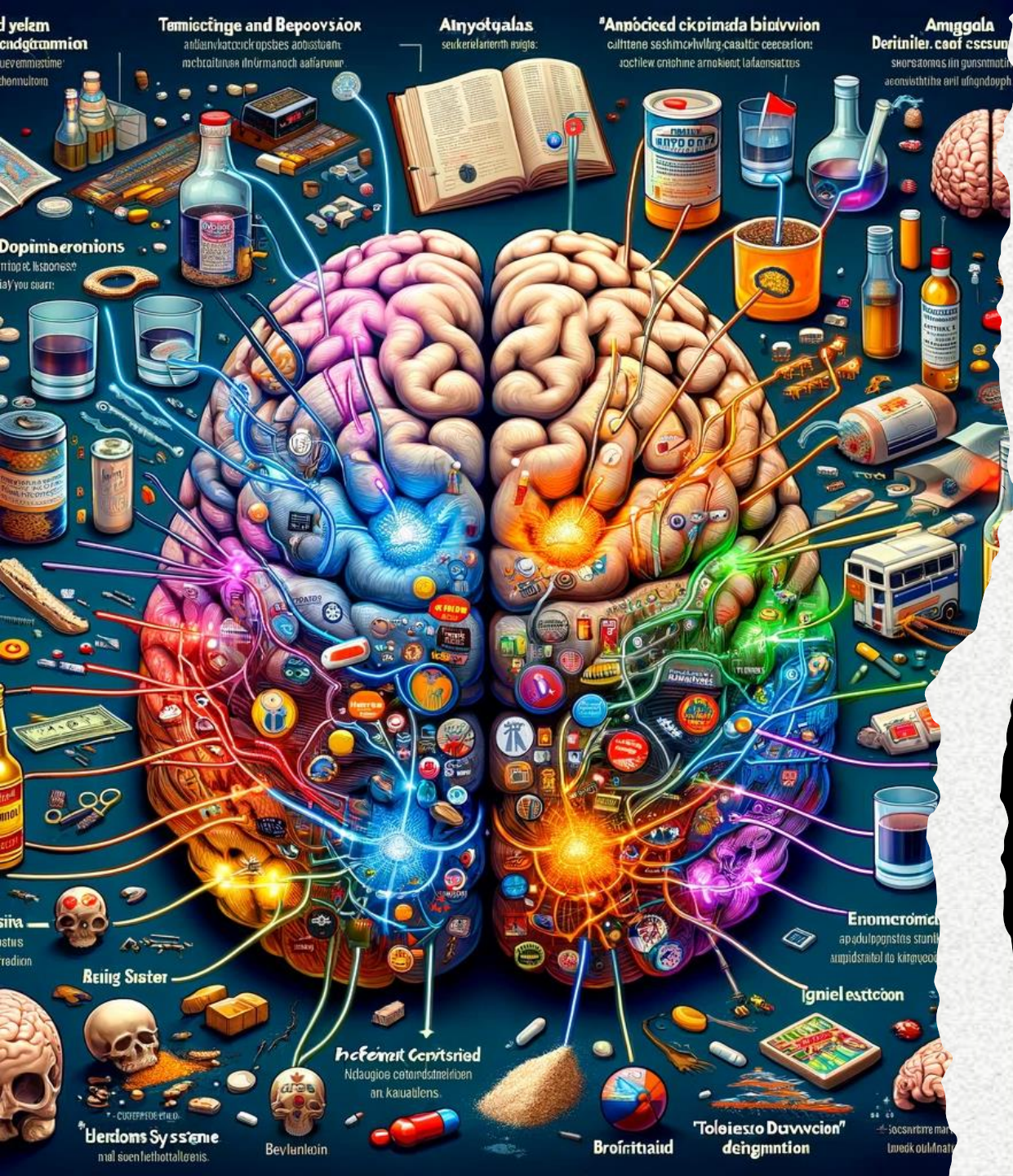
- Sensitization

- Desensitization

- Dr. Anna Lemke – Pleasure /Pain Balance

- Dr. Daniel Lieberman – Up and Down Brain Chemicals

Dopamine



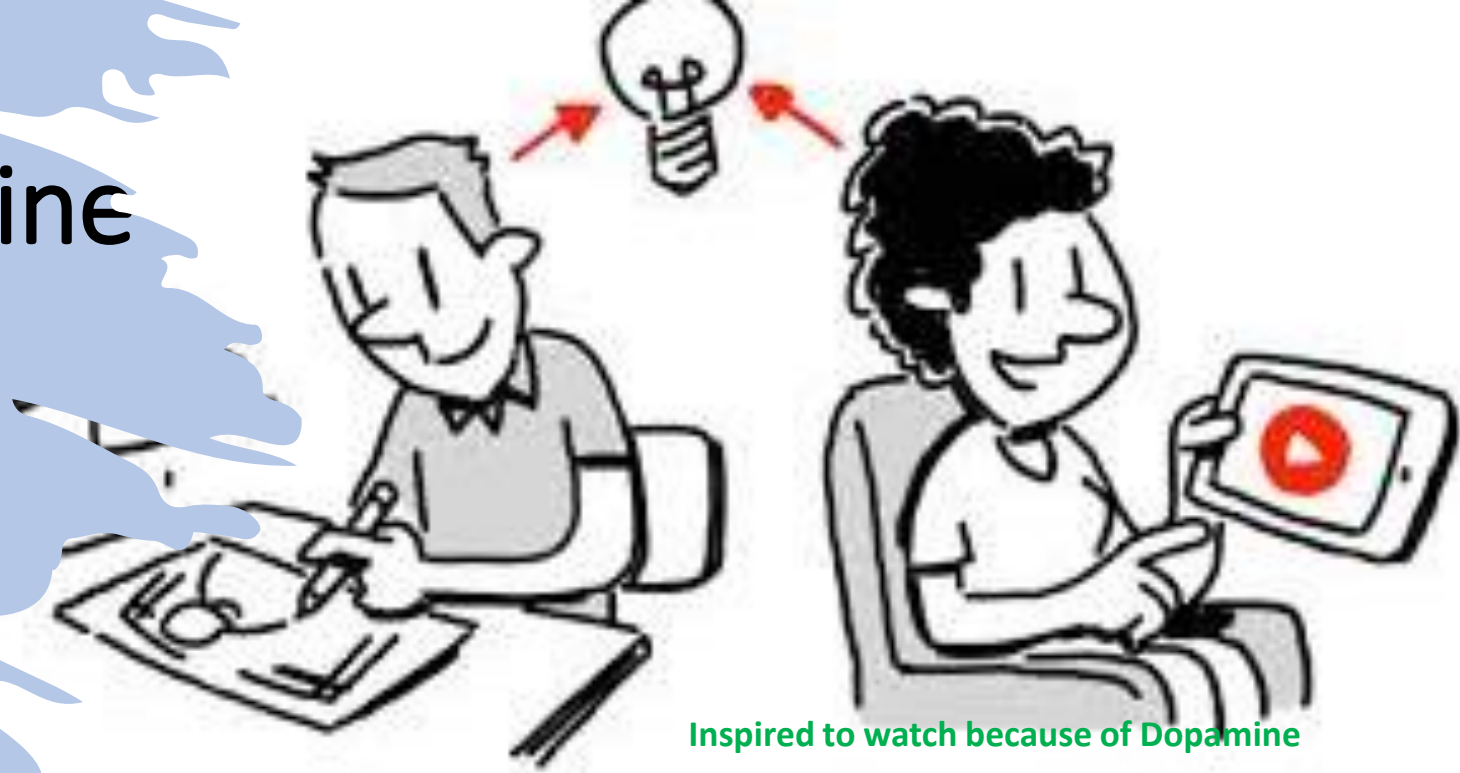
Addiction Chemical #1 Dopamine

- As Kardaras(2016) stated in his book, *Glow Kids*, in order to fully understand addiction, we need to understand the brain's reward system and the impact of dopamine on that reward pathway.
- Specifically, **how much dopamine** is activated by a substance or behavior is correlated directly with the **addictive potential** of that substance or behavior.
- **Dopamine**, as many of us know, is the “feel-good” neurotransmitter that is the most critical and important part of the addiction process. Dopamine was discovered in 1958 by Arvid Carlsson and Niles-Ake Hillarp at the National Heart Institute of Sweden.

Functions of Dopamine

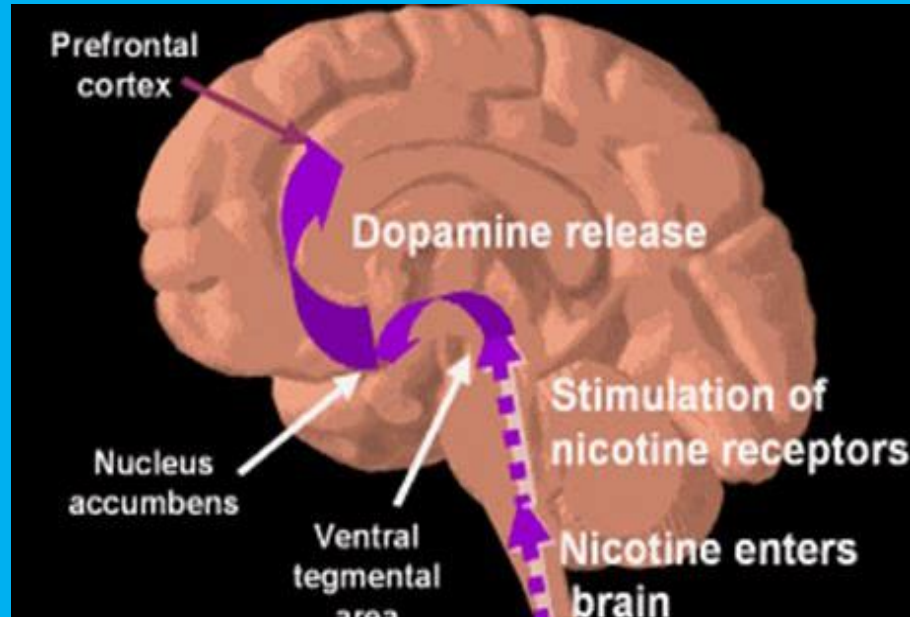
Dr. Susan Weinschenk (2009) noted that **dopamine** is created in various parts of the brain and is critical in several brain functions to include:

- Thinking
- Moving
- Sleeping
- Mood
- Attention
- Motivation
- Seeking and reward

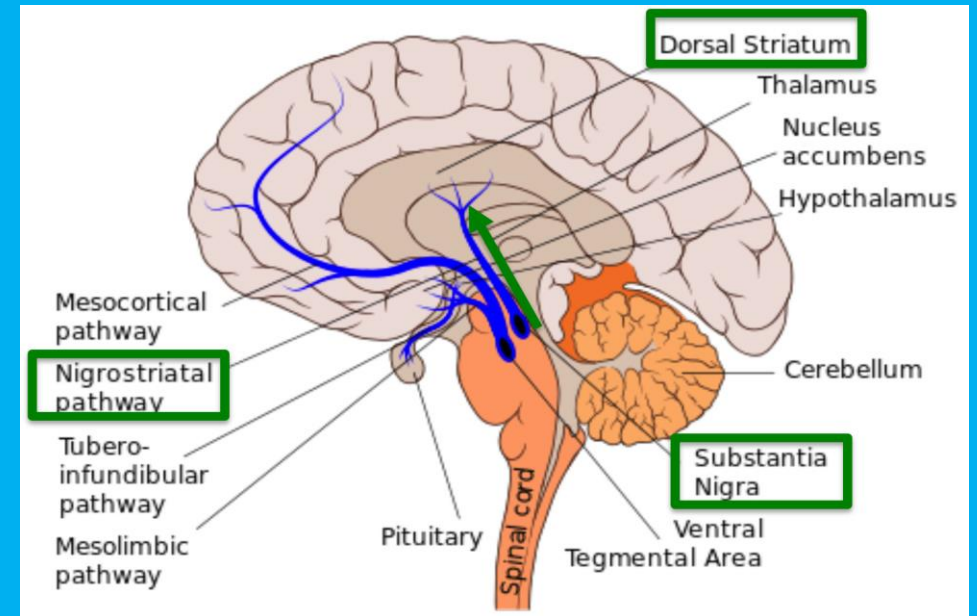


Two Main Dopamine Reward Pathways

Mesocorticolimbic for motivation and reward Nigrostriatal for movement



The **Mesocorticolimbic Pathway** transports dopamine from the **VTA** to the **nucleus accumbens**, **amygdala**, and **prefrontal cortex**. The nucleus accumbens is found in the ventral medial portion of the striatum and is believed to play a role in reward, motivation, desire, and even the placebo effect.



The **Nigrostriatal Pathway** travels from the **substantia nigra** to the **striatum**. The nigrostriatal pathway is important for facilitating movement.

Dopamine is both a neuromodulator and a neurotransmitter

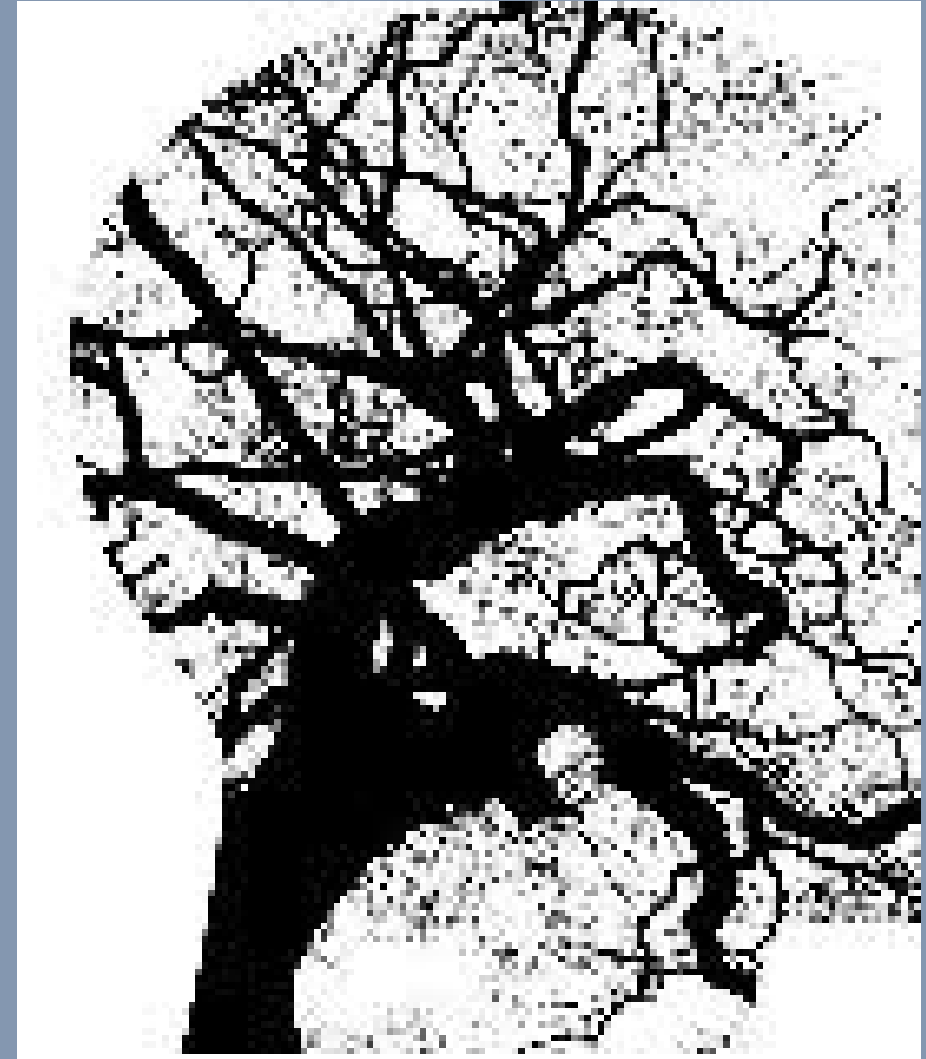
- According to Stanford neuroscientist Dr. Andrew Huberman, dopamine is both a neuromodulator and a neurotransmitter. The main difference between neurotransmitter and neuromodulator is that a neurotransmitter is a chemical messenger released by a neuron to affect either one or two post-synaptic neurons or another specific effector organ whereas a neuromodulator is a chemical messenger released by a neuron to affect a group of neurons or effector organs with a specific receptor.
- Furthermore, a **neurotransmitter** directly affects the postsynaptic partner to produce a quick, rapid effect while a **neuromodulator** indirectly affects the post-synaptic partner, especially through a second messenger to produce a slow but long-lasting effect. Dopamine can be released locally or volumetrically (a large dump). When it is released volumetrically, it affects many neurons. Very concerning, dopamine can ultimately affect gene expression according to Dr. Lieberman.
- Click here to listen to Dr. Huberman's excellent lecture on dopamine:
https://www.youtube.com/watch?v=QmOF0crdyRU&t=2s&ab_channel=AndrewHuberman



Dopamine vs Endogenous Opioids

- Although **dopamine** has been referred to as the “**pleasure molecule,**” it is more about seeking and searching for pleasure, rather than pleasure itself. Dopamine is more involved in drive and motivation to seek.
- The “final reward” or what we experience as feelings of pleasure, Wilson (2014) writes, involve the release of **endogenous opioids.**
- You can think of **dopamine** as “**wanting**” and **opioids** as “**liking.**”
- As psychologist Dr. Weinschenk explains, “Dopamine causes us to **want, desire, seek out and, search;** however, the dopamine system is stronger than the opioid system and we hence seek more than we are as satisfied...” (Weinschenk, 2009).
- “Addicts want it more but gradually like it less. Addiction might be thought of as “**wanting gone amok.**” (Wilson, 2014).

Click here to listen to Gary Wilson’s outstanding lecture:
https://www.youtube.com/watch?v=ZLtSoWrEplM&ab_channel=Reach10



Bought the BMW
but still wanting the
Ducati Diavel



Wanting versus Liking





Dopamine and DeltaFosB “Keep doing it!”

Highly salient activities, in this case addiction, lead to the accumulation of **DeltaFosB**, a protein that activates the genes involved with addiction. The molecular changes it potentiates are almost identical for both sexual conditioning and chronic drug use. Specifically, DeltaFosB rewires the brain to **crave IT** whatever **IT** is.

In a sense, **dopamine** is like the **foreman** on a construction site barking orders and **DeltaFosB** is the **worker** on the site. Dopamine is yelling, “This activity is really important, and you should do it again and again.”

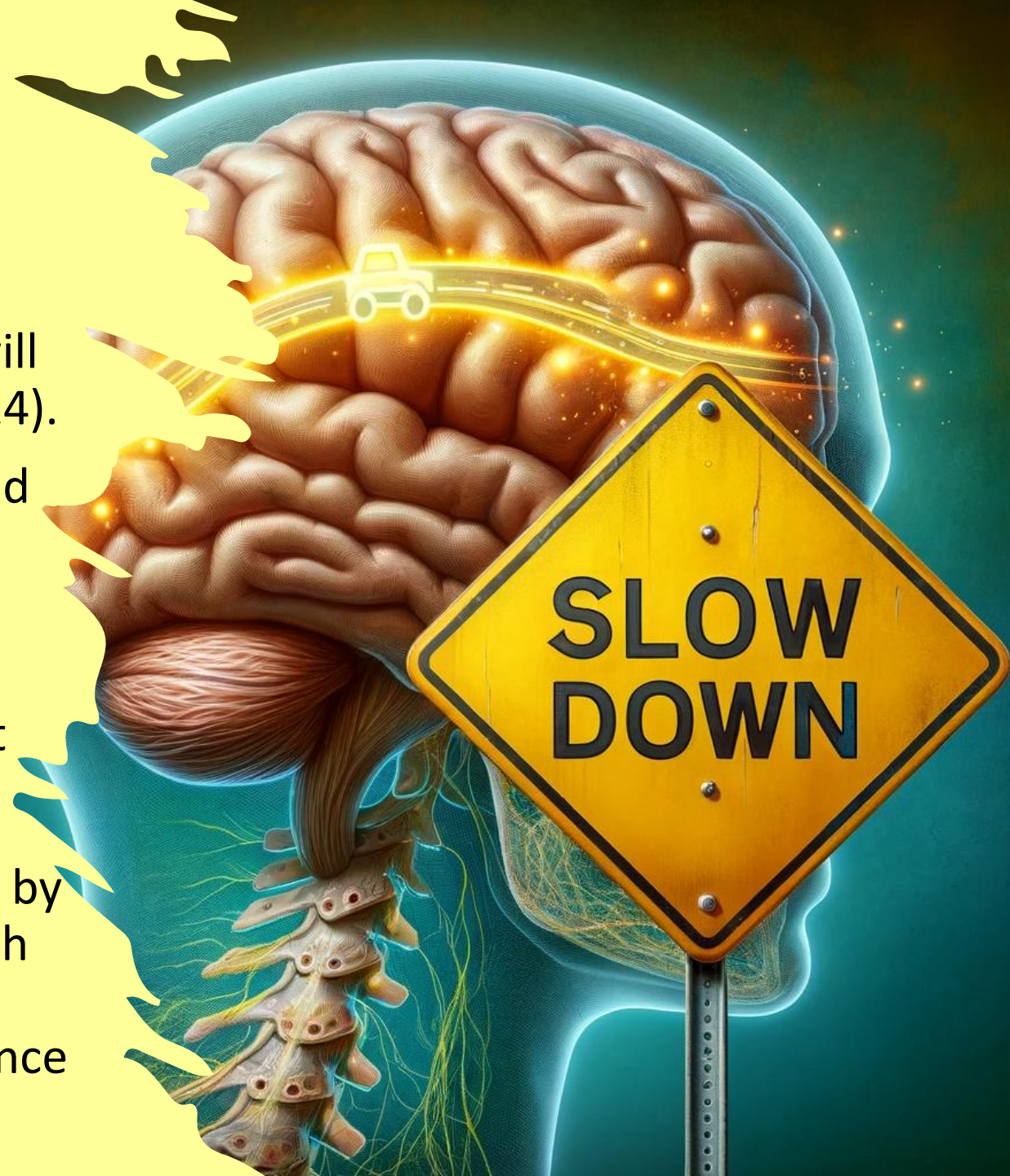
DeltaFosB is responsible for ensuring that you **remember and repeat** the activity.

