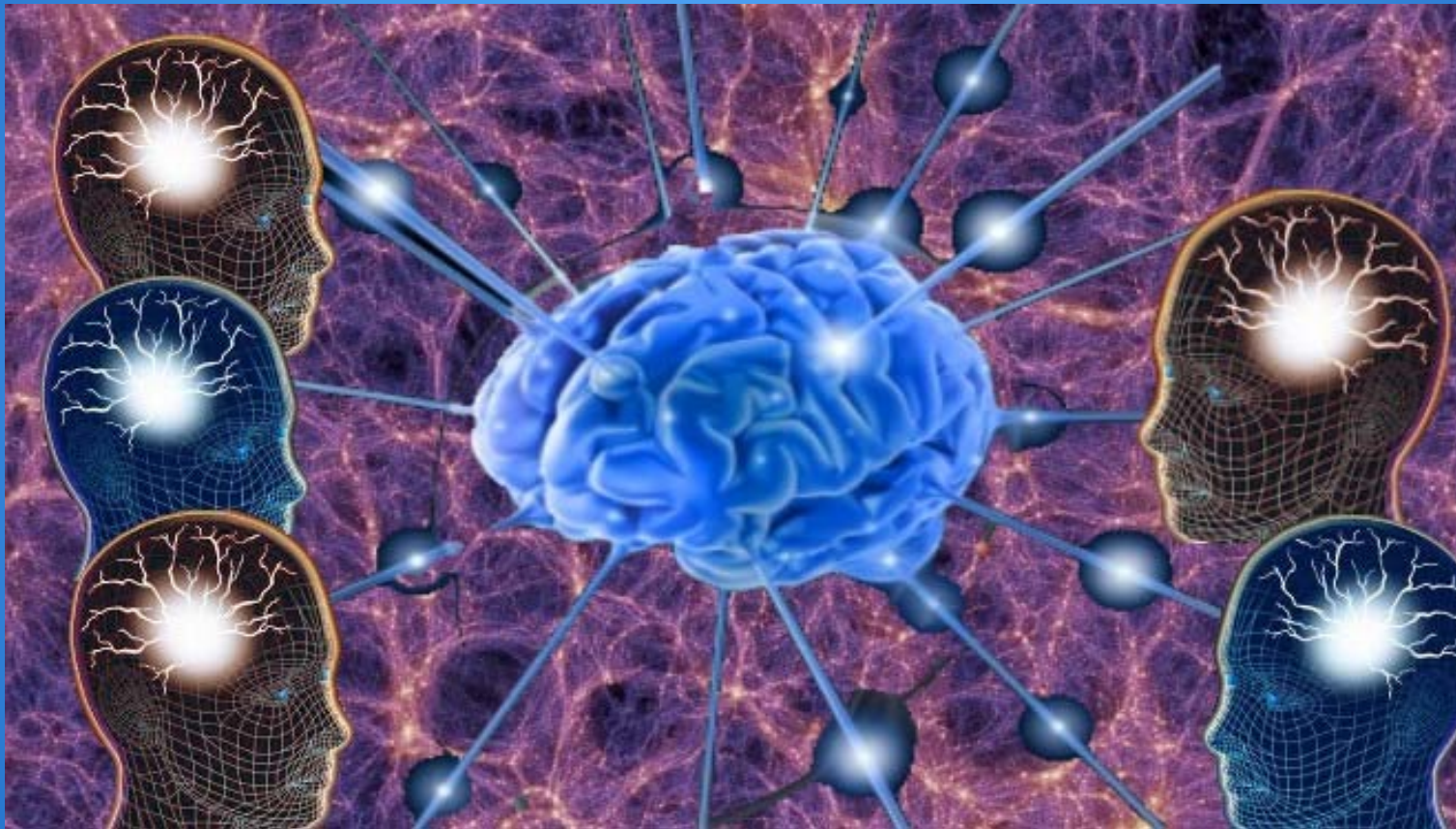


# Exploring the Traumatic Brain's Wiring and Firing



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## Overview

- Healthy Brain
- Traumatized Brain
- What can we do, i.e. explore tools, skills, etc

# Brain Development

Brain Development-full weight by about age 21 but 'National Institutes of Health' found that the region of brain that inhibits risky behavior is not fully formed until ~age 25 (30)=brain maturity.

Genetics + environment-events shape our brains and therefore shape our lives.

Neuroplastic changes occur over our life span- -new pathways are created and others, not used, are pruned away-the firing and wiring of our brain occurs.



