

When the Solution Becomes the Problem: ACEs and Addiction

Jennifer Hays-Grudo, PhD

Regents Professor

Department of Psychiatry and Behavioral Science

Center for Health Sciences

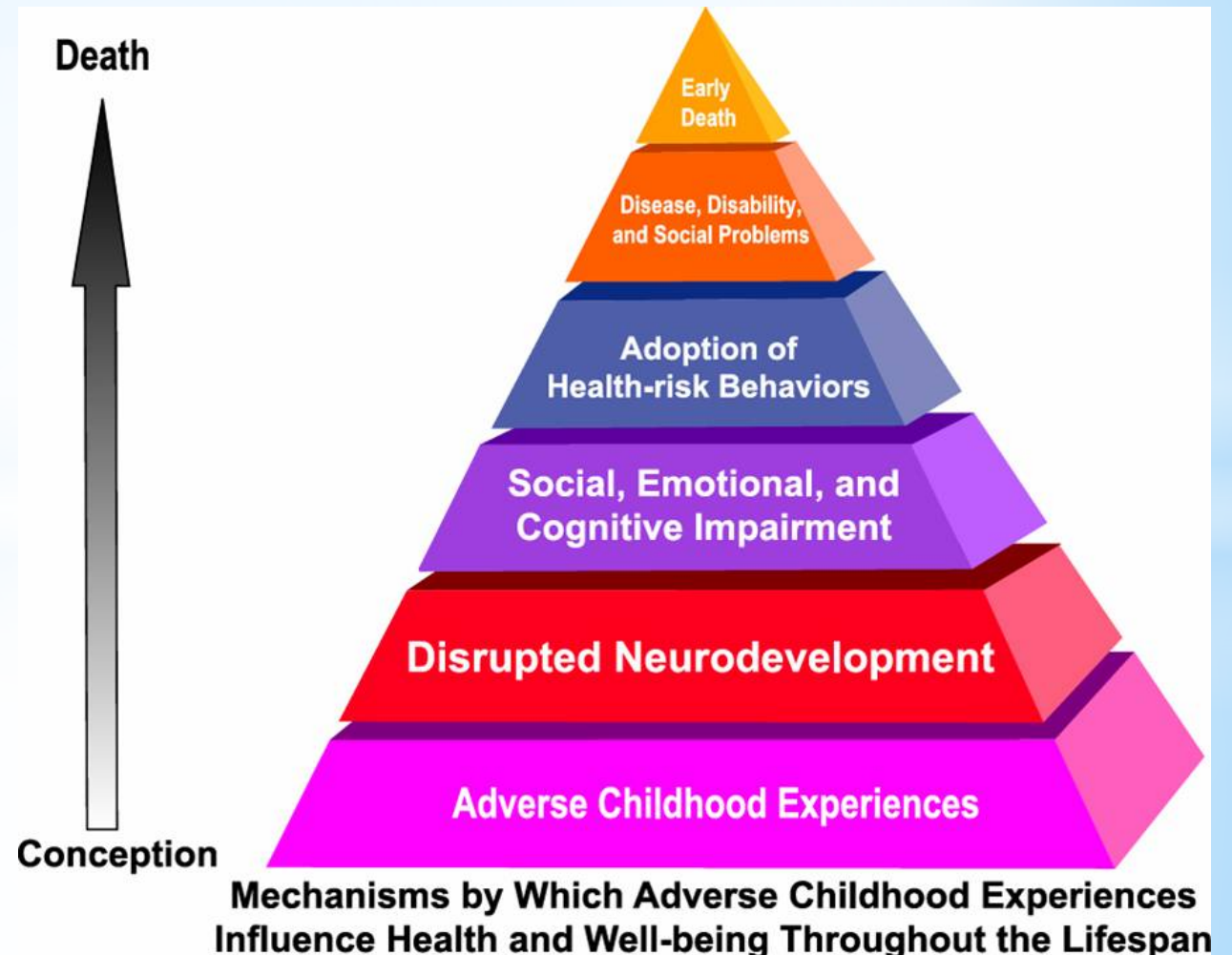
PI/PD, Center for Integrative Research on Childhood Adversity

