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Using Knowledge from Neuroscience in Helping Practices

Discussion topics

- **How parent/child bonding influences brain development**
- **The impact of trauma on brain development and behavior**
- **Knowledge about brain development can be incorporated into helping practices**

Parent/child bonding influences brain development

Parenting and family life are the natural social arrangements by which children's essential needs are met.

- To be safe
- To be loved
- To love
- To be engaged

Children need……

“A safe, secure environment that includes one stable, predictable, comforting, and protective relationship with an adult who has made a long-term personal commitment to the child’s daily welfare and who has the means, time, and personal qualities needed to carry it out.”

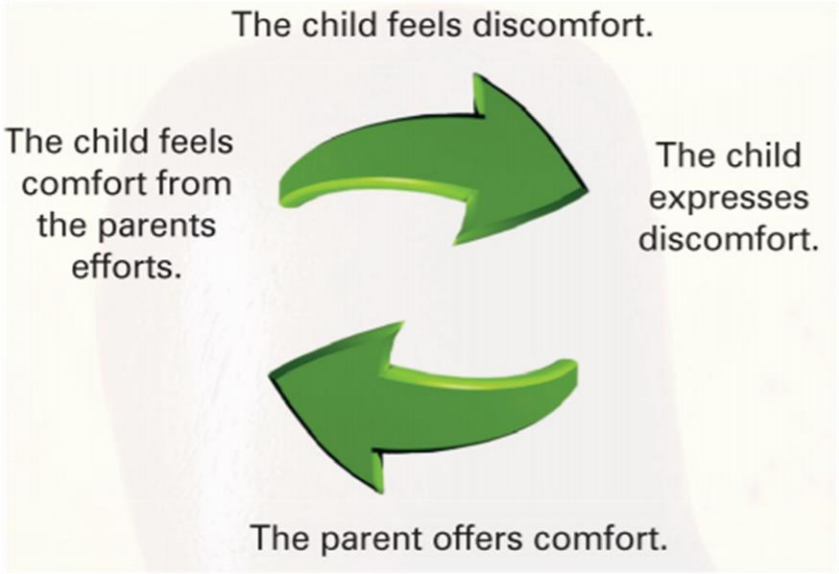
Stanley Greenspan MD

The parent/child bond is not just nice…

…… it is essential

Parental nurturing and the resulting emotional attachment stimulate positive brain development in children.

Attachment develops through a cyclical process….



The rhythm of reciprocity, heartbeat to heartbeat, creates the connecting bond.

From A Family for Every Child: Family-based Alternatives for Children with Disabilities EveryChild, Inc

When Attachment is Interrupted

Without a familiar and reliable mother to respond, babies detach and live in a state of constant erupting fear.

Dysregulation is the result …the disruption of rhythms that leads to difficulty with affect self-regulation and sensory self-regulation.

Affect Regulation/Emotional Regulation

- The ability to modulate our emotional state in order to adaptively meet the demands of the environment.

- When children have a difficult time with affect self-regulation, we observe maladaptive behavior or response to the environment:
  - Sleep disorders
  - Anger management/impulse control
  - Depression/anxiety
  - Gastrointestinal problems
  - Poor physical coordination

