



Invisible Injuries: Beyond the Surface

PAULA WALTERS

SPEAKER, CONSULTANT, PARAMEDIC, AND SURVIVOR

SESSION OVERVIEW

Explore the Impacts of Trauma

Understand how trauma affects both the mind and body, including the signs and symptoms that manifest in various systems.

Identify Common Diagnoses and Misdiagnoses

Learn about typical diagnoses and potential misdiagnoses related to trauma, and how they can be misunderstood or overlooked.

Enhance Support for Trauma Survivors

Discover strategies for better accommodating and supporting survivors by recognizing the comprehensive effects of trauma.

LET'S TAKE A FEW
MINUTES TO SHARE
AND EXPLORE FROM
THE MORNING
INVISIBLE INJURIES
PRESENTATION

What insights or key
takeaways stood out
for you?

What questions or
curiosities did the
presentation spark?

**Why We Need to Shift
from Traditional
Medicine to a Holistic
(Big Picture/Root
Cause) Approach**

AND

**Why that is Critical for
Survivors and Those
Impacted by Trauma**





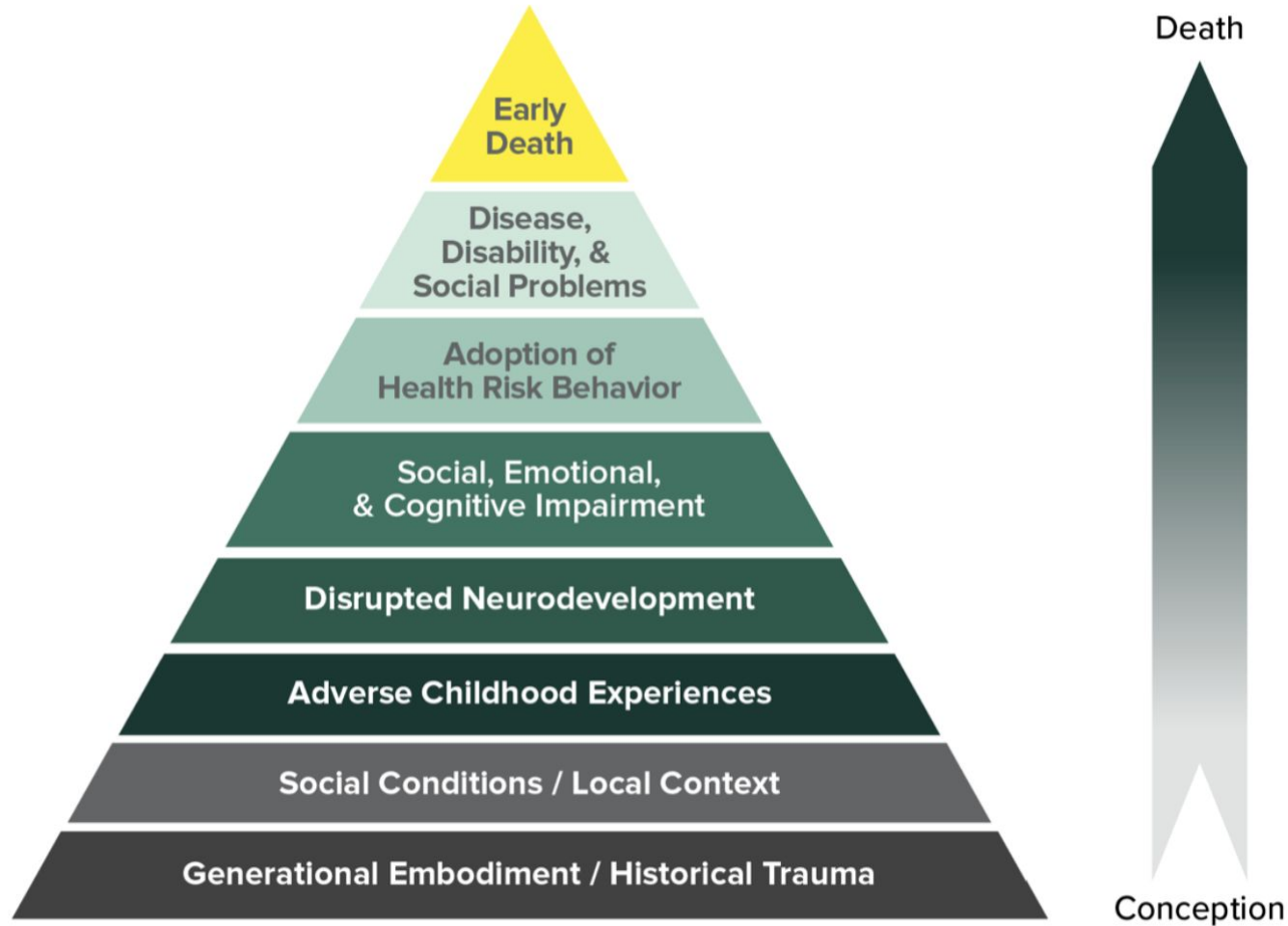
Limited Focus on Symptoms- Traditional medicine often focuses on treating symptoms rather than addressing the root cause of illness, especially when trauma is involved.

Fragmented Care- Patients are often referred to multiple specialists, each focusing on one part of the body, which can overlook the **whole-person** impact of trauma.

Mind-Body Disconnection- Traditional approaches may separate mental health from physical health, despite growing evidence that **trauma** affects both simultaneously.

Chronic Conditions Mismanaged- Trauma-related issues often manifest as chronic conditions (e.g., autoimmune diseases, digestive issues, hormonal imbalances), which may not be fully addressed by traditional methods.

