HEALING TRAUMA WITHIN ADDICTION TREATMENT

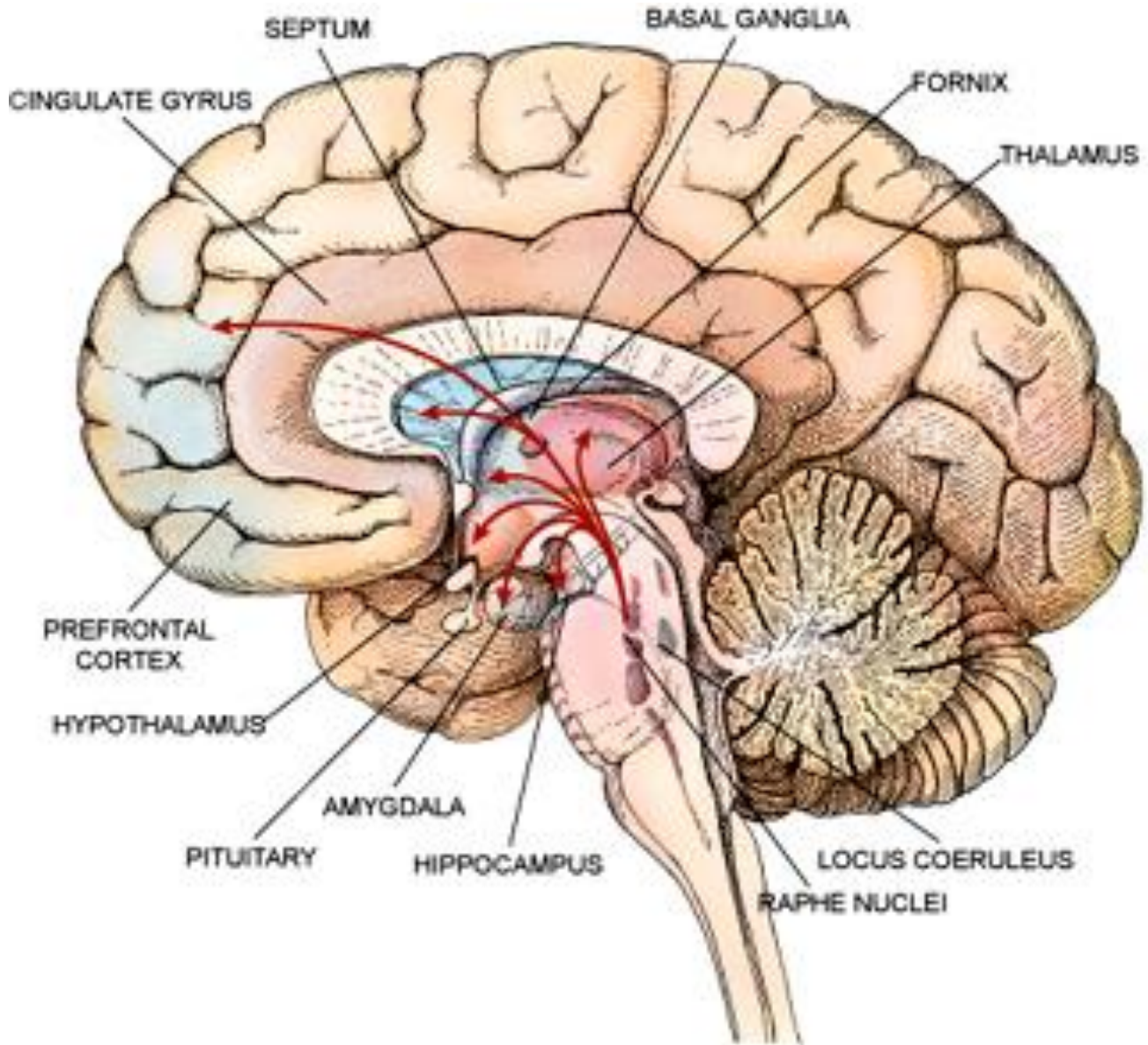
Objectives

- Defining “trauma” and its impact on overall health and brain function.
- Discuss the intersection of the neurobiology of addiction and trauma.
- Determine approaches best to integrate effective trauma treatment with early recovery patients.
- Outline efficacious and efficient treatment approaches to create a foundation for healing trauma within inpatient treatment for addiction.

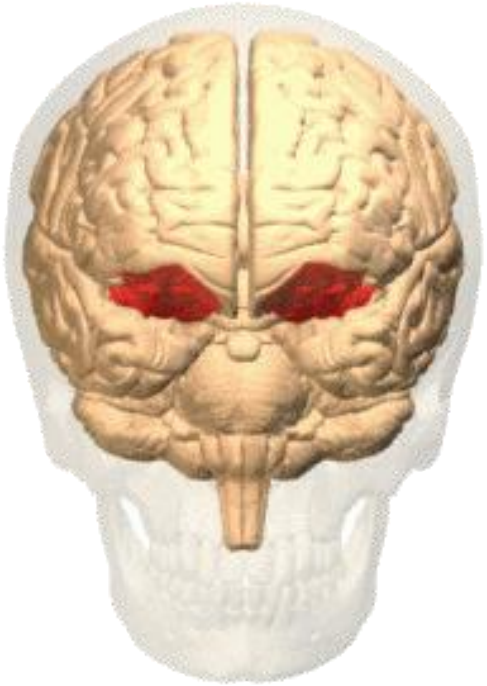
HOW DO YOU DEFINE "TRAUMA"

- Origins in the Greek word for “wound” (physical).
  - Nervous system, neurological, psychological, physiological, spiritual, moral, etc.
- “Anything that overwhelms the system’s ability to process and effectively utilize information during an event adequately.” ~ Carrie Ann Carr, MA, LCPC, LPC-S, LPC-MHSP
- “Whatever each person’s brain perceives as a threat to their safety/well-being that cannot be controlled may be stored as a potential trauma.”(Dr. Shelly Uram, MD, EMDRIA Annual Conference presentation, The Neurobiology of Trauma & EMDR, 2013)
- “An event that overwhelms the central nervous system and changes the way you remember and react to the things that remind you of the different aspects of the event” *(Dr. B. VanDerKolk, PhD, 1996, 2021)*
- “Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically and/or emotionally harmful or threatening and that has lasting adverse effects on the individual’s functioning and mental, physical, social, emotional, and/or spiritual well-being” (SAMHSA, 2014)

