

# *Train the Trainer: NMT Key Slides*

Stress, Distress and Trauma:  
Hyperarousal and Dissociative Adaptations

The ChildTrauma Academy

# *The Freeze, Flight or Fight Reaction*

- \* The combined neurophysiological responses to a real or perceived threat, involving a total body mobilization involving the CNS, the autonomic nervous system, the HPA axis and the immune system.
- \* The brainstem nuclei and neurotransmitter systems involved in these critical adaptive responses play a major role in the symptom expression of PTSD.
- \* This set of responses is intact and active in young children. The hormones and neurotransmitters involved in the stress response play a key role in modulating the process of neuronal differentiation.

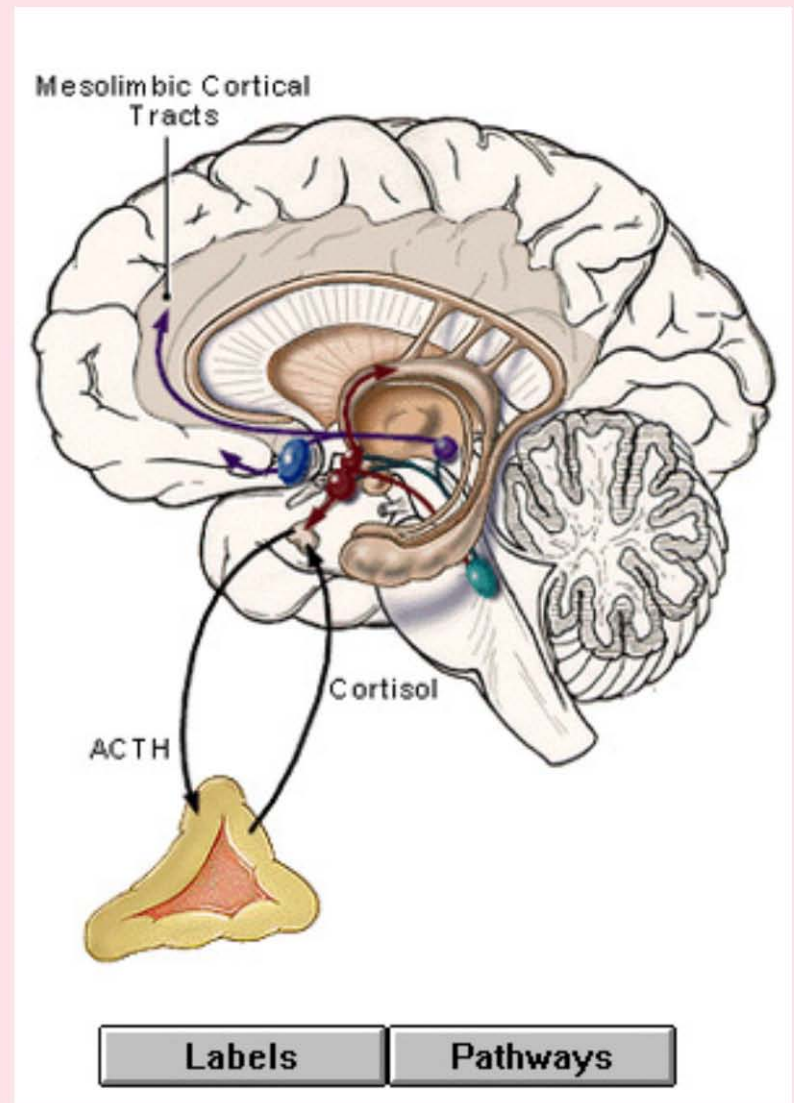
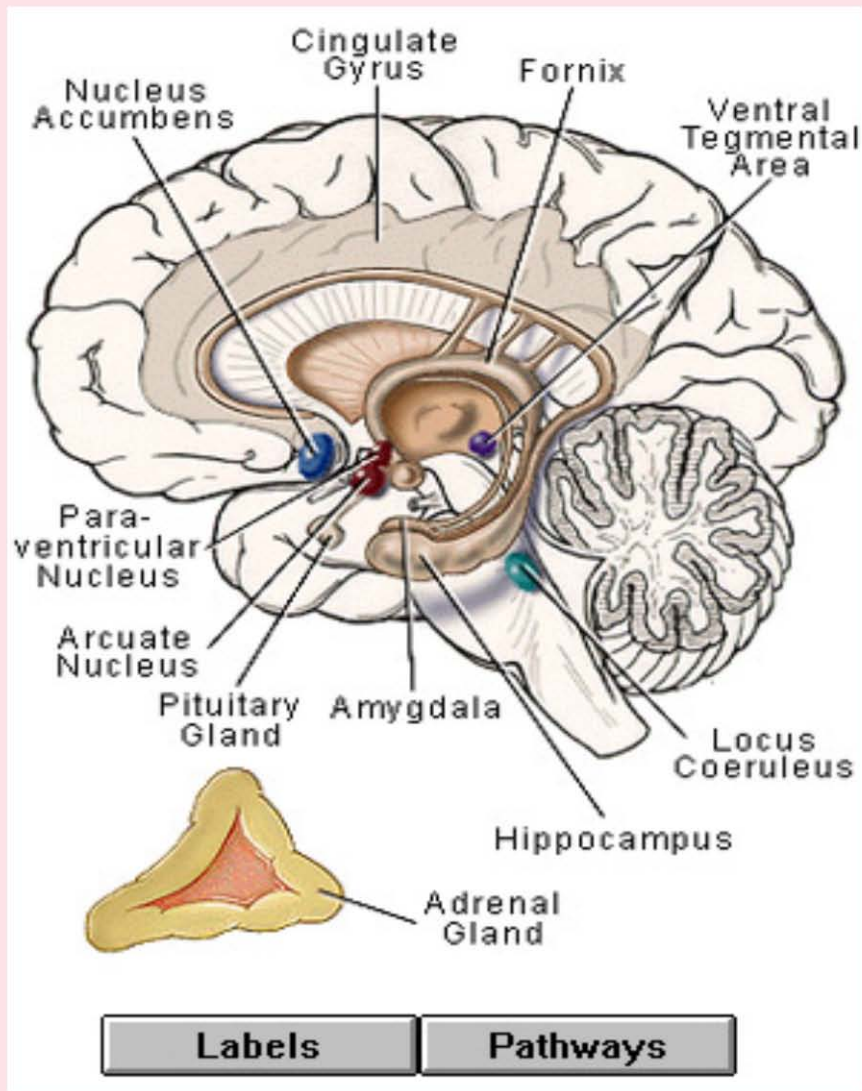
**Traumatic  
Event**



