

# Emotion-Based Media Literacy Education as Prevention Tool for Youth Problem Gambling

By Alison Wood, MSW, MPA

This session will explore how youth prevention education focusing on emotion-based media literacy by decoding media messages and persuasive design and gaining mental health literacy through the lens of neurobiology has been shown to be effective in preventing problem gambling and other addictive behaviors and substances.

\*Participants will also receive complimentary access to an evidence-informed lesson on media literacy in gaming and gambling.

## Learning Objectives

- Recall insecure attachment and emotional dysregulation as risk factors for youth problem gambling
- Understand how emotion-based media literacy prevention education can impact decision-making

# ABC's of Media Literacy

## Group Activity



## ABC's Product Answers

All

Bubblicious

Campbell's

Downey

Eggo

Fritos

Gatorade

Hebrew National

hot dogs

Icee

Jello

Kool Aid

Lysol

M&Ms

Nabisco

Oreos

Pez

Q-Tips

Reese's Pieces

Starburst

Tide

Uncle Ben's rice V-  
8

Wisk

Ajax

York

Mints

Zest

# Why Media Literacy?



# Why Media Literacy?

Critically analyze and determine accuracy and be responsible when participating or producing media.

Importance of understanding how social structures such as media shape, thoughts, feelings, and behaviors.

Evidence-based in counteracting violence, alcohol and tobacco, body image issues, eating disorders, and commercialism.



# Youth Gambling Facts and Statistics



## Early Engagement

Research shows gambling begins early (earlier than drugs or alcohol)

## Problem Gambling Rates

2-8% of adolescents meet criteria for gambling-related problems, significantly higher than adults

## Gambling Rates

International research indicates that 60-80% of youth gamble each year

## Online Gambling

The prevalence of online gambling among youth is increasing

# What is the Difference Between Skill and Chance?

## Games of Skill



Competition



Strategy



Skill

## Games of Chance



House Edge



Simple



Diminishing  
Returns

# What is Gamification?



Game design elements such as leaderboards, challenges, and rewards

Example: Fitness apps encourage user engagement

Gamification taps into human motivations such as achievement, competition, and social connection

Normalization of game-like behaviors in everyday contexts

# What are Gambling Mechanics?



Gambling mechanics are persuasive design features that involve the psychological appeal of randomness

Random rewards, near-misses, and reinforcement loops

Encourages addiction by stimulating brain's reward system

Normalization of gambling for youth, blurring the lines between gaming and gambling

# Intersection of Gamification and Gambling

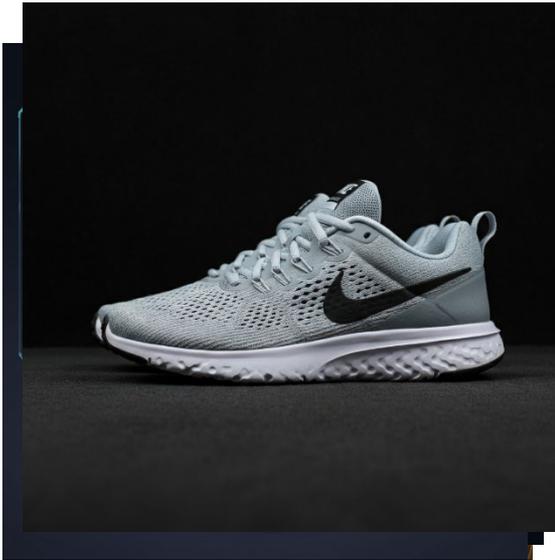


Both gamification and gambling mechanics or persuasive design use random rewards to maintain engagement

Emotional triggers like near-misses blur the line between gaming and gambling

Loot boxes in video games mimic slot machine mechanics, using random outcomes to keep players hooked

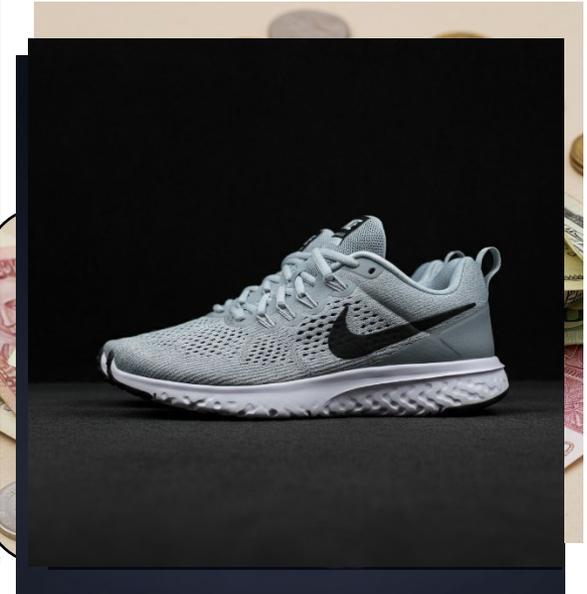
Skins betting involves wagering virtual items on real-world value on gambling platforms, merging gaming with gambling



Consideration



Chance



Prize

**What is Gambling?**

# Behavior Design



## Behavior Design

Interdisciplinary field that combines insights from psychology, design, and technology to intentionally influence and shape human behavior through thoughtful design of products, services systems, and experiences.