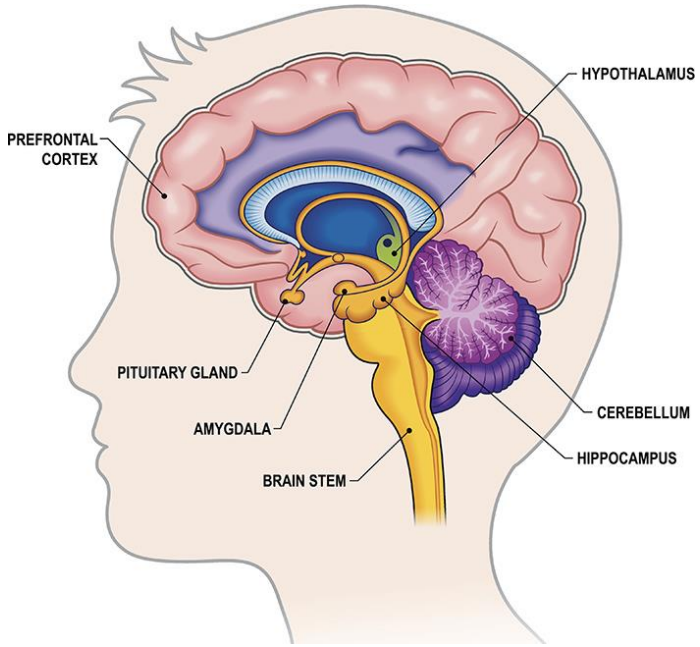
Sensory Regulation

- The ability to adjust or regulate the level of alertness depending on the time of the day and the stimuli presented.

- When children have a difficult time with sensory self-regulation, we observe maladaptive behavior or response to the environment and sensory stimuli.
  - Extreme response to or fear of sudden, high-pitched, loud, or metallic noises like flushing toilets, clanking silverware, or other noises that seem unoffensive to others
  - Distracted by background noises others don't seem to hear
  - Fearful of surprise touch, avoids hugs and cuddling even with familiar adults
  - Fearful of crowds or avoids standing in close proximity to others

Disruption starts in the amygdala – the fight or flight center of the brain

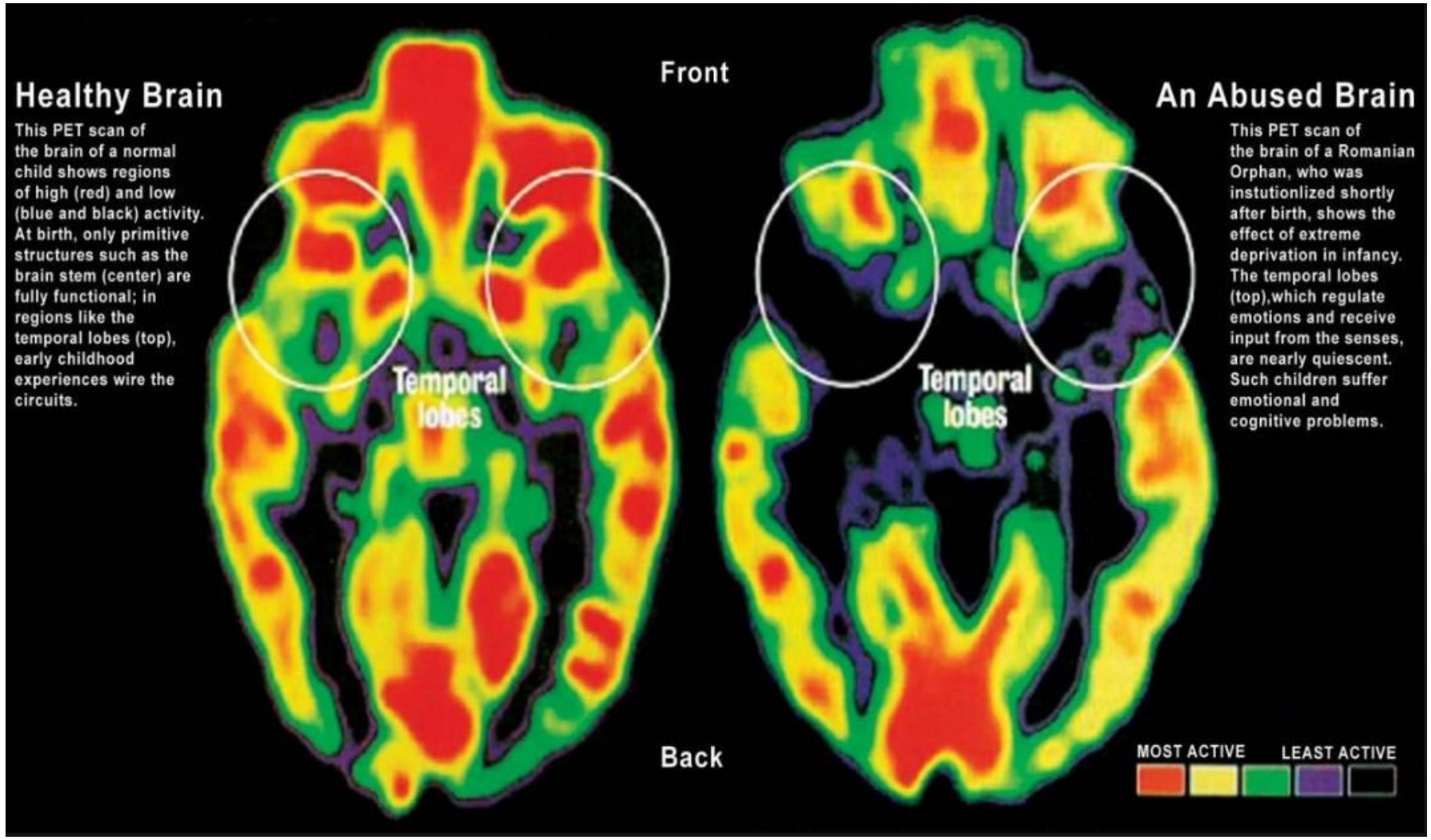
- Amygdala – the emotional computer and alarm system. **Over excitement (fight or flight) precludes the other parts of the brain from functioning.**
- Hippocampus – brain storage - memory
- Thalamus - translates sights, sounds, smells into the language of the brain
- Prefrontal Cortex - decision-making and emotional management)



