

The Neuroscientific Connection between Trauma & Indigenous Healing

Dr. Jennifer Mervyn, R.Psych.



1

Territory Acknowledgement



2



Warning!

The content from this presentation can bring up painful feelings. Talking about trauma stirs up trauma both primary and secondary. Please do what you need to do to take care of yourself.

Please hear about HOPE!!!!

If you want extra support- please ask!

3



4



5



6

Trauma is not Unique to Indigenous Communities...

New research in the USA (2018) found 75% of children have experienced at least one ACE...



With COVID- those numbers are probably even higher now

7

Toxic Stress & COVID-19



Increases in: Domestic violence
Mental Health Issues
Suicide
Substance Misuse
Isolation

8

Toxic Stress= Trauma

- POSITIVE** Brief increases in heart rate, mild elevations in stress hormone levels.
- TOLERABLE** Serious, temporary stress responses, buffered by supportive relationships.
- TOXIC** Prolonged activation of stress response systems in the absence of protective relationships.

9

Trauma Defined

Trauma is defined by:

1. The individual sensory system NOT a discrete event itself
2. Long term impact mentally, physically, emotionally and/or spiritually

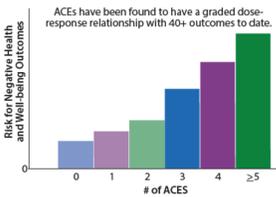
(SAMSHA)



10

ACEs can have lasting effects on...

- Health** (obesity, diabetes, depression, suicide attempts, STDs, heart disease, cancer, stroke, COPD, broken bones)
- Behaviors** (smoking, alcoholism, drug use)
- Life Potential** (graduation rates, academic achievement, lost time from work)



ACEs have been found to have a graded dose-response relationship with 40+ outcomes to date.

*This pattern holds for the 40+ outcomes, but the exact risk values vary depending on the outcome.

The researchers found that people with **six or more ACEs** died nearly **20 years** earlier on average than those without ACEs — **60.6 years** versus **79.1 years**

11

Mindy Body Connection Explained

"The mind and the body are like parallel universes. Anything that happens in the mental universe must leave tracks in the physical one."

Deepak Chopra




12

The Connection Between Childhood Trauma & Addiction

Most people who struggle with addiction have experienced trauma

When you shut down emotion, you're also affecting your immune system, your nervous system. So the **repression of emotion**, which is a survival strategy, then becomes a source of **physiological illness** later on. - Gabor Maté

An ACE score of 4
Increases risk of suicidality by 1200%
likelihood of alcoholism by 700%

13

<https://www.youtube.com/watch?v=BVg2bfqblGI>
<https://www.youtube.com/watch?v=BVg2bfqblGI>

14

Don't Compare Trauma:

Validate feelings/concerns

Even if the situation doesn't seem that bad to you, it's how the youth feels that matters

- Try not to judge – it's how the youth feels about the stress is what matters most
- "It may not even be just one event, but the culmination of chronic stress—i.e. poverty

15

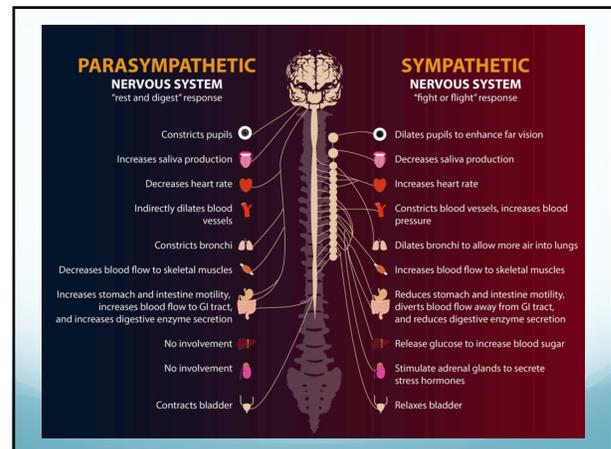
HOW MUCH COULD HEALTH CONDITIONS BE REDUCE BY IF CHILDHOOD TRAUMA WAS PREVENTED?

Depressive Disorder	44%
Alcohol Use Disorder	27%
Anxiety Disorder	24%
Major Depressive	16%
Stroke	15%
Alcohol Abuse	13%
Heart	10%
Diabetes	4%
Obesity	2%

16



17



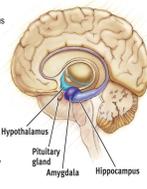
18

Toxic Stress Change the Size and Shape of our Brain

When SNS is activated- Alerts the hypothalamus
Which alerts the pituitary gland
PG tells the adrenal gland (above kidney) to make stress chemicals
Stress hormones travel via the bloodstream
This affects entire body
Amygdala inflames (^ intensity of emotions (sadness, fear, and anger)
Blocks hippocampus from consolidating memory
Prolonged increases of stress chemicals cause hippocampus to shrink and the amygdala enlarges

The Limbic System

- Hypothalamus, pituitary, amygdala, and hippocampus all deal with basic drives, emotions, and memory
- Hippocampus → Memory processing
- Amygdala → Aggression (fight) and fear (flight)
- Hypothalamus → Hunger, thirst, body temperature, pleasure; regulates pituitary gland (hormones)



19

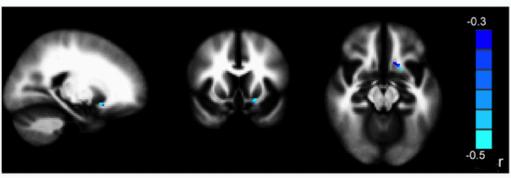
Toxic Stress Change the Size & Shape of our Brain



SHRINKS the hippocampus!!
(responsible for processing emotion and memory and managing stress- and spatial memory enabling navigation)