Need for Personalized Healing- A holistic, integrative, or functional medicine approach tailors care to the individual, considering **physical, emotional, mental, and spiritual** well-being as interconnected factors.



Mechanism by which Adverse Childhood Experiences can influence health and well-being throughout the lifespan if not adequately buffered by protective factors.

Trauma Defined

“Trauma is an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or threatening and that has lasting adverse effects,” according to the federal Substance Abuse and Mental Health Services Administration.

Traumatic events include:

- **Individual:** childhood and adult physical, sexual, and emotional abuse or neglect
- **Family:** parental loss, incarceration, mental illness, substance use, and/or interpersonal violence
- **Community:** experiences of racism, xenophobia, and discrimination, witnessing violence, living in foster care
- **Historical:** slavery, genocide, colonization

Trauma is Embodied

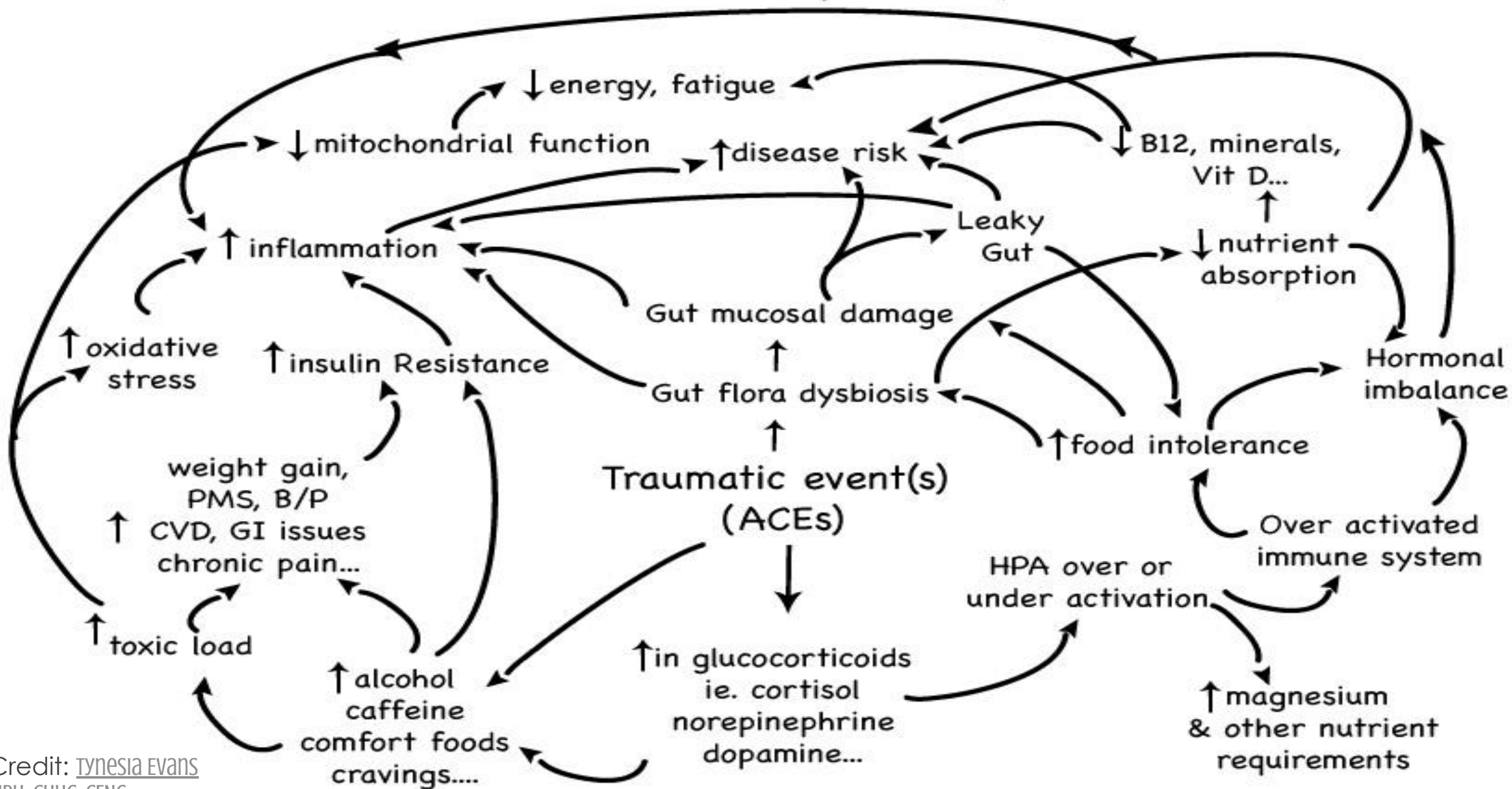
Trauma leads to long-term physical changes to the brain, nervous system, and endocrine (hormonal) system.

