

Military Trauma: An Osteopathic Perspective

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AAO Convocation 2014

Objective

- ✦ *Review trauma terminology and literature*
- ✦ *Review a diverse body of osteopathic perspectives and approaches to military trauma*
- ✦ *Propose a unique osteopathic understanding and approach in respect to the area of military trauma*



Military Trauma

What is it?

Terminology

- ✿ *Diverse Phenomena*
- ✿ *Physical: Injury to living tissue*
- ✿ *Psychological: psychological distress following exposure to a stressful event*

Trauma: Osteopathic Understanding

- ✦ *Proposed Definition*

- ✦ *A direct impact on the body unit's interrelated structure and function and that body's efforts towards allostasis utilizing its innate self-healing and self-regulating systems*

PTSD

- ✿ *Exposure to actual or threatened death, serious injury or sexual violence (or learned of trauma to close family/ friend)*
- ✿ *Intrusion (memories/dreams, dissociation, cues)*
- ✿ *Avoidance*
- ✿ *Altered cognitions and mood*
- ✿ *Hyperarousal*

Military Statistics

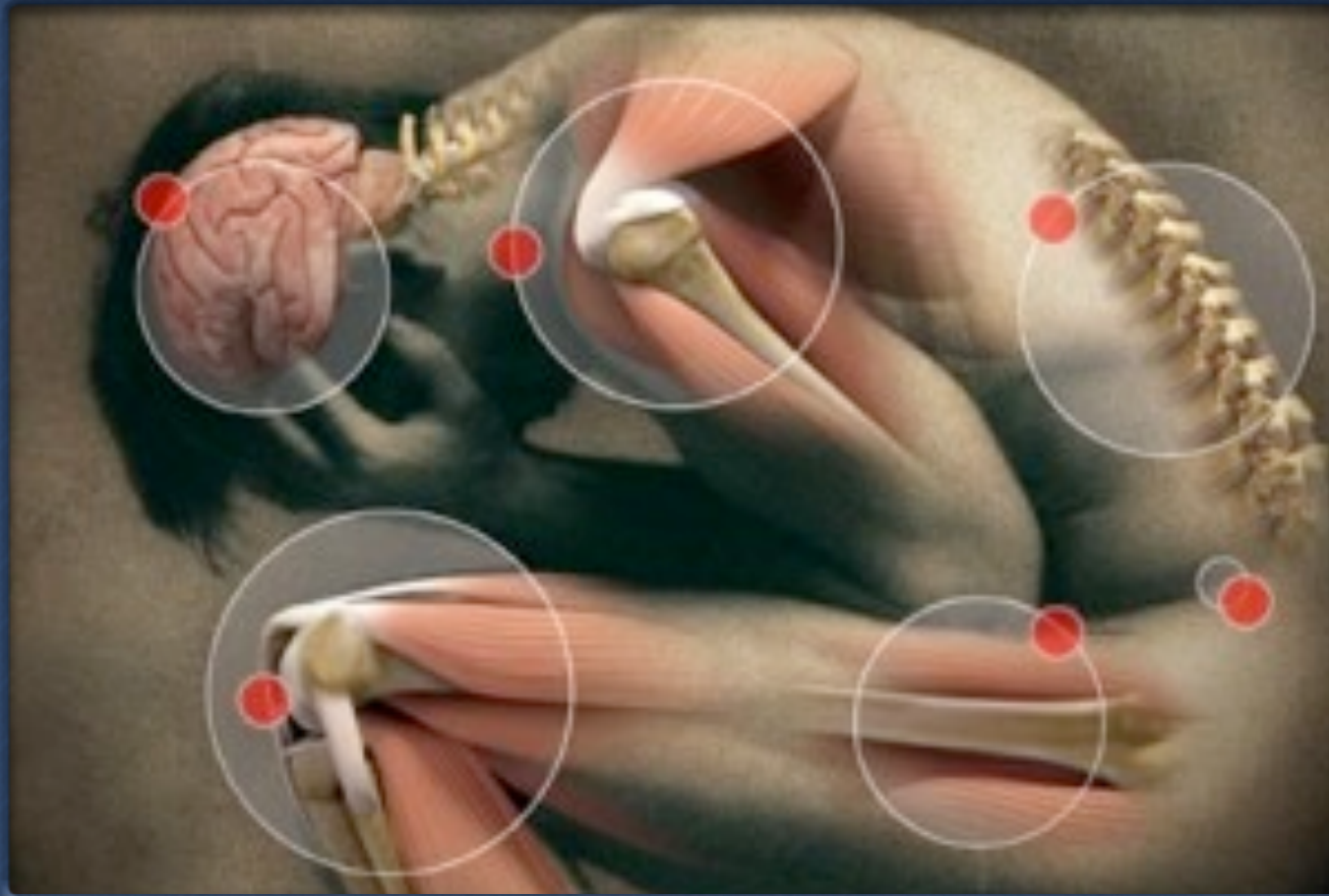
✦ 2008: 20% + PTSD or Depression, 19% TBI

✦ 2000-2012: 103,792 PTSD. 253,330 TBI

✦ 2012: Suicide > Combat

✦ 2001-2013: 50,897 Physical; 320,000 TBI; 400,000 PTSD

✦ Military Sexual Trauma: 2012- 70/day, 26,000 service members, 94% offenders male



