


# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)



Connie Lillas, PhD, MFT, RN  
[www.the-nrf.com](http://www.the-nrf.com)  
November 24, 2014

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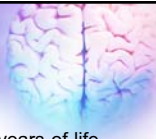
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### The Importance of Early Years

Critical Years for Setting Up a Fragile or Sturdy Foundation



“What happens during the first months and years of life matters a lot, not because this period of development provides an indelible blueprint for adult well-being, but because it sets either a sturdy or fragile stage for what follows.”

Shanket, Jack P. & Deborah A. Phillips, eds. From Nurture to Neighborhood: The Science of Early Childhood Development. National Research Council and Institute of Medicine. Committee on Integrating the Science of Early Childhood Development. Washington, D. C.: National Academy Press, 2005.

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### Our early years.... set the stage for...



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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

## Harvard Child Development



[http://developingchild.harvard.edu/resources/multimedia/videos/three\\_core\\_concepts/](http://developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts/)

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## The Importance of the Early Years (0-3)



Experiences lay down

- Adaptive or toxic stress response patterns
- Positive or negative lifelong expectations (procedural memories)
- Neural connections and pathways (brain development)

[http://developingchild.harvard.edu/resources/multimedia/videos/three\\_core\\_concepts/](http://developingchild.harvard.edu/resources/multimedia/videos/three_core_concepts/)

- Emotional care vs. custodial care is the most important factor in health development and a source of resilience

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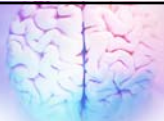
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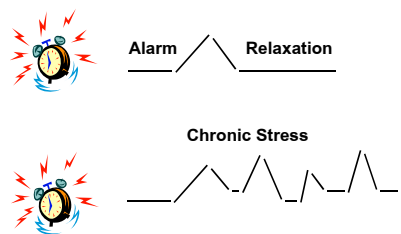
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## The Importance of The First 3 Years

Experiences Lay Down Reactions to Stress



**Normal and Long-term Stress:**



The diagram illustrates the relationship between stress and relaxation. It features a bell-shaped curve representing the normal stress response, with 'Alarm' on the left side and 'Relaxation' on the right side. Below this, a jagged line represents 'Chronic Stress', which is shown as a continuous, irregular pattern of stress levels over time.

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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

### The Importance of The First 3 Years Experiences Lay Down Life-Long Expectations



- What is most familiar and automatic to us, is called procedural memory
- Procedural memories = built in expectations
  - To be loved
  - To be comforted
  - To be confident
  - To be neglected
  - To be treated with hostility
  - To be treated with anxiety

Connie Lillas, PhD, MFT, RN © 2010

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### Procedural Memories are Bottom-Up Processes



Bottom-up = Any behavior that is...

- Automatic & Habitual
- Things we do without thinking
- Often does not involve the use of words
- Not easy to change; can last a lifetime

"We learn by example and by direct experience because there are real limits to the adequacy of verbal instruction."  
Malcolm Gladwell

"Habit is Stronger Than Reason."  
George Santayana

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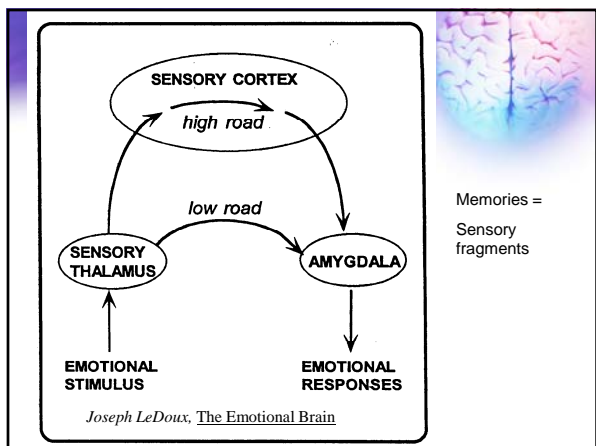
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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

## Declarative Memories are Top-Down Processes



Top-down = Any behavior that is...

- Conscious & Effortful
- Things we do with thinking
- Often does involve the use of words

"The mind is everything, what we think, we become..."  
Gautama Buddha

"There are two primary choices in life: to accept conditions as they exist, or accept the responsibility for changing them."  
Dennis Waitley

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## The Importance of The First 3 Years Experiences Lay Down Reactions to Stress



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## The Importance of The First 3 Years Experiences Lay Down Reactions to Stress

### 3-Year-Old Children



Normal      Extreme Neglect

Child Trauma Academy      1997 Etkin & D. Perry, M.D., Ph.D.

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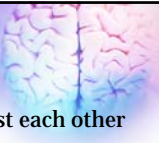
# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

**Safety is defined as...**

Weighing these factors up against each other

- Degree of vulnerability
- Degree of protective factors
- Degree of threat

– Mary Pat Bohn, *The Child Safety Guide*



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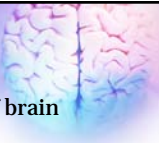
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**Cascade Effect**

- Neglect disrupts the firing/wiring of brain architecture & circuits
- In 2010 alone, neglect accounts for 78% of all child maltreatment cases nationwide, far more than physical abuse (17%), sexual abuse (9%), and psychological abuse (8%) combined. *In Brief, The Science of Neglect, pg 2.*
- Finally, the vast majority of children who die as a result of child maltreatment are victims of neglect (70%), rather than other forms of child maltreatment (DHHS, 2013).
- Toxic stress disrupts circuits that exist

...."estimate that over 80% of foster children they examined suffered from developmental, behavioral, or emotional problems (between two and eight times the national averages)."