People who have experienced trauma more often present with physical and/or emotional symptoms than with 'trauma'

Symptoms can persist and present years after the trauma

*
From the Body Keeps Score by Bessel Van Der Kolk, MD

How emotional trauma impacts on your health



"FEEL GOOD"
CHEMICALS

- DOPAMINE
- OXYTOCIN
- ENDORPHINS
- SEROTONIN



"STRESS
HORMONES"
ADRENALINE
NORADRENALINE
CORTISOL



RATIONAL BRAIN
(PREFRONTAL
CORTEX)



AMYGDALA
(ALARM CENTER)

THE BRAIN

HIPPOCAMPUS
(MEMORY CENTER)

EMOTIONAL
BRAIN
(LIMBIC
SYSTEM)



BODY SYSTEM CHANGES

- BRAIN WAVES
- BRAIN ARCHITECTURE
- NEURAL PATHWAYS
- NERVOUS SYSTEM

- IMMUNE SYSTEM
- HORMONES
- TOXIC ELIMINATION
- CELLULAR CHANGE

AMYGDALA
(ALARM CENTER)



THE BRAIN



HIPPOCAMPUS
(MEMORY CENTER)

▶ Hippocampus

Memory Formation and Retrieval Issues

Example: Trauma can cause the hippocampus to shrink, impairing its ability to form new memories or accurately retrieve old ones. This can lead to difficulties with remembering details of traumatic events or confusion about recent events.

Difficulty Distinguishing Past from Present

Example: With trauma, the hippocampus may struggle to differentiate between past and present experiences. This can result in flashbacks or intrusive memories where the person feels as though they are reliving the trauma.

Increased Risk of Post-Traumatic Stress Disorder (PTSD)

Example: Reduced hippocampal volume has been linked to PTSD, where individuals may experience persistent re-experiencing of traumatic events, severe anxiety, and emotional distress due to impaired memory processing.

▶ Amygdala

Heightened Fear and Anxiety Responses

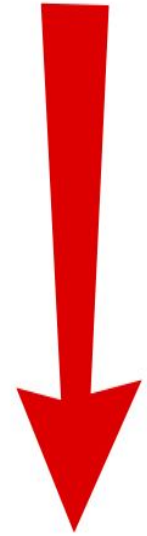
Example: Trauma can lead to an overactive amygdala, which is responsible for processing fear and emotional responses. This heightened activity can result in exaggerated fear reactions, anxiety, and hypervigilance in everyday situations.

Increased Stress Hormone Production

Example: An overactive amygdala can trigger excessive production of stress hormones like cortisol and adrenaline. This can contribute to a constant state of stress and anxiety, impacting overall well-being and mental health.

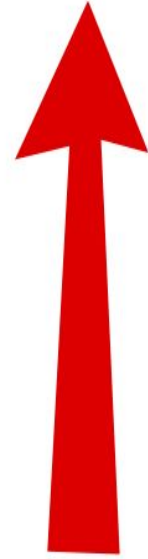
Difficulty Regulating Emotions

Example: Trauma-induced changes in the amygdala can make it challenging to regulate emotions. Individuals might experience intense emotional outbursts, mood swings, or difficulty controlling anger and sadness.



RATIONAL BRAIN
(PREFRONTAL
CORTEX)

EMOTIONAL
BRAIN
(LIMBIC
SYSTEM)



Executive functioning

- Mental skills that include working memory, flexible thinking, and self control
- Essential for everyday tasks

Prioritizing

Problem solving

Time management

Starting tasks

Organizing and planning

Multitasking

Managing emotions

Controlling impulses

Social and sexual behavior

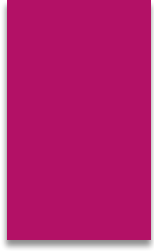
Self-awareness



"FEEL GOOD"
CHEMICALS

- DOPAMINE
- OXYTOCIN
- ENDORPHINS
- SEROTONIN





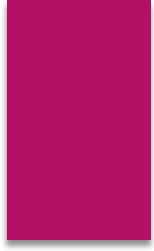
Ways Trauma Impacts Feel-Good Hormones

Dopamine – Reduced Motivation and Pleasure

Trauma can lower dopamine levels, making it harder to feel motivated, experience joy, or find pleasure in everyday activities.

Oxytocin – Difficulty Trusting and Connecting

Trauma disrupts oxytocin production, leading to challenges in forming trusting relationships and feeling safe in social settings.



Ways Trauma Impacts Feel-Good Hormones

Serotonin – Increased Anxiety and Mood Instability

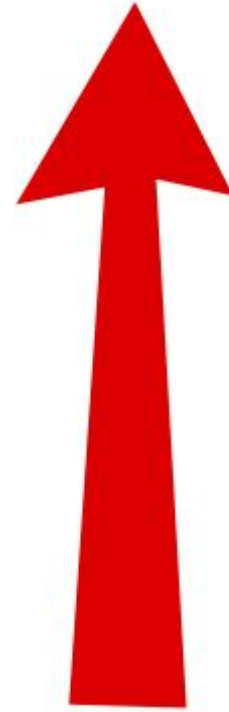
Trauma can reduce serotonin levels, causing increased anxiety, mood swings, and feelings of depression.

Endorphins – Diminished Pain Relief and Euphoria

Trauma decreases endorphin production, leading to lower pain tolerance and less capacity to experience natural feelings of euphoria or relief.

“STRESS
HORMONES”

- ADRENALINE
- NORADRENALINE
- CORTISOL





Ways Trauma Impacts Stress Hormones

Cortisol – Chronic Stress Response

Trauma leads to consistently elevated cortisol levels, keeping the body in a state of chronic stress, which impacts physical and mental health.

Adrenaline – Heightened Fight-or-Flight Reaction

Trauma triggers excessive adrenaline production, causing heightened alertness, rapid heart rate, and increased anxiety, even in non-threatening situations.

Noradrenaline – Hypervigilance and Irritability

Trauma raises noradrenaline levels, leading to hypervigilance, irritability, and an exaggerated startle response, making it hard to relax or feel safe.