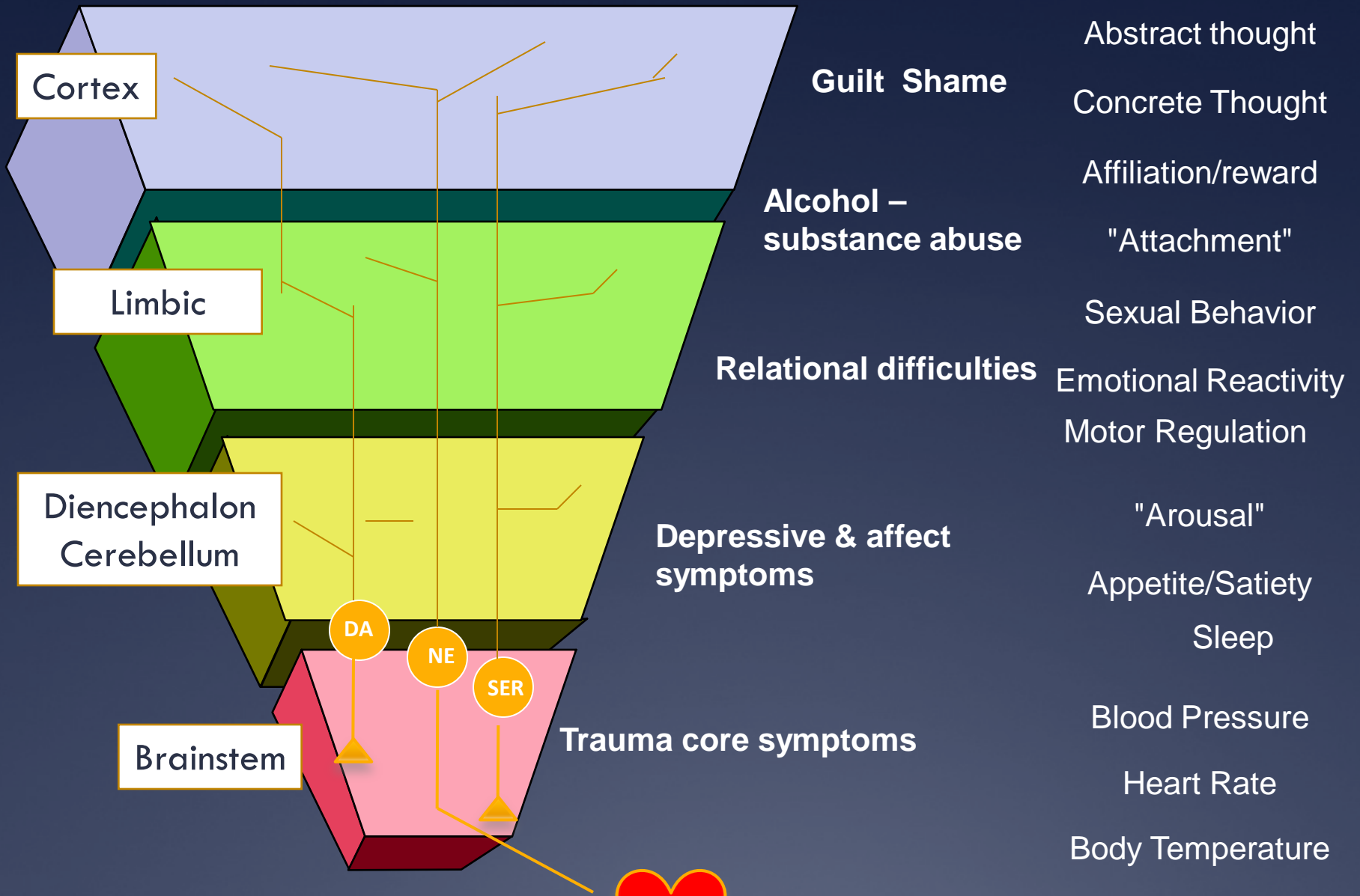
**Prolonged  
Alarm  
Reaction**



**Altered  
Neural  
Systems**



Stress-response systems in the human brain

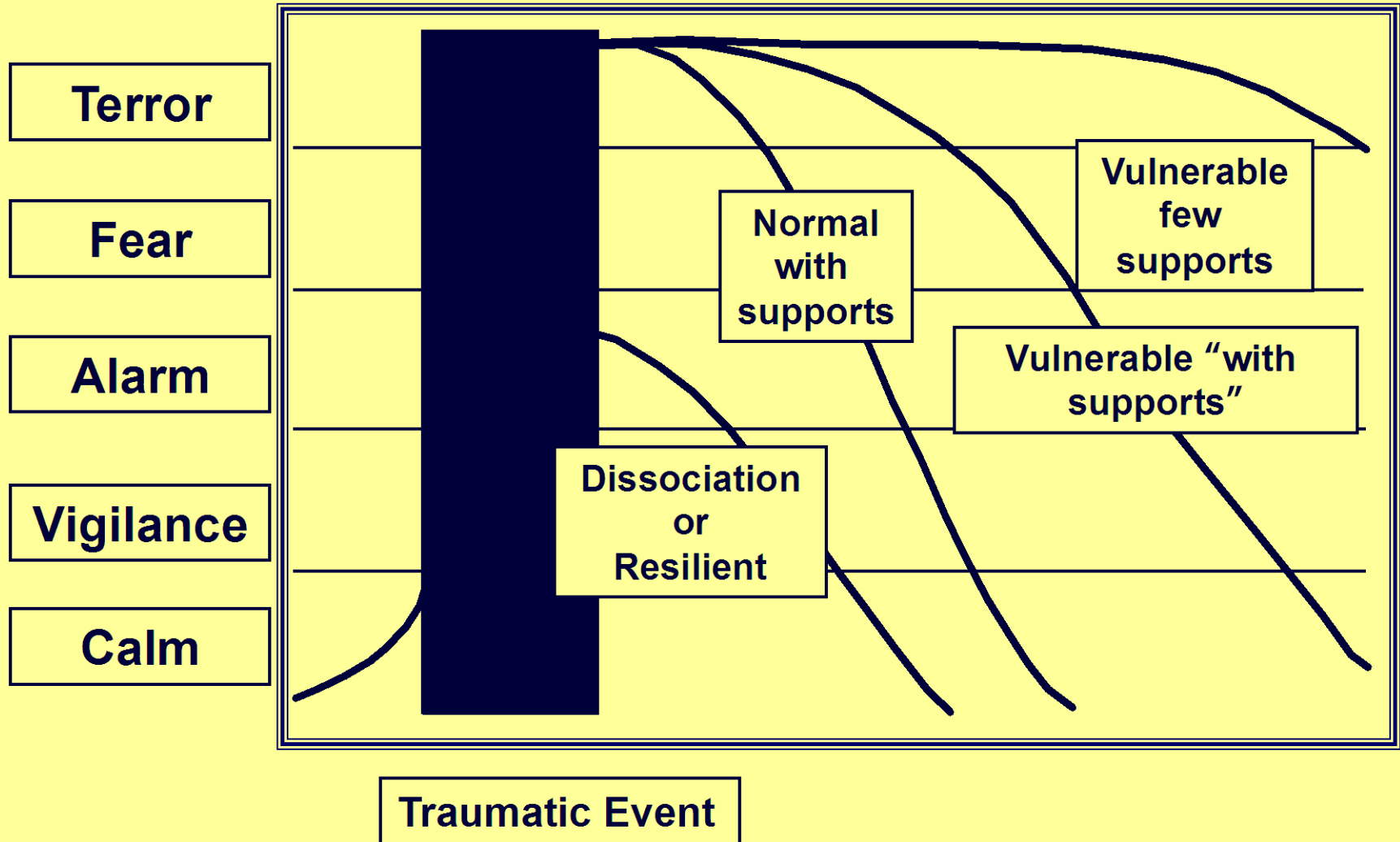


# What is Traumatic?

The same event can be experienced, adapted to, and carried forward in different ways by different children.

So, it is the response by the individual to the experience or event that is “traumatic” – not the event itself.

# ACUTE RESPONSE TO TRAUMA



**Stress**

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graph TD; Stress[Stress] --> Unpredictable[Unpredictable]; Stress --> Predictable[Predictable]; Unpredictable --> Severe[Severe]; Predictable --> Moderate[Moderate]; Severe --> Vulnerability[Vulnerability]; Moderate --> Resilience[Resilience];
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**Unpredictable**

