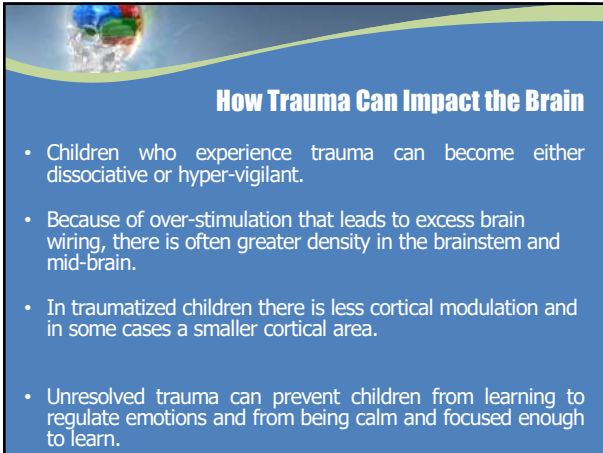


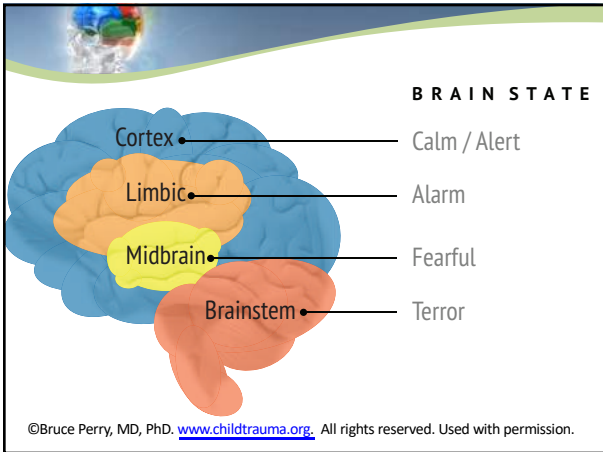
ACES Study

- Center for Disease Control and Kaiser Permanente HMO
- Over 17,000 people in suburbs of California
- ACEs are common – nearly two-thirds (64%) of adults have at least one.
- ACEs don't occur alone – if you have one, there's an 87% chance that you have two or more.
- ACEs cause adult onset of chronic disease as well as mental illness, violence and being a victim of violence.
- For more information: Visit ACEStoohigh.com



How Trauma Can Impact the Brain

- Children who experience trauma can become either dissociative or hyper-vigilant.
- Because of over-stimulation that leads to excess brain wiring, there is often greater density in the brainstem and mid-brain.
- In traumatized children there is less cortical modulation and in some cases a smaller cortical area.
- Unresolved trauma can prevent children from learning to regulate emotions and from being calm and focused enough to learn.



BRAIN STATE

Cortex	—	Calm / Alert
Limbic	—	Alarm
Midbrain	—	Fearful
Brainstem	—	Terror

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T H I N K I N G
Abstract / Creative
Concrete
Emotional
Reactive
Reflexive

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F U N C T I O N I N G I Q
110-100
100-90
90-80
80-70
70-60

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H E A R T R A T E
70-90
90-100
101-110
111-135
136-160

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S E N S E O F T I M E

- Future
- Week / Day
- Hours / Minutes
- Minutes / Seconds
- Loss of sense of time

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Stress Tolerance Continuum

Learning Brain-----Survival Brain

Approach your work with students from a bottom up brain perspective.

1. Regulate
2. Relate
3. Reason


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Co-Regulation: Focus on Yourself

- You are far more useful if your needs are met
- Not selfish to focus on yourself







What are Mirror Neurons?



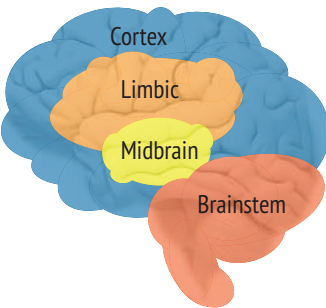
- Neurons that respond the same way when either performing or viewing something someone else is doing.
- Neurons that allow us to feel empathy.
- Neurons that allow us to re-enact actions or qualities observed in others.



Co-regulation and Mirror Neurons



- Students will mirror an adult's level of calm
- Important for helping to regulate dysregulated students
- Important for maintaining regulation in students

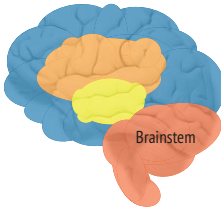


The more a neural system is activated, the more that system changes to reflect the pattern of activation

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Brainstem Interventions

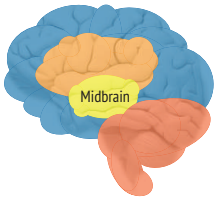
- Primary somatosensory
- Rocking/ Swinging
- Healing touch/massage
- Balance/Stretching
- Martial Arts
- Chewing/ sucking
- Music/ drumming
- Yoga
- Deep Breathing
- Animal-assisted activities



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Midbrain Interventions

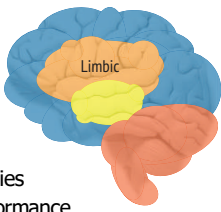
- Walk/run/exercise
- Bilateral Movement
- Creative arts
- Music/ drumming
- Large muscle movement
- Breathing exercises
- Dance
- Animal-assisted activities
- Improving sleep rituals
- Transition rituals
- Horticulture



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Limbic System Interventions

- Parallel interactions (adult)
- Parallel interactions (peer)
- One-on-one attention
- Proximity to caring adult
- Mentoring
- Counseling
- Small group counseling or activities
- Team sports with individual performance
- Social and emotional skills training
- Animal-assisted activities



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Cortex

- All learning eventually ends up in the cortex.
- Each of these activities are simply utilizing lower parts of the brain to get information in.
- Traditional lecture/ note-taking or reading/ note-taking will be extremely difficult for anyone with under-developed lower portions of the brain.
- Even a fully developed brain will benefit from teaching styles focused on the three lower regions of the brain.

Thanks for attending:
Questions? Comments?

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