THE TWO CASES OF TRAUMA

I. A child of eight is mauled by a neighbor’s pet. The initial attack is followed by two reconstructive surgeries and six months of rehabilitation. He suffers from nightmares and recurrent intrusive memories, his fear of dogs keeps him from playing outdoors, he is irritable and unhappy and he fights with his siblings. He loses interest in school and friends for nearly six months. Eventually, the parents are able to find specific treatment for trauma, he stays on antidepressants for a few months, and he essentially recovers.
II. A child of six comes into state custody after being reported by the school for neglect. The mother is a methamphetamine addict who has had a number of other adults living in the home, the child has been sexually and physically abused, in addition to the extended and pervasive neglect of her basic care. She has some peer related behavior problems, infrequent and unpredictable anger and self-control problems, and does poorly in school. Not many fears, not much obvious depression, and a surprising competence at self-care.
The second child went on to have early behavior problems and marked oppositional attitudes toward caretakers and authorities, overall poor school performance, and unsuccessful and conflicted peer relationships. She initiated drug use in middle school, was sexually active by 14, and eventually served time as a juvenile for repeated probation violations. She went on to a conflicted and violent marriage, had children whose custody was assumed by the state, and repeated her own experience with her children.
TRAUMA and DEVELOPMENT

WHO ARE OUR PATIENTS AND CLIENTS?

Children like the second fill the case loads of social workers, psychologists, special education teachers, therapists, child psychiatrists and probation officers. They first enter the child protective system, then transition to special education classes, some get all the way to psychiatric hospitals and RTCs, and another group eventually enters the juvenile justice system.
“People with childhood histories of trauma, abuse and neglect make up almost the entire criminal justice population in the U.S.” (van der Kolk, 2004)
SO WHY IS THE OUTCOME FOR THESE TWO CHILDREN SO DIFFERENT?
TWO KINDS OF TRAUMA

THE PROTECTIVE FACTORS

- Single incident trauma
- Later in childhood
- Positive early childhood experience and parenting before the event
- Supportive, attuned parenting, and intelligent intervention after the event
- Non-interpersonal violence
TRAUMA and DEVELOPMENT

THE SALIENT FEATURES of DEVELOPMENTAL TRAUMA

- Repetition
- Multiple Kinds of Trauma
- Early Age
- Chronicity and Persistence
- Interpersonal / Intra-familial
UNDERSTANDING THE MECHANISM OF ACES
ACE Study by CDC AND KAISER
N= 17,337 Adults

- 11% Emotionally Abused
- 28% Physically Abused
- 21% Sexually Abused
- 27% Exposed to Drug or Alcohol Abuse
- 19% Exposed to Mental Illness
- 13% Witnessed Violence Toward Their Mothers
- 23% Lost a Parent due to Divorce or Separation
- 63% Experienced 1+ ACEs
- 20% Experienced 3+ ACEs
Adverse Childhood Experiences

1. Emotional Abuse
2. Physical abuse/threats
3. Sexual abuse
4. Physical Neglect — Unfed, Unwashed or Unsupervised
5. Emotional Neglect — Unloved and Unsupported
6. Parents Separated or Divorced
7. Battered Mother
8. Family member w/ substance abuse
9. Mental illness, depression, suicidal
10. Family member in prison

ACE = 4
ACEs and Chronic Disease

- GREATER THAN 4 ACES RESULTED IN MUCH HIGHER RATES OF CHRONIC PHYSICAL DISEASE
  - Chronic pulmonary lung disease
  - Hepatitis
  - Heart disease
  - Diabetes
  - Reduced life span
GREATER THAN 4 ACES ALSO RESULTED IN EMOTIONAL AND BEHAVIORAL CHANGES:

- Depression
- Delinquency and criminality
- Substance abuse of all kinds
- Domestic violence
- Greater chance of suicide
DOSE DEPENDENT DAMAGE

HEART DISEASE

CHRONIC DEPRESSION

IV DRUG USE

SUICIDE ATTEMPTS

ALCOHOLISM
Health Outcomes, ACE Score = 4+

- IV Drug Use: 13.0
- Suicide Attempt: 12.0
- Alcoholism: 5.0
- Chronic Depression: 4.5
- Heart Disease: 2.5
A male child with an ACE score of 6, when compared to a male child with an ACE score of 0, has a 46-fold (4,600%) increase in the likelihood of becoming an IV drug user sometime later in life.
MECHANISM OF DAMAGE FROM ACEs

DIFFERENTIAL DAMAGE

- There is no marked difference in the damage from any particular one of the ACEs...
- What seems to matter most is the cumulative stress effects of multiple types of adverse experience
- Except for Emotional Abuse—chronic recurrent humiliation of being told you are worthless—adds 15% higher consequences than the others
Our experience asking these questions indicates that the magnitude of the ACE problem is so great that primary prevention is ultimately the only realistic solution.

