

## DEVELOPMENTAL TRAUMA AND THE BRAIN

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ACEs Legislative Workgroup  
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### MAIN POINTS

- EARLY AND CHRONIC EXPOSURE TO CHILDHOOD ADVERSITY HAS DOCUMENTED, DEVASTATING, (AND PREVENTABLE) CONSEQUENCES
- ACES AFFECT BRAIN STRUCTURE, FUNCTIONING, NEUROCHEMISTRY, AND DEVELOPMENT
- WE NOW KNOW A GREAT DEAL ABOUT HOW THIS HAPPENS AND WHY THIS HAPPENS
- THE IMPLICATIONS FOR SOCIAL POLICY INCLUDE A CALL FOR MUCH GREATER INVESTMENT IN THE HEALTH AND MENTAL HEALTH OF PARENTS, FAMILIES, AND THE VULNERABLE DEVELOPING BRAINS OF YOUNG CHILDREN.
- CHILDREN NEED SECURE LOVE TO BE HEALTHY.

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### WHAT IS TRAUMA?

Trauma is not an event itself, but rather a response to stressful experiences that dramatically undermine our ability to cope.

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### ACEs COMPROMISE DEVELOPMENT

- \* The conclusion from a vast longitudinal body of research:  
certain adverse early life experiences are major risk factors for the leading causes of emotional, social, and learning problems —and physical illness and early death.
- \* To understand why, we need to look a bit at the stress response and brain development ...
- \* Research on the biology of stress helps explain some of the underlying causal mechanisms for differences in child development/ACEs for learning, behavior, and physical and mental health.

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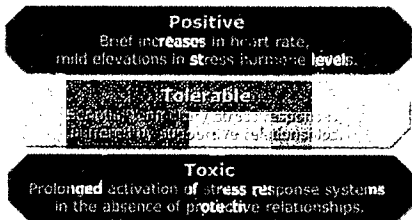
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### Stress



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### CHILDREN CAN'T HANDLE DANGER AND STRESS ON THEIR OWN

They need caregivers who are safe, responsive, and reliable

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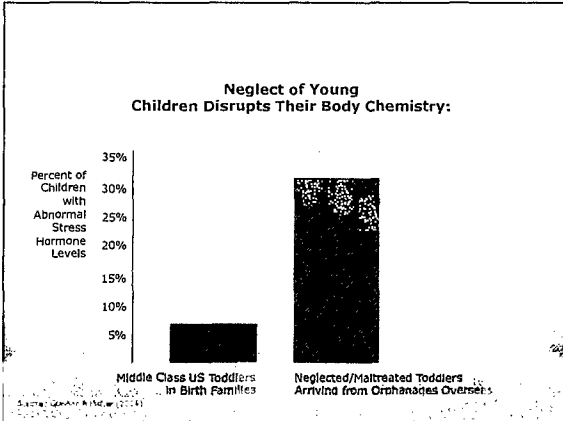
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**A LITTLE STRESS IS GOOD**

- ▶ WE ARE SUPPOSED TO REACT WHEN A TIGER SHOWS UP
  - Bodies designed to respond to stress
  - Adrenalin and cortisol help us run from the tiger or hide
  - Threat of short duration, then get safe



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**BUT THE TIGER ISN'T SUPPOSED TO MOVE IN**



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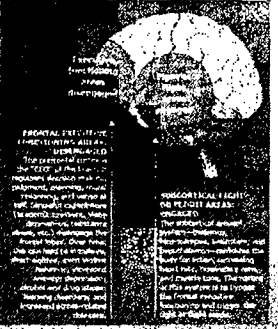
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### Impact on the Brain

- If there is danger, the "thinking" brain shuts down, allowing the "doing" brain to act
- Traumatized children experience changes in brain structures, neuro-chemistry & genetic expression




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### Trauma and the Developing Brain

- Trauma is a "neuro-developmental insult" and impacts the development of the brain.
- When triggered into a trauma response over and over there are major multi-systemic impacts on the developing brain
- Brain architecture is "experience dependent" (*neuroplasticity*)

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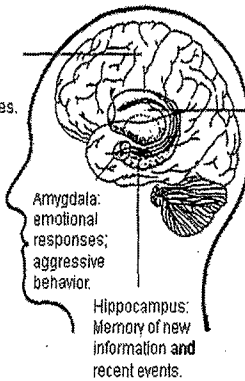
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**Neocortex:** higher mental functions, general movement, perception, and behavioral responses.

**Amygdala:** emotional responses; aggressive behavior.

**Hippocampus:** Memory of new information and recent events.

**Corpus Striatum (formerly basal ganglia):** connection between cerebral cortex and cerebellum; helps regulate automatic movement.

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### Trauma & Toxic Stress Interfere with Brain Development

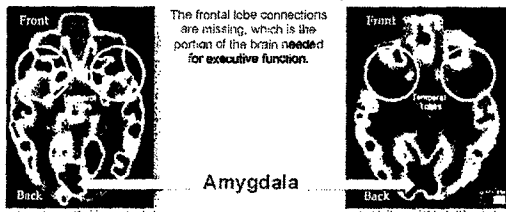
**Prefrontal Cortex**  
Controls executive functioning

The frontal lobe connections are missing, which is the portion of the brain needed for executive function.

**Amygdala**

**Healthy Child** **Neglected Child**

Source: Courtesy of Dr. H.T. Chugani, Children's Hospital of Michigan, Wayne State University



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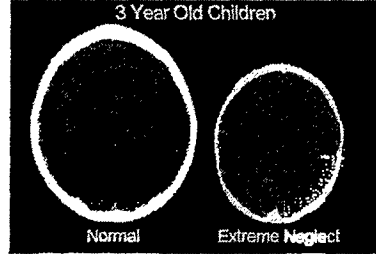
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### NEGLECT=WORST FOR DEVELOPING BRAIN

3 Year Old Children

**Normal** **Extreme Neglect**



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### Bottom Line for Brain Development

When children experience stable nurturing relationships, they foster the development of healthy circuitry.

When children experience unstable, traumatic, abusive or neglectful relationships, they disrupt the circuitry of the brain's architecture as its being built.



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**THINK ABOUT THE KIDS YOU LOVE...**

IN THE EARLIEST YEARS, BABIES AND YOUNG CHILDREN (MAYBE LIKE YOURS—WITH LOW ACES) DEVELOP THESE LIFELONG NON-COGNITIVE SKILLS...:

- Self-regulation
- Self-control
- Motivation
- Far-sightedness
- Conscientiousness
- Adventurousness and Curiosity
- Perseverance
- Tenacity

...CHILDREN GROWING UP WITH CHRONIC STRESS ARE IN SURVIVAL MODE AND MAY NOT BE ABLE TO ORGANIZE AND REGULATE THEIR BRAINS TO DO THESE WONDERFUL THINGS

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**MAIN POINTS AGAIN!**

- EARLY AND CHRONIC EXPOSURE TO CHILDHOOD ADVERSITY HAS DOCUMENTED, DEVASTATING, (AND PREVENTABLE) CONSEQUENCES
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CHILDREN NEED SECURE LOVE TO BE HEALTHY

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