Development: what comes online first

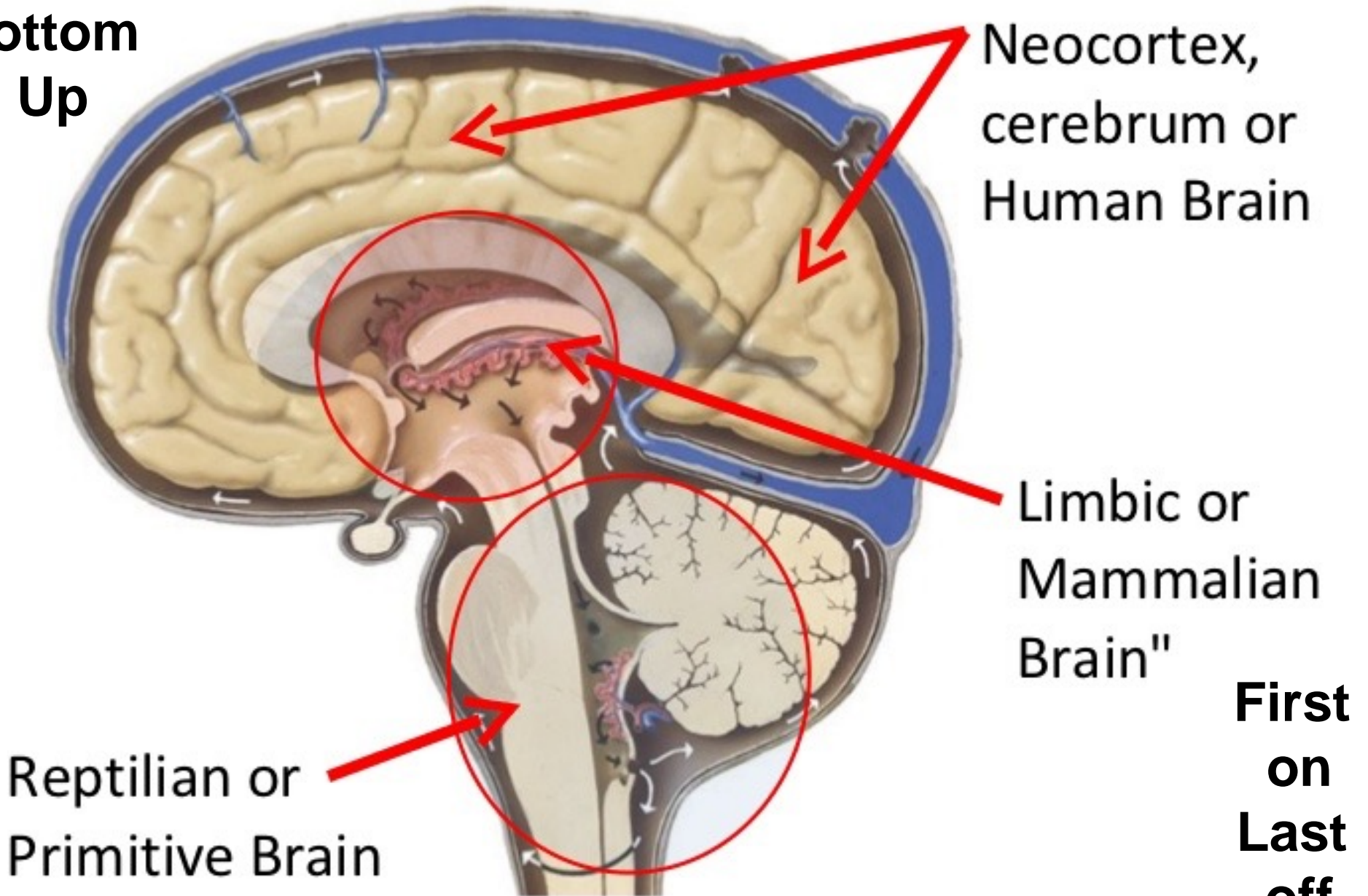
The Reptilian Brain: autonomic arousal, instinctive responses – speaks the language of sensation impulse

The Mammalian Brain or Limbic System: emotional and somatosensory memory, attachment – speaks the language of emotion

Pre-Frontal Cortex: regulatory abilities, cognitive and executive functioning – uses verbal language and analytical reasoning-goal is top-down management –