Anatomy & Physiology

Structure and Function of Psychological Trauma

Anatomy & Physiology

- ✦ *Reduced Volume*

- ✦ *Med PFC*

- ✦ *Hippocampus*

- ✦ *Amygdala*

- ✦ *Elevated Cortisol*

- ✦ *Hypofunctioning*

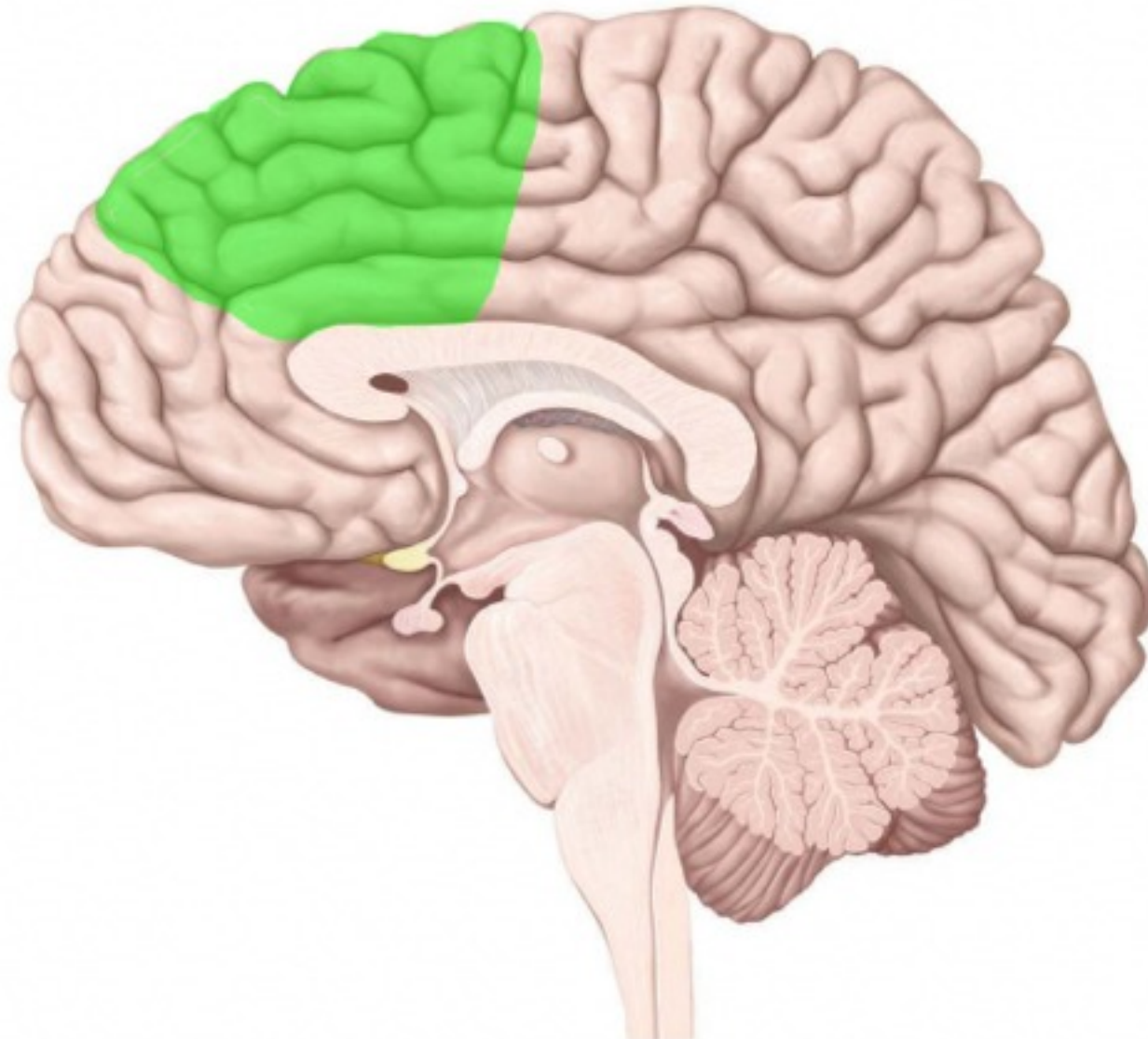
- ✦ *PFC Inhibition of
Amygdala*

- ✦ *Hippocampus*

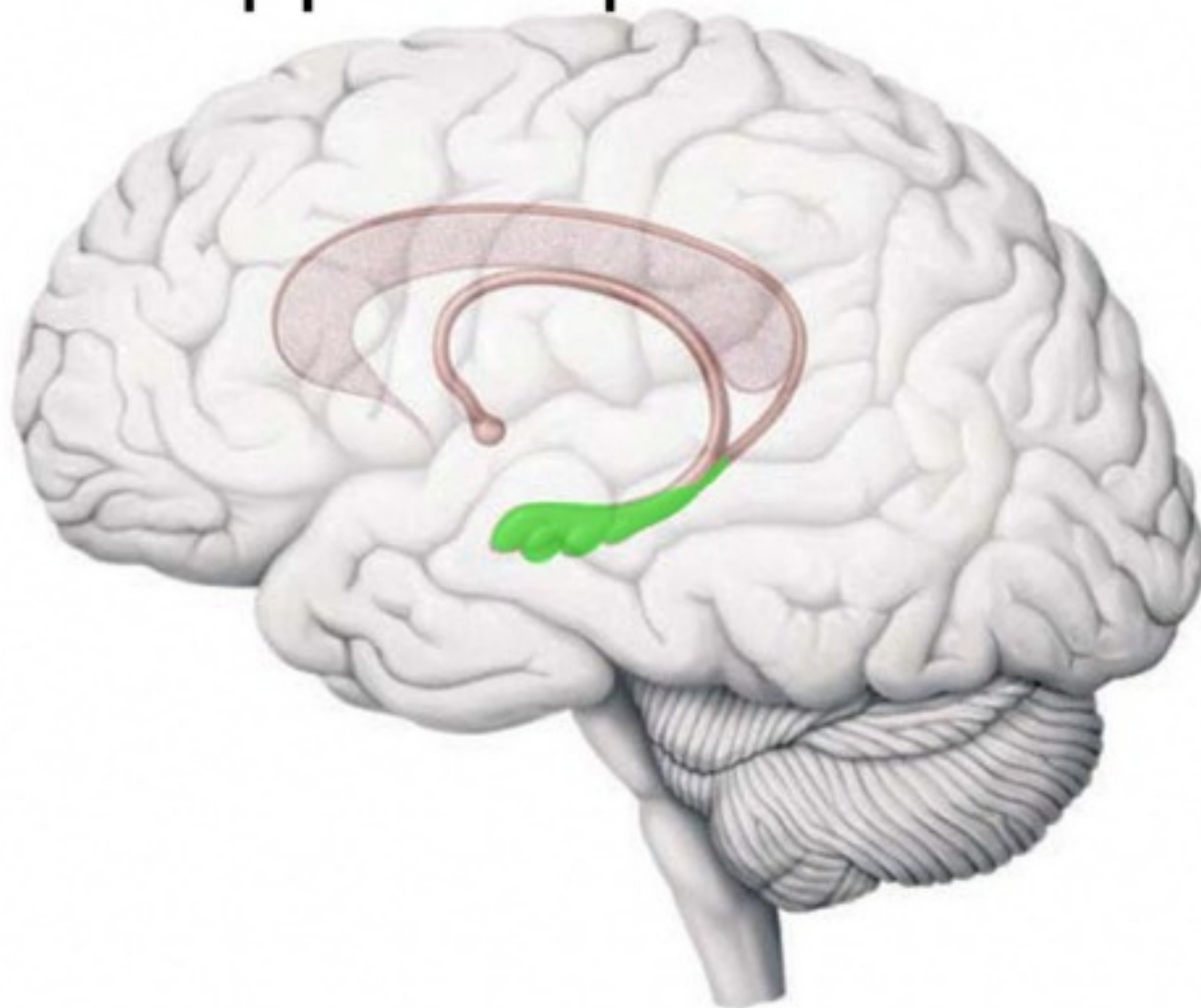
- ✦ *Anterior Cingulate*



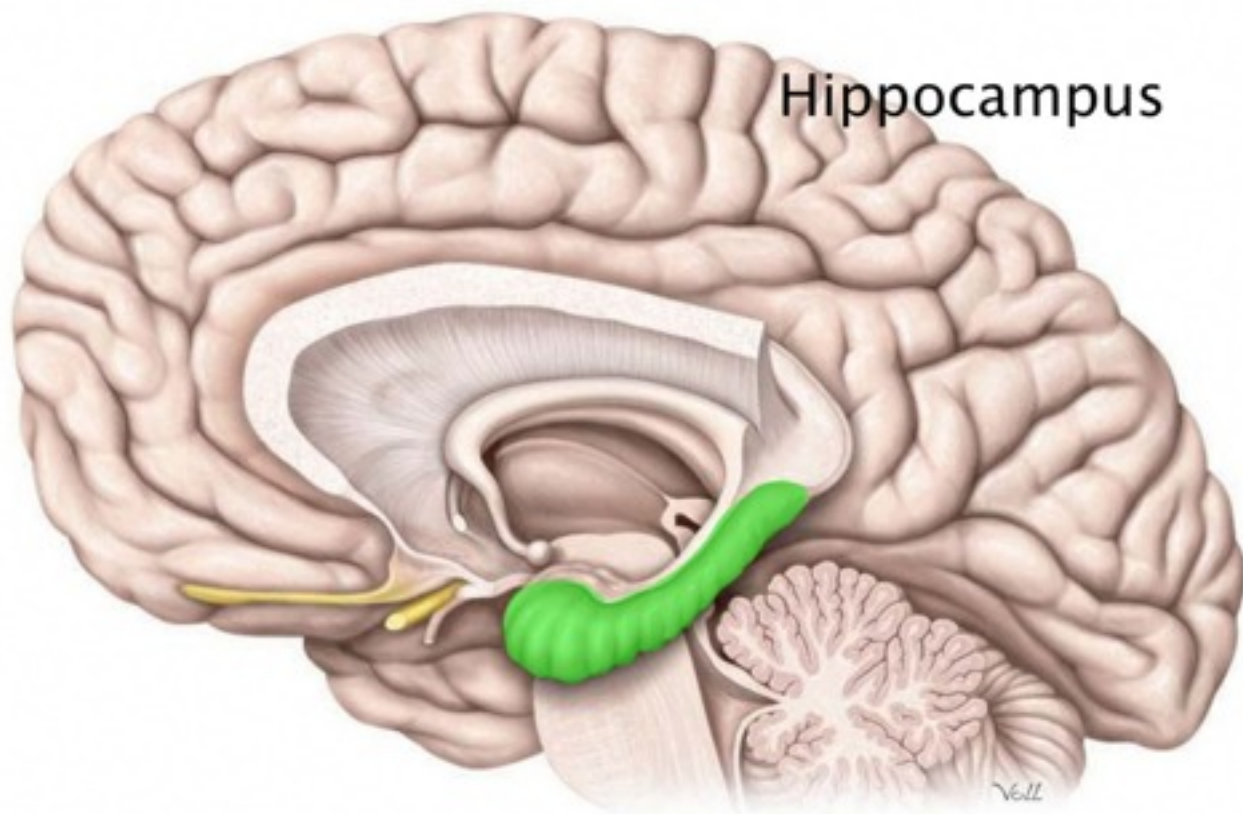
Medial Prefrontal Cortex



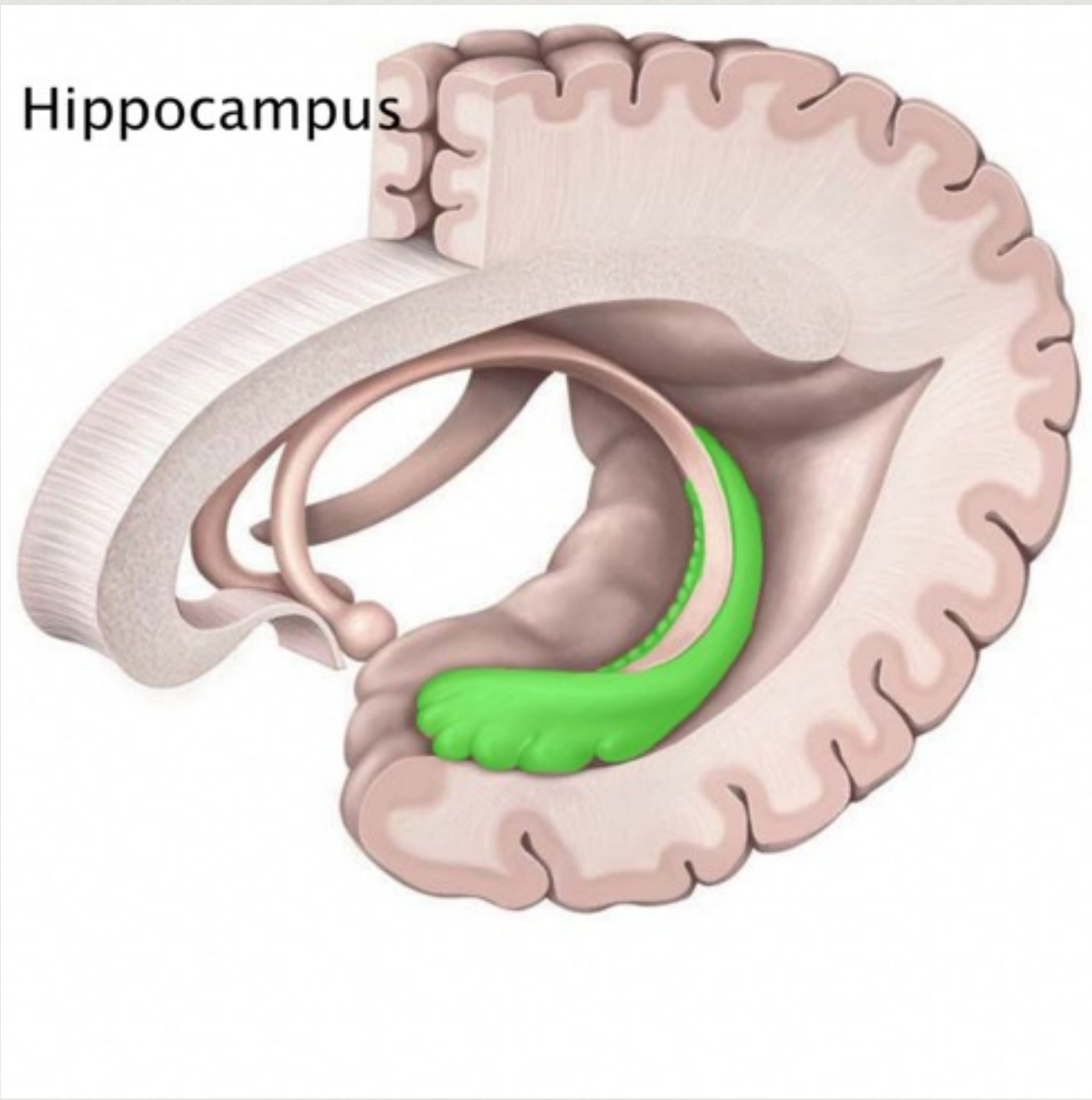
Hippocampus

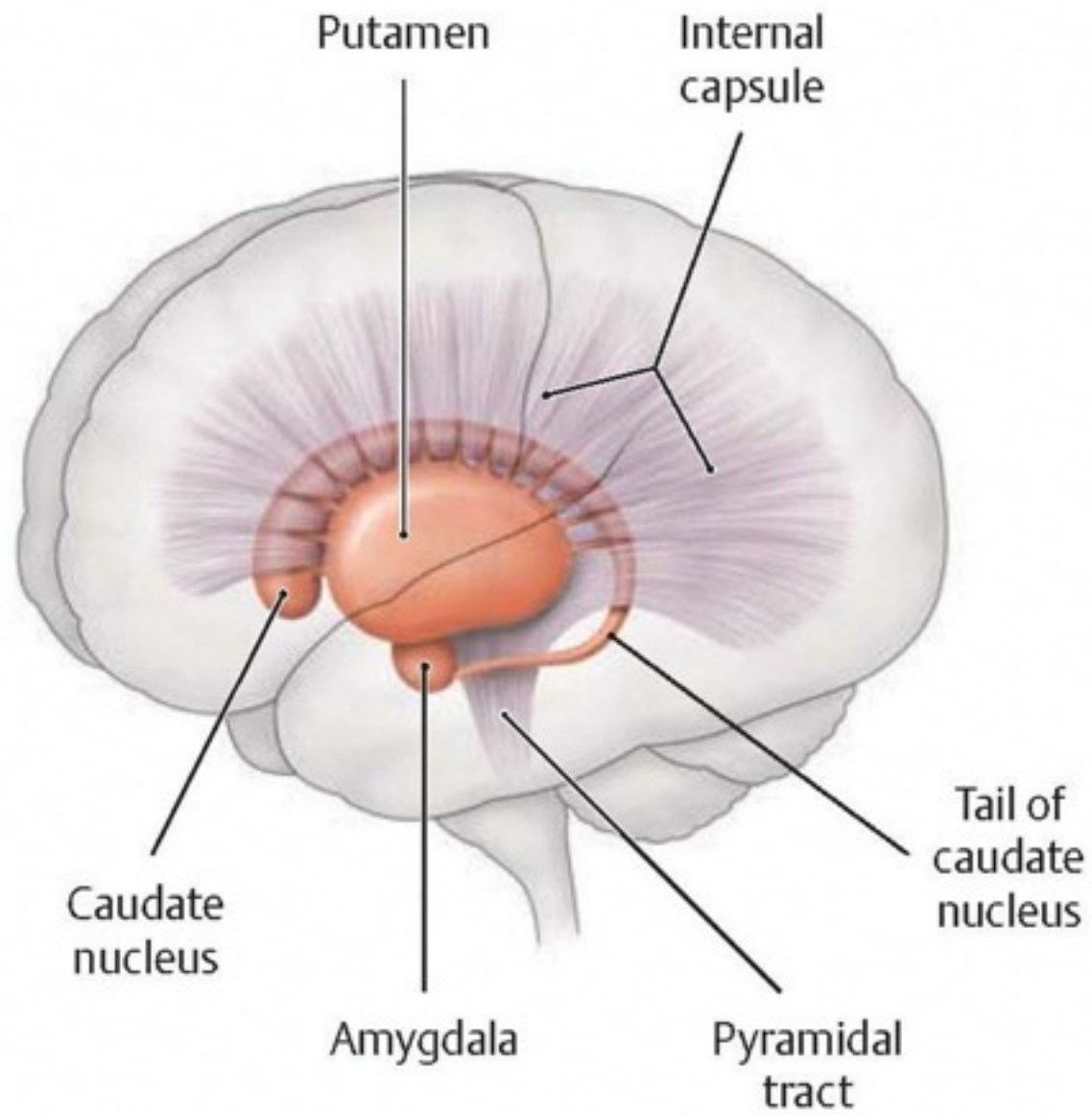


Hippocampus

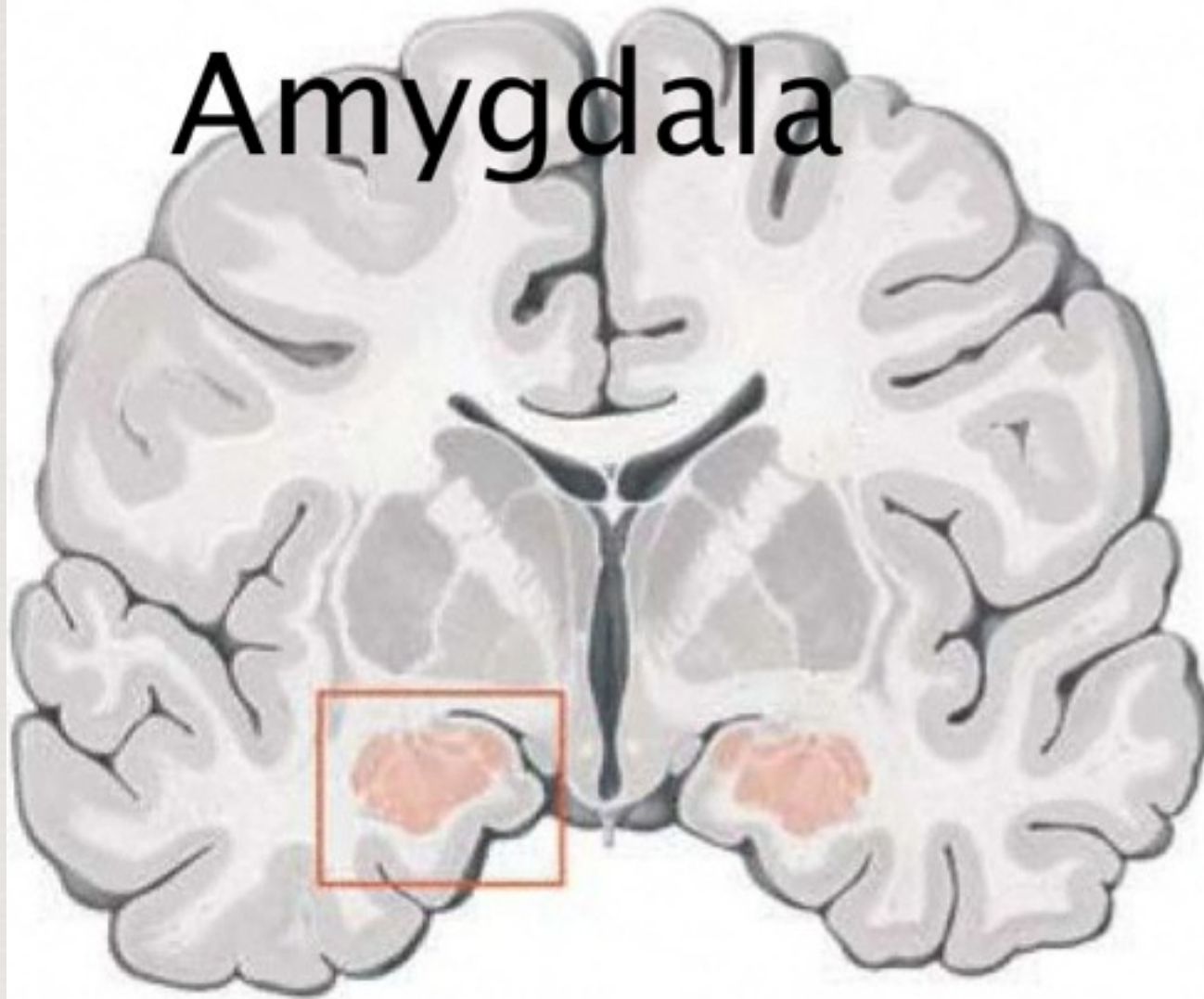


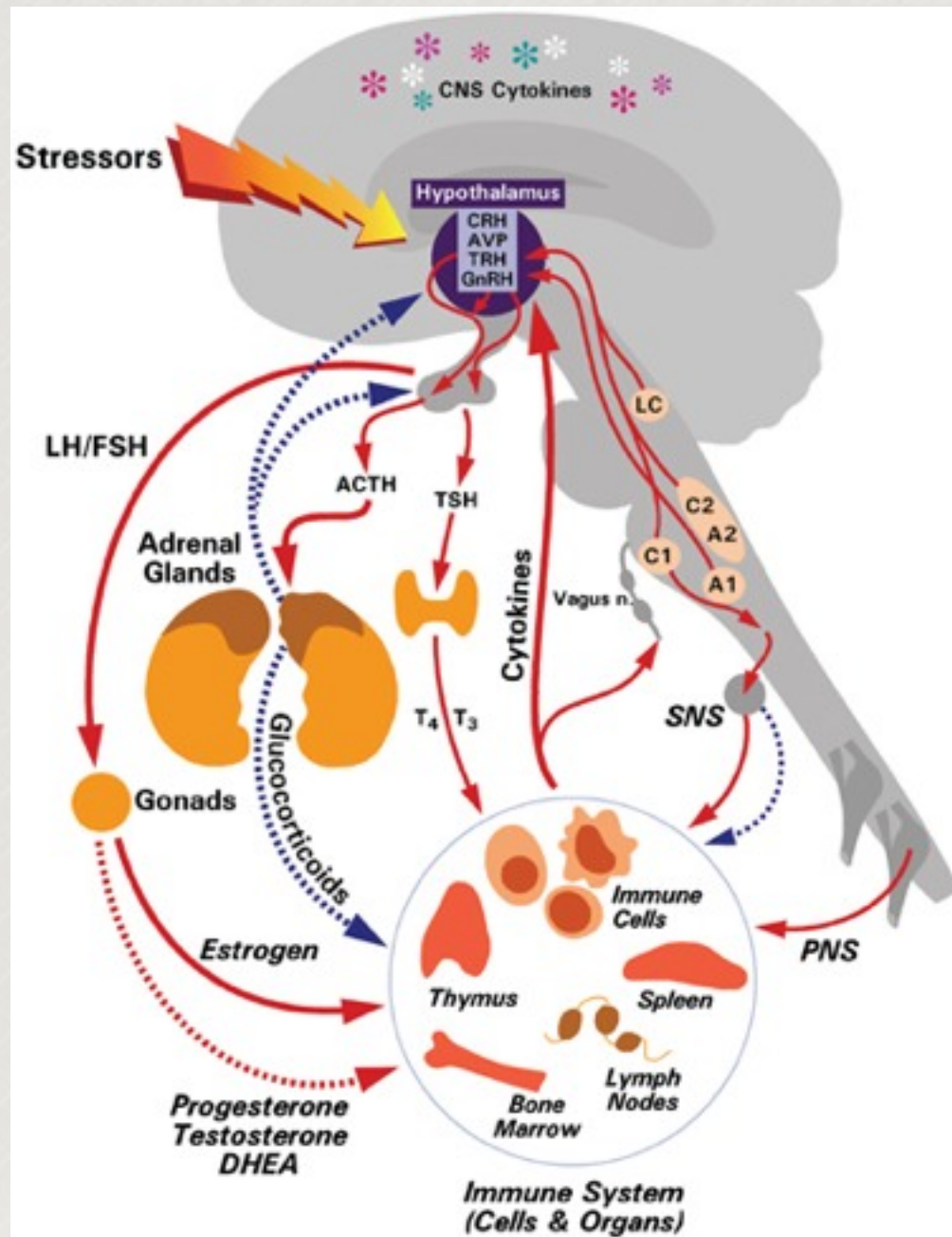
