THE NEUROSCIENCE OF TRAUMA

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ABOUT ME

- Clinical advisor,

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LEARNING GOALS

- Define trauma and its effects on individuals
- Describe how the brain processes trauma
- Identify a message that peer support team members can communicate to individuals with trauma

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TRAUMA

A distressing or disturbing experience that overwhelms a person’s ability to cope, causing lasting mental, emotional, or physical harm.

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Table CORE - 1 Common Signs & Symptoms Following Exposure to Trauma

Physical	Cognitive/Mental	Emotional	Behavioral
• Chills • Difficulty breathing • Dizziness • Elevated blood pressure • Fainting • Fatigue • Grinding teeth • Headaches • Muscle tremors • Nausea • Pain • Profuse sweating • Rapid heart rate • Twitches • Weakness	• Blaming someone • Change in alertness • Confusion • Hyper-vigilance • Increased or decreased awareness of surroundings • Intrusive images • Memory problems • Nightmares • Poor abstract thinking • Poor attention • Poor concentration • Poor decision-making • Poor problem solving	• Agitation • Anxiety • Apprehension • Denial • Depression • Emotional shock • Fear • Feeling overwhelmed • Grief • Guilt • Inappropriate emotional response • Irritability • Loss of emotional control	• Increased alcohol consumption • Antisocial acts • Change in activity • Change in communication • Change in sexual functioning • Change in speech pattern • Emotional outbursts • Inability to rest • Change in appetite • Pacing • Startle reflex intensified • Suspiciousness • Social withdrawal

