First Responders are Bad-Ass but that Comes at a Price

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Why do we love you guys so much?

Immediate Help: You are the first to respond in emergencies, often at great personal risk.

Selflessness: You prioritize the safety and needs of others above your own.

Skilled: You are highly trained to manage various critical situations effectively.

Resilience: You maintain composure and dedication in high-stress environments.

Community Impact: Your actions significantly enhance community safety and well-being.

Symbol of Hope: You provide hope and reassurance during crises, embodying courage and compassion.

Courage: You face dangerous situations with bravery, embodying the essence of heroism.

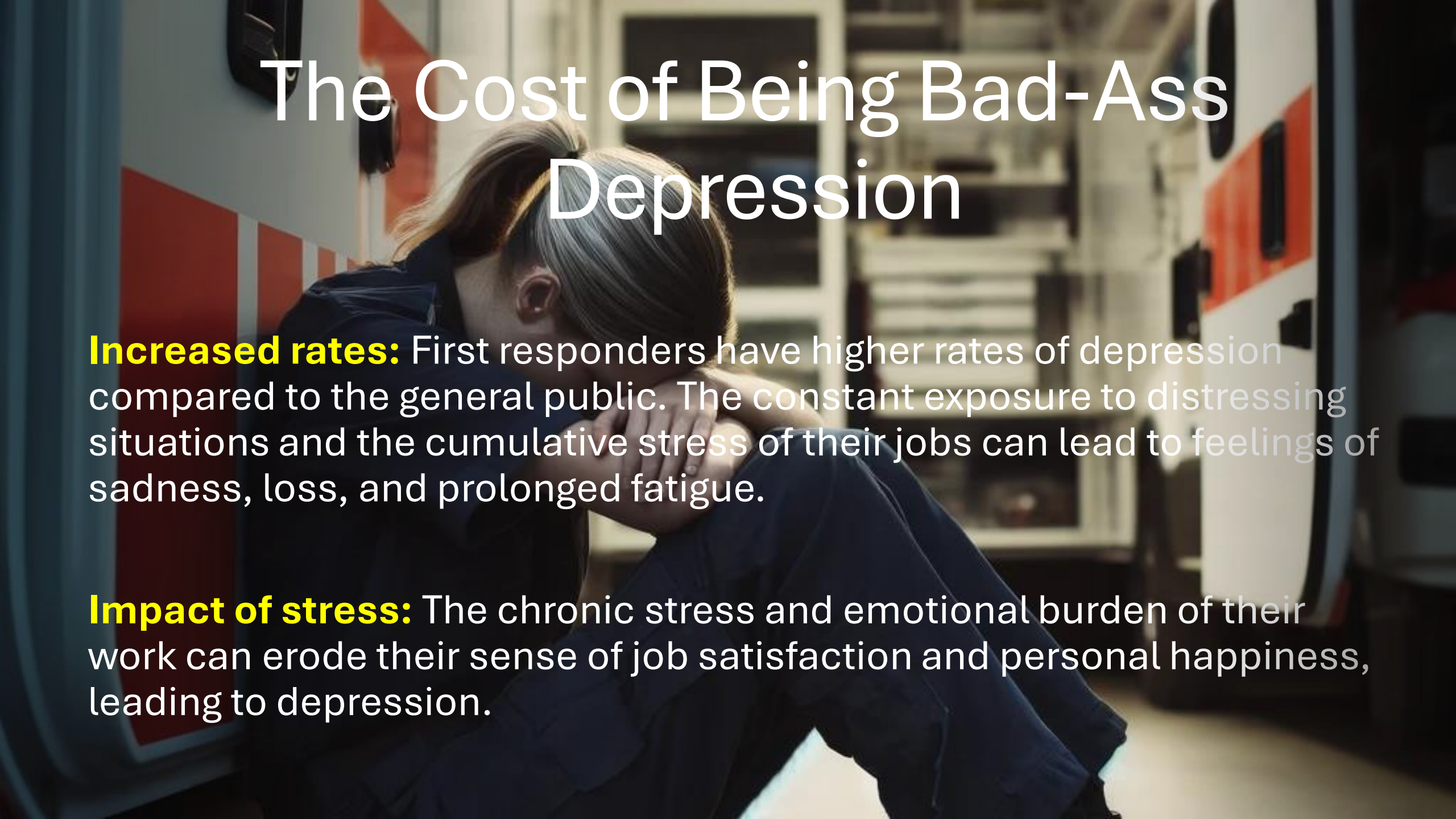
Heroic Nature: Your willingness to confront danger and adversity for the benefit of others defines you as true heroes.

The Look: And my wife says the uniforms don't hurt either. Wink wink.

The Cost of Being Bad-Ass PTSD

High prevalence: Studies suggest that the prevalence of PTSD among first responders can be substantially higher than in the general population. For example, it's estimated that around 20% of first responders experience some form of PTSD during their careers.

Triggering events: Exposure to life-threatening situations, witnessing severe injuries or death, and experiencing intense fear, helplessness, or horror can all contribute to PTSD.



The Cost of Being Bad-Ass Depression

Increased rates: First responders have higher rates of depression compared to the general public. The constant exposure to distressing situations and the cumulative stress of their jobs can lead to feelings of sadness, loss, and prolonged fatigue.

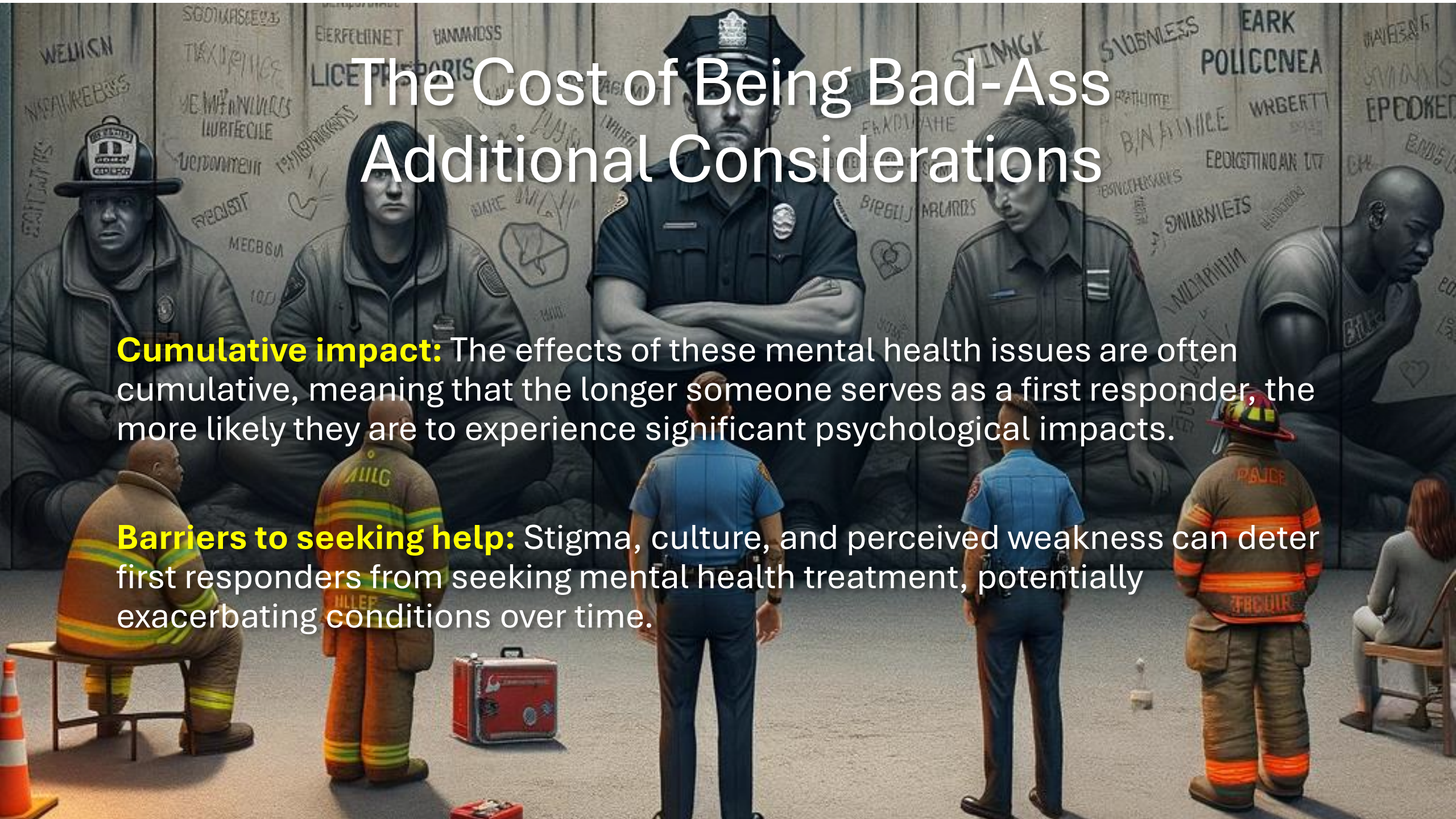
Impact of stress: The chronic stress and emotional burden of their work can erode their sense of job satisfaction and personal happiness, leading to depression.

The Cost of Being Bad-Ass Anxiety

Ongoing anxiety: The unpredictable and high-stakes nature of first responder work can lead to prolonged states of anxiety, where individuals are in a constant state of heightened alertness.

Operational stress: The need to make quick decisions in critical situations can exacerbate feelings of anxiety and stress.

The Cost of Being Bad-Ass
Additional Considerations



Cumulative impact: The effects of these mental health issues are often cumulative, meaning that the longer someone serves as a first responder, the more likely they are to experience significant psychological impacts.

Barriers to seeking help: Stigma, culture, and perceived weakness can deter first responders from seeking mental health treatment, potentially exacerbating conditions over time.

It goes without saying that first responders live with trauma on a regular basis which impacts

Mind

Body

Soul

Big T Trauma and Little t Trauma

The experts in the field divide trauma into two categories:

- Big T trauma (shock trauma): Traumas that are associated with horrific single events such as natural disasters, terrorism, and war. Also called Shock Trauma.
- Little t trauma (developmental trauma): Trauma that are smaller in nature such as bullying, neglect, and betrayal.
- Both forms of trauma can lead to addiction.

Developmental Trauma and Addiction

- Self-Medication: Individuals may use substances as a way to cope with unresolved emotional pain, anxiety, or depression stemming from childhood trauma.
- Impaired Stress Response: Early trauma can alter the brain's stress response system, making individuals more vulnerable to substance use when stressed.
- Relationship Difficulties: Struggles with forming and maintaining healthy relationships can lead individuals to seek comfort in substances.
- Low Self-Esteem: Early negative experiences can lead to poor self-image and self-worth, increasing the risk of addiction as a form of self-soothing or escapism.

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-Bonnin, 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 is 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.

