TRAUMATIC EXPERIENCES

"*In a momentous shift, contemporary Western culture now emphasizes not resilience but vulnerability. We've invited people to see a widening range of experiences as liable to make them ill. This becomes a problem because we are globalizing our culture. We are presenting just one version of human nature – one set of ideas about pain and suffering – as being definitive. In truth, there is no one psychology.*"

D. Summerfield, MRCPsych, Maudsley Hospital

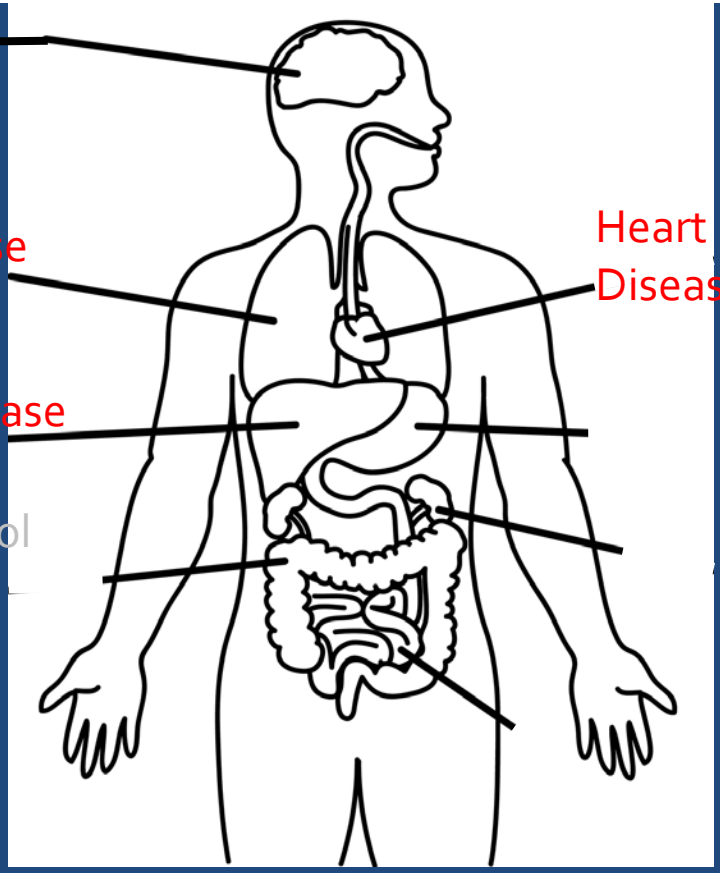
ADVERSE CHILDHOOD EXPERIENCES: ADDITIONAL HEALTH ASSOCIATIONS

- Suicide Attempts
- Depressed Mood
- Alcohol, Illicit drug, Tobacco Misuse
- Multiple Sexual Partners
- Chronic Headaches
- Primary Insomnia
- Emotional and Behavioral Dysregulation
- Intellectual Impairment
- Somatic Disorders
- Hallucinations
- Anxiety disorders
- Obsessive-Compulsive Disorders

Lung Disease

Liver Disease

Elevated Cholesterol



Heart Disease

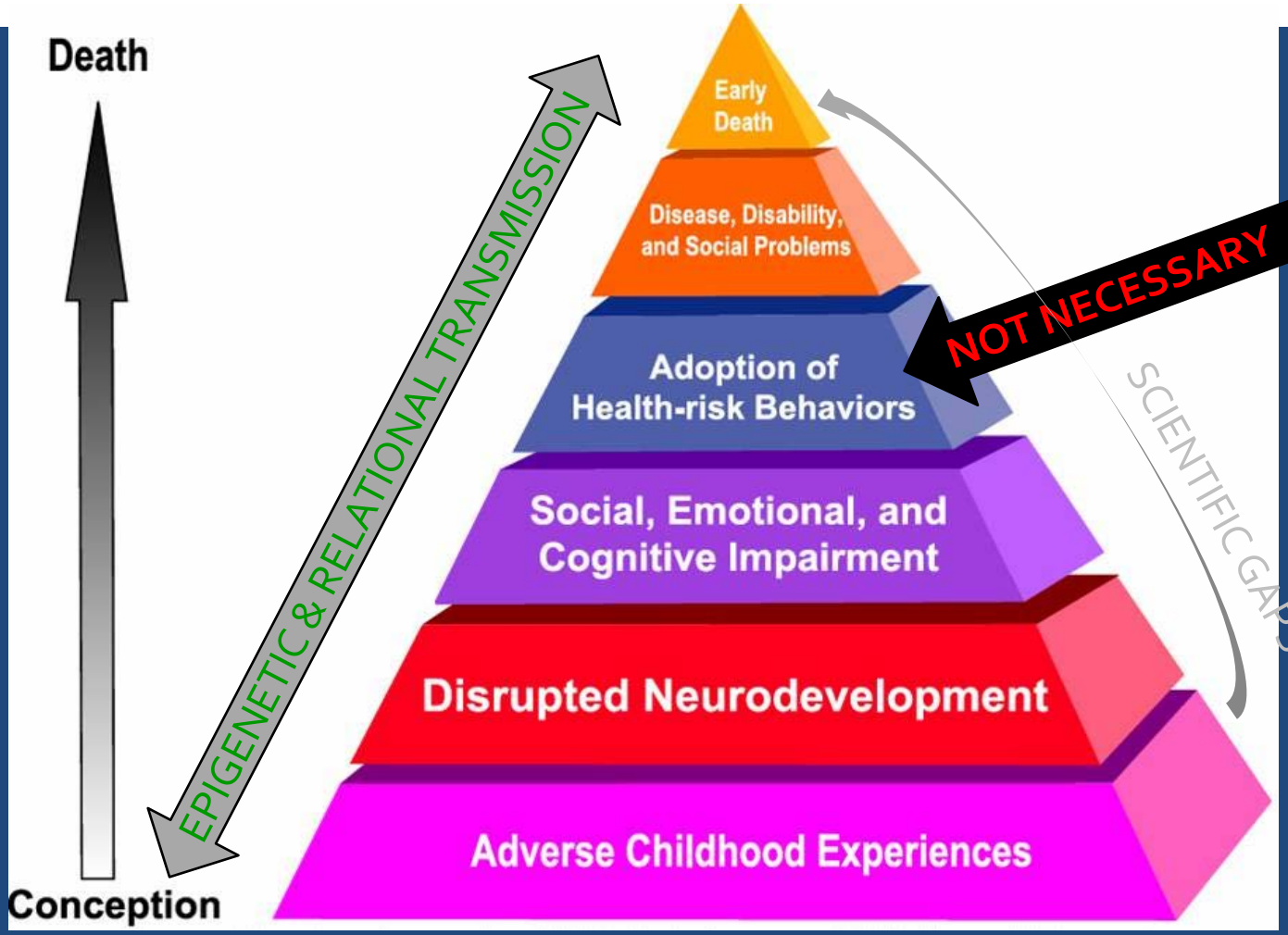
- Reported Poor Health
- Physical Inactivity
- Unemployment
- Less Education Attainment