Neurological Implications in Treatment

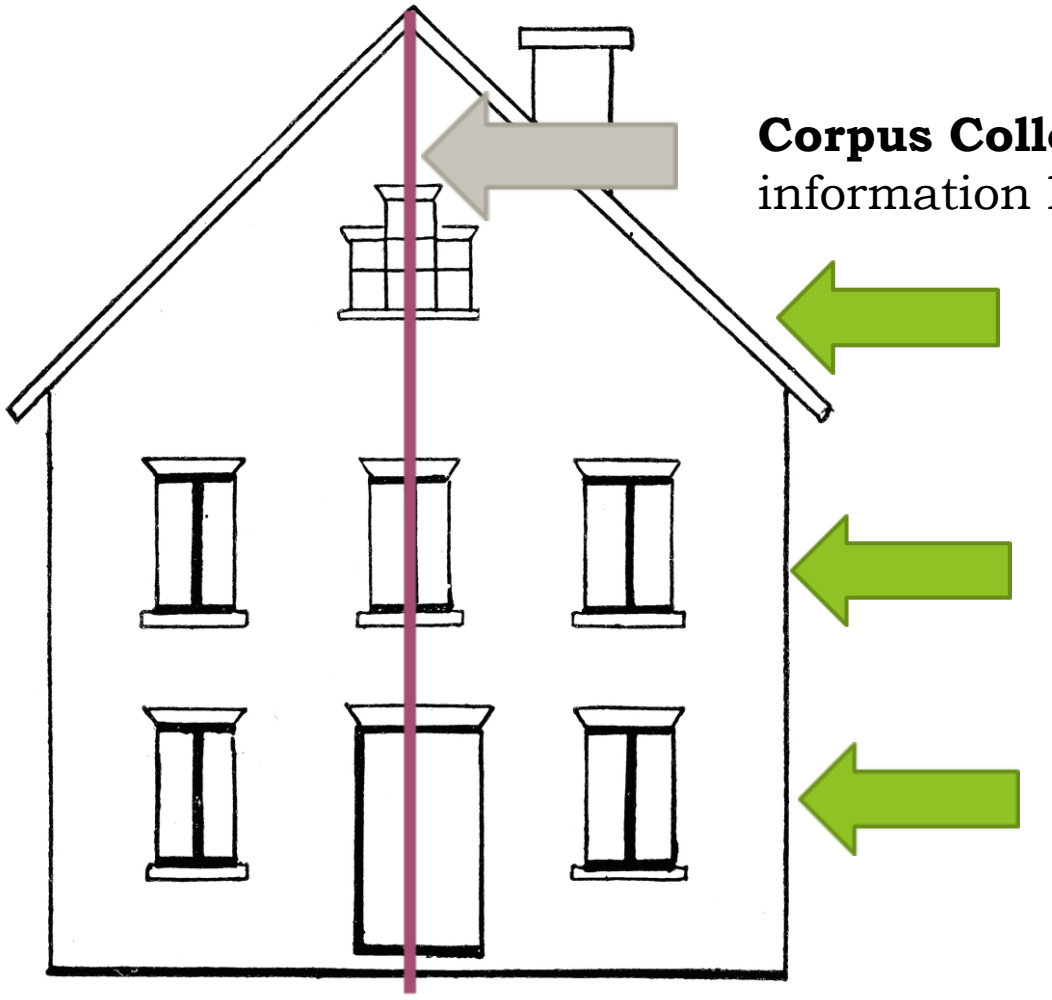


Our Brain's Main Objectives



- Its #1 job is to ensure survival and freedom from pain
  - Generate internal signals that indicate our body needs (food, water, protection, etc.)
    - Maslow's hierarchy
  - Create a ways for us to meet those needs
  - Warn us of danger/opportunities
  - Adjust our behavior as necessary
- Psychological problems arise when our internal navigation system is off
  - Poor information integration and linkage
  - Can be caused by lack of attachment in development