## Core Principles

- Behavior Triggers
  - Prompts, Triggers
- Motivation Enhancement
  - Desired choices more rewarding
- Habit Formation
  - Automatic behaviors
- Feedback loops
  - Progress and outcomes
- Choice Architecture
  - Structuring options to influence decisions

# Incentive Based Promotions that Nudge Gambling Behaviors



Cash back offers



Bonus bets



Sign-up Bonuses



Tap out promotions

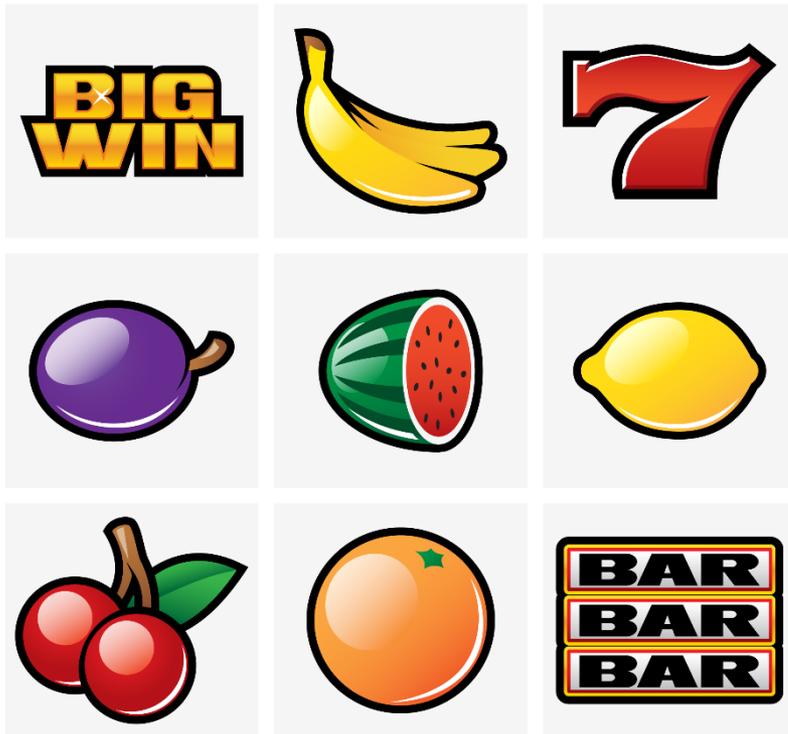
“Incentives are like dangling carrots that hook you into opening multiple online betting accounts.”

“Inducements stimulated some participants to continue gambling and to gamble when they otherwise would not have gambled.”

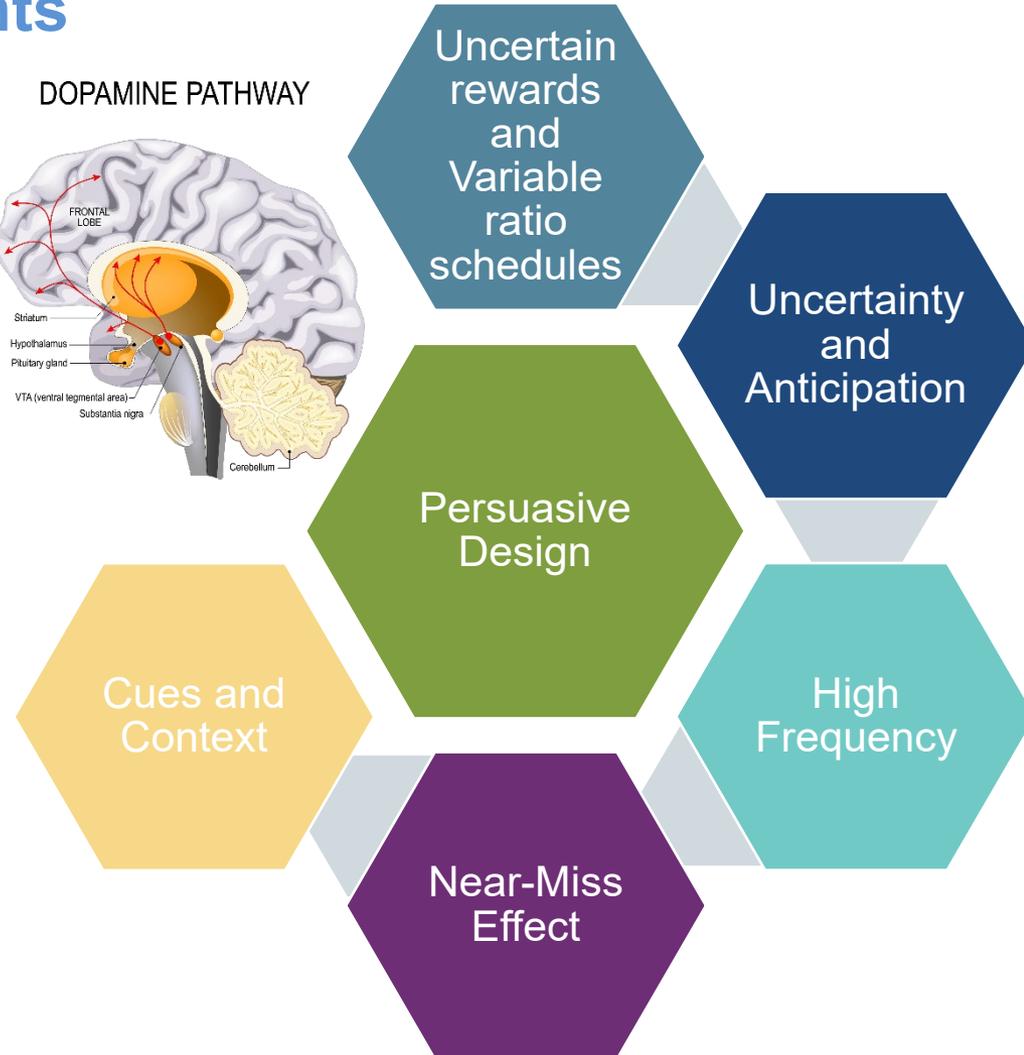
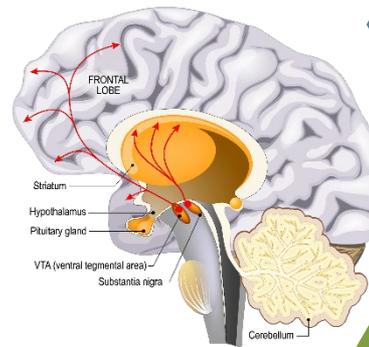
“Some incentives gave participants the feeling that they were more in control of their gambling.”