Stock & Fisher, 2006, *Child Welfare League of America*, pg. 446.



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**Need for Translating Brain Development into Policy & Practice**

"The expertise about early childhood development, brain development and trauma exists in different sectors and disciplines. Yet, we lack an integrated science of early childhood development...All this new knowledge on child development, trauma, the brain and protective factors is not being translated into public policy nor is it being introduced in our practice."

*Jack Shonkoff M.D., Director, Center for the Developing Child at Harvard University*



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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

**How do we translate “what matters” in early brain development to a comprehensive assessment & intervention process for infants and parents?**

What Matters:	What assessment information to obtain (3 steps to NRF):
<ul style="list-style-type: none"> <li>Stress thresholds, with stress and stress recovery patterns</li> </ul>	<ul style="list-style-type: none"> <li><i>Step 1:</i> Assess &amp; intervene to improve stress and stress recovery patterns in child and parent</li> </ul>
<ul style="list-style-type: none"> <li>Procedural memories and the quality of engagement</li> </ul>	<ul style="list-style-type: none"> <li><i>Step 2:</i> Assess &amp; intervene to improve the level(s) in the quality of engagement</li> </ul>
<ul style="list-style-type: none"> <li>Development of brain networks and circuits</li> </ul>	<ul style="list-style-type: none"> <li><i>Step 3:</i> Assess &amp; intervene to improve individual sources of vulnerability (triggers) &amp; resilience (toolkits) in brain networks</li> </ul>

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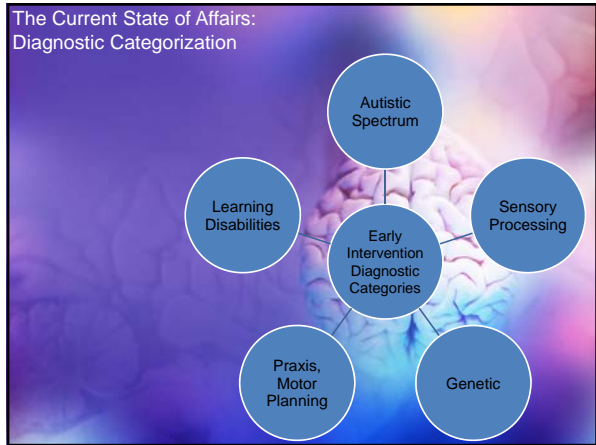
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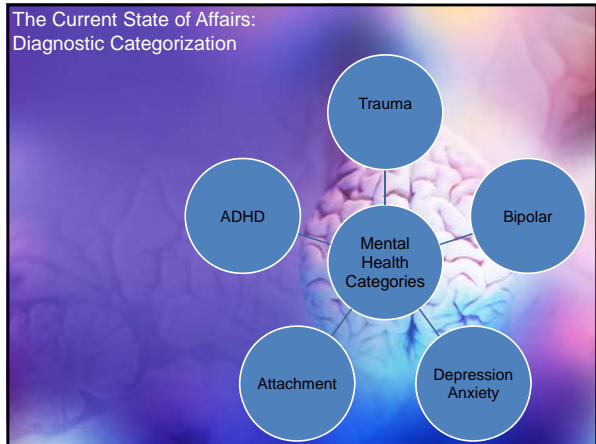
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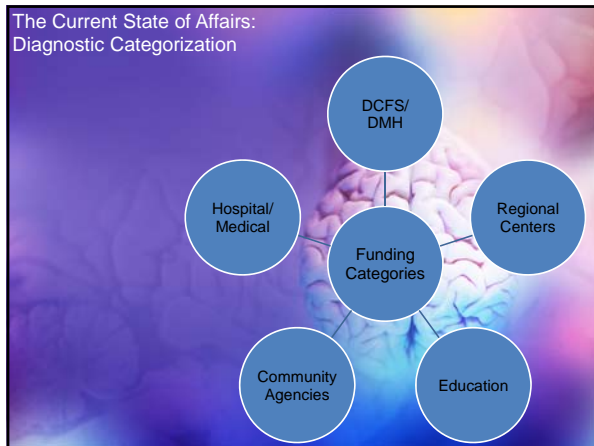
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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)




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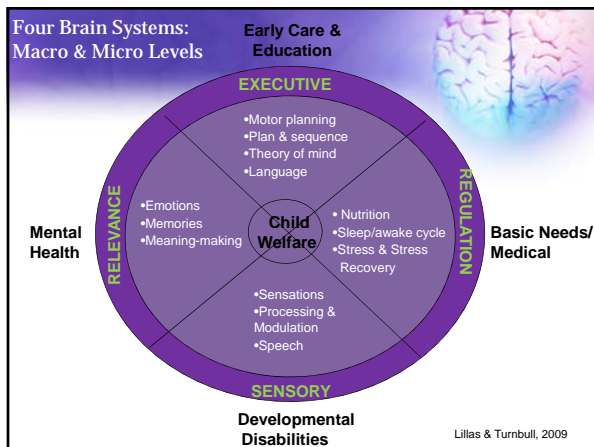
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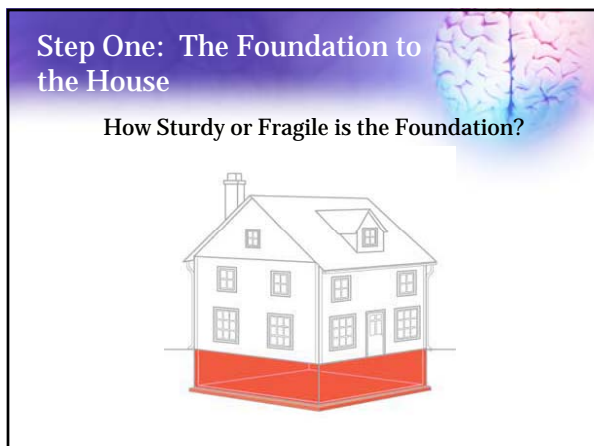
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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

*Step #1:*  
How do we identify stress & stress recovery ?