3 Levels of the Brain

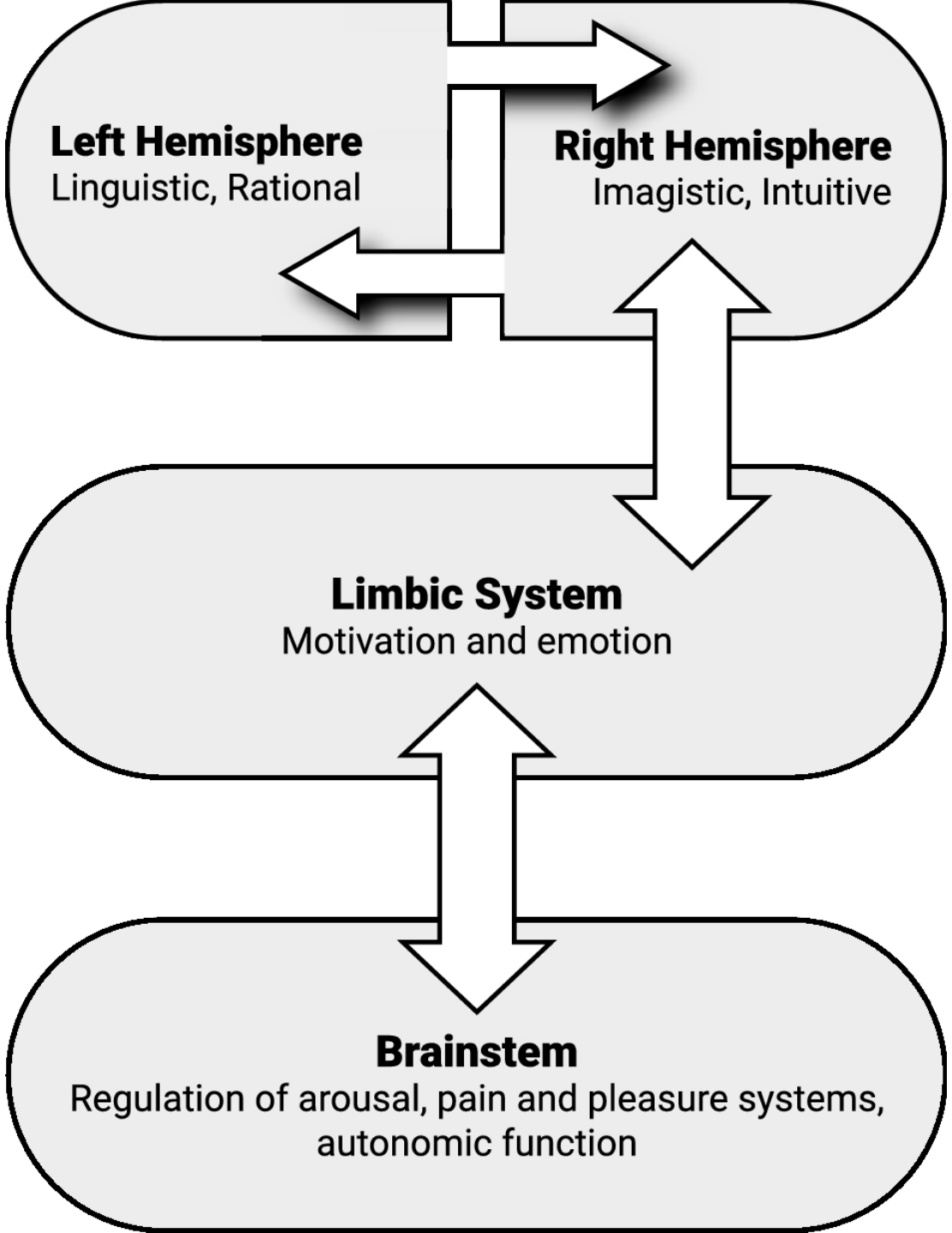


Corpus Collesum – Integration of information hemispherically/side to side

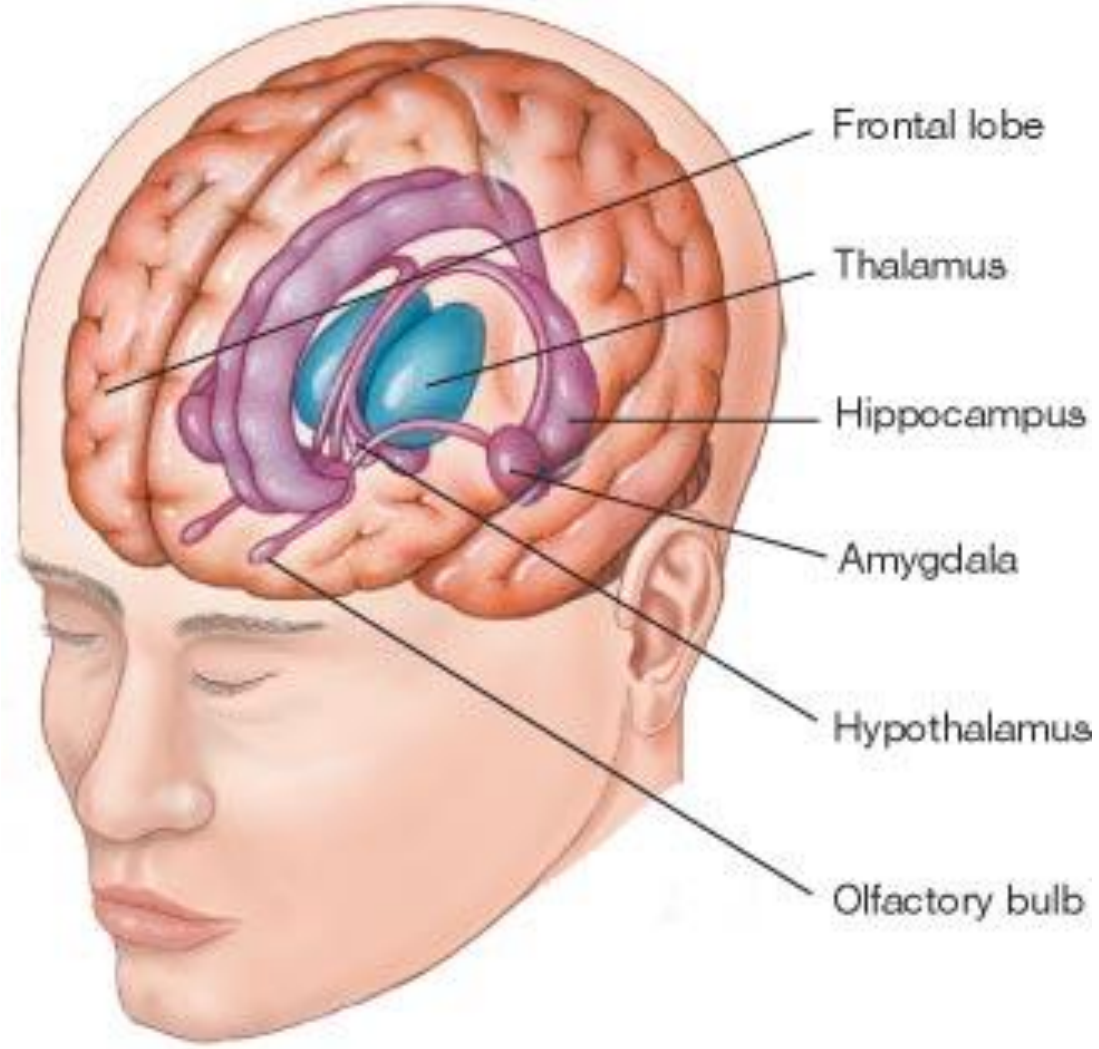
Neocortex
Rational thought; Imagination; Language; Information Processing/Learning; Morals/Ethics

Limbic System
Center for habit/memory; Attachment; Feeding; Fornication; Emotional Brain

Brain Stem
-Keeps homeostasis of the body; Fight/Flight response; Immediate response to danger; Dangerous emotions = threat to survival; Basic affects (Periaqueductal Grey)


Left Hemisphere
Linguistic, Rational
Right Hemisphere
Imagistic, Intuitive
Limbic System
Motivation and emotion
Brainstem
Regulation of arousal, pain and pleasure systems, autonomic function

Deep Limbic System: Components & Functions



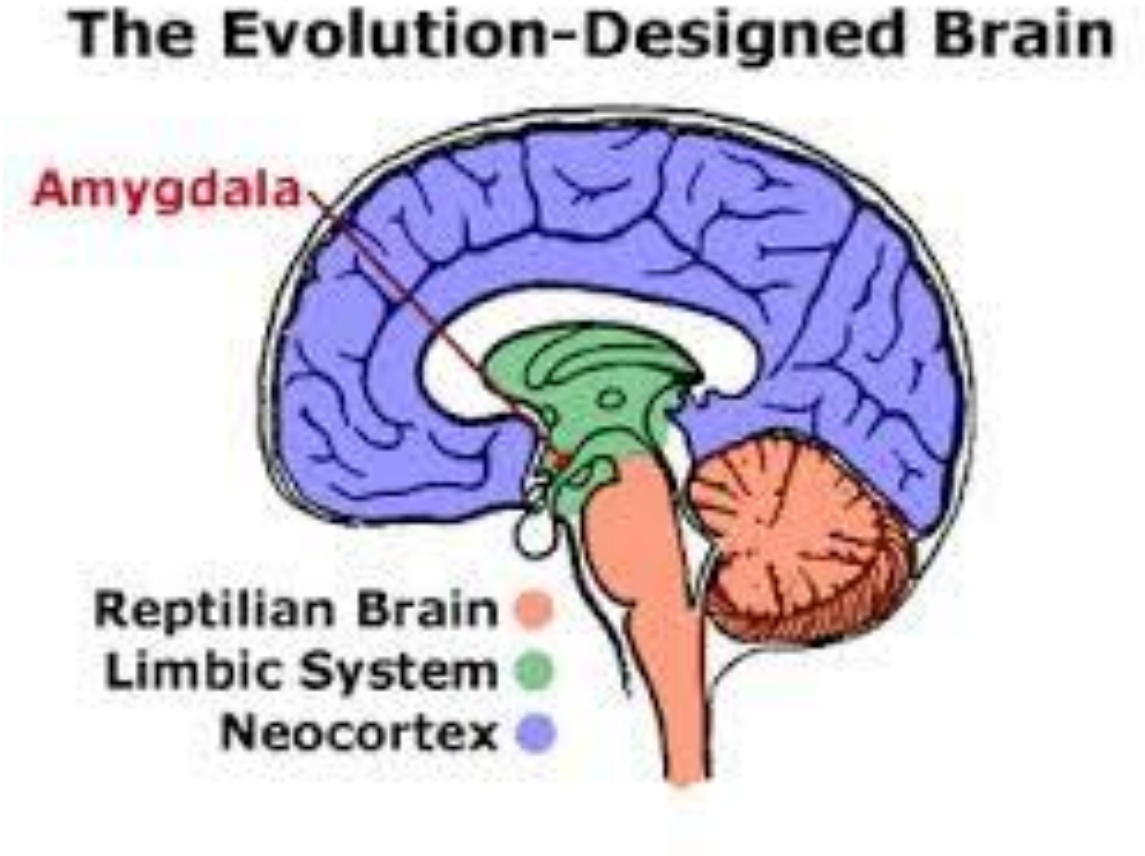
- Limbic System
  - Hypothalamus
  - Thalamus
  - Hippocampus
  - Cingulate Gyrus
  - Basal Ganglia
  - Amygdala

Functions of the Deep Limbic System

- These functions operate unconsciously.
  - Autonomic Nervous System (ANS)
- Impervious to logical understanding & language.
- Basic drives, appetites, and urges are generated here.
- Very black and white in assessing information, people, and situations
  - Safe/unsafe
- Fight/flight/freeze, emotional valence, perception, the memory of relevance, connections between traumas & associated things, e.g., trauma and authority figures, sex and abuse
- This is the brain we see activated most in young children (and addictions, PTSD…)