“Media messages have been found to foster cognitive distortions in gambling. Coupled with new technologies and aggressive promotions and incentives, these messages can inhibit a person’s ability to control their gambling behavior.” (Phua, 2022)

# Persuasive Design Elements



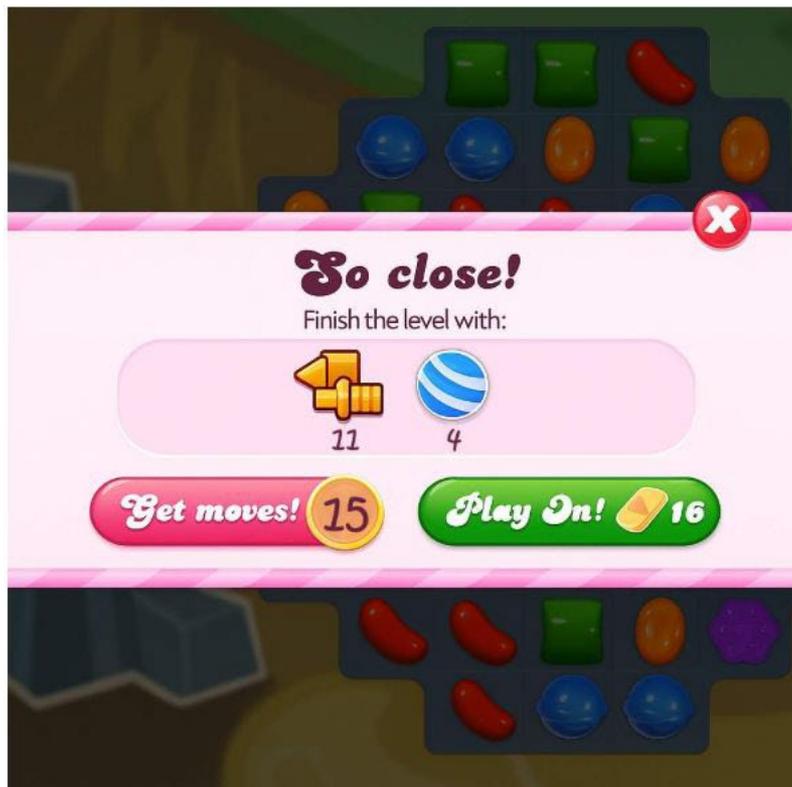
DOPAMINE PATHWAY



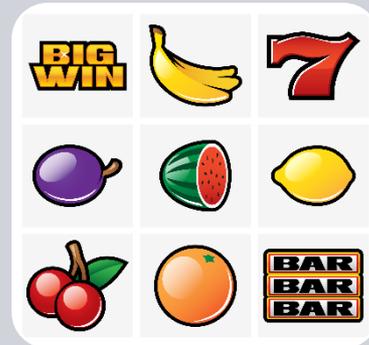
Source: Dr. Mike Robinson

# Candy Crush Saga

- In 2023, Candy Crush had a contest that involved potential prizes to players who took screenshots of their near-miss.



# Impact on Youth



Unpredictable rewards that are random and the anticipation of the reward triggers dopamine encouraging action

These mechanics can foster gambling-like behaviors, particularly in youth, who are more susceptible to persuasive design

Financial consequences can occur leading to financial strain and even lying and stealing

The habit formation can become problematic, harmful, or an addiction, impacting overall health and wellbeing

# Why Focus on Emotion-Based Media Literacy in Gambling?



Over the past 22 years, 96% of studies focusing on problem gambling showed significant association between emotional regulation, coping strategies and adult problem gambling severity.

Recent research indicates that **emotion regulation** may serve as the foundation to the development of cognitive distortions, while also directly influencing problem gambling.

# Emotion-Based Media Literacy

- Cognitive distortions and emotional dysregulation contribute significantly to problematic gambling among adolescents.
- Cognitive distortions result in individuals overestimating personal skills and probabilities of winning and lead to further attempts to recoup losses through continued gambling.