- A. Recognize what stress recovery looks like
- B. Recognize three primary stress responses
- C. Recognize four toxic stress patterns

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*Step #1A:*  
How do we identify stress recovery ?



- Recognize what stress recovery looks like:
  - **Deep sleep**
  - **Green zone**

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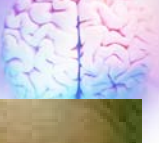

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Deep sleep is restorative...



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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

## What's the quality of sleep?

- Can baby/parent get to sleep?
- Can baby/parent stay asleep?
- Do baby/parent get enough total sleep?
- Does baby/parent wake up refreshed?
- Does baby/parent wake up and feel tired and cranky?

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Possible Regulation and Stress Response Correlates of Interpersonal Modes Across the Lifecycle

Adult State and Interpersonal Mode	Low Regulation / High Reactivity	No Fluid/Resilient	No Flow/Spontaneous	No Right/Spontaneous
<b>SEE CONTACT</b>	<ul style="list-style-type: none"> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> </ul>	<ul style="list-style-type: none"> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> </ul>	<ul style="list-style-type: none"> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> </ul>	<ul style="list-style-type: none"> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> <li>• High levels of reactivity</li> </ul>
<b>FACIAL EXPRESSION</b>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>
<b>STATE OF MOUTH</b>	<ul style="list-style-type: none"> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> </ul>	<ul style="list-style-type: none"> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> </ul>	<ul style="list-style-type: none"> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> </ul>	<ul style="list-style-type: none"> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> <li>• Mouth closed</li> </ul>
<b>POSTURE, MOVEMENTS, AND GESTURES</b>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>
<b>ADJUSTMENT AND STATE</b>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>	<ul style="list-style-type: none"> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> <li>• No spontaneous smiles</li> </ul>

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## Alert processing is 'just right'... for learning and relationships




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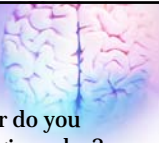
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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

**How Much “Green Zone” Do You Have?**



- How much **green zone** behavior do you usually get, yourself, during any given day? [0, 25, 50, 75, 100%]
- Is there a difference in the “green zone” between a day during the week and on the weekend?
  - Some adults/children do “better” during the week when their lives are often more structured
  - Some adults/children do “better” during the weekend when there is often less structure

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**Step #1B:**  
How do we identify three primary stress responses?



Recognize the three primary stress responses:

- Red zone
- Blue zone
- Combo zone

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**How do we identify healthy stress responses?**



- Allostasis =
  - **Healthy rubber band, that stretches out nicely and bounces back**
  - **Coordination between flexibility & stability**
    - Flexible stress responses
    - Stable deep sleep and green zone

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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

**Reading Non-Verbal Cues:**  
**Combo Zone**

**A Baby's Vigilant State:**



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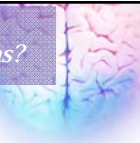
**Step #1C:**  
*How do we identify toxic stress patterns?*

Recognize stress responses that are *too frequent, too quick / intense, too long*

**4 Toxic Stress Patterns**

1. *Over reactivity:* Stress responses that occur too frequently and too quickly
2. *Extended reactivity:* Prolonged stress responses that take too long to recover (more than 10 to 20 mins)
3. *Repeated reactivity:* Can't adapt to "normal" challenges and transitions
4. *Dampened recovery:* Can't recover from stress response back to baseline health (healthy sleep cycle, healthy awake state)

McEwen



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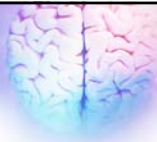
**Adverse Childhood Experiences Scale**

**CA's ACE List**

1. Recurrent physical abuse
2. Recurrent emotional abuse
3. Contact sexual abuse
4. An alcohol and/or drug abuser in the household
5. An incarcerated household member
6. Someone who is chronically depressed, mentally ill, institutionalized, or suicidal
7. Violence between adults in the home
8. Parental separation or divorce
9. Emotional or physical neglect

**Resources**

- <http://acestudy.org/home>
- <http://www.cavalcadeproducts.com/ace-study.html>
- <http://wichildrenstrustfund.org/files/WisconsinACEs.pdf>



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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

## ACE Score Higher Than 4



<p><b>Score 4 or more</b></p> <ul style="list-style-type: none"> <li>• Twice as likely to smoke</li> <li>• Twice as likely to have heart disease</li> <li>• Twice as likely to be diagnosed with cancer</li> <li>• Four times as likely to have emphysema or chronic bronchitis</li> <li>• Six times as likely to have sex before age 15</li> <li>• Seven times as likely to be alcoholics</li> </ul>	<p><b>Score 4 or more compared to 0</b></p> <p>Score 4 or more compared to 0</p> <ul style="list-style-type: none"> <li>• Twelve times as likely to have attempted suicide</li> </ul> <p>Men with a score of 6 or more compared to 0</p> <ul style="list-style-type: none"> <li>• Forty-six times as likely to have injected drugs</li> </ul>
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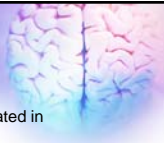
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## Stress Patterns & Associated Health Issues