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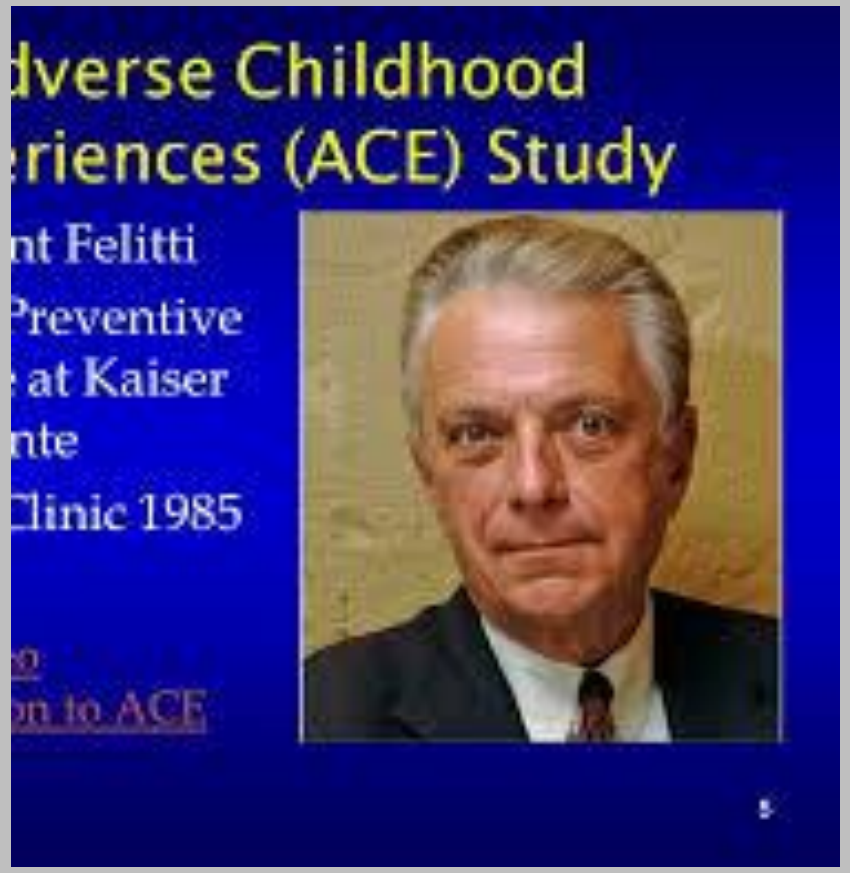
- This research came to be known as the Adverse Childhood Experiences (ACE) Study (Felitti et al., 2014). In this study, people were asked about ten different types of traumatic events that happened to them when they were children to include physical and sexual abuse, family problems, and neglect.



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

Trauma - Adverse Childhood Experiences (ACE)

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

Abuse

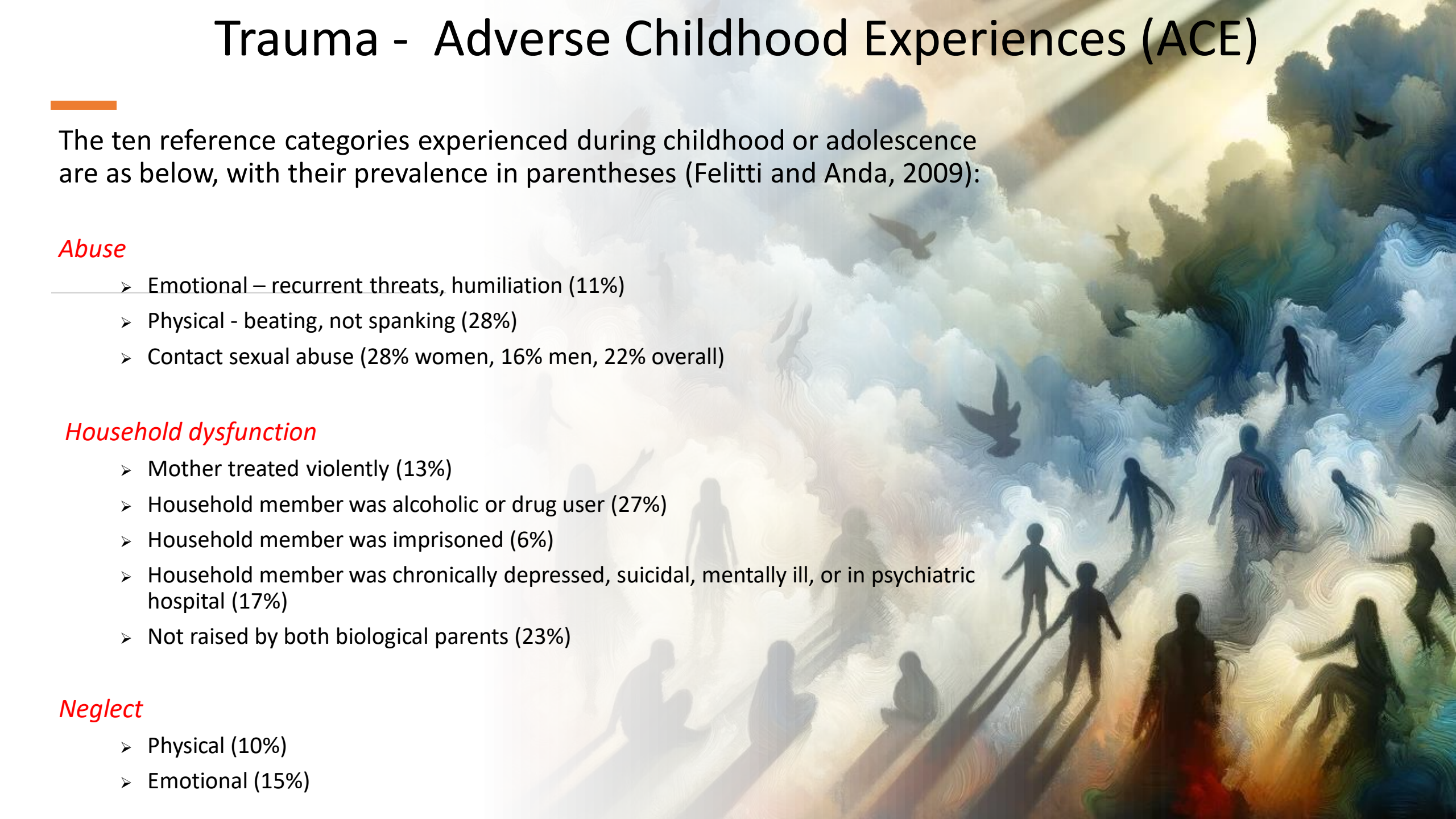
- Emotional – recurrent threats, humiliation (11%)
- Physical - beating, not spanking (28%)
- Contact sexual abuse (28% women, 16% men, 22% overall)

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

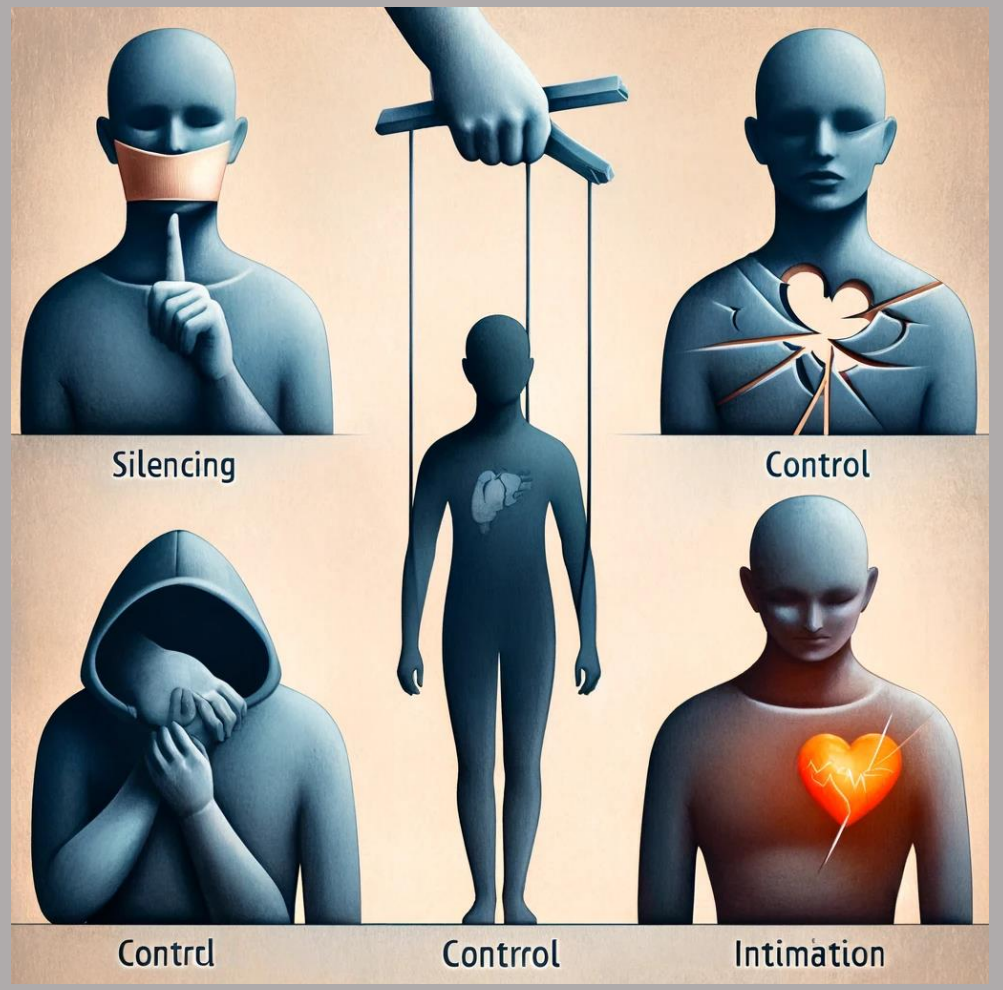
- Physical (10%)
- Emotional (15%)



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.



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 a a child, we are dramatically more likely to be depressed as an adult.

If we have ACE scores of  , 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

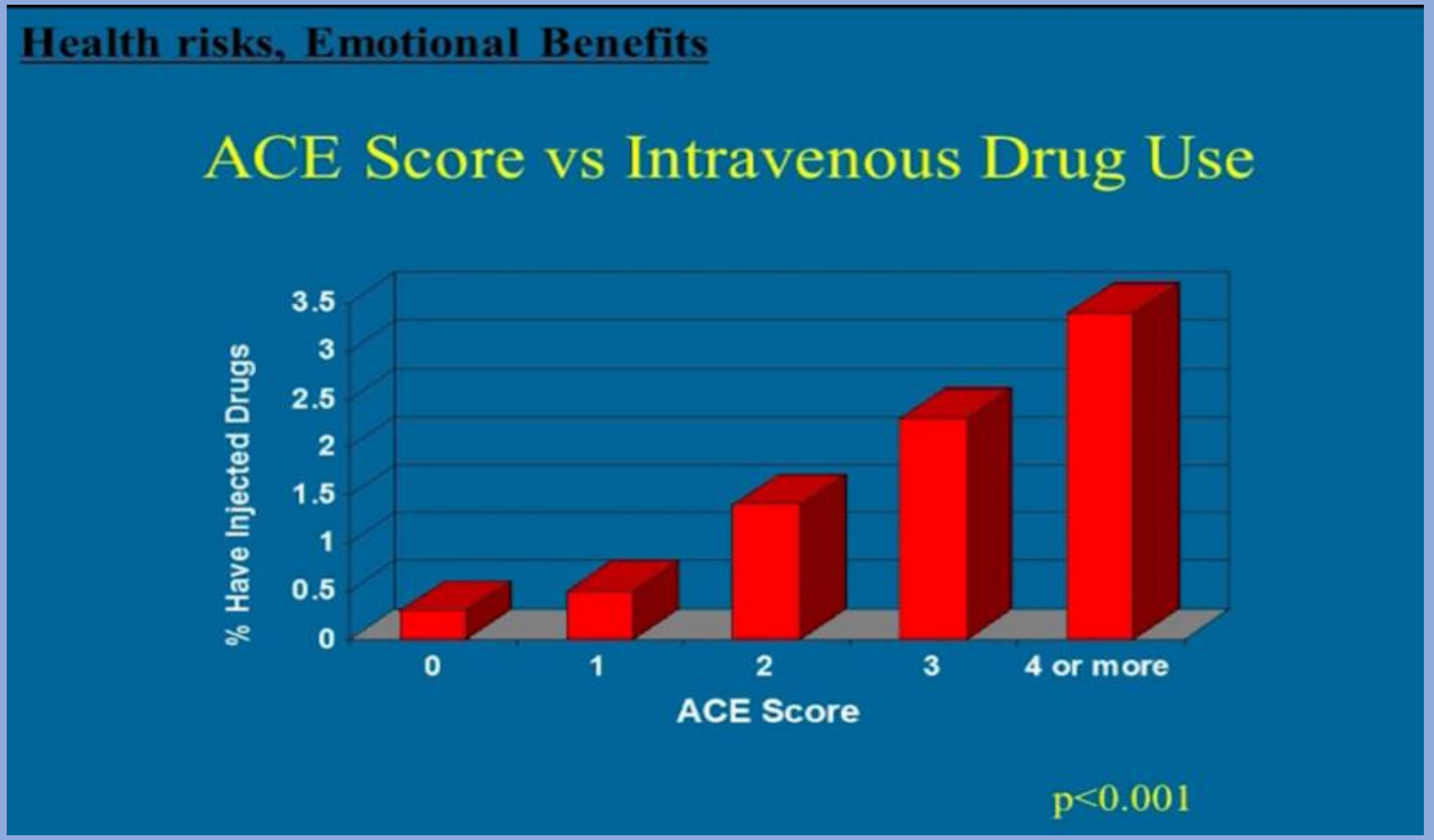
If we have ACE scores of  , we are:

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

If we have ACE scores of  , 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).