## Superstitious Beliefs



## Illusion of Control



Source: Ciccarelli, 2021; Nigro, 2021; PHUA, 2022; Neophytou, 2023; Flock, 2022; Liese, 2020

# Research-Based Informed Approach



To overcome cognitive distortions and gain strides in debunking cognitive distortions recent research has indicated that students who have emotional awareness and emotional recognition skills are more able to recognize emotional states, and able to identify when they are reading misinformation.

## What is Brain Health

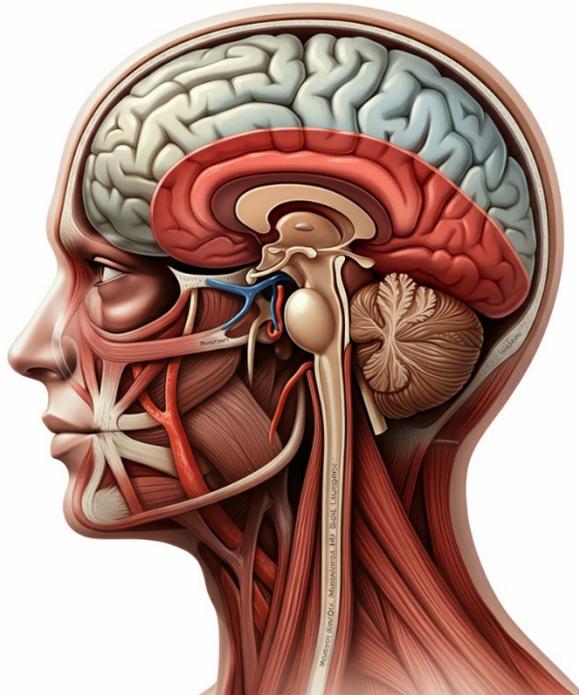
- Brain health refers to a state where all areas of the brain are functioning to help support your ability to move your body, think clearly, label and understand emotions, process sensations in the body, and manage challenges and stressors.
- An integrated brain has strong connections between important areas of the brain that support you in experiencing sensations, emotions, and thoughts while also being able to connect with those around you and deal with stress in healthy ways.



# Brain Development

## The limbic system (red)

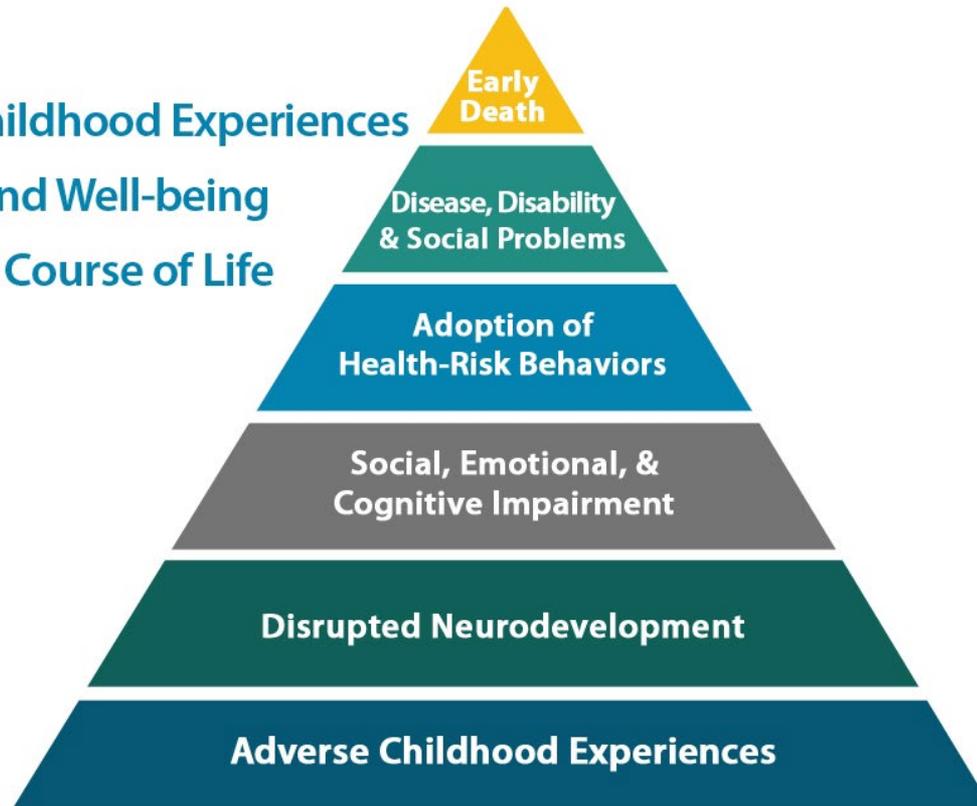
- By adolescence, the limbic system, which is responsible for emotions, rewards, and motivation, is already well-developed. In contrast, the prefrontal cortex, which is involved in decision-making, impulse control, and long-term planning, continues to develop well into early adulthood.



“The brain is exceptionally receptive to environmental stimuli and experiences, making them crucial for optimal development. This is particularly true of critical periods in adolescent development.”