The experience of mother-lessness *

- A profound helplessness that leaves the completely vulnerable child in the throws of daily, unrelenting fear for his survival.
- Mother-lessness allows, even invites, assaults on the child.
- The core trauma may not be the assault itself, but the absence of the mother to prevent, address or repair it.
- The unbonded child relies on survival-oriented defenses of flight and flight. When fight or flight is not possible, the only defense is the freeze position - withdrawal.

* Neurobiofeedback in the Treatment of Developmental Trauma, Serbern F. Fischer


Healthy Brain
This PET scan of the brain of a normal child shows regions of high (red) and low (blue and black) activity. At birth, only primitive structures such as the brain stem (center) are fully functional; in regions like the temporal lobes (top), early childhood experiences wire the circuits.
Front
Temporal lobes
Temporal lobes
Back
An Abused Brain
This PET scan of the brain of a Romanian Orphan, who was instutionlized shortly after birth, shows the effect of extreme deprivation in infancy. The temporal lobes (top),which regulate emotions and receive input from the senses, are nearly quiescent. Such children suffer emotional and cognitive problems.
MOST ACTIVE
LEAST ACTIVE

Disrupted Attachment results in developmental trauma

Developmental Trauma (DT) results in:

- Sensory processing disorder
- ADHD
- Oppositional defiant disorder
- Bi-polar
- Personality disorder (especially borderline personality disorder)
- PTSD
- Cognitive impairment
- Speech delay
- Learning disabilities
- Reaction Attachment Disorder

Attachment adaptations for children with disabilities

Just as children with disabilities need physical adaptations like ramps and wheelchairs, they need **attachment adaptations** to experience their parents as comforting, and parents need to find meaningful adaptations to experience the connecting bond that comes from bringing their child comfort.