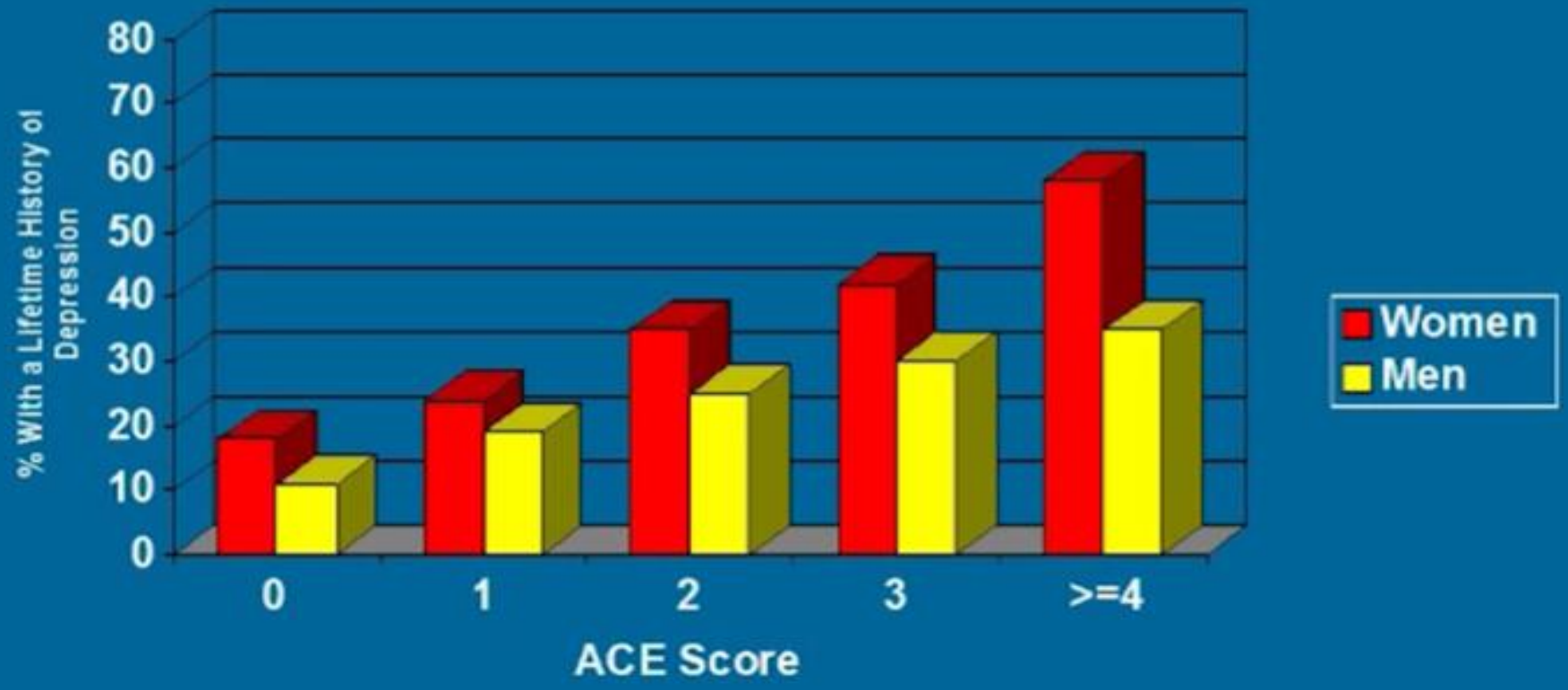
Health risks, Emotional Benefits



Dr Vincent Felitti (2009) https://www.youtube.com/watch?v=KEFfThbAYnQ (Accessed February 17, 2020)

Damaged well-being

Childhood Experiences Underlie Chronic Depression



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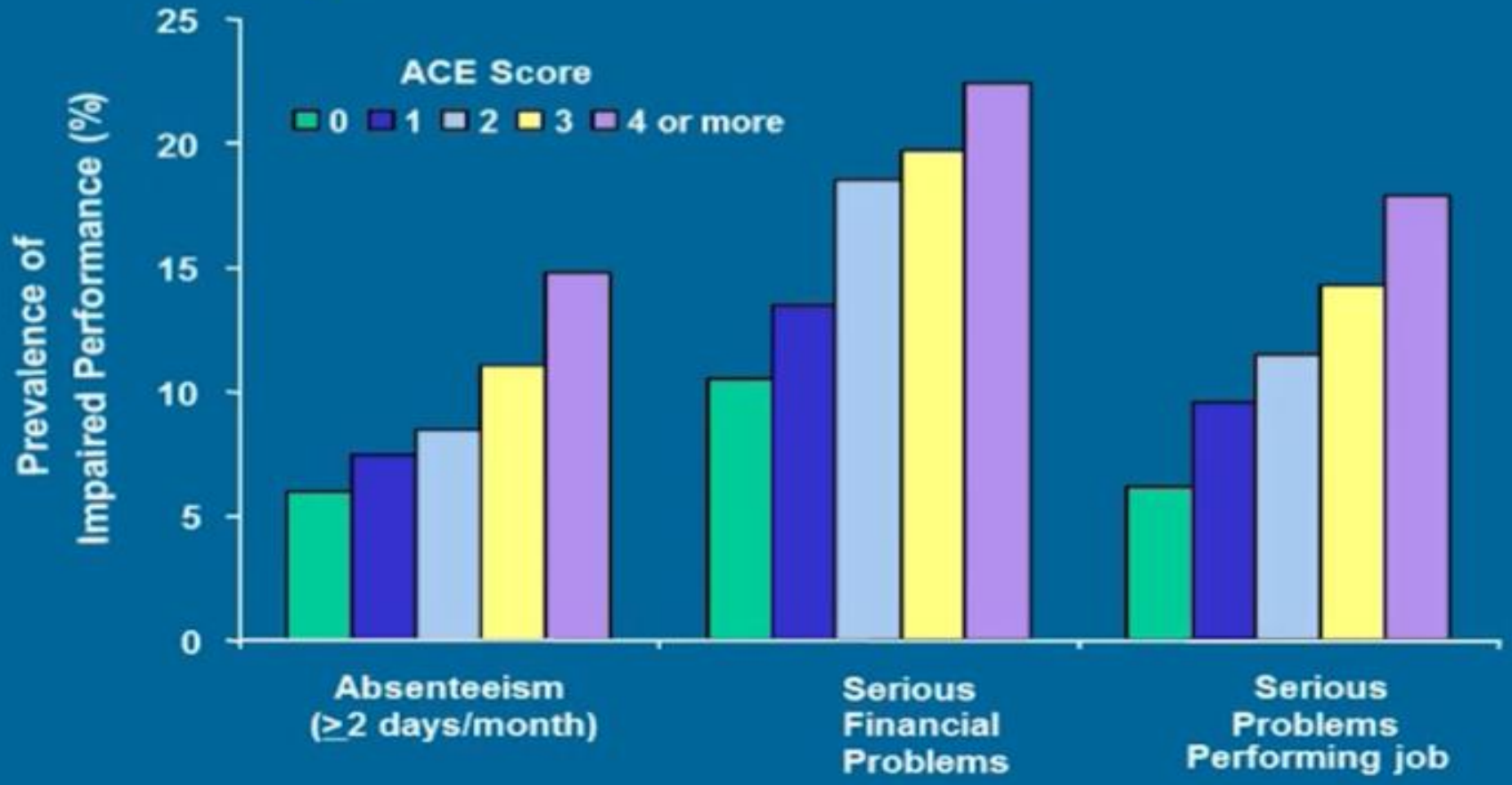
Social malfunction:

ACE Score and Indicators of Impaired Worker Performance



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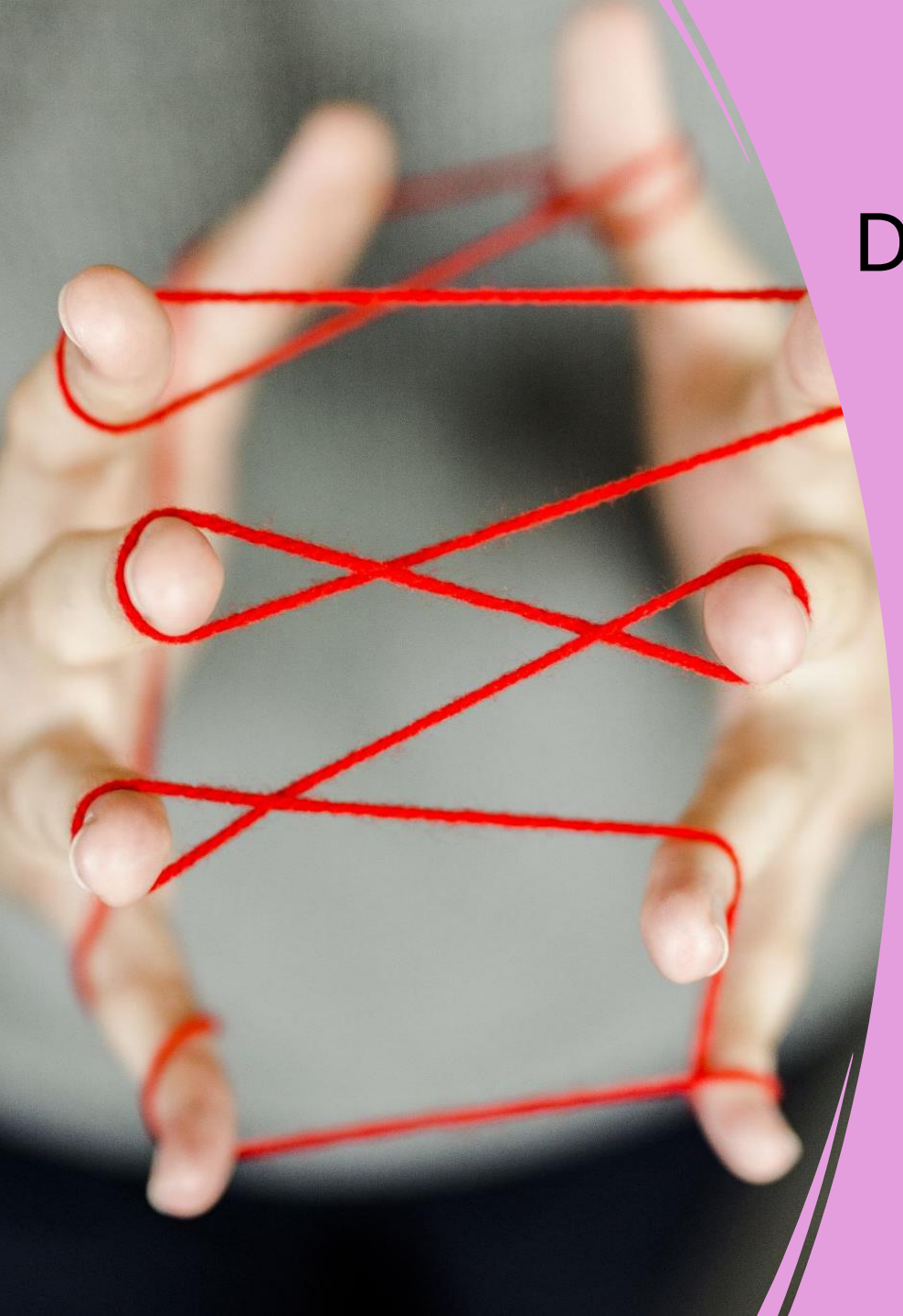
Shock Trauma and Addiction

- Acute Stress Relief: Substances might be used to immediately lessen the intensity of stress and traumatic memories.
- Pain Management: Following physical or emotional trauma, substances can be used to manage physical pain or emotional turmoil.
- Habit Formation: The relief provided by substances can lead to habitual use, which may develop into addiction as tolerance builds.
- Escape from Reality: Using substances to dissociate or escape from the reality of the traumatic experience.