Disease does not begin at the onset of symptoms. In fact, maladaptive stress related conditions are implicated in all of the following:

<p><b>Toxic Patterns #1 to 3</b></p> <ul style="list-style-type: none"> <li>• Increase in heart attack &amp; hypertension</li> <li>• Melancholic depression</li> <li>• Obsessive compulsive disorder</li> <li>• Panic disorder</li> <li>• Alcoholism</li> <li>• Lowered immune system</li> <li>• Decrease in memory functions</li> <li>• Diabetes</li> <li>• Malnutrition</li> <li>• Hyperthyroidism</li> <li>• Functional gastrointestinal disease</li> </ul>	<p><b>Toxic Pattern #4</b></p> <ul style="list-style-type: none"> <li>• Allergies</li> <li>• Asthma</li> <li>• Autoimmune diseases</li> <li>• Chronic fatigue syndrome</li> <li>• Rashes</li> <li>• Rheumatoid arthritis</li> <li>• Post Traumatic Stress Disorder</li> </ul> <p><a href="http://www.theamainstitute.org/a-bio.html">http://www.theamainstitute.org/a-bio.html</a></p>
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## Assess Procedural Soothing & Comfort



Optimally, ask for a shared journal between parents [fost/adop/kinship] that notes stress responses, triggers, and what soothed the infant/child

If there is not an immediate or robust answer to these questions, these are not likely "procedures" that are automatic, relational routines for soothing and comforting

This is a red flag for this infant/child

*A picture is worth a thousand words...*

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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

**Step #2 Quality of Relationships**

**“Serve and Return” on All Levels**



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**Step #2 Assess the Quality of Engagement & Procedural Memories**

**SOCIO-EMOTIONAL MILESTONES**

**Bottom-Up (non-verbal capacities)**

1. Getting calm (green zone) together
2. When *calm* able to make eye contact
3. When making *eye contact*, able to share joy & fall in love
4. When sharing *joy*, able to create a continuous back-and-forth flow of communication (“circles”)
5. When in a *flow*, able to expand and read non-verbal emotional and gestural cues

SE Milestone Language Adapted by Connie Lillas  
(Greenspan, 1985, 1992; Greenspan & Lourie, 1981; Greenspan, DeGangli, & Wieder, 2001; ZERO TO THREE, 1994, 2005)

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**Step #2 Assess the Quality of Engagement**

**Top-Down (verbal capacities)**

6. When *reading cues*, able to share feelings with others through pretend play and/or by talking
7. When *sharing feelings*, able to make-sense and solve problems together

SE Milestone Language Adapted by Connie Lillas  
(Greenspan, 1985, 1992; Greenspan & Lourie, 1981; Greenspan, DeGangli, & Wieder, 2001; ZERO TO THREE, 1994, 2005)

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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

The Importance of The First 3 Years  
Experiences Lay Down Life-Long Expectations



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Adverse Childhood Experiences Scale

CA's ACE List

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6. Someone who is chronically depressed, mentally ill, institutionalized, or suicidal
7. Violence between adults in the home
8. Parental separation or divorce
9. Emotional or physical neglect

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Hypoaalert at 4 months



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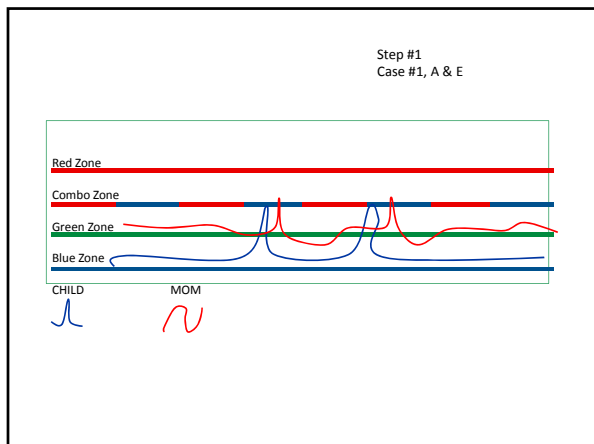
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Case #1  
**PARENT-CHILD RELATIONSHIP MILESTONES**

Child: \_\_\_\_\_ Caregiver: \_\_\_\_\_ Examiner: \_\_\_\_\_ Date: \_\_\_\_\_ Diagnostic: \_\_\_\_\_

	1	2	3	4	5	6
<b>Place an X in the box that fits the milestone and event levels</b>	Age appropriate under all conditions, including stress, with a full range of emotions	Age appropriate but vulnerable to stress and/or constricted range of emotions	Has capacity but not at age-appropriate level	Inconsistent/needs sensorimotor support and structure to function at this capacity	Barely evidences capacity even with support	Has not reached this level
<b>Functional Capacities</b>	<b>BOTTOM-UP</b>					
11. Getting Calm (Green) together by 3 months						X
These functions are built upon the capacity to be calm together						
12. When calm, able to re-engage & look at parent						X
13. When making eye contact, able to share joy & love by 5 months						X
14. When sharing joy, to create a continuous and forth flow of communication ("triadic") states						
15. When in a flow, able to find and read non-verbal emotional & gestural cues by 18 months						
	<b>TOP-DOWN</b>					
16. When reading cues, to share feelings with us through pretend play or by talking by 24 to 36 months						
17. When sharing joy, able to make sense solve problems together by 36 months						

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## Practical Tips: Assess Procedural Engagement

*A picture is worth a 1000 words*

- If parent/child couple does not come to court, ask Infant Mental Health therapist to take a picture of the child **"playing with"** each of his or her caregivers and bring it to you; every time a case is reviewed, this should become routine protocol
- **State and Ask:** It is normal for infants/children to show us how they feel and to show their joy when being played with. How does each caregiver engage and play with his/her infant/child?
- **Ask:** What does this infant/child like to do with each parent?
- **Ask:** How frequently does each caregiver play with this infant/child?
- **Ask:** How long does this "play time" last for each caregiver with this infant/child?