Ways Trauma Impacts Stress Hormones

Cortisol Imbalance – Disrupted Sleep and Healing

Irregular cortisol production disrupts the body's natural sleep-wake cycle and inhibits the body's ability to heal and recover from stress.

Stress Hormone Flood – Impaired Decision-Making

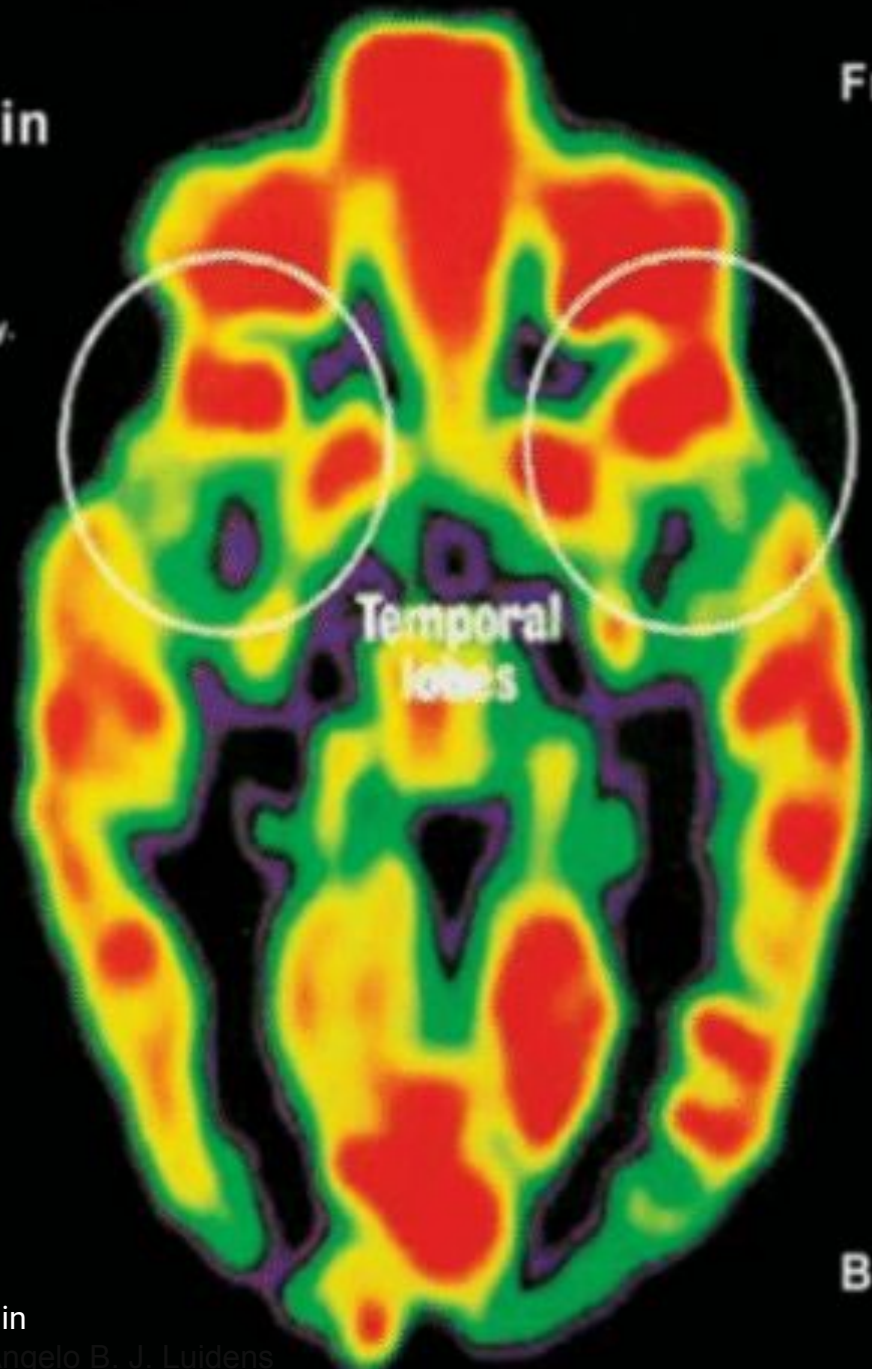
Excessive stress hormones impair the functioning of the prefrontal cortex, making it harder to think clearly, regulate emotions, and make decisions.

BODY SYSTEM CHANGES

- BRAIN WAVES
- BRAIN ARCHITECTURE
- NEURAL PATHWAYS
- NERVOUS SYSTEM

Healthy Brain

This PET scan of the brain of a normal child shows regions of high (red) and low (blue and black) activity. At birth, only primitive structures such as the brain stem (center) are fully functional; in regions like the temporal lobes (top), early childhood experiences wire the circuits.