- Cancer
- Skeletal Fractures
- Severe Obesity
- Rheumatoid Arthritis

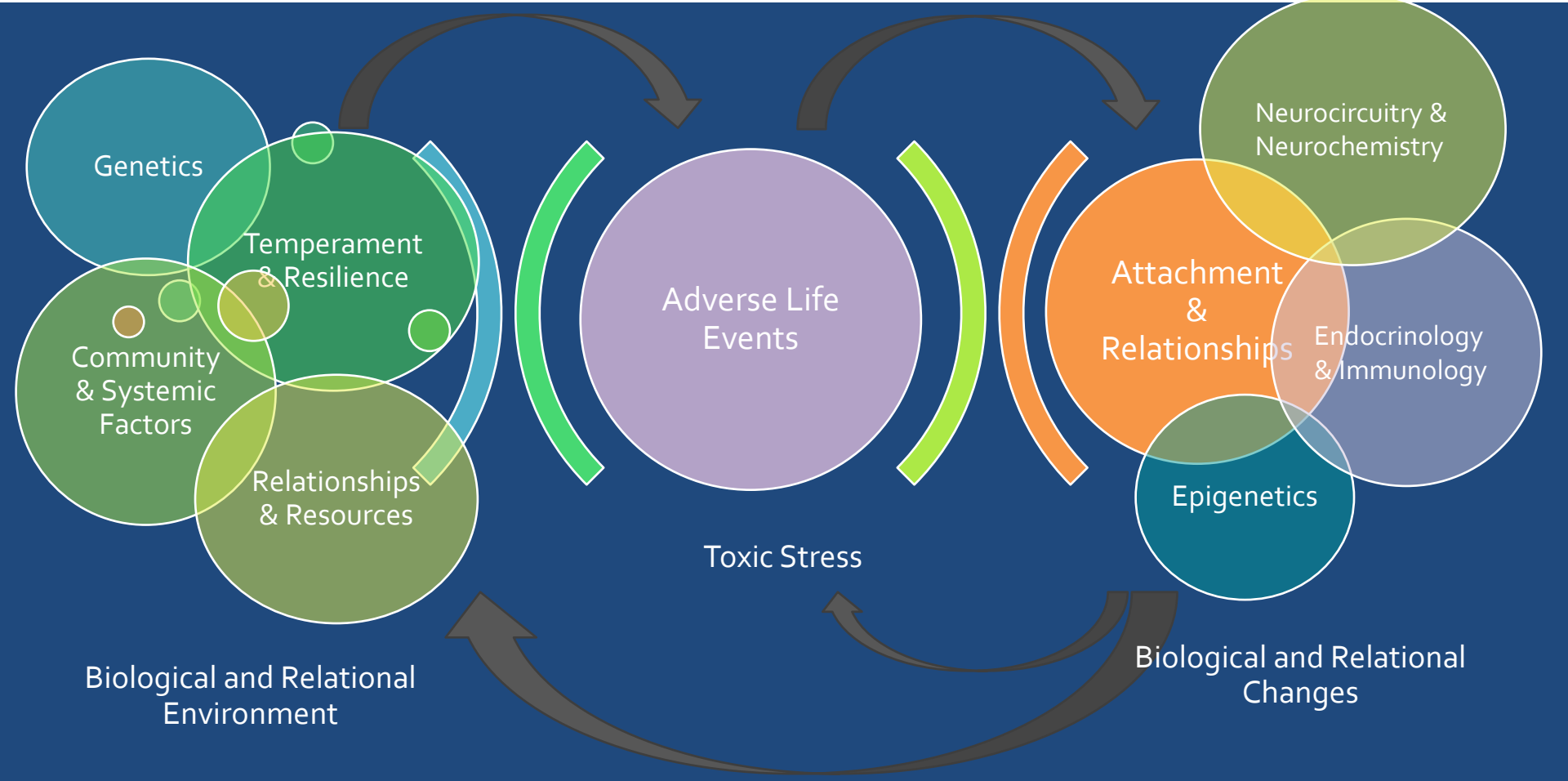
Sexually Transmitted Infections

Oral, et al. Pediatric Research (2016) 79, 227–233

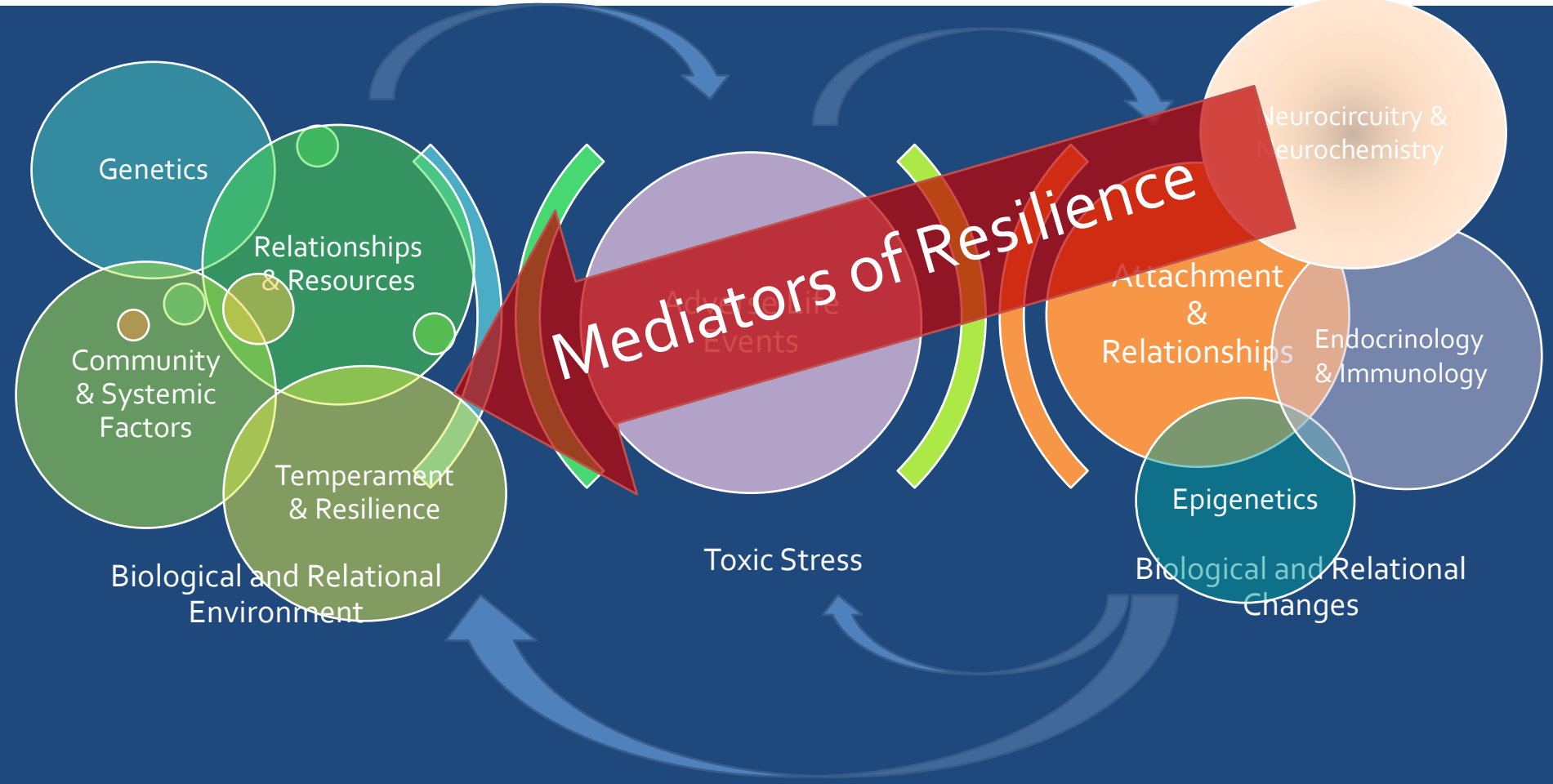
MECHANISM OF INFLUENCE OF ADVERSE CHILDHOOD EXPERIENCES



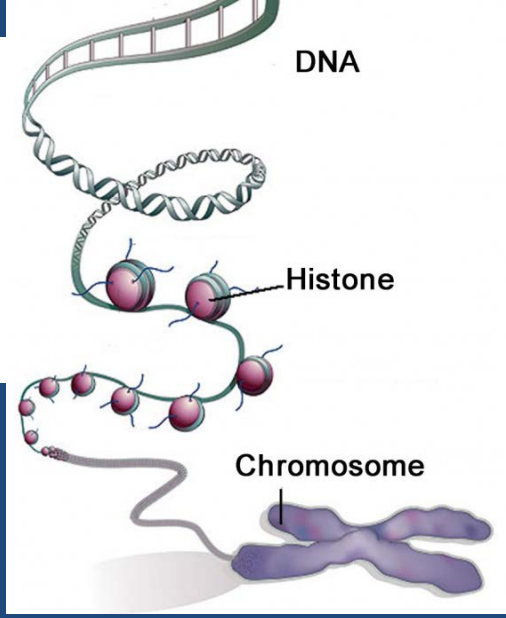
INTERACTIONAL IMPACT



INTERACTIONAL IMPACT

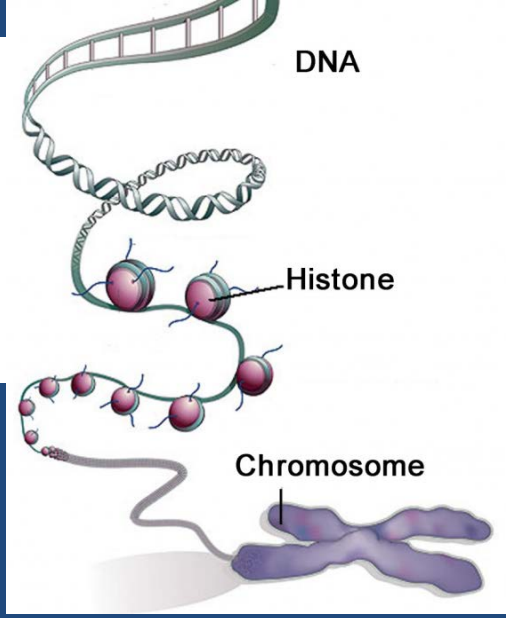


GENETICS



- **HPA Axis**
  - FKBP5, ADCYAP1R1, CRHR1, NR3C1
- **Serotoninergic Function**
  - SLC6A4, 5-HTTLPR
- **Dopaminergic and Noradrenergic Function**