**Predictable**

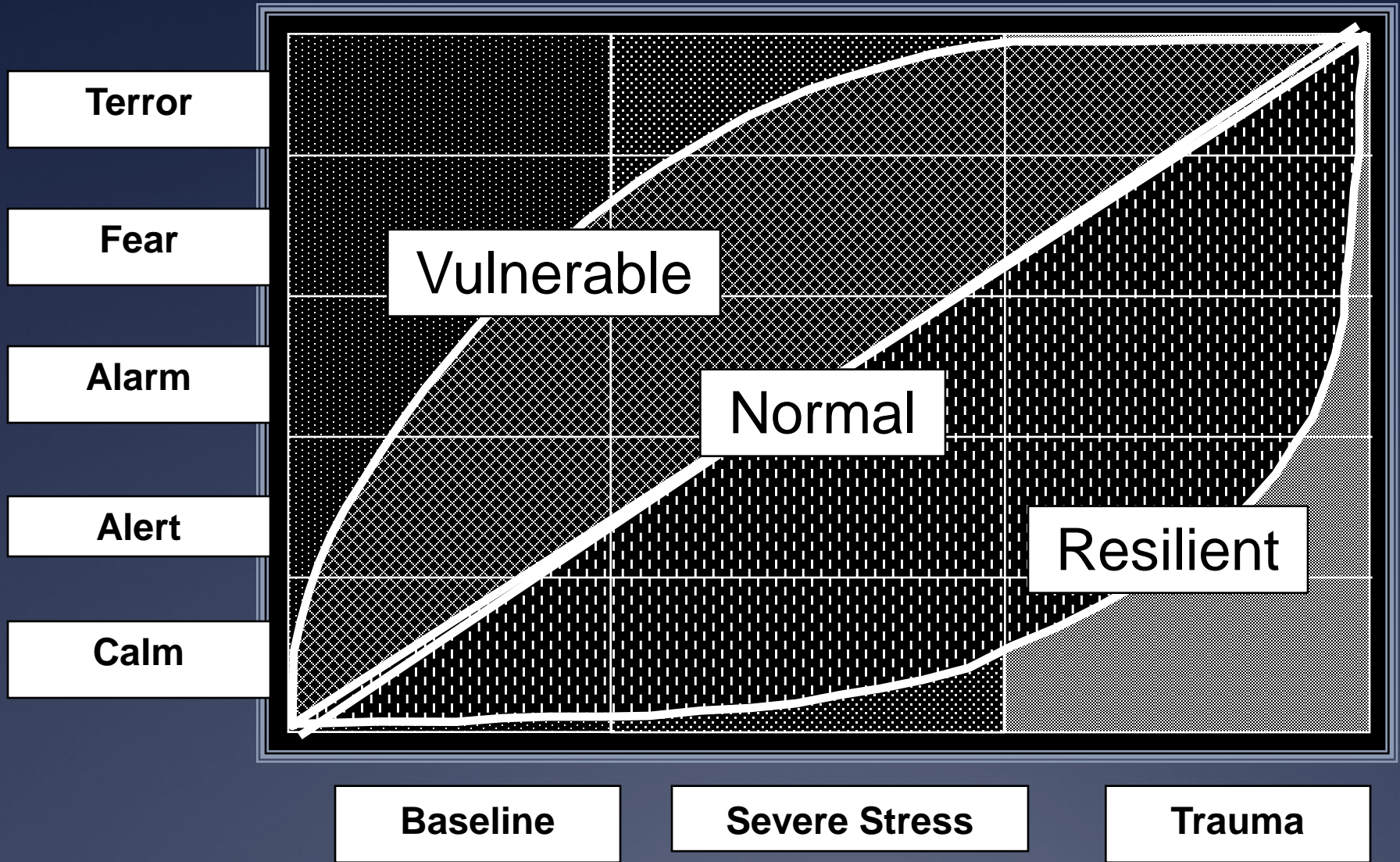
**Severe**

**Moderate**

**Vulnerability**

**Resilience**

# Altered Reactivity From Chronic Threat



# DISSOCIATION

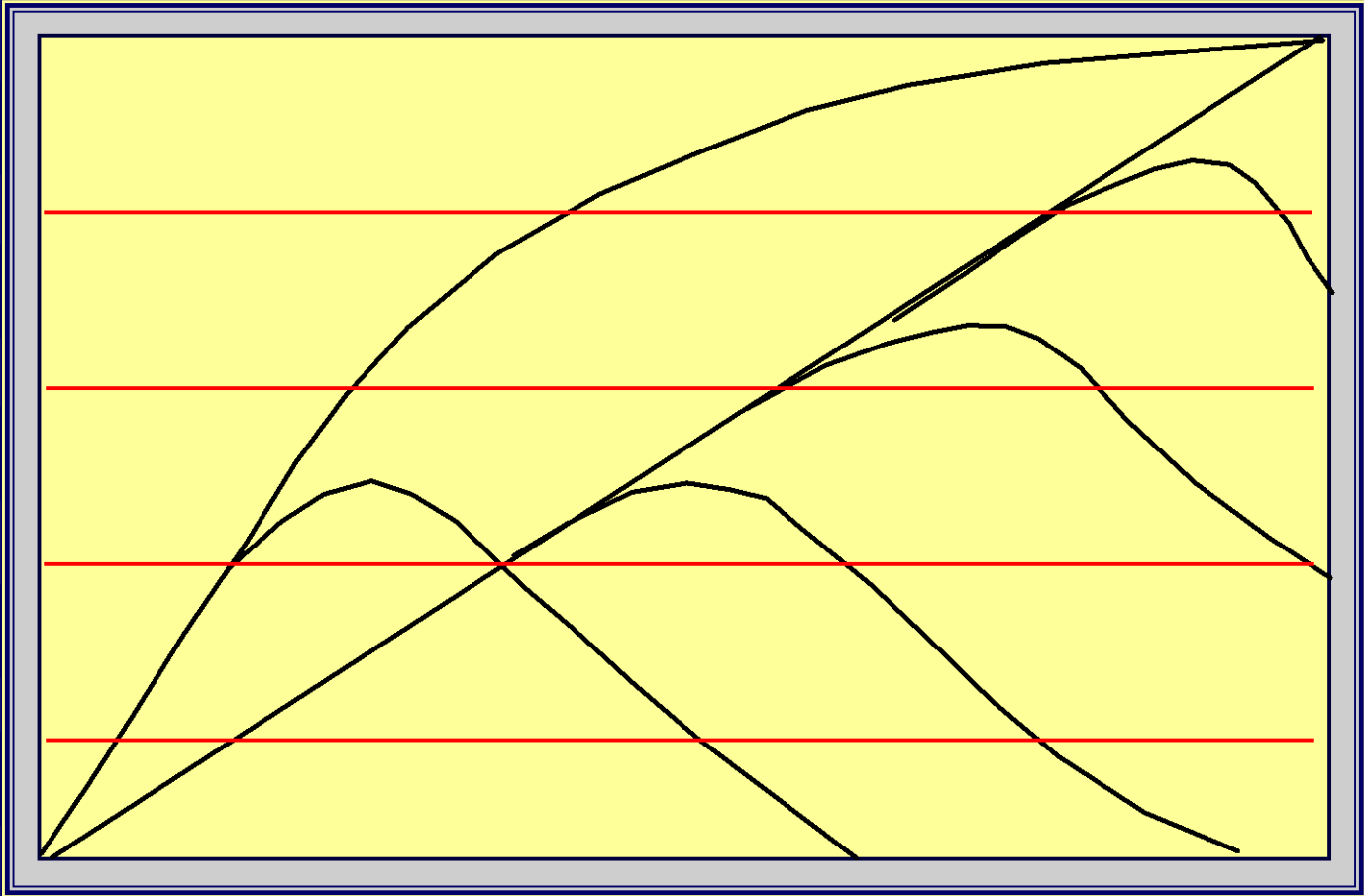
Terror

Fear

Alarm

Vigilance

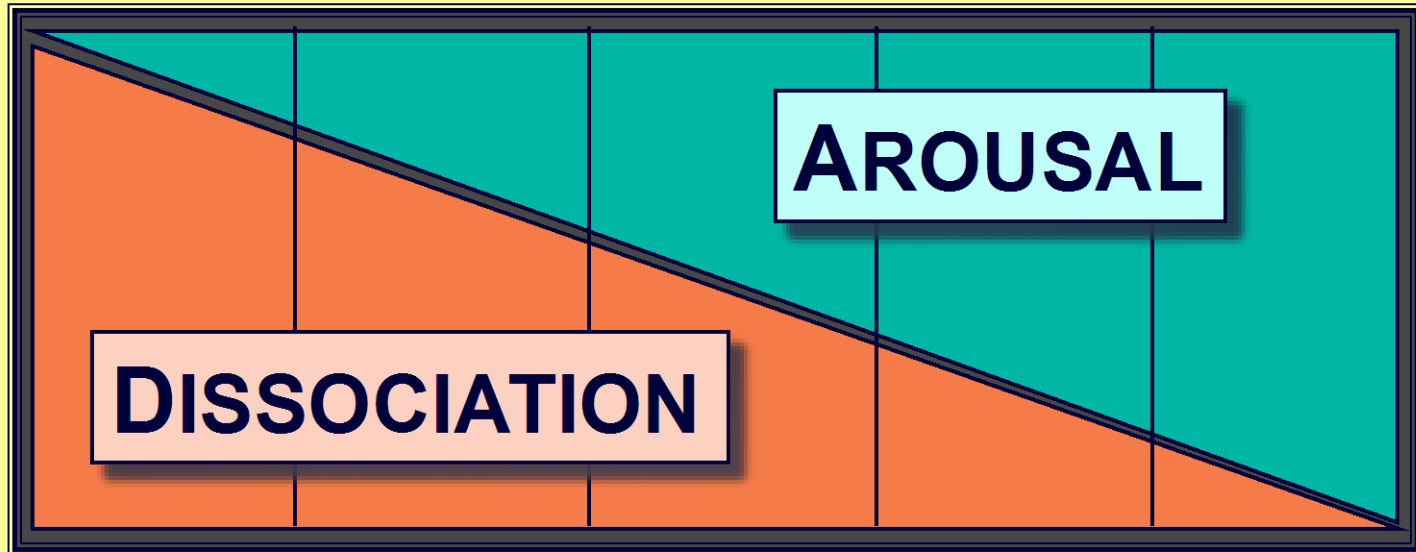
Calm



Stress

Trauma

# ***ADAPTIVE MODES***



**Opossum**

**Deer**

Infant → Child → Adult

# ***DISSOCIATIVE/AROUSAL BALANCE***

**Dissociation**

**Arousal**

Females	>	Males
Young Children	>	Older Children
Torture/Pain	>	Observer
Inescapable Helplessness	>	Action Active Role

# Primary Dissociative Responses following Childhood Trauma

- \* typically observe normal or low resting HR
- \* when presented with evocative cues related to trauma, an initial increase in HR observed
- \* if not unable to distract, avoid, or 'tune out' these cues, a plateau and then decrease in HR is observed

# Primary Dissociative Responses following Childhood Trauma

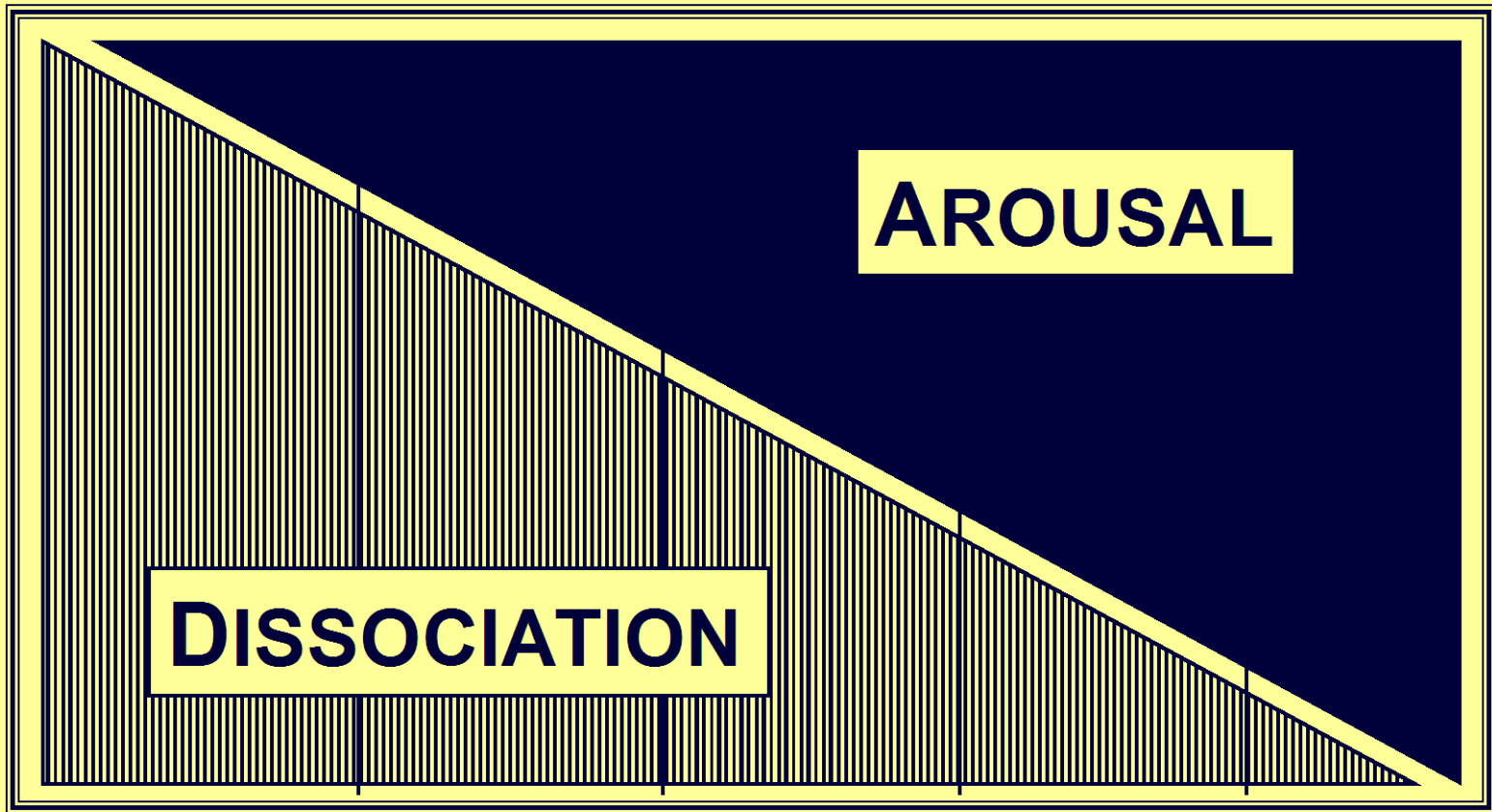
- \* Frequent work ups for absence seizures
- \* Cue-dependent decrease in HR may result in syncope (fainting)
- \* Frequent somatic complaints -- headaches, muscle aches, abdominal pain, constipation
- \* All consistent with sensitization and dysregulation of CNS opioid systems

# ***States become Traits***

Persisting activation of the neurophysiology of threat “re-sets” homeostatic equilibrium