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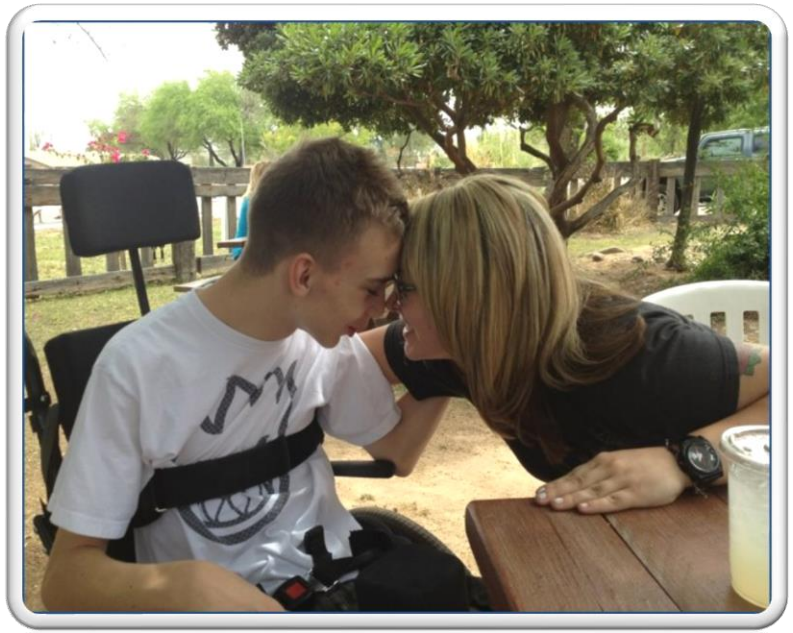
Adaptations that strengthen attachment

- Family Centered Services
  - Family-centered approach – building on strengths
  - Information resources
  - Family training on caring for the child
  - Training on advocacy and building a support network
  - Therapies for the child
- In home assistance – nursing, personal care
- Special equipment and home adaptations
- Respite care



The prevalence and impact of trauma

- Physical abuse
- Verbal abuse
- Sexual abuse
- Physical neglect
- Emotional neglect

- Abandonment
- Severe Illness
- Violence
- Poverty
- Bullying

The ACE Study - Kaiser Permanente and CDC

Adverse Childhood Experiences (ACE) 1995-1997

- 17,337 participants from approximately 26,000 Kaiser Permanente members
- Participants were asked about 10 different types of childhood trauma

Abuse

1) Emotion: recurrent threats, humiliation
2) Physical; beating
3) Contact sexual abuse

Neglect

4) Physical
5) Emotional

Household dysfunction

6) Mother treated violently
7) Household member was alcoholic or abused drugs
8) Household member was imprisoned
9) Household member was chronically depressed, suicidal, mentally ill or in a psychiatric hospital
10) Not raised by both biological parents