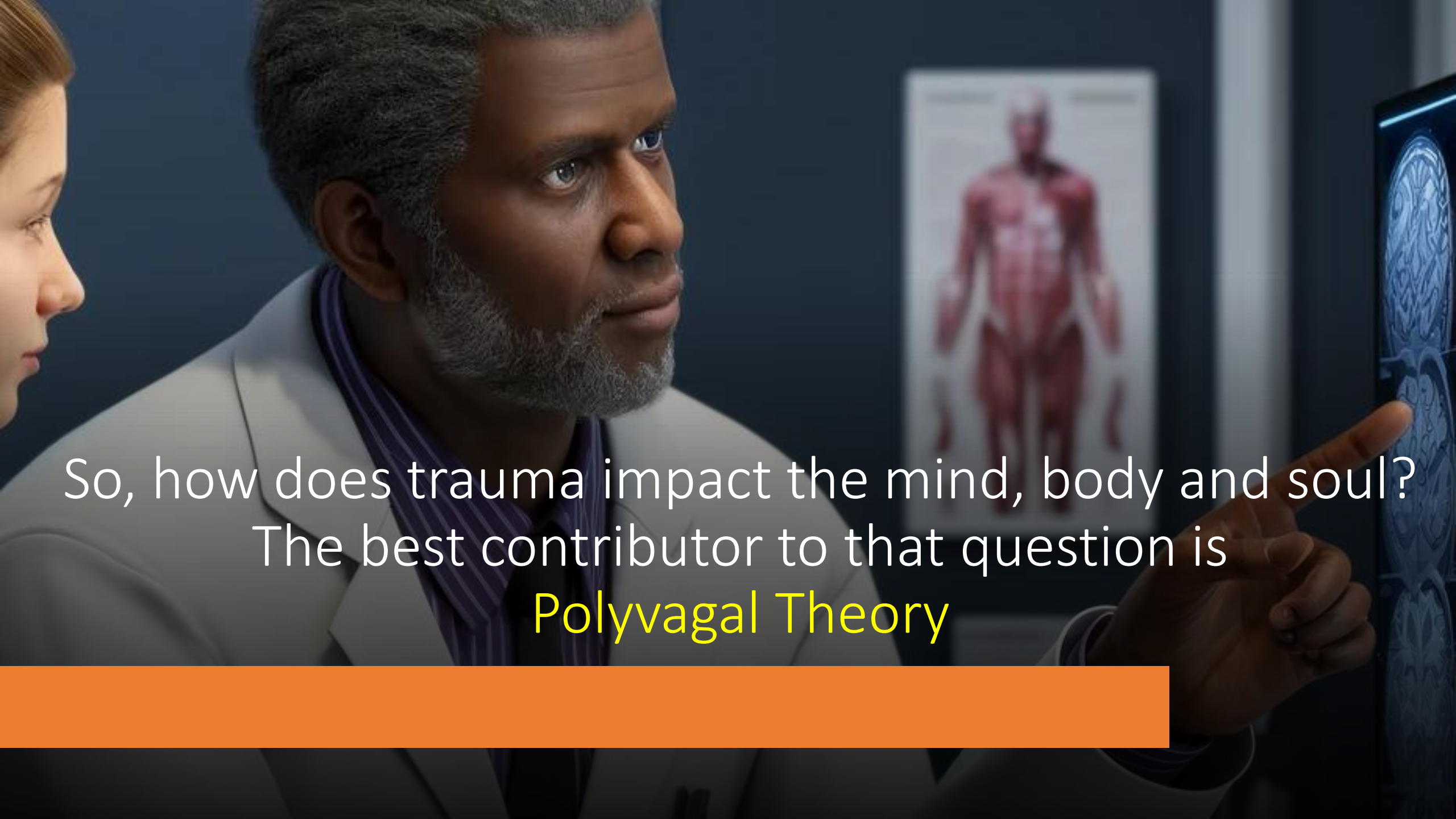


The Daily Double
Developmental Trauma + Shock Trauma

- Heightened Vulnerability: Both types of trauma increase emotional sensitivity and vulnerability, which can intensify cravings and the urge to use substances as a coping mechanism.
- Complex Emotional Responses: The layering of traumas can lead to more complex emotional responses, making it difficult to identify and address underlying issues without professional help.
- Re-traumatization Risk: Treatment settings or stressors associated with recovery can inadvertently trigger memories of trauma, complicating the recovery process.
- Interference with Treatment: The effects of multiple traumas can interfere with the efficacy of traditional addiction treatment methods, requiring specialized therapeutic approaches.
- Social and Relational Challenges: Compounded traumas can exacerbate difficulties in forming and maintaining supportive relationships, which are crucial for long-term recovery.

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).



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**.

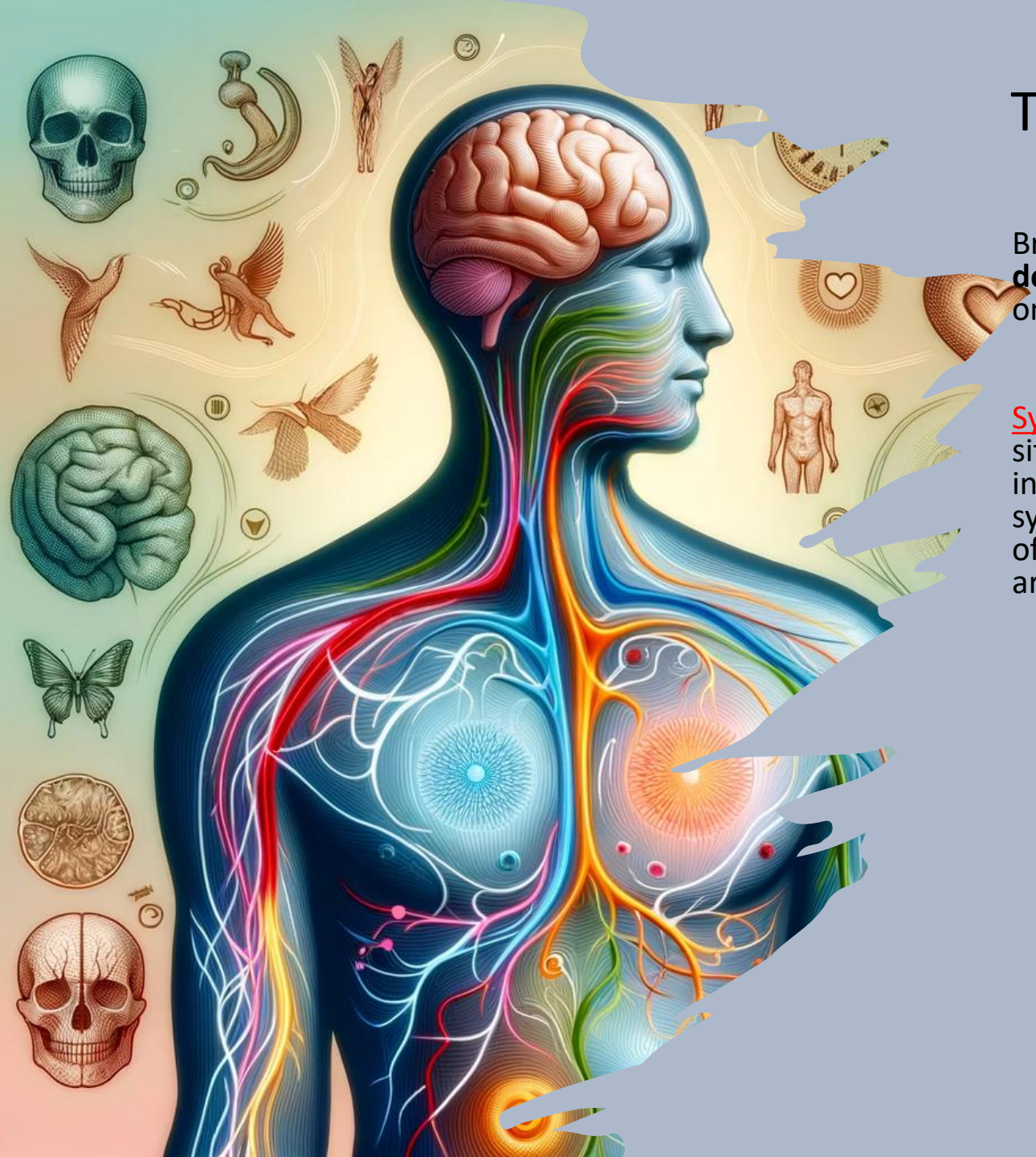
In an effort to keep us out of danger, it is always on guard; asking the question, “Is this safe?” Its dedicated goal is to protect us by sensing safety and risk.

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).

Polyvagal Theory
Sympathetic Division

- The sympathetic division increases heart rate and the force of heart contractions and widens (dilates) the airways to make breathing easier.
- It causes the body to release stored energy.
- Muscular strength is increased. This division also causes palms to sweat, pupils to dilate, and hair to stand on end.
- It slows body processes that are less important in emergencies, such as digestion and urination (Merck Manual).
- When we are in this physical state, we can feel emotions such as fear and/or rage and, if extremely activated, absolute terror (Rothschild, 2017).

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).

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 **

"Normal" Life

Threat to Life

		LETHARGIC Parasympathetic I (PNS I)	CALM Parasympathetic II (PNS II) *Ventral Vagus*	ACTIVE/ALERT Sympathetic I (SNS I)	FLIGHT/FIGHT Sympathetic II (SNS II)	HYPER FREEZE Sympathetic III (SNS III)	HYPO FREEZE Parasympathetic III (PNS III) *Dorsal Vagus* Collapse
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

Most first responders live in the Red Zone of sympathetic activation, turning on the HPA system which blasts cortisol into the body.