This repeated process produces what is called **sensitization** which is based on the principle, “**Nerve cells that fire together wire together**” as noted by Canadian researcher Donald Hebb in 1949. Repeated activity strengthens cell connections.

Dopamine and CREB

“Slow it Down, Silver!”

- As the brain recognizes that it needs a rest, it will kick out **CREB** to slow things down (Wilson, 2014).
- In essence, **DeltaFosB** acts like the gas pedal and **CREB** functions as the brakes.
- CREB specifically inhibits dopamine and endogenous opioids to take the joy out of the binging/addictive behavior or substance so that you can give it a rest.
- This numbed pleasure response that is induced by CREB is often identified as **desensitization** which leads to **tolerance** - the need of increasingly higher doses to achieve the same effect. Tolerance is a key factor in addiction.



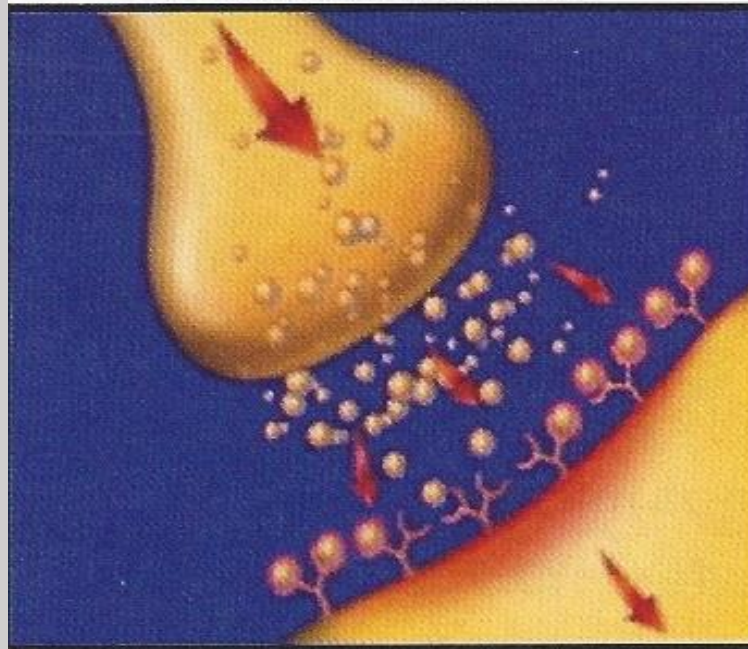
Dopaminergic Downregulation at the Synaptic Level

Normal Functioning



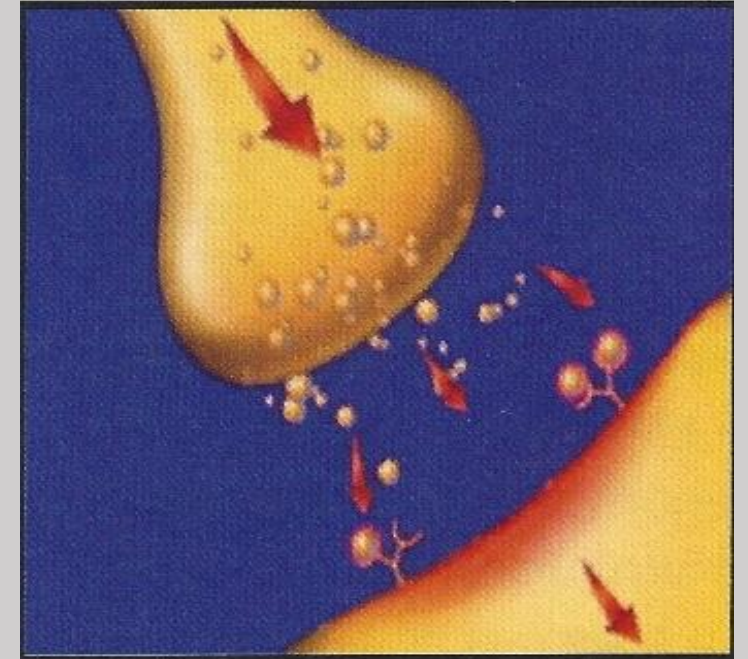
(Adapted from Stuff4Educators.com, 2014)

Over Stimulation



(Adapted from Stuff4Educators.com, 2014)

Desensitization



(Adapted from Stuff4Educators.com, 2014)

So, we see that chronic overstimulation can lead to two opposite effects:

01

Increased dopamine activity
(wanting/seeking it more) –

sensitization via
DeltaFosB

02

Decreased dopamine and opioid activity
(liking it/enjoying it less) – **desensitization**

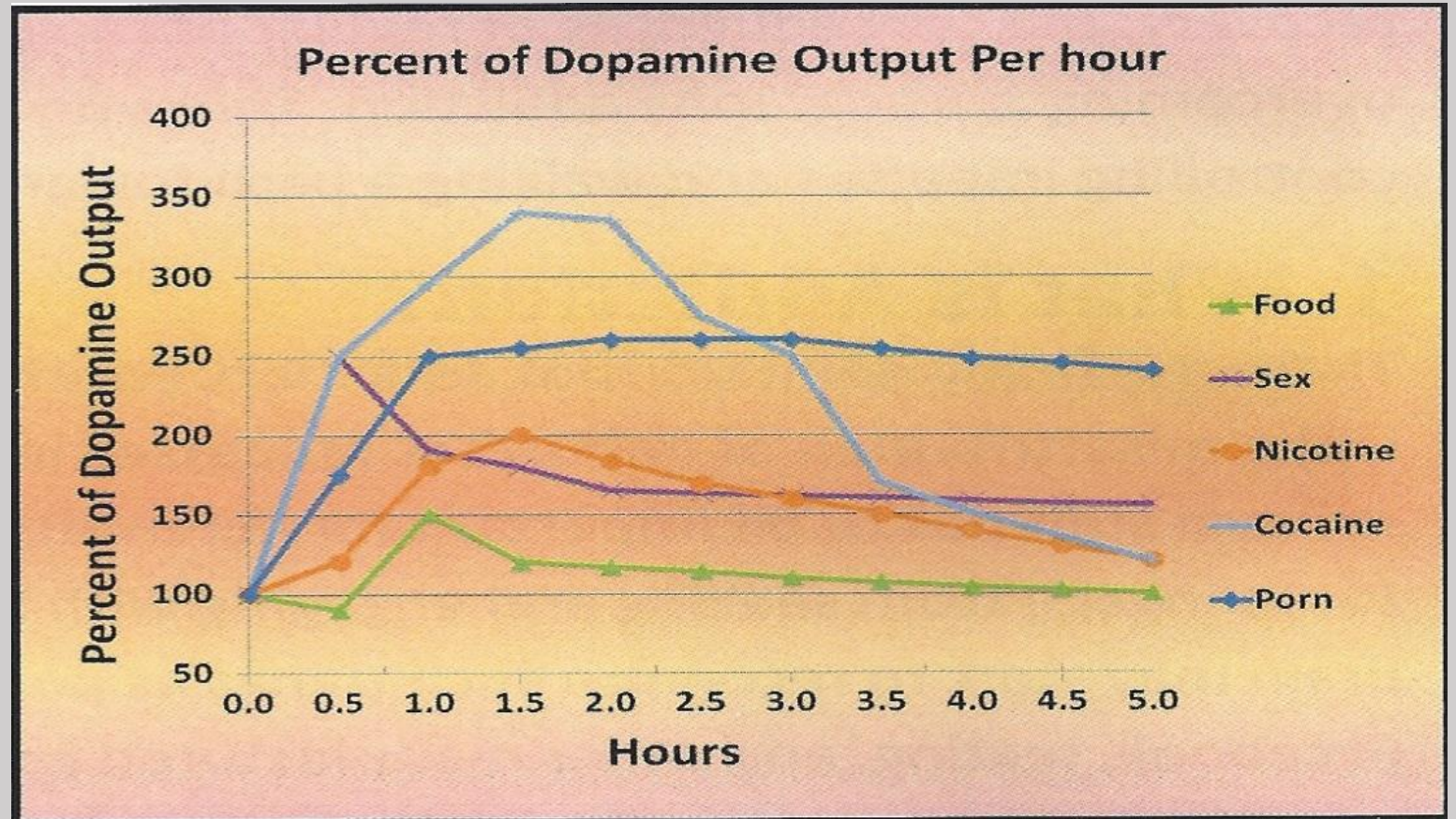
via **CREB**



What Cranks Us Up?

Summary of dopamine increases:

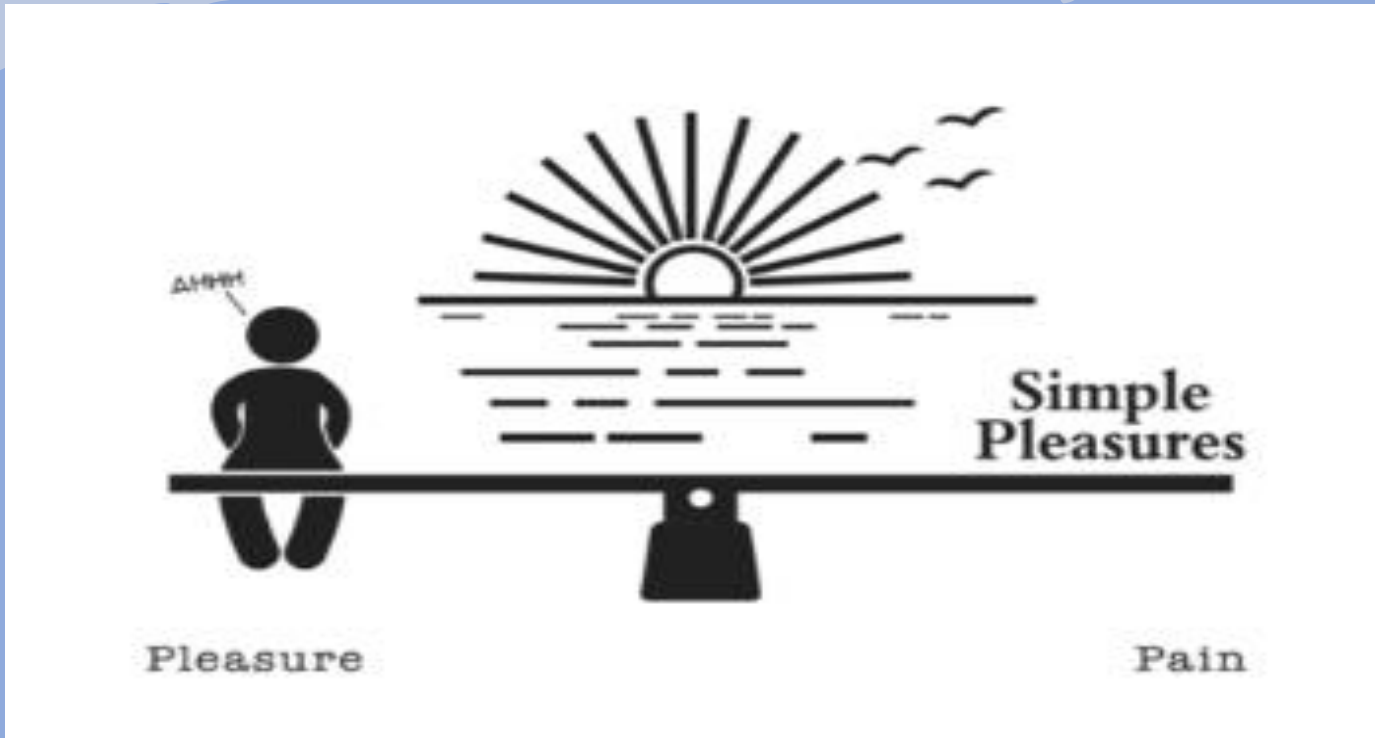
- ▶ Food – 150% increase
- ▶ Nicotine – 200% increase
- ▶ Snorting cocaine – 350% increase
- ▶ Sexual intimacy – 250% increase
- ▶ Pornography – 250% increases and stays elevated for longer – even when compared to cocaine



(Di Chiara & Imperato, 1988; newlifehabits.com, 2010)

Pleasure and Pain Nicely in Balance

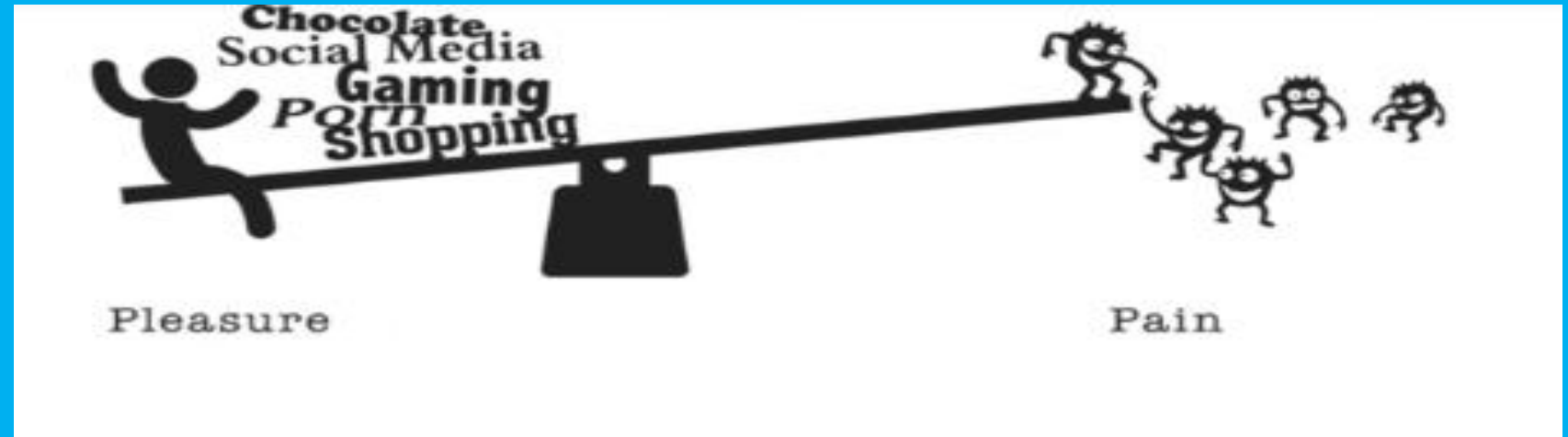
► According to Stanford Psychiatrist, Dr. Anna Lembke, dopamine which acts on **pleasure** neurocircuits, and **pain** are related and help create a homeostatic balance in the brain and body.



The following slides are based on Anna Lembke(2021) *Dopamine Nation* book.

Click here to watch her excellent YouTube video:

https://www.youtube.com/watch?v=5Pu82wZRZwo&ab_channel=AndreaSamadi



Our brain down-regulates our dopamine to bring us back to homeostasis (gremlins jumping on the lever).

As we actively seek pleasure, pain gremlins begin to jump on the teeter totter to try to restore homeostasis balance.

Anna Lembke (2021)

https://www.youtube.com/watch?v=5Pu82wZRZwo&ab_channel=AndreaSamadi



Pain circuits activate in order to move toward homeostasis or balance

Then the balance is more on the "pain" side which is where we want more to feel "normal" again.

Anna Lembke, 2021,
https://www.youtube.com/watch?v=5Pu82wZRZwo&ab_channel=AndreaSamadi

Pleasure and pain out of balance

This is a dopamine-deficit state, where we are walking around unhappy.

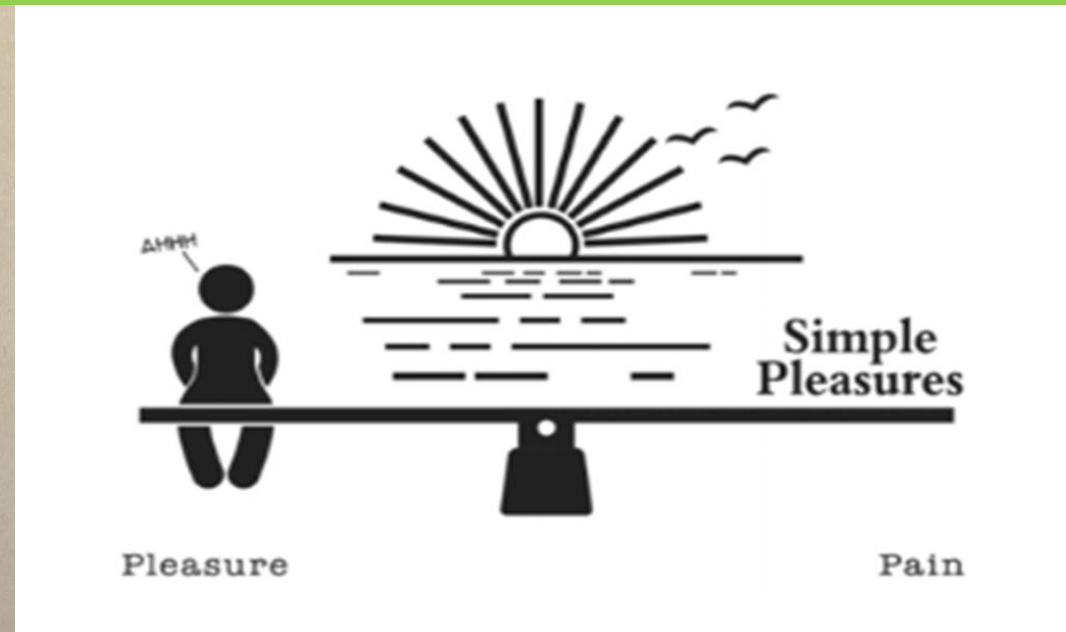
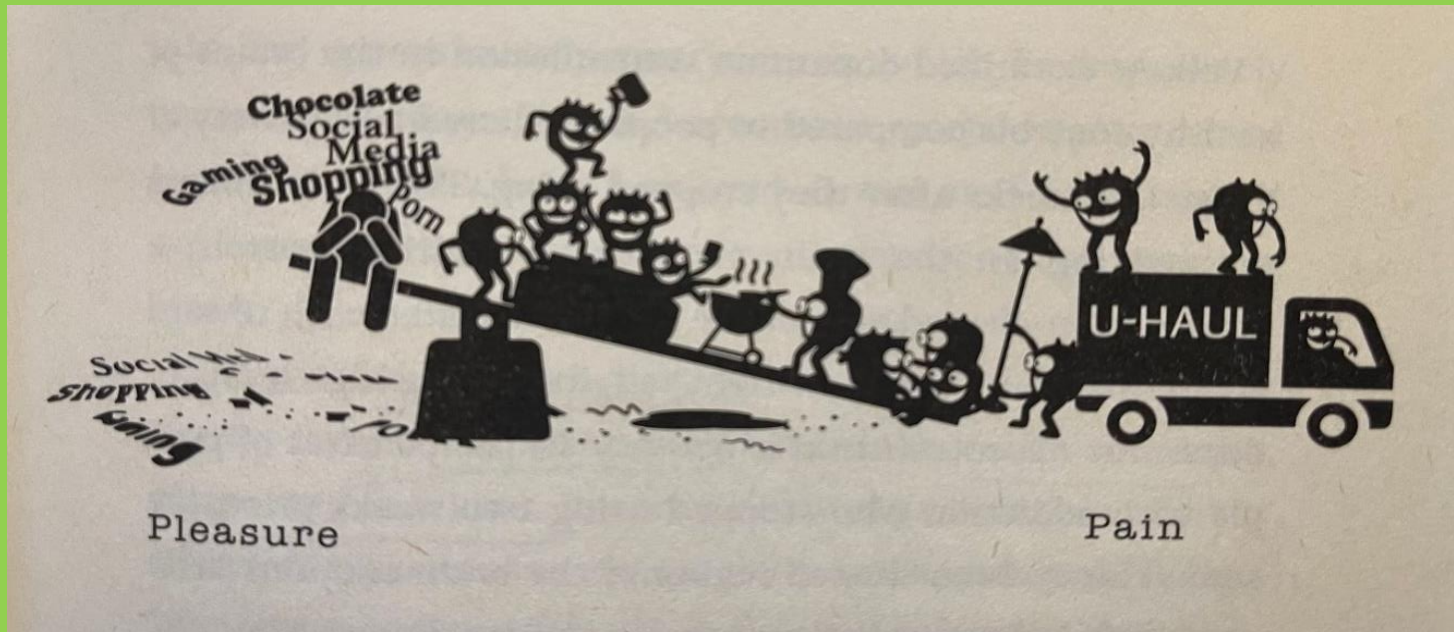


Dopamine Nation "It's harder for us to experience pleasure and more likely we will experience pain."

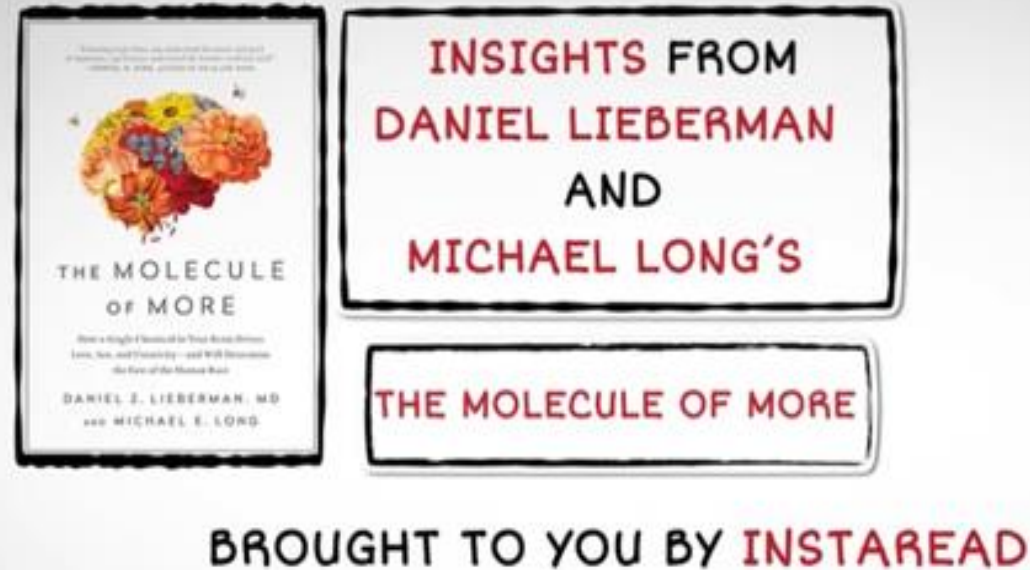
Anna Lembke (2021)

https://www.youtube.com/watch?v=5Pu82wZRZwo&ab_chanel=AndreaSamadi

Dr. Lembke recommends a 30-day dopamine fast in order to rebalance the dopaminergic circuits in the brain.



