THE IMPACT OF TRAUMA ON BRAIN DEVELOPMENT AND ATTACHMENT

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HOW ATTACHMENT IS FORMED:

Child gives signals when in need

“I will tell you when I need help”

“’I will help you when you need it’”

Parent is sensitive to cues & responds appropriately

Children can have multiple relationships with multiple people, and different types of relationships with different caregivers.
BABIES DO NOT LEARN ON THEIR OWN
THEY LEARN THROUGH RELATIONSHIPS
THROUGH RELATIONSHIPS, WE LEARN:

- Safety
- Trust
- Affect Regulation
- Physiological Regulation
- Sense of Self
- Social Skills
- Conflict Resolution Skills
- Empathy

Attachment is one of the best protective factors against stress and trauma
SOCIAL-EMOTIONAL DEVELOPMENT

- Physiological Regulation
- Mutual Attention (3 mo)
- Mutual Engagement = Falling in Love (by 5 mo)
- Intentional, two-way dance (by 9 mo)
- Intentional, gestural communication (by 13 mo)
- Intentional, symbolic play with emotional themes (24-36 mo)
- Intentional, building bridges and links between themes (36-48 mo)
BRAIN DEVELOPMENT
- Brain development begins before birth. During the prenatal period, brain cells are already sending and receiving sensory messages of touch, hearing, and movement. Senses of taste, smell, hearing, and sight are already developing.

- At birth, 100 billion brain cells have been produced, existing connections are strengthened and new ones are formed based on use dependent patterns. Environment and experiences are responsible for fine-tuning connections.

- Repeated experiences reinforce connections that are used frequently. Irregular use or lack of use results in ‘pruning’ away. The brain is organized in a use dependent way.
Brain Stem: In Utero – 12 months old (Mid-Brain 1-2 yrs old)
- Controls basic functioning/survival skills
- Developmental need: Safety

Limbic System: 1yr – 4 yrs old
- Emotional region of the brain
- Developmental need: Connection

Cortical Region: 2yrs- 6yrs old
- Higher functioning skills such as language, reasoning, rational thought, logical thinking.
- Developmental need: Problem solving in social settings
TOP-DOWN REGULATION
BOTTOM-UP REGULATION

- Abstract Thought
- Concrete Thought
- Affiliation/Rewards

- ‘Attachment’
- Sexual Behavior
- Emotional Reactivity

- Motor Regulation
- ‘Arousal’
- Appetite
- Sleep

- Blood Pressure
- Heart Rate
- Body Temperature

Dr. Bruce Perry, Child Trauma Academy
CHANGING THE BRAIN

- The brain is always changing: patterned repetitive responses needed for change.

- Plasticity is not uniform across all brain areas.

- It takes less time, intensity and repetition to organize the developing neural systems than to re-organize the developed neural systems.
- All learning happens in relationship. When early relationships are disrupted, the neural circuits necessary for healthy brain development and effective learning are not formed.
- Trauma and neglect impact the part of the brain that is developing at the time. Healthy development can be threatened not only by bad things that happen to children, but also by the absence of sufficient amounts of essential experiences that are required for positive well being.

Vapors     Liquid     Frozen
DEFINING TRAUMA

- Direct exposure to or witnessing of an extreme event/situation and one is overwhelmed by the trauma

- Anything out of the normal experience that overwhelms our ability to cope

- It’s not the objective facts that determine whether an event is traumatic, but our subjective emotional experience of the event.

- Trauma includes neglect, maltreatment and prolonged fear when a parent or caregiver is threatening. This includes domestic violence.
3 Year Old Children

Normal

Extreme Neglect
- Implicit Memory
  - Non-verbal, sensory, unconscious

- Explicit Memory
  - Verbal, auto-biographical, coconscious

- Part of healing is learning how to verbalize the implicit memory. This can be accomplished with play, learning body integrity, and having a narrative to understand their experience. This all must occur within a safe, trusted and nurturing relationship.

- Just because you can’t talk about it, doesn’t mean you don’t know it happened.
Exposure to negative experiences influence brain development. During pregnancy, exposure to drugs, alcohol, and nicotine can contribute to developmental delays in the areas of sensory, cognitive, language, and behavior. After birth, early neglect or deprivation also hinders the development of a variety of brain regions that are important for thinking, learning, focusing attention, controlling emotions and managing stress.