# ADVERSE CHILDHOOD EXPERIENCES – ACES

How Adverse Childhood Experiences  
Impact Health and Well-being  
Throughout the Course of Life



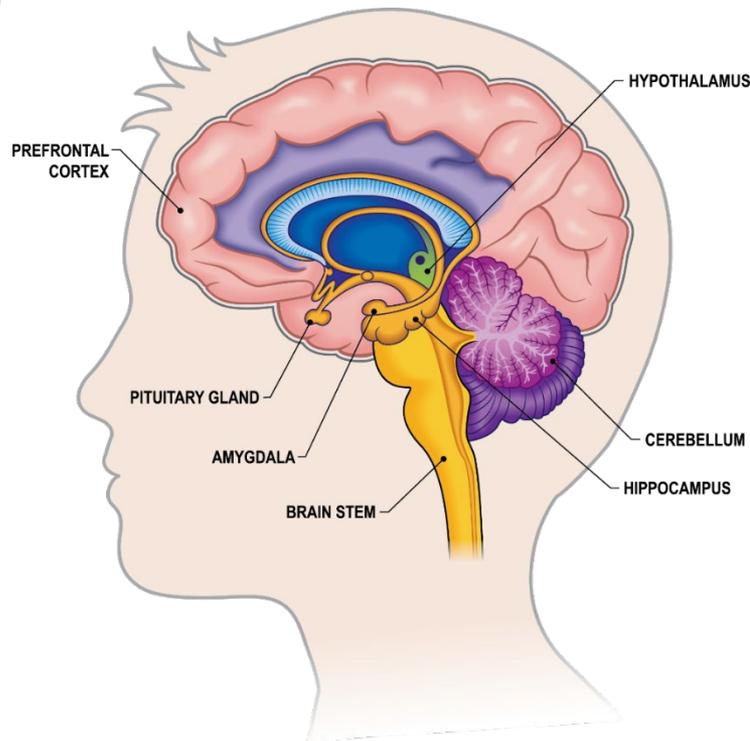
What happens to kids during childhood shapes who they become as adults

# Areas of Concern: Adolescent Problem Gambling

- Adolescent Problem Gambling and Co-Occurring Needs
  - Living with someone with mental health issues, a drinking problem, or who has been incarcerated
  - Increased domestic violence and abuse
  - Increased suicide ideation
  - Increased reported suicide attempts
  - Increased cigarette smoking, marijuana use, alcohol use, binge drinking, stimulant use and MDMA (Derevensky, 2021)
- Other concerns
  - Anxiety, Depression, Parental Problems, Learning problems, Conduct Disorder, Peer problems, Problem Gaming, and Other Mental Health Concerns (Derevensky, 2021)

# Areas of Brain Impacted by Addiction

- **PFC, Amygdala, and Insula** are also impacted by trauma, Depression, and Anxiety



## Prefrontal Cortex (PFC)

- Decrease activity involving thinking clearly and emotional regulation

## Amygdala

- Increase in reactivity to addiction cues

## Insula

- Decrease in activation in experiencing internal sensations

## Nucleus Accumbens

- Increase in response to substance or behavior and decrease of dopamine in response to other stimuli

## Neuroplasticity Man



“The most intensive time for brain development is between the ages of 0-3. Attachment and social bonding are created during this time. This is critical for emotional regulation skills.”



Gabor Maté – Authenticity vs. Attachment



Watch later Share

# CRAZYWISE

## CONVERSATIONS



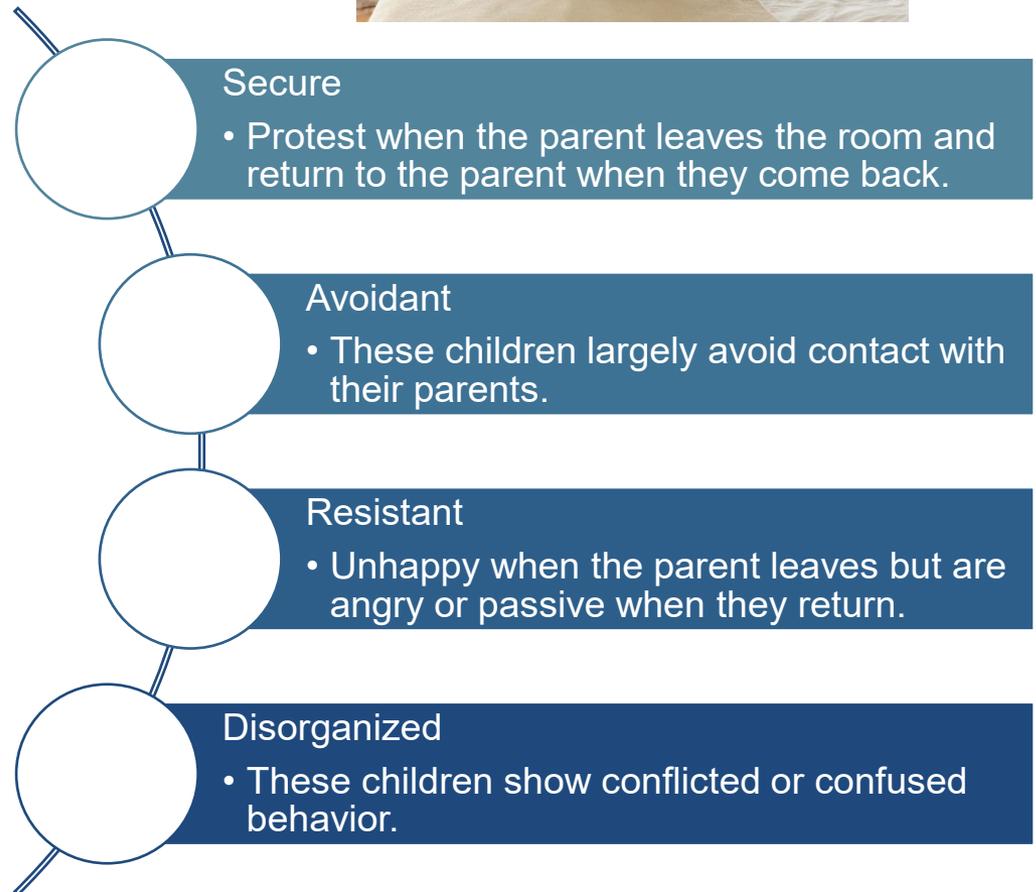
Gabor Maté  
Authenticity vs. Attachment