Persisting hyperarousal = altered noradrenergic systems

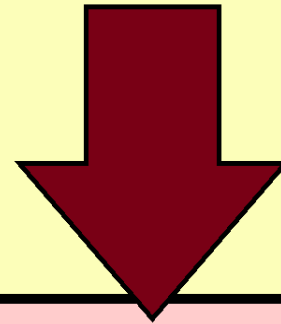
Persisting dissociation = altered opioid and dopaminergic systems



Dissociation	Dissociation and Hyperarousal	No Chronic Symptoms	Hyperarousal and Dissociation	Hyperarousal
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# *Which symptoms will a child develop?*

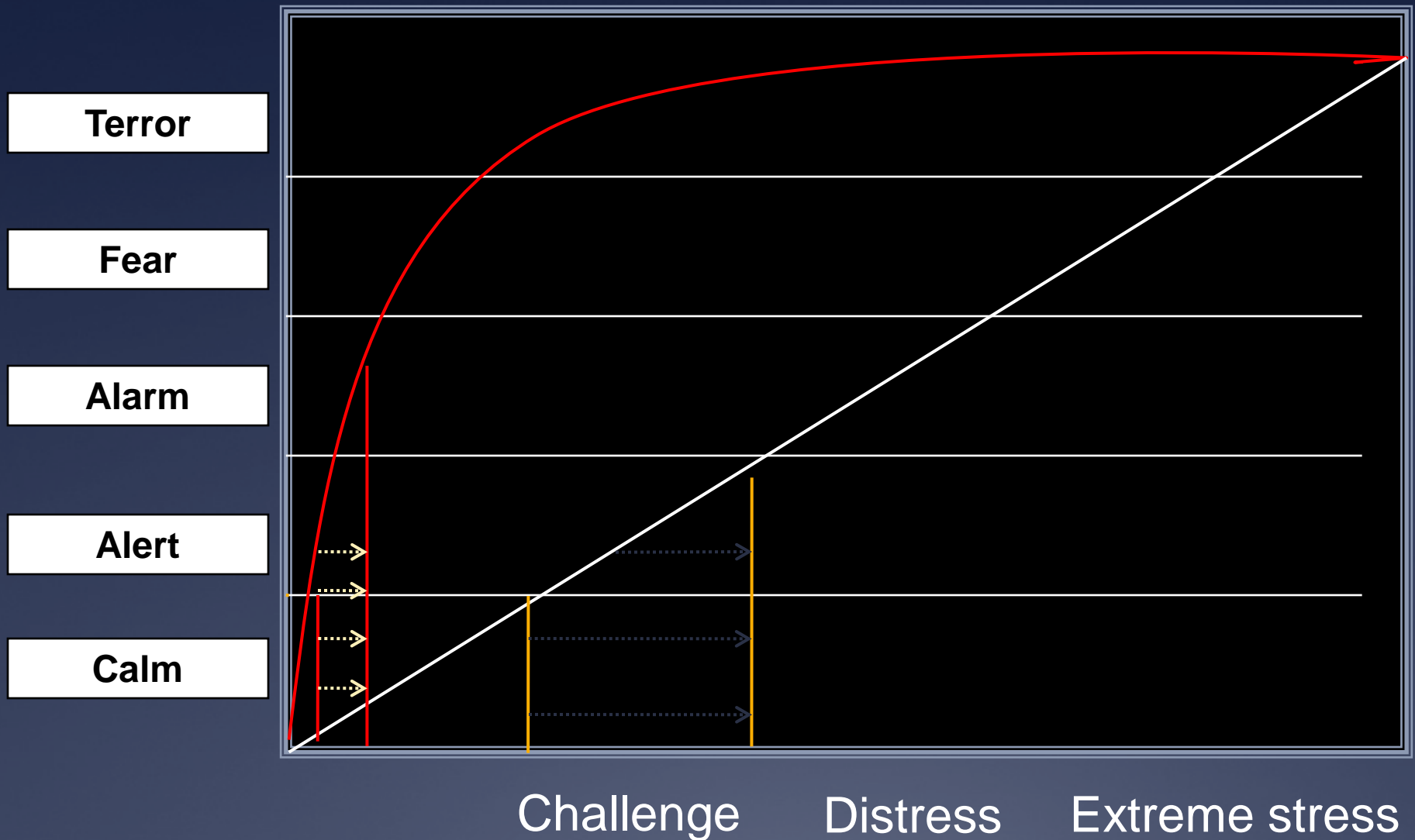
- Genetic vulnerabilities and gifts
- Age at which trauma occurred
  - Nature of the trauma
  - Pattern of the trauma
    - Style of adaptation
    - Relational supports
- Therapeutic experiences



Sense of Time	Extended Future	Days Hours	Hours Minutes	Minutes Seconds	Loss of Sense of Time
<b>Primary secondary Brain Areas</b>	NEOCORTEX <i>Subcortex</i>	SUBCORTEX <i>Limbic</i>	LIMBIC <i>Midbrain</i>	MIDBRAIN <i>Brainstem</i>	BRAINSTEM <i>Autonomic</i>
Cognition	Abstract	Concrete	Emotional	Reactive	Reflexive
Mental State	CALM	ALERT	ALARM	FEAR	TERROR

<b>Adaptive Response</b>	Rest	Vigilance	Freeze	Flight	Fight
<b>Hyperarousal Continuum</b>	Rest	Vigilance	Resistance	Defiance	Aggression
<b>Dissociative Continuum</b>	Rest	Avoidance	Compliance	Dissociation	Fainting
<b>Primary secondary Brain Areas</b>	F-CORTEX <i>Cortex</i>	CORTEX <i>Limbic</i>	LIMBIC <i>Midbrain</i>	MIDBRAIN <i>Brainstem</i>	BRAINSTEM <i>Autonomic</i>
<b>Cognition</b>	Abstract	Concrete	Emotional	Reactive	Reflex
<b>Mental State</b>	<b>CALM</b>	<b>AROUSAL</b>	<b>ALARM</b>	<b>FEAR</b>	<b>TERROR</b>