Attentive, attuned, responsive caregiving leads to neural pathways that produce smooth self-regulation, secure attachment and a positive template for how the child views others. Relational sensitivity develops when the people who are supposed to take care of you invoke traumatic responses. This can create an internal negative template for how the child sees others.

Chaotic and unsafe environments lead to an over-used stress response system.
<table>
<thead>
<tr>
<th>Sense of Time:</th>
<th>Extended Future</th>
<th>Days / Hours</th>
<th>Hours / Minutes</th>
<th>Minutes / Seconds</th>
<th>No Sense of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arousal Continuum:</td>
<td>REST</td>
<td>VIGILANCE</td>
<td>RESISTANCE (Crying)</td>
<td>DEFIANCE (Tantrums)</td>
<td>AGGRESSION</td>
</tr>
<tr>
<td>Dissociation Continuum:</td>
<td>REST</td>
<td>AVOIDANCE</td>
<td>COMPLIANCE (Robotic)</td>
<td>DISSOCIATION (Fetal Rocking)</td>
<td>FAINTING</td>
</tr>
<tr>
<td>Regulating Brain Region:</td>
<td>NEOCORTEX (Cortex)</td>
<td>CORTEX (Limbic)</td>
<td>LIMBIC (Midbrain)</td>
<td>MIDBRAIN (Brainstem)</td>
<td>BRAINSTEM (Autonomic)</td>
</tr>
<tr>
<td>Cognitive Style:</td>
<td>ABSTRACT</td>
<td>CONCRETE</td>
<td>EMOTIONAL</td>
<td>REACTIVE</td>
<td>REFLEXIVE</td>
</tr>
<tr>
<td>Internal State:</td>
<td>CALM</td>
<td>ALERT</td>
<td>ALARM</td>
<td>FEAR</td>
<td>TERROR</td>
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**FEAR IS AN ADAPTIVE RESPONSE**

<table>
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<tr>
<th>Normative Fear</th>
<th>Emotionally Costly Fears</th>
<th>Traumatic Fear</th>
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<tbody>
<tr>
<td>Developmentally Appropriate</td>
<td></td>
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*Once trauma occurs, normative fears can become triggers*

*Trauma is stored in the body. Emotional pain can be perceived as physical.*
BUILDING REGULATION
We must view dysregulation as a sign of helplessness
- Inconsolable crying
- Prolonged tantrums

Caregivers must help children regulate. This process is called co-regulation. Parental (external) regulation is key to children learning how to self (internally) regulate.

Co-regulation requires the adult to be attentive, attuned, consistent, calm, comforting and well-regulated.
- By learning the child’s needs, and learning their preferred method of calming, we are teaching the child to use these methods to ultimately regulate themselves.
- “If my feelings are not too scary for my caregiver, then they are not too scary for me.”
- Traumatized children need safe, predictable, and consistent environments.
  - With repeated experiences of safety and security, the child will come to view the world as predictable and orderly leading to a flexible stress responsive system.
  - Many disturbed children have not been taught soothing calming techniques and do not have calming routines.
    - What is calming for one child is not calming to another

- Labeling for children what they are experiencing, thinking, feeling, and wanting builds self awareness as well as awareness of others.

- Be aware of the child’s emotional state as well as their developmental level.
When handling challenging behaviors, go to the feelings first.

- When children have regressed in their emotional state, a caregiver must pause the immediate goal/task that triggered the child’s meltdown. Help the child regulate, then return to the task at hand.

Comforting an upset child while maintaining a limit is not giving in.
“HUMAN RELATIONSHIPS, AND THE EFFECTS OF RELATIONSHIPS ON RELATIONSHIPS, ARE THE BUILDING BLOCKS OF HEALTHY HUMAN DEVELOPMENT; THEREFORE, OUR WORK CAN PERHAPS BEST BE DESCRIBED AS THE IMPACT OF RELATIONSHIPS ON RELATIONSHIPS.”

~FROM NEURONS TO NEIGHBORHOODS
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