The following slides are taken largely from Dr. Lieberman's excellent book, *The Molecule of More*



Click here to listen to Dr. Lieberman:

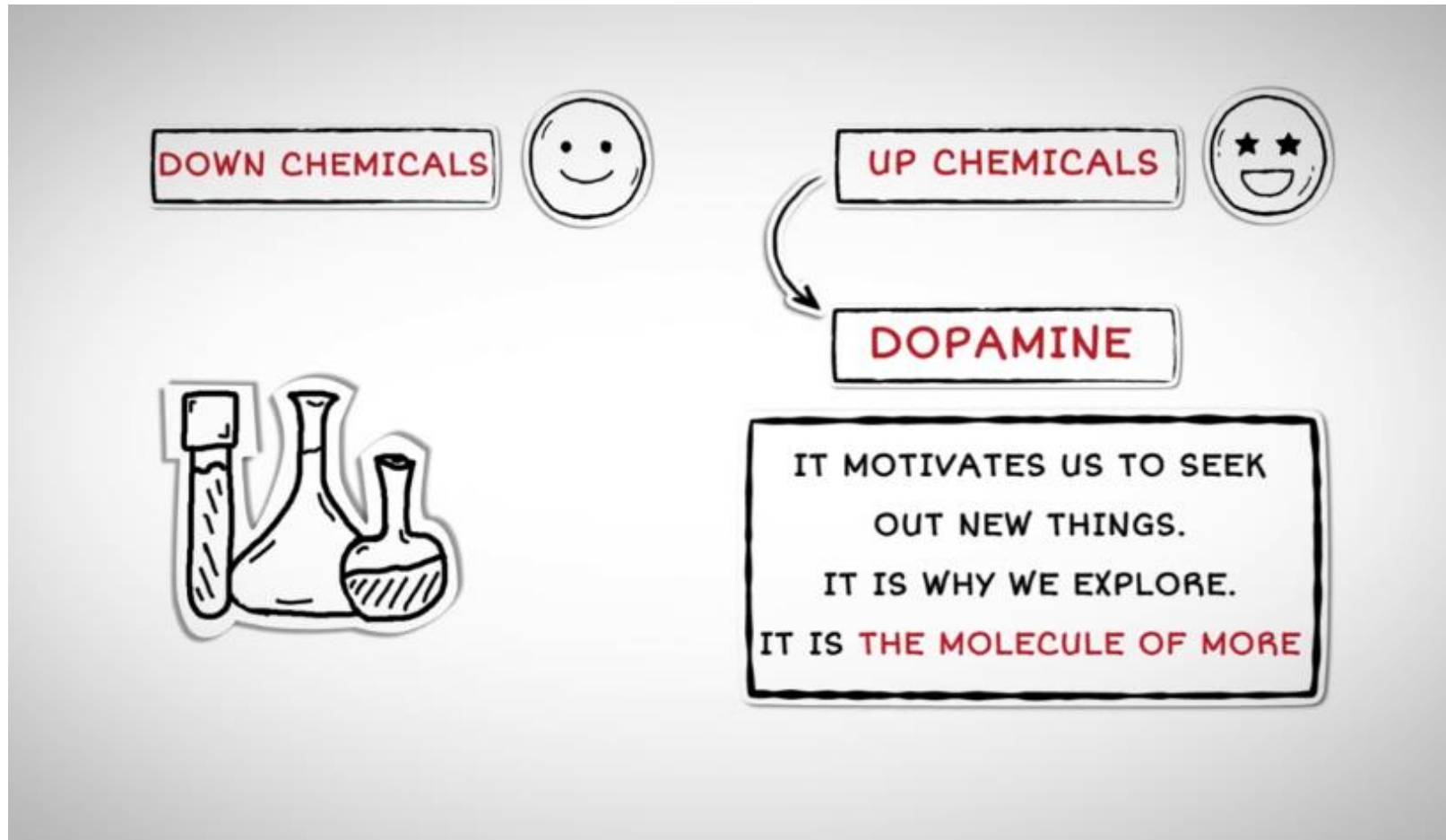
https://www.youtube.com/watch?v=TjKCzYYkKN4&ab_channel=Valuetainment

Click here to listen to animated video on Molecule of More:

https://www.youtube.com/watch?v=sPpY_nePtV8&ab_channel=Instaread

The brain has up chemicals and down chemicals

The up-chemical dopamine drives us to seek new things

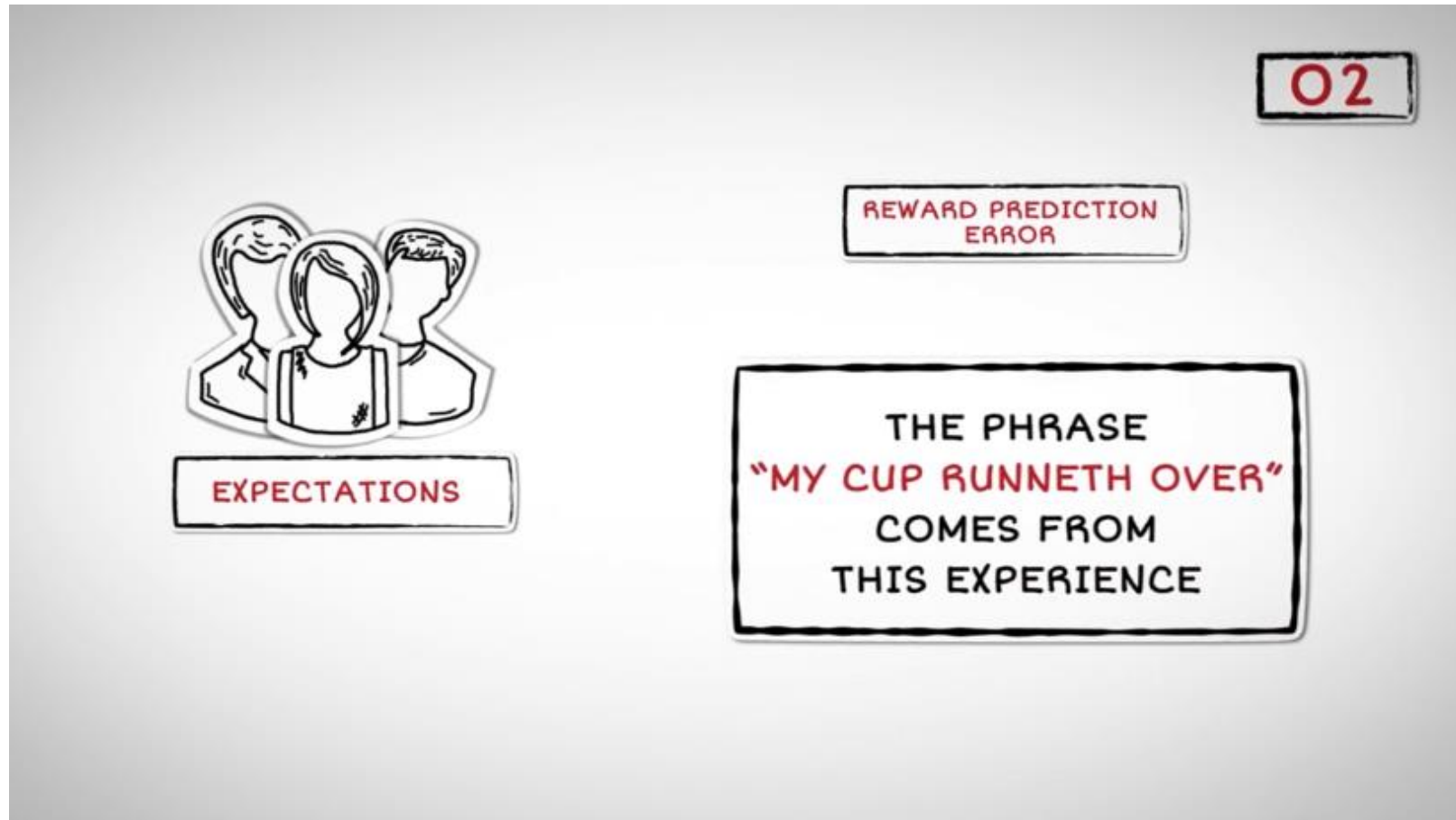


The Down Chemicals – designed for the here and now

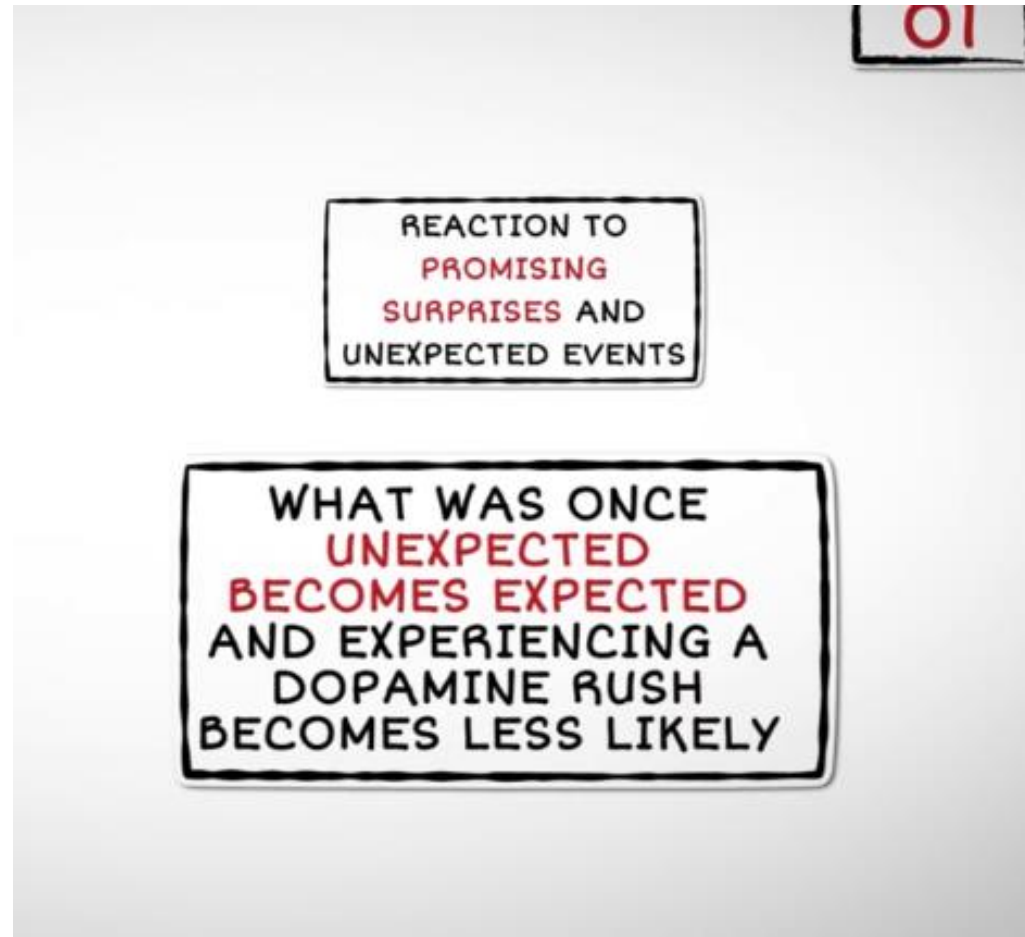


Reward Prediction Error

When the expected becomes unexpected which increases dopamine dramatically and compels us to continue seeking the new thing. This can become addictive.

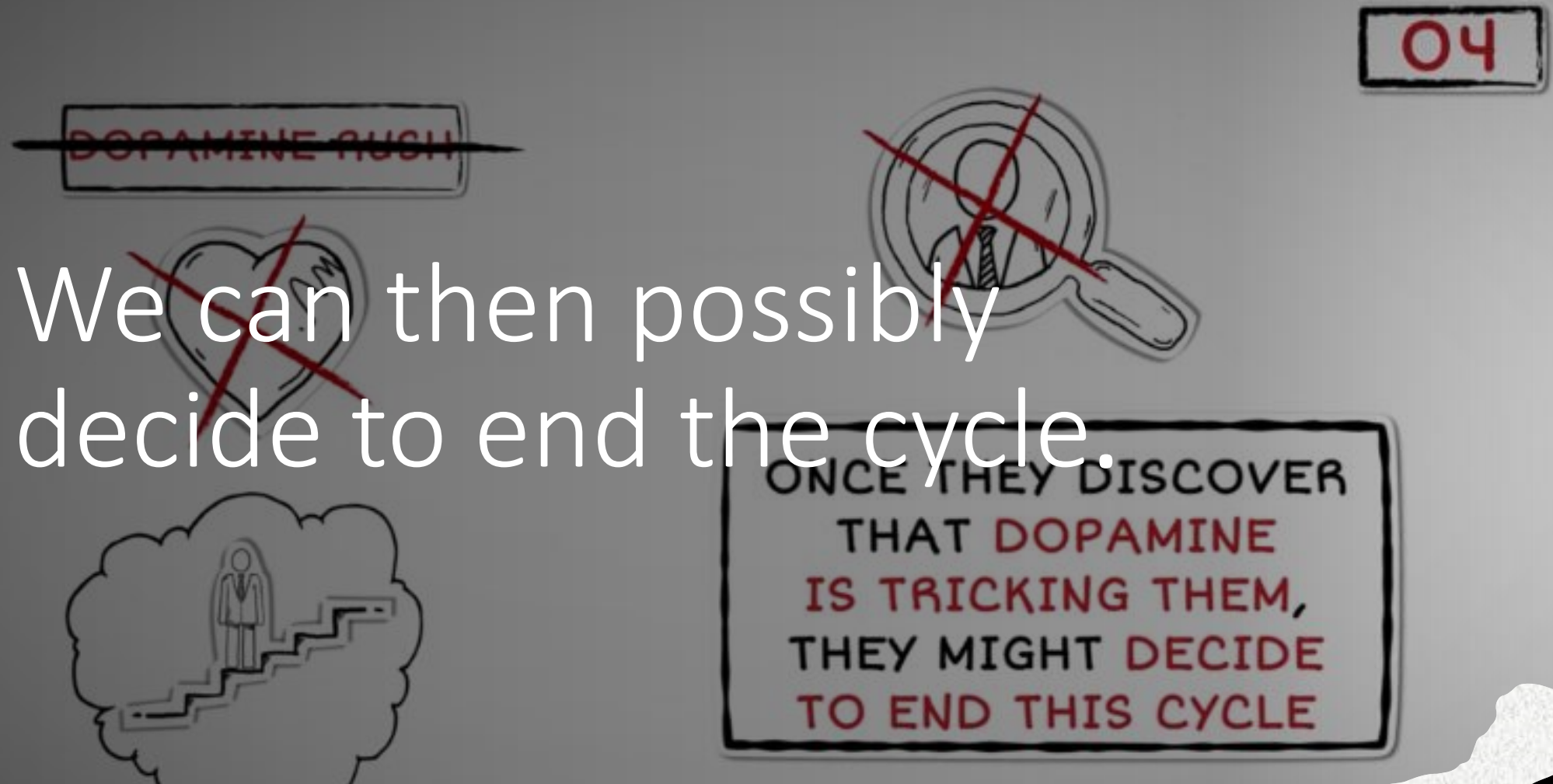


Dopamine drops when the unexpected becomes expected.



~~DOPAMINE RUSH~~

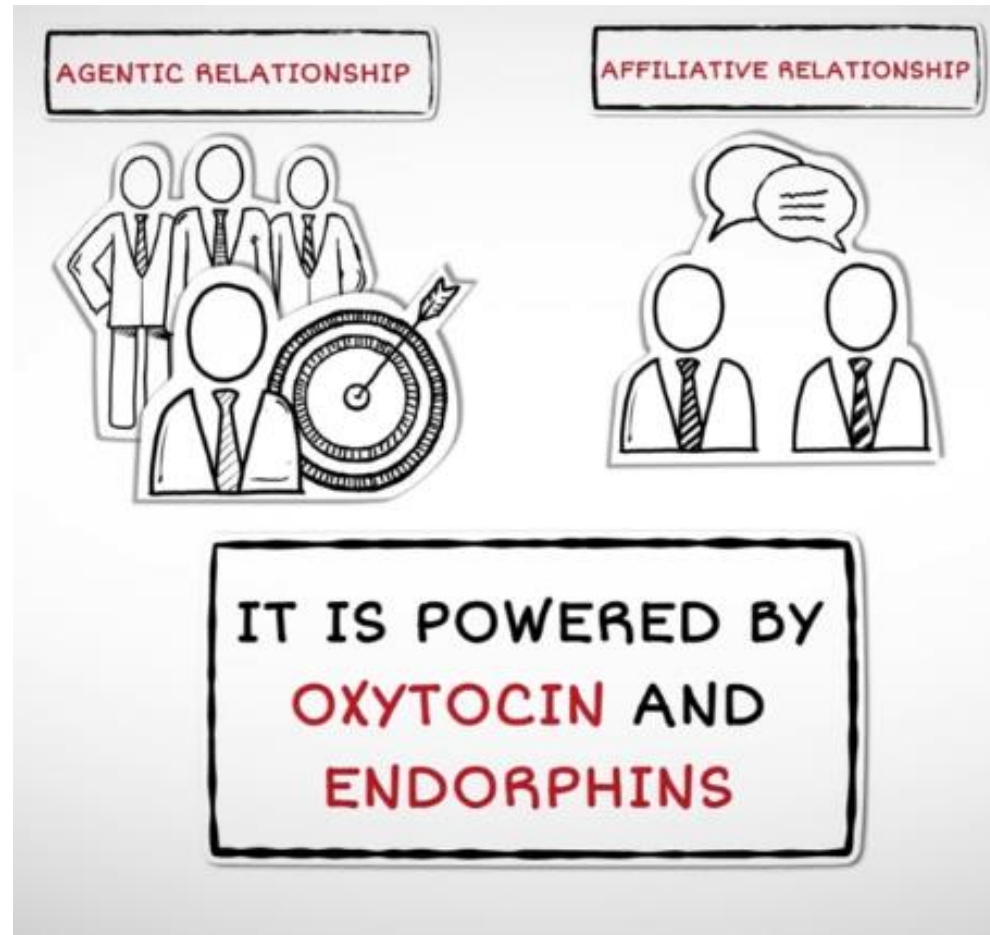
We can then possibly
decide to end the cycle.



ONCE THEY DISCOVER
THAT **DOPAMINE**
IS TRICKING THEM,
THEY MIGHT DECIDE
TO END THIS CYCLE

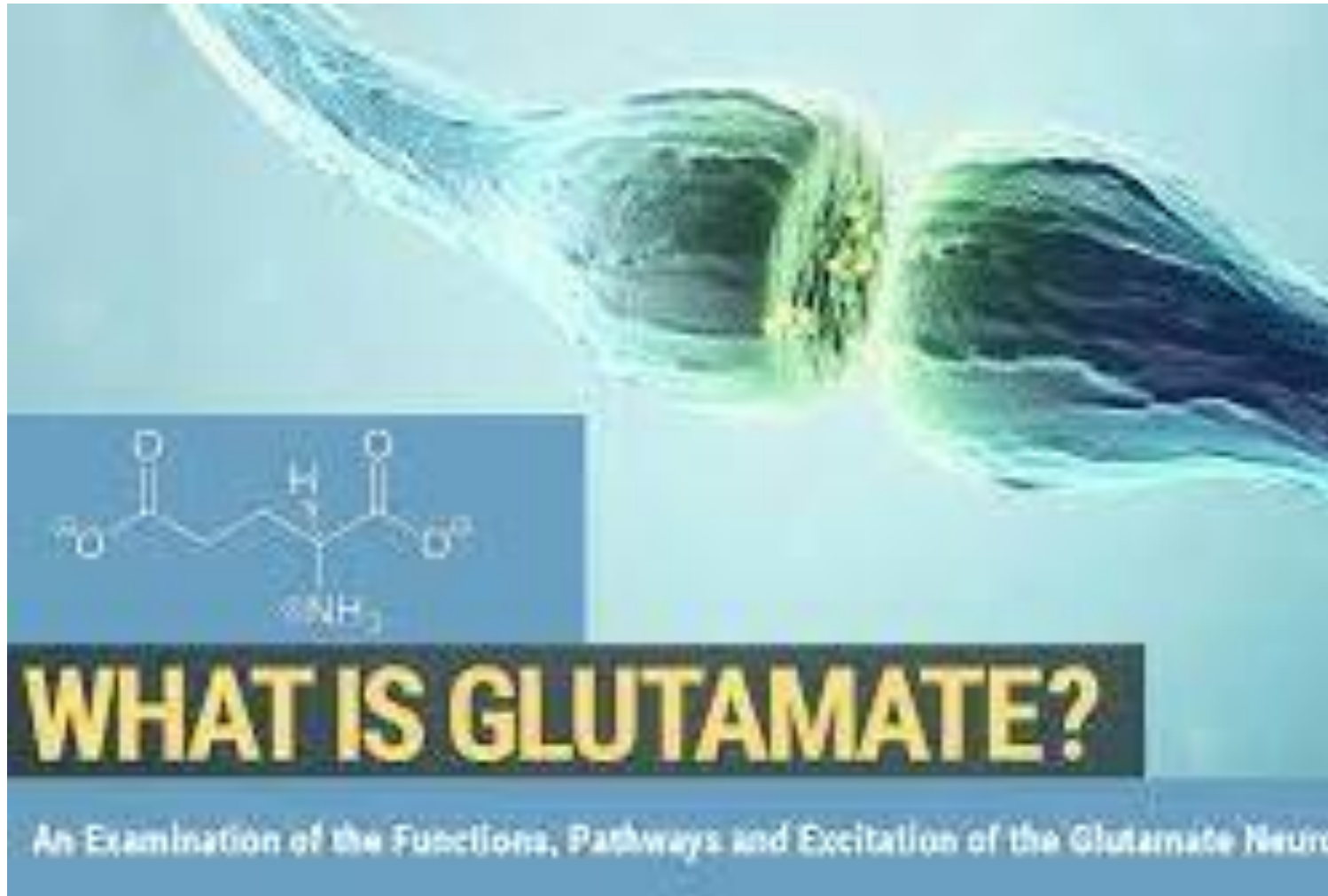
Here & Now Circuits

Allow us to back off the future pursuit and enjoy the present and all that it offers – relationships, peace, connection