# Your Three Brains

Top  
Down  
Bottom  
Up



# Autonomic Nervous System

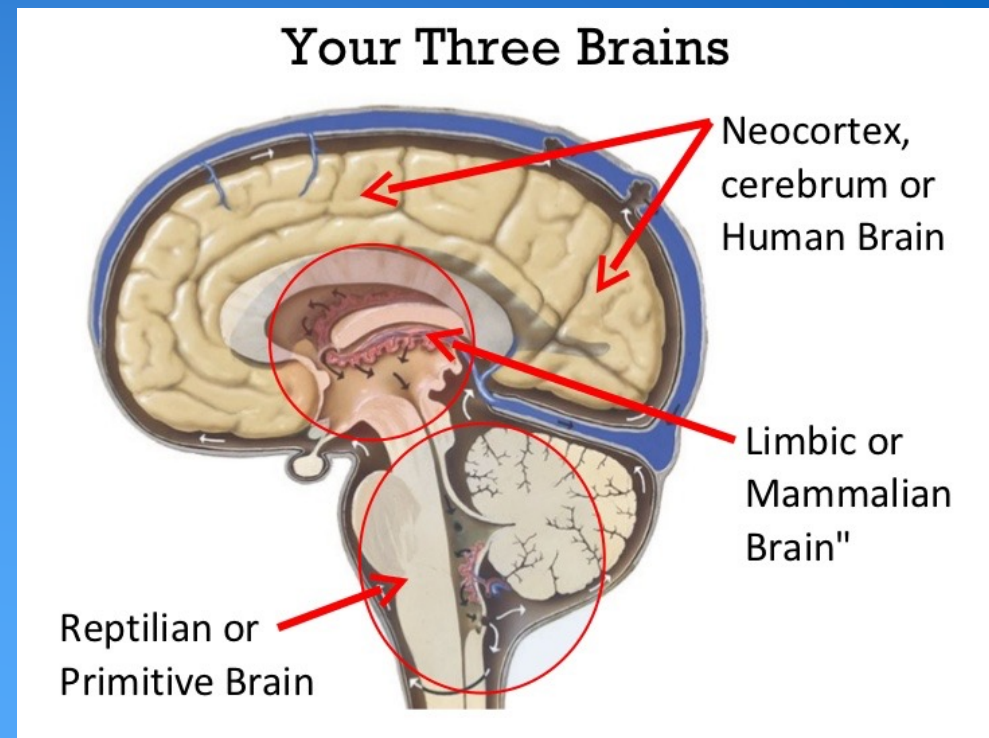
Our survival defense response-hard-wired to respond to danger, looking for signs of threat-are we safe, are we comfortable? Neuroception-not on awareness level

Two branches-Sympathetic and parasympathetic

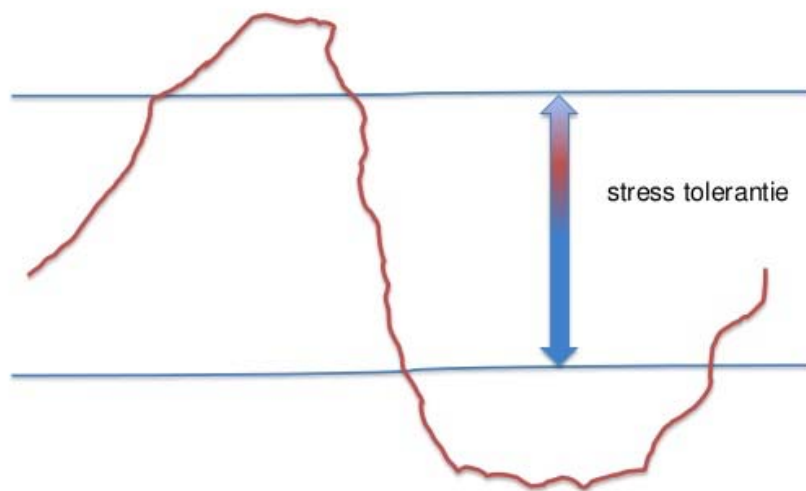
Chemical flood and consequential physiological responses-Fight or flight activation to freeze or submit

# Window of Tolerance

- Ability to tolerate emotions
- Triggered to “Pop Out”
- Hyper-arousal
- Hypo-arousal



## window of tolerance



StroomQ

- Brain receives stimulus
- Limbic determines S/NS
- Safe=Present=Pre-frontal
- Not safe=Past=Reptilian

# Nervous System Reactivity

Our nervous system is wired to protect us and keep us safe.

External and Internal triggers activate the memory. Misinterpretation of stimulus—we assign danger to sensation.

Frontal lobes shut down or decrease in activity in the attempt to allow for instinctual response. Our amygdala fires and initiates sympathetic nervous system.

Porges polyvagal theory—Vagus nerve and the connection of our brain to body.



# How Does Memory Guide our Reactions & Behaviors?

- Core/limiting beliefs
- (stuck/frozen images & memories)
- Teflon-vs-Velcro
- Right brain vs Left brain

Left  
brain



Right  
brain

## Goal: Healing and Recovery

- Increase top down awareness-bring the implicit to the explicit Increase -Wake up the frontal lobes
- Calm the nervous system-regulation and distancing
- Work toward integration-right/left - increased balance of thinking and emotion
- Ultimately-decrease impulsivity, increase executive function
- Think, feel, and act – whole person function and wellness

## Tools & Strategies

-Tools to cope with feelings and impulses

-Increase mindful awareness-elicite curiosity and develop distancing methods "Mindfulness consists of "Paying attention in a particular way: on purpose, to the present moment, and without judgment." Kabat-Zinn, 1994, Notice, acknowledge, welcome- acceptance

-Develop action plans, making a coping skills chart, making a survival kit

-Somatic resources-deep breath and heavy sigh, relaxation and and opening, lengthening the spine, focusing on patient movement, physical support of a chair or floor, grounding on the floor

# Relaxation Exercise