Hippocampus

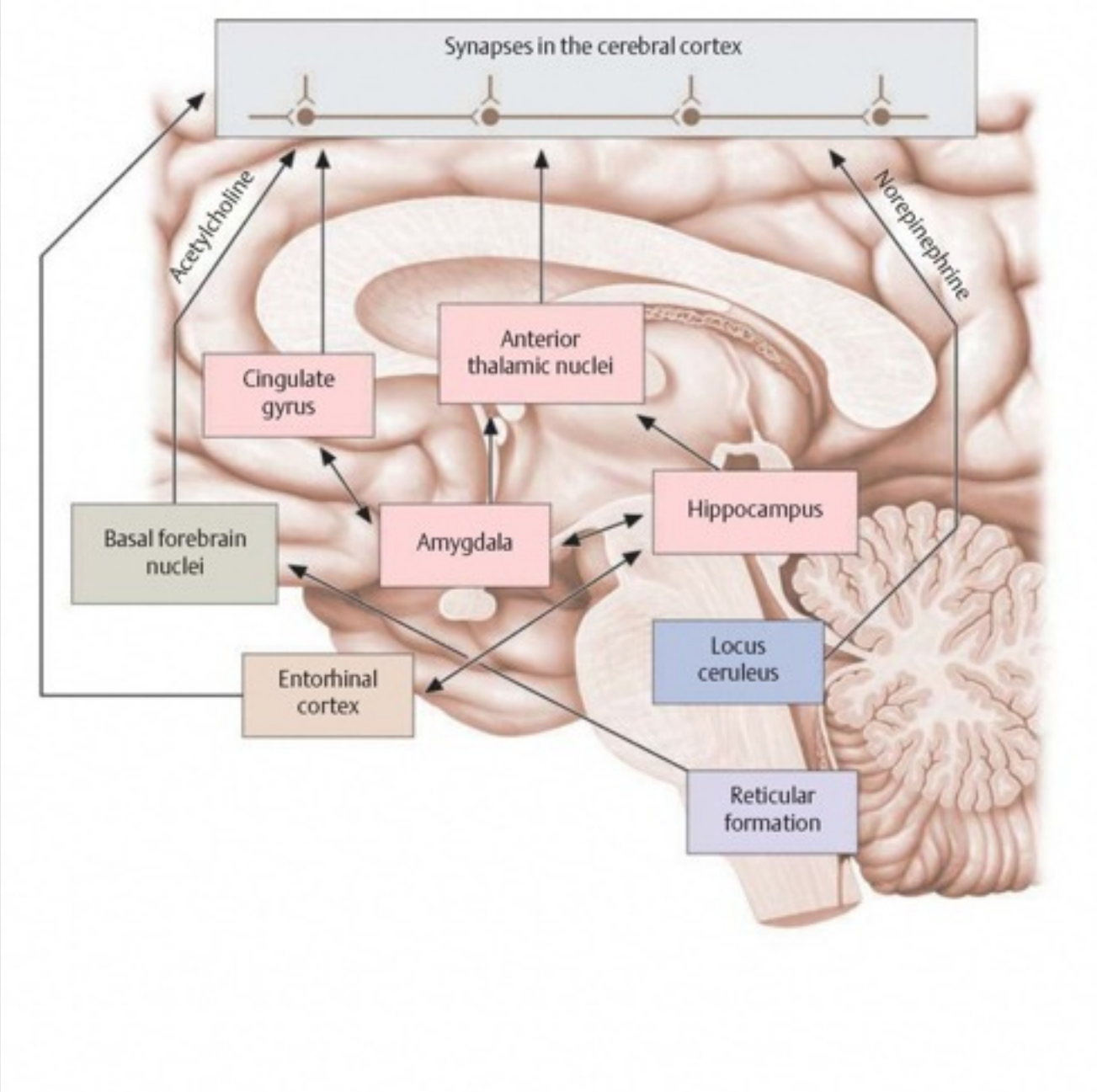




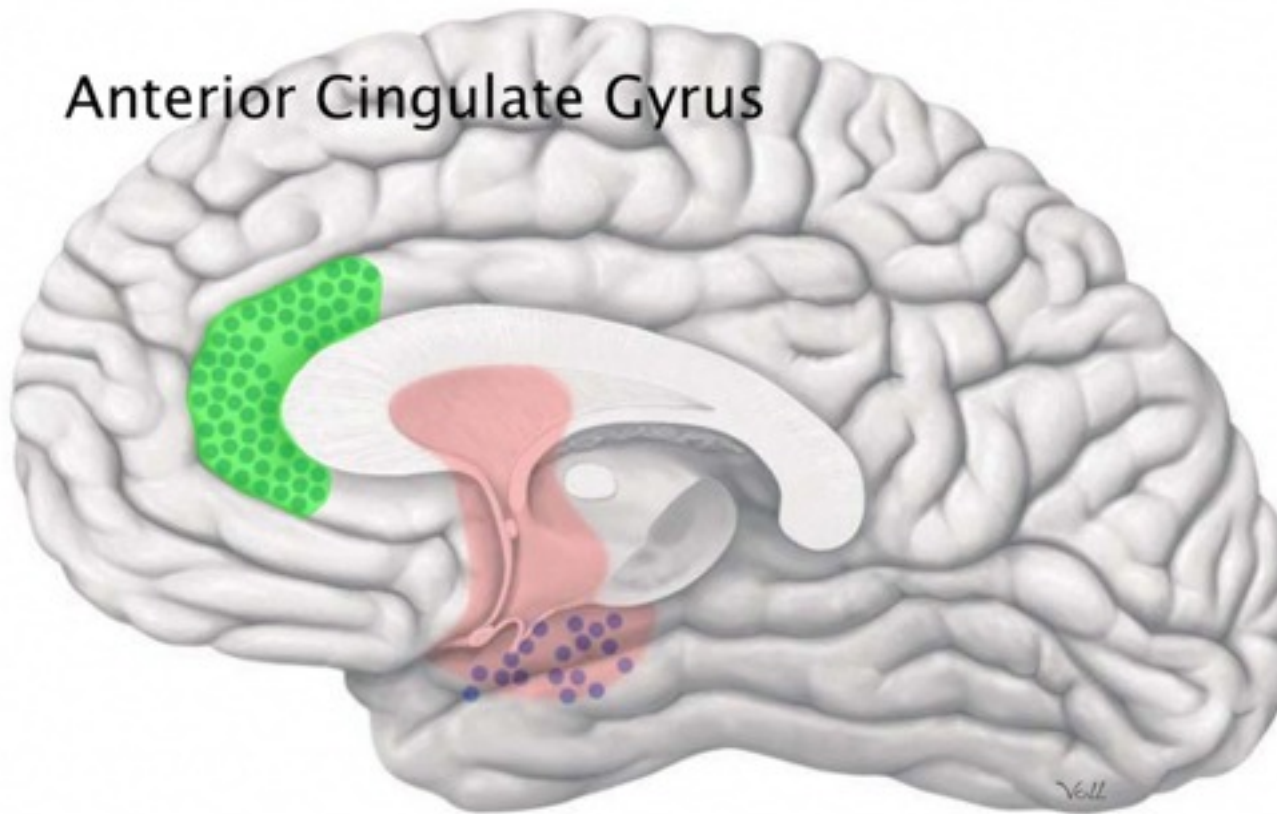
Amygdala







Anterior Cingulate Gyrus



Neurotransmitters

- ✦ *PFC projections - Glutamate*
- ✦ *Amygdala*
- ✦ *Dopamine*
- ✦ *Acetylcholine*
- ✦ *Glutamate*
- ✦ *GABA*
- ✦ *PFC - Amyg - Hypothal*
- ✦ *Glutamate - GABA*
- ✦ *PFC - Locus Ceruleus*
- ✦ *Norepinephrine*

Self-Healing/Regulating

- ✦ *Excitotoxicity, Apoptosis and Inflammatory pathways*
- ✦ *Hippocampal neurogenesis*
- ✦ *Neurotrophins: Brain Derived Neurotrophic Factor*



Osteopathic Heritage

Osteopathic Perspectives on Trauma

A.T. Still MD DO