Addiction neurochemical #2: Glutamate

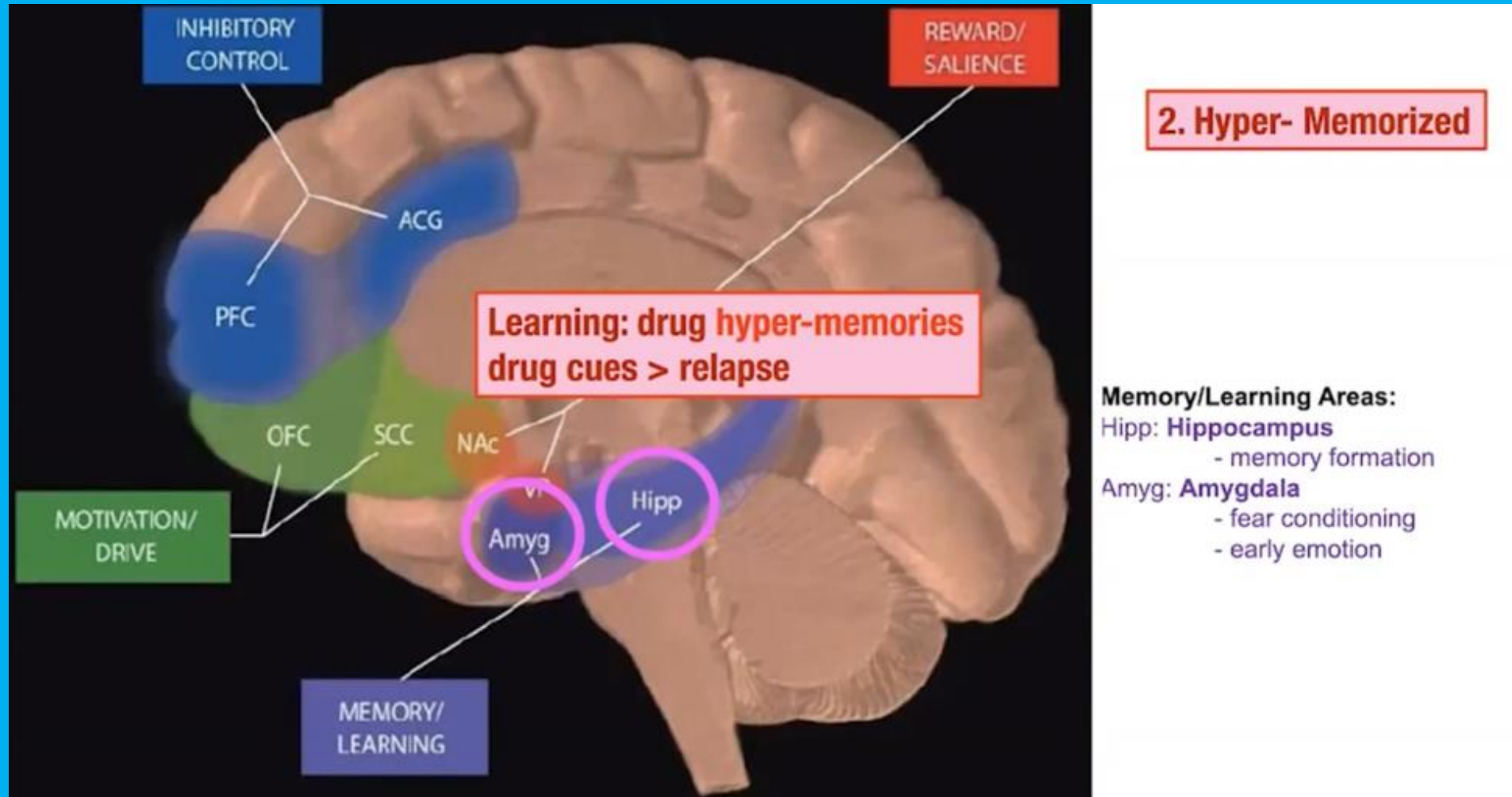
Glutamate is an excitatory neurotransmitter with several types of receptors found throughout the central nervous system, and its metabolism is important to maintaining optimal levels within the extracellular space. As such, it is important to memory, cognition, and mood regulation.



Addiction neurochemical #2 Glutamate

- **The most abundant neurochemical in the brain**
- **Critical in memory formation & consolidation**
- **All drugs of abuse and many addicting behaviors effect
Glutamate which preserves drug memories
and creates drug cues**
- **And ... glutamate is the neurochemical of “motivation” (it
initiates drug seeking)**

Glutamate leads to hyper-memorization of drug cues and leads to relapse.



Glutamate spillover and overlearning

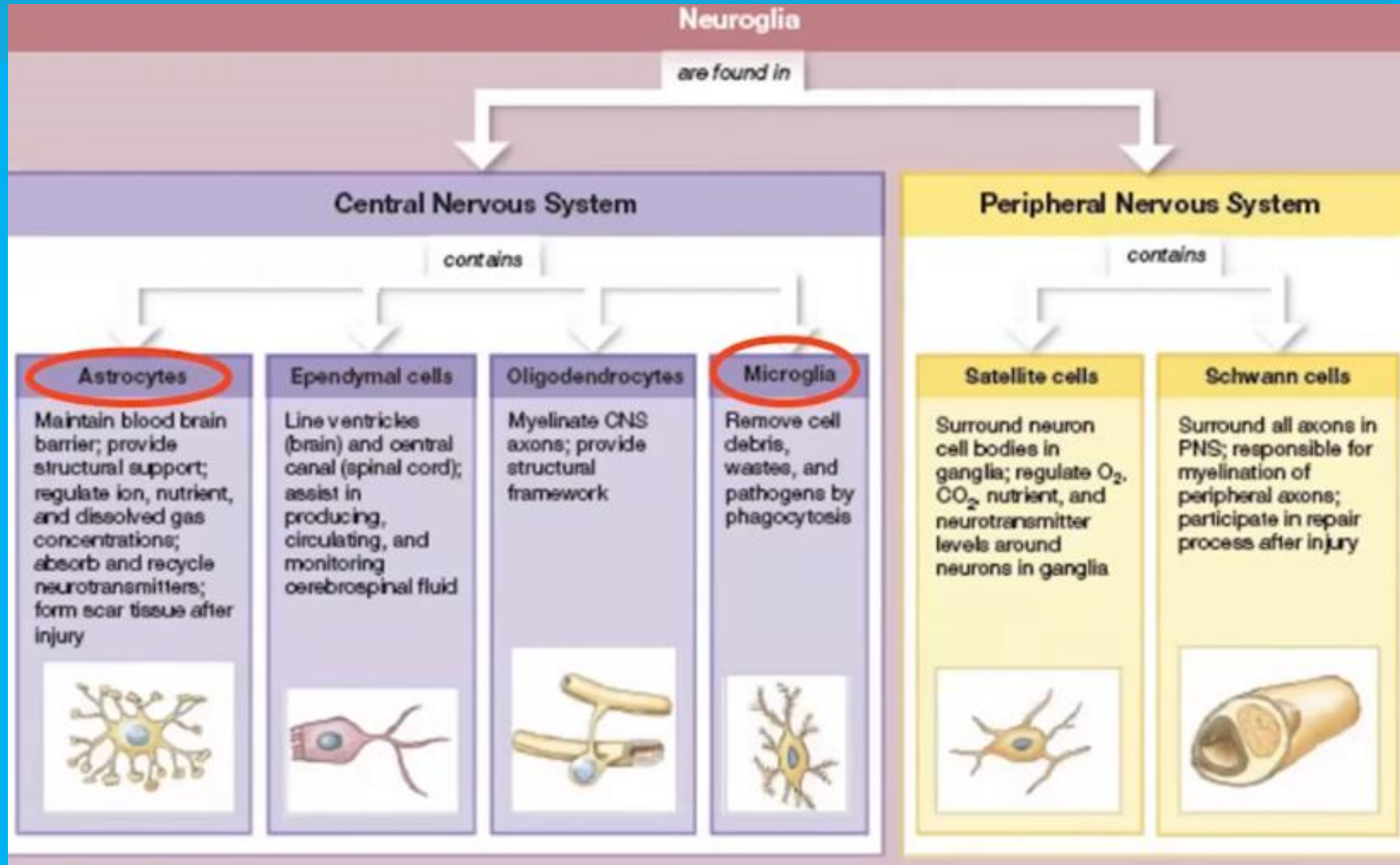
- **Enduring vulnerability to relapse due to recruitment of “cortico-fugal” GLU projections to striatum**
- **Excess GLU “spills” out of the synapse to bind to extra-synaptic GLU receptors**
- **Changes in synaptic plasticity leads to pathologic learning and memory**
- **Result: impairment of inhibition of drug seeking**



Peter W. Kalivas, PhD
Department of Neurosciences
Medical University of South Carolina

Glial Cells

Glial cells comprise about 33 – 66% of the brain and once thought to be of minor significance are hugely important to brain health and specifically, to the health of neurons.



Astrocyte Glial Cells

Traditionally seen as support cells for neurons

Connect synapses to blood vessels and make contact with hundreds of synapses and across different populations of neurons

Integrate signals from many synapses at once

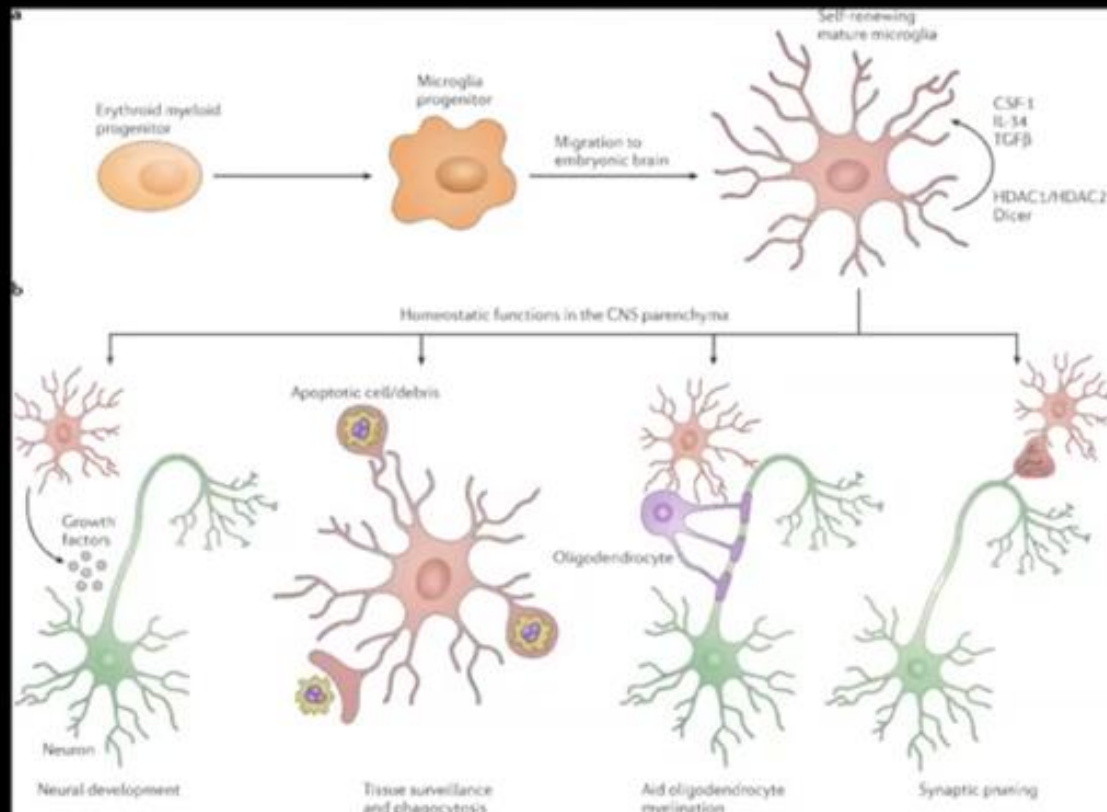
Critical for glutamate regulation (express glutamate transporters)

Also express cytokines for inflammatory signaling



Microglia

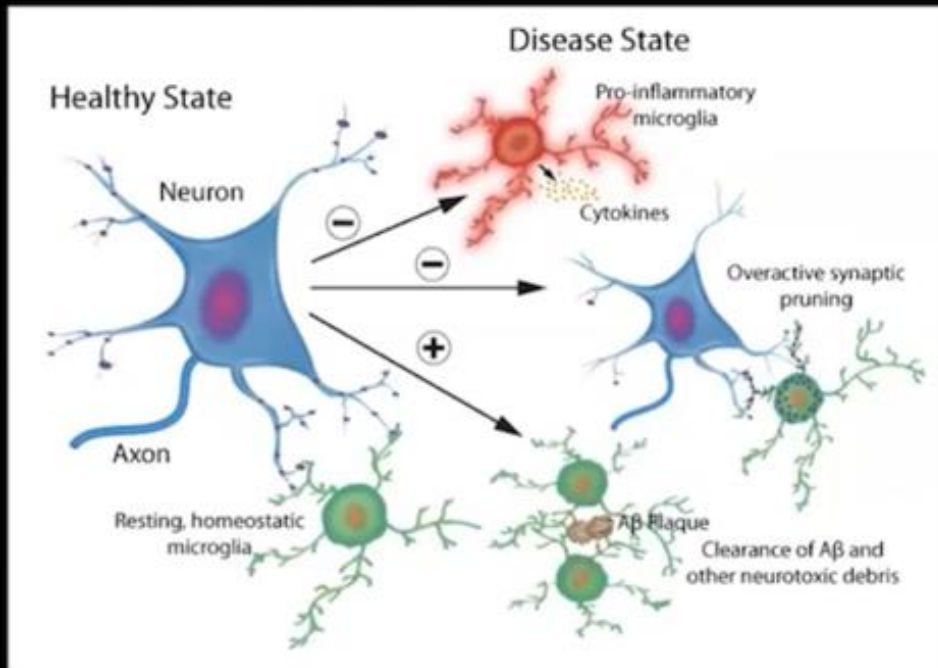
Microglia



- **The resident immune cells of the CNS (the macrophages of the brain)**
- **Actively survey a specific brain tissue microenvironment for Pathogen Associated Molecular Patterns (PAMPs) given off by pathogens, toxins and drugs**
- **Also detect Danger-Associated Molecular Patterns (DAMPs) released from damaged or dying brain cells**
- **Receive cytokine signals from other microglia**
- **Assist neuronal synapse remodeling (plasticity, pruning) critical for normal development and beyond**

Microglia are damaged by excessive glutamate.

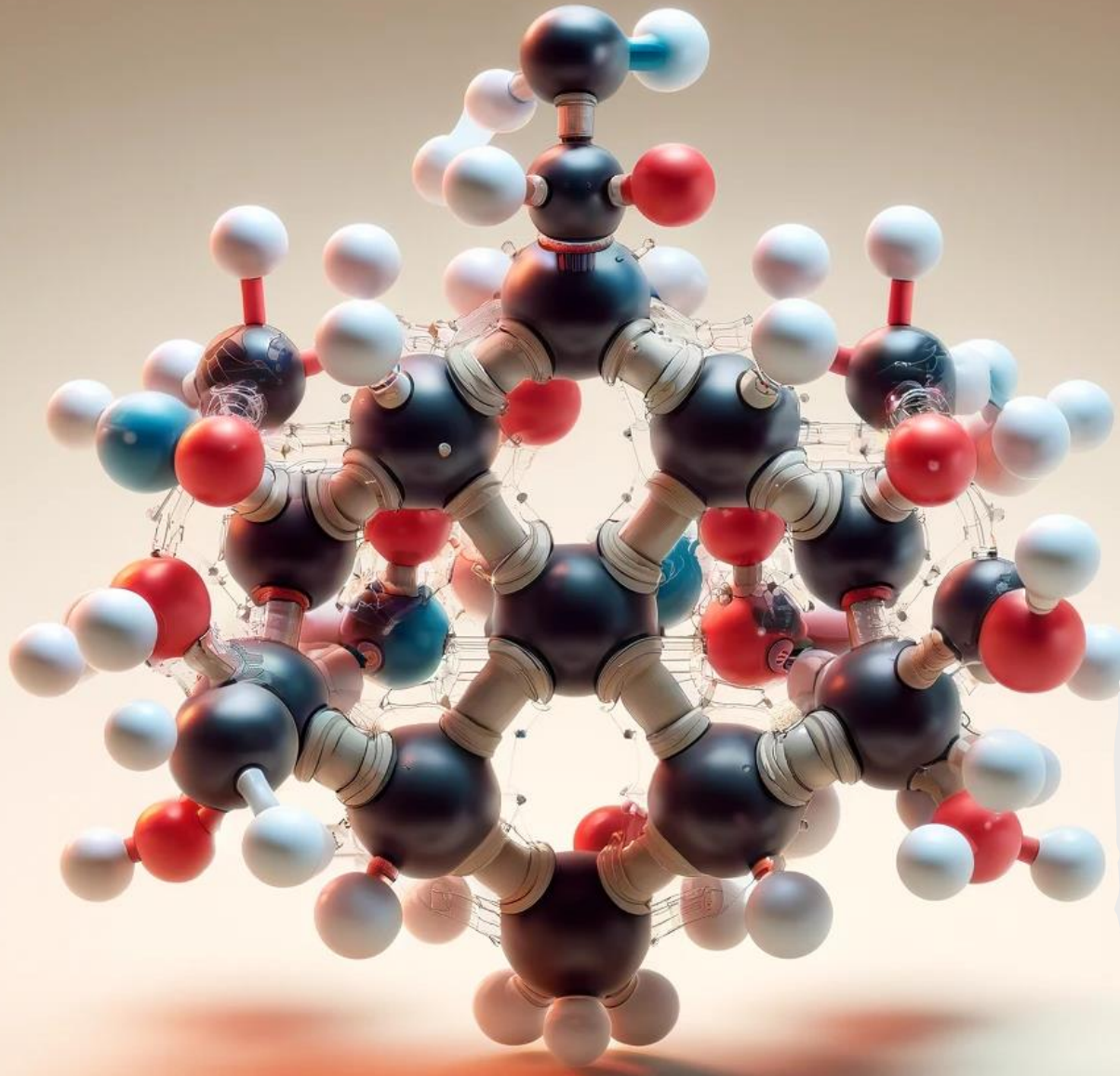
Reactive Microgliosis: response to pathogen/injury



- Resting microglia: injury to brain > Reactive Microgliosis
- Microglia respond rapidly to stress and trauma
- Shift from ramified (resting) state to amoeboid (activated) state
- Microglia are very fast-moving cells (fastest in the brain: entire brain parenchyma scanned by microglia every few hours)
- Become macrophages > phagocytize pathogens and debris
- Antigen-presenting cell to T lymphocytes



Addiction Chemical #3:
Cortisol



What is cortisol?

- Definition: Cortisol is a steroid hormone produced by the adrenal glands, which are located on top of each kidney.
- Function: It plays a crucial role in the body's stress response, helping to regulate metabolism, reduce inflammation, and assist with memory formulation.
- Stress Response: Often called the “stress hormone,” cortisol levels increase in response to stress, helping the body manage and adapt to stressful situations.
- Regulation: It follows a daily rhythm—highest in the morning to help you wake up, and gradually decreasing throughout the day.
- Effects of Imbalance: Chronic high cortisol levels can lead to various health issues, such as weight gain, high blood pressure, disrupted sleep, and a weakened immune system.

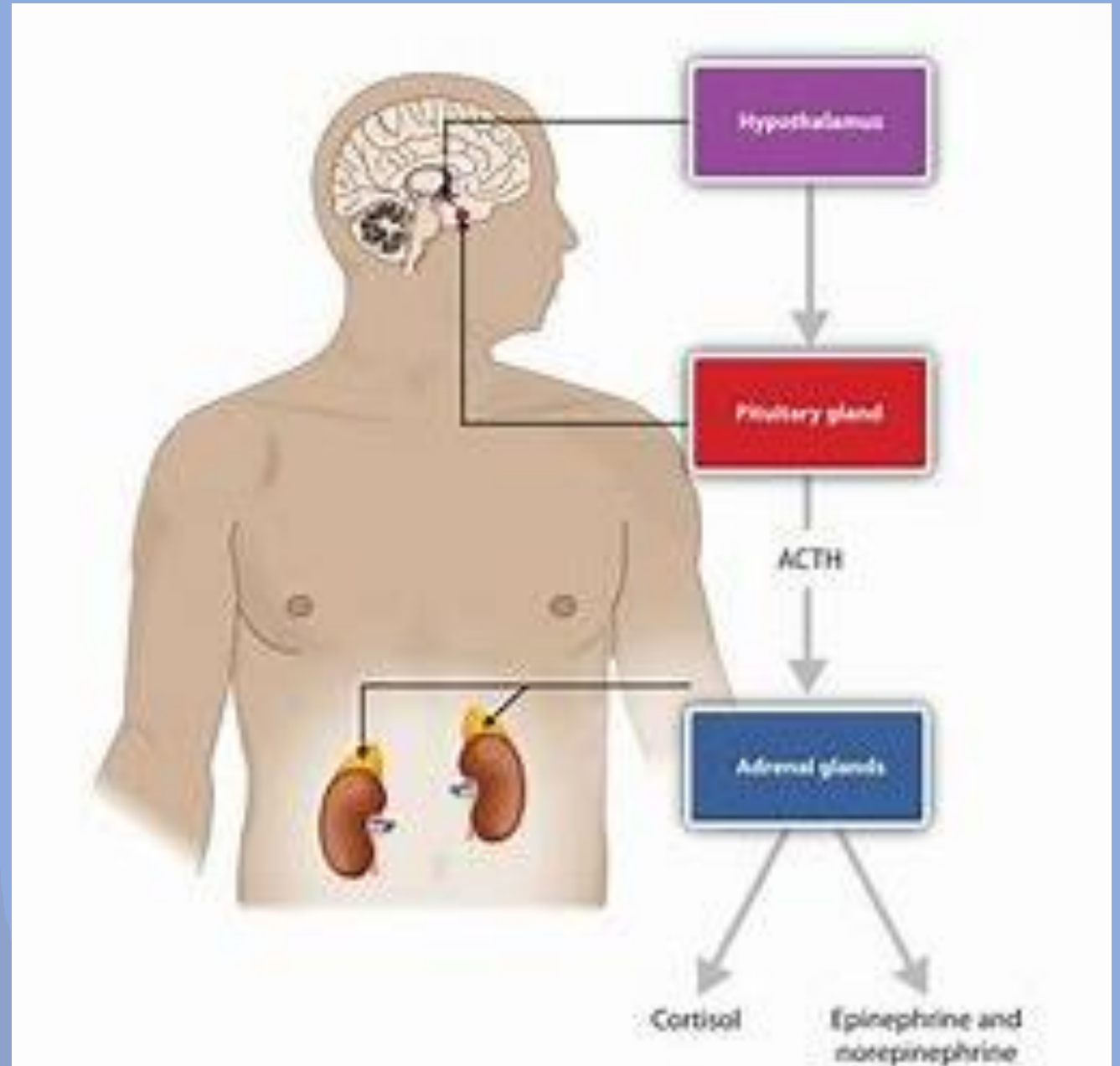
The Hypothalamic-Pituitary-Adrenal Axis (HPA)

Definition: The HPA axis is a complex set of interactions among the:

1. hypothalamus
2. pituitary gland
3. adrenal glands

It regulates:

1. stress responses
2. mood
3. digestion
4. the immune system
5. energy storage and expenditure and more



Impact of Excessive Cortisol on the Brain

Memory Impairment: Damage to the hippocampus, causing forgetfulness.