  - COMT, DAT1, DRD2,4
- **Adaptation to chronic stress**
  - NPY
- **Neuronal Plasticity**
  - BDNF

EPIGENETICS



- EPIGENETICS: gene expression
  - **Synaptic plasticity**
    - NMDA receptor GRIN1
  - **Stress response modulation**
    - Glucocorticoid receptor NR3C1
    - Serotonin transporter SLC6A4
    - DNA binding protein ID3
  - **Neurocircuitry development**
    - TPPP, BDNF
- TELOMERES
  - **Shortened telomeres**

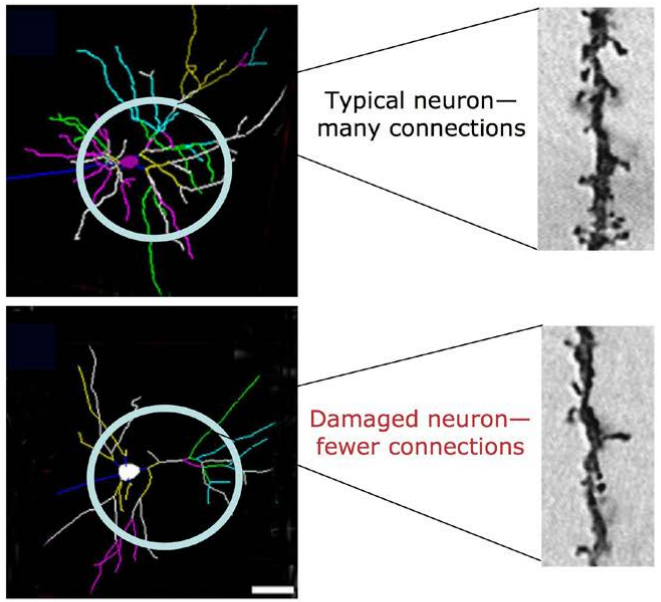
NEUROCIRCUITRY & NEUROCHEMISTRY

"Responsive relationships are developmentally expected and biologically essential."