Vincent Felitti
Mechanism of Damage from ACEs

1. Activation of the stress response system
2. Under and over activation of sensitive neurodevelopmental processes
3. Sensitive and critical periods
Chronic stress results in altered function and development — e.g. changes in arousal, attachment, reward

Leads to maladaptive coping mechanisms

Leads to disease, pathological behaviors, and early death
THE ACE MECHANISM—a closer look

- Adverse experience happens in **childhood**
- It happens *to* the brain and *through* the brain, because the traumatic nature of the adverse experience is **psychological**
- The subjective *perception and meaning* of the event is more important than the event itself…
- Because the **inner experience** of the child is the basis of neurodevelopment—and **attachment** is the basis of inner experience
WHAT TURNS A PARTICULAR CHILDHOOD EXPERIENCE INTO AN ACE?

- The threat—implied or actual—to the security and integrity of the primary relationships

- The quality of the earliest attachments determines the foundation of healthy brain development
The ACE Mechanism and Resilience

- Attachment, Regulation and Resilience—the three legs of Health
- The Nature and Definition of Resilience
  - Intelligence
  - Adaptability and coping
  - Temperament
  - Early attachments, current attachments, and attachability itself
RESILIENCE

• Early childhood experiences can also confer resilience for the later life course
• Certain children are resilient even in the face of bullying which might induce later conduct problems in their peers
• Resilience was conferred by (you guessed it) “warm family relationships and positive home environments”

(Bowes & Maughan, 2010)
SEQUENTIAL BRAIN DEVELOPMENT AND AROUSAL
Cortex
Limbic
Diencephalon
Cerebellum
Brainstem

Abstract thought
Concrete Thought
Affiliation/reward
"Attachment"
Sexual Behavior
Emotional Reactivity
Motor Regulation
"Arousal"
Appetite/Satiety
Sleep
Blood Pressure
Heart Rate
Body Temperature

ANS - body

Bruce D Perry © 2010

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Cascading Brain Development

- The effects of early childhood trauma and stress are not immediately apparent
- Neurodevelopment is progressive, with later stages depending upon earlier foundations
- Changes in the brain are cumulative
- Early abuse can be initially invisible...until it’s not

Time-Bomb Effect
THE DEVELOPMENT OF REGULATION

BASIC REGULATORY FUNCTIONS are NORMALLY ESTABLISHED in INFANCY and EARLY CHILDHOOD

• Through the protection of the infant from environmental and interactional stressors

• By the external regulation of the infant who is not initially capable of self-regulation
THE DEVELOPMENT OF REGULATION

USE DEPENDENT DEVELOPMENT

- The brain develops through repetitive stimulation
- Repetitive stimulation of the brainstem during infancy and early childhood establishes baseline thresholds for arousal and reactivity
EARLY BRAIN DEVELOPMENT AND REGULATION

HOW DOES CHILDHOOD TRAUMA ALTER SELF-REGULATION?

“At the core of traumatic stress is a breakdown in the capacity to regulate internal states.”

van der Kolk, 2002
The fundamental effects of abuse and neglect are interrelated and reciprocal:

- Dysregulation of arousal
- Dysregulation of reward
- Disturbance of attachment
EARLY BRAIN DEVELOPMENT AND REGULATION

WHAT IS THE BASIS OF HYPERAROUSAL?

• The altered threshold of the brainstem leads to physiological results:
  - Increased heart rate
  - Altered sleep
  - Startle response
  - Anxiety / Panic
NORMAL set-points for self-control and arousal may be missing and not evident until age appropriate developmental standards are required.

Deficits may manifest in aggression and/or hypervigilance.
EARLY BRAIN DEVELOPMENT AND REGULATION

- The PERSISTENT FEAR RESPONSE and the SIGNS of HYPERAROUSAL:
  - Impulsivity
  - Reactivity
  - Aggression
  - Hyperactivity

- DIAGNOSED AS:
  - ADHD
  - Bipolar Affective Disorder
  - Learning Disability
  - Conduct Disorder
EARLY BRAIN DEVELOPMENT AND REGULATION

DISSOCIATION

• The alternative to hyperarousal
• Physiological and psychological escape—when physical escape is impossible
• More frequent in females and young children
• Mis-diagnosis of dissociation includes depression, seizures, fainting spells, intoxication, inattention and disinterest
REGULATION,
CO-REGULATION & DYSREGULATION
WHAT IS CO-REGULATION?