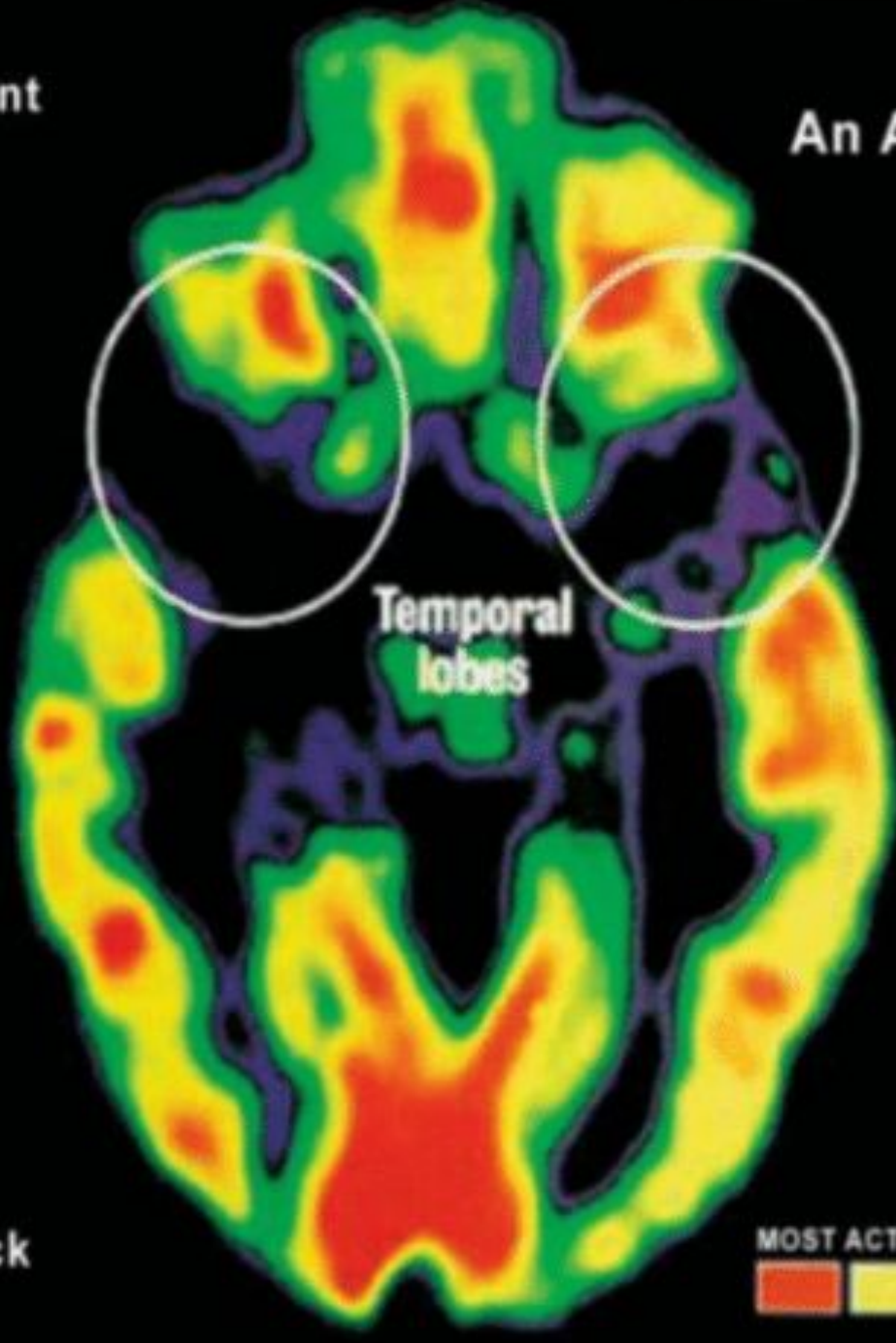
Front

Back

Temporal lobes

An Abused Brain

This PET scan of the brain of a Romanian Orphan, who was institutionalized shortly after birth, shows the effect of extreme deprivation in infancy. The temporal lobes (top), which regulate emotions and receive input from the senses, are nearly quiescent. Such children suffer emotional and cognitive problems.



Physical Impact of Trauma

BRAIN ARCHITECTURE- SHRINKAGE IN PREFRONTAL CORTEX AND HIPPOCAMPUS. ENLARGED AND MORE REACTIVE AMYGDALA.

NEURAL PATHWAYS- NEED TO “REWIRE” OUR BRAIN FROM THOUGHT PATTERNS AND HABITS OF MIND, CONSCIOUS, AND UNCONSCIOUS.

BRAIN WAVES- PREDOMINATION OF WRONG BRAIN WAVES IN WRONG PART OF THE BRAIN LEADS TO ANXIETY AND UNABLE TO CONCENTRATE.

NEUROTRANSMITTERS- VULNERABLE TO ADDICTION BECAUSE DOPAMINE TRANSMITTERS/RECEPTORS NOT DEVELOPED OR DAMAGED. REDUCES MOTIVATION & FOCUS, CREATES FATIGUE. LOW SEROTONIN CAUSES DEPRESSION

Brain injury can look like.....

Difficulty understanding directions

Appears to be slow or non-responsive to requests

Memory problems, especially recent information or events

Rapid mood swings with no apparent reason

Problems filling out forms

Problems making decisions or changing mind frequently

Responding too aggressively to others

Anxiety, depression and withdrawing from social interaction

Being sensitive to lights and sounds, other health problems

BODY SYSTEM CHANGES

- IMMUNE SYSTEM
- HORMONES
- TOXIC ELIMINATION
- CELLULAR CHANGE

Physical Impact of Trauma

HORMONES- PROLONGED HIGH CORTISOL AND GHRELIN CREATES GREATER REACTIVITY TO STRESS. LONG TERM DAMAGE TO CELLS, STRUCTURES OF THE BODY, AND OTHER HORMONE GLANDS (THYROID).

TOXIC ELIMINATION- INTESTINES AND KIDNEYS LESS ABLE TO ELIMINATE TOXINS (SLOW GUT OR UNBALANCED FLORA)

NERVOUS SYSTEM- SUPERCHARGED SYMPATHETIC NERVOUS SYSTEM. PARASYMPATHETIC NERVOUS SYSTEM NOT ENGAGED TO BRING BACK INTO BALANCE.