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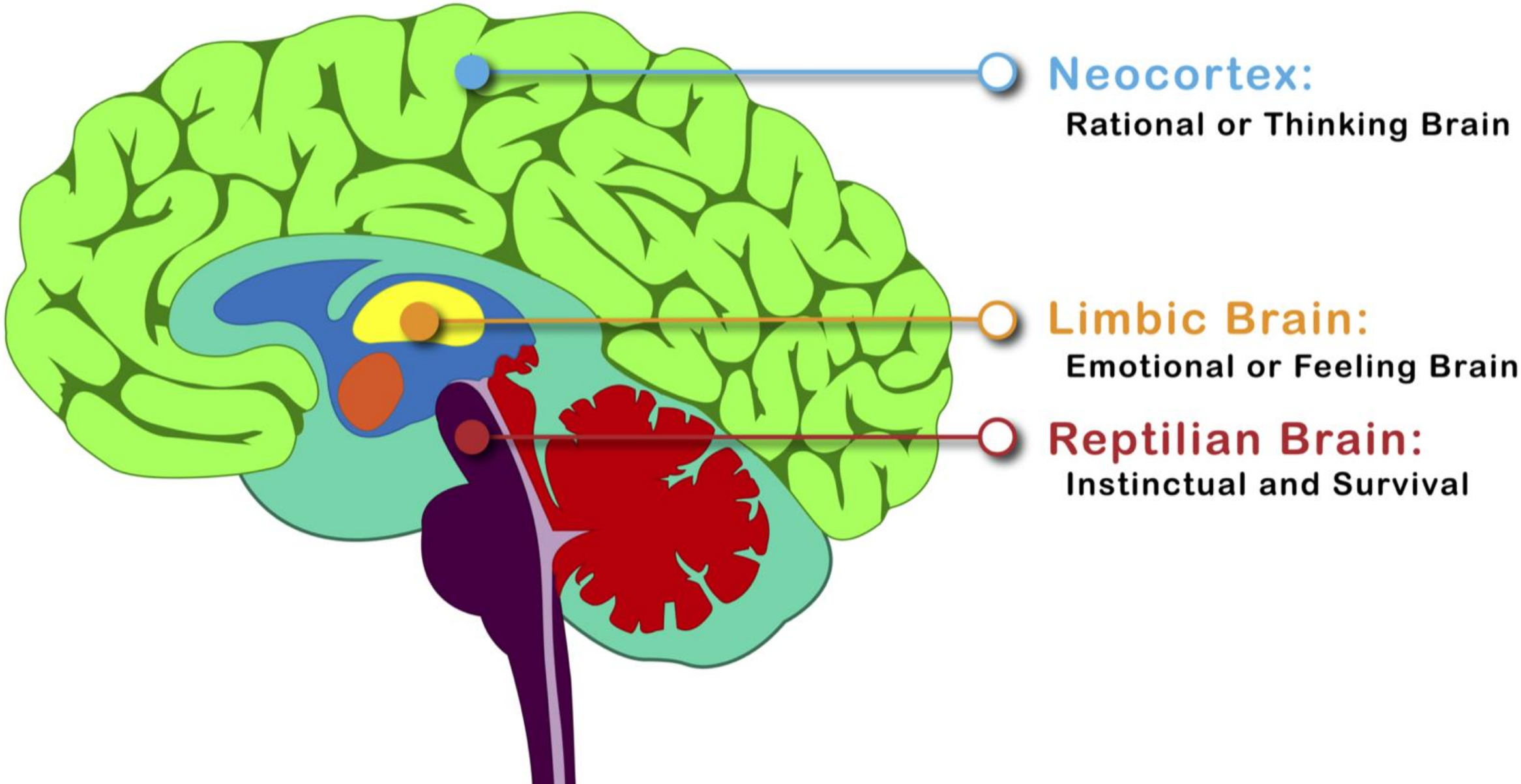