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

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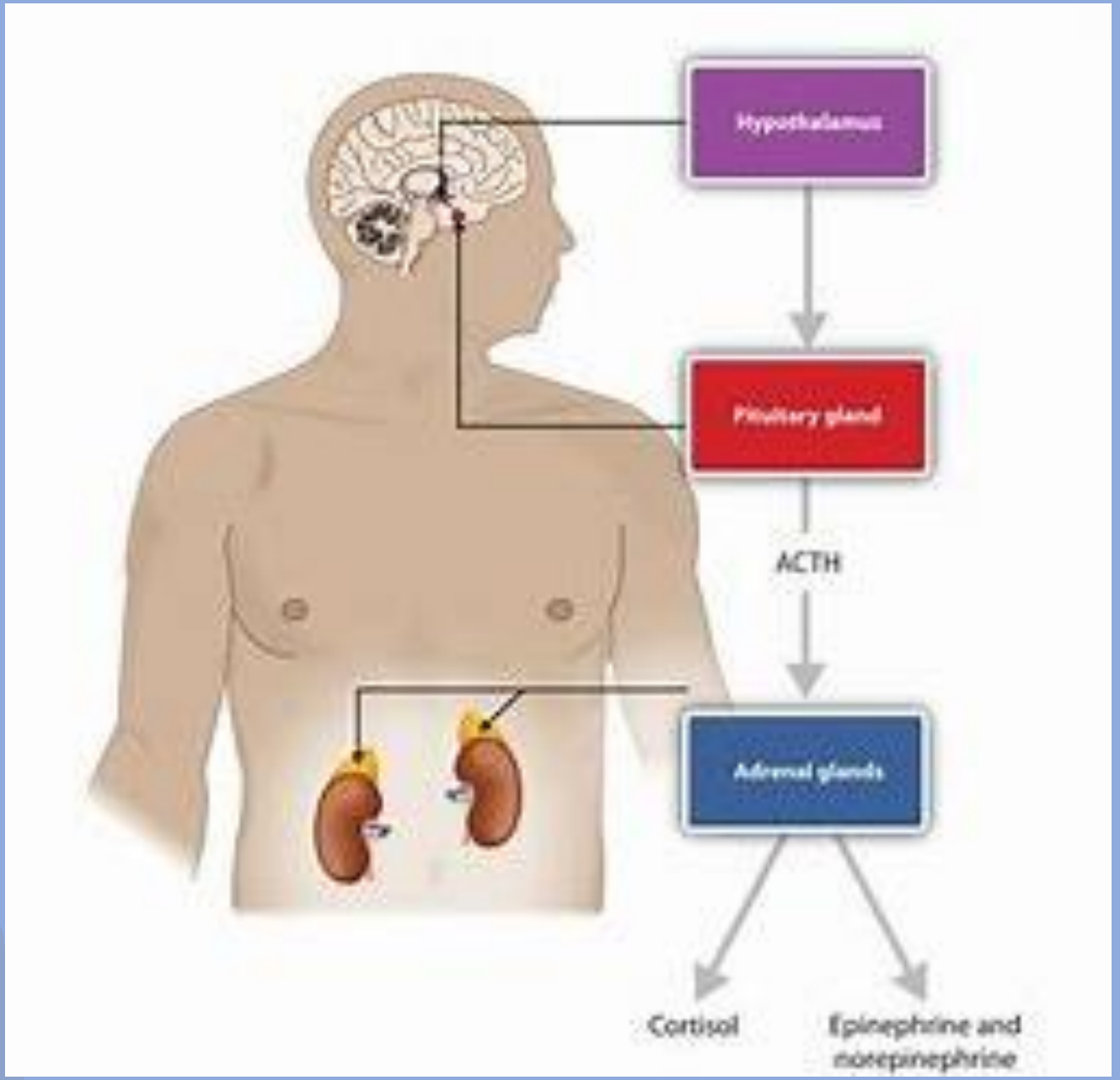
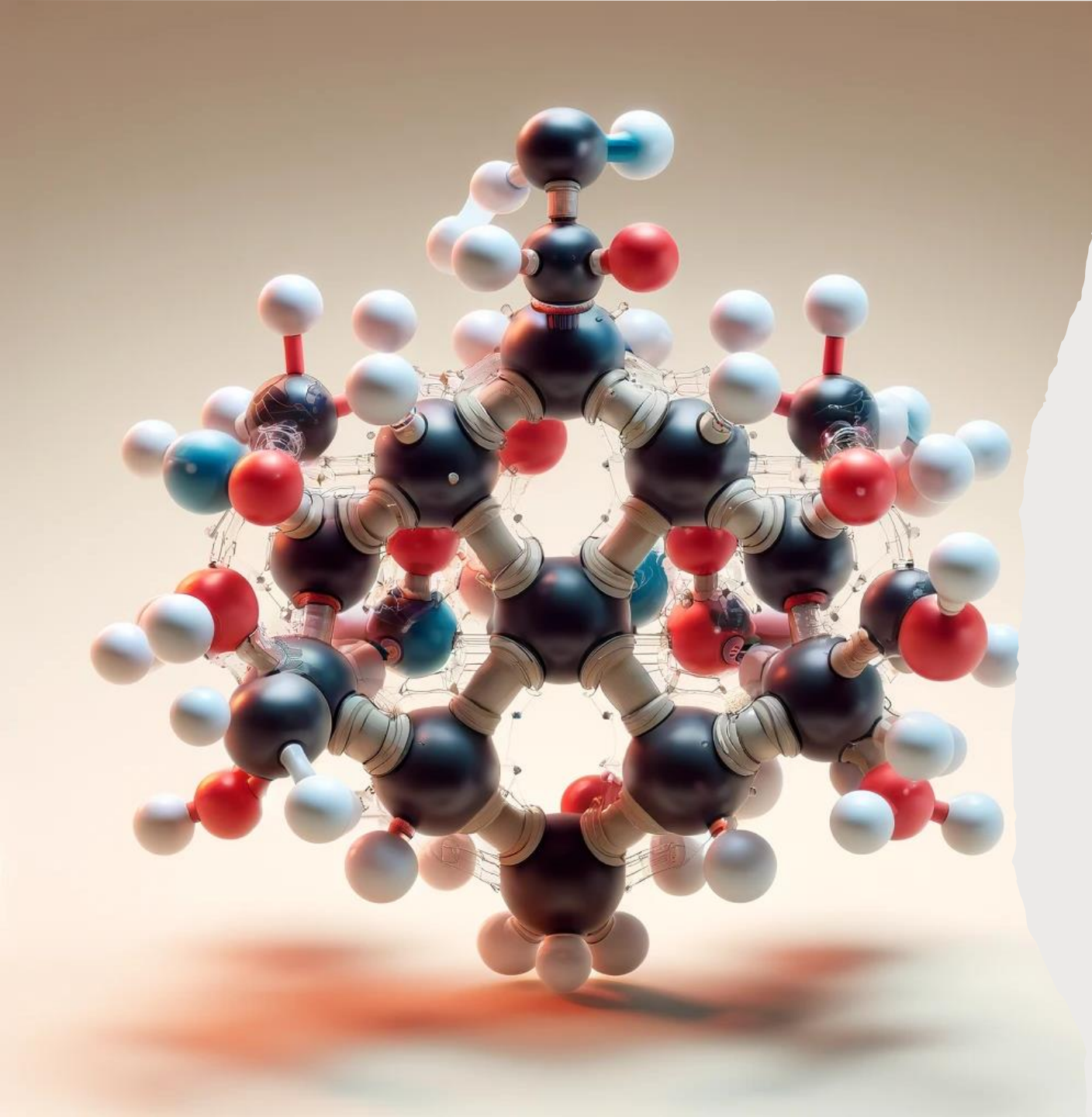


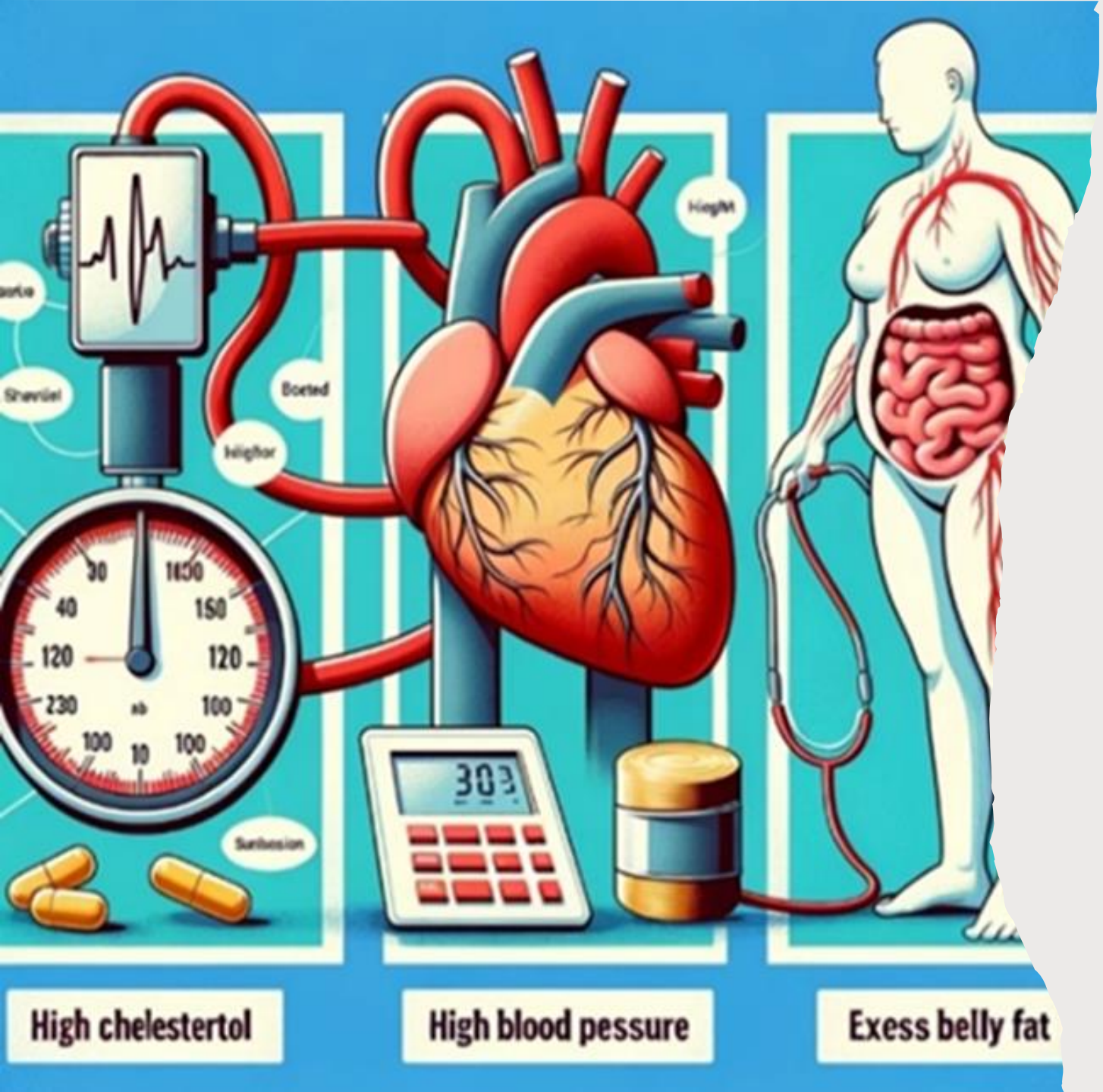


What is cortisol?

- 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.