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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

It is rarely the case that there is a single cause to the symptoms we see.

- The meaning of behavior is based upon multiple causality, rather than singular causality, as multiple causes usually underlie the “behavioral problems” that are identified as the presenting problem

Lillas & Turnbull, © 2009




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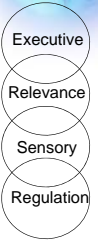
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**Step #3:**  
Assess for Vulnerability and Resilience Across Four Brain Systems

**Bottom-Up Progression**

**Self and Mutual Regulation: Child, Parent, & Dyad**

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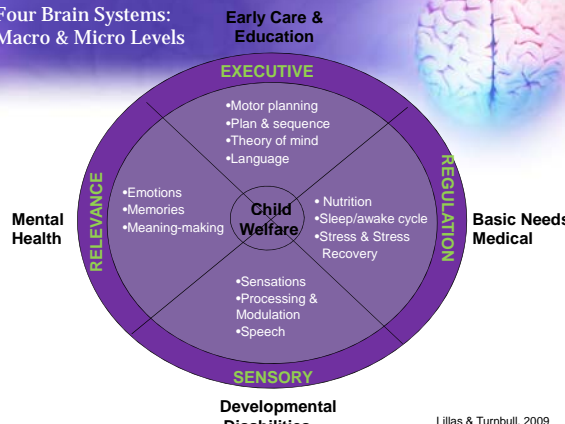
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**Four Brain Systems: Macro & Micro Levels**



**Child Welfare**

**EXECUTIVE**

- Motor planning
- Plan & sequence
- Theory of mind
- Language

**RELEVANCE**

- Emotions
- Memories
- Meaning-making

**SENSORY**

- Sensations
- Processing & Modulation
- Speech

**REGULATION**

- Nutrition
- Sleep/awake cycle
- Stress & Stress Recovery

**Early Care & Education**

**Mental Health**

**Basic Needs/ Medical**

**Developmental Disabilities**

Lillas & Turnbull, 2009

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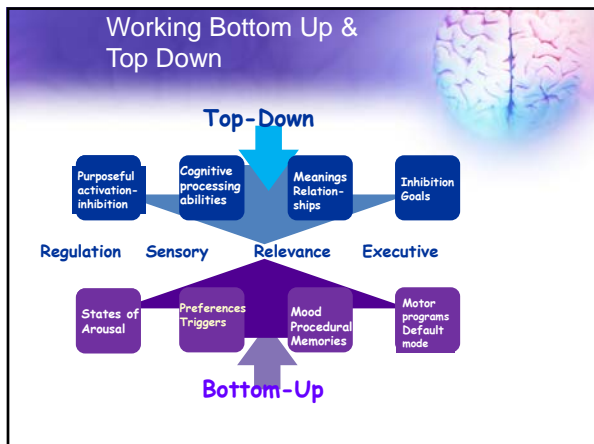
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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)




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**We work from bottom-up to top-down**

- We often divide and “unbundle” thoughts from feelings, mind from body, top-down from bottom-up
- From the NRF’s point of view, we need to “bundle” together states of arousal, sense experiences, perceptions, memories, words, thoughts, and actions/movements
- We grow from bottom-up into top-down; the quality of the bottom-up regulation of the rate, rhythm, and force of our sensorimotor experiences influence the speed, coordination, and appropriateness of our emotions & thoughts

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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

### What We Are Going To See



At educational setting for teen parents; Anthony left in swing for hours on end, sleeping too much; notice his low, floppy tone when picked up

Sleeping “too much” can be a sign of depression and poor quality sleep just as “too little” can be depleting.

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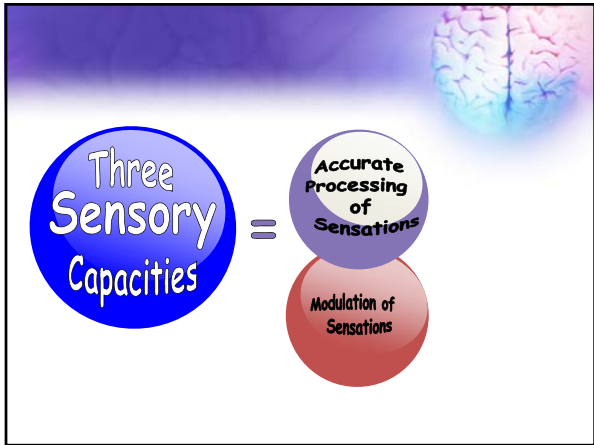
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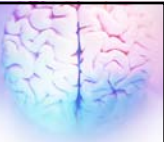
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### Things to Observe in Next Video



- A is placed in a bouncer with a typical strand of hanging toys placed in front of him to “see” and to be stimulated by
- Does he show any interest in the visual stimulation?
- Does he show any aversion to the tactile stimulation?