- ✿ *Nervous Conditions: “impoverished condition of the whole sympathetic system from the atlas to the coccyx that have lost the power to execute the function of supplying the nervous system with nourishment.”*
- ✿ *CSF: “He who is able to reason will see that this great river of life must be tapped and the withering field irrigated at once, or the harvest of health be forever lost.”*

William Sutherland DO

- ✿ *Heavy Vibrations* → *Locking Down Membranes*
- ✿ *Sacral fulcra-sag* - *mental disturbances*
- ✿ *Cranial Strains* ↑ *with mental/emotional stress*

Charlotte Weaver DO

- ✿ *Jack the Psychopath*
- ✿ *Milestone loss, non-verbal, masked faces, waxy flex*
- ✿ *Hx: Med staff holding patient down for treatment*
- ✿ *Exam: “Unbelievable degree” muscle contracture*
- ✿ *Tx: 2-3 mo OMT → Speaks & Interacts (1st in 5yrs)*

Robert Fulford DO

- ✿ *Physical/Psychological trauma → Shock → Locked Breath*
- ✿ *“Thoughts are indeed things”: Nervous System Patterns*

Rollin Becker DO

- ✿ *General Adaption Syndrome - Dr Hans Selye*
- ✿ *Thyroid, Adrenal, and Traumatized Segmental Areas*
- ✿ *Additional lesion resistance: Analyzing neurosis*



Osteopathic Approach

Addressing PTSD Osteopathically.

Seek Health

- ✦ *NOT the Absence of SYMPTOMS*
- ✦ *Health-Dysfunction Continuum*
- ✦ *Somatic Dysfunction “Does Do”*