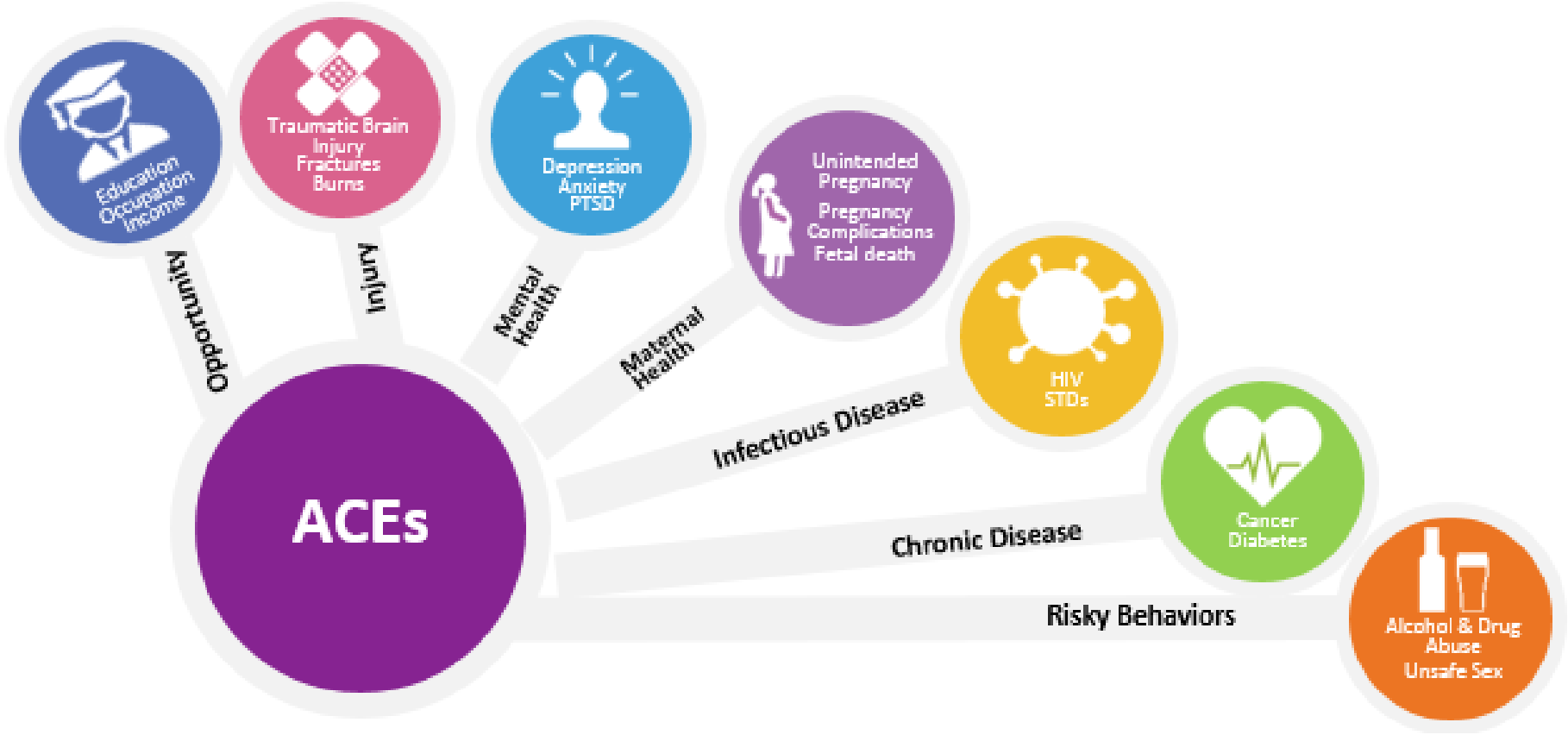
ACE Results

- Adverse Childhood Experiences (ACE)are common across all populations
  - 28% of study participants reported physical abuse
  - 21% reported sexual abuse
  - Many reported experiencing divorce or parental separation or having a parent with a mental and/or substance use disorder.