Anxiety/Depression: Shrinks prefrontal cortex, increasing mood disorders.

Decreased Neuroplasticity: Hinders learning and adaptation.

Emotional Dysregulation: Heightened amygdala activity, poor stress response.

Cognitive Impairment: Reduced focus and decision-making ability.



A microscopic view of numerous red blood cells, appearing as reddish-orange biconcave discs, scattered across the frame. The background is a dark, reddish-brown color with some light speckles.

Weight Gain: Fat storage, especially in the abdomen.

Immune Suppression: Weakens immune response.

Increased Blood Pressure: Heightened cardiovascular risk.

Muscle/Bone Loss: Breaks down muscle, increases osteoporosis risk.

Sleep Disruption: Insomnia and poor sleep quality.

Impact of Excessive Cortisol on the Body

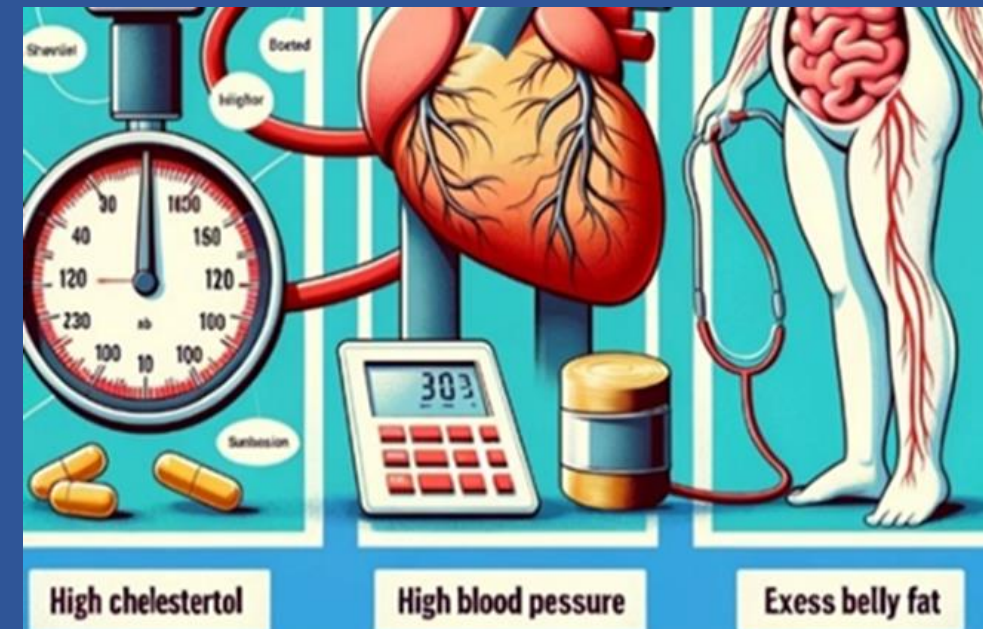
Impact of Excessive Cortisol on the Body

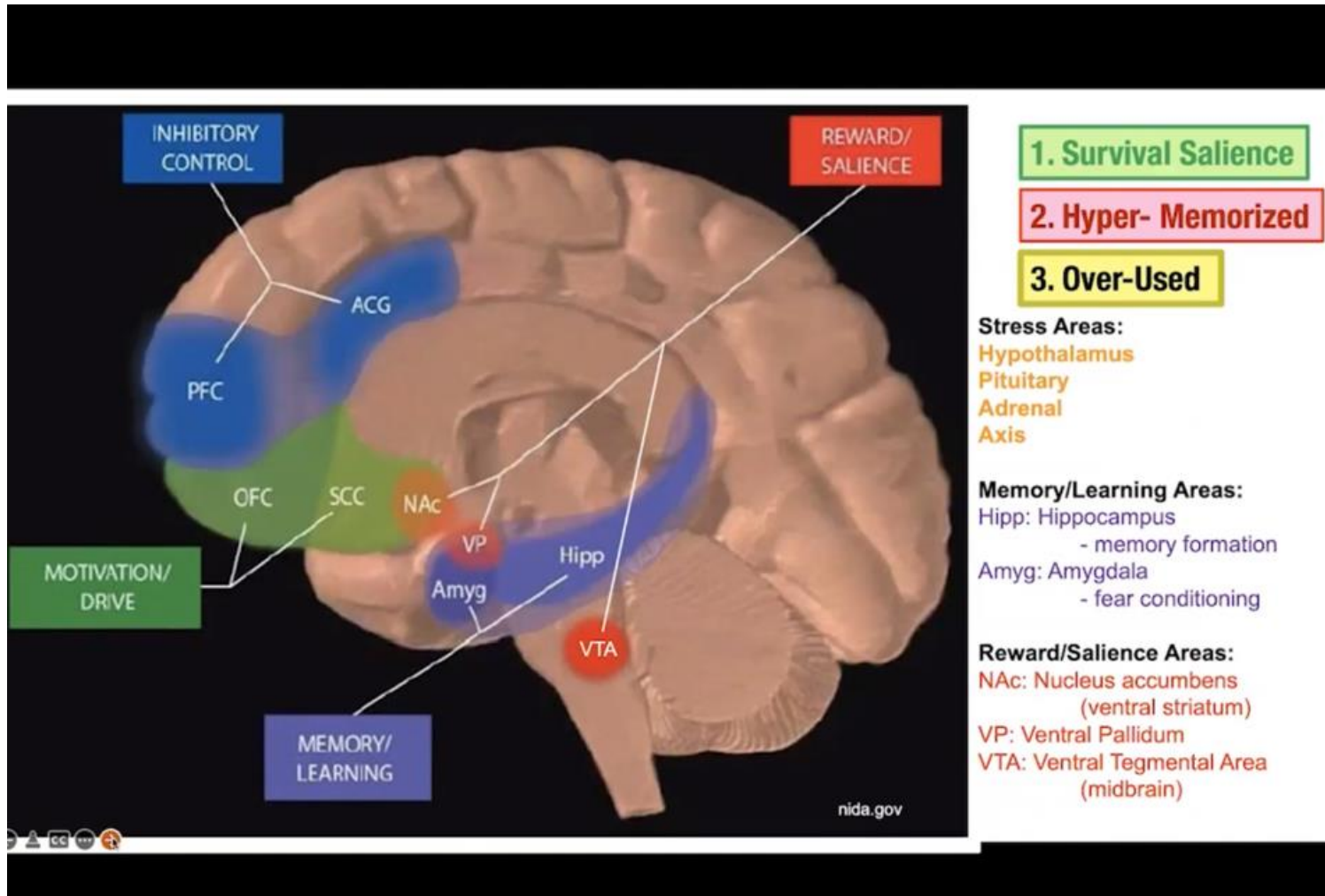
➤ Excessive cortisol use can trigger **Metabolic Syndrome**. Metabolic syndrome is a combination of the following (Dunckley, 2015):

- High blood pressure
- Midsection weight gain (spare tire)
- Abnormal cholesterol levels
- High fasting blood sugar

➤ **Metabolic Syndrome** is a serious condition and, if left unchecked, can promote:

- Diabetes
- Heart disease
- Stroke





To summarize: The process of addiction involves

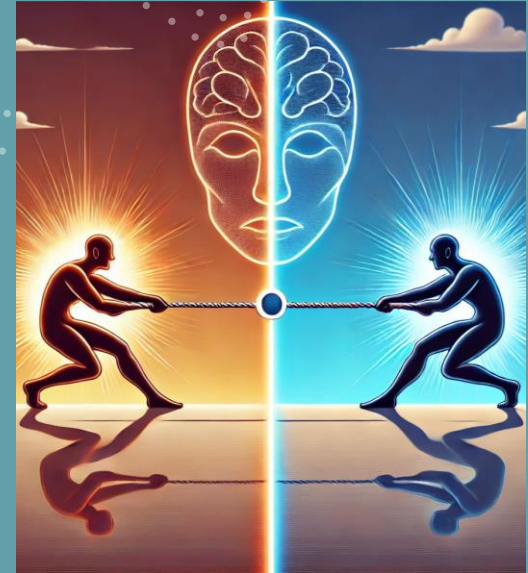
1. Dopamine: Excessive and errant **survival salience** via dopamine.

2. Glutamate: **Hyper-memorization** of the addictive substance or behavior.

3. Cortisol: Over-use which creates **stress via cortisol** (HPA activation).

Opponent Process Explains much about Addiction

Understanding the Dynamics of
Pleasure and Discomfort in
Substance Use – the Hell of
Cravings



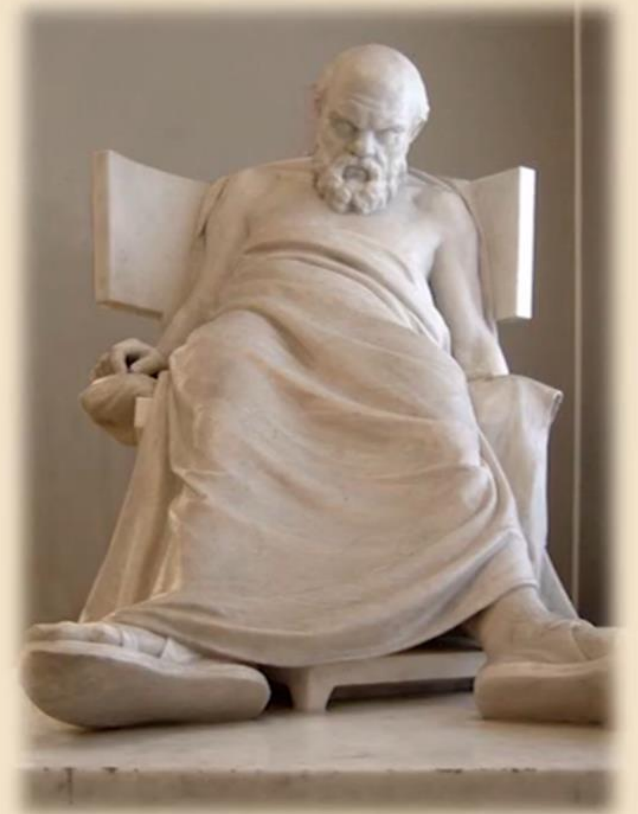
Wise Old Socrates
just before he was
killed in 399 BC
predicted Opponent
Process Theory

Image from Judith Grisel
<https://www.youtube.com/watch?v=Ya3cZDLwBVw>

Socrates' Last Day

"How singular is the thing called pleasure, and how curiously related to pain, which might be thought to be the opposite of it... he who pursues either of them is generally compelled to take the other."

-Recorded by Plato,
about 350 B.C.E in
Phaedo



About 2000 years later, Claude Bernard noted that



"the stability of the internal environment [the milieu intérieur] is the condition for the free and independent life."

Bernard, *Lectures on the Phenomena of Life Common to Animals and to Plants, mid-19th Century* (translated by Hof, Guillemin & Guillemin, 1974)

In the mid-19th Century
Frenchman
Claude Bernard
developed a new
concept.

Image from Judith Grisel
<https://www.youtube.com/watch?v=Ya3cZDLwBVw>

Walter Cannon: Homeostasis and Fight or Flight

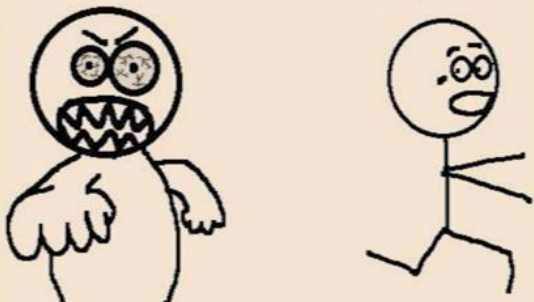
Images from Judith Grisel

<https://www.youtube.com/watch?v=Ya3cZDLwBVw>

Another 80 years...

Walter Cannon popularized Bernard's ideas using the term **homeostasis**

Cannon, Walter B. 1932. *The Wisdom of the Body*. New York: Norton



"Fight or Flight"

Homeostasis: Stability through change



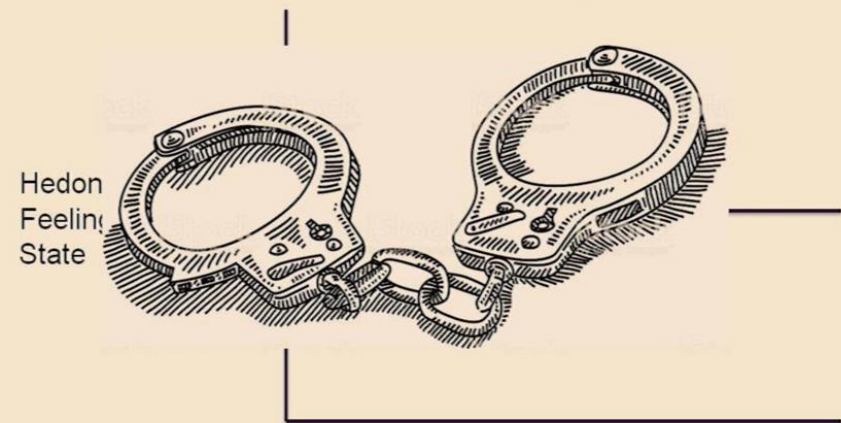
"Parasympathetic Overshoot"

Alboni, et al., 2011, Heart

You become prisoner
of the affective states

Image from Judith Grisel, Ph.D.
[https://youtu.be/Ya3cZDLwBVw?
si=tR-kxmumEv8 -Ai](https://youtu.be/Ya3cZDLwBVw?si=tR-kxmumEv8-Ai)

Any Psychoactive Drug Effect Pattern of Affective Dynamics



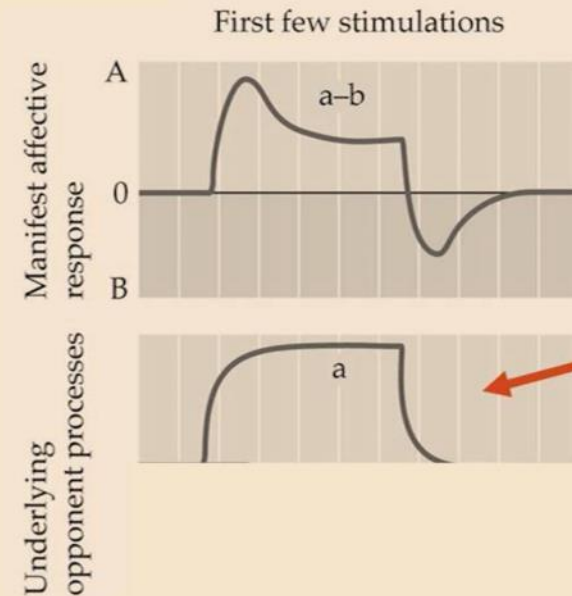
From Solomon & Corbit, 1974

The a and b process

The graph below depicts the underlying initial effect of the drug, and the top graph reveal the felt positive affective response (a process) to the drug followed by a compensatory negative affect response (b process)

Graph from Judith Grisel, Ph.D.
[https://youtu.be/Ya3cZDLwBVw?si=tR-kxmumEv8 -Ai](https://youtu.be/Ya3cZDLwBVw?si=tR-kxmumEv8-Ai)

Why the 'Affective Pattern'?



"a process"

- Direct result of the drug acting in the brain
- i.e., consequence of receptor binding, or reuptake blockade

Drug-Induced Changes in Affect

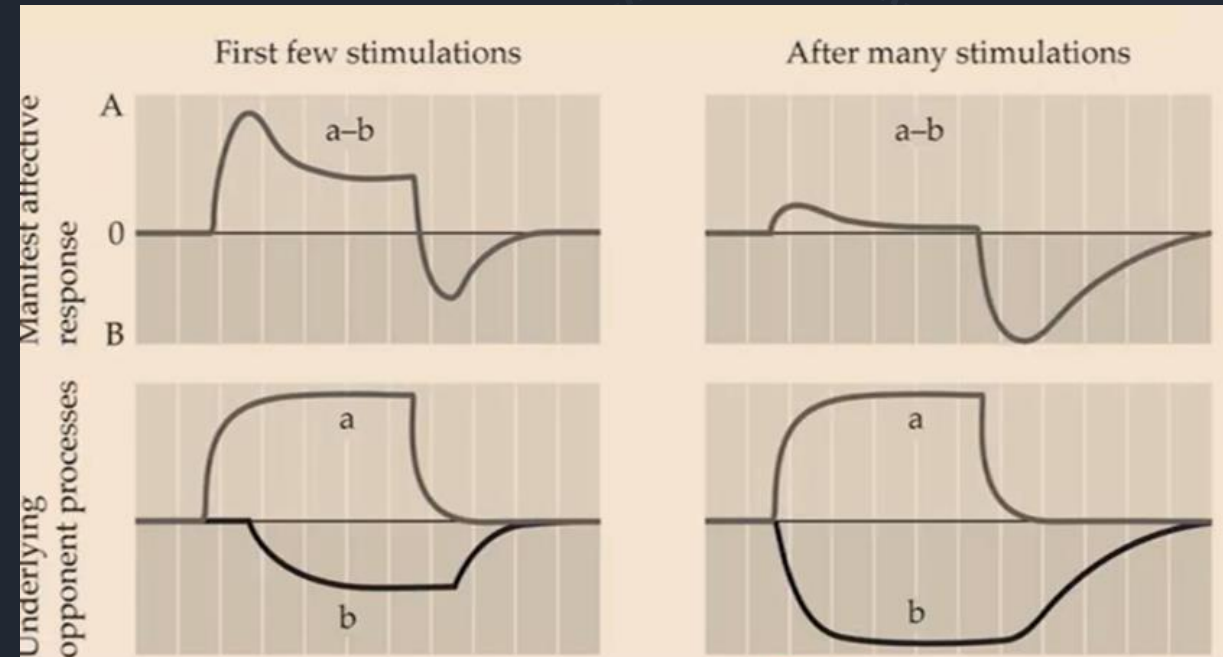


As we continue in consumption of the drug body produces a negative physical state (b process) as shown in the graph below and note that the body learns and moves the negative state forward, so it is experienced immediately creating cravings.

And note the affective response above whereby the negative response become larger and the positive response gets smaller which explains tolerance and cravings

Graph from Judith Grisel, Ph.D.