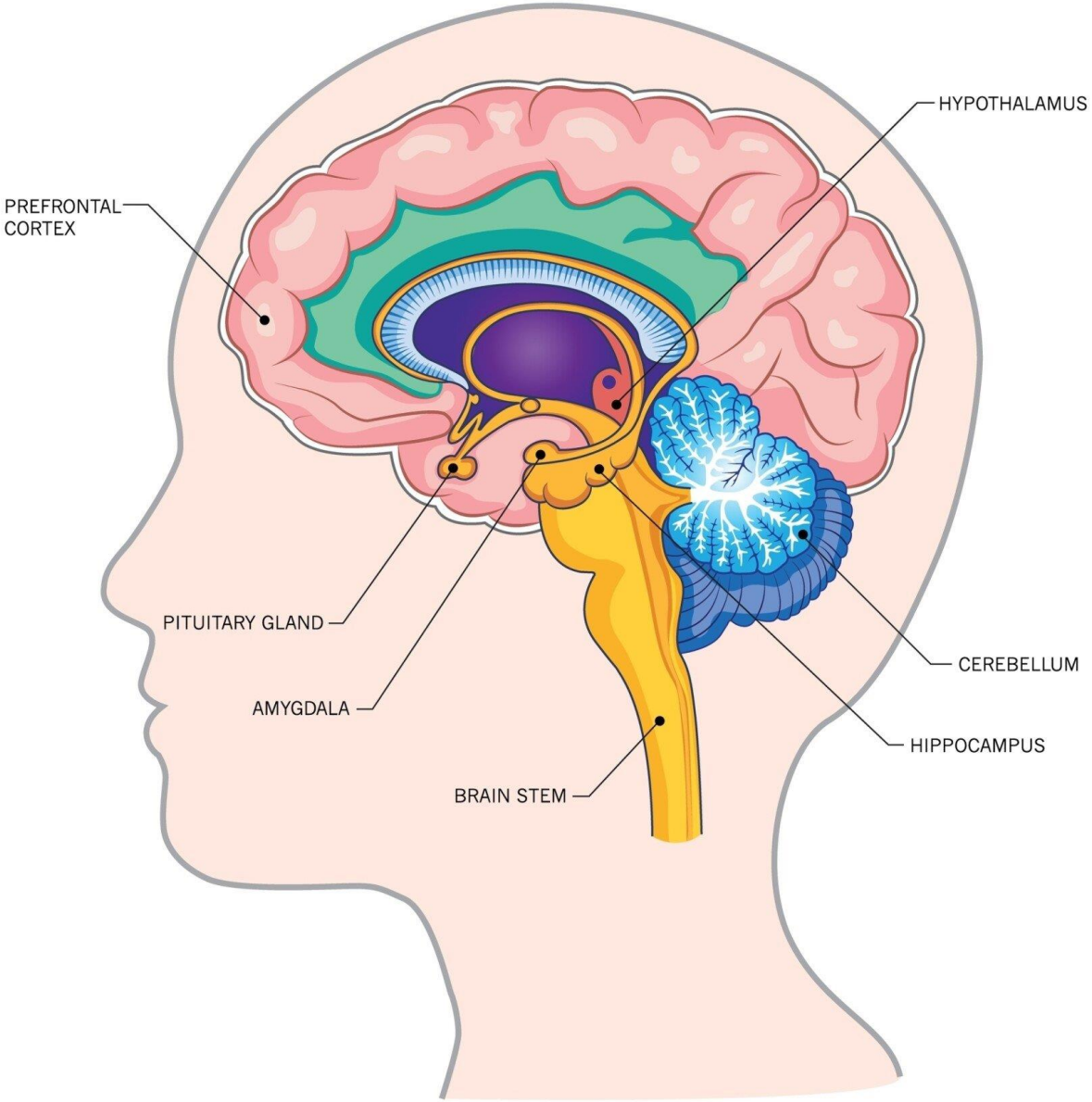
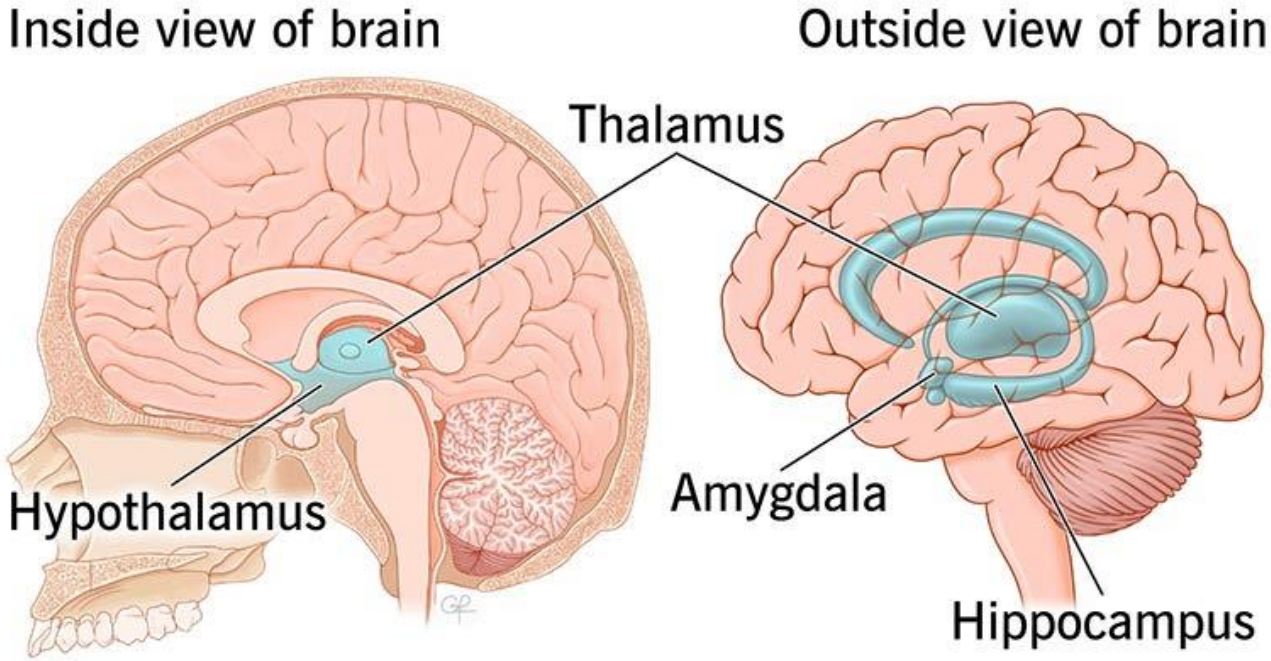
FEAR CIRCUITRY