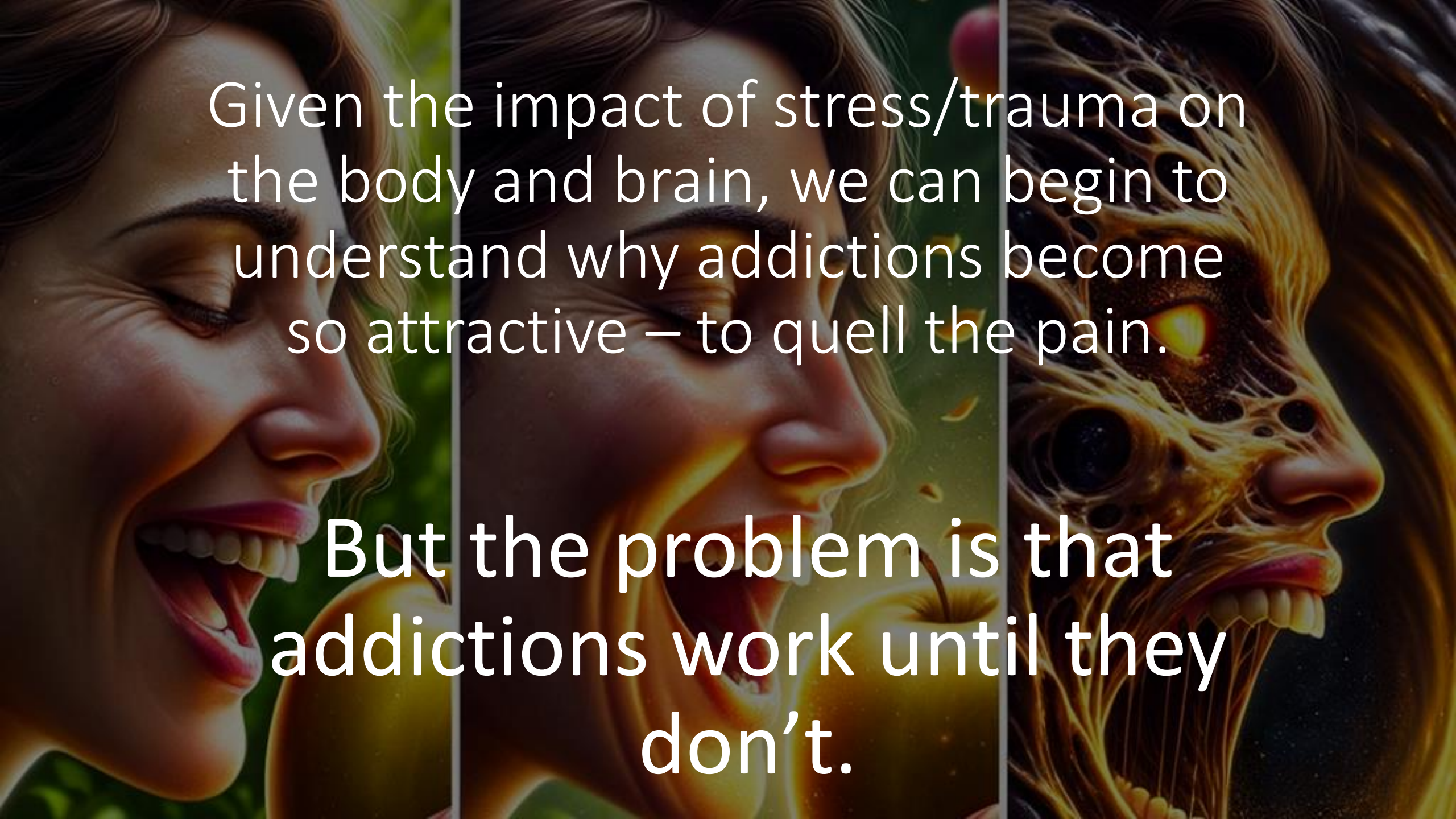
Impact of excessive cortisol the brain

- Impaired Cognitive Performance: High cortisol can disrupt memory formation, concentration, and decision-making processes.
- Reduced Neurogenesis: Prolonged exposure to elevated cortisol levels can inhibit the growth of new neurons, particularly in the hippocampus, which is critical for learning and memory.
- Neuronal Damage: Excessive cortisol can lead to neuronal loss in the brain, which may contribute to cognitive decline over time.
- Mood Disorders: High cortisol levels are associated with an increased risk of mood disorders such as depression and anxiety.
- Altered Brain Function: It can affect the function of various neurotransmitters and receptors within the brain, altering mood and behavior.
- Increased Brain Inflammation: Cortisol can promote inflammation within the brain, which is linked to various neurological conditions.
- Hormonal Imbalance: Chronic high levels of cortisol can disrupt other hormone levels, further affecting brain health and emotional stability.



Excessive cortisol levels can have widespread impacts on the body

- **Weakened Immune System:** High cortisol suppresses the immune response, making the body more susceptible to infections.
- **Increased Blood Sugar Levels:** Cortisol enhances glucose production, which can lead to elevated blood sugar levels and increased risk of type 2 diabetes.
- **Weight Gain:** Elevated cortisol can lead to fat deposition, particularly around the abdomen, and can increase appetite.
- **High Blood Pressure:** Cortisol can constrict blood vessels, leading to increased blood pressure.
- **Muscle Weakness:** Chronic high cortisol levels can result in muscle breakdown and weakness.
- **Bone Density Reduction:** It can interfere with bone-building, leading to decreased bone density and increased risk of osteoporosis.
- **Digestive Problems:** Cortisol can affect the gastrointestinal system, potentially causing stomach ulcers and other digestive issues.


Given the impact of stress/trauma on the body and brain, we can begin to understand why addictions become so attractive – to quell the pain.
But the problem is that addictions work until they don’t.

We initially love the addiction more than anything else

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

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 C's:**

1. ***Craving and Preoccupation*** with obtaining, engaging in or recovering from the use of the substance or behaviors in question.

2. ***Loss of Control*** in using the substance or of engaging in the behavior and noted by increasing frequency or duration, larger 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*

How the Brain Gets Hooked on Substances and Behaviors? Addiction Chemical #1 DOPAMINE

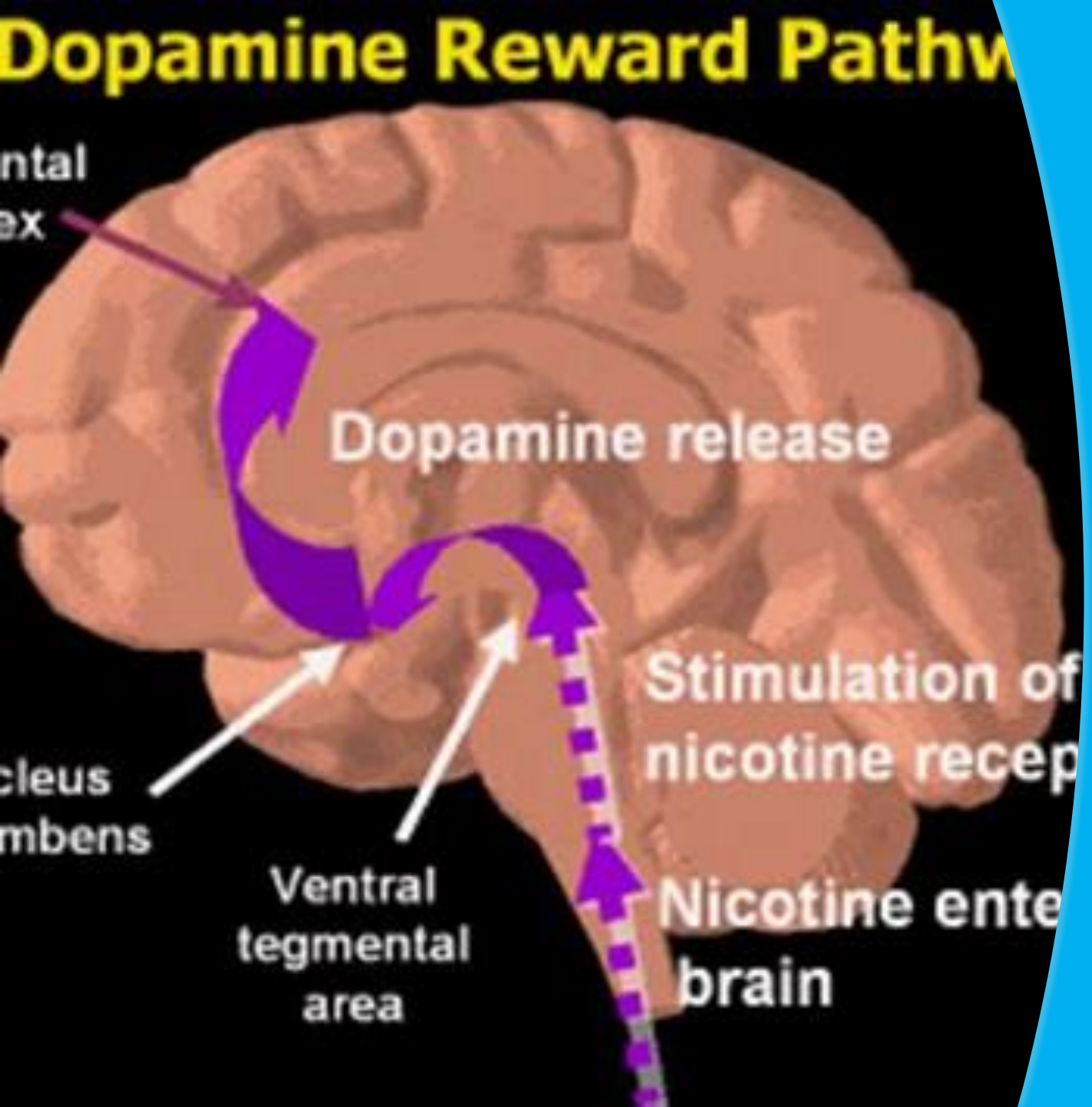
- As Kardaras(2016) stated in his book, *Glow Kids*, in order to fully understand addiction, we need to understand the brain's reward system and the impact of dopamine on that reward pathway.
- Specifically, how much dopamine is activated by a substance or behavior is correlated directly with the addictive 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.

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. Hubererman's excellent lecture on dopamine: https://www.youtube.com/watch?v=QmOF0crdyRU&t=2s&ab_channel=AndrewHuberman



Dopamine Reward Pathway

The mesolimbic pathway is a collection of dopaminergic(i.e., dopamine-releasing) neurons that project from the ventral tegmental area (VTA) to the ventral striatum, which includes the nucleus accumbens (NAcc) and olfactory tubercle and finally to the prefrontal cortex.

More on Dopamine

- When an individual performs an action that is satisfying to a need or fulfills a desire, dopamine is released into the nucleus accumbens, a cluster of nerve cells beneath the cerebral hemispheres that are specifically associated with reward and pleasure. This is also known as the brain's "pleasure center."

- Natural dopaminergic activities, such as eating and sex, usually come after effort and delay and serve a survival function.

- These are called the "natural rewards" as contrasted with addictive chemicals/behaviors (which can highjack the same circuity).

- Addictive drugs and behaviors, such as gambling and video gaming, actually offer a short-circuit to this process which only ends up flooding the nucleus accumbens with dopamine and does not serve any biological function.

Dopamine vs Endogenous Opioids

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

- 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."**

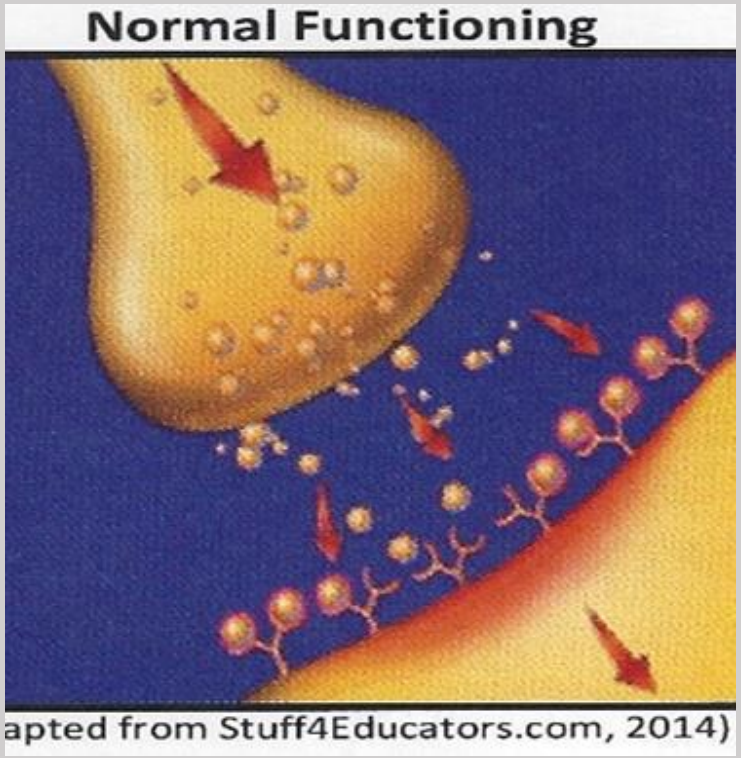
- As psychologist Dr. Weinschenk explains, "Dopamine causes us to want, desire, seek out and, search; however, the dopamine system is stronger than the opioid system and we hence seek more than we are as satisfied…" (Weinschenk, 2009).