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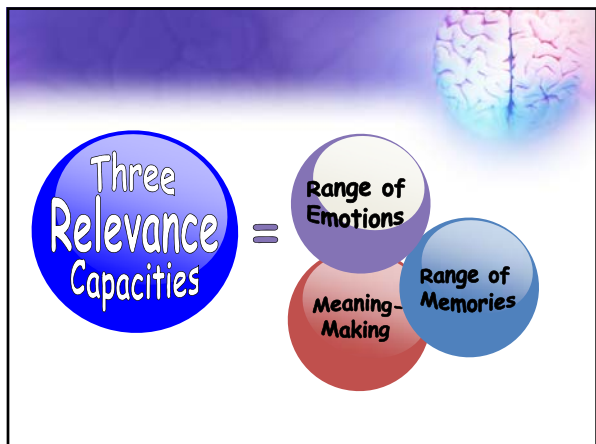
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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)



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Things to Observe in the Next Video

- E's meaning-making system being triggered as A does not engage with her
- What do these comments tell us about her procedural memories?
  - **What did grandma do to you, huh?**
  - **Oh, I'm so sorry.**
  - **Did your Auntie Daisy hit you?**

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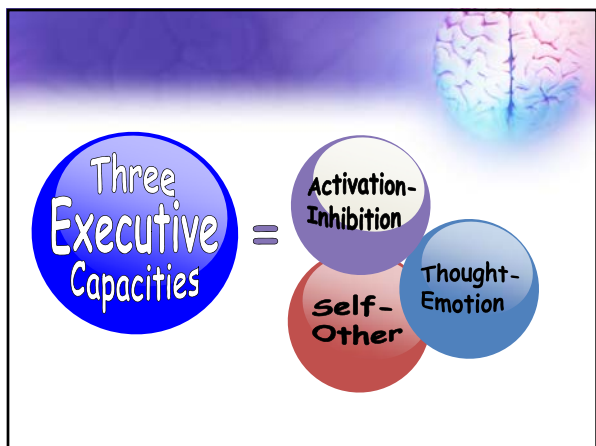
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Air traffic controller...



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Things to Observe in the Next Video

- A on the mat
- Does A show anti-gravity movements?
- Does A rotate his trunk?
- Does A move his upper body?
- Does A move his lower body?
- If so, does he move with reciprocal kicking or bi-lateral synchronization?

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Typical "Organization" of a case

<b>Symptoms</b>	<b>Diagnostic Categories</b>
<ul style="list-style-type: none"><li>• Teen mom</li><li>• Lack of joyful exchange</li><li>• Poor head control</li><li>• No eye contact</li><li>• Limited cooing</li><li>• Chronic avoidance/aversion to sensory input</li><li>• Primary blue zone state</li><li>• Sleeping too much</li><li>• Lack of orienting to sights &amp; sounds</li><li>• Lack of engagement</li><li>• Lack of movement of reaching, rolling, turning eyes or head</li></ul>	<ul style="list-style-type: none"><li>• Relationship Disorder</li><li>• Sensory Processing Disorder</li><li>• Trauma</li><li>• R/O Mood Disorder</li><li>• Speech Delay</li><li>• Sensory Modulation Disorder</li><li>• Motor Delay</li><li>• History of Neglect</li></ul>

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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

**Step #3**  
**Individual Differences**



<p><b>Macro - Medical</b></p> <ul style="list-style-type: none"> <li>• Born 27.5 weeks</li> <li>• In the NICU for 3 months</li> </ul>	<p><b>Micro – Regulation</b></p> <ul style="list-style-type: none"> <li>• Sleeping too much</li> <li>• Stuck in “blue zone”</li> </ul>
<p><b>Macro – Early Intervention</b></p> <ul style="list-style-type: none"> <li>• Sensory Processing Disorder</li> <li>• Sensory Modulation Disorder</li> <li>• Speech Delay</li> </ul>	<p><b>Micro – Sensory</b></p> <ul style="list-style-type: none"> <li>• Chronic avoidance &amp; aversion to sensory input</li> <li>• Lack of orienting to sights and sounds</li> <li>• Limited cooing</li> </ul>

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**Step #3**  
**Individual Differences**



<p><b>Macro – Mental Health</b></p> <ul style="list-style-type: none"> <li>• Hx of neglect in family</li> <li>• Trauma</li> <li>• Relationship Disorder</li> <li>• R/O Mood Disorder</li> </ul>	<p><b>Micro – Relevance</b></p> <ul style="list-style-type: none"> <li>• Teen mom</li> <li>• No eye contact</li> <li>• Lack of joyful exchanges</li> <li>• Lack of engagement</li> </ul>
<p><b>Macro – Early Intervention, Early Care, &amp; School District</b></p> <ul style="list-style-type: none"> <li>• Motor Delay</li> </ul>	<p><b>Micro – Executive</b></p> <ul style="list-style-type: none"> <li>• Poor head control</li> <li>• Lack of movement of reaching, rolling, turning eyes or head</li> </ul>

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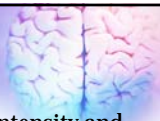
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**Anthony and Erika’s Shift**



Do you Match or Counter his low intensity and slow rhythm to get Anthony to the Green Zone?

- From blue zone to green
- From flat facial features to smiles
- From few sounds to cooing
- From no movement to reaching
- From lack of engagement to falling in love

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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

What did we see?