Oklahoma State University



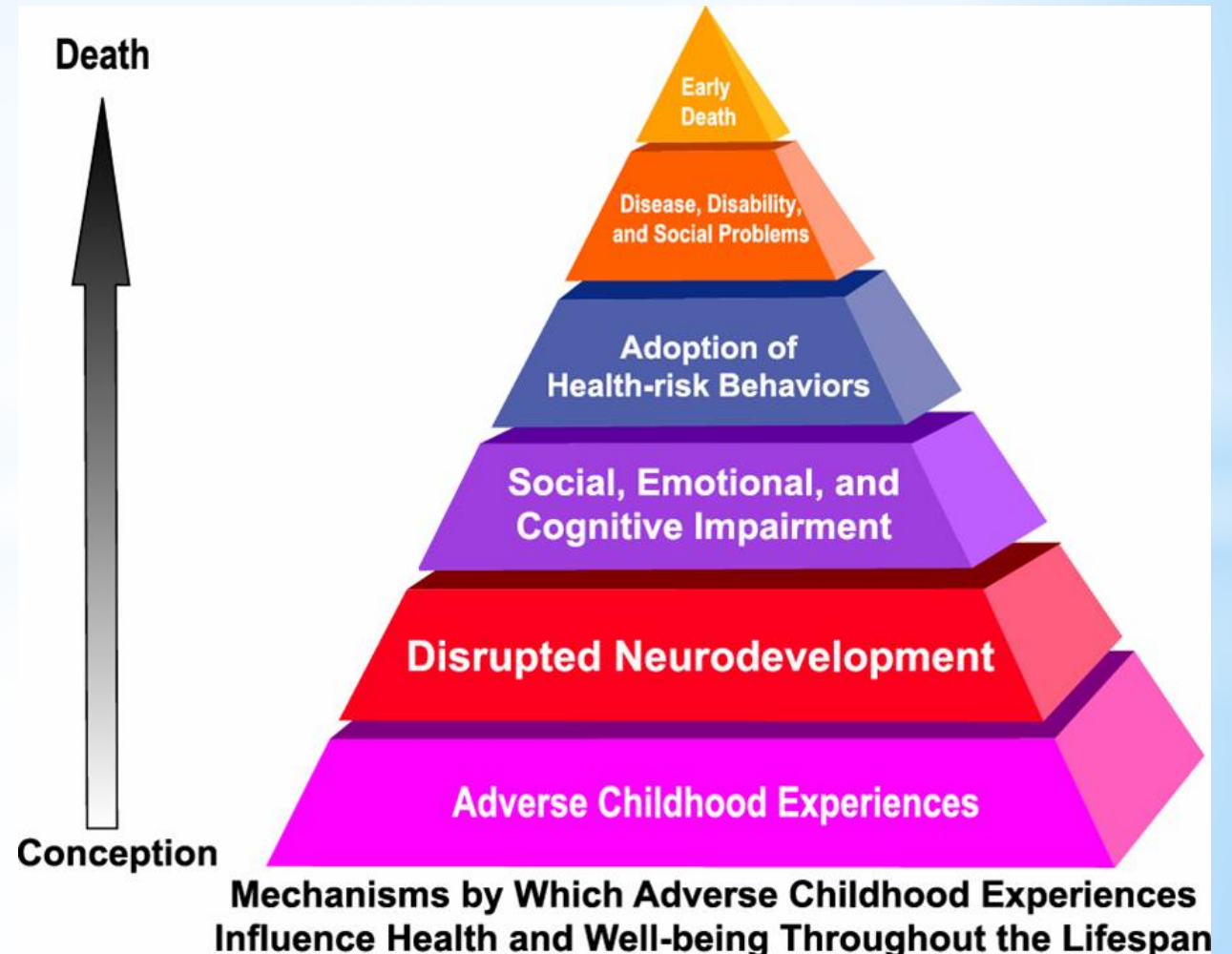
Adverse Childhood Experiences (ACEs)

1. Verbal Abuse
2. Physical Abuse
3. Sexual Abuse
4. Physical Neglect
5. Emotional Neglect
6. Witness IPV
7. Substance Abuse in Home
8. Separated/Divorced Parents
9. Family Member Incarcerated
10. Family Member Mentally Ill or Suicidal