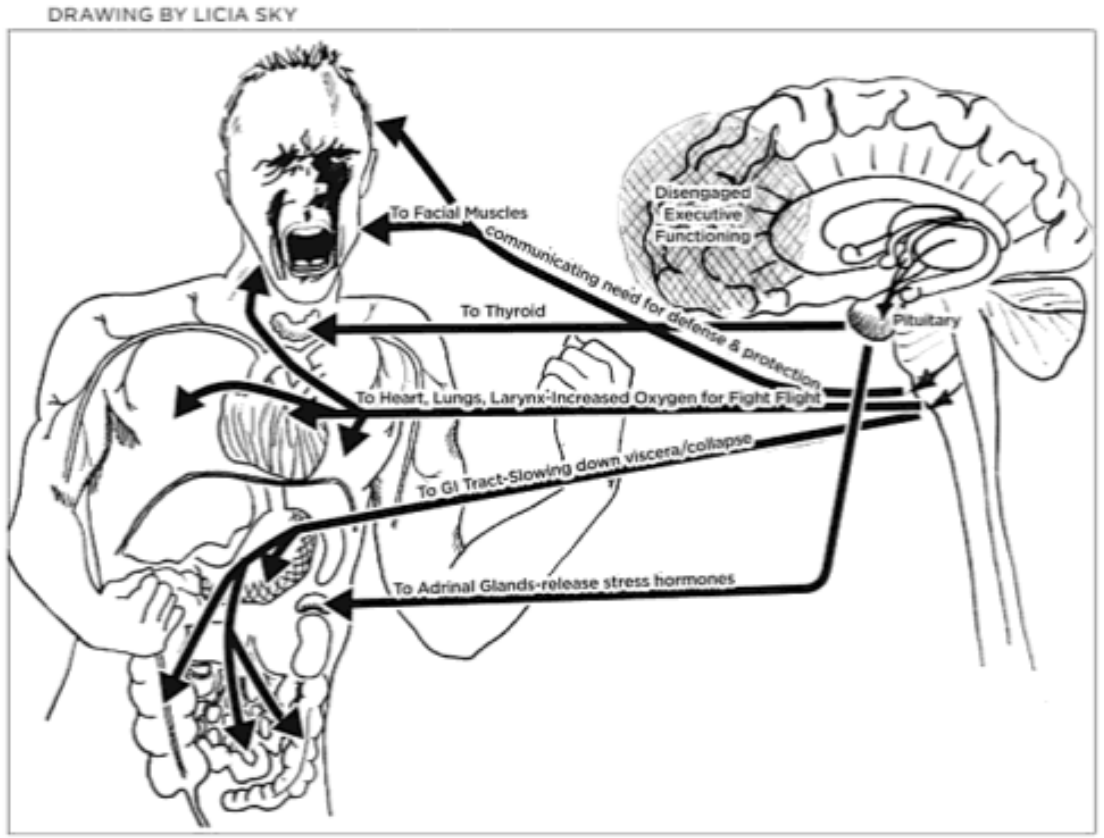
- Adverse childhood experiences often occur together.
  - 40% of the original sample reported two or more ACEs
  - 12.5% experienced four or more

- Adverse childhood experiences have a relationship to many health problems. A person's cumulative ACEs score has a strong, graded relationship to numerous health, social, and behavioral problems throughout their lifespan, including substance use disorders.

Early adversity has lasting impacts



Trauma is experienced by the body

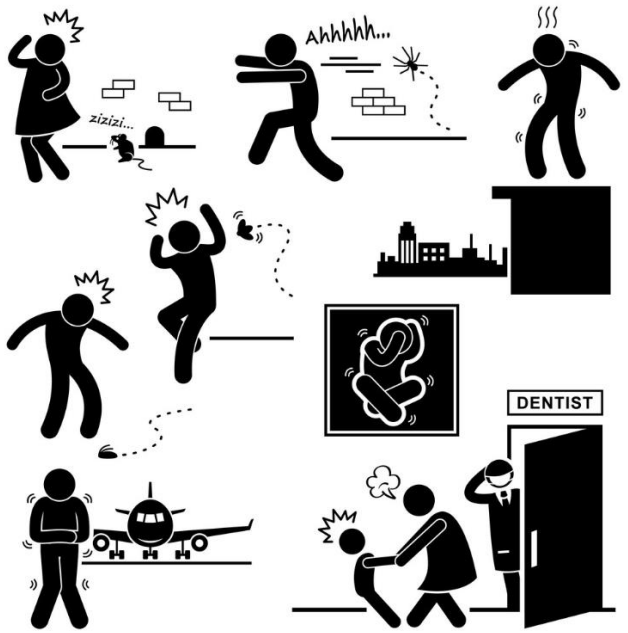


Trauma affects the entire human organism—body, mind, and brain. In PTSD the body continues to defend against a threat that belongs to the past. Healing from PTSD means being able to terminate this continued stress mobilization and restore the entire organism to safety.

The Body Keeps the Score Van Der Kolk, M.D.