0:00 / 4:19

YouTube

# Insecure Attachment

- Researchers concluded that a secure attachment between children and parents is more likely to develop if children and parents have lower levels of stress.
- Researchers analyzed data from 285 studies from 21 countries over 50 years with over 20,000 infant-parent dyads that used the Strange Situation Tests (SSP).
- Results revealed that the global distribution of SSP attachment was **51.6%** secure, **14.7%** avoidant, **10.2%** resistant, and **23.5%** disorganized.



# Why are we talking about emotional regulation today?



- ADHD
- Depression
- Anxiety
- Insecure parent attachment

- ADHD
- ASD
- Depression
- Anxiety
- Insecure parent attachment

- ADHD
- ASD
- Depression
- Anxiety
- Insecure parent attachment



## What are the three levels of Stress?

Positive stress can be thought of as challenging situations like developing a new skill.



Tolerable stress that is short-lived, due to events like a test or competition can temporarily enhance memory and learning



Toxic stress can restructure or shut off areas of the brain. The amygdala becomes hyperactive.



# Supportive Adult Relationships and Toxic Stress



## Emotional Co-Regulation

- Supportive Adults



## Stress Buffering Effects

- Security
- Cortisol Reduction
- Oxytocin Release



## Cognitive Reframing

- Reframing stressful situations
- Perspective, hope, and problem-solving assistance