IMMUNE SYSTEM- RESISTANCE TO CORTISOL OR LOWER CORTISOL CREATES UNCHECKED INFLAMMATION. CAUSES OF MANY DISEASES: ASTHMA, ARTHRITIS, FIBROMYALGIA, ETC

Impacts of Trauma on the Immune System



Chronic Inflammation

Prolonged trauma can cause persistent inflammation, which weakens the immune system and increases the risk of autoimmune conditions and chronic diseases.

Weakened Immune Response

Trauma suppresses immune function, reducing the body's ability to fight off infections and heal wounds effectively.

Increased Susceptibility to Illness

Ongoing trauma increases the production of stress hormones like cortisol, which weakens the immune system and makes the body more prone to frequent colds, flu, and other illnesses.



Impacts of Trauma on the Immune System

Delayed Healing

Stress from trauma slows down the body's ability to heal wounds, recover from surgeries, or manage inflammation, impairing overall recovery.

Impaired Gut Health

Trauma can disrupt the gut-brain connection, leading to imbalances in gut bacteria (dysbiosis) that negatively affect immune function and increase susceptibility to gastrointestinal issues.

Impact of Trauma on Hormones



Cortisol – Chronic Stress Activation

Trauma causes persistently high cortisol levels, leading to issues like weight gain, sleep disturbances, and weakened immunity due to prolonged stress.

Adrenaline – Heightened Alertness

Trauma increases adrenaline production, resulting in constant feelings of being “on edge,” difficulty relaxing, and physical symptoms like rapid heart rate.

Estrogen and Progesterone – Hormonal Imbalance

Trauma can disrupt reproductive hormones, leading to irregular menstrual cycles, fertility issues, and worsened symptoms of PMS or menopause.



Impact of Trauma on Hormones

Insulin – Increased Risk of Diabetes

Chronic trauma-induced stress can lead to insulin resistance, increasing the risk of developing type 2 diabetes and metabolic issues.

Thyroid Hormones – Slowed Metabolism

Trauma can suppress thyroid function, slowing metabolism and leading to fatigue, weight gain, and difficulties with concentration.



Impact of Trauma on Toxic Elimination

Liver Function – Slowed Detoxification

Trauma-induced chronic stress can impair liver function, slowing down the body's ability to break down and eliminate toxins effectively.

Gut Health – Reduced Waste Elimination

Trauma disrupts gut function, leading to issues like constipation or irritable bowel syndrome (IBS), which hinders proper elimination of waste and toxins.

Kidney Function – Impaired Filtration

Stress hormones, such as cortisol, can reduce kidney efficiency, impairing their ability to filter and excrete toxins from the bloodstream.



Impact of Trauma on Toxic Elimination

Skin Health – Increased Toxic Buildup

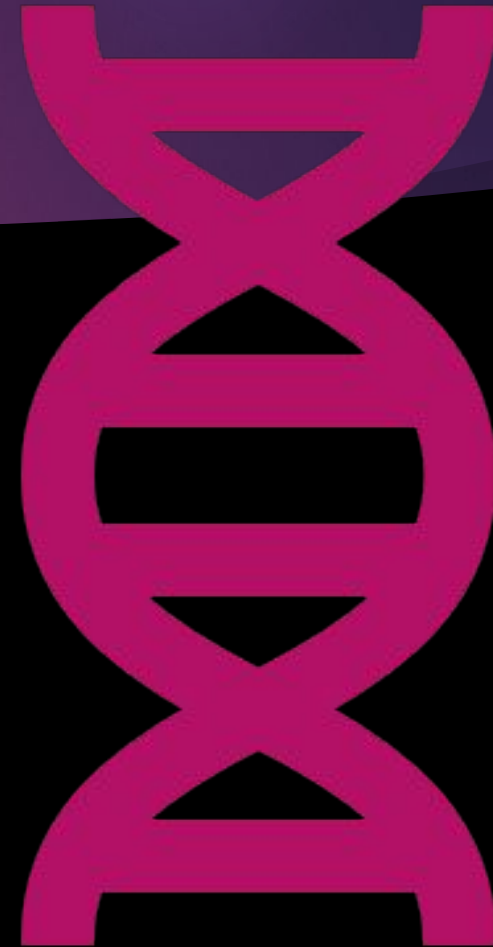
Trauma can manifest in skin issues like acne, eczema, or psoriasis, as the skin is another detox pathway that becomes overwhelmed by poor internal elimination.

Lymphatic System – Stagnation of Waste Removal

Trauma can affect the lymphatic system, leading to poor circulation and stagnation, which reduces the body's ability to clear out waste and toxins effectively.

Physical Impact of Trauma

- ▶ Cellular Change
 - ▶ Shortens telomeres which prematurely ages and reduces reproduction of cells and can cause cancer.
 - ▶ Epigenetics turns genes on or off in adaptations to dangerous environments.
 - ▶ Effects can last generations.