- "Addicts want it more but gradually like it less. Addiction might be thought of as *"wanting gone amok."* (Wilson, 2014).

Bought the BMW but still wanting the Ducati Diavel

Wanting versus Liking

Dopaminergic Downregulation at the Synaptic Level



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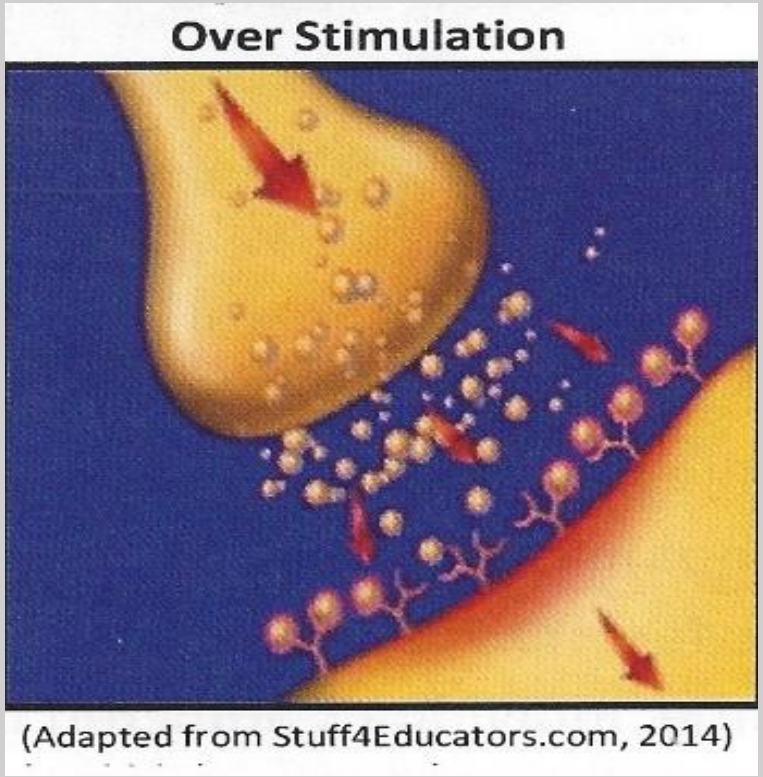

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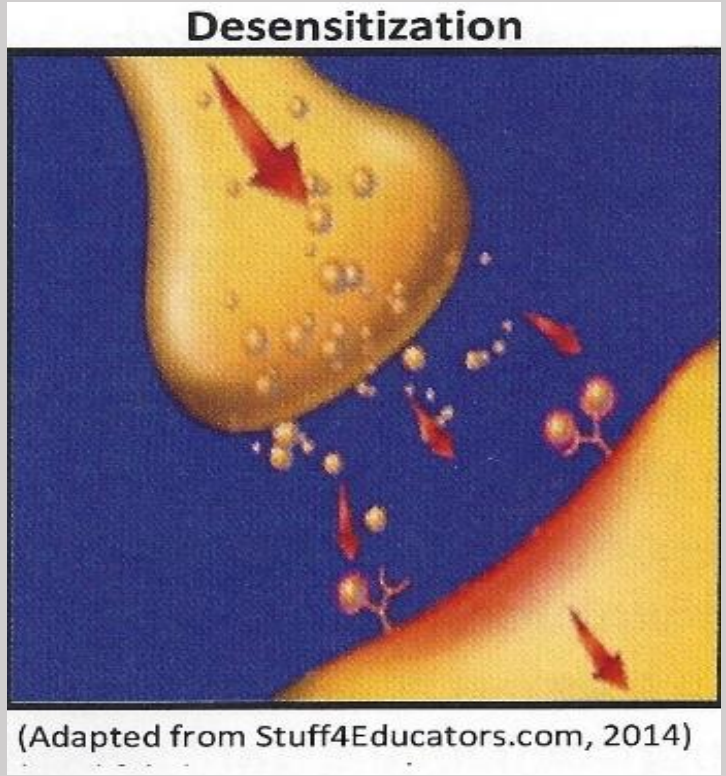
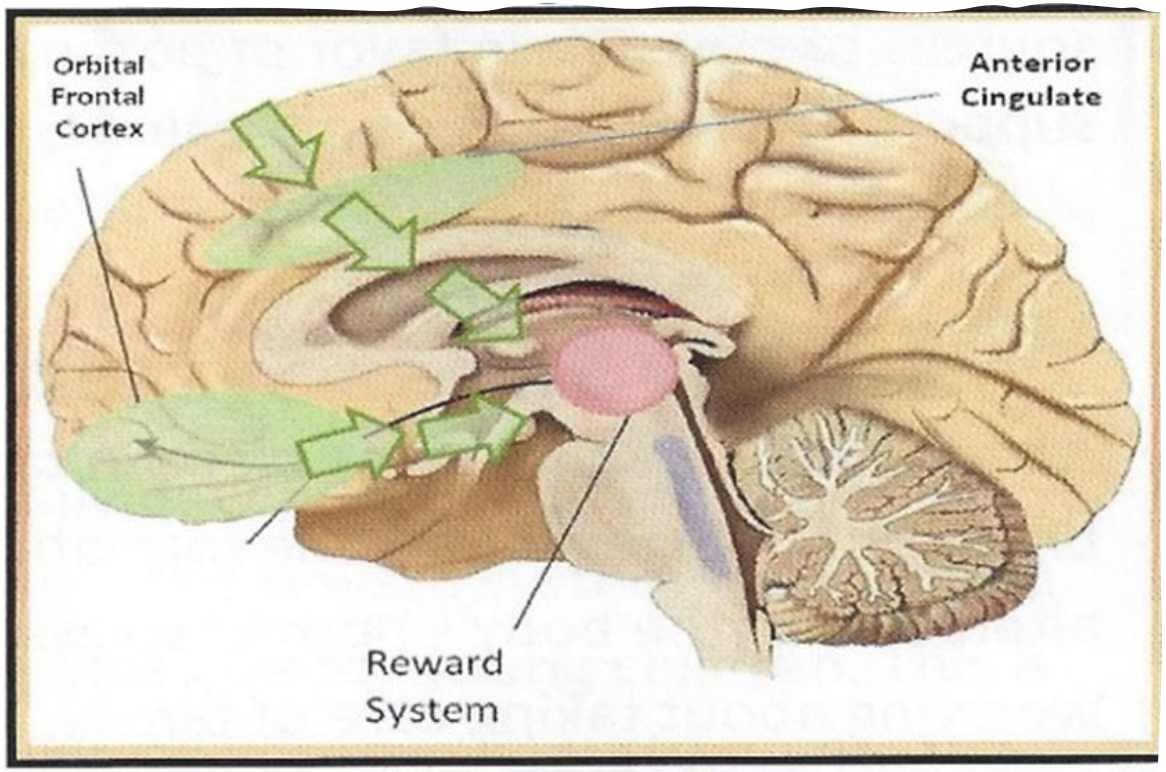


(Adapted from Stuff4Educators.com, 2014)

Impact of Hypofrontality – not a good thing:

Two areas of the brain, the anterior cingulate and the orbital frontal cortex, serve as a protective mechanism to override the reward system's desire for ever increasing dopamine. **Sadly, hypofrontality involves the rewiring of our brain so that when an impulse to engage in a dopamine-related behavior is activated, the brain ends up shutting down its ability to override the reward system. This is the breeding ground for horrible choices and impacts on social development in a really bad way.**



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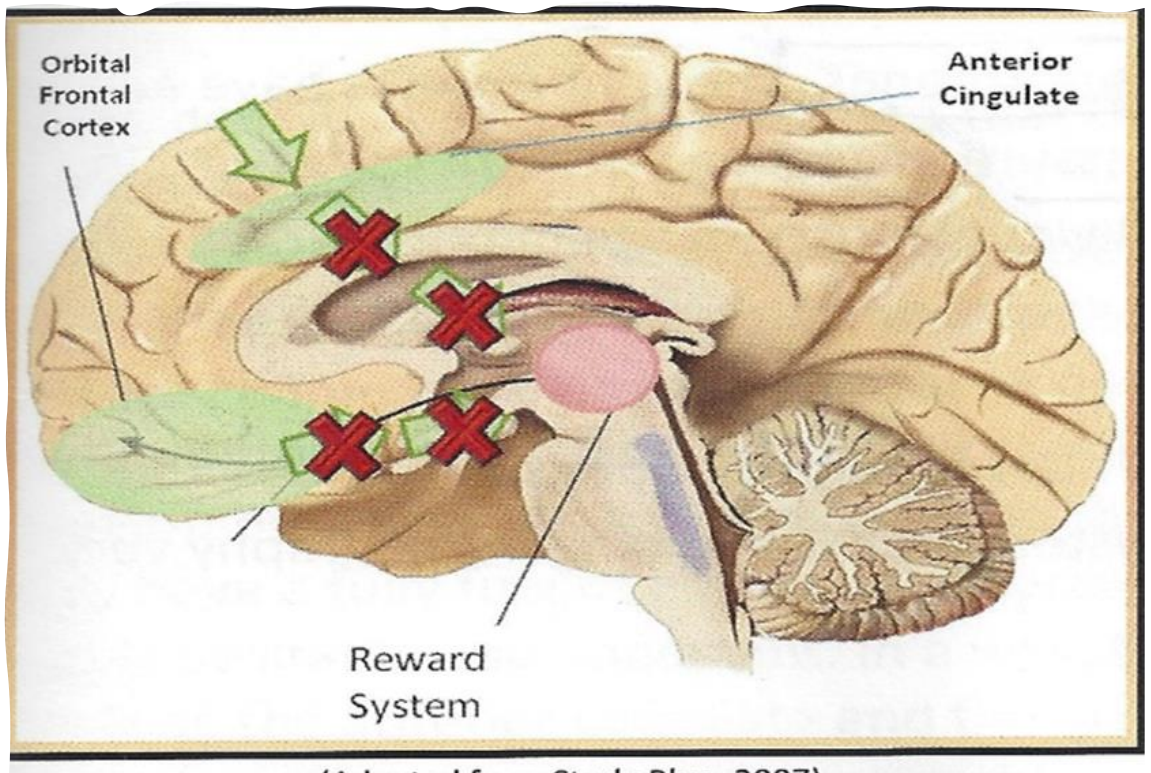


(Adapted from Study Blue, 2007)

As noted earlier, trauma can lead to addictions
Substance and Process Addictions

Similarities

Substance Addictions	Process Addictions
Compulsive Behavior: Engage in compulsive use despite harmful consequences.	**Compulsive Behavior**: Engage in compulsive behavior despite adverse outcomes.
Emotional Relief: Often used as a way to cope with stress, anxiety, or depression.	**Emotional Relief**: Activities serve as a coping mechanism for emotional distress.
Impact on Life: Can lead to neglect of health, relationships, and responsibilities.	**Impact on Life**: Leads to neglect of personal health, responsibilities, and relationships.
Withdrawal Symptoms: Experience withdrawal symptoms when trying to quit or reduce use.	**Withdrawal Symptoms**: Experience emotional or psychological distress when unable to engage in the behavior.
Need for Treatment: Treatment may involve therapy, support groups, and sometimes medication.	**Need for Treatment**: Treatment typically involves therapy, support groups, and addressing underlying issues.