<https://youtu.be/Ya3cZDLwBVw?si=tR-kxmumEv8-Ai>

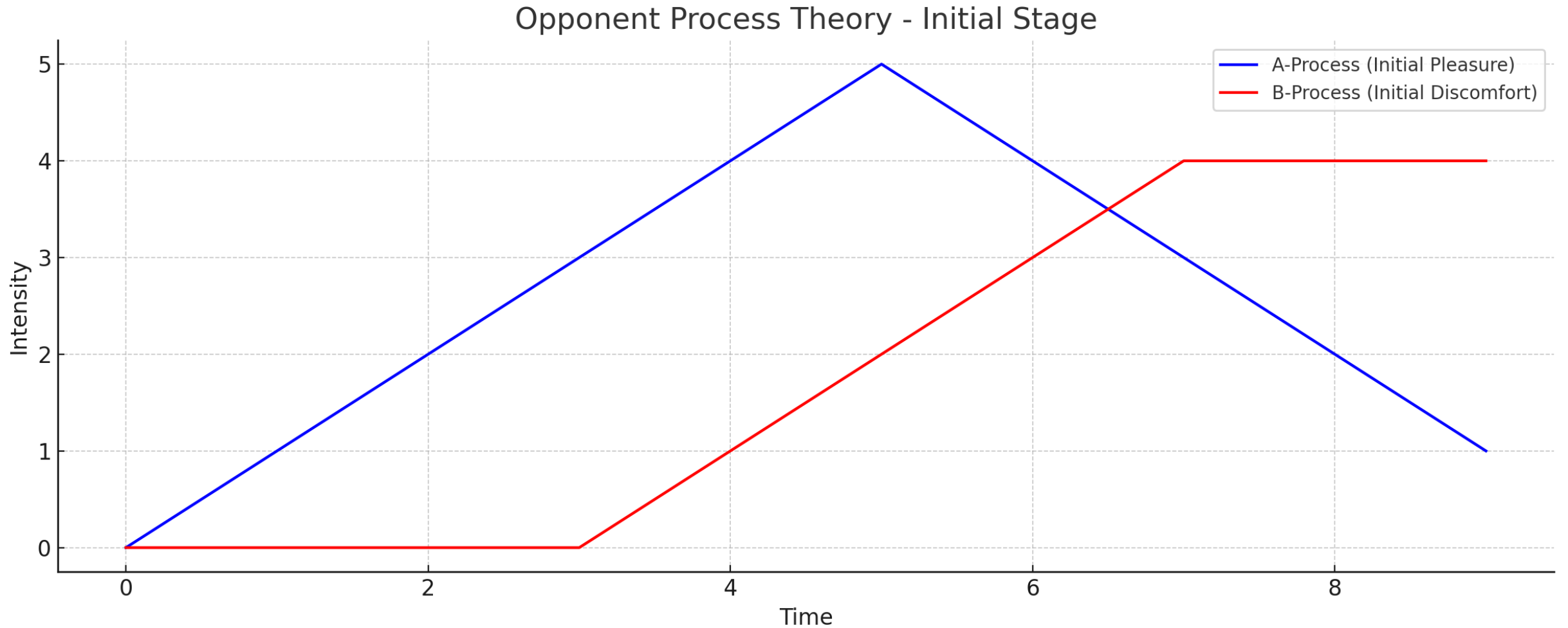


"b process" adapts

- Earlier, larger, longer
- Anticipatory (cue conditioning)

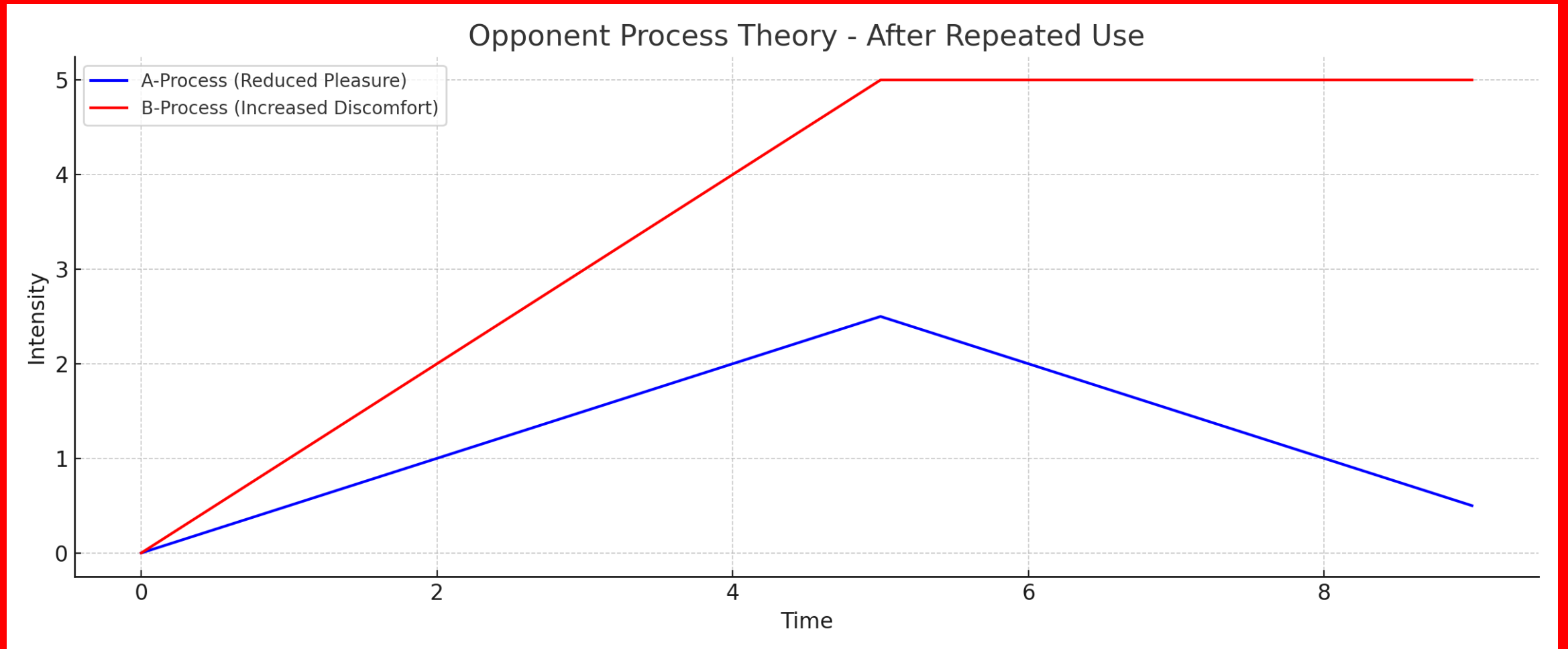
Opponent Process Theory - Initial Stage

My version



Opponent Process Theory - After Repeated Use

My version





Treatment

"Healing doesn't mean the damage never existed; it means the damage no longer controls your life."

-Akshay Dubey

We uniquely integrate incremental and transformational therapies.

Incremental Health Psychotherapies:

- **Gradual Progress:** Focus on small, steady improvements over time
- **Symptom Management:** Primarily aim to manage and alleviate symptoms rather than addressing the root causes.
- **Short-term Goals:** Often set short-term, specific goals to achieve incremental changes.
- **Behavioral Changes:** Emphasize changing specific behaviors and habits gradually.
- **Structured Approach:** Use structured techniques and protocols.
 - **Examples:** Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), Mindfulness-Based Stress Reduction, Acceptance and Commitment Therapy (ACT), Behavioral Activation.

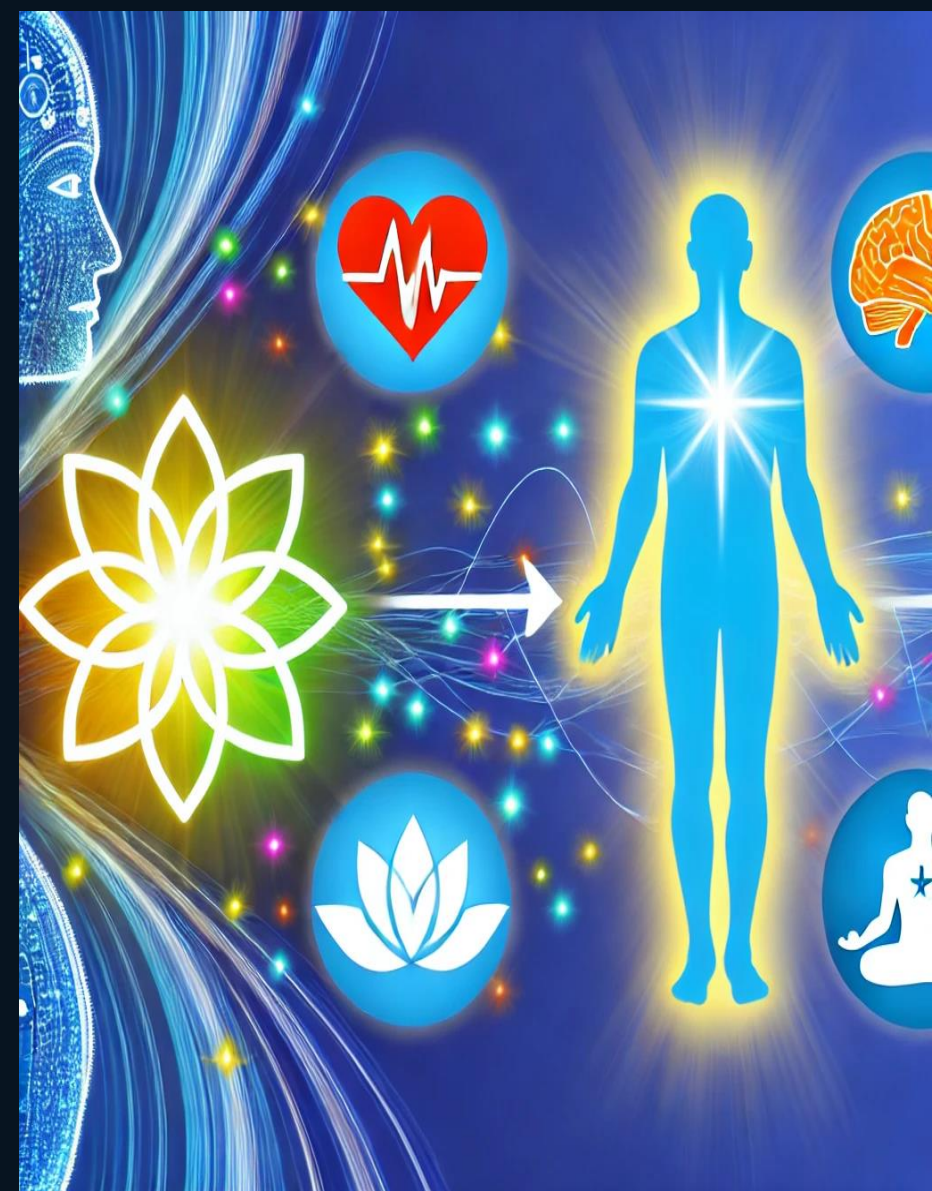
Transformative Therapies:

- **Rapid Change:** Aim for significant, often profound changes in a shorter time frame.
- **Root Cause Addressing:** Focus on uncovering and resolving underlying issues and traumas.
- **Holistic Approach:** Take a more holistic view, considering the entire person rather than just specific symptoms.
- **Deep Insight:** Encourage deep self-exploration and insight, often leading to fundamental shifts in perspective.
- **Flexibility:** Use a variety of techniques tailored to the individual's unique needs.
 - **Examples:** Psychodynamic Therapy, Polyvagal-Informed Therapy, Eye Movement Desensitization and Reprocessing (EMDR), Depth Psychology, Internal Family Systems (IFS), Transpersonal Therapy.



What comprises good therapy

- Must be based on research.
- Must Integrate the best of modalities.
- Must not be a cult. Any therapy can become a cult if relied on too heavily and when seen as one size fits all.
- Must be tailored to the client.
- Must address the specific clinical needs of the client.
- Must be implement by therapists who are well-trained in that modality.



The science reveals that spirituality enhances health and outcome

- **Strengthened Neural Connectivity:** Enhances emotional regulation and resilience.
- **Increased Gray Matter:** Linked to empathy and emotional stability.
- **Reduced Cortisol Levels:** Lowers stress, improving mental health.
- **Depression Resilience:** Acts as a buffer against depressive symptoms.
- **Reward System Activation:** Promotes peace and contentment.
- **Improved Coping:** Encourages positive mechanisms like forgiveness and hope.

• Miller, L. (2015). *The Spiritual Child: The New Science on Parenting for Health and Lifelong Thriving*. St. Martin's Press.

• Miller, L. (2014). "Spiritual Awareness and Brain Development: An Innovative Perspective on Depression." *The American Journal of Psychiatry*, 171(6), 574-577.
<https://doi.org/10.1176/appi.ajp.2014.13081032>

Treatment – The Pathway to Peace

Healing is not just about overcoming addiction—it is about reclaiming peace, reconnecting with our true selves, and finding restoration for the broken pieces of our lives. The therapeutic pathway is not just a journey back to to lasting peace. So, here are the big three:

Polyvagal-Informed Therapy

HeartMath®

Internal Family Systems (IFS)

These therapies have the potential to guide us toward lasting recovery and well-being, offering hope for a healthier, more balanced life.

Our Therapy Model

Polyvagal-Informed Therapy:

Polyvagal-informed therapy focuses on our body's nervous system and how it responds to stress and safety. It uses the idea that our sense of well-being is closely tied to how our body feels safe, connected, and calm. By understanding and influencing our nervous system's responses, we can much more effectively manage our emotions, feel more connected in relationships, and recover from stress and trauma. In essence, we tune into our body's safety signals to improve our emotional health and resilience.

HeartMath

HeartMath therapy is a biofeedback-based approach designed to enhance emotional resilience and stress management, particularly effective in addressing trauma and addiction. Developed by the HeartMath Institute, this therapy uses techniques and technology to help individuals regulate their heart rhythms and achieve a state of coherence, where the heart, mind, and emotions are in sync.

Internal Family Systems (IFS)

Internal Family Systems (IFS) therapy is a psychotherapeutic approach that is particularly effective in treating trauma and addiction. Developed by Dr. Richard Schwartz, IFS views the mind as a system of parts, each with its own perspective and qualities. The therapy aims to integrate these parts to achieve internal harmony.

Polyvagal Theory – Autopilot or the Choice of Connection?

So, our neurosystem, left on autopilot will, when we are faced with stress and threat, move us to either:

- (a) **Sympathetic fight or flight** which equates to extreme anxiety, anger, rage, and or terror or to
- (b) **Dorsal vagal shutdown** which leads to slowing down, withdrawal, and possibly even depression. If these modes of coping become excessive, we are at risk for potentially using maladaptive strategies such as addictions to quell the pain of negative physical symptoms, associated negative emotions, and/or complete withdrawal and possibly self-destructive behavior.

The best response, of course, is to activate our **social engagement system of the ventral vagal pathway** of the parasympathetic branch. In this state, our heart rate is regulated, our breath is full, we take in the faces of friends, and we can tune in to conversations and tune out distracting noises.



Polyvagal Theory – The Stream



When we enter into an autonomic state, the information about that state travels up the automatic pathways up to the brain where a **story is drafted** to make sense of the embodied experience/sensations.

In other words, the physiological state produced by the autonomic nervous system creates a **psychological story**.

Dana (2020) describes this as a metaphor of a **stream** where we can imagine the flow of experience. At the river's source is neuroception and at the river's mouth is the story. In between **lie perception, autonomic state, feelings, and behavior**. We are accustomed to entering in the river downstream with feeling and behavior, or story being at the fore.

However, **neuroception** takes place at the furthest point upstream. We need to make our way back to the starting point, leaving behind the story, behavior, and feelings in order to identify the state and **bring perception or awareness** to neuroception (Dana, 2020).

This has implications for treatment which we will discuss “downstream” in this paper.

The chart below adapted by Dr. Rothschild nicely demonstrates the shifting in body sensations, physiological symptoms, and emotions as we move between autonomic states (Rothschild, 2017).

AUTONOMIC NERVOUS SYSTEM: PRECISION REGULATION

**** WHAT TO LOOK FOR ****

	LETHARGIC Parasympathetic I (PNS I)	CALM Parasympathetic II (PNS II) <i>Ventral Vagus</i>	ACTIVE/ALERT Sympathetic I (SNS I)	FLIGHT/FIGHT Sympathetic II (SNS II)	HYPER FREEZE Sympathetic III (SNS III)	HYPO FREEZE Parasympathetic III (PNS III) <i>Dorsal Vagus Collapse</i>
		◀ "Normal" Life ▶			▶ Threat to Life ◀	
PRIMARY STATE	Apathy, Depression	Safe, Clear Thinking, Social Engagement	Alert, Ready to Act	React to Danger	Await Opportunity to Escape	Prepare for Death
AROUSAL	Too Low	Low	Moderate	High	Extreme Overload	Excessive Overwhelm Induces Hypoarousal
MUSCLES	Slack	Relaxed/toned	Toned	Tense	Rigid (deer in the headlights)	Flaccid
RESPIRATION	Shallow	Easy, often into belly	Increasing rate	Fast, often in upper chest	Hyperventilation	Hypo-ventilation
HEART RATE	Slow	Resting	Quicker or more forceful	Quick and/or forceful	Tachycardia (very fast)	Bradycardia (very slow)
BLOOD PRESSURE	Likely low	Normal	On the rise	Elevated	Significantly high	Significantly low
PUPILS, EYES, EYE LIDS	Pupils smaller, lids may be heavy	Pupils smaller, eyes moist, eye lids relaxed	Pupils widening, eyes less moist, eye lids toned	Pupils very dilated, eyes dry, eye lids tensed/raised	Pupils very small or dilated, eyes very dry, lids very tense	Lids drooping, eyes closed or open and fixed
SKIN TONE	Variable	Rosy hue, despite skin color (blood flows to skin)	Less rosy hue, despite skin color (blood flows to skin)	Pale hue, despite skin color (blood flow to muscles)	May be pale and/or flushed	Noticeably pale
HUMIDITY						
Skin	Dry	Dry	Increased sweat	Increased sweat, may be cold	Cold sweat	Cold sweat
Mouth	Variable	Moist	Less moist	Dry	Dry	Dry
HANDS & FEET (TEMPERATURE)	May be warm or cool	Warm	Cool	Cold	Extremes of cold & hot	Cold
DIGESTION	Variable	Increase	Decrease	Stops	Evacuate bowel & bladder	Stopped
EMOTIONS (LIKELY)	Grief, sadness, shame, disgust	Calm, pleasure, love, sexual arousal, "good" grief	Anger, shame, disgust, anxiety, excitement, sexual climax	Rage, fear	Terror, may be dissociation	May be too dissociated to feel anything
CONTACT WITH SELF & OTHERS	Withdrawn	Probable	Possible	Limited	Not likely	Impossible
FRONTAL CORTEX	May or may not be accessible	Should be accessible	Should be accessible	May or may not be accessible	Likely inaccessible	Inaccessible
INTEGRATION	Not likely	Likely	Likely	Not likely	Impossible	Impossible
RECOMMENDED INTERVENTION	Activate, Gently Increase Energy	Continue Therapy Direction	Continue Therapy Direction	Put on Brakes	Slam on Brakes	Medical Emergency CALL PARAMEDICS

The Autonomic Nervous System Precision Regulation Chart is Available for purchase on Amazon for \$8.99 (a very high recommend):

Babette Rothschild (2017) https://www.amazon.com/Autonomic-Nervous-System-Table-Laminated/dp/039371280X/ref=sr_1_15?dchild=1&keywords=deb+dana&qid=1590326813&s=books&sr=1-15

Polyvagal Theory and Treatment

Now that we have a new understanding of how our autonomic nervous system works, we can use this knowledge to restore to emotional, psychological, and physical health. Never before has a breakthrough in neuroscience offered such a paradigmatic shift of hope.



Neuroception

Perception

State

Feelings

Behavior

Story



Polyvagal Theory and Treatment

- So, the first step in healing is to move our **neuroception** - what our autonomic nervous system is automatically sensing regarding safety and danger without our awareness to perception to awareness or perception.
- We can then appreciate what our **physiological state is causing us to feel emotionally** and subsequently change the behaviors that we then engage in.
- The ensuing **story or narrative** we give to this process to make sense of what we are sensing and feeling, if **positive** and healthy, helps us correct our autonomic state.
- On the other hand, if our **narrative is false**, as it often is (e.g., we often shame and blame ourselves or we catastrophize the situation), then our autonomic state becomes even more activated or shut down and our subsequent emotions become **more anxious or depressed, respectively, and we enter into a negative feedback loop**, a process that leads to emotional problems/illness and/or physical problems.

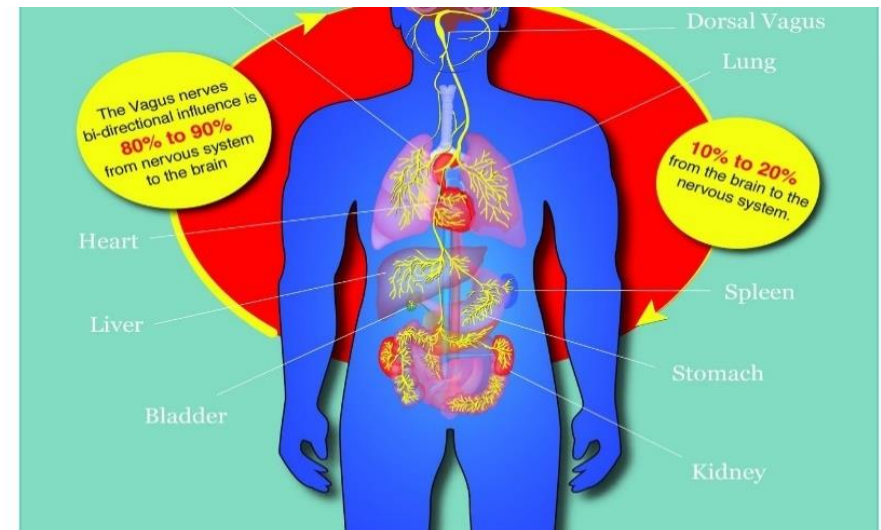


Polyvagal Theory and Treatment

There are two basic approaches to healing: Bottom up and Top Down:

Bottom-up entails working with the body more directly. It is important to appreciate that, as previously noted, 80 percent of the fibers in the vagus nerve are sensory in that they go from the organs to the brain and 20 percent are motor in that they travel from the brain to various body organs. (Porges, 2017). This suggests that what our bodies tell us is indeed very important and we must make every effort to listen and heal on that level.

Top-down strategies which involve our thinking and hopefully more rational brain require a certain level of cognitive development and maturity so very young children may not be able to benefit from this approach (e.g., Cognitive Behavioral Therapy aka CBT).