Neocortex:
Rational or Thinking Brain
Limbic Brain:
Emotional or Feeling Brain
Reptilian Brain:
Instinctual and Survival

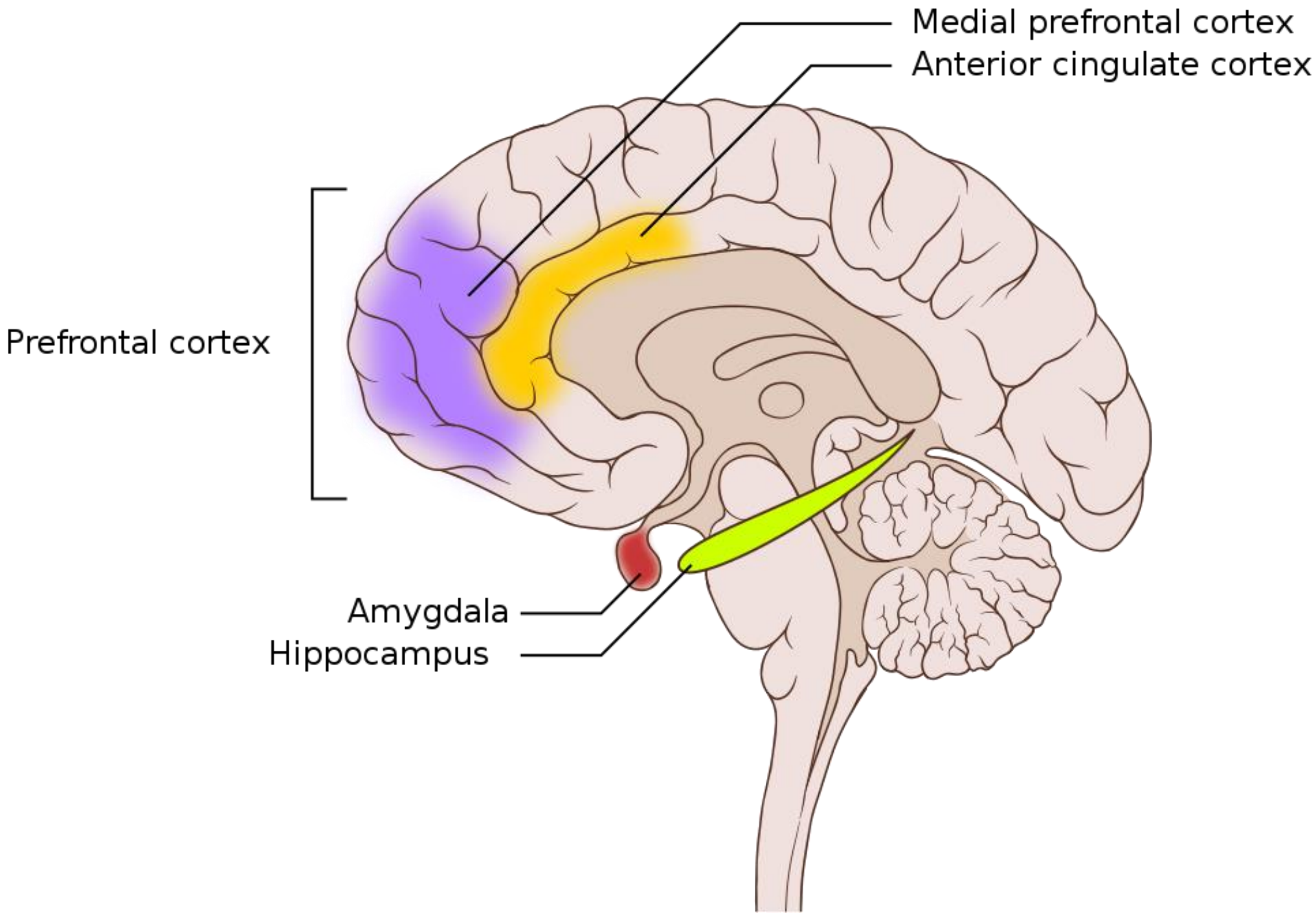


https://www.simplypsychology.org/prefrontal-cortex-development-age.html

Limbic system



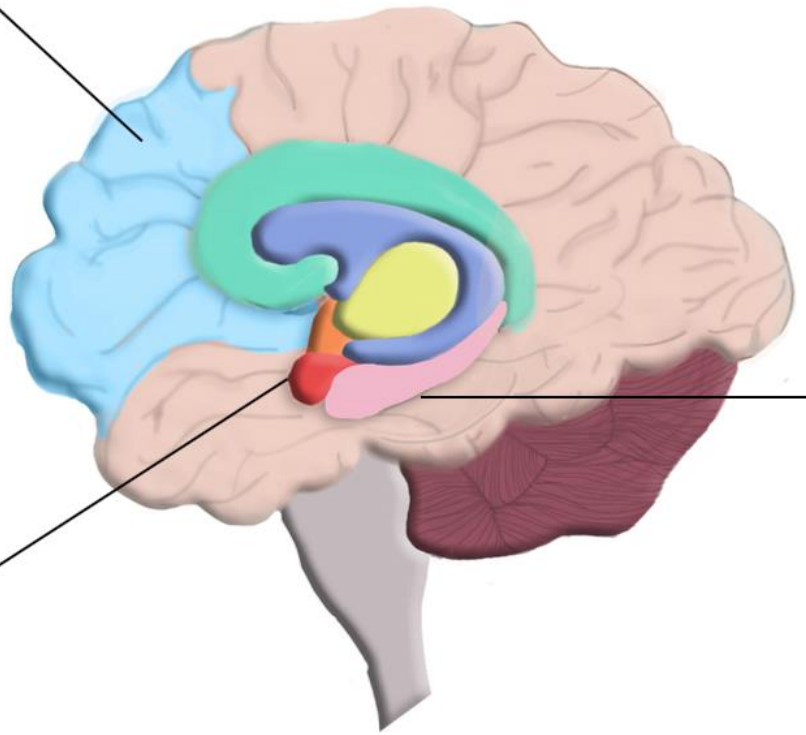
Limbic system processes and manages:


