

#### 23<sup>rd</sup> Annual RGANM Conference AUGUST 8, 2019



Frank J. Kros, MSW, JD Transformation Education Institute

© 2007 Transformation Education Institute

## **Important Notice!**

## I am not a problem gambling expert...





## **Baltimore, Maryland, USA**



## **The Children's Guild**

- 6 Schools
- 2 are Non-Public
- 4 Charter (Reg-Ed)
- 3 Group Homes
- Therapeutic Foster Care
- Family Help Center (OMHC)
- 2 Autism Centers











## **Today's Itinerary**

- 1. Childhood Trauma: The Adverse Childhood Experiences Study (ACES)
- 2. How ACES Change the Architecture of Young Brains and Susceptibility to Gambling Addiction in Adulthood











# How is your brain this afternoon?





## **Brain Speed Test**

























## What Do Cows Drink?





## **An Important Brain Rule...**

Associations in the brain are real, physical brain structures.

It is much more difficult for our brains to <u>unlearn</u> something than to learn something new. Changing repetitive behavior takes time and enormous consistency.





## **Today's Agenda**

 Childhood Trauma: The Adverse Childhood Experiences Study (ACES)







#### Building Self-Healing Communities





#### Understanding

N. E. A. R.

Neuroscience Epigenetics Adverse Childhood Experiences Resilience



#### **UNDERSTANDING** Adverse Childhood Experiences

Building Self-Healing Communities







#### 01/12/14

#### NEWS

#### Early Adversity Increases Physical, Mental, Behavioral Problems, Scientists Report



Dr. Robert Anda & Dr. Vincent Felitti Investigators Centers for Disease Control & Prevention, Kaiser Permanente Study

Over 17,000 study participants

The ACE Study confirms, with scientific evidence, that adversity early in life increases physical, mental and behavioral problems later in life.



#### HUMAN NERVOUS SYSTEM





#### SYNAPTIC DENSITY



At Birth

Elementary Age

Puberty







What kind of situations might be a good match for a person who tends to be edgy, hypervigilant, emotionally detached, or quick to act?





## ADAPTATIONS VS EXPECTATIONS

WHEN BIOLOGY COLLICS WITH SOCIAL EXPECTATIONS WE TUN INTO TROUBLE





# EXPERIENCE & ADAPTATION sensitive periods **Cause-Effect**







## have a collective CHOICE











#### FINDING MORE CONNECTIONS

how multiple forms of childhood adversity can affect many important PUBLIC HEALTH PROBLEMS



#### Adverse Childhood Experiences ARE COMMON

Household Dysfur	nction	Neglect		Abuse	
Substance Abuse	27%	Emotional	15%	Emotional	11%
Parental Sep/Divorc	e 23%	Physical	10%	Physical	28%
Mental Illness	17%			Sexual	21%
Battered Mothers	13%				
Criminal Behavior	6%				
5		2		 3	
		TOTAL 10	ACEs		



#### ACE Score = Number of ACE Categories



ACE Scores Reliably Predict Challenges During the Life Course



#### ACE Score and Health Problems





#### ACEs, Smoking and Lung Disease







#### Anxiety Depression Difficulty Concentrating

SMOKING



#### ACEs & Alcoholism & Marrying an Alcoholic





#### ACEs & Depression





#### EXAMPLES OF ACE-ATTRIBUTABLE PROBLEMS

Alcoholism & Alcohol Abuse

Chronic Obstructive Pulmonary Disease

Coronary Heart Disease

Depression

Drug Abuse & Illicit Drug Use

Fetal Death

**Intimate Partner Violence** 

Liver Disease

Mental Health Problems

Obesity

Sexual Behavior Problems

Smoking

Unintended Pregnancy

Violence

Workplace Problems



#### ACEs are Common, Interrelated, Powerful



High ACE Scores in Population



Increased Risk of Multiple Health and Social Problems



Intergenerational Transmission of ACEs



#### Population Attributable Risk





## **Today's Agenda**

2. How ACES Change the Architecture of Young Brains and Susceptibility to Gambling Addiction in Adulthood





- <u>Cortisol</u> "UH-OH"
- <u>Adrenaline</u> "YIKES!"

VS.

- <u>Serotonin</u> "AHH.."
- <u>Dopamine</u> "YAHOO!"