Harvard Center on the Developing Child: Working Paper 12: The Science of Neglect

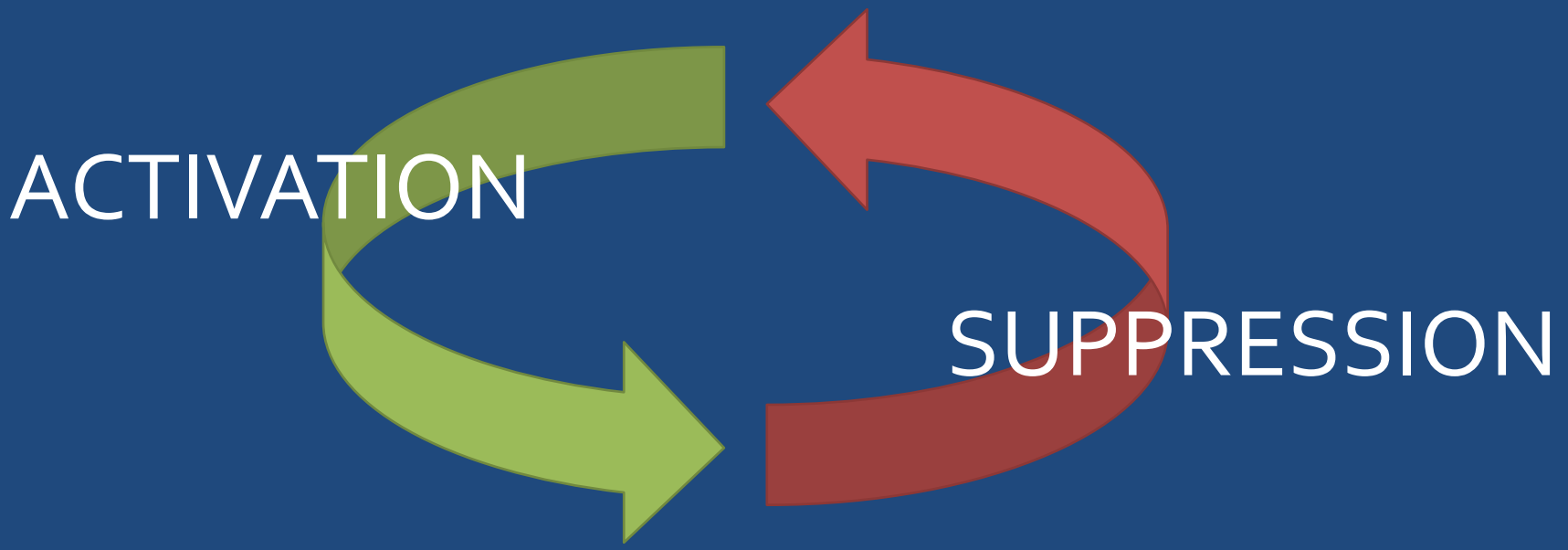
Center on the Developing Child
HARVARD UNIVERSITY

Persistent Stress Changes Brain Architecture



Sources: Radley et al. (2004)
Bock et al. (2005)

NEGATIVE FEEDBACK DYSREGULATION



NEUROCIRCUITRY & NEUROCHEMISTRY

PFC plasticity

Prefrontal Cortical Regions
COGNITION
EXECUTIVE FUNCTION

Hypothalamus
BIORHYTHMS
AUTONOMIC & NEUROENDOCRINE REGULATION

Thalamus
PRIMARY RELAY STATION
MEMORY

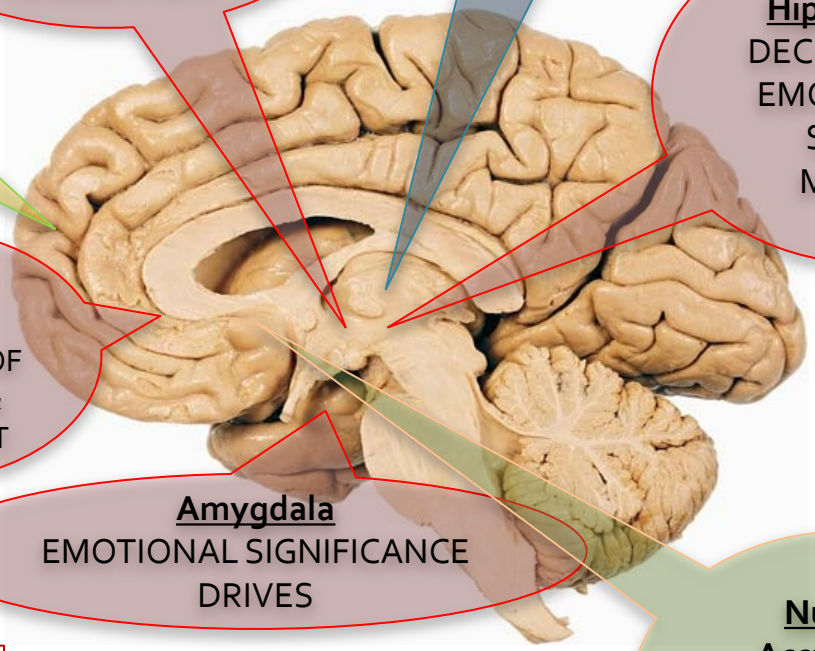
Hippocampal cellularity

Hippocampus
DECLARATIVE & EMOTIONALLY SALIENT MEMORY

LIMBIC SYSTEM:
Olfaction
Emotion
Drives
Memory
Autonomic & Neuroendocrine regulation