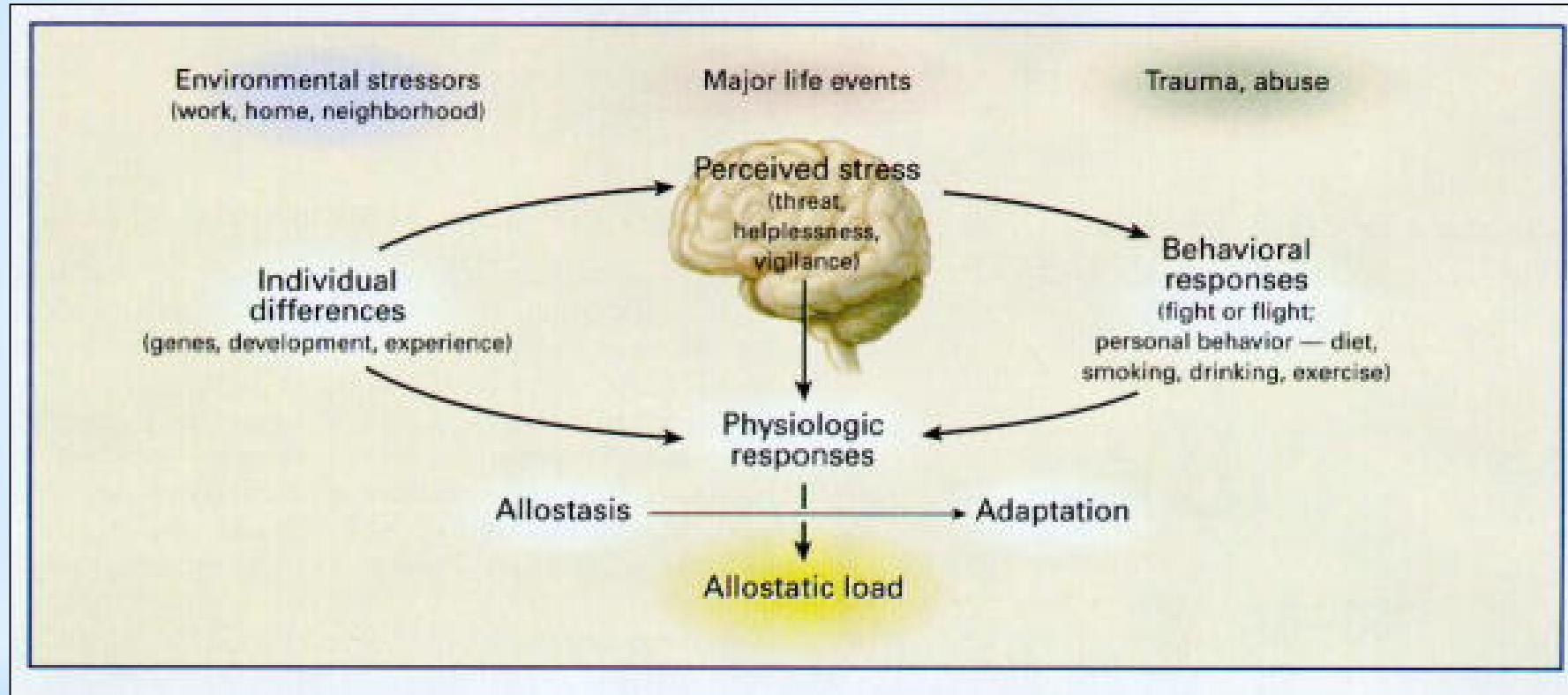


Effects of ACEs

- Disrupts neurodevelopment
- Impairs executive functions
- Increases health-harming behaviors
- Predicts chronic physical and mental health problems
- Results in societal problems
- Is often transmitted across generations via biological and behavioral pathways



Stress Regulation – Allostatic Load



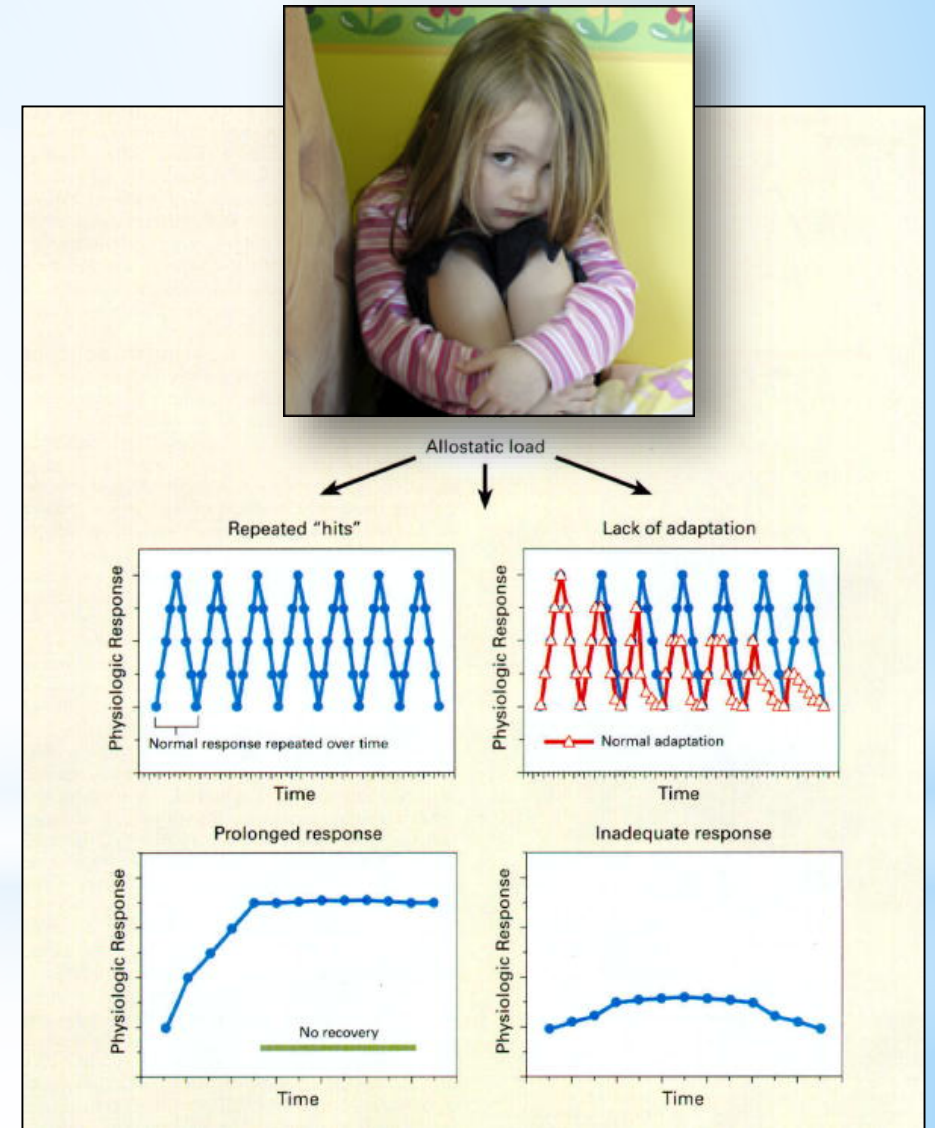
The Stress Response and Development of Allostatic Load. The perception of stress is influenced by one's experiences, genetics, and behavior. When the brain perceives an experience as stressful, physiologic and behavioral responses are initiated, leading to allostasis and adaptation.