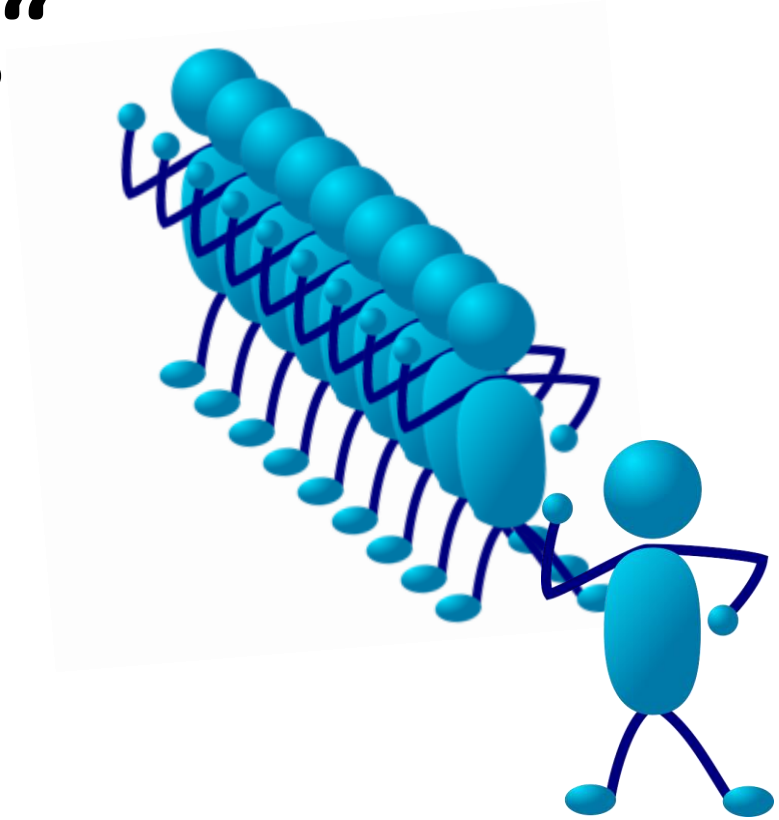
Trauma memory is stored in the body: events or thoughts can trigger the trauma response

- Images
- Sounds
- Physical sensations
- Smells
- Words
- The presence of threat



Every cell records memories and every embedded, trauma-related neuropathway has the opportunity to repeatedly reactivate.

"The past is never dead. It's not even past.“



William Faulkner

Understanding trauma leads to better helping

1. **Enhances our empathy**
   - Better listening
   - Learn the importance of knowing the person's history and experiences
   - Not making the mistake of telling people to "forget it" or "get over it"

2. **Makes us more effective in our efforts to help**
   - Recognize "bad behavior" as a symptom of trauma
   - Build a safe, trauma-free environment
   - Secure appropriate treatment for trauma – CBT, EMDR, counseling, meditation, yoga, neuro bio-feedback, etc.
   - Help the person develop positive relationships

3. **Practice person-centered approaches**
   - Listen to what is important to the person, not just what is important for them
   - Learn what makes up a good day for the person and make sure their days are full of what makes a good day
   - Learn what works for the person and what doesn't work

The Substance Abuse and Mental Health Services Administration's (SAMHSA) National Center for Trauma-Informed Care (NCTIC) is a technical assistance center dedicated to building awareness of trauma-informed care and promoting the implementation of trauma-informed practices in programs and services. https://www.integration.samhsa.gov/clinical-practice/trauma-informed

Remember the child within

Resources

- *A Family for Every Child: Family-based Alternatives for Children with Disabilities*
  EveryChild, Inc

- *Mentoring a spirit of gentleness: Feeling at home is where the heart must be*
  McGee, J. (2001). www.gentleteaching.com/articles/newmentor.htm 11/05/01

- *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*
  Bessel van der Kolk MD

- *Neurobiofeedback in the Treatment of Developmental Trauma*
  Sebern F. Fischer

- *Adverse Childhood Experiences (ACEs), Center for Disease Control and Prevention*
  https://www.cdc.gov/violenceprevention/childabuseandneglect/acestudy/index.html

- *The Developing Mind: How Relationships and the Brain Interact to Shape Who We Are*
  Daniel J. Siegel