• The management of positive arousal and gratification through mutual interactional behaviors between two individuals
• Involving multisensory interactions
  - Hearing
  - Vision
  - Taste
  - Touch
  - Smell
Co-regulation is a right brain event

- It is an implicit, non-verbal, bottom up communication schema that relies on affect recognition, facial matching, attunement and accurate contingent communications
- Verbal inputs are non-cognitive
- It communicates the most basic elements of safety and security and mutual affect coordination
THE SOCIAL BRAIN

THE RIGHT HEMISPHERE
- Dominant for Social and Emotional Functioning
- Growth Spurt during the 1st eighteen months
- Motor Development—Eye hand coordination, crawling and walking
- Safety and Danger Recognition
- Autonomic and Physiologic Regulation
- Regulation of Emotion
- Densely Connected to Subcortical and Brainstem Structures—Physical and Autonomic Functions *(Shapiro, Jamner & Spence, 1997)*
THE PROCESS OF CO-REGULATION

**MIRRORING:** Affect Synchrony

**MIRROR SYSTEMS:** Areas in the premotor cortex and Broca’s area are activated during observation, imagination, empathy, and execution of motor movements.
ATTUNEMENT
The parent must be attuned not so much to the child’s overt behavior as to the reflections of the rhythms of his or her internal state, enabling the dyad to create “mutual regulatory systems of arousal.” To regulate the infant’s arousal, she must be able to regulate her own arousal state.  (Alan Schore, 2006)
THE PROCESS OF CO-REGULATION

CONTINGENT COMMUNICATION

Transaction that involves:

- Perception of the child’s signals
- Making sense of the signals in terms of what they mean for the child
- A timely and effective response
REPAIR
When there is the inevitable rupture in the ideal attuned, contingent communication, repair is an acknowledgement of the disconnection and the attempt to reconnect.
• Rupture and repair can occur within 1/3 of a second
• More than 70% of the time is spent in mismatch and repair

(Tronick, Catch Our Children Before They Fall, Youtube.com)
Still Face Video
Co-regulation is not only a step toward autonomous regulation, it is a life long necessity and an ongoing support for self-regulation itself.

The ability to regulate arousal level is a core-competency for the developing infant and child, and the foundation of cognitive development. It is the key task of early development. (Schore, 2001)
• Mothers with history of abuse themselves responded to a video of a smiling but not a crying infant with arousal

• Mothers with their own history of abuse demonstrate an insensitivity and lack of attunement to infant’s emotional cues

(Casanova & Domanic, 1994)
Co-regulation creates a “buffer” for the child which makes an otherwise toxic stress tolerable \cite{Shonkoff2009}.

The presence and active engagement of the caretaker to both shield the child and interpret experience helps to digest stressful events.
Measuring Co-Regulation

**Vagal Tone** – Baseline state of physiological rest, sense of calm marked by low level of arousal, and the absence of alarm or distress.

Positive link between infant’s vagal tone and more symmetrical co-regulated patterns of infant-mother communication.
The attachment operation becomes the fundamental means for establishing the positive emotional states required for healthy neurodevelopment.

The infant seeks out an attachment figure who helps maintain positive affect stability expressly for the purpose of cultivating a developmental environment.
Reciprocal interaction and proximity to the caretaker has a high reward value.

The infant works toward that reward using strategies developed in previous interactions with the primary caretaker.

In this fashion the infant is developing itself with the use of the parent.
THE MEASUREMENT OF ATTACHMENT
THE MEASUREMENT OF ATTACHMENT

• The most fundamental **behavioral** definition of attachment is “proximity seeking by a child when she/he senses discomfort or danger.”

• Individual responses to stress are variable, based upon temperament and prior experience, but if there is a secure attachment they always involve proximity seeking toward an attachment figure.

• If there is not a secure attachment the proximity seeking differs in kind and quality.
The Strange Situation procedure measures types of attachments—Secure and Insecure (the latter called either Avoidant or Ambivalent)

An additional category was later added called *Disorganized Attachment*—inconsistent, approach-avoidant, freeze and isolate
Maltreated children present as much as 82% in the Disorganized Attachment category (Carlson & Cicchetti, 1989).