McEwen, Bruce. **Protective and Damaging Effects of Stress Mediators.**
New England Journal of Medicine. 338(3):171-179, January 15, 1998.

Wear and tear from repeated stress exposure



Over time, allostatic load can accumulate, and the overexposure to mediators of neural, endocrine, and immune stress can have adverse effects on various organ systems, leading to disease.



Brain Effects

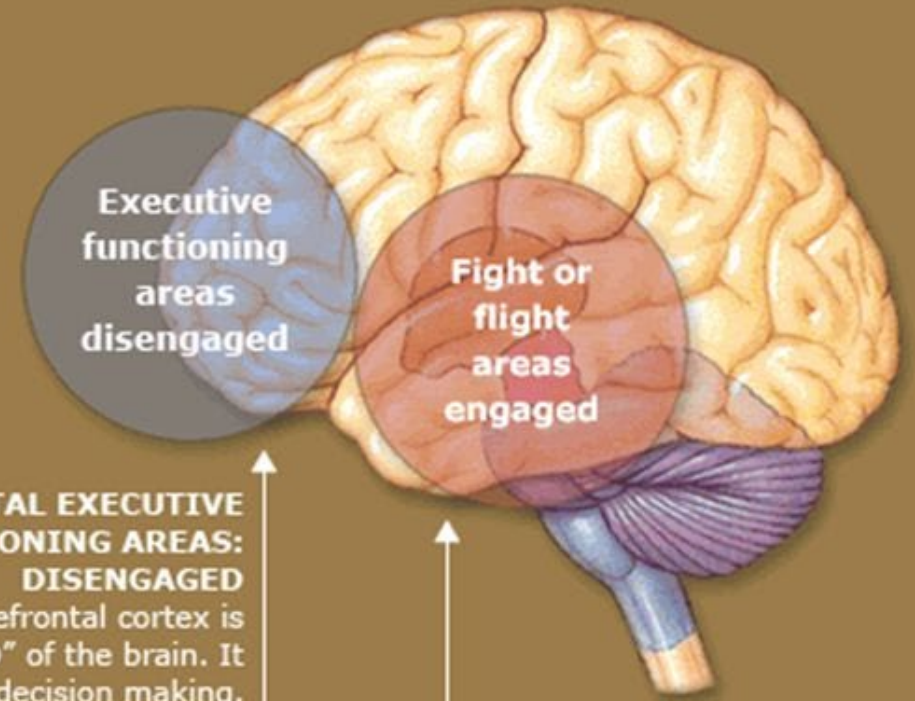
Stress & the Brain

- Frontal executive functioning areas are disengaged
- Subcortical *fight or flight* areas are engaged

Trauma:

Allostatic load

The wear and tear that the body experiences due to repeated cycles of stressful events as well as the inefficient turning-on or shutting off of these responses



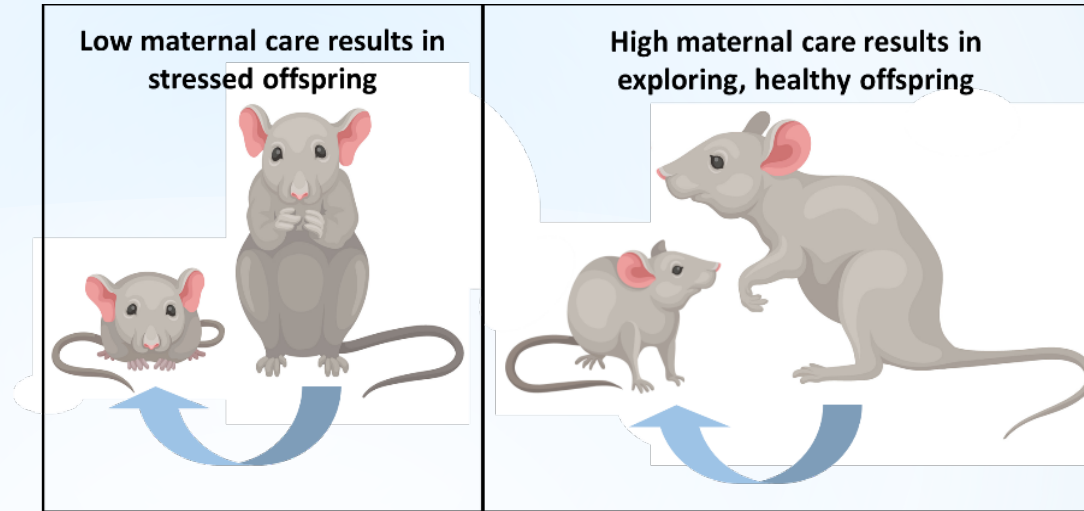
FRONTAL EXECUTIVE FUNCTIONING AREAS: DISENGAGED