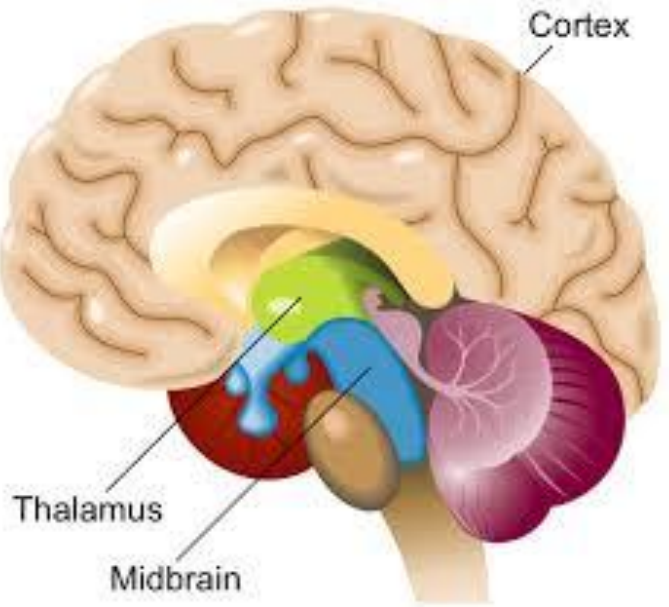
Function of the Deep Limbic System

- Sets the emotional tone of the mind
- Tags events as internally important; appraises meaning
- Modulates motivation
- Controls appetite, sleep cycles, and modulates libido
- Promotes bonding (attachment)
- Directly processes the sense of smell



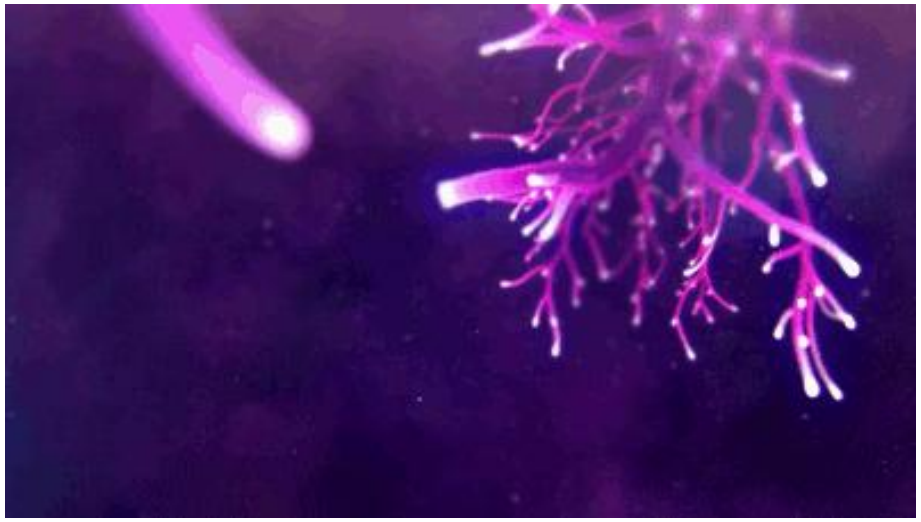
Thalamus: The Hub of Info Processing

- Receives auditory, somatosensory, and visual sensory signals from the nervous system
  - "Switching station" or "conductor" of the brain
    - Axons from every sensory system (except olfactory) synapse her as the last relay site before the information reaches the cerebral cortex
    - Center for top-down and bottom-up information processing
- Relays sensory signals to the cerebral cortex
- Plays an important role in attentional processes including alertness and arousal



What does this mean???

- Trauma disrupts the thalamus' ability to bring information up to the cortex (higher thinking/adult self)
  - Sensory integration then occurs predominantly at the level of the lower brain levels (limbic and cerebellum)
    - Faster more "reptilian" responding vs. cortical processing
    - Affect-driven vs. thoughts/logic
  - Disruption of the thalamus = disruption of widespread activation throughout the brain and thus connectivity between different brain regions (both vertical and horizontal integration)



- If thalamus isn't working correctly =
  - Decreased volume in the hippocampus
  - Increased volume in the amygdala
  - Increased blood flow to the right hemisphere
  - Overactivity in the cingulate gyrus

- There often cause alterations in:
  - Affect regulation and impulses
  - Attention and consciousness
  - Sense of self-perception (e.g., excessive guilt or shame)
  - Relationships with others
  - Various degrees of physiological disorders and disease processes
  - Impairment in integration of personal identity ("parts" of self)

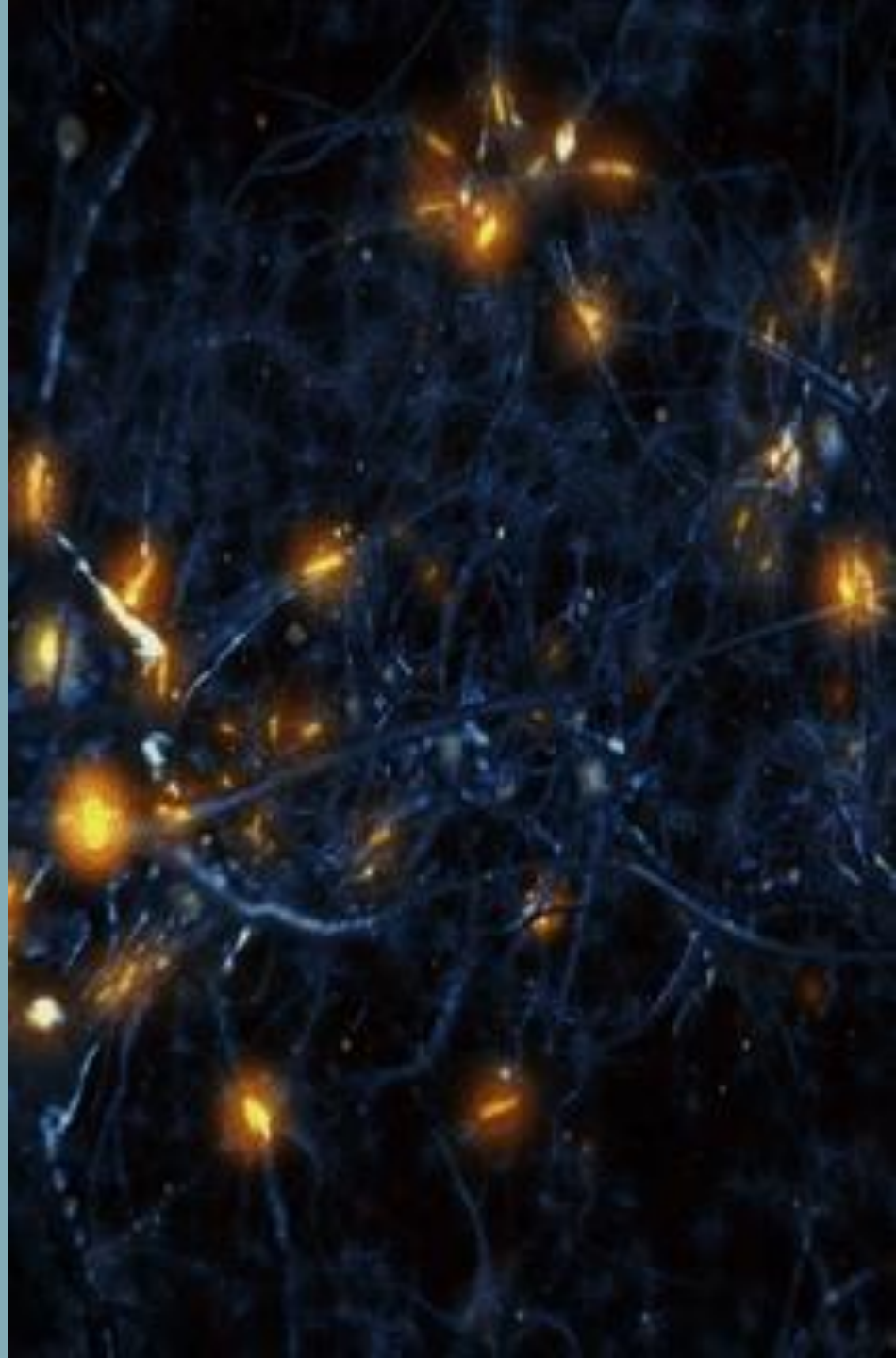
Neurobiological Impact of Trauma

- Alters the stress receptors in the hippocampus = decreased stress hardiness
- Modifications to the physical volume of the hippocampus = difficulty with memory formation, assessing safe people/places/things, generalization of information
  - VanDam, N. (2014) study showed lower grey matter volume in various hippocampus regions for those with childhood maltreatment (CM); CM among those in the study with co-occurring SUD predicted shorter relapse to the use of any drug and predicted severity of substance use relapse.
- Modifications to the *nucleus acumens (*helps identify what actions are associated as well as the motivation/suppression of actions regarding reward and punishment) = increased addictive behaviors
- Lower levels of cortisol (the hormone that helps the body return to normal after trauma) = increased anxiety