- ✦ *Recruit healthy areas. Self-healing. Motion Present*
- ✦ *Goal or Destination*

Treatment: Body

- ✿ *Fitness (exercise, exercise conditioning)*
- ✿ *Nutrition (high fat, lower sugar, gluten-free)*
- ✿ *Medications:*
 - ✿ *Paroxetine or Sertraline (2nd line)*
 - ✿ *Avoid Benzodiazepines*

Herring, Arch Int Med 2010. Stroble, J Neu Trsm 2009. Murphy, Int Jrn Endo 2013. Largo, Scn Jrn Gast 2001. Britains NICE. Steckler, Neuropharm 2012. VA/DoD Clinical Practice Guideline for the Management of Post-Traumatic Stress

Treatment: OMM

- ✦ *OMM*

- ✦ *Goal: Restore Balance, Optimize Structure and Function, Encourage Self-healing and Self Regulating*

- ✦ *Musculoskeletal, Neural, Hormonal, Vascular, Lymphatic, Respiratory*

Treatment: OMM

- ✿ Vascular and Lymphatics: ↓ Cortical volume (medial prefrontal cortex, hippocampus, amygdala)
- ✿ Optimize Structure & Function: Hypofunctioning cortical systems (frontal inhibition of amygdala, hippocampus, anterior cingulate gyrus)
- ✿ Autonomics and Visceral: Elevated stress hormone levels
- ✿ Thoracoabdominal diaphragm: Shock, Ineffective breathing

Treatment: Mind

- ✿ *Meditation*
- ✿ *Psychoeducation*
- ✿ *Psychotherapy*
- ✿ *CPT, Prolonged Exposure, EMDR*

Catani, BMC Psych, 2009. Brown, An NY Acad Sci, 2009. VA/DoD Clinical Practice Guideline for the Management of Post-Traumatic Stress

Treatment: Soul

- ✿ *Meditation*
- ✿ *Supportive Relationships*
- ✿ *Services and Agencies*
- ✿ *Higher Power / Faith System*

Catani, BMC Psych, 2009. Brown, An NY Acad Sci, 2009. VA/DoD Clinical Practice Guideline for the Management of Post-Traumatic Stress. Masters, J Beh Med, 2007.

Summary

- ✿ *Osteopathic definition of trauma*
- ✿ *Stand on the shoulders of our predecessors*
- ✿ *Seek Health - all of its roles and manifestations*
- ✿ *Approach the patient through the LENS of the Osteopathic Philosophy- Body, Mind and Soul*

The End

Questions?