Compared to 19% in the non-abused group.

The intrusion of fear into the attachment-comfort equation. The source of security is also the source of danger.

The unresolvable “approach-avoidance “dilemma...
DELINQUENCY AS A MODEL OF DYSREGULATION
THE DEVELOPMENTAL ORIGINS OF DELINQUENCY

- The CONSEQUENCES of ABUSE and NEGLECT SHARE the SAME CORE FEATURES as ANTISOCIAL BEHAVIOR
  - Impulsivity
  - Dysregulation of Arousal
  - Dysregulated Moods—Labile and Changeable
  - Dysregulated Behavior—Explosive and Aggressive
  - Poor Interpersonal Relations—Impaired Attachments and Empathy
  - Persistent Substance Abuse
  - Impaired frontal “Executive Functions” like Insight, Introspection, Patience, Prediction and Planning
ADVERSE EXPERIENCES IN DELINQUENTS

Figure 2. Prevalence of ACE Description Indicators by Gender

- Emotional Abuse: Males 57%, Females 67%
- Physical Abuse: Males 49%, Females 70%
- Sexual Abuse: Males 63%, Females 21%
- Emotional Neglect: Males 74%, Females 90%
- Physical Neglect: Males 93%, Females 90%
- Parental Divorce or Separation: Males 55%, Females 53%
- Family Violence/DV: Males 81%, Females 77%
- Household Substance Abuse: Males 55%, Females 60%
- Household Member Incarceration: Males 55%, Females 60%
The fundamental effects of abuse and neglect are interrelated and reciprocal:
- Disturbance of attachment
- Dysregulation of arousal
- Dysregulation of reward
THE DEVELOPMENTAL ORIGINS OF DELINQUENCY

- Attachment and Development
  - Critical, early and encompassing
- Early Templates for Relations
- The Management of Aggression through Empathy
1. Empathy is an early crucial developmental achievement closely related to attachment.

2. Empathy depends upon inborn neurological potentials that require reflection and reinforcement from the caretakers.

3. Individuals differ in the strength of the empathy signal.

4. The most significant factor determining the accuracy and sensitivity of the development of empathy is the quality of the caretaking.
• **EMPATHY**—the ability to understand another’s perspective and feelings and respond to them with a visceral or emotional reaction

• **PSYCHOPATHY**—antisocial values and behaviors that are based upon the failure to recognize and respond to the feelings of another

• **CALLOUS/UNEMOTIONAL**—Research terminology for construct of low empathy, low pro-social commitments and actions, and low emotionality
THE MEANING AND PURPOSE OF EMPATHY

- **Mother-Child Attachment**—safety and neurodevelopment for the child
- **Pair-Bonding**—mating and childrearing
- **Social Affiliation**—friends and neighbors: decreased aggression and increased social coherence
- **Quality of Life**—the most human of traits
THEORIES OF EMPATHY

- **Simulation**—We understand the minds of others by using our own mind as a model—the emotional model

- **Mentalizing**—We understand others through mentalizing, a more cognitive form of grasping another’s perspective that requires a Theory of Mind
• **Theory of Mind**—Cognitive ability to attribute mental states—beliefs, intents, desires, etc.—to oneself and others and to understand that others have beliefs and perspectives that are different from one's own.

• At three, a child will intuitively grasp that others have different needs, but it is not reflective and still does not include the thoughts behind the wish.

• By preschool age (4-5 years), children are generally capable of taking another’s perspective. *(Wellman et al., 2001)*
THE EMPATHY SEQUENCE

- Recognition of the feelings/distress of others through the *Mirror Neuron* system
- Activation of the emotional distress signal—with varying degrees of intensity
- The signal follows a sequence of neurocircuitry (the “social brain”) eventually including the stress response system
- Attribution of our own feelings to others—and vice versa—through theory of mind
- Prosocial empathic behaviors
Neurons that fire during both the performance and the observation of an action
• Originally found to function in motor behavior—including facial expressions
• Not only imitate movements and detect intention, but simulate mental, emotional and physical states of others
• Lacking in children with autism who fail to imitate emotional expressions *(Dapretto et al., 2006)*
The mirror neuron system is especially linked to pain—both physical and emotional.

Witnessing pain or distress activates the same brain locations as actually experiencing it.

The primary difference is the intensity of the activation rather than the location or quality (Jackson, Brunet et al., 2006).