THE FOUR 'R's'

Polyvagal Theory and Treatment

As previously noted by Deb Dana, it is in a ventral vagal state and a neuroception of safety that brings the possibility for connection, curiosity, and change. She nicely presents a polyvagal approach which she calls the four R's (the first three are bottom up and the last is bottom down (Dana, 2018):

The Four R's

- Recognize the autonomic state
- Respect the adaptive survival response
- Regulate or co-regulate in a ventral vagal state
- Re-story



Polyvagal Theory and Treatment

Recognize the Autonomic State

-
- I recommend that we make the **Autonomic Nervous System Precision Regulation Chart** our companion as we use it to recognize where we, our children, and/or others are on that continuum. In so doing, we become able to make what is **implicit** (under the table and outside of our awareness) **explicit** (on the table and in our awareness).
 - We can use the color codes to describe for ourselves and for others where we and others are with just one neutral and non-judgmental word.
 - This is particularly helpful for children as well as this helps to give them a physical and emotional language that connect the mind with the body.
 -

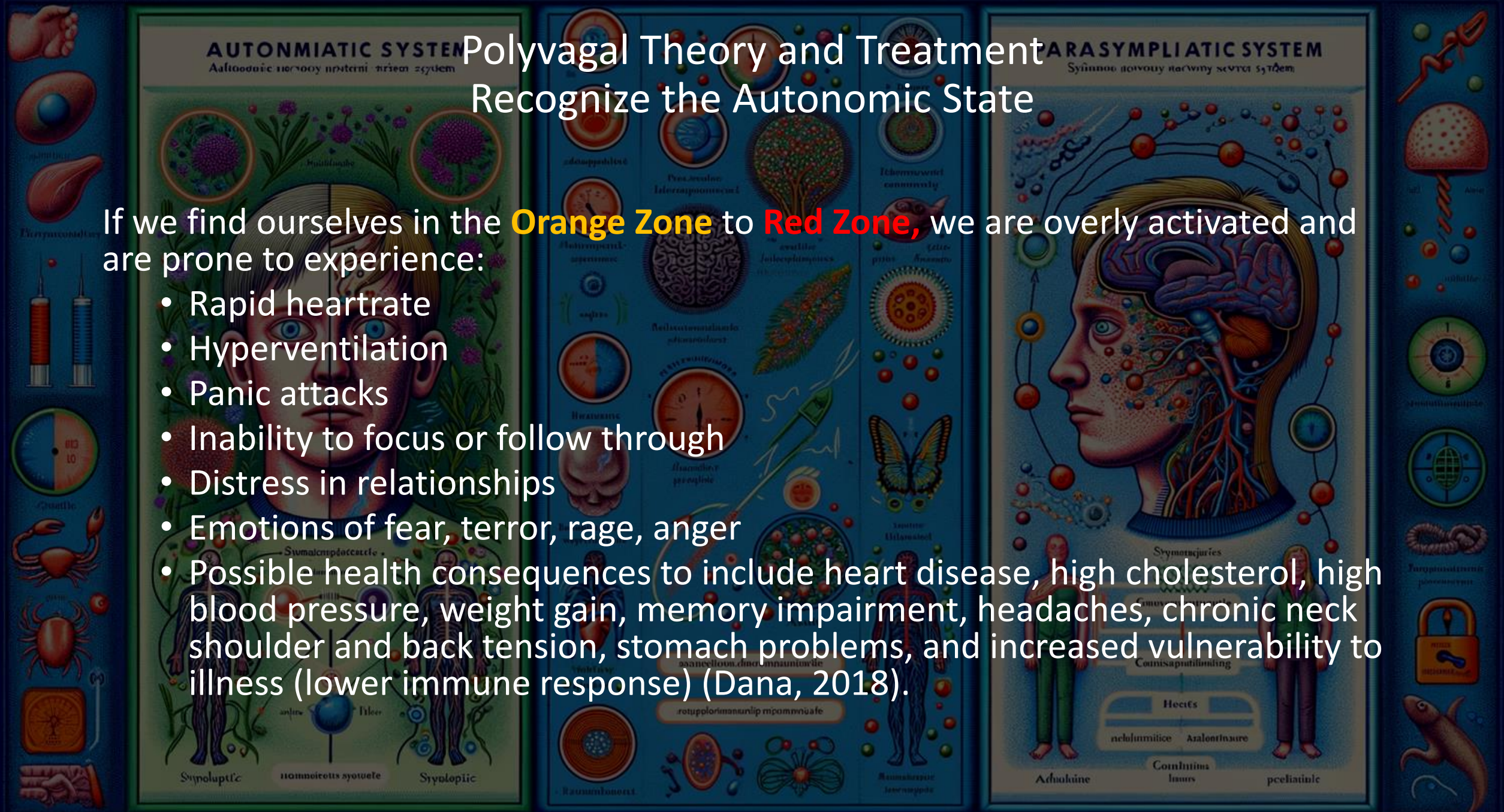
AUTONMIATIC SYSTEM

Polyvagal Theory and Treatment Recognize the Autonomic State

PARASYMPLIATIC SYSTEM

If we find ourselves in the **Orange Zone** to **Red Zone**, we are overly activated and are prone to experience:

- Rapid heartrate
- Hyperventilation
- Panic attacks
- Inability to focus or follow through
- Distress in relationships
- Emotions of fear, terror, rage, anger
- Possible health consequences to include heart disease, high cholesterol, high blood pressure, weight gain, memory impairment, headaches, chronic neck shoulder and back tension, stomach problems, and increased vulnerability to illness (lower immune response) (Dana, 2018).





Polyvagal Theory and Treatment

Recognize the Autonomic State

If we find ourselves in the **Yellow Zone**, we are under-activated or shutdown and are prone to experience:

- Slow heartrate
- Shallow breathing
- Withdrawal from others
- Emotions of sadness, depression, shame, disgust
- Possible health consequences to include chronic fatigue, fibromyalgia, stomach problems, low blood pressure, type 2 diabetes, and weight gain (Dana, 2018)

Polyvagal Theory and Treatment - Recognize the Autonomic State

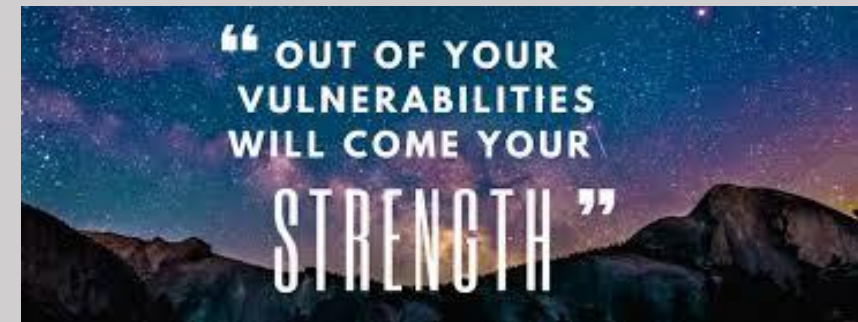
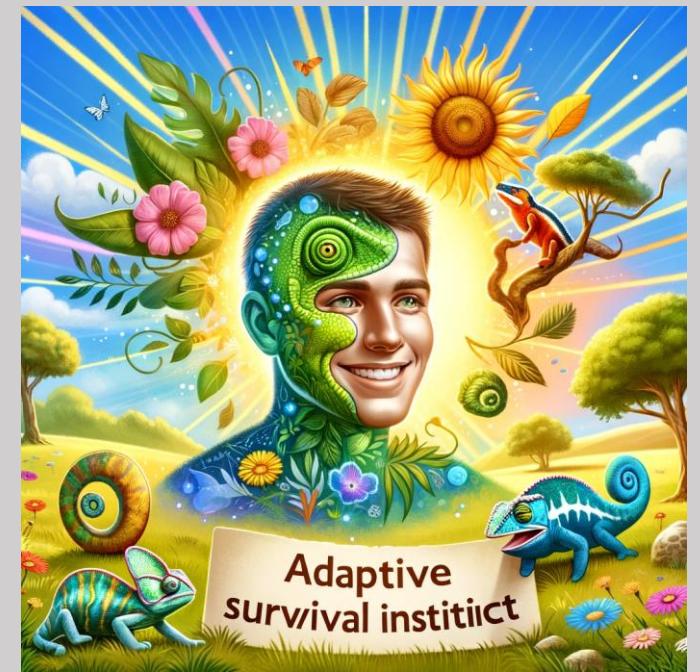
If we find ourselves in the **Green Zone**, we experience safety and connection and we are prone to experience:

- Regulated heart rate (vagal brake lowers heartrate by 20 beats per minute)
- Breath is full
- Feeling regulated
- We take in the faces of others
- We can “tune in” to conversations and “tune out” distractions
- We can see the “big picture”
- We can connect with the world and the people in it
- Able to reach out to others
- Able to play and take time to enjoy life and others
- Able to be productive in work
- Able to organize and follow-through
- Able to heal emotionally and physically
- Emotions of happiness, joy, love, peace, calm
- Possible health consequences include a healthy heart, regulated blood pressure, a healthy immune system, decreased vulnerability to illness, good digestion, quality sleep, and an overall sense of well-being (Dana, 2018)

Polyvagal Theory and Treatment

Respect the Adaptive Survival Response

- One of the beautiful aspects of Polyvagal Theory is that it removes **shame** from the equation.
- Dr. Porges kindly states in reference to clients, “I was going to say that depending on the age of my client, but actually, regardless of age, the first thing to convey to the client that they did not do anything wrong... If we want individuals to feel safe, we don’t accuse them of doing something wrong or bad. We explain to them how their body responded, how their responses are adaptive, how we need to appreciate this adaptive feature and how the client needs to understand that this adaptive feature is flexible and can change in different contexts.”(Porges, 2017, p. 121 - 122).
- So, rather than shaming a woman for shutting down in **dorsal vagal freeze** when being molested or raped which will only fuel her shame, guilt, and emotional pain, we must compassionately inform her that her autonomic nervous system was brilliant and that, in reading the cues, immobilized her in a situation where fighting or fleeing could have possibly cost her her life.
- Many a judge have literally ruined survivors of abuse by blaming them for not running or fighting and invalidated their trauma and thus failed to honor their day in court.



Polyvagal Theory and Treatment

Regulate or Co-regulate in a Ventral Vagal State



Once we recognize that we are dysregulated and we have pinpointed which **defensive physiological state** we are in and where we are on the emotional regulation continuum (see emotional regulation chart above) i.e., activation or slowing/shutting down, we can take action by using bottom-up self-regulation strategies and co-regulation strategies

As Herman Melville once wrote, *“We cannot live for ourselves, a thousand fibers connect us.”* Connection is a biological imperative according to Porges (2015).

Our autonomic nervous system longs for **connection** and it is through our biology that we are wired to connect. It is by means of co-regulation that we connect with others and create a shared sense of safety (Dana, 2020).

As specifically defined by Dr Porges, **co-regulation is the mutual regulation of physiological states between individuals.** In life, it occurs first between mother and infant but later extends to friends, partners, co-workers, and groups such as families to name a few (Porges, 2017).

Polyvagal Theory and Treatment

Regulate or Co-regulate in a Ventral Vagal State

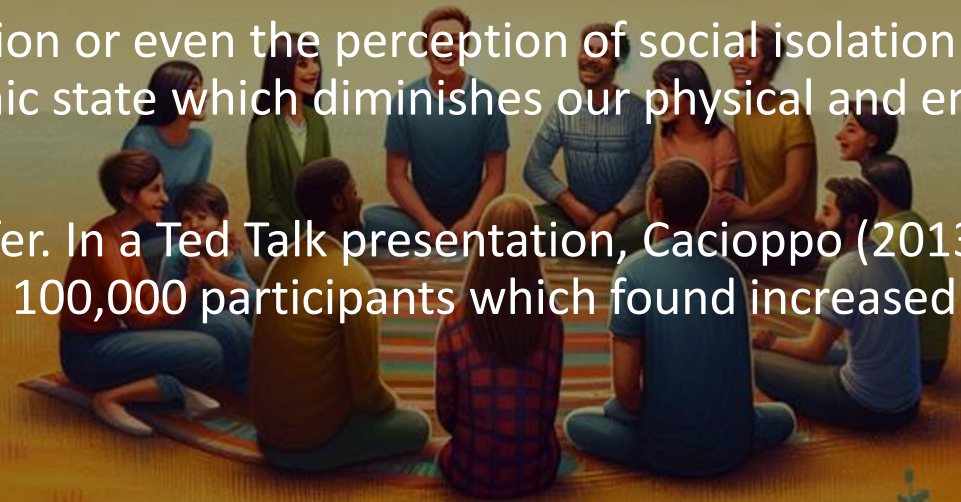
We humans are **social creatures** and “our nature is to recognize, interact, and form relationships” with others (Cacioppo & Cacioppo, 2014, p. 1).

As we know, babies need to connect for survival and positive co-regulation in low birthweight babies, in particular, leads to heart rate, temperature, and breathing stabilization, more organized sleep, rapid improvement in state regulation, and reduced mortality, severe illness, and infection (Jefferies, 2012).

Connection is a wired-in biological necessity and isolation or even the perception of social isolation can lead to a compromised ability to regulate our autonomic state which diminishes our physical and emotional well-being (Porges & Furman, 2011).

We can all appreciate that when we feel alone, we suffer. In a Ted Talk presentation, Cacioppo (2013) reported a rather shocking meta-analysis study of over 100,000 participants which found increased risks of dying early due to the following:

1. **Air pollution**: 5% increased risk of dying early
2. **Obesity**: 20% risk of dying early
3. **Alcoholism**: 30% risk of dying early
4. **Loneliness**: 45% risk of dying early



Polyvagal Theory and Treatment

Regulate or Co-regulate in a Ventral Vagal State

- So, when we recognize that we are suffering and dysregulated it is very helpful and sometimes lifesaving to **seek safe others**.
- Conversely, when we are emotionally regulated ourselves, we can **offer our safe regulation to others**, be they adults or children. This is a particularly important and essential component to good parenting.
- We can gift our safe regulation to ourselves and to others by choosing the following strategies below. Remember, through the process of neuroception, others read our cues of safety just as we read theirs.
- Quid pro quo, we receive back what we give and vice versa. We would do well to practice these strategies, so they become automatic whenever we move out of the **green zone** and want to return.



Polyvagal Theory and Treatment

Regulate or Co-regulate in a Ventral Vagal State

Kind eyes: As they say, they eyes are the window of the soul.

Melodious voice: Speak with a more melodious voice, full of prosody and life.



Polyvagal Theory and Treatment

Regulate or Co-regulate in a Ventral Vagal State



Smiling mouth and eyes: Smile not only with your mouth but with your eyes. Whether or not we are aware, our neuroception scans for congruence between the smiling mouth and smiling eyes. Crow's feet wrinkles are testament to someone who lives a more joyful life. So maybe reconsider that Botox.



Avoid leaning in: Leaning in can be perceived as very threatening. Most of us don't like it when others enter into our personal space, particularly in western cultures, and the end result is typically defensive activation moving us toward fight or flight or less typically, occasional freeze responses.

Polyvagal Theory and Treatment

Regulate or Co-regulate in a Ventral Vagal State



Slow and low Breathing: Our lungs are the only internal body organ that we can directly control, and proper breathing has a huge impact on our health. Breathe slowly with exhalations longer than inhalations – breathing out slowly accentuates relaxation and actually can slow our heart rate by 20 beats per minute (vagal brake).



Heartfelt positive emotions: As we breathe, we should try to bring positive emotions such as gratitude, joy, and love, or any positive experience or memory into our heart. The importance of positive emotions in the heart is now supported by the latest neuroscience. The electromagnetic field of the heart can now be measured and extends outward to a distance of about **three to five feet** as compared to that of the brain which extends only **2 to 4 inches**.

Polyvagal Theory and Treatment

Re-story

- Now that we or ourselves and our loved ones are in a more regulated state by use of the bottom-up strategies discussed above, we should be more settled and thus, more able to use **top-down strategies** and correct the **narrative or re-story** the situation, be it a current event or something in our distant past (Dana, 2018, 2020; Kain, 2018). We humans by nature are meaning-making machines, autonomically pulled to the story (Dana, 2020).
- Sadly, our narrative is often negative as there is a **bias toward the negative** (Hanson & Mendius, 2009). Although this tendency to see the negative in our circumstances and in ourselves might have a survival advantage in that we will be vigilant for the tiger, expecting him to eat us when we are in the wild, it works against us when there is no threat.
- Additionally, victims of shock or acute trauma are particularly vulnerable to creating false narratives about themselves and the world around them (Porges, 2017; Dana, 2018, Kain & Terrell, 2018). In a more regulated state, we are safe to possibly do a **Ctrl-Alt-Del or reset** on the old story and rewrite a new or revised version that better reflects our past or current autonomic adventure, one that allows us to accept and appreciate the heroic nature of our autonomic nervous system that enabled us to survive through the pain and/or trauma of the past and embrace the beauty and joy of what we now have and the bright future that lies ahead.

“The most powerful
words in English are,
‘Tell me a story.’
PAT CONROY



Polyvagal Theory and Treatment

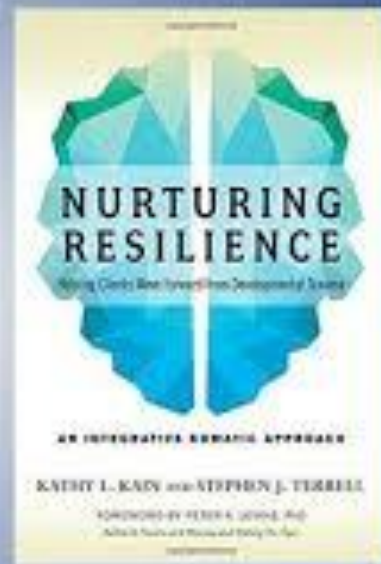
Re-story

- As **Drs. Kain and Terrell** eloquently write, “As our capacity increases, our narratives are likely to change, to include the sense of success at meeting challenges, of developing curiosity, or of a willingness to explore. Eventually, our narratives may also include access to a sense of safety and connection. Rather than I am constantly afraid and unhappy, a client will begin to tell himself a different story: **I am stronger than I thought and able to meet challenges with greater balance and success**” (Kain & Terrell, 2018, pgs. 101-192).
- They add, “At the same time, our somatic narratives will begin to change. We may literally experience changes in our symptoms – decreased inflammation, less pain, fewer migraines. Our illness narratives may alter to **include the possibility of being free of pain, free of symptoms that have beleaguered us for most of our lives**” (Kain & Terrell, 2018, p 192).



Monday LIVE! Lecture July 23, 2018 at noon, EDT

Interview with Kathy Kain and Stephen Terrell on their new book: *Nurturing Resilience: Helping Clients Move Forward from Developmental Trauma*. This book is a must read for everyone in our field. Kain and Terrell describe why somatics, or a bodily felt sense approach, is important in healing, especially touch and a deep understanding of the autonomic nervous system.

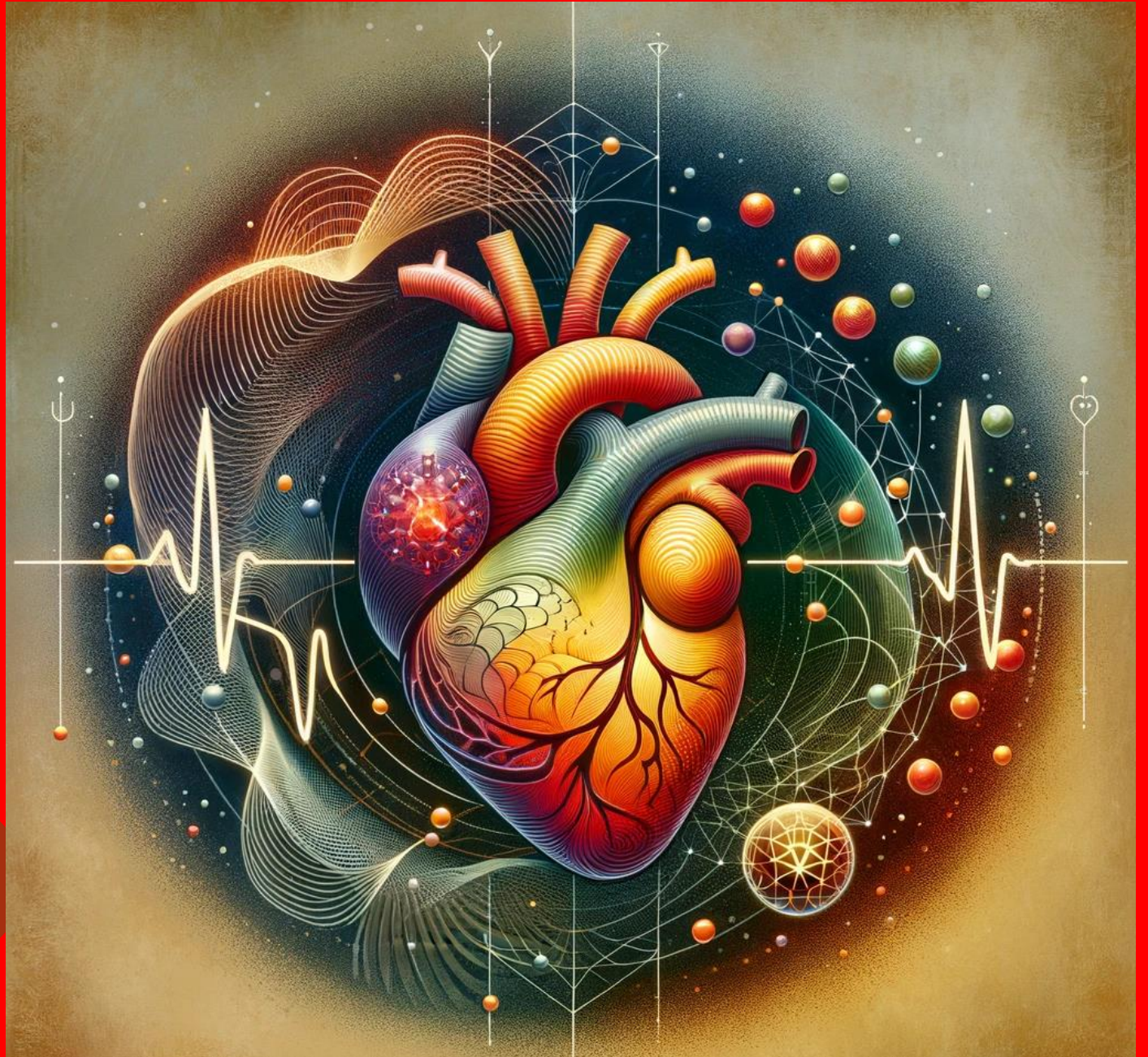


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Slides were compiled by Dr. Hansen but have been largely adapted from HeartMath members and friends, Rollin McCraty, Howard Martin, Deborah Rozman, Doc Childre, Gregg Braden, Bruce Lipton, and Joe Dispenza.