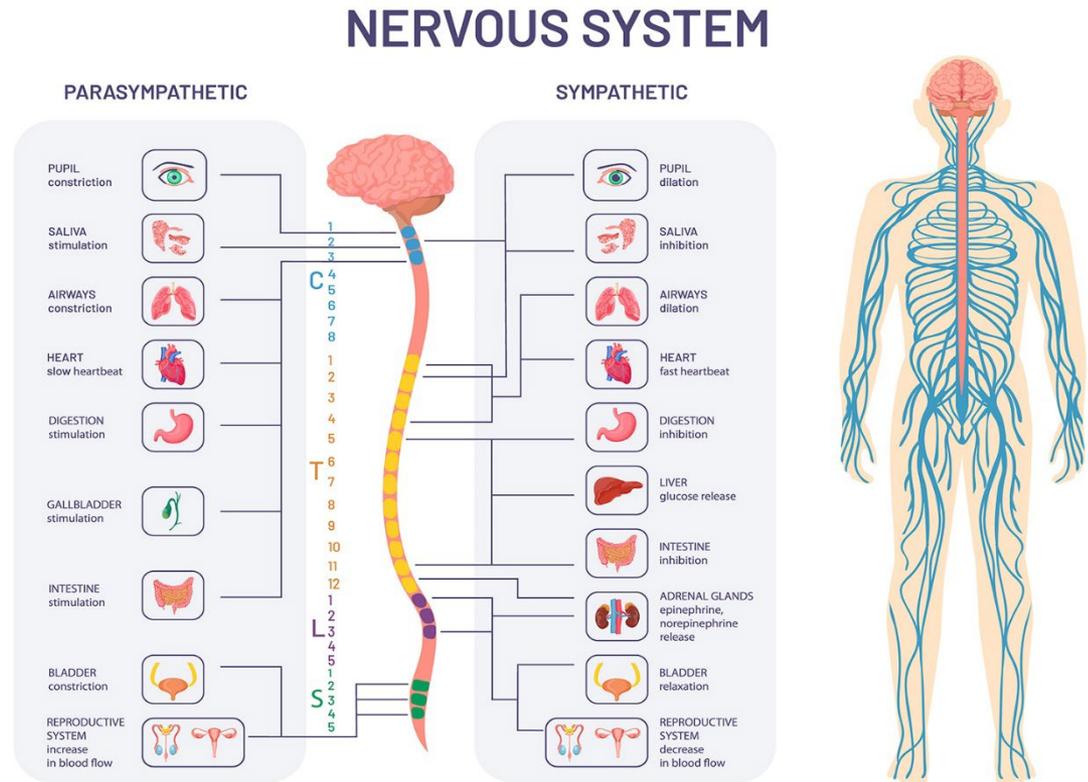


# How Does Toxic Stress Impact the ANS?

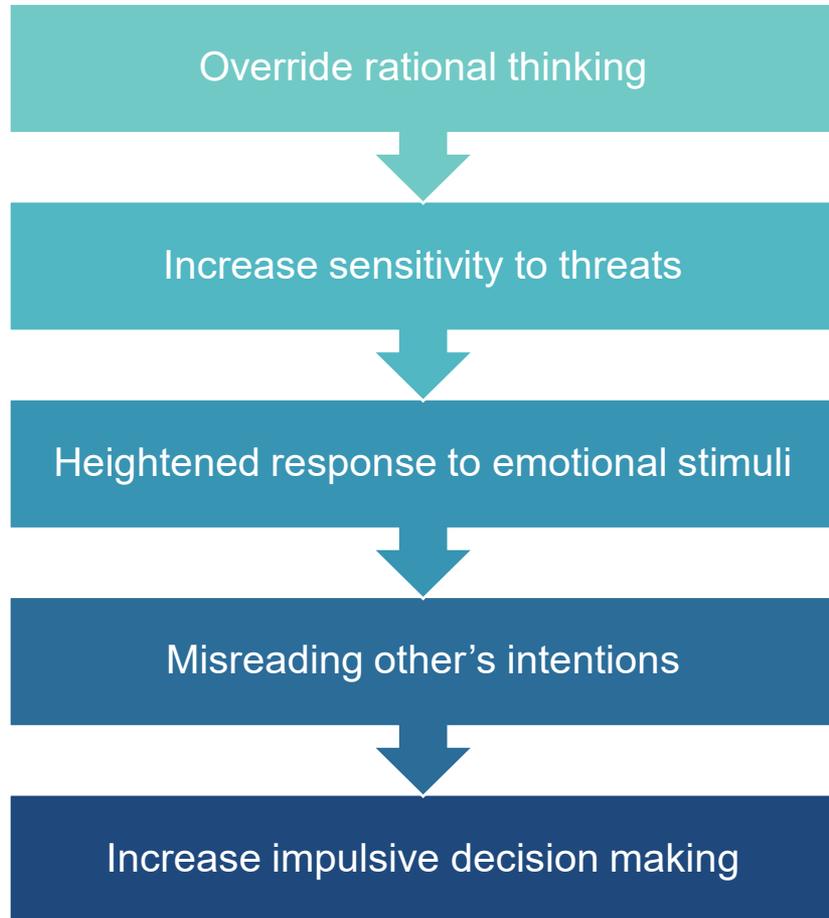
The ANS communicates with the brain and body through the sympathetic and parasympathetic nervous systems

The **sympathetic nervous system** prepares you for action. It is often referred to as your **'fight or flight' system**.

In contrast, the **parasympathetic nervous system** is often termed the **'rest and digest' system**.

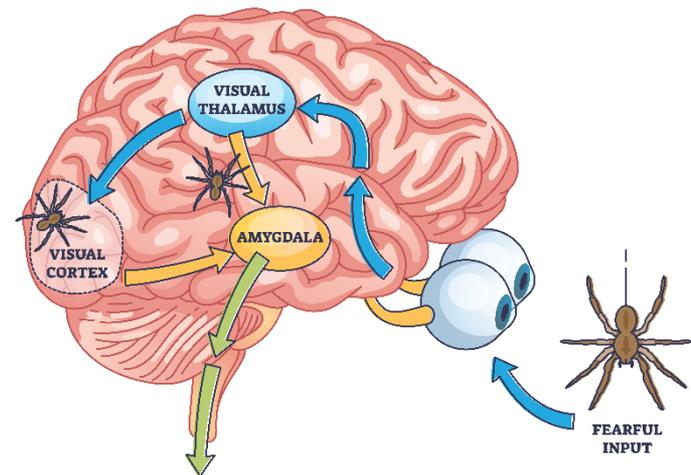


# Emotional Regulation and Hyperactive Amygdala



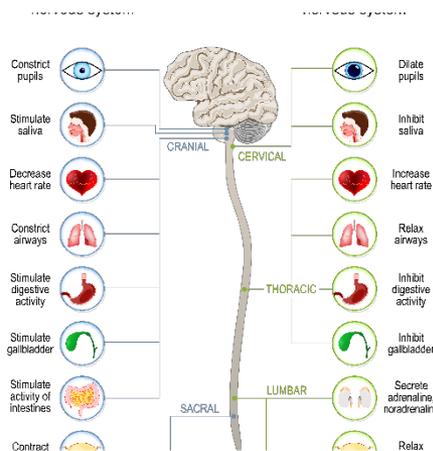
What is the pathway of the amygdala activation based on the graphic below?

## AMYGDALA FUNCTION



# Why does attention to "the self" matter?

- Self-regulatory control has been found in research to be one of the strongest predictors of outcomes in longitudinal studies of MEB disorders in children (IOM, 2009).



## Interoception

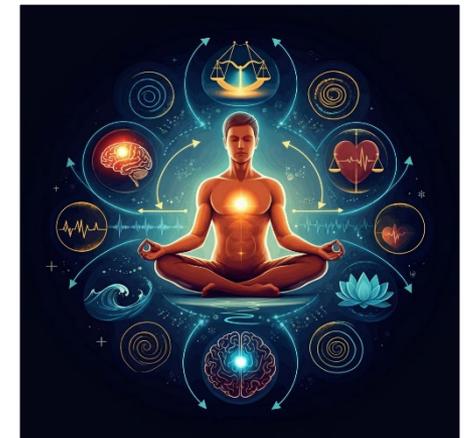
- Interoception refers to the way the nervous system senses, interprets, and integrates signals from within the body, providing a moment-by-moment mapping of the body's internal landscape across conscious and unconscious levels.