PFC/ACC - amygdala microcircuits

Anterior Cingulate
REGULATION OF ATTENTION & ENGAGEMENT



Amygdala
EMOTIONAL SIGNIFICANCE
DRIVES

Nucleus Accumbens
REGULATION OF EMOTIONS & MOTIVATION

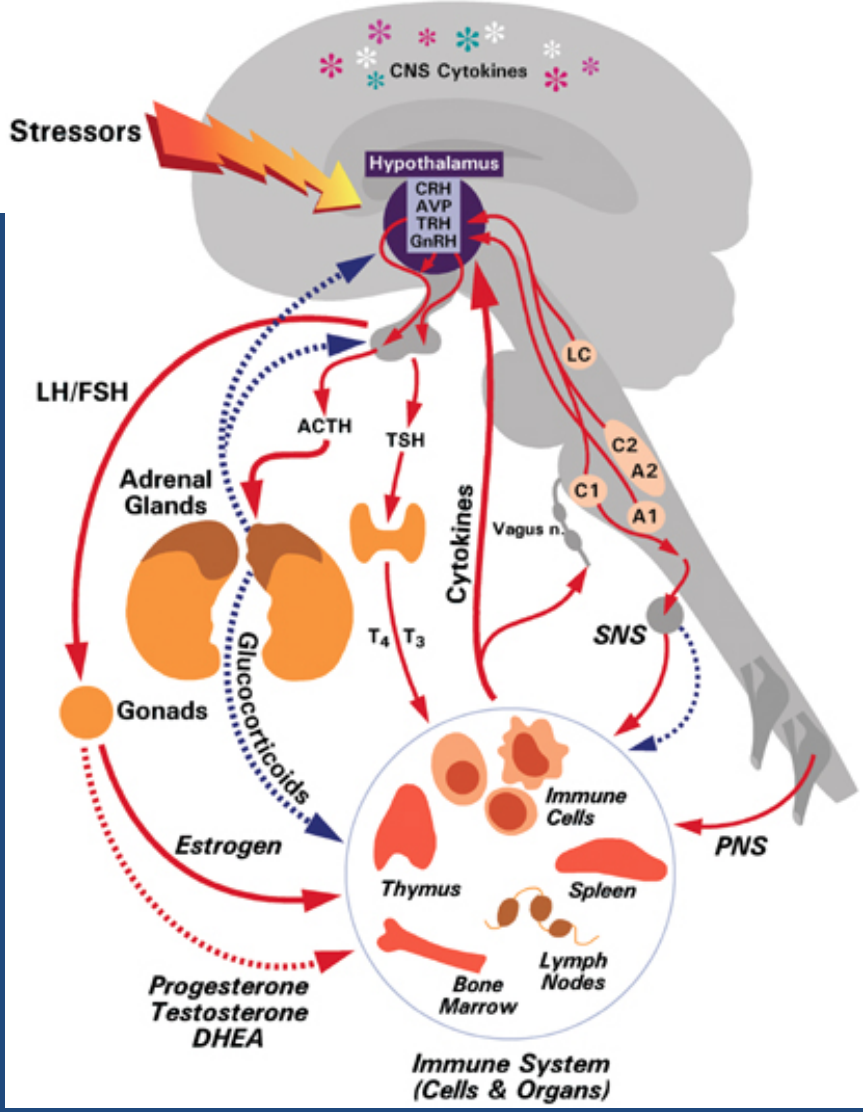
Limbic & Salience network reactivity & responsiveness

- McLaughlin 2015
- Bock 2014
- Suzuki 2014
- Wu 2013
- Russo 2012
- Tottenham 2010
- Feder 2009
- Gillespie 2009
- Charney 2004

ENDOCRINOLOGY & IMMUNOLOGY

HPA AXIS (hypothalamic-pituitary-adrenal)

- BIORHYTHMS
  - Sympathetic and Parasympathetic Regulation
  - Emotional Regulation
  - Sleep
  - Appetite & Nutrition
  - Energy & Exercise
- IMMUNE & INFLAMMATORY RESPONSE
  - Activation and Downregulation



Webster et al. Neuroendocrine regulation of immunity. Annu. Rev. Immunol. 2002, 20, 125–163.

SENSITIVE PERIODS FOR BRAIN DEVELOPMENT

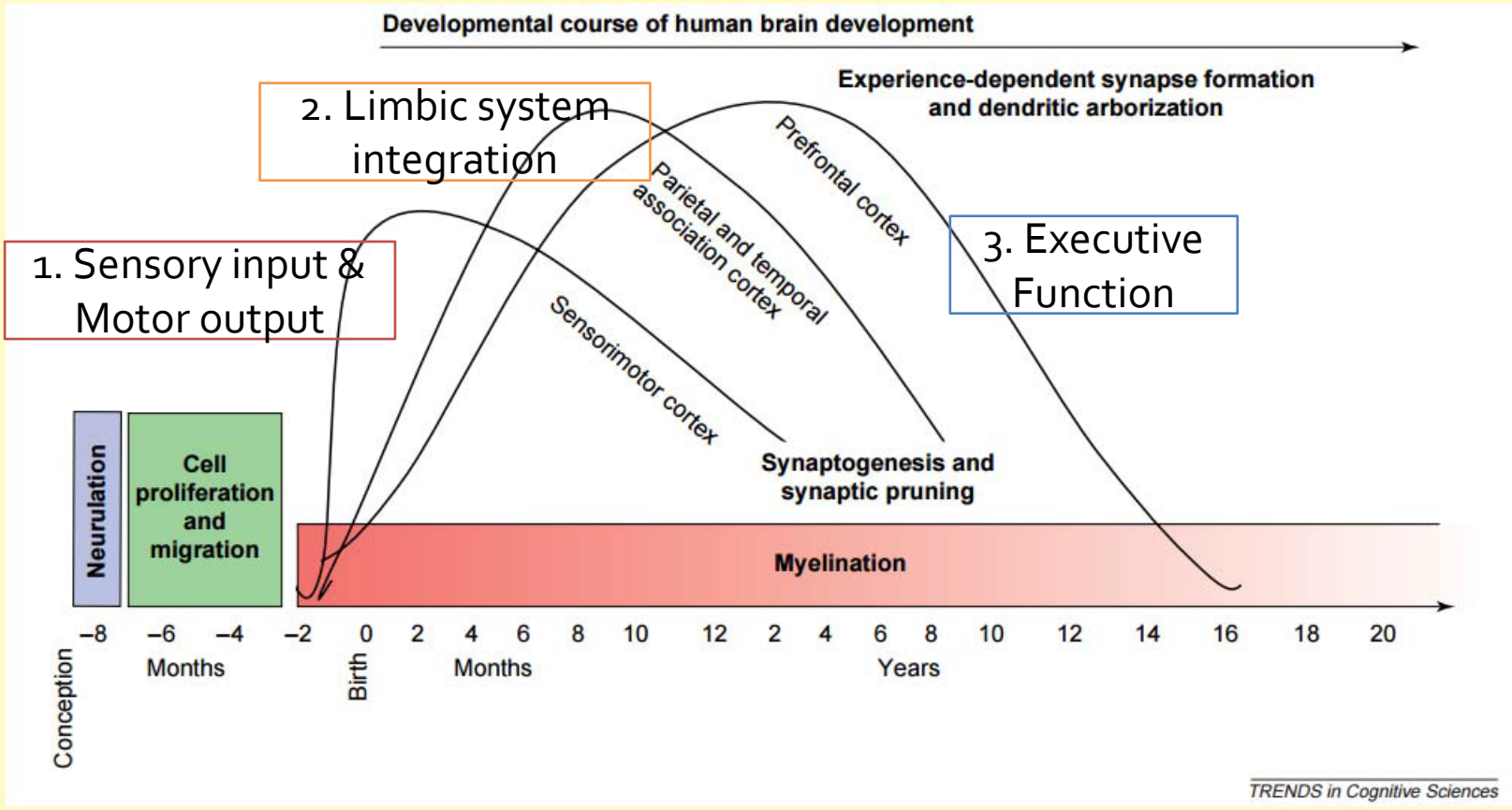
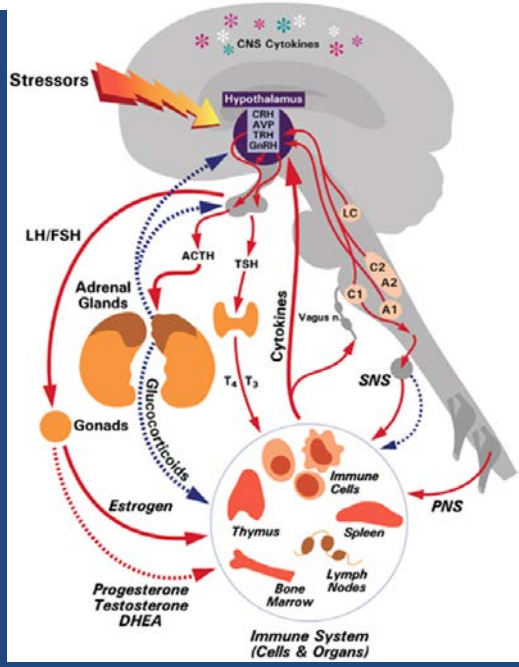