# The Therapeutic Window: State Dependence



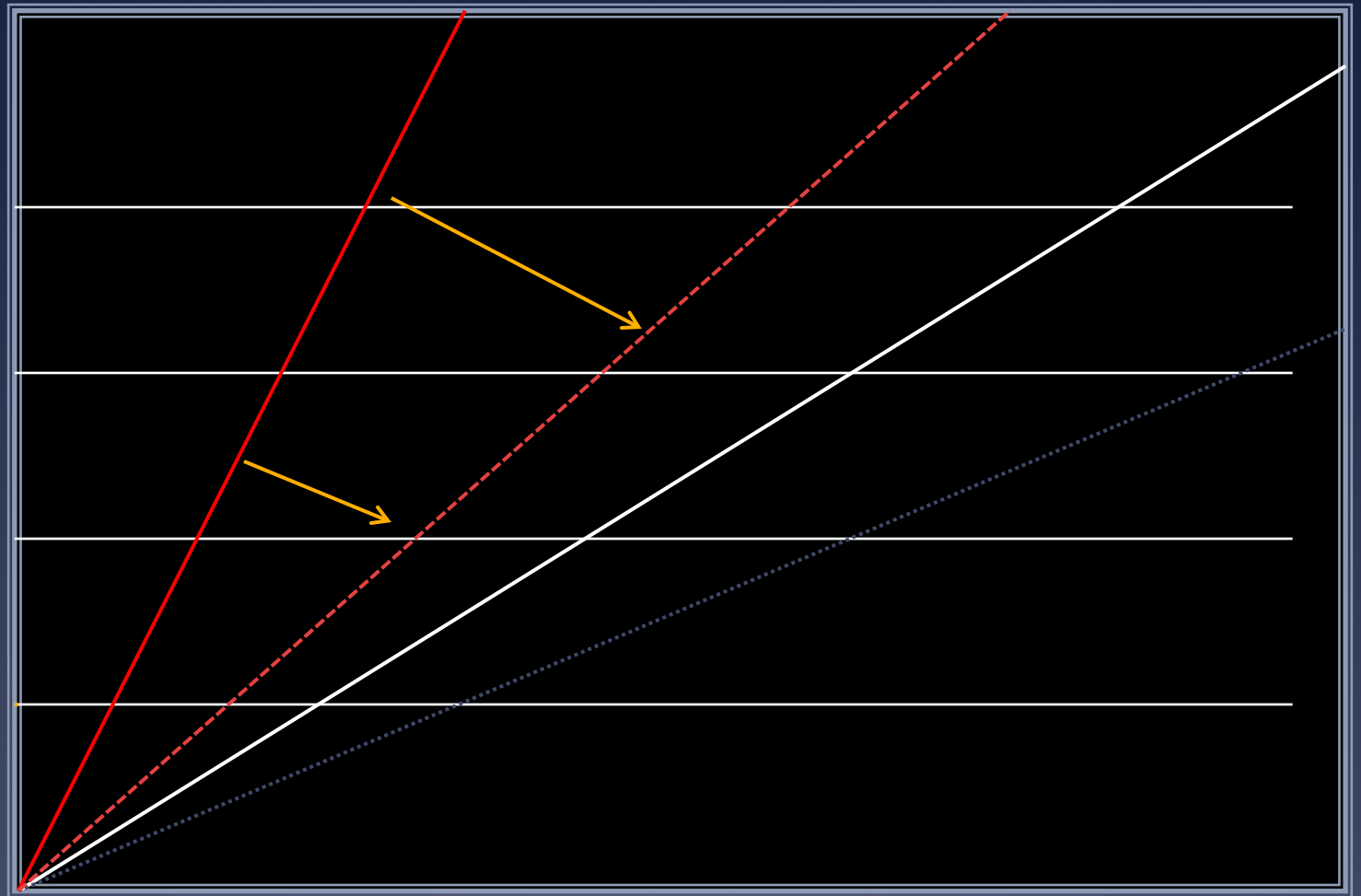
**Terror**

**Fear**

**Alarm**

**Alert**

**Calm**



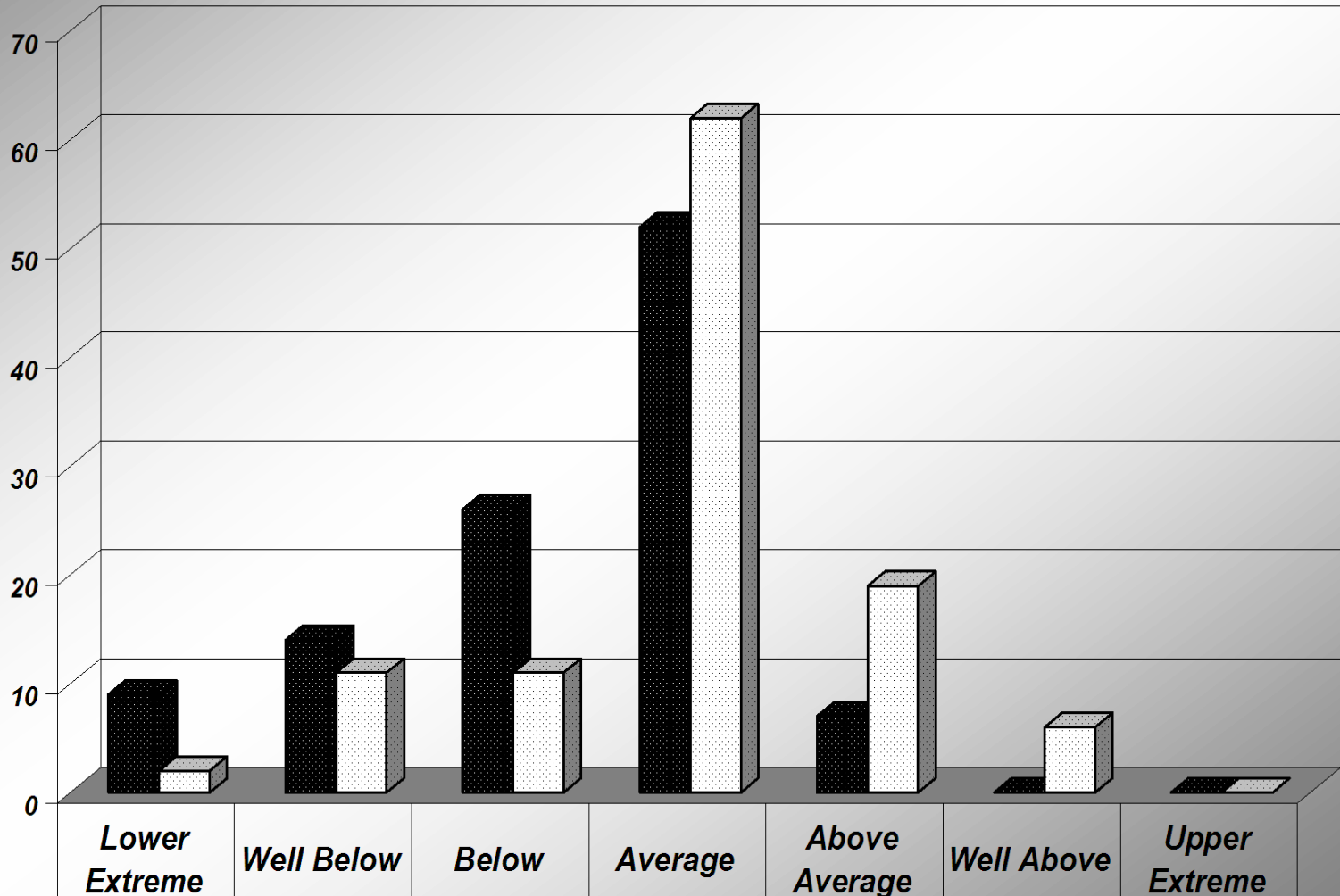
Challenge

Distress

Extreme stress

<b>Adaptive Response</b>	<b>REST</b>	<b>VIGILANCE</b>	<b>FREEZE</b>	<b>FLIGHT</b>	<b>FIGHT</b>
Predictable De-escalating Behaviors <i>(behaviors of the teacher or caregiver when a child is in various states of arousal)</i>	Presence Quiet Rocking	Quiet voice Eye contact Confidence Clear simple directives	Slow sure physical touch "Invited" touch Quiet melodic words Singing, humming music	Presence Quiet Confidence Disengage	Appropriate physical restraint Withdraw from class <b>TIME!</b>
Predictable Escalating Behaviors <i>(behaviors of the teacher or caregiver when a child is in various states of arousal)</i>	Talking Poking Noise Television	Frustration, anxiety Communicate from distance without eye contact Complex, compound directives Ultimatums	Raised voice Raised hand Shaking finger Tone of voice, yelling, threats Chaos in class	Increased or continued frustration More yelling Chaos Sense of fear	Inappropriate physical restraint Grabbing Shaking Screaming
<b>Regulating Brain Region</b>	<b>NEOCORTEX</b> Cortex	<b>CORTEX</b> Limbic	<b>LIMBIC</b> Midbrain	<b>MIDBRAIN</b> Brainstem	<b>BRAINSTEM</b> Autonomic
<b>Cognition</b>	<b>ABSTRACT</b>	<b>CONCRETE</b>	<b>EMOTIONAL</b>	<b>REACTIVE</b>	<b>REFLEXIVE</b>
<b>STATE</b>	<b>CALM</b>	<b>ALERT</b>	<b>ALARM</b>	<b>FEAR</b>	<b>TERROR</b>

# *Altered Cognitive Processing in Abused Children: V-P Split in K-BIT Scores*



	<i>Lower Extreme</i>	<i>Well Below</i>	<i>Below</i>	<i>Average</i>	<i>Above Average</i>	<i>Well Above</i>	<i>Upper Extreme</i>
■ <i>Verbal</i>	9	14	26	52	7	0	0
▤ <i>Performance</i>	2	11	11	62	19	6	0

# *Train the Trainer: NMT Key Slides*

Neglect

The ChildTrauma Academy

To neglect  
a child is to  
murder  
them.



*Daniel Dafoe*

# *A Neurodevelopmental Definition of Neglect*

- \* Lack of a specific pattern of experience during development results in abnormal development of a core brain function
- \* The abnormal development is in those brain systems which *sense, perceive, process, "interpret", and "act on"* information related to that specific experience or input.

# *USE-DEPENDENT DEVELOPMENT*

The more a neural system is  
“activated,” the more that system  
changes to reflect that pattern of  
activation

*This is the basis for development, memory  
and learning*

# Multiple Forms of Neglect

## DOMAINS

Emotional

Social

Cognitive

Motor

## PATTERN

Episodic

Chaotic

Total global

# *Sensory Deprivation*

Absence of sight, sound, touch, taste, smell -and  
meaningful combinations of these sensations

The somatosensory bath of early childhood  
provides the major sensory cues responsible  
for organizing key areas in the brain

Absent these sensory experiences, abnormal  
development results

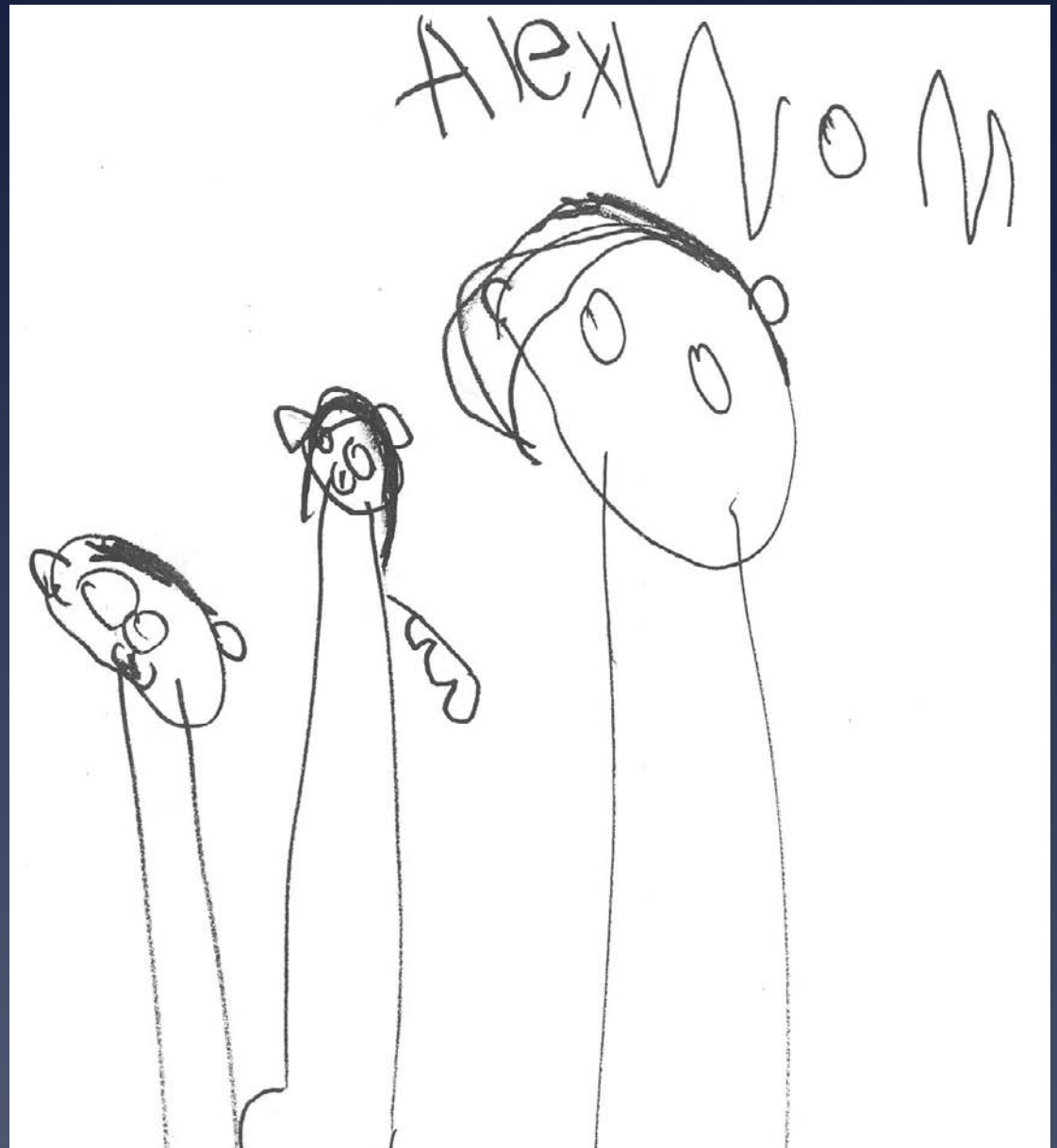
# Early Childhood Neglect

Family portrait  
by a 14 year  
old boy.  
Neglected by  
caregiver  
during first 18  
months of life.