The prefrontal cortex is the "CEO" of the brain. It regulates decision making, judgment, planning, moral reasoning, and sense of self. Stressful experiences (academic pressure, sleep deprivation, substance abuse, etc.) disengage the frontal lobes. Over time, this can lead to impulsive, short-sighted, even violent behavior; increased anxiety; depression; alcohol and drug abuse; learning disorders; and increased stress-related diseases.

SUBCORTICAL FIGHT OR FLIGHT AREAS: ENGAGED

The subcortical arousal system—thalamus, hippocampus, brainstem, and hypothalamus—mobilizes the body for action, increasing heart rate, respiratory rate, and muscle tone. The nature of this system is to bypass the frontal executive functioning and trigger the fight or flight mode.

Epigenetic Alterations



Following exposure to maternal separation and “abusive” care, epigenetic alterations are found in genes related to stress regulation and brain development

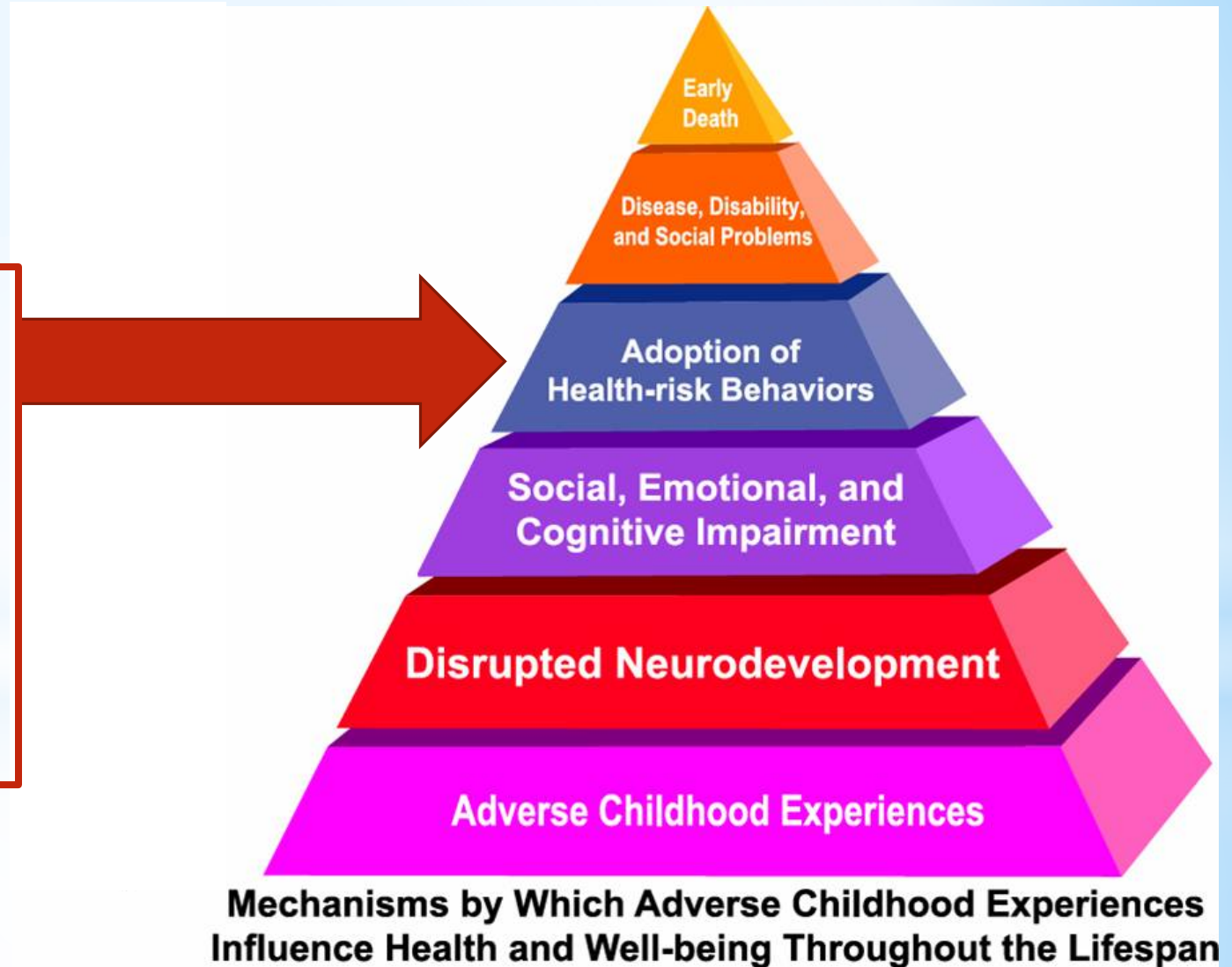
- Glucocorticoid Receptor (GR) gene promotor in hippocampus (Francis et al 1999)
- Methylation of BDNF DNA and BDNF mRNA in prefrontal cortex & (Roth & Sweatt, 2011; Blaze & Roth, 2013);
- Epigenetic changes observed in offspring (Roth et al 2009)
- Associated with depressive-like behavior (Franklin et al 2010) and subsequent generations in offspring to the third generation (Franklin et al 2011)
- In humans, NR3C1 (GR receptor gene) methylation linked with maternal depression in newborns and with stress reactivity at 3 months) (Oberlander et al 2008)