20

Toxic Stress Change the Size & Shape of our Brain

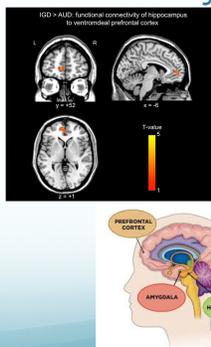


Parts of the cortex (the gray area on the outside that does most of your thinking) are also affected, including the VMPF (ventral medial prefrontal cortex), which controls emotions by calming the amygdala
Other areas in our cortex (that help us speak and think coherently) also can decrease in size

21

Toxic Stress Weaken Neural Connections- Brain Connectivity

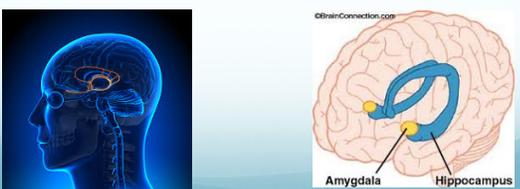
- weakens connections bw prefrontal cortex and the hippocampus
- weaker connections bw prefrontal cortex and the amygdala (girls)
- The prefrontal-cortex-amygdala connection
- plays essential role in determining how emotionally reactive/ how likely we are to perceive these events as stressful or dangerous



22

Amygdala

Perceives emotions such as anger, fear, and sadness, & controls aggression
Helps store memories of events and emotions so that we can recognize similar events in the future
Can enlarge with toxic stress exposure

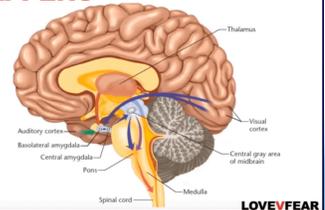


23

ACEs Affect the Way We Process Information

HOW AMYGDALA HIJACKING HAPPENS

- The stimuli goes directly to thalamus and it then goes right to amygdala before a signal reaches the neocortex to process.
- This survival mechanism lets us react to things before the rational brain has time to mull things over.



24

Adaptive vs Disruptive



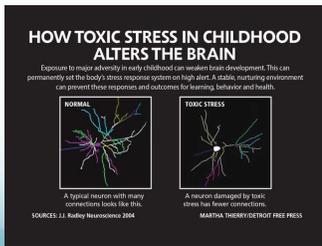
25

Kids don't go from 0-100 – they're already revving high



26

What's the antidote to weakened neural connections and impacted brain structures????



27

The Answer is Connection



Caring Connected Relationships: single-most protective factor



28

Disengage the stress response & activate Resilience

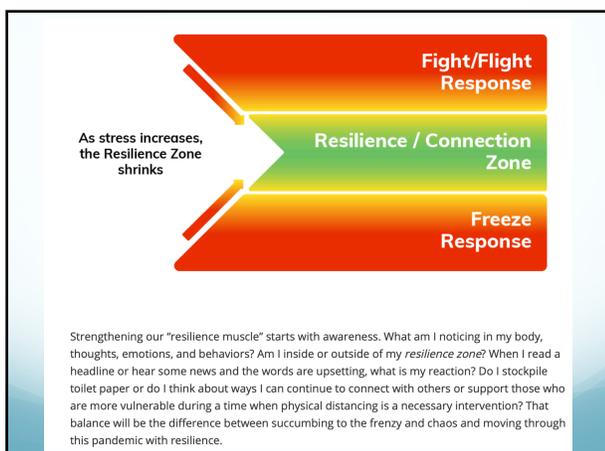


29

Re-calibrating set points



30



Fight/Flight Response

Resilience / Connection Zone

Freeze Response

As stress increases, the Resilience Zone shrinks

Strengthening our "resilience muscle" starts with awareness. What am I noticing in my body, thoughts, emotions, and behaviors? Am I inside or outside of my resilience zone? When I read a headline or hear some news and the words are upsetting, what is my reaction? Do I stockpile toilet paper or do I think about ways I can continue to connect with others or support those who are more vulnerable during a time when physical distancing is a necessary intervention? That balance will be the difference between succumbing to the frenzy and chaos and moving through this pandemic with resilience.

31

Ancient Indigenous wisdom has always had the key to healing



- Caring, connected relationships
- Connection to nature/the land
- Traditional plants, medicines & healers
- Ceremony
- Rythmic healing practices (drumming, dancing, chanting, singing)

32

What traditions/healing practices/rituals/ceremonies would you say could be considered rythmic healing for the brain?



33

Cultural & Religious Ceremonies/Practices/Rituals

- Drumming
- Dancing
- Prayer
- Meditation
- Connecting with nature




34

Ancient Indigenous wisdom has always had the key to healing



- Caring, connected relationships
- Connection to nature/the land
- Traditional plants, medicines & healers
- Ceremony
- Rythmic healing practices (drumming, dancing, chanting, singing)

35

What traditions/healing practices/rituals/ceremonies would you say could be considered rythmic healing for the brain?



36

Cultural & Religious Ceremonies/Practices/Rituals

- Drumming
- Dancing
- Prayer
- Meditation
- Connecting with nature



37



38

Authentic Identity



Possessing a strong cultural identity has been shown to protect against mental health symptoms and buffer distress

39

Neuroplasticity

- Our brains have the most amazing propensity to heal and want to heal!!

“ NEUROPLASTICITY PROVIDES US WITH A BRAIN THAT CAN ADAPT NOT ONLY TO CHANGES INFLICTED BY DAMAGE, BUT ALLOWS ADAPTATION TO ANY AND ALL EXPERIENCES AND CHANGES WE MAY ENCOUNTER...”



40

Tipping the Balance



41

Activating Resiliency

1. Caring Connectedness
- +
 2. Opportunities to Contribute
 - =
 3. Changing Expectations Of Oneself in the World



42



43