Now what about when anoxic
and/or traumatic brain injury
and/or strangulation are
added

Traumatic Brain Injury (TBI) or Concussion

- ▶ Blow, bump or jolt to the head and neck—or body that results in a jolt to the head
- ▶ Brain stretches, pulls, and shakes within the skull, damages tissue and structural and functional connection and prompts chemical changes in the brain
- ▶ Inflammation causes widespread damage
- ▶ Neurons cannot regrow-slowly form new connections
- ▶ Signs and symptoms don't always appear right away, and repetitive head trauma particularly damaging
- ▶ Sub-concussive hits have a significant impact

Strangulation

Significant safety and lethality risks

- ▶ Strangulation is not what most survivors call it-choking, put hands on neck, grabbed me, etc.
- ▶ Pressure applied to neck, terrifying and traumatic tactic of control
- ▶ One of **many** causes of restriction of oxygen and nutrients to brain □ hypoxic-anoxic brain injury
- ▶ Causes damage very fast with little pressure
- ▶ Altered consciousness + lack of visible injuries + frequency + no access to medical care + lack of screening/assessment anywhere = **minimization & brain injuries go undetected and unidentified**

Executive dysfunction

- Impacts service access
- Impacts ability to engage life saving processes

Head Injury impacts survivors' daily activities

And makes it difficult for survivors to take care of themselves & those they care about



Sleep



Securing Housing



Maintaining relationships



Managing physical & mental health



Participating in services



Managing legal systems



Self care



Finding & keeping jobs



Caretaking



Safety planning



Education

Brain Injury Changes How Survivors

Think, Feel & Act



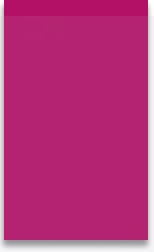
**Thinking/
Cognitive**



Physical



Emotional



“Trauma victims cannot recover until they become familiar with and befriend the sensations in their bodies. Being frightened means that you live in a body that is always on guard. **Angry people live in angry bodies.** The bodies of child-abuse victims are tense and defensive until they find a way to relax and feel safe. In order to change, people need to become aware of their sensations and the way that their bodies interact with the world around them. Physical self-awareness is the first step in releasing the tyranny of the past.”

— **Bessel A. van der Kolk**

THE BODY KEEPS THE SCORE

BRAIN, MIND, AND BODY
IN THE HEALING OF TRAUMA



BESSEL VAN DER KOLK, MD

"The Body Keeps the Score"

by Bessel van der Kolk

- **Key Insight:** Trauma is stored in the body and can resurface long after the initial event.
- **Illustration:** Trauma's effects are not just psychological but manifest physically and emotionally over time.

In the Next Slides:

- **Personal Experience:** How my body was affected by re-exposure to trauma several years after initial healing.