- Anthony actually needed to be “countered” with better trunk support and...
- With rather vigorous movement (vestibular) input
- He needed to be “up-regulated”



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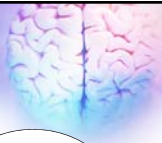
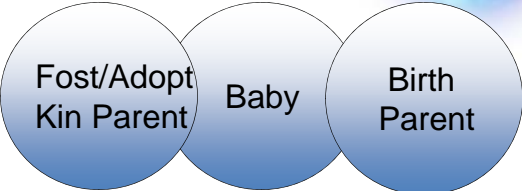
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Old System



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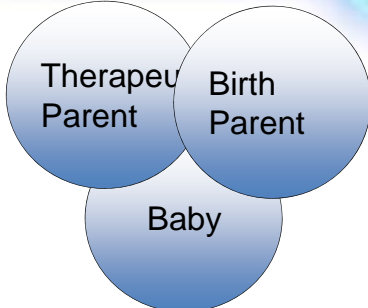
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Shared Parenting – Fostering Family Partnerships



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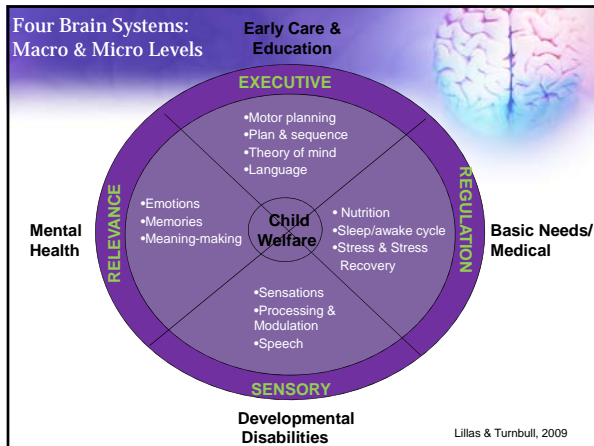
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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)




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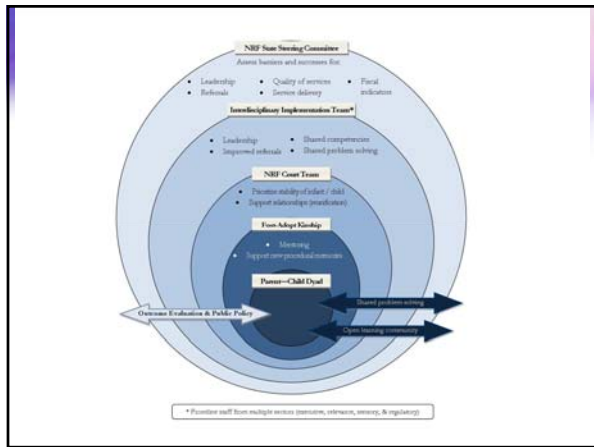
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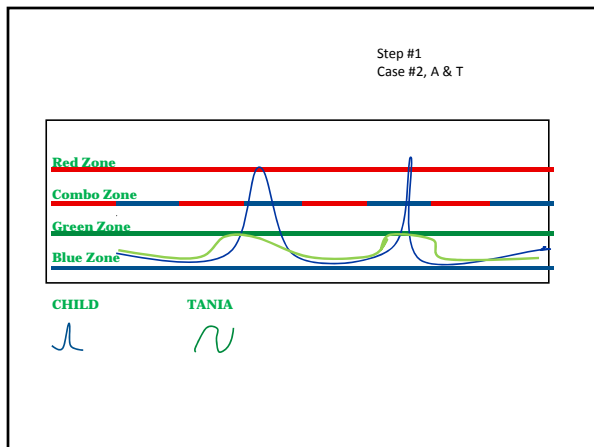
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# Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)

Case #2

**PARENT-CHILD RELATIONSHIP MILESTONES**

Child: \_\_\_\_\_ Caregiver: \_\_\_\_\_ Examiner: \_\_\_\_\_ Date: \_\_\_\_\_ Diagnostic: \_\_\_\_\_

	1	2	3	4	5	6
Place an X in the box that best describes the milestone and event levels	Age appropriate under all conditions, with a full range of emotions	Age appropriate but vulnerable to stress and/or restricted range of emotions	Has capacity but not at age appropriate level	Inconsistent/needs sensorimotor support and structure to function at this capacity	Barely evidences capacity even with support	Has not reached this level
<b>Functional Capacities</b>						
<b>BOTTOM-UP</b>						
11. Getting Calm (Green) (2-3 months)						X
These functions are built upon the capacity to be calm together						
12. When calm, able to eye contact & look at adult						X
13. When making eye contact, able to share joy & look to caregiver						X
14. When sharing joy, to create a continuous and forth flow of interaction ("ritchie")						X
15. When in a flow, able to point and read non-verbal emotional & gestural (by 11 to 18 months)						X
<b>TOP-DOWN</b>						
16. When reading cues, to share feelings with caregiver through pretend play or by talking (by 24 to 36 months)						X
17. When sharing joy, able to make-sense solve problems together (by 48 months)						

DIR: Institute adapted from the DMDC, ©2016, Press. Original Functional Levels from ICOT's, EFTD - adapted language & organization by Connie Lillas