Health-Risk Behaviors as Coping Behaviors

- Impairments in healthy, normal stress response (blunted, chronically elevated)
- Poor problem-solving skills
- Short-term solution (alcohol, drugs, bingeing other risk-taking) becomes a long-term problem (addiction, impaired functioning)

“What we thought was the problem, she considered her solution to the problem.”

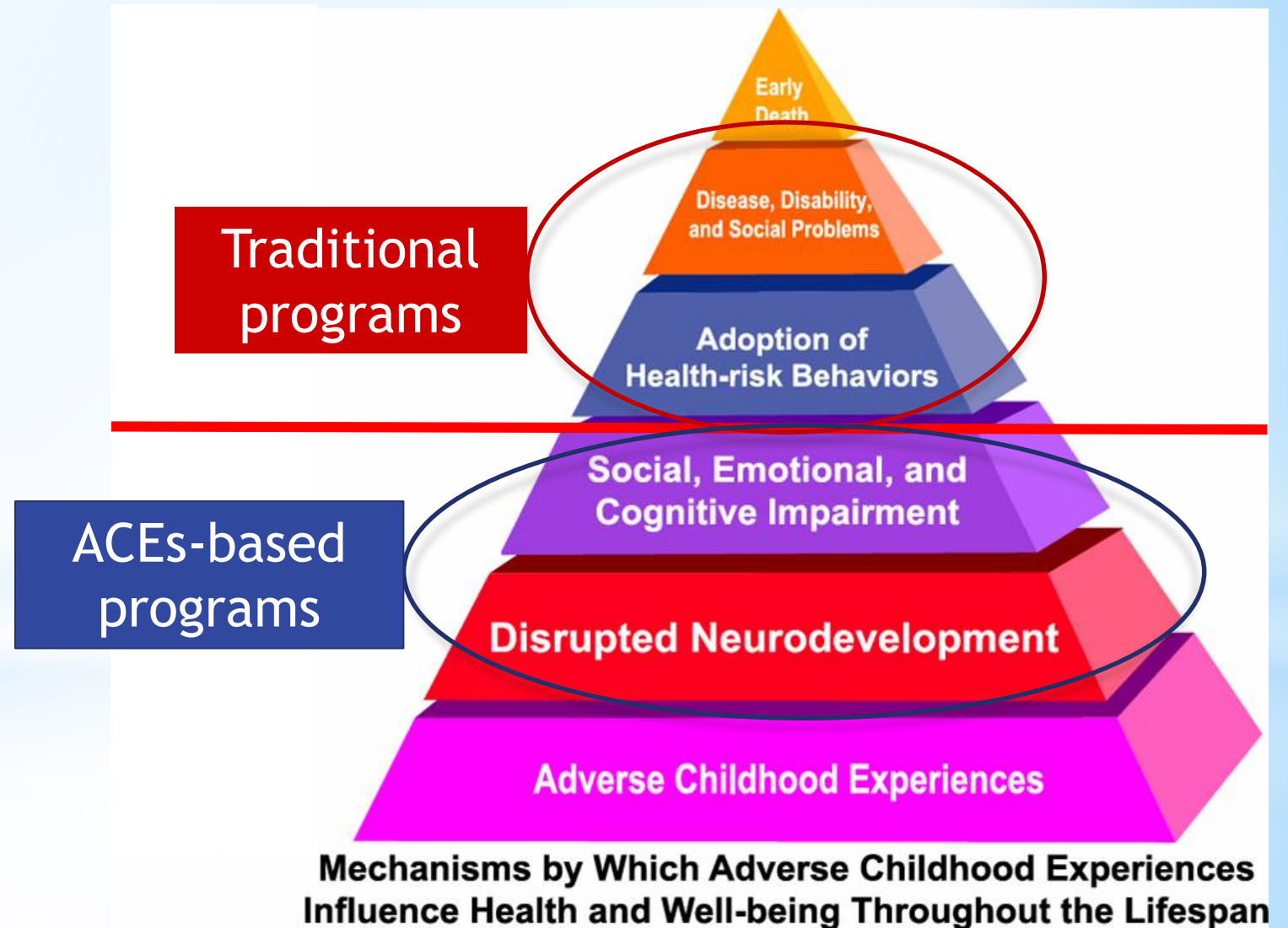
Dr. Vincent Felitti



Solution: Healing and Recovery from ACEs

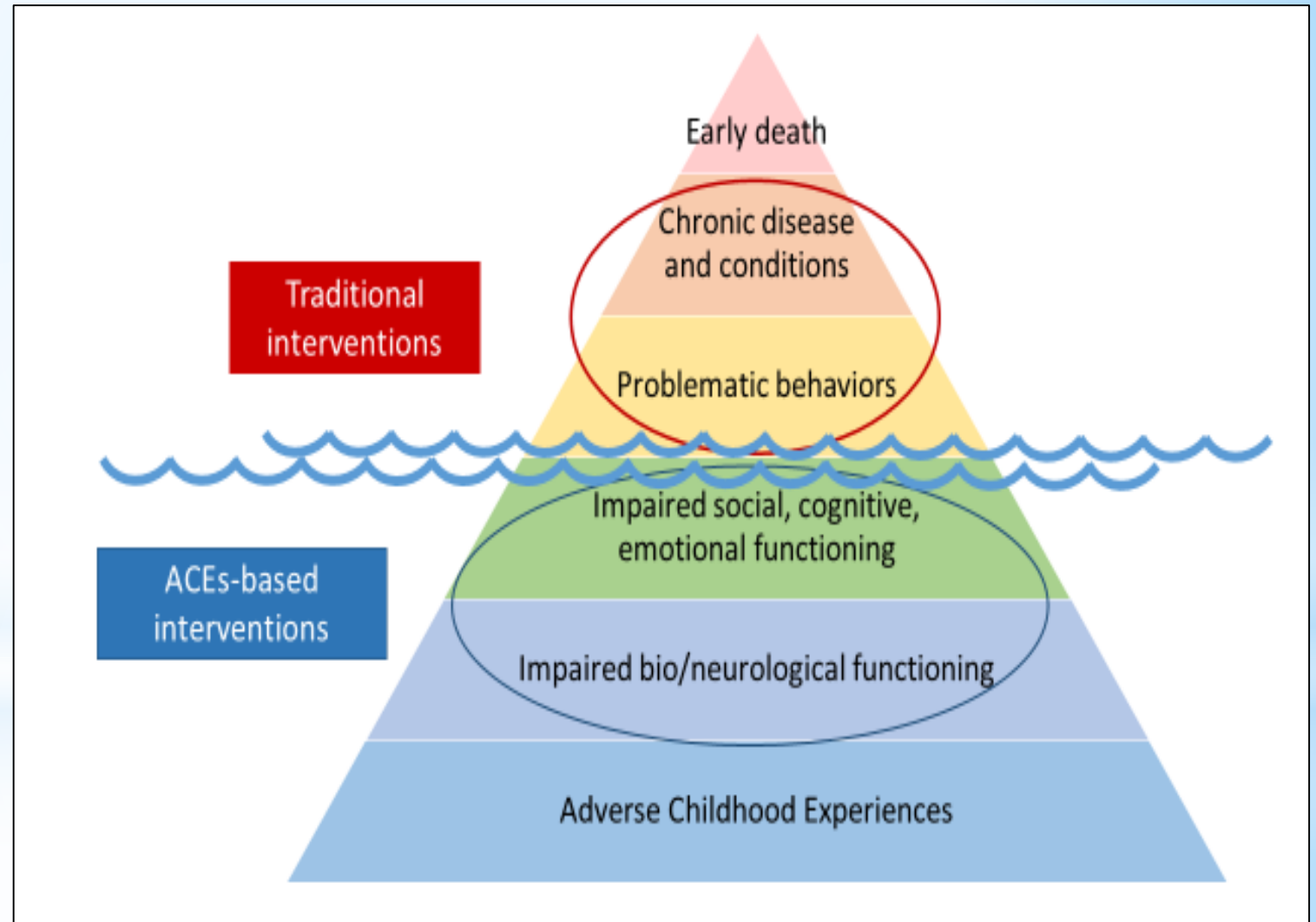
Bessel van der Kolk – 3 avenues for treating trauma

- Top-down – talk therapy,
- Medication
- Bottom-up or **body-based interventions**— experiences that viscerally contradict the **helplessness, rage, or collapse** that result from trauma.



Two-levels of Intervention

- Address problematic behaviors
- Build social, cognitive, and emotional (EF) skills
- Address underlying neurobiological effects
 - MBSR
 - Enriched environments
 - Nurturing relationships



Hays-Grudo & Morris (in press). *ACEs & PACEs: A Developmental Perspective on Adverse and Protective Childhood Experiences*, Washington, DC: APA Press.