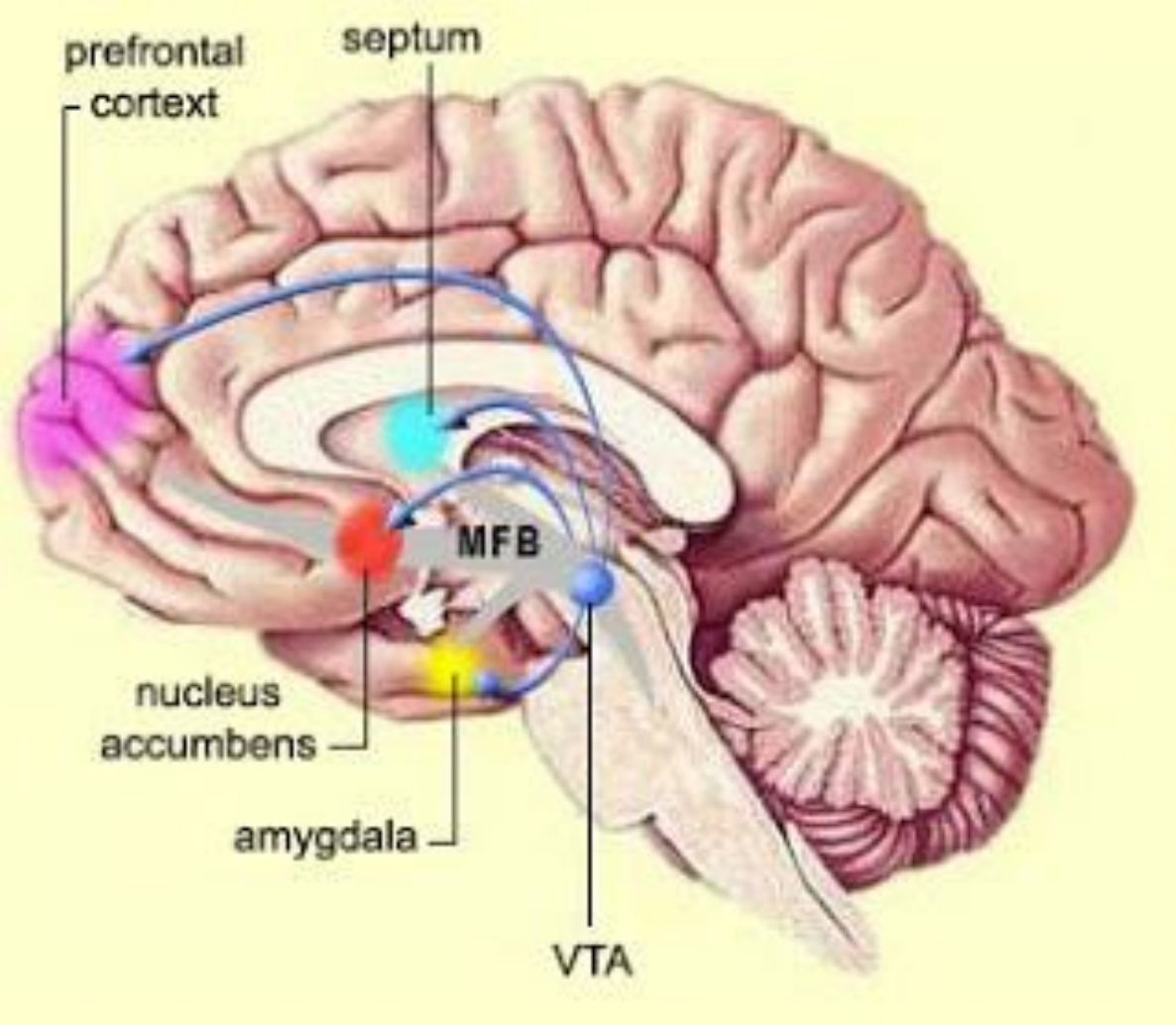
Other Neurobiological Differences in People that Have PTSD & High ACE's

- Increased amygdala volume (increases hypervigilance)
- Increased anterior cingulate cortex activation
  - Interferes with the linkage of thinking and feeling; shifting from idea to idea
    - Become stuck on negative thoughts or behaviors
- Interference with the integration of information
  - Thalamic-cortical-temporal binding of information.
    - Blending emotions, logical thought/ideas, and options/volume of response.
- Decreased activation of the prefrontal cortex in response to stimuli associated with traumatic events (Sherine, J & Nemeroff, C., 2011)
- Hemispheric imbalance in brain communication
  - Decreased right and increased left lobe activation
  - Increase in physical experience without proper labels/language