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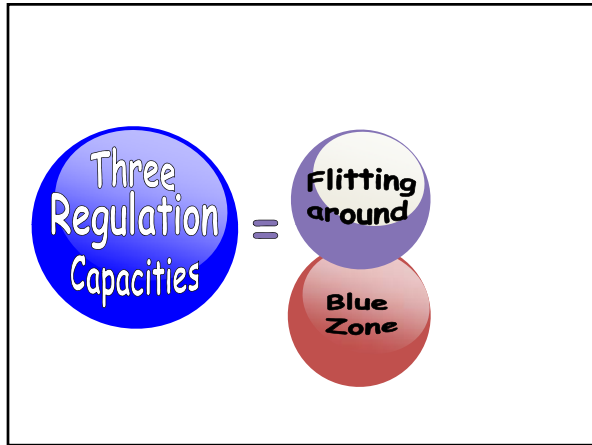
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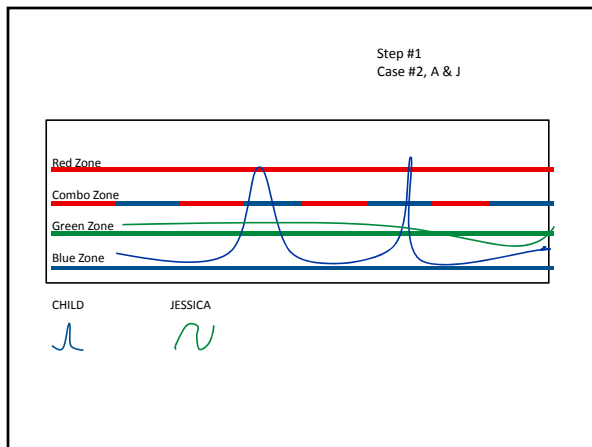
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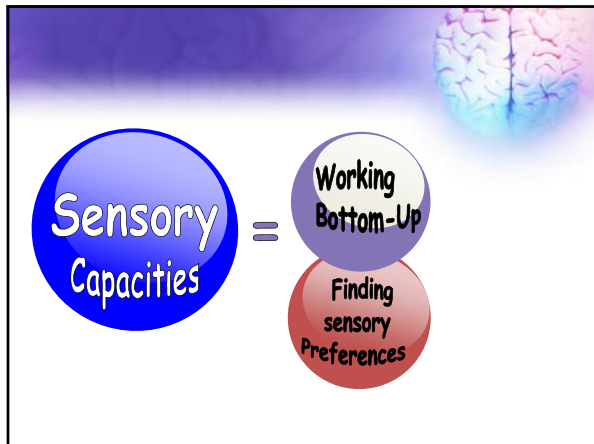
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Early Brain Development, Long Lasting Effects of Chronic Stress, and Bridging the Gaps Across Disciplines: An Intro to the Neurorelational Framework (NRF)



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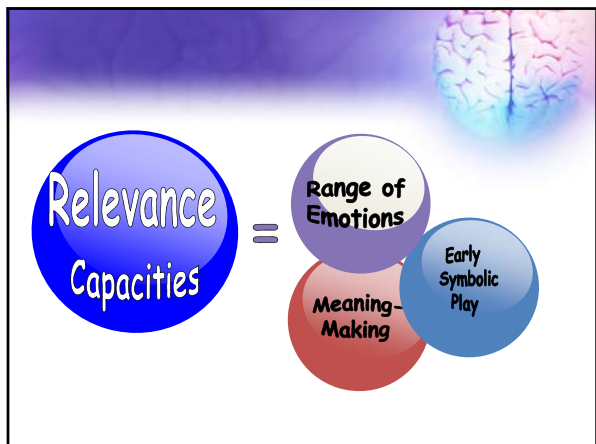
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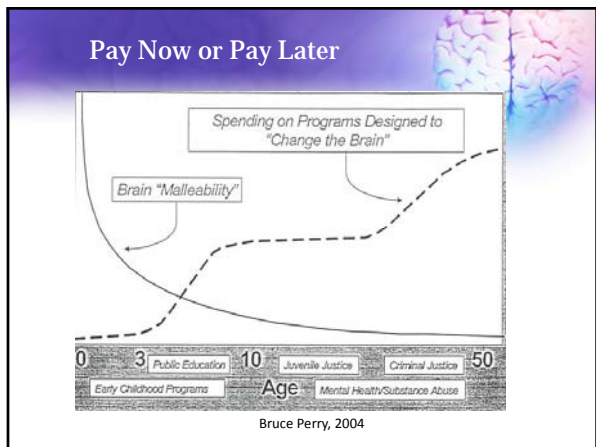
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### Take Home Points

**What To Look For:**

- ▶ Toxic stress can be identified through non-verbal behaviors across the lifecycle and is especially important to be “seen” in birth to five year olds
  - Toxic stress can show up through red zone, blue zone, and/or combo zone behaviors that are too frequent or last too long
- ▶ Key red flags that indicate the need for “dyadic” (parent-child) intervention are:
  - Any toxic stress pattern
  - If the parent (e.g., birth/foster/kinship/adopt) cannot soothe his/her child
  - If the parent-child (e.g., birth/foster/kinship/adopt) cannot engage in joy

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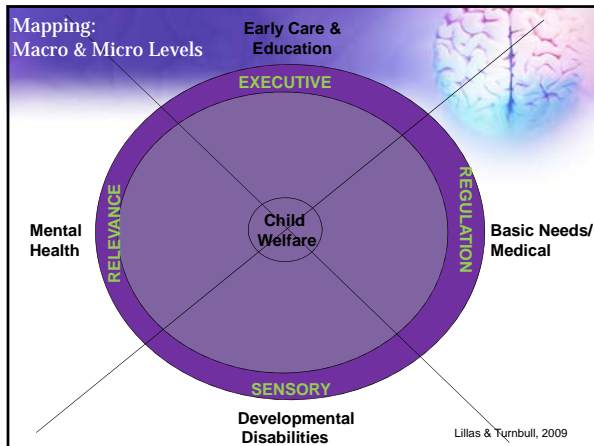
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