“The brain can distinguish at the cortical level whether the self or another is experiencing emotion or pain; yet at some core level it is difficult to distinguish personal from socially relevant cues (Decety and Lamm, 2006).
CAPACITY AND FULFILLMENT

• **EXPERIENCE DEPENDENT**—capacities that depend on experience unique to the individual—riding a bike, playing the cello

• **EXPERIENCE EXPECTANT**—potentials that are part of the genome, and require experiential fulfillment—language, empathy
FROM SPECIFIC TO GENERAL

- The brain takes associations from a single or specific event and generalizes to other situations.
- The brain can generalize from the single abusive father to all adult males.
- Generalization can literally alter the way future experiences are sensed, perceived and processed.
REWARD
Emotional Neglect & Substance Use

- Lack of early life attachment leads to underdevelopment of ‘reward’ systems
- Therefore, reinforcing effects of relationships or intimacy is insufficient to motivate
- External stimulation of these reward systems using dopamine-stimulating (e.g., cocaine) or opioid-like drugs becomes an alternative route to reward
Attachment and nurturing are highly rewarded activities early in life.

Neurotransmitters initiate and accompany early developing interpersonal interactions.

The earliest source of reward is proximity and attention from the primary caregiver.

Attachment and close interpersonal interaction is driven and accompanied by the primary neurotransmitters associated with reward.
NEUROTRANSMITTERS OF REWARD

Endorphins

- Overall decreased pain and increased well being
- The satisfaction of proximity in both mother and infant is mediated by opioid neurotransmitters
- Endorphins promote a sense of safety and comfort for the infant in the presence of the mother
- Both mothers and infants experience a sense of distress and anxiety when separated from one another based upon a drop in endorphins
- Administration of opioids decreases affiliation and attachment behaviors in both infant and mother rats
NEUROTRANSMITTERS OF REWARD

Dopamine

• Drives the central reward system, including but not limited to social interactions and attachment

• Rewarding certain actions and responses, dopamine directs the learning of attachment

• Repeatedly separating rat pups from caregivers decreases dopamine production and increases reactivity to stress. It also increases sensitivity to cocaine as a reward.  (Meany, Brake and Gratton, 2002)
IS CORPORAL PUNISHMENT AN ACE?
Spanking *Still* Overwhelmingly Acceptable

Graph showing the percentage of U.S. adults who agree or disagree that a good, hard spanking is sometimes necessary to discipline a child. The graph shows a decline in the percentage of those who agree from 83% in 1989 to 70% in 2014, while the percentage of those who disagree increases from 16% in 1989 to 29% in 2014.
Spanking is Serious

- 30% parents hit babies under one
- 28% parents use a paddle, belt or other implement
- Spanking continues for 13 years for one third of our children
OUTCOMES OF CORPORAL PUNISHMENT

- Parents often physically punish children for either hitting or stealing. But 27 out of 27 studies in an meta-analysis proved that physical punishment was associated with more future aggression rather than less. (Pagani, International Journal of Behavioral Development, 2004)

- Another meta-analysis noted that 12 of 13 studies linked corporal punishment to increased juvenile antisocial behavior. (Gershoff, Psychological Bulletin, 2002)
What Happens When He’s 9?

Spanking a child when he is 3 – 5 can cause problems when he’s 9!

Spanked children are more aggressive, break more rules, and have lower receptive vocabulary scores!

MacKenzie, 2013
Parents believe they physically punish their children to instill strong social values, respect for authority and a clear mental health status.

But another meta-analysis indicated that 12 out of 12 studies associated corporal punishment with poorer mental health measures.

Every single study saw an increase in depression, substance abuse, and general psychological maladjustment. (Gershoff, Psychological Bulletin, 2002)
Parents may endorse physical punishment with the belief of inculcating strong family values.

But child corporal punishment actually impairs the bond between parents and children.

13 of 13 studies found physical punishment was associated with poorer quality parent-child relationships.

(Gershoff, Psychological Bulletin, 2002)
Spanking is Gateway to Overt Abuse

- Child abuse rate 4-9 times higher for parents who approve of spanking.
- 67 - 85% of all substantiated physical child abuse began as physical punishment.
- More babies under age one die of physical abuse than SIDS.

Moore & Straus
Spanking is an ACE

- In the absence of other ACEs, spanking is associated with increased suicide attempts, moderate to heavy drinking, and the use of street drugs in adulthood.

- Spanking is highly correlated to physical and emotional abuse.