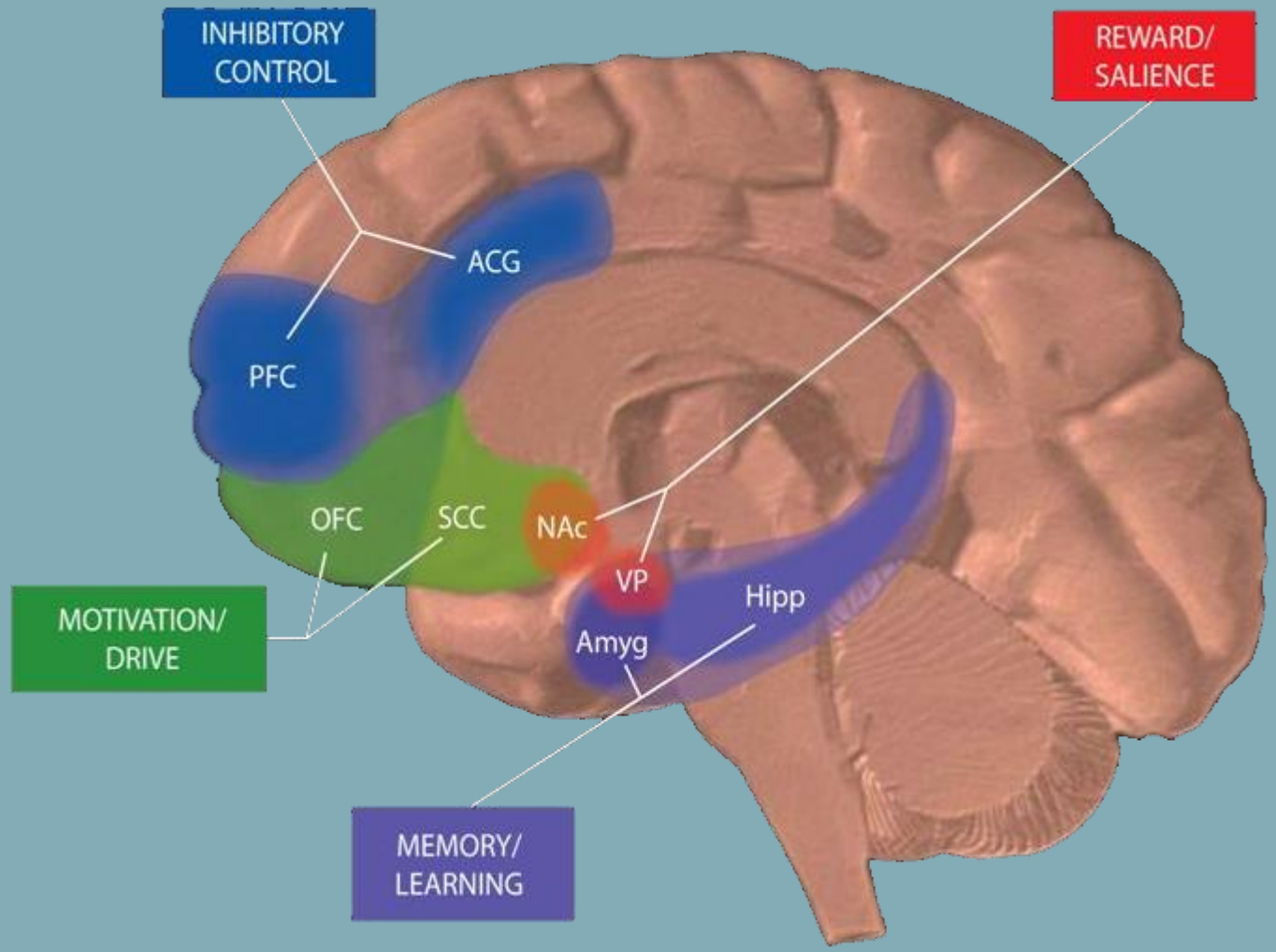
IMPACT OF ADDICTION ON NEUROLOGICAL FUNCTIONING



Addiction and the Brain



- Release of dopamine in the VTA and the nucleus accumbens reinforces continued drug use.
  - Increased dopamine = pleasure molecule
- Taking a mood-altering substance OR engaging in activities that involve a dopamine rush (e.g., love/sex/relationships, gaming, eating, etc.), thinking about it, or craving it, **ALL** activate the nucleus accumbens and hijack the brain's reward system
  - *Play mates, play pens, and play-things are triggers for addiction relapse.*


INHIBITORY CONTROL
REWARD/ SALIENCE
ACG
PFC
OFC
SCC
NAc
VP
Hipp
Amyg
MOTIVATION/ DRIVE
MEMORY/ LEARNING

The Brain & Addiction

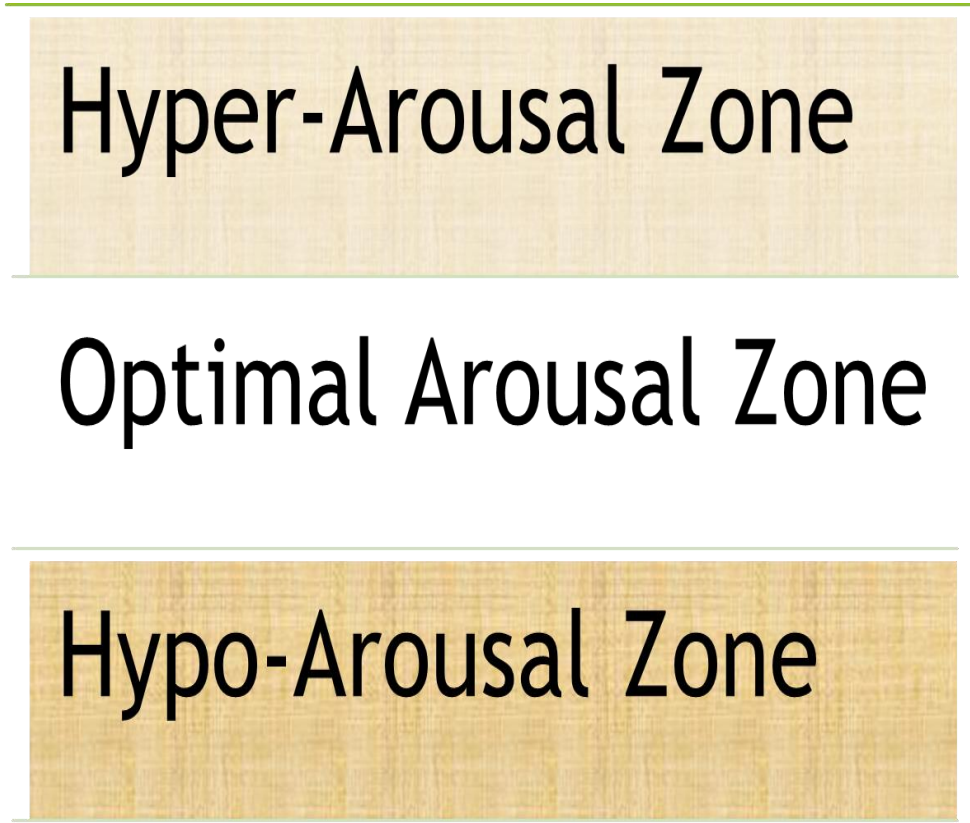
- The nucleus accumbens also helps integrate information from cortical and limbic structures to help mediate goal-directed behaviors.
- The nucleus accumbens sends signals to the amygdala and hippocampus, which register and consolidate memories that evoke strong feelings
  - Involves many of the same brain pathways that govern learning & memory
- Chronic exposure to several classes of drugs of abuse disrupts plasticity in this region
  - The brain loses access to other, less immediate, and powerful sources of reward.
  - Projects to the PFC (prefrontal cortex) are downregulated
    - "Go" circuits are turned on; "Stop" circuits get scaled back
  - Research also suggests that those struggling with addiction are hypersensitive to stress, environment cues, and ANY mood-altering substance or activity.

Addiction and the brain

- Drug/alcohol/behavioral patterns create changes in brain reward regions
  - Associated learning takes place
    - Play mates
    - Play pens
    - Playthings…..create a conditioned response that instigates craving
  - The major brain centers associated, and negatively impacted, with this learned response are:
    - Orbitofrontal cortex (OFC)
    - Dorsal Lateral prefrontal cortex (DLPFC)
    - Anterior cingulate
    - Amygdala
    - Hippocampus
    - Nucleus accumbens
  - Frontal lobe volume decreases which allows for the limbic system (amygdala, etc.) to release emotions that are typically kept under control
  - Addiction decreases sensitivity to non-drug/maladaptive behavior reinforcers and decreases a person's ability to inhibit maladaptive behavior.(Goldstien & Volkow, 2011)

Putting it all together

- Trauma is an issue of integration (learning) and "binding" of information in the nervous system
- Addiction involves relearning how to achieve a sense of pleasure, safety, and motivation outside of the addictive substance or behavior.
- Learning and curiosity can ONLY occur when the brain is in an *optimal zone of arousal;* achieved by a FELT sense of safety and having agency.
- ALL of these are connected to the brain's neuroplasticity; controlled by neurochemical and physiological functioning of the brain's mechanics.
- The autonomic nervous system (ANS) controls the body's state of arousal
  - Sympathetic = gas/excitatory
  - Parasympathetic = brake/inhibitory
- This system can become impaired and imbalanced with multiple traumas over time



Overall Treatment Goals

- Keep the client's nervous system in an optimal zone of arousal; a state of FELT safety and agency.
- Surround the client with people who can regulate their OWN nervous systems.
- Provide an environment conducive to learning/information integration.
- Utilize therapeutic approaches that are easily taught and employed by the client; setting the stage for long term success.