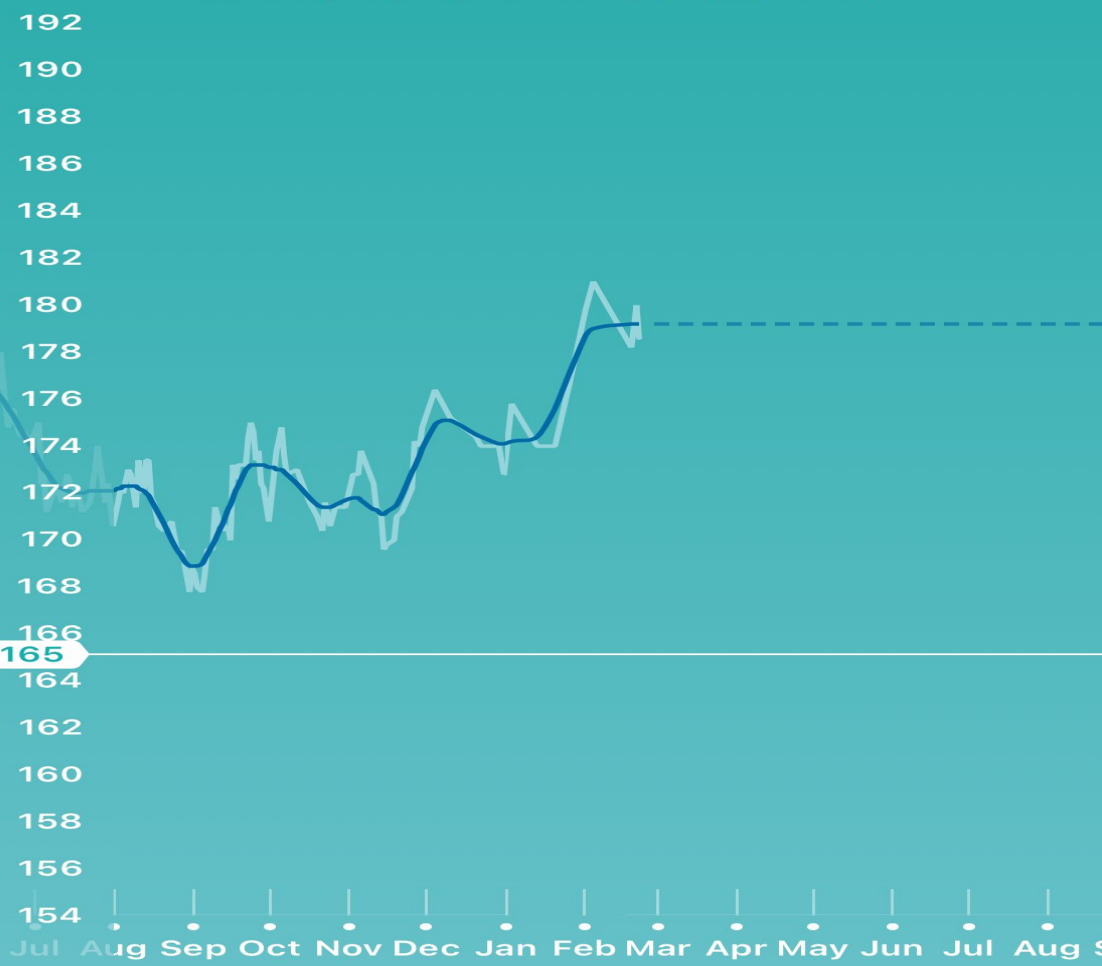


1 wk 1 mo 3 mo 1 yr All

177.5 lbs avg

Jan 1 – Dec 31, 2024

Weight (lbs) Your Weight Trend



4:38



< Back

Heart Rate



Resting Heart Rate Past 30 Days

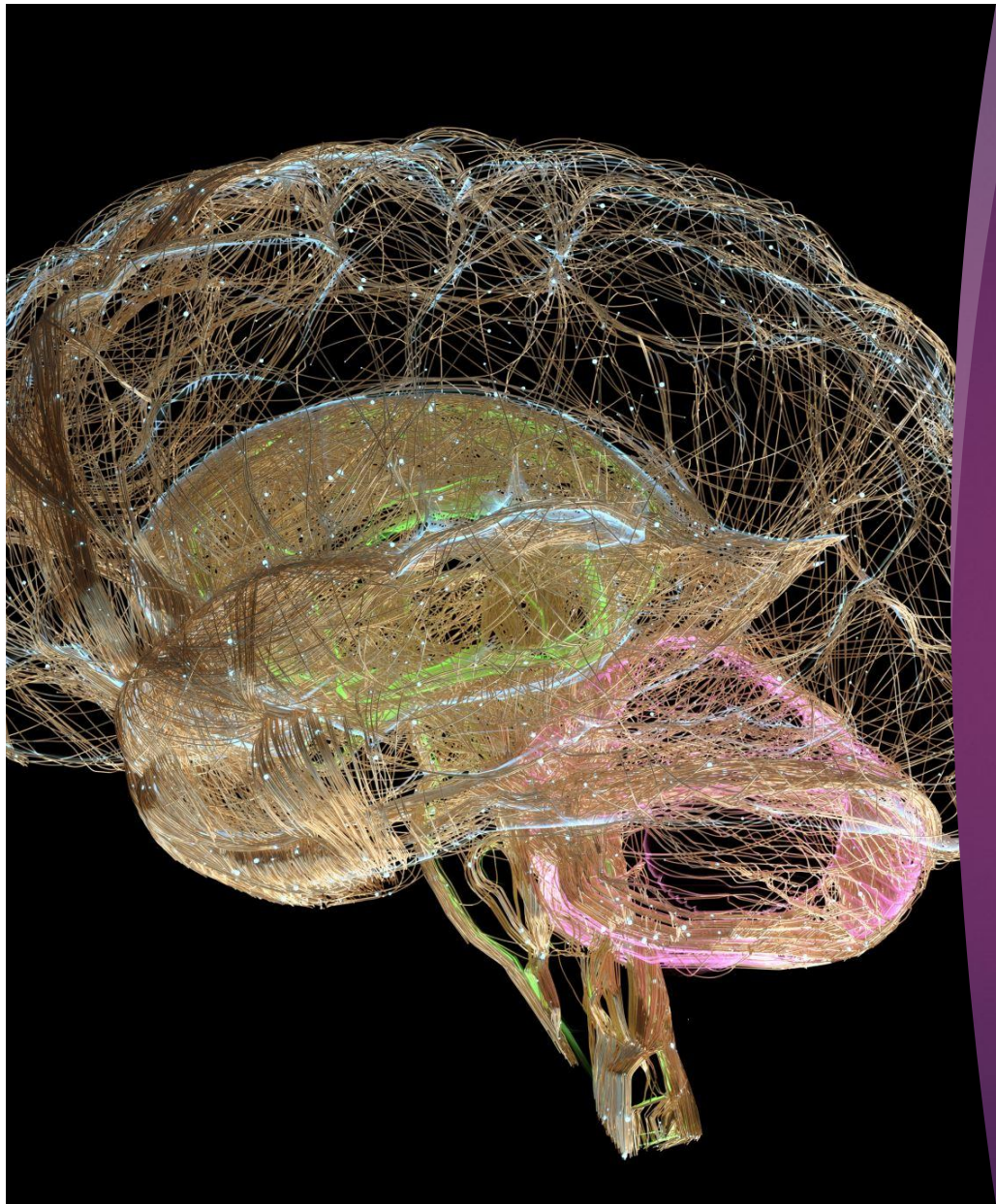


Presentation Summary:

- **Trauma's Wide-Reaching Impact:** We've explored how trauma affects various body systems and the interconnectedness of mental and physical health.
- **Holistic Understanding:** Recognizing trauma's comprehensive effects can enhance our approach to supporting survivors.

Call to Action:

- **Integrate Holistic Practices:** Incorporate trauma-informed care into your practice, addressing both psychological and physiological impacts.
- **Educate and Advocate:** Share knowledge about the effects of trauma with colleagues and advocate for systemic changes that consider the whole person.
- **Collaborate and Support:** Work together with other professionals to create a more unified and supportive approach for survivors.
- **Self-Care for Providers:** Ensure you also engage in self-care and support to sustain your ability to provide compassionate care.



Our brains are wired for connection, but trauma rewires them for protection. That's why healthy relationships are difficult for wounded people.
– Ryan North

SOMETHING TO REMEMBER...





Questions?



FOR MORE
INFORMATION OR
TO CONTACT
PAULA, SCAN
HERE.

thecourageoussurvivor.com

Rachel Ramirez, LISW-S

Director of Health and Disability
Programs

Founder of The Center on
Partner-Inflicted Brain Injury

rachelr@odvn.org