Developed by Dr. Charles Sherrington, Antonio Damasio, and Sarah Garfinkel

## Somatic Experiencing

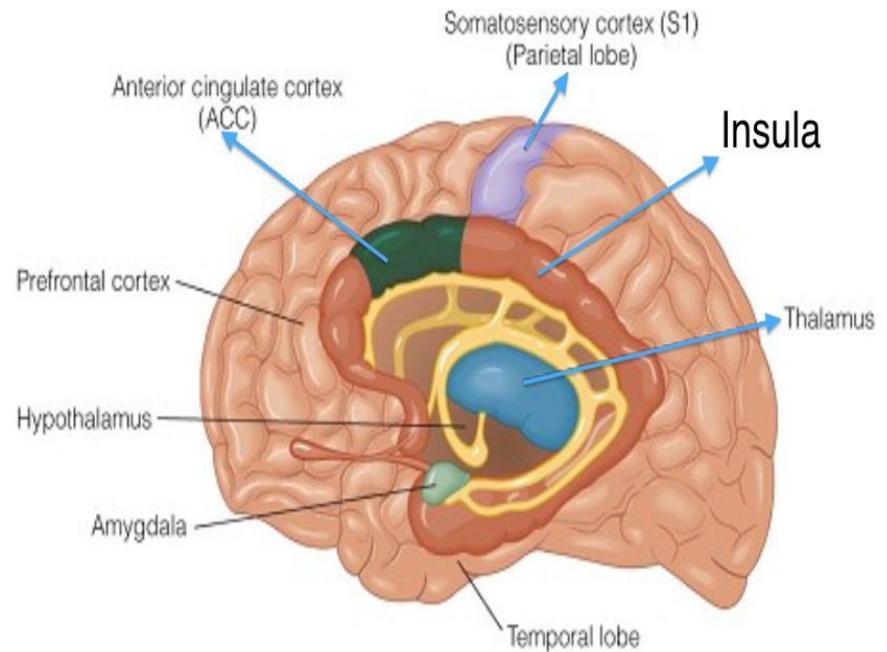
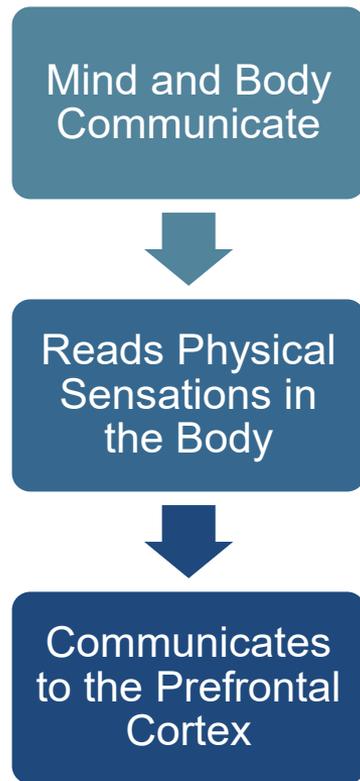
- Somatic Experiencing brings awareness to our experience at any given moment can alter our physiological state.

Developed by Dr. Peter Levine



# Interoception and the Insula

- Body awareness can reduce impulsivity and promote emotion regulation and clearer thinking.



## Quick Resets Assist in Activating Parasympathetic Nervous System

- When you take a deep breath that can expand your diaphragm, you expand your lungs and compress your organs. This activates your sympathetic nervous system returning your body and brain to a calm state.

### ABDOMINAL BREATHING TECHNIQUE



slowly take a deep breath in,  
fill your lungs with air



expand your abdomen



exhale and contract  
your abdomen inwards

# Behavior Risk Factors



Impulsivity and Poor Self-Regulation

Developing Brain



Escapism and Emotional Dysregulation

Mental Health



Algorithmic Targeting and Behavior Reinforcement

Behavior Design

Persuasive Design



Financial Management and High-Risk Decision-Making

Behavior Economics

## Research-Based Informed Approaches



Emotion dysregulation has been found to be modifiable and may provide a potential target in the treatment of substance use disorders and behavioral dependencies for those exhibiting attachment insecurities.

Studying neuroscience with explicit connections to lived experience of brain development can help transform the lives of children both academically and personally. This can shed light on insights into students' attention, reward system, and understanding addiction.

# NCPGP YPE Stacked Deck, (2) Bonus Lesson Program, and Emotional Regulation Introduction 2023

Grants up to \$5,000

YPE Grant Program::  
Curriculum in a  
Learning Management  
System and Teacher-  
Led Model with Lesson  
Materials

Choice Led Health  
Grant Program

Bonus lesson in  
gaming, gambling in  
gaming, and PIMU

Bonus lesson in Digital  
Media Literacy in  
Gambling and Gaming

Emotional Regulation  
Skills Building  
Introduction Videos for  
Each Lesson  
(LMS Only)

Middle Schools, High  
Schools, and Orgs

Evidence-based  
curriculum

Pre and post surveys

Train the trainer model

Ongoing technical  
support and site visits

Outreach and  
awareness



IT STARTS WITH  
A TAP...