Figure I. See text for details. Adapted with permission from Ref. [66].

Casey et al., TICS, 2005

TRAUMA AND EARLY ADVERSITY MAKE MORE DIFFICULT:

- Endogenous feedback and regulation
- Diverse aspects of health and well-being
- Predicting health and relational outcomes



…But not impossible

TRAUMA AND EARLY ADVERSITY MAKE MORE DANGEROUS:

- **Trust & Collaboration**
- **Inhibition**: fear, impulses
- **Attention, Engagement, Memory**
- **Flexibility**: emotional, cognitive, behavioral

…But sometimes worth the risk

COMPARATIVE TERATOGENICITY

Low birth weight risk for cardiovascular, metabolic, and psychiatric illnesses

Alcohol, nicotine, opiate exposure increase risk for sudden infant death syndrome (SIDS)

TABLE 2 Summary of Effects of Prenatal Drug Exposure

	Nicotine	Alcohol	Marijuana	Opiates	Cocaine	Methamphetamine
Short-term effects/birth outcome						
Fetal growth	Effect	Strong effect	No effect	Effect	Effect	Effect
Anomalies	No consensus on effect	Strong effect	No effect	No effect	No effect	No effect
Withdrawal	No effect	No effect	No effect	Strong effect	No effect	*
Neurobehavior	Effect	Effect	Effect	Effect	Effect	Effect
Long-term effects						
Growth	No consensus on effect	Strong effect	No effect	No effect	No consensus on effect	*
Behavior	Effect	Strong effect	Effect	Effect	Effect	*
Cognition	Effect	Strong effect	Effect	No consensus on effect	Effect	*
Language	Effect	Effect	No effect	*	Effect	*
Achievement	Effect	Strong effect	Effect	*	No consensus on effect	*

* Limited or no data available.

Behnke et al. Prenatal Substance Abuse: Short- and Long-term Effects on the Exposed Fetus. Pediatrics: 131 (3), March 2013

COMPARATIVE TERATOGENICITY

Table 1

Neurodevelopmental consequences of prenatal drug exposure.

Age of exposure	Drug	Neurochemistry involved	Neurodevelopmental consequences	References
Late early to mid gestation (primarily based on animal studies)	Cocaine	DA > NE and 5-HT Blocks monoaminergic transporters and Increases synaptic concentrations of monoamines	Altered neuroanatomical morphology, disrupted cognition, altered cellular signaling	18–37, 42–47, 54–59, 63–65, 203
Throughout gestation	Alcohol	GABA and NMDA Blocks NMDA receptor activity and increases GABAergic activity	Craniofacial dysmorphologies, decreased birth weight, hyperactivity, cognitive deficits, cortical dysgenesis, cell death, reduced brain volume	113–115, 118-120, 126–132
Throughout gestation	Nicotine	Acetylcholine Activates nAChRs	Decreased birth weight, hyperactivity, cognitive disabilities, emotional disruptions	82, 86–94, 96-98, 100–105, 107, 108
Throughout gestation and early postnatal exposure	Amphetamine/ Methamphetamine	DA > NE and 5-HT Reverses the action of monoaminergic transporters and Increases synaptic concentrations of monoamines	Low birth weight, decreased arousal, deficits in learning, decreased volume of hippocampus and striatum	66, 67, 70–73, 76–81

Thompson, et al. Nat Rev Neurosci. 2009 April; 10(4)

FETAL ALCOHOL SYNDROME DIAGNOSTIC CRITERIA

Table 3: Brief Outline of Diagnostic criteria for Fetal Alcohol Syndrome

Facial dysmorphia

Based on racial norms, individual exhibits all three characteristic facial features:

- Smooth philtrum (University of Washington Lip-Philtrum Guide rank 4 or 5)
- Thin vermillion border (University of Washington Lip-Philtrum Guide rank 4 or 5)
- Small palpebral fissures (at or below 10th percentile)

Growth problems

Confirmed prenatal or postnatal height or weight, or both, at or below the 10th percentile, documented at any one point in time (adjusted for age, sex, gestational age, and race or ethnicity).

Central Nervous System Abnormalities

I. Structural

1) Head circumference (OFC) at or below the 10th percentile adjusted for age and sex.
2) Clinically significant brain abnormalities observable through imaging.

II. Neurological

Neurological problems not due to a postnatal insult or fever, or other soft neurological signs outside normal limits.