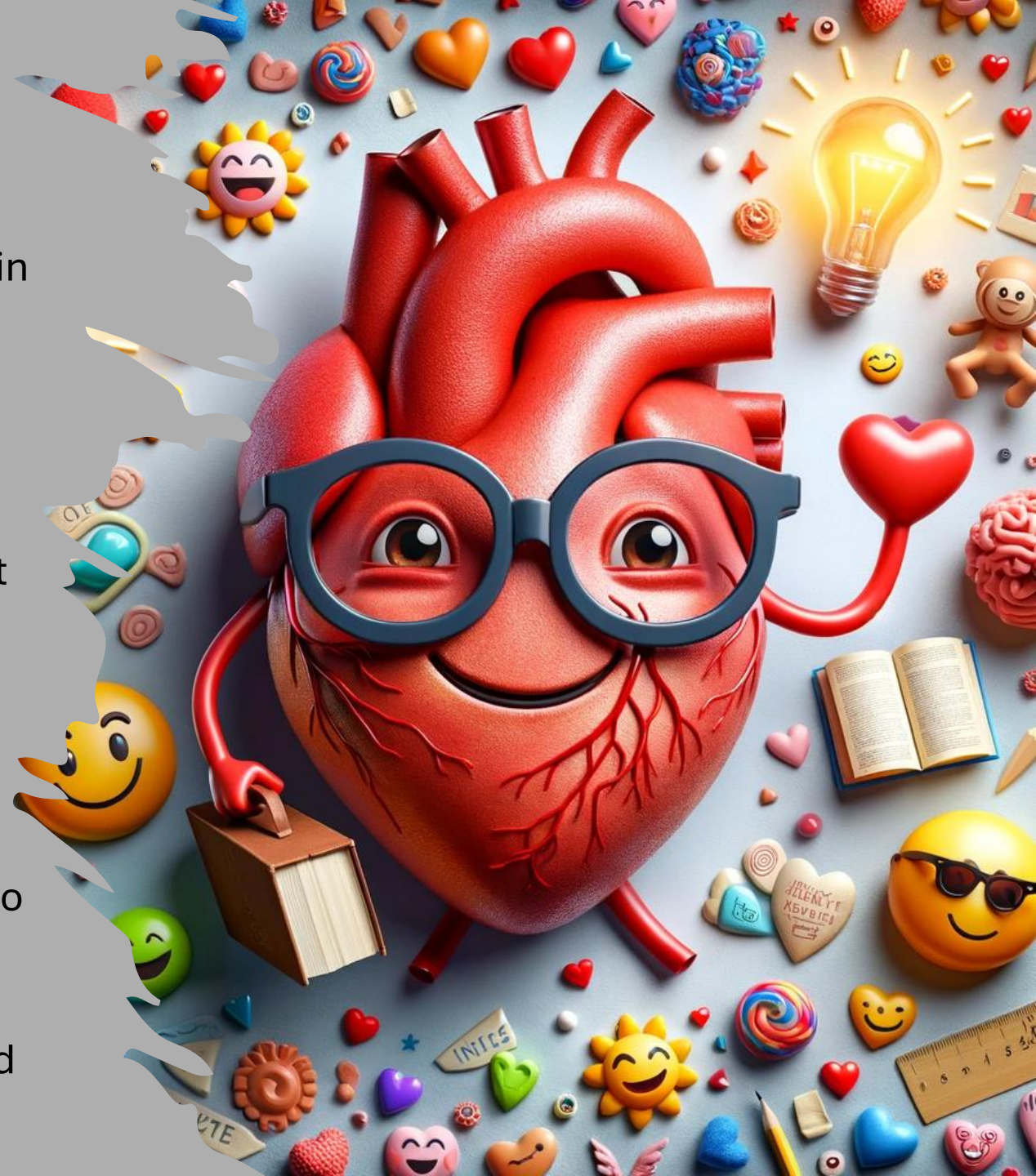
Please visit: <https://www.heartmath.com/>

Heartfelt Living



What – Heart Intelligence?

- Dr. Armour, MD, PhD., at the University of Montreal in 1991, discovered that the heart has its own "little brain" or "intrinsic cardiac nervous system" (cited in Braden, 2015).
- This "heart brain" is composed of approximately 40,000 neurons, called sensory neurites that are similar to neurons in the brain, meaning that the heart has its own nervous system.
- In addition, the heart communicates with the brain in many methods: neurologically, biochemically, biophysically, and energetically.
- The vagus nerve, which is 80% afferent, carries information from the heart and other internal organs to the brain.
- Signals from the "heart brain" redirect to the medulla, hypothalamus, thalamus, and amygdala and the cerebral cortex (Braden, 2015a, 2015b).

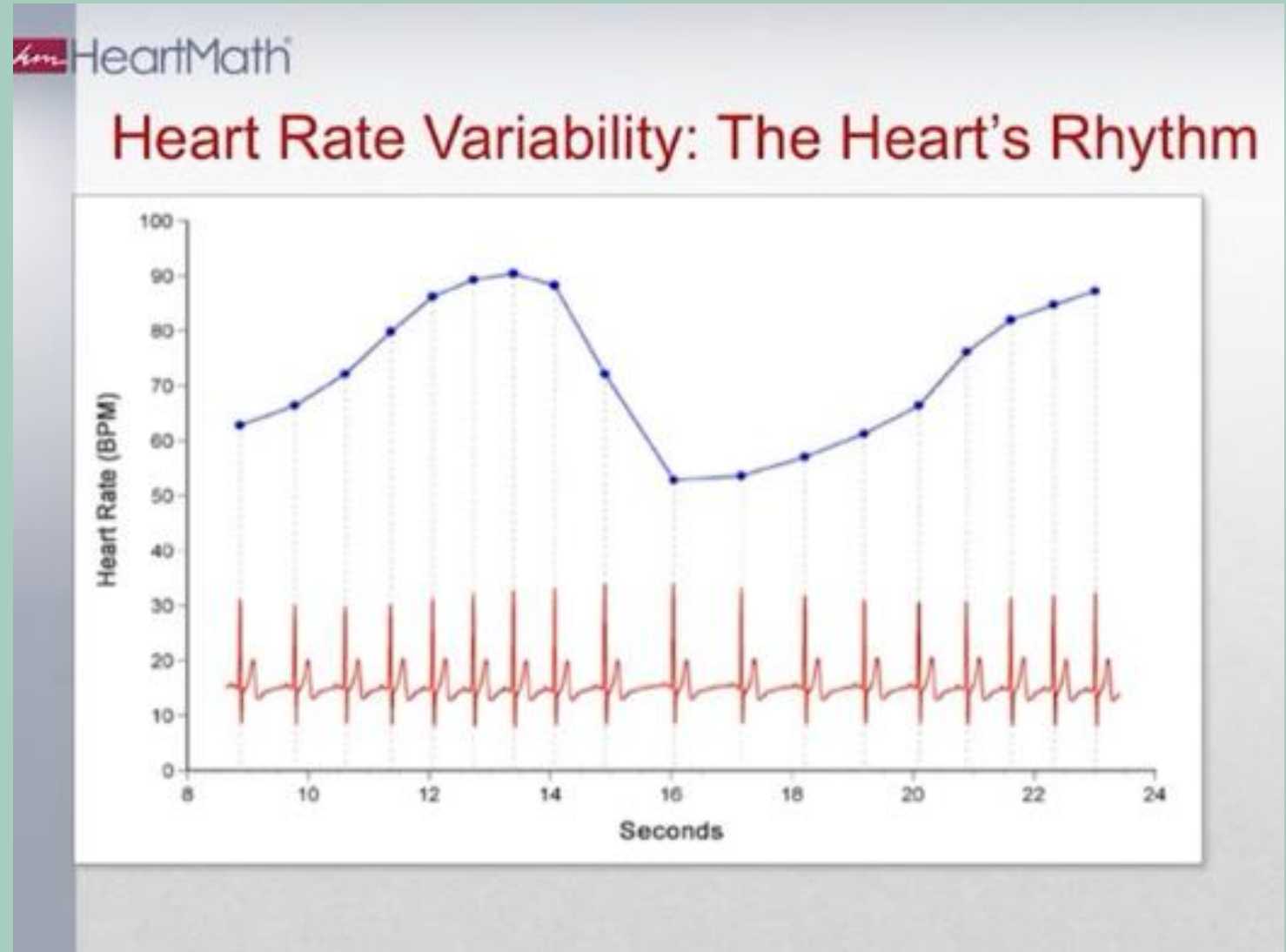


Heart Rate Variability and Your Health

► These graphs show examples of real-time heart rate variability patterns (heart rhythms) recorded from individuals experiencing different emotions

► The bottom **red part** of the graph is simply the EEG reading of each pulse. Note that the intervals between the beats change with time. The upper **blue graph** reflects the collection of these intervals across time. This is the beginning of a sign wave that is read from people in a coherent heart state reflecting positive emotions.

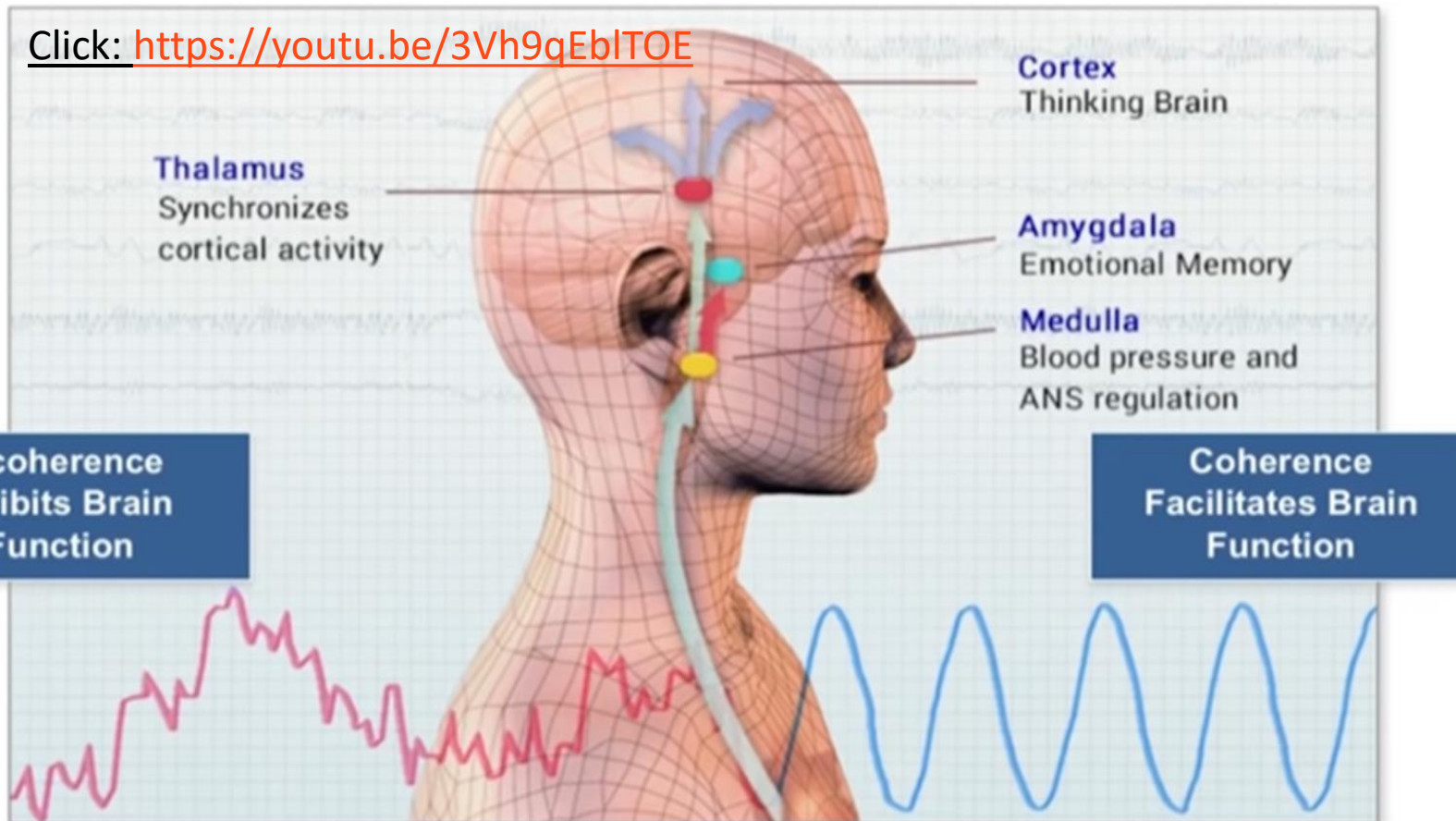
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Heart-to-Brain

Heart signals affect the brain centers involved in emotional perception, decision making, reaction times, social awareness and the ability to self-regulate.

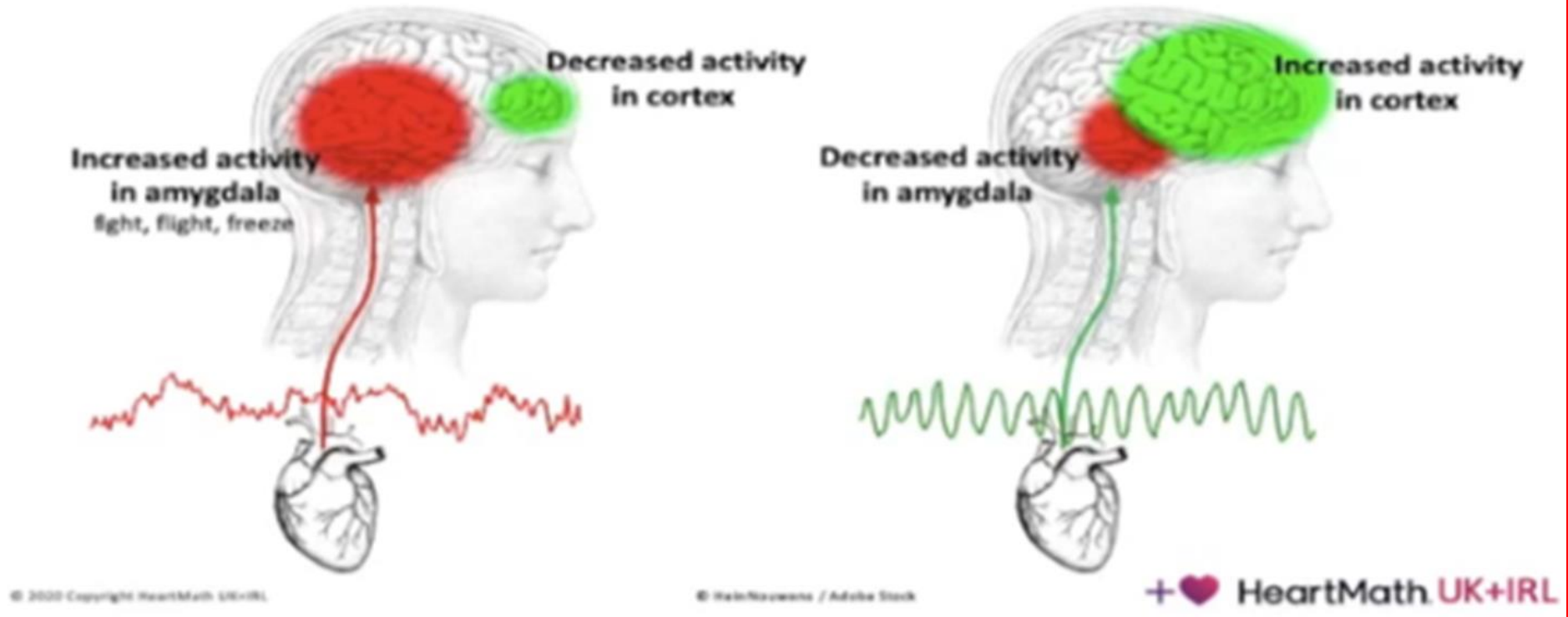
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Dr. McCraty notes that the heart communicates to the brain in **four main ways**: (1) nerves connecting the heart to the brain, particularly the vagus nerve, (2) hormones, (3) blood pressure shifts, and (4) electromagnetic waves.

When the heart is coherent, it sends messages to the brain that, likewise, promote brain coherence which allow the brain to be more integrated and efficient and, to the contrary, an incoherent heart inhibits cortical function.

Heart rhythms and brain function



The left slide nicely shows that when the heart is in a negative emotional state and, hence, incoherent, it sends signals to the brain that increase the activity of the amygdala (which tends to focus on negative emotion) to become very active and the prefrontal cortex (which we need of good decision-making) to attenuate.



On the other hand, when the heart is in a positive emotional state of love, appreciation and gratitude, and hence, coherent, it sends signals to the brain that quiet down the amygdala and increase the activity of the prefrontal cortex.



Internal Family Systems (IFS) Therapy

Wholeness is not achieved by cutting off a portion of one's being, but by integration of the contraries.

- C. G. Jung

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Three Categories = System

- Managers – Two active roles:
 - Create **stability**; Ensure basic needs met via task completion and personal effort;
 - Strive to **improve** and grow
- Firefighters/Soothers – Two active roles:
 - Balance manager energy; **shift gears for rest, relaxation, comfort, pleasure, fun, novelty**
 - Soothe, distract or escape emotional pain
- Exiles – Embody our vulnerability; sensitive, trusting, open-hearted, carefree; contain memories of pain, abandonment, shame; **our shared humanity**

©ceesykeslcsw



IFS therapist, Cese Sykes LCSW, describes the IFS as three categories which comprise a system.

If not in extreme roles they serve us well.



Treating a System, Not a Symptom

Managers

- Stabilize/Improve
- Future-oriented
- Proactive
- Over-identified

Firefighters Distracters

- Avoid/Soothe
- Present-oriented
- Reactive
- Reject/Concealed

SELF

Exiles

- Absorb Energy
- Past-oriented
- Overwhelming
- Repress/Ignore

Cesare Sykes notes that in IFS, we treat a **system**, not a **symptom**.

IFS Self

- ▶ The self is the “moderator” that the parts are talking to, that likes or dislikes, listens to, or shuts out various parts
- ▶ When differentiated, the Self is competent, secure, self-assured, relaxed, and able to listen and respond to feedback.
- ▶ The Self can and should lead the internal system.
- ▶ Various levels of experience of the Self:
 - ▶ When completely differentiated from all parts (Self alone), people describe a feeling of being “centered.”
 - ▶ When the individual is “in Self” or when the Self is in the lead while interacting with others (day-to-day experience), the Self is experienced along with the non-extreme aspects of the parts.
- ▶ An empowering aspect of the model is that everyone has a Self.



For some faith-oriented people,
IFS's 8 correspond nicely to Galatians 5:22-23

Internal Family



Fruits of the Spirit:

- Love
- Joy
- Peace
- Forbearance
- Kindness
- Goodness
- Faithfulness
- Gentleness
- Self-control

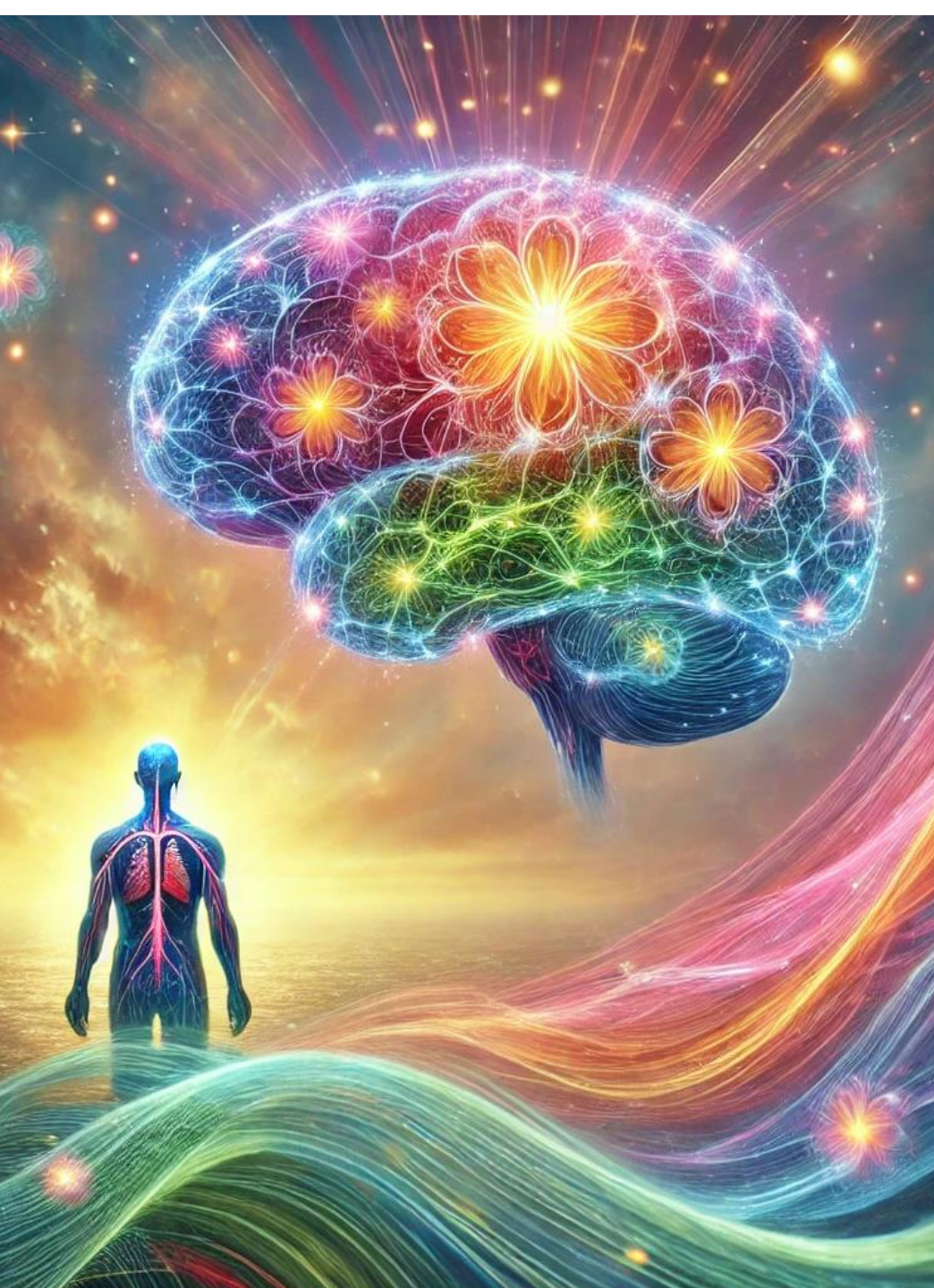


The Inner Critic

Parts that act as **“Inner Critics”** (using IFS language), appear to be a somewhat universal experience. In their milder manifestation, parts that criticize can be beneficial for you when they allow for the acknowledgment of mistakes and errors or the cultivation of positive change and humility.

Like all parts in IFS, **“Inner Critics”** have **value and a positive intention**. It’s when an **“Inner Critic”** moves into an **extreme role**, they can start to impede the individual’s ability to thrive, and the possible benefits of self-criticism may be overshadowed by possible harm to one’s well-being through internal turmoil.





In Conclusion

"Though trauma and addiction may alter the brain, cutting-edge neuroscience and transformational therapies, like polyvagal-informed approaches, HeartMath, and IFS, show us that healing is not only possible but transformative. By calming the nervous system, reshaping neural pathways, creating an new narrative, and fostering resilience, we can unlock the brain's body's potential to heal, turning pain into growth and creating a future filled with strength, balance, and hope."