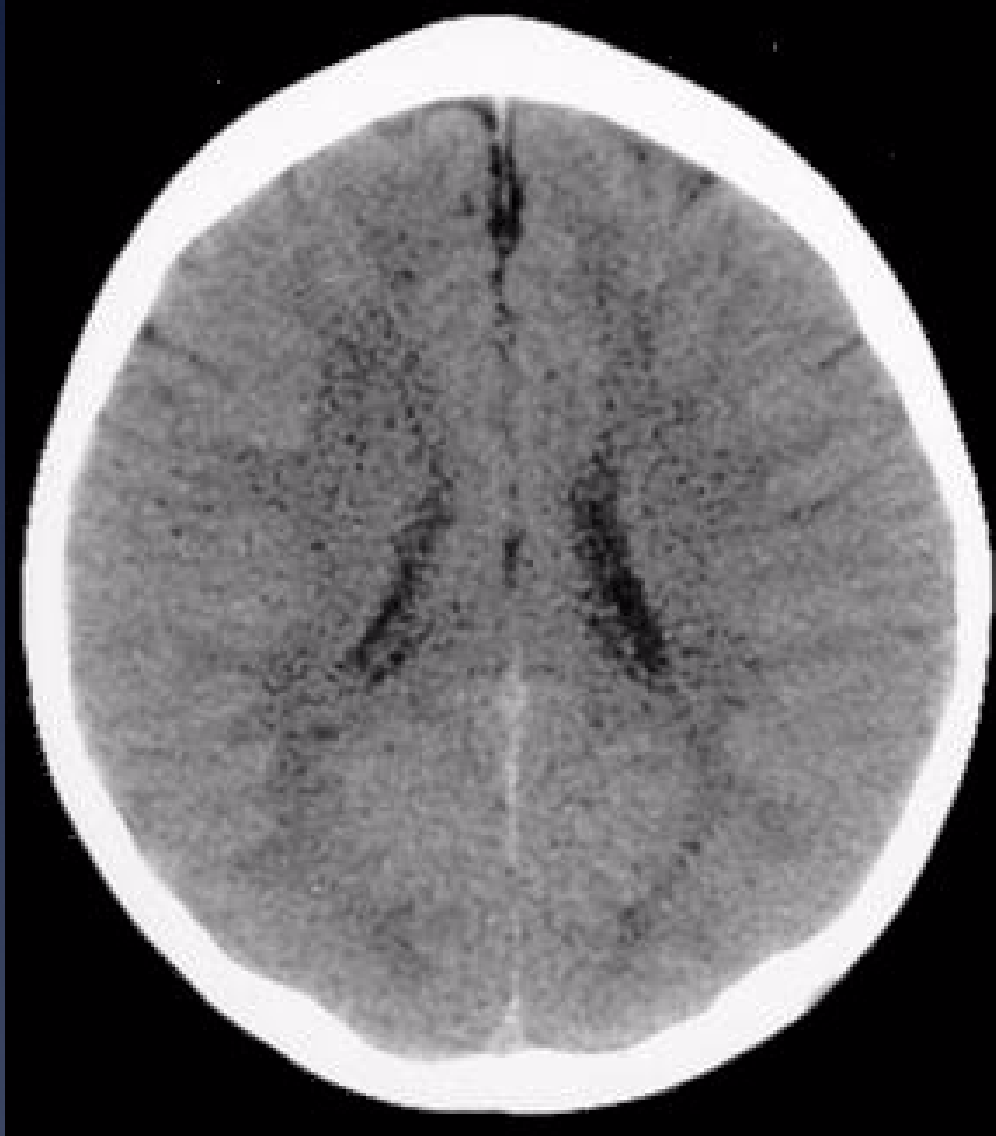


# *Early Childhood Neglect*

Family portrait  
by an 8 year old  
boy. Adopted at  
age 3 from an  
Eastern  
European  
orphanage.



# 3 Year Old Children



Normal

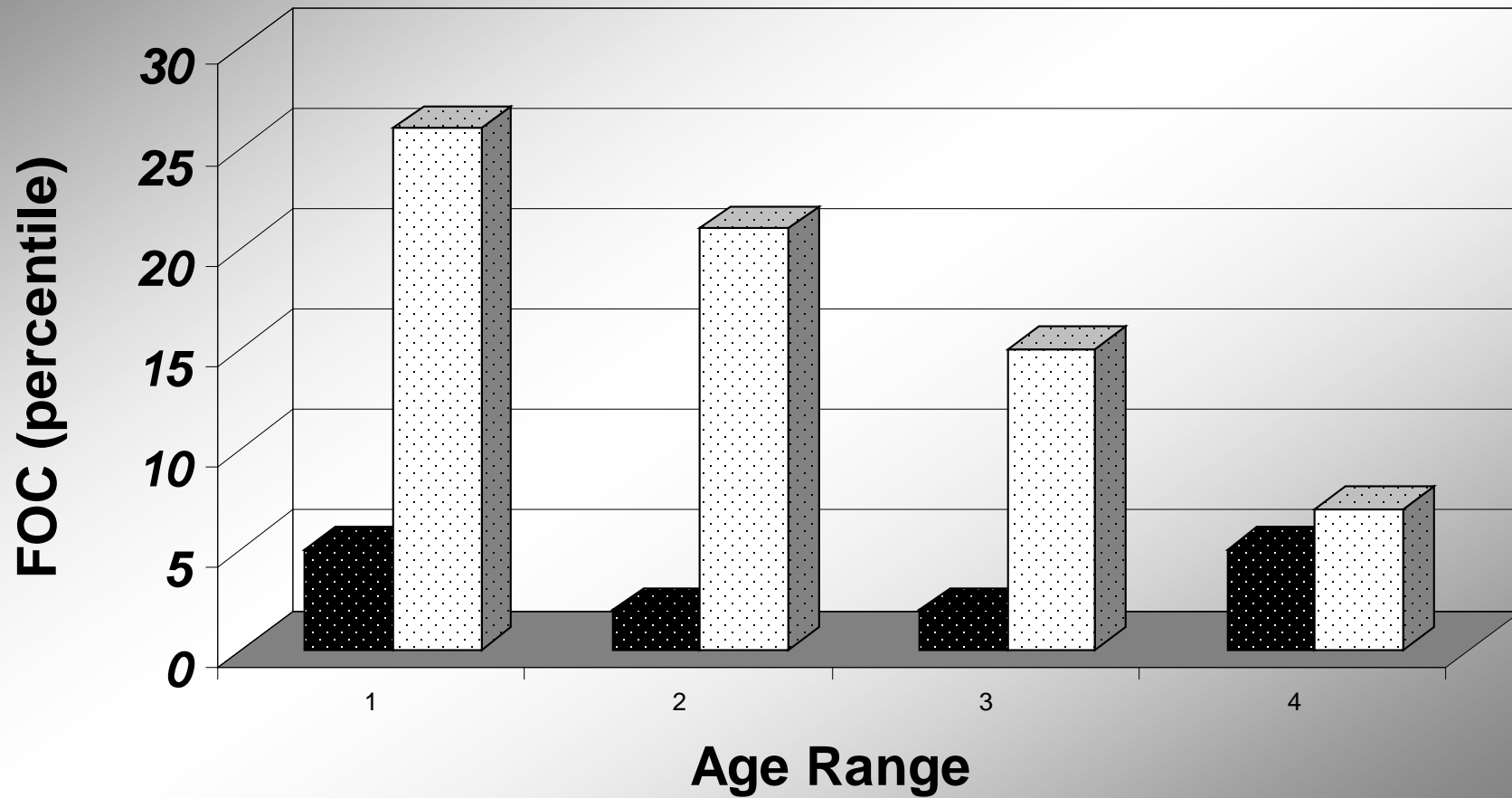


Extreme Neglect

# *Intervention Following Neglect*

- \*The earlier the better
- \*No part of the brain will change in an organized way unless it is activated
- \*Many of the primary areas of deficit are in the brainstem, diencephalon and limbic areas
- \*Repetitive, specific and sequential experience can recapture potential

# *Sensory Deprivation Neglect: Enhanced Effects of Early Intervention on Brain Growth*



It is not easy to straighten in  
the oak the crook that  
grew in the sapling.