III. Functional

Performance substantially below that expected for an individual's age, schooling, or circumstances, as evidenced by:

1. *Global cognitive or intellectual deficits representing multiple domains of deficit (or significant developmental delay in younger children) with performance below the 3rd percentile (2 standard deviations below the mean for standardized testing)*
   or
2. *Functional deficits below the 16th percentile (1 standard deviation below the mean for standardized testing) in at least three of the following domains:*
   a) cognitive or developmental deficits or discrepancies
   b) executive functioning deficits
   c) motor functioning delays
   d) problems with attention or hyperactivity
   e) social skills
   f) other, such as sensory problems, pragmatic language problems, memory deficits, etc.

Maternal Alcohol Exposure

I. Confirmed prenatal alcohol exposure
II. Unknown prenatal alcohol exposure

Criteria for FAS Diagnosis

Requires all three of the following findings:

1 Documentation of all three facial abnormalities (smooth philtrum, thin vermillion border, and small palpebral fissures);
2. Documentation of growth deficits
3. Documentation of CNS abnormality

Cary

TEMPERAMENT

ACTIVE & CREATIVE COPING

Suzuki 2014, Wu 2013, Russo 2012, Catani 2010, JAACAP PTSD Practice Parameter, 2010, Feder 2009, Gillespie 2009, Hansson 2008, Golse 2006, Charney 2004, Luthar 1991


Cary

ACTIVE CHOICE

Confrontation of fear

- Positive self-concept
- Internal locus of control
- Active, pragmatic engagement
- Stress inoculation

Cary

CREATIVITY

Flexible adaptation

- Variable response

Optimism

- Positive emotionality
- Humor
- Meaning/purpose

Cary

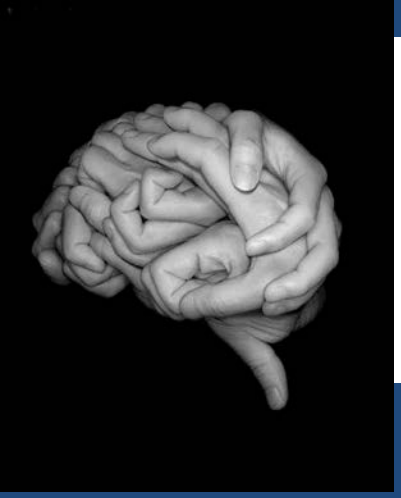
COPING

Determination

- Frustration tolerance
- Skills and practice

Sustainability

- Access social support
- Trust relationships
- Mentor
- Altruism



RELATIONSHIPS & RESOURCES

Supportive relationships

- **Safety:** availability of trustworthy relationships
- **Modeling:** parental resilience and effective coping
- **Social connection:** peer network, mentor, advocate
- **Structure**

Culture and Morals

- **Cultural identification:** increased resilience in face of daily stress, development of internal locus of control for African American youth (Quintana 2006)
- **Moral Compass:** purpose, religion/spirituality

Wellness Behaviors

- **Physical activity:** reduced sadness, suicidal ideation, suicide attempt among bullied and non-bullied students (Sibold 2015)
- **Musical instrument playing:** associated with cortical thickness maturation of bilateral orbitofrontal & parietal cortices and parahippocampal gyri (Hudziak 2014)

•Suzuki 2014
•Wu 2013
•Russo 2012
•Catani 2010
•JAACAP PTSD Practice Parameter, 2010
•Feder 2009
•Gillespie 2009
•Hansson 2008
•Golse 2006
•Quintana 2006
•Charney 2004
•Luthar 1991

EMPIRICALLY SUPPORTED TRAUMA SPECIFIC PSYCHOTHERAPIES

TRAUMA SPECIFIC PSYCHOTHERAPIES: CORE COMPONENTS

BEFORE INTERVENTION

1. **Risk screening:** identify high-risk clients
2. **Triage:** match clients to the interventions that will most likely benefit them
3. **Systematic assessment and treatment planning:** tailor intervention to the needs, strengths, circumstances, and wishes of individual clients
4. **Engagement & address barriers:** ensure clients receive an adequate dosage of treatment in order to make sufficient therapeutic gains

NCTSN.org

TRAUMA SPECIFIC PSYCHOTHERAPIES: CORE COMPONENTS

DURING INTERVENTION

1. Motivational interviewing: engage clients
2. Psychoeducation: trauma and loss reminders, posttraumatic stress reactions, and grief reactions
3. Teach and practice coping skills: emotional regulation skills, safety skills, relapse prevention skills
4. Exposure and response prevention: reduce posttraumatic stress reactions
5. Monitor client progress during treatment
6. Evaluate treatment effectiveness

NCTSN.org

TRAUMA SPECIFIC PSYCHOTHERAPIES: CORE COMPONENTS

DURING INTERVENTION

7. Parenting skills to improve caregiver-youth relationship
8. Maintaining adaptive routines at home and outside of home
9. Advocacy on behalf of the client to improve client support and functioning outside of the home

NCTSN.org

EFFECTIVE PSYCHOTHERAPY:

THE RELATIONSHIP

among client, family, and therapist

TRAUMA SPECIFIC PSCYHOTHERAPIES

- CPP: Child-Parent Psychotherapy
- CPS: Collaborative Problem Solving
- CBT: Cognitive Behavior Therapy (TF-CBT, CBITS)
- DBT: Dialectical Behavior Therapy
- EMDR: Eye Movement Desensitization & Reprocessing
- Honoring Children, Making Relatives/Mending the Circle/Respectful Ways
- PCIT: Parent-Child Interaction Therapy
- Sanctuary Model
- Seeking Safety

Think:Kids
RETHINKING CHALLENGING KIDS

COLLABORATIVE PROBLEM SOLVING

KIDS AND THEIR FAMILIES DO WELL IF THEY CAN…*AND IF THEY CANNOT, SOMETHING IS GETTING IN THE WAY.*

IT IS OUR JOB TO HELP FIGURE OUT WHAT IS GETTING IN THE WAY.

Think:Kids
RETHINKING CHALLENGING KIDS

COLLABORATIVE PROBLEM SOLVING

THAT WHICH TENDS TO GET IN THE WAY:

- INSUFFICIENT UNDERSTANDING OF THE PROBLEM
- LAGGING, LACKING, or UNACCESSED DEVELOPMENTAL SKILLS:

TF-CBT

TRAUMA FOCUSED COGNITIVE BEHAVIOR THERAPY

- Age range: 3- 21yr
- Individual and Conjoint Sessions
- Average duration of treatment: 12 – 25 sessions
- Components:
  - Skill building: relaxation, emotion regulation, cognitive reframing, parenting
  - Trauma processing: trauma narrative and in vivo exposure to triggers
- Theoretical basis: Cognitive-Behavioral and Family

https://tfcbt.musc.edu/

TF-CBT: STRUCTURE

Gradual Exposure

P.R.A.C.T.I.C.E.