Differences

Substance Addictions	Process Addictions
Physical Dependency: Often leads to a physical dependence, experiencing withdrawal symptoms without the substance.	**Psychological Dependency**: Primarily psychological need; withdrawal is emotional or mental.
Chemical Influence: Directly alters brain chemistry by interacting with the central nervous system.	**Behavioral Impact**: Does not alter brain chemistry directly; impact is through repetitive behavior.
Legal Consequences: May involve legal issues related to possession, consumption, or behavior under influence.	**Legal and Social Consequences**: More likely to lead to financial problems and relationship breakdowns than direct legal issues.
Health Risks: Includes serious physical health risks like overdose, liver damage, and other organ damage.	**Health Impact**: Generally, the physical risks are less severe but can include physical neglect or conditions stemming from addictive behaviors (e.g., obesity from overeating).

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

Prevalence

A total of 94 studies with 237,657 participants from 40 different countries (mean age 25.02 years; 57.41% females).

The overall prevalence of behavioral addiction irrespective of addiction type (after correcting for publication bias) was 11.1% (95% *CI*: 5.4 to 16.8%).

10.6% for internet addiction
30.7% for smartphone addiction
5.3% for gaming addiction
15.1% for social media addiction
21% for food addiction
9.4% for sex addiction
7% for exercise addiction
7.2% for gambling addiction
7.2% for shopping addiction

Alimoradi Z, Lotfi A, Lin CY, Griffiths MD, Pakpour AH. Estimation of Behavioral Addiction Prevalence During COVID-19 Pandemic: A Systematic Review and Meta-analysis. Curr Addict Rep. 2022;9(4):486-517. doi: 10.1007/s40429-022-00435-6. Epub 2022 Sep 12. PMID: 36118286; PMCID: PMC9465150.

Gambling Addiction

In a 12-month period at least 4 are present:

a. Needs to gamble with **increasing amounts** of money in order to achieve the desired excitement.

b. Is **restless or irritable** when attempting to cut down or stop gambling.

c. Has made **repeated unsuccessful efforts to control**, cut back, or stop gambling.

d. Is often **preoccupied** with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).

e. Often gambles **when feeling distressed** (e.g., helpless, guilty, anxious, depressed).

f. After losing money gambling, often **returns another day to get even** ("chasing" one's losses).

g. **Lies** to conceal the extent of involvement with gambling.

h. Has **jeopardized or lost a significant relationship**, job, or educational or career opportunity because of gambling.

i. **Relies on others to provide money** to relieve desperate financial situations caused by gambling.

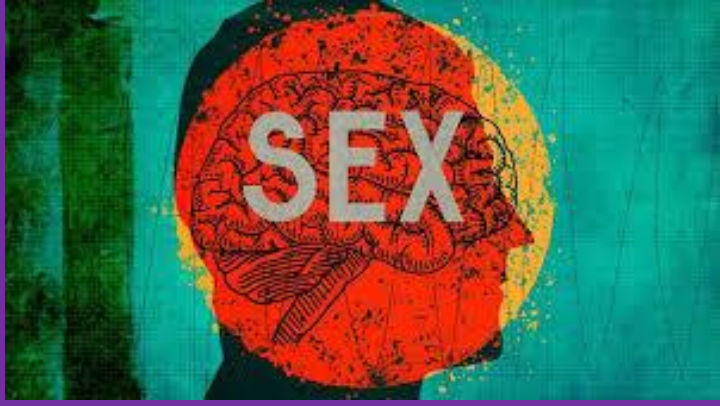
Gaming Addiction

Internet Gaming Disorder listed as a 'Condition for Further Study' in DSM 5

In the last 12 months:

a. **Preoccupation** with internet gaming
b. **Withdrawal** symptoms when gaming is taken away or not possible (sadness, anxiety, irritability)
c. **Tolerance**, the need to spend more time gaming to satisfy the urge
d. **Inability to reduce** playing, unsuccessful attempts to quit gaming
e. **Giving up other activities**, loss of interest in previously enjoyed activities due to gaming
f. Continuing to game **despite problems**
g. **Deceiving family members or others** about the amount of time spent on gaming
h. The use of gaming to **relieve negative moods**, such as guilt or hopelessness
i. **Risk, having jeopardized** or lost a job or relationship due to gaming

Sex Addiction



Sex Addiction not listed in DSM 5

In the last 12 months:

a. **Preoccupation** with sexual "acting out"
b. **Withdrawal** symptoms when sex is not possible (sadness, anxiety, irritability)
c. **Tolerance**, the need for increased amount or intensity to satisfy the urge
d. **Inability to reduce** sexual acting out behavior, unsuccessful attempts to quit
e. **Giving up other activities**, loss of interest in previously enjoyed activities due to sexual acting out
f. Continuing **despite increasing problems** (particularly legal problems)
g. **Deceiving family members or others** about the amount of time, money spent
h. The use of sex to **relieve negative moods**, such as guilt or hopelessness
i. **Risk, having jeopardized** or lost a job, freedom, reputation or relationship due to sex

3 criteria in the past year:

a. **Tolerance**, defined as consuming increasing amounts to achieve the same effects or experiencing diminished effects with continued use of the same amounts;
b. **Withdrawal** symptoms when the substance is not consumed or using the substance to avoid withdrawal symptoms;
c. Using **larger amounts** or over a longer period than intended;
d. A **persistent desire or unsuccessful efforts to cut down**;
e. **Increased time effort** to obtain or use or recover from effects;
f. **Reduction of social, occupational, or recreational activities**
g. **Use** of the substance **despite** a persistent physical or psychological **problem** caused or exacerbated by the addiction

Food Addictions

3 criteria in the past year:

a. **Tolerance**, defined as requiring increased spending to achieve the same effects or experiencing diminished effects with continued use of the same amounts;
b. **Withdrawal** symptoms when abstaining or buying to avoid withdrawal symptoms;
c. Buying **larger amounts** or over a longer period than intended;
d. A **persistent desire or unsuccessful efforts to cut down**
e. **Increased time effort** to obtain or recover from its effects;
f. **Reduction of social, occupational, or recreational activities** because of buying;
g. **Continued buying despite** a persistent physical or psychological **problem** caused or exacerbated by the behavior

Compulsive Shopping

In the words of Stephen Arterburn, world renowned expert on sexual addiction:

"I don't know of know of any plague to ever reach into the homes and families all over the world and create as much damage or heartaches than the struggle of lust, affair, pornography, perversion, and sexual addiction. It seems that everywhere I look, it gets worse and worse. The Internet exploded the problem, and now cell phones transport pornography more portably than the computer and facilitates affairs with greater accessibility and secrecy" (cited in Roberts, 2008, p.9).

The Toll of Porn Addiction

- I have seen boys as young as 11 attempt to rape children as young as 3 after getting steamed up on porn.
- I have seen normal adolescent sexuality be hijacked and rewritten from something wonderful to something perverse.
- I have seen men go to jail and lose their careers.
- I have seen countless marriages fail – the toll is enormous and is mounting every day.
- The Utah state legislature has wisely declared pornography a national epidemic that is ripping the fabric of our society (Barta, 2018).

So how  is it?

- **40 million** American people regularly visit porn sites (Webroot, 2019).
- **35%** of all internet downloads are related to pornography (Webroot, 2019).
- **34% of internet users** have experienced unwanted exposure to pornographic content through ads, pop up ads, misdirected links or emails (Webroot, 2019).
- The societal costs of pornography are staggering. The financial cost to business productivity in the U.S. alone is estimated at **$16.9 Billion annually**; but the human toll, particularly among our youth and in our families, is far greater (Weebroot, 2019).
- **One-third** of porn viewers are women (Webroot, 2019).
- Between 2008 and 2011, exposure to porn among boys under the age of 13 jumped from **14% to 49%.** Boys' daily use more than doubled. (Sun et al. 2016)
- In a 2007 University of Alberta study, 429 students ages 13 and 14 from 17 schools across Alberta, Canada were surveyed about how often they accessed sexually explicit media content: **90% of boys** and **70% of girls** reported accessing sexually explicit media on at least one occasion (Betkowski, 2007).

What to do?

- Appreciate the cumulative effects of developmental and shock trauma.
- Cultivate an atmosphere in the workplace that facilitates safe connection and the opportunity to process critical events.
- Don’t go it alone, connection with others is healing within itself.
- Appreciate that substances such as alcohol and behaviors such as gambling, and pornography will only temporarily relieve the stress/pain but will create havoc with your physical and mental health as well as your job and your family.
- Wisdom means that you allow yourself to seek help from others when necessary and, if you seek professional health, make sure they are trauma-informed.

The 12 Steps – still the bedrock

1. **Admit Powerlessness:** Acknowledge that one cannot control their addiction.
2. **Believe in a Higher Power:** Believe that a power greater than oneself can restore sanity.
3. **Decide to Turn Over:** Make a decision to turn one's will and life over to the care of God as understood.
4. **Make a Moral Inventory:** Make a searching and fearless moral inventory of oneself.
5. **Admit Wrongs**: Admit to God, oneself, and another human being the exact nature of one's wrongs.
6. **Ready for God to Remove Defects:** Be entirely ready to have God remove all these defects of character.
7. **Ask God to Remove Shortcomings:** Humbly ask God to remove shortcomings.
8. **List Amends:** Make a list of all persons harmed and become willing to make amends to them all.
9. **Make Direct Amends**: Make direct amends to such people wherever possible, except when to do so would injure them or others.
10. **Continue Personal Inventory:** Continue to take personal inventory and when wrong, promptly admit it.
11. **Seek Through Prayer**: Seek through prayer and meditation to improve contact with God as understood, praying for knowledge of His will and the power to carry that out.
12. **Spiritual Awakening:** Having had a spiritual awakening as the result of these steps, try to carry this message to others, and practice these principles in all affairs.

Johann Hari's Model for Connected Living

The foundation for healing to begin

- **Social Connection**: Emphasizes the importance of building strong, meaningful relationships to combat loneliness.
- **Psychological Connection**: Advocates addressing psychological needs through therapy and personal reflection.
- **Meaningful Work**: Encourages seeking employment that resonates with personal values and provides fulfillment.
- **Meaningful Values**: Suggests shifting focus from materialistic to intrinsic values that promote well-being.
- **Sympathetic Joy and Overcoming Envy**: Recommends fostering joy for others' success and managing feelings of envy.
- **Nature Connection**: Highlights the mental health benefits of regular interaction with nature.
- **Respect for Childhood Trauma**: Stresses the need to understand and address the impact of childhood trauma.
- **Hopeful Future**: Emphasizes the role of optimism and a supportive societal structure in mental health.

Although incremental therapies are very necessary and helpful, it is transformational therapies that get you home. The Default Mode Network needs to be updated and only transformational therapies can achieve that.

Incremental Therapies	**Transformational Therapies**
Focus: Gradual, step-by-step change.	**Focus**: Profound, holistic changes.
Approach: Behavior modification and symptom management.	**Approach**: Deeper psychological exploration.
Examples: CBT, DBT, Exposure Therapy.	**Examples**: Internal Family Systems (IFS), EMDR, Polyvagal-Informed Therapy, Emotion Focused Therapy (EFT)
Goal: Improve specific symptoms or behaviors.	**Goal**: Transform personal beliefs and self-concept.
Process: Structured, often short-term.	**Process**: Open-ended, usually longer-term.

Spirituality is Key to Healing - Dr. Lisa Miller

- **Depression Reduction:** Higher spiritual engagement is linked to about 4X lower rates of depression.
- **Suicide Prevention:** Spirituality reduces suicide risks by 4X.
- **Enhanced Resilience**: Spirituality boosts resilience against mental health challenges.
- **Substance Abuse Reduction**: Spiritual individuals are less likely to abuse drugs and alcohol.
- **Improved Recovery:** Better recovery outcomes from mental illness are associated with higher spiritual engagement.