Gaelic Proverb

# Neglecting Our Greatest Biological Gifts

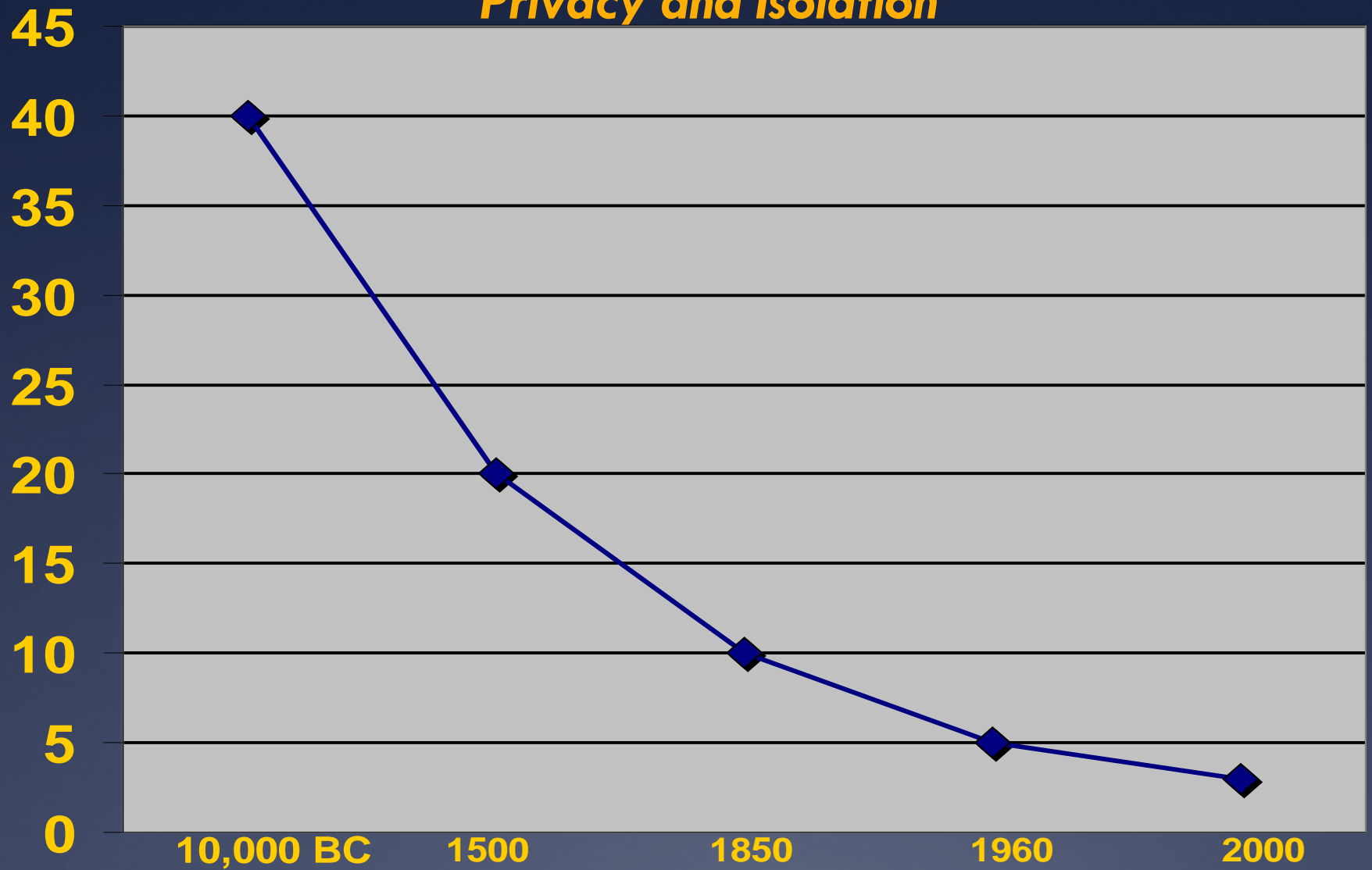
The power of relationships

The brain's malleability in early  
childhood

We are not designed for this  
modern world.

The human brain is designed for a  
different relational world – with a  
small number of multi-generational,  
multi-family groups living in close  
proximity as a band or clan.

# Decrease in the Size of “Households” *Privacy and Isolation*



# The Relational Landscape is Changing

Children have fewer emotional, social and cognitive interactions with fewer people. The impact of “modern” life on the developing child has yet to be fully understood.

# Poverty of Relationships

The compartmentalization of our culture has resulted in material wealth yet poverty of social and emotional opportunities.

# So What? Why does this matter?

- \* Human beings are fundamentally relational with a neurobiological “design” intended for creating, managing and maintaining relationships
- \* Relational qualities and capacity determine the global health of a group
- \* Humans are INTERDEPENDENT not INDEPENDENT creatures

# On Becoming Humane

Being born a human being does not ensure a child will become humane.

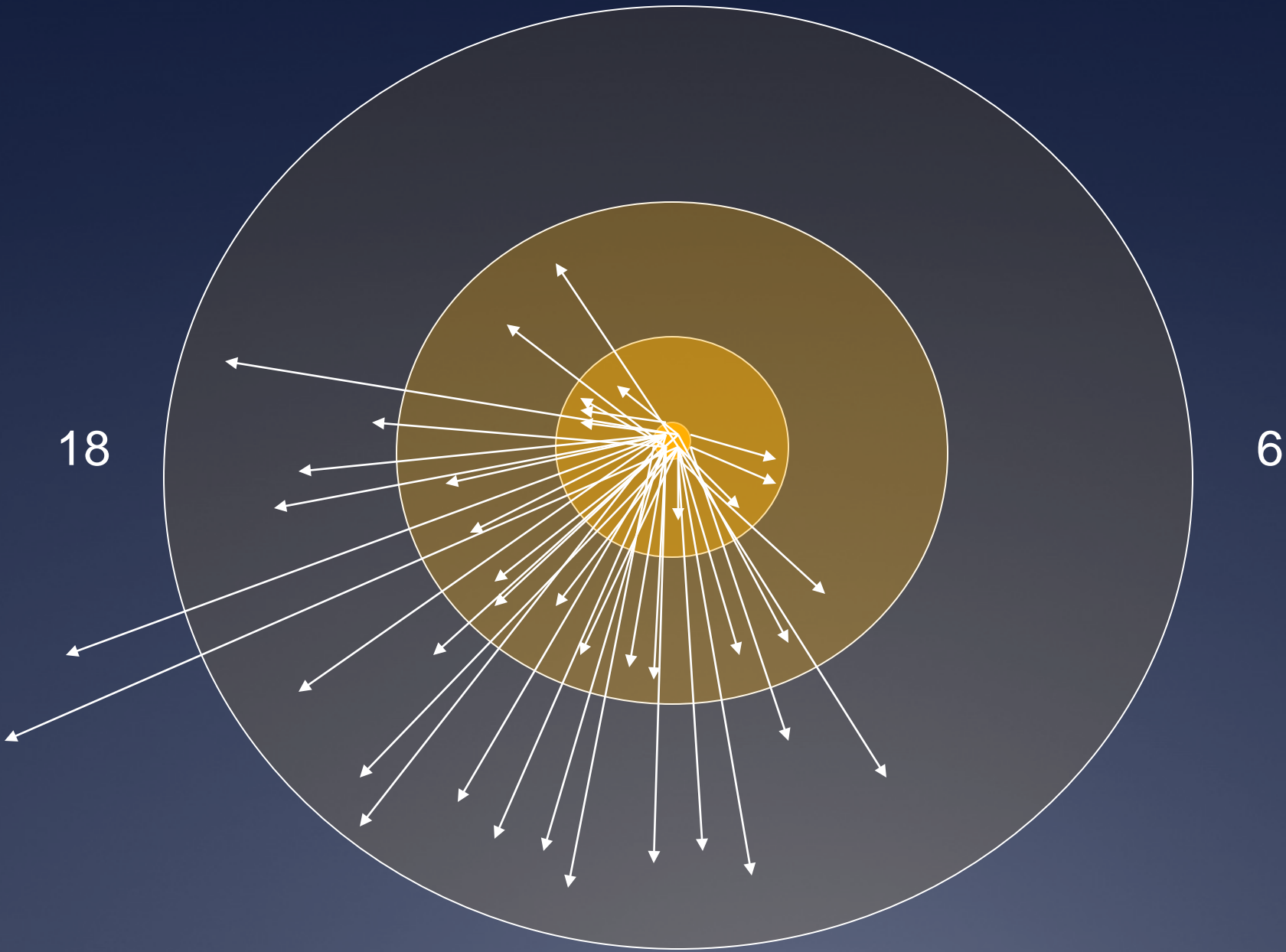
Humans become humane. The capacity to care, to share, to listen, value and be empathic – to be compassionate – develops from being cared for, shared with, listened to, valued and nurtured.

Humane caregiving expresses our capacity to be humane. Inhumane caregiving can decrease or even destroy this capacity.

What if the breadth and depth  
of relationships in childhood is  
minimal?

Human beings are social  
creatures. We develop and use  
socio-emotional “language” in all  
activities.