Sessions 1 – 4

- **P**sychoeducation and Parenting skills
- **R**elaxation
- **A**ffective expression and regulation
- **C**ognitive Coping

Sessions 5 - 8

- **T**rauma narrative and processing
- **I**n vivo exposure

Sessions 9 - 12

- **C**onjoint caregiver + youth sessions
- **E**nhancing safety and future development

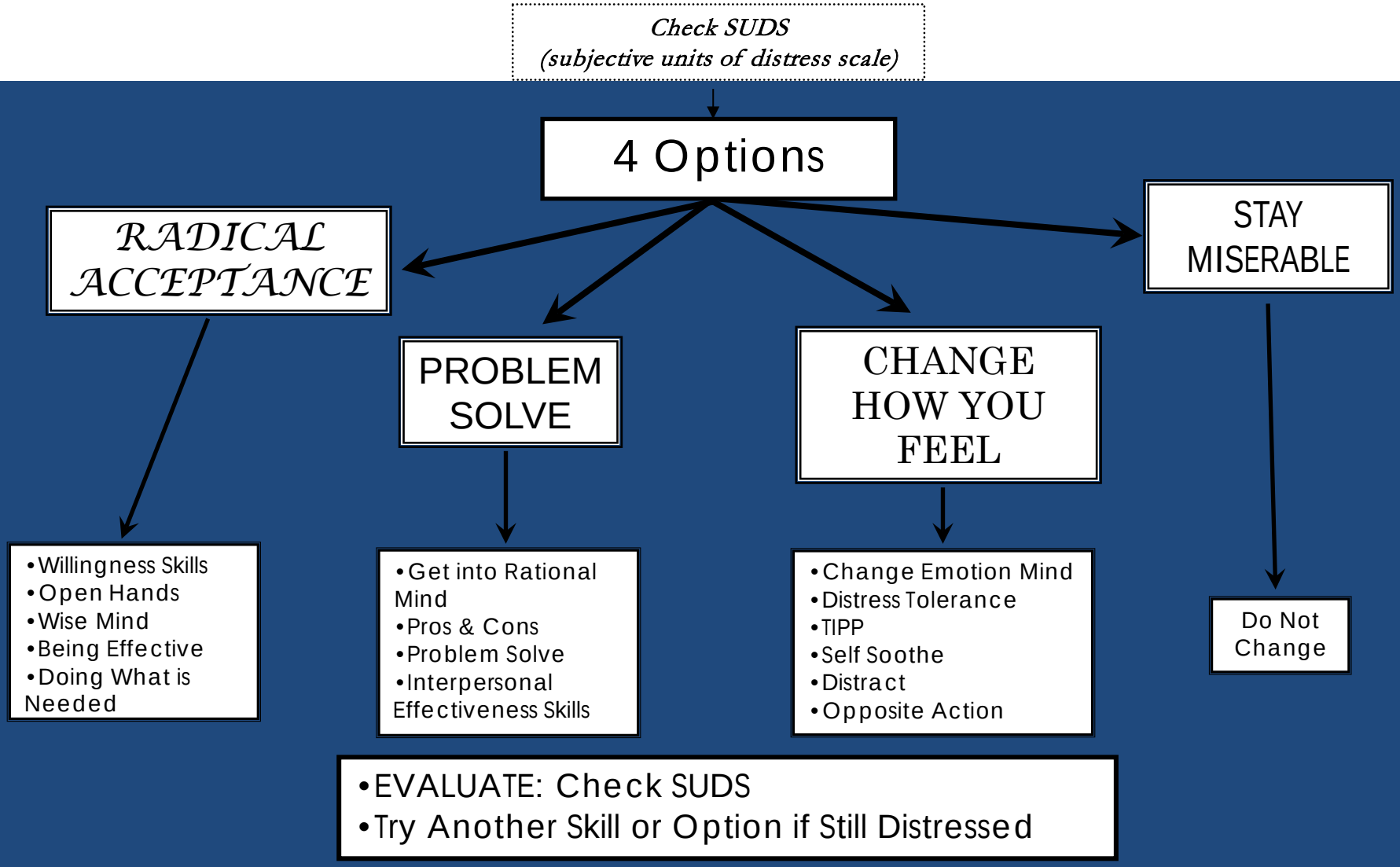
DBT
DIALECTICAL BEHAVIOR THERAPY

- Age Range: 8 – 21yr
- Individual therapy and multifamily group
- Average duration of treatment: 6 – 12mo of twice weekly appt
- Components:
  - Skill building: mindfulness, distress tolerance, emotion regulation, interpersonal effectiveness, middle path/dialectical stance, situational analysis (skills training group, 6mo)
  - Trauma processing: in vivo exposure to triggers (individual therapy)
  - Phone coaching
  - Therapist consultation team
- Theoretical basis: Cognitive-Behavioral and Mindfulness

http://behavioraltech.org

DBT

WHEN YOU HAVE A PROBLEM



PCIT
PARENT-CHILD INTERACTION THERAPY

- Age range: 2 – 12yr
- Conjoint child and caregiver sessions
- Average duration of treatment: 12 – 20 sessions
- Components:
  - Skill building: direct parent coaching, parent self-care
  - Relationship building: child directed interactions, parent directed interactions
- Theoretical basis: Attachment and Behavioral

http://www.pcit.org/

PCIT

8 RULES of EFFECTIVE COMMANDS

- DIRECT – *"Please hand me the block" instead of "Will you hand me the block?"*
- DO THIS – *positively stated, "Do this" instead of "Don't do that!"*
- ONE at a time – *single actions*
- SPECIFIC – *"Please get off the table" instead of "Be careful!"*
- AGE-APPROPRIATE
- POLITE & RESPECTFUL
- ONLY WHEN NECESSARY
- AFTER EXPLANATION – *give concise explanation and then command. If forget to give explanation, explain only after command obeyed to avoid "whys?"*

MEDICATION

No FDA approved medications for PTSD in youth

- Sertraline (Zoloft): adult studies - two 12wk trials, one 52wk continuation trial

TRAUMA SPECIFIC PSYCHOTHERAPIES

- Multiple options
- Therapeutic relationship matters
- Systemically oriented
- Collaborative treatment can support resilience and change biology

THANK YOU

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