# These pairs do not play well together...



## **Basic Brain Chemistry**







## Chronic Stress Changes the Brain.





## What is Stress?



Stress is a physiological response to a perception of a lack of control over an aversive situation, person or event.



3 Stages of the Stress Response (Amygdala Driven)

#### Amygdala compels you to:

- 1. Solve the problem causing threat.
- 2. Escape from the problem.
- 3. Cope with the problem.
- 4. Defend yourself the best you can.
- 5. At any cost, survive.



## Let's Meet the Amygdala





3 Stages of the Stress Response (Amygdala Driven)

#### Amygdala compels you to:

- 1. Solve the problem causing threat.
- 2. Escape from the problem.
- 3. Cope with the problem.
- 4. Defend yourself the best you can.
- 5. At any cost, survive.



## **The Paradox of Cortisol**

#### Too Little

 Weak memory formation (encoding)

#### Too Much

- Strong encoding for emotion
- Weak encoding for detail
- Poor recall
- In extreme, cell death

#### Just Right

- Moderate cortisol improves the formation of detailed memory for facts and events
- Low cortisol promotes efficient and effective recall





## **Too Much Cortisol!**

Excess cortisol kills cells in the hippocampus, the brain's memory maker. Excess cortisol also shrinks the corpus callosum and the frontal lobes.





## **Effects of Too Much Cortisol**

- Brain Damage
- Poor Social Skills
- Low Verbal Skills
- Memory
  Impairment

- Aggression
- Impulsiveness
- Anxiety
- Dissociation





## **Results of Traumatic Stress**

#### Emotional Problems

(Burgess et al., 1995)

#### Lowers IQ, Reading Scores

(Delaney-Black, et al. 2002)

#### Memory Loss

(Lupien, et al. 2001)

• Shortens Dendrites (De Bellis, et al., 20(Cook and Wellman, 2004), (Brown, et al. 2005)

#### Neuron Death 01)

Inappropriate Attachments

(Schore, A. 2002)



## The Stress Response on the Brain

<u>Hippocampus</u>	<u>Amygdala</u>	<b>Frontal Cortex</b>
Memory Center	Center of Uncertainty	Executive System
Most Stress	Emotional Regulation	Planning, Judgment,
Hormone Receptors		Problem Solving, Impulse Control
<b>Decreased Function</b>	More Anxiety	Reorganizes Neuronal
Less Communication	"Faster" Fear	Connections
Between Neurons	More Excitatory	Poor Decision Making
Lower Neurogenesis	Neurons	"Fuzzy" Thinking
Dead Neurons	Depletion of Dopamine	





- Stress is designed to be compelling, uncomfortable and of short duration.
- As stress intensifies and/or endures, the drive for homeostasis ("yellow box") activity is very powerful.
- If an individual cannot immediately solve the problem causing the perceived threat, the brain urges
   escape.







#### **Example: Anxiety and Depression**

- Anxiety = Elevated Cortisol
- Depression = Decreased Serotonin





### **Responding to Anxiety and Depression**

- Anxiety = Decrease Cortisol
- Depression = Elevate Serotonin





The "Drive to Balance" may be unconscious, feel like a compulsion and lead to compulsive behavior. That's because your brain eventually Myelinates (habituates) your response.



## Let's Connect!

- The drive for homeostasis is achieved if enough dopamine and/or serotonin can be produced.
- **Escape** = activity that produces dopamine and/or serotonin in significant quantities to "flush" cortisol and adrenaline.



## What are Your ESCAPE Activities?





## <u>What are the ESCAPE Activities</u> <u>for a Problem Gambler?</u>





## **Consolidating Our Knowledge**

- Some of your clients likely experienced trauma in childhood.
- These traumatic experiences orient the brain to respond powerfully to stress.
- Escape activities like gambling relieve the impact of stress.
- Gambling may be a significant stress reliever for these clients and may be addictive.



## **Consolidating Our Knowledge**

- Unidentified, untreated childhood trauma persists into adulthood.
- Childhood trauma may be the underlying cause of the client's symptoms.
- Screening and treating the underlying trauma may be clinically indicated in addition to addressing the gambling addiction.



## Thanks for inviting me!



#### kros@upsidedownorganization.org 443-277-6036 Twitter @FKros