24



18

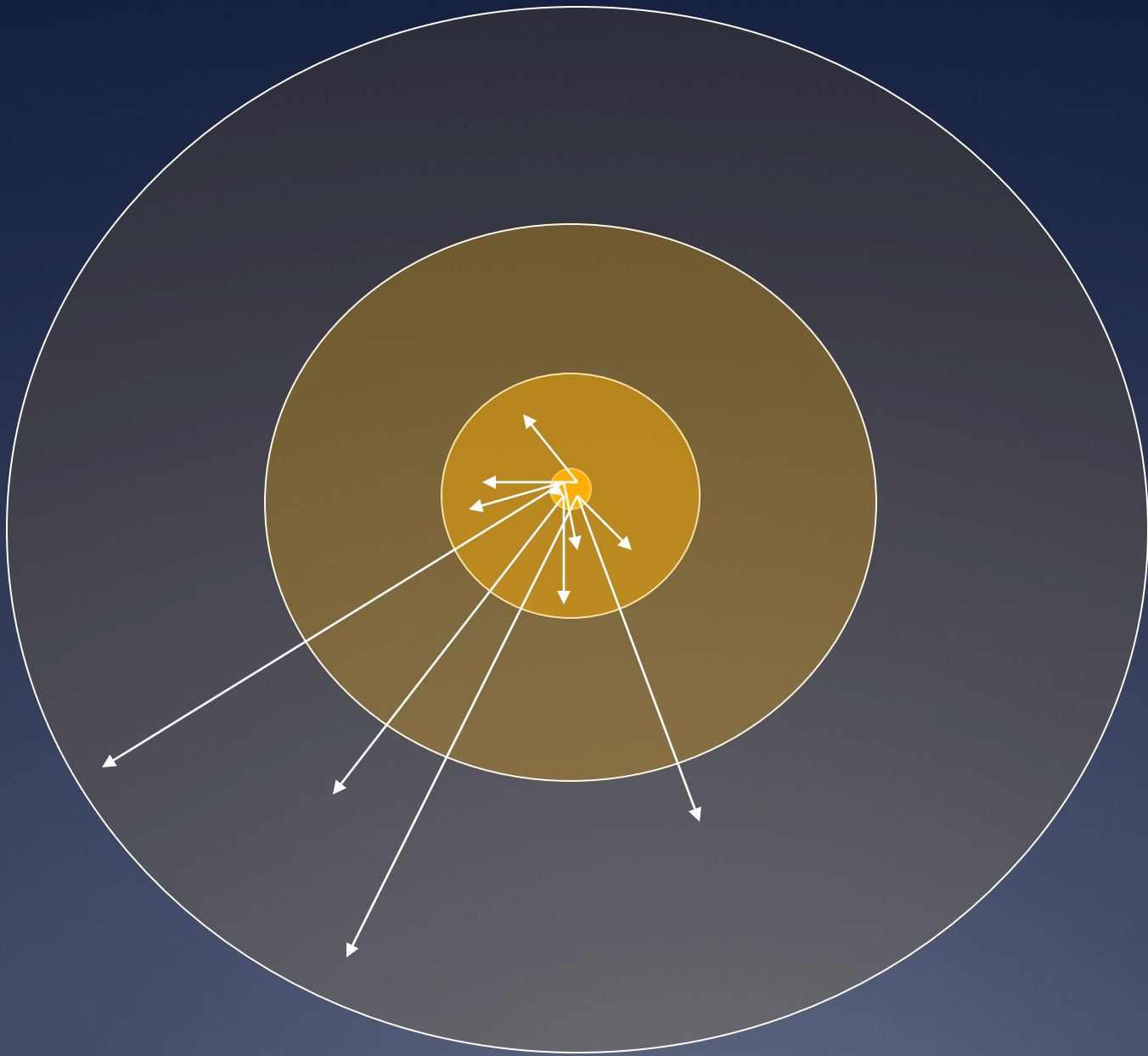
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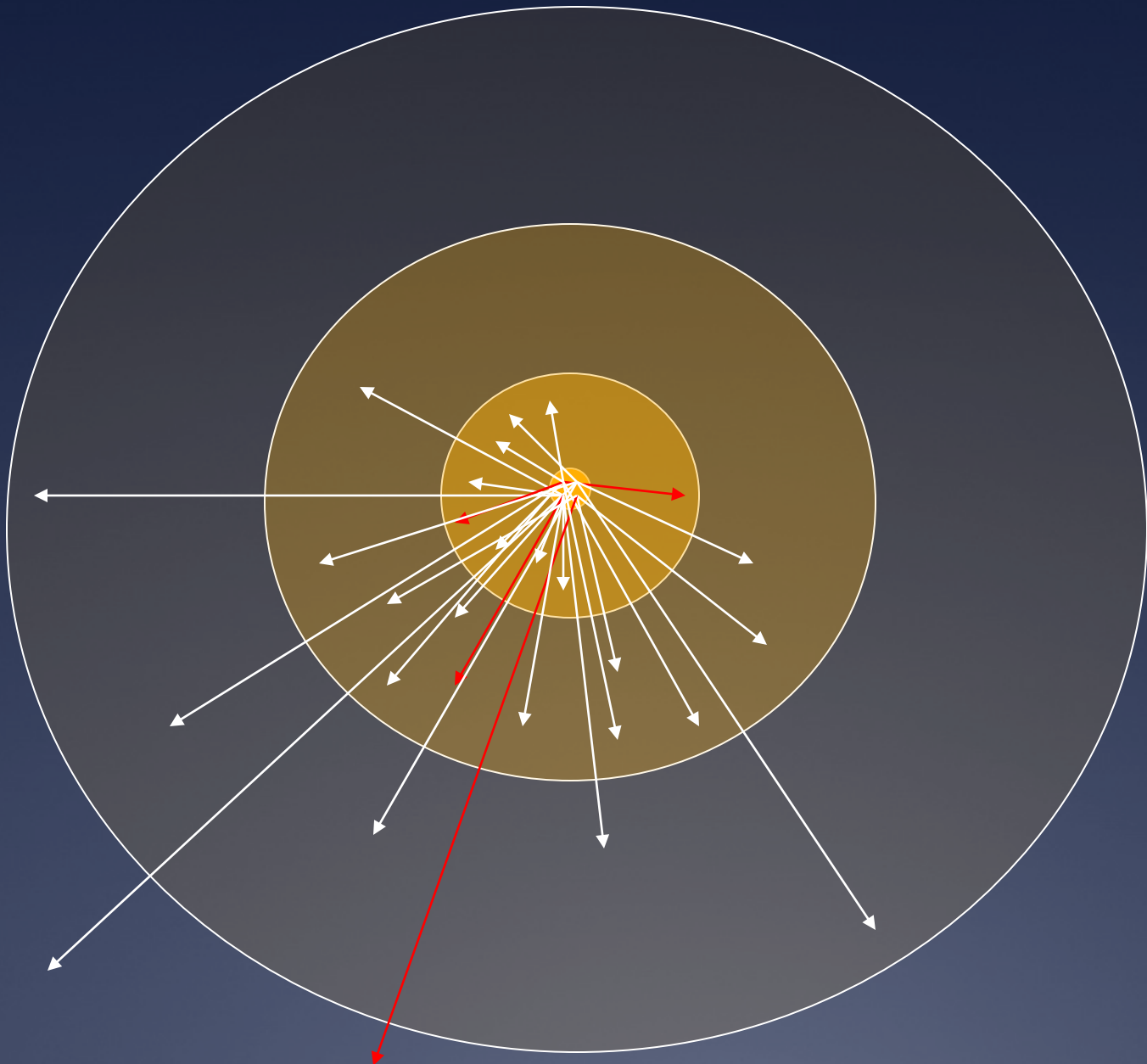
# The Power of Negative Input

- \* The human mind pays more attention to negative comments than to positive
- \* This bias is related to the brain's primary tasks related to survival
- \* In general negative comments are three to five times more “powerful” than positive
- \* Caregiving with low ratio results in more negative comments due to the need to be reactive and protective

24

18

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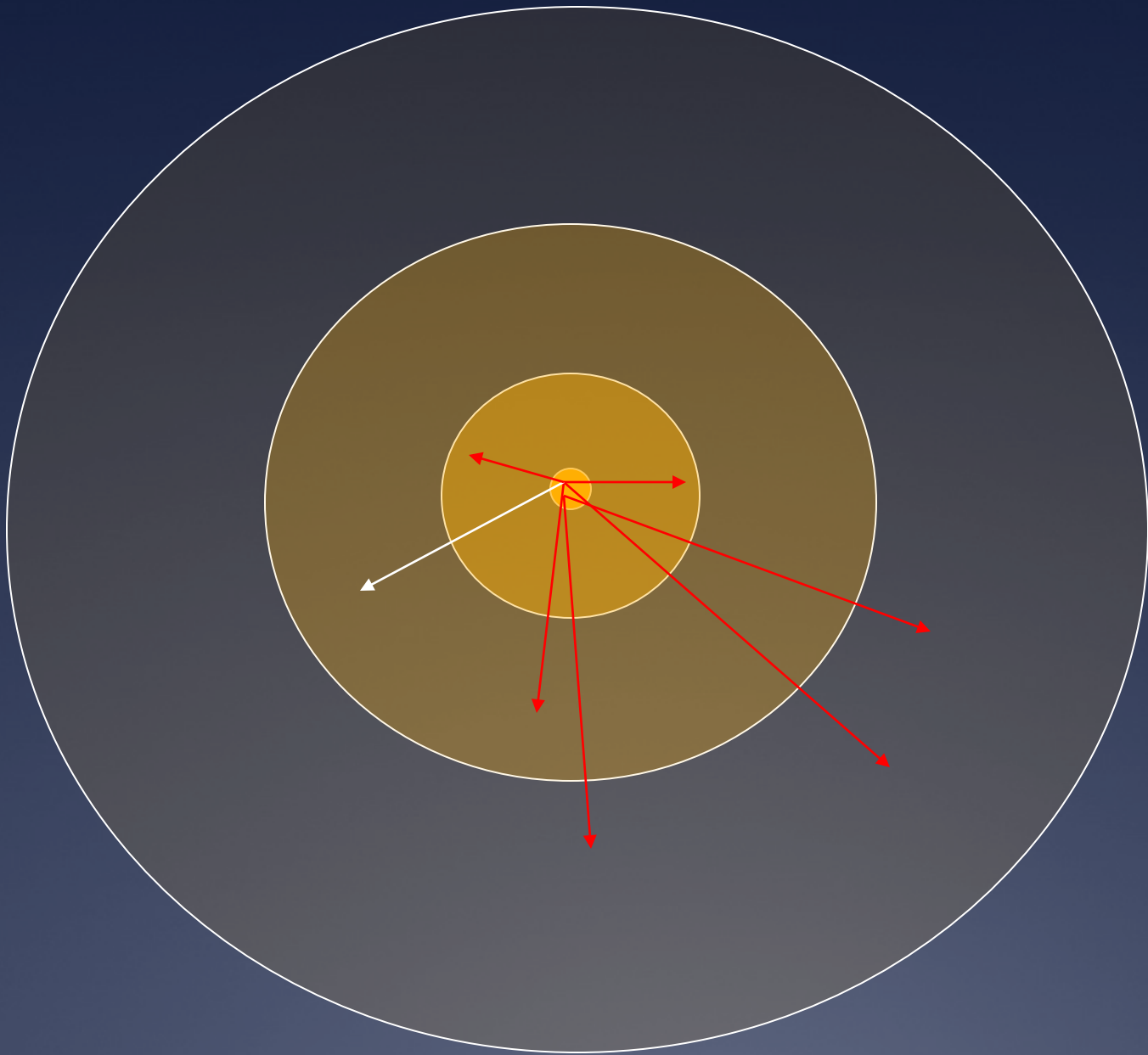


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6



12

# Self-defeating Educational, Caregiving and Therapeutic Settings

*The ratio of educator, caregiver, adult to young child is far too low to optimize positive relational contacts and minimize negative relational input !*

The more diluted the relational environment the more likely negative and “managing” interactions become.

# *Public Health*

- \* Early parental caregiving is an essential nutrient in the developing brain
- \* Impaired or destructive caregiving results in biological deficits
- \* These permanent deficits result in more morbidity in our society than infectious diseases
- \* Yet we still do not act to develop an 'immunization' strategy for maltreatment

# *What are We Doing ?*

- \* There has never been a time in the history of humankind that we have asked a single adult to provide the ongoing and continuous needs of multiple children with so little support.
- \* Increasing isolation, decreasing resources and electronic caregiving combine to make it more difficult for families to provide optimizing experiences for children.