Afifi, 2017
THE END
Hyperarousal—how does it appear?
- Explosive
- Impulsive
- Reactive
- Easily Frightened / Startled / Angered
- Motor Restlessness
Hyperarousal is often misdiagnosed as...
- Attention Deficit Hyperactivity Disorder
- Bipolar Affective Disorder
- Conduct Disorder
- Anxiety Disorder
- Intermittent Explosive Disorder
- Personality Disorder
Consequently, a common medication regimen for a hyperaroused child who has a history of abuse will look like:

1. Stimulant—*for hyperactivity*
2. Antipsychotic—*for odd thinking, auditory hallucinations, agitation and explosiveness*
3. Antidepressant—*for depression and irritability*
4. Mood stabilizer—*for extreme changes of mood*
5. Hypnotic—*for insomnia*
PSYCHOTROPIC USE IN ABUSE AND NEGLECT

- **Dissociation Looks Like**...  
  - Fainting  
  - Seizures  
  - Somatic disorders and somatizing  
  - Emotional distance  
  - Unconcern (*Conversion Disorder*)  
  - Depression  
  - Inattention and forgetfulness  
  - Pain insensitivity
Consequently, a common medication regimen for a dissociative child who has a history of abuse will look like:

1. Antidepressant—for depression and withdrawal
2. Anticonvulsant—for suspicion of seizures
3. Multiple physical medicines—for migraines, orthopedic pain, reflux, GI distress
4. Anxiolytic—for anxiety and panic attacks
PSYCHOTROPIC USE IN ABUSE AND NEGLECT

• HOW CAN WE TREAT SOMETHING THAT ALWAYS APPEARS LIKE SOMETHING ELSE?

• THE RESULTS OF EARLY NEGLECT AND ABUSE ARE PROFOUND AND BROAD, BUT NOT ALWAYS PREDICTABLE OR SPECIFIC

• WHAT ARE WE TREATING? THE SYMPTOM, THE DEVELOPMENTAL FAILURE, OR THE NEUROTRANSMITTER?
WHAT ARE WE TREATING IN CHILDREN WHO HAVE BEEN NEGLECTED AND ABUSED?

BROAD AND GENERAL STATES

- Agitation
- Hyperarousal
- Reactivity
- Impulsivity
- Dysphoria
WHAT ARE WE TREATING IN CHILDREN WHO HAVE BEEN NEGLECTED AND ABUSED?

**SYMPTOMS**

- Depression
- Mood instability
- Irritability
- Recurrent memories
- Anxiety
- Inattention
- Developmental delays
PSYCHOTROPIC USE IN ABUSE AND NEGLECT

- THE TREATMENT OF HYPERAROUSAL
  - Antiadrenergics
    - Why these?
    - Clonidine (Catapres, Kapvay)
    - Guanfacine (Tenex, Intunive)
    - Propranolol (Inderal)
  - Antipsychotics
    - The case for and against
  - Mood stabilizers
    - The case for and against
PSYCHOTROPIC USE IN ABUSE AND NEGLECT

THE TREATMENT OF DISSOCIATION

- Antidepressants—*the case for and against*
- Anxiolytics—*the case for and against*
- Adrenergic blockade—*usually reserved for arousal*
- Opioid receptor blockade—*naltrexone*
PSYCHOTROPIC USE IN ABUSE AND NEGLECT

THE SPECIAL CASE OF SELF-MUTILATION

- The release of endogenous opioids
- The relation to the dissociative state
- The self-reinforcement of dissociation
- The “treatment” of self-injury
- Opioid receptor blockade--naltrexone
What does it feel like to be in her body?

The lower somatosensory parts of the brain must be regulated to develop impulse control, empathy, morality and cognitive capability

B. Perry, Child Trauma Academy
Sensory Processing Assessment

- Touch
- Proprioception (sense of position and movement of our limbs and trunk, the sense of effort, the sense of force, and the sense of heaviness)
- Vestibular (sense of movement)
- Auditory/Listening
- Vision
- Taste and Smell
### ATTACHMENT is STATE Dependent

<table>
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<th>Hyperarousal Continuum</th>
<th>Rest (Male Child)</th>
<th>Vigilance</th>
<th>Resistance</th>
<th>Defiance</th>
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<td>FEAR</td>
<td>TERROR</td>
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</tbody>
</table>

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Bruce D Perry, MD, PhD © 2010
Co-regulation: Distressed child and well-regulated parent

Time

Parent

Hear  See  Touch  Hold  Rock

Multisensory, repetitive

Calm

Alert

Alarm

Fear

Terror

Child
Co-dysregulation: Distressed child and anxious, reactive parent