Protective and Compensatory Experiences (PACEs)

Morris, Hays-Grudo et al (2015)

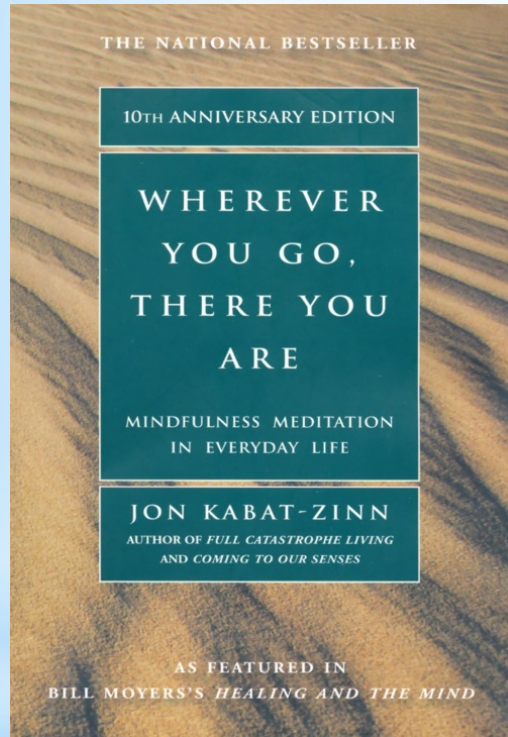
Relationships and connections	Resources and environments
Give and receive unconditional love	Have an engaging hobby --
Have at least one best friend	Get regular exercise
Volunteer	Live in a physically safe home (clean, uncluttered, healthy meals)
Have a mentor	Opportunities for continued learning
Be active in a social group	Have regular routines and habits that promote well-being

ACEs conversations help rewrite life narratives

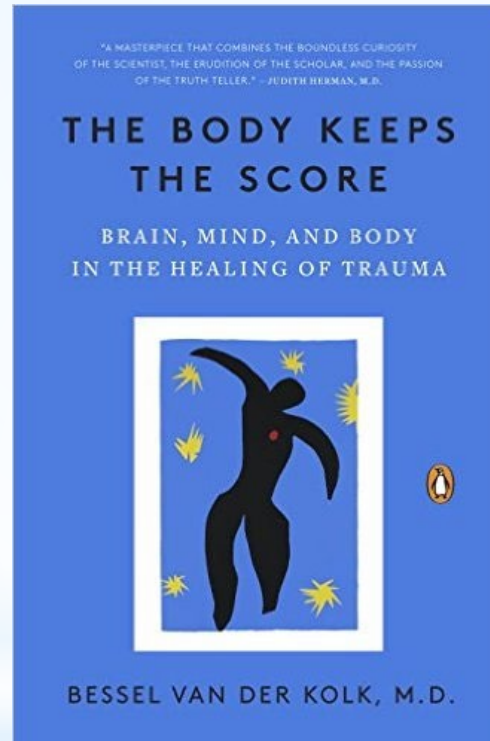
- Provides adults with a chance to see the story of their lives and create a different path for the future
 - move from shame about adaptations (coping) with a downside
 - create alternative coping and living strategies with hope, meaning, and purpose
- Helps children rewrite their stories
 - It's not your fault
 - You're not alone
 - You're good, you're strong, you're worthwhile
 - You seek goodness, strength, and purpose

Resources

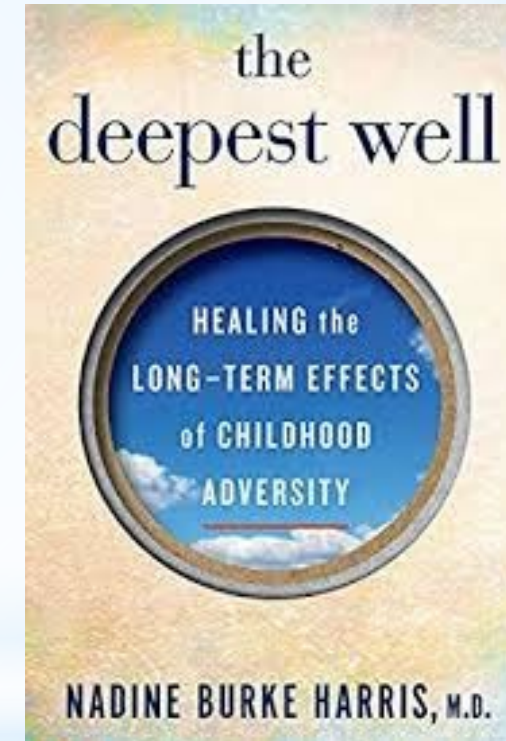
Jon Kabat-Zinn



Bessel Van Der Kolk



Nadine Burke Harris



<https://www.acesconnection.com>