Medial prefrontal cortex
Anterior cingulate cortex
Prefrontal cortex
Amygdala
Hippocampus

Three Primary Brain Regions Affected by PTSD and Their Functions

Prefrontal Cortex

- Abstract thinking
- Personality development
- Behavior regulation
- Planning
- Problem Solving



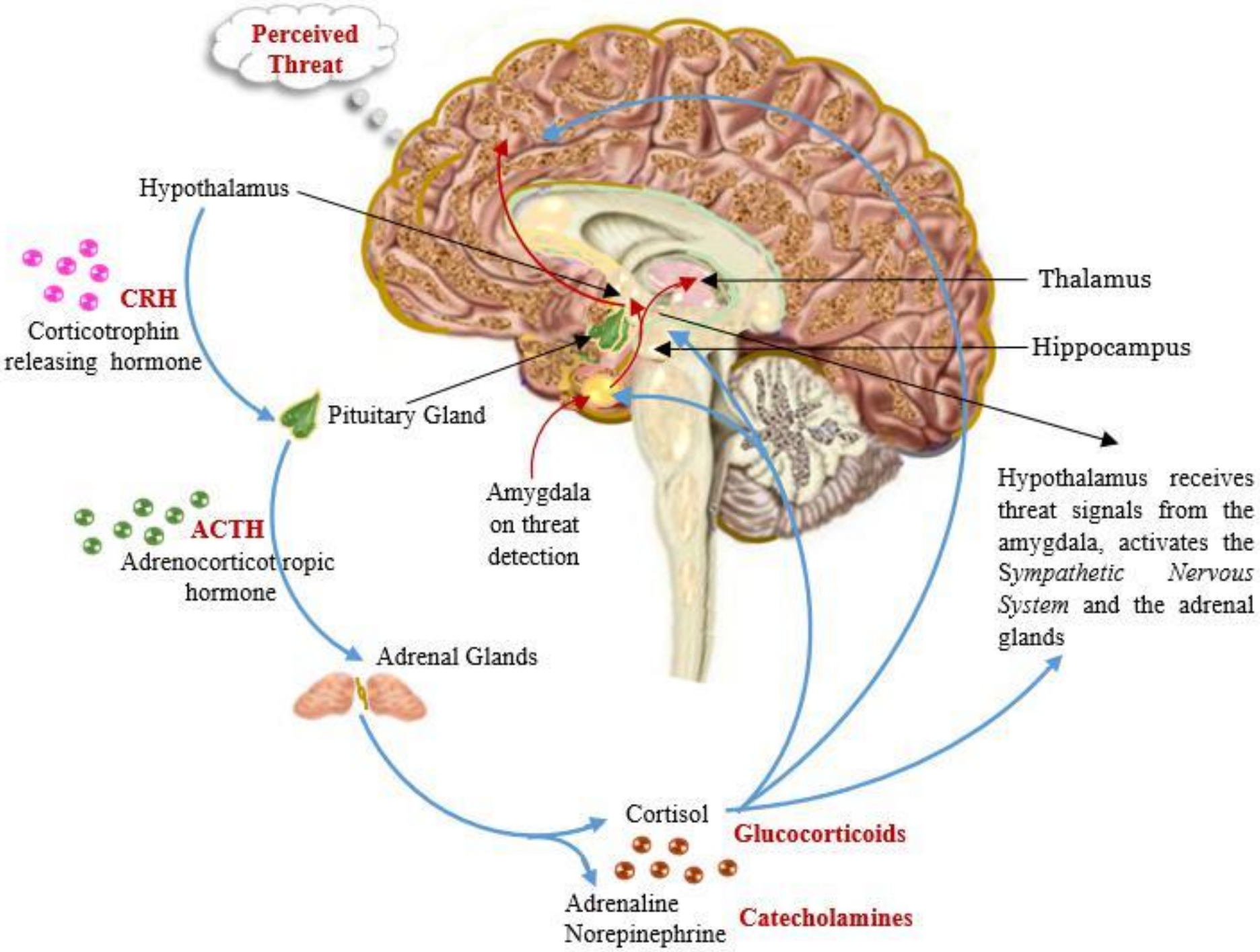
Hippocampus

- Memory consolidation
- Navigation and spatial memory
- Learning

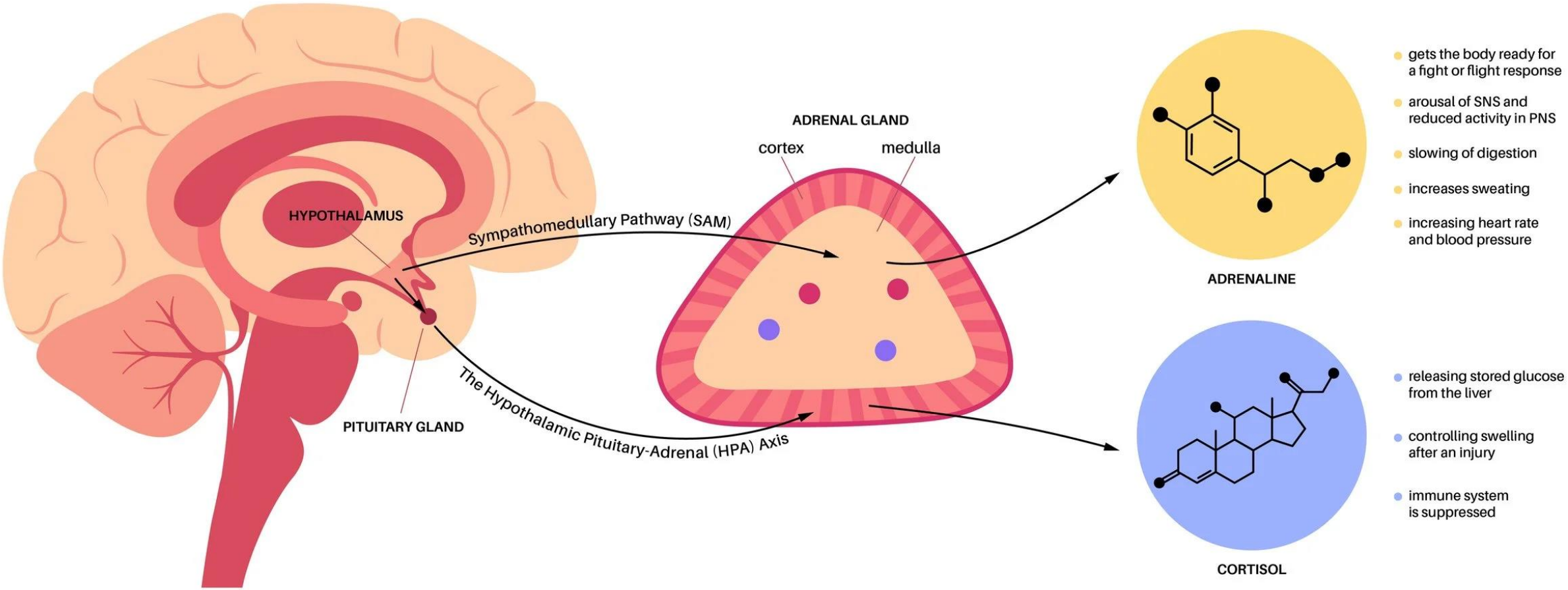
Amygdala

- Decision making
- Emotional memories
- Regulates behavior
- Initiates response to fear

https://staradvocates.blog/2020/02/19/the-neurobiology-and-impacts-of-ptsd/


Perceived Threat
Hypothalamus
CRH
Corticotrophin releasing hormone
Pituitary Gland
ACTH
Adrenocorticotropic hormone
Adrenal Glands
Amygdala on threat detection
Thalamus
Hippocampus
Hypothalamus receives threat signals from the amygdala, activates the Sympathetic Nervous System and the adrenal glands
Cortisol
Glucocorticoids
Adrenaline
Norepinephrine
Catecholamines

STRESS RESPONSE



HEALING IS POSSIBLE.

TRAUMA can be treated through evidence-based treatment.