THERAPEUTIC ENVIRONMENTS AND INTERVENTION DELIVERY TO INCREASE TREATMENT SUCCESS AND LONGEVITY

Health of the Clinical Staff

- Ensure your clinical staff is in overall good health
  - No sense in having a great product if the delivery is poor.
- Clinical staff has a balanced workload
- Staff are regularly encouraged to maintain overall health to ensure appropriate boundaries in clinical relationships, defend against burnout, and maintain ethical care.
- Continued education in the areas of neurobiology, physiology, psychopharmacology, psychology, ethics, etc. are encouraged and offered by your facility frequently.

- Teacher-student relationships, emphasizing teacher empathy, warmth, genuineness, non-directivity, and encouragement of critical thinking, along with reciprocal and secure attachments yield positive student outcomes (Cornelius-White 2007).
- Additionally, levels of adult support have a direct influence on student engagement (Klem and Connell 2004; Woolley and Bowen 2007).
- Students benefit from connectedness and belonging through relationships which serve as a protective factor for resilience and well-being (Roffey 2013; Stewart et al. 2004).

Bridging Attachment Wounds

- Most trauma clients will enter treatment with avoidant, anxious or disorganized attachment styles:
  - Avoidant
  - Anxious
  - Disorganized
- Reactive Attachment Disorders (e.g. BPD, Histrionic, Narcissistic, etc.) co-occurring with most clients in tx will need to be addressed as they impact stress hardiness, perspective on pain and relationships with self/others.
- According to Allan Schore, PhD, in order to begin to heal the self, a person must begin to repair attachment to themselves and others.
- Attachment is attuned via one's right brain and limbic system
  - Interoceptive work (Schore, A.2019)
- Trauma-informed staff are instinctually invested in healing attachment with clients via how they hold their stance, tone of voice, eye contact, asking inquisitive questions, etc.
  - Interacting with the "child" parts of the client vs. the intellectual "adult" portions of the client.

Create Environments Conducive to Safety and Learning

- Clients are typically in a constant state of fear and threat and therefore are:
- Less capable of concentrating and attending to information.
  - Outside of optimal zone of arousal:
    - Hyper aroused
    - Hypo aroused
  - Clients look as if they don't hear you, are avoidant and angry, unable to pay attention, have difficulty connecting to others, and have difficulty explaining what they feel and what they need.
- Typically, clients aren't in a neurochemical and functionality that isn't conducive for learning upon entry into treatment.

- Trauma can lead to consequences such as reduced cognitive capacity, difficulties with memory and concentration, and language delays; impacted social functions include attachment difficulties and poor relationships with peers (Downey 2007)
- Fear KILLS curiosity and inhibits exploration and learning.
- Clients often confuse painful affect with being unsafe or unprotected.
- Information is inaccessible to the cortex while a person is in a constant state of fear/threat.
- Optimal learning depends on the process of curiosity-exploration-discovery-practice-mastery = pleasure-satisfaction-confidence
- Curiosity drives us to explore = exploration releases dopamine = dopamine leads to pleasure and escape from pain. (Lembke, A., 2021)

Safety & Choice Engages the Cortex

- Furnish structure, predictability, and a sense of inclusion and choice = clients feel secure and then are able to learn/integrate information.
  - Maslow's hierarchy of needs.
- The capacity to internalize new verbal cognitive information depends on having portions of the frontal and related cortical areas activated, which in turn requires a state of attentive (FELT) calm. (Perry, 2006)

- Two regulatory pathways help facilitate learning:
  - (1) teaching clients to self-regulate their emotional and physical responses enables cortical mediation (i.e., top-down regulation)
  - (2) support clients in resetting their baseline levels of arousal to strengthen the body's physiological ability to self-regulate (i.e., bottom-up regulation) (Cole et al, 2009; Perry, 2006).
- If clients are provided with the opportunities to connect the causal relationships between emotions and thinking, they will be better equipped to self-regulate at moments of uncertainty, stress, or confusion. (Perry, 2006)

Develop strong and meaningful treatment goals and goal-monitoring

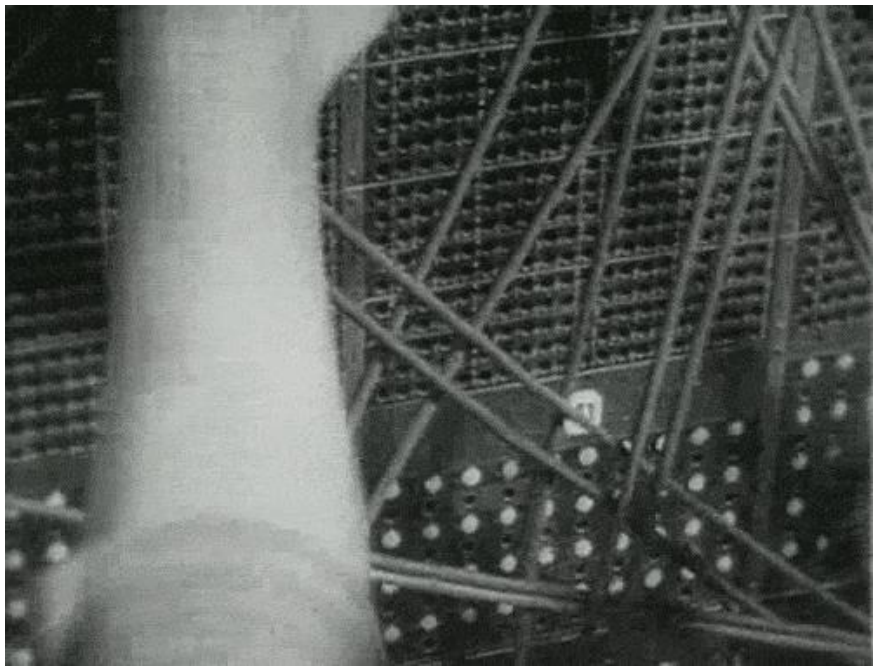
- Goal setting and goal monitoring = *collaborative processes where clinicians and clients identify and formulate therapeutic goals; and actionable objectives; and revisit, measure, and renegotiate these plans via a standardized procedure over time.* (Magill, M. et al, 2022)
- Connecting strong, positive affect and rehearsing skills to achieve treatment goals impacts neuroplasticity (Cramer, S. et al, 2011)
  - **Affect is glue** for memory formation and learning.
  - Incentive for reaching the goals also determines the rate and magnitude of neuroplasticity (e.g., jail, divorce, unemployment, etc.).
- Keeping client's tx goals at the forefront of their mind is fuel for learning/information processing and building a "why" for recovery and health.
- Co-creating realistic options for coping with cravings, use, trauma response, etc. after treatment is imperative to the client's long term success

Consider Various Learning Styles and Amount of Information Provided

- Adults learn in smaller increments than children and as we age, our learning capacity decreases (Janacsek, K. et al, 2012)
  - You can't teach and old dog new tricks concept ☺
  - Smaller and shorter increments of information would be best for learning.
- Utilizing various forms of learning (visual, auditory, and kinesthetic) would benefit client's in early recovery and who have experienced high levels of trauma
  - Learning typically takes place via verbal or visual instruction and then engaging in the activity
    - We learn by DOING!
  - Think about how you learned as a child in school or children's television programming.
  - Psychodrama, role-playing, written plans for specific responses outside of treatment, etc. could help move information from "knowing" to "action".

Other options to increase neuroplasticity and enhance learning

- Neuroplasticity is a key characteristic of the nervous system or the brain's capacity to reconfigure and adapt in response to external stimuli and experiences. (Kumar, J. et al, 2023)



- Quality sleep allows for repair and changes in neural structuring.
- Good nutrition can boost brain function; giving it the building blocks it needs to create neural health.
- Mindfulness and meditation to reduce stress.
- One's level of physical activity may improve neuroplasticity in the brain (Hotting, K. & Order, B., 2013; Kirvalidze, M. et al (2023)
  - Integrating movement daily, or in between bouts of learning, could improve
- Selective Serotonin Reuptake Inhibitors (SSRIs) can also improve neuroplasticity (Kumar, J. et al, 2023)

EFFICACIOUS THERAPEUTIC INTERVENTIONS FOR THE TREATMENT OF TRAUMA

Education & Empowerment

- Educate clients about the impact of trauma, ACE's, lack of parental attachment, addiction, etc. on their nervous system and NOT just their psychology
  - Empowering!!!
- Provide it in a form that is digestible and relatable
  - No sense in knowing it if you can't use it to motivate the client to achieve tx goals.

Cognitive Behavioral Therapy (CBT)

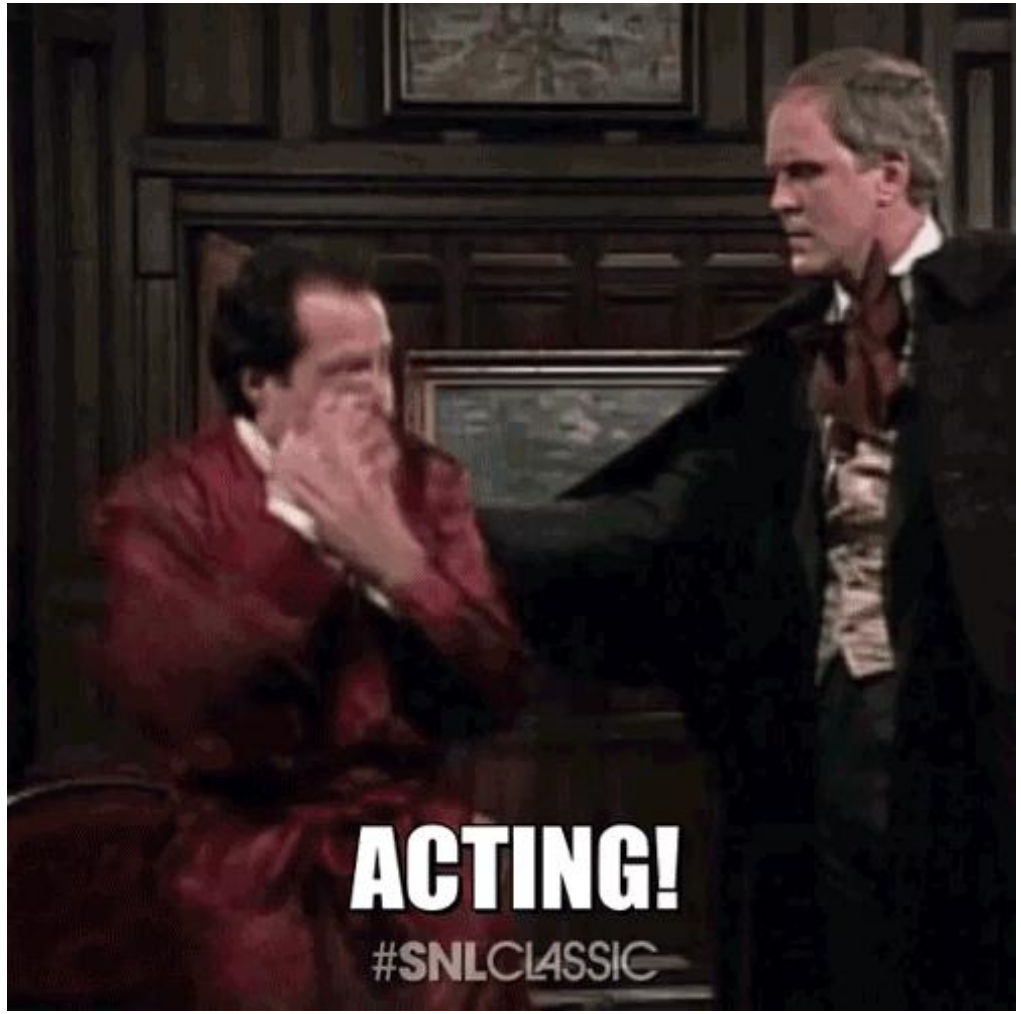
- Assist in the identification of emotional states
  - Keep it simple!
  - Only need those that are relatable to that of an 8 y/o.
  - Human faces better than emojis and just words.
- Provide ways to describe sensations.
  - Textures, colors, actions (e.g., ringing out a washcloth or the feel of a weight in their hands).
- Describe intensity
  - Size, distance, colors, facial expressions.
  - Help determine a 0 from a 10 (as kids are often black/white and good/bad in descriptions)
- Distinguish the difference between thoughts, feelings and actions.
- Determine what they believe about themselves, other people, and how the world works.
- Assist in identifying patterns and motivations.
  - Determine how they get their needs met for safety, security, love, belonging, identity, etc.
- Discuss how to integrate their tx goals and motivations within the information they can now access.
  - You can't heal what you can't acknowledge.
  - Bringing the unconscious more conscious.

Ego State Therapies

- Internal Family Systems (IFS)
- Developmental Needs Meeting Strategy (DNMS)
- Transactional Analysis (TA)
- Psychoanalysis
- These assist the client to break the “self” down into “parts” to make things more digestible in tx and allow for a consciousness of the “inner dialogue” that often confuses our actions.

Role Play and Psychodrama

- Working with clients in real time to "act out" responses with common reactions from others is helpful in learning and solidifying concepts.
- Can play out family dynamics, change roles in the milieu dynamics, etc.
- This can also be done with figurines and "play therapy" items in the office with a clinician.



Sand Tray Therapy

- While typically associated with play therapy, sand tray therapy can be a great addendum to strengthening relational concepts, acting out internal dialogue, and providing a “language” that the client may relate to vs. verbal or written.

Art and Music Therapy

- Like sand tray, providing a variety of "languages" that clients can utilize to express feelings, sensations, ideas, etc. can be beneficial in moving ideas into meaningful action.

Eye Movement Desensitization and Reprocessing (EMDR)

- Components of EMDR Therapy can be useful for ALL clients.
  - Preparation Phase
- Acute protocols within EMDR are useful for staff engaging with clients with high levels of affect dysregulation.
- For clients that have more developmental trauma, it is best that EMDR ONLY be utilized by a trained clinician who will have access to the client for an extended period.

Mindfulness

- There are four (4) types of mindfulness:
  - Mindfulness of Mind
  - Mindfulness of the Body
  - Mindfulness of Feeling Tone
  - Mindfulness of Greater Truths
- Focusing on mindfulness of mind and feeling tone are great places to start!
- Mindfulness of the body should be reserved for after assessment for disassociation is complete
  - Begin with benign parts of the body (e.g., left thumb, bend of the elbow, ear lobe, big toe, etc.)
  - Refrain from the visceral system until there is adequate trust and safety with the client or group.

Are you able to…

- Define “trauma” and its impact on overall health and brain function.
- Discuss the intersection of the neurobiology of addiction and trauma.
- Determine approaches best to integrate effective trauma treatment with early recovery patients.
- Outline efficacious and efficient treatment approaches to create a foundation for healing trauma within inpatient treatment for addiction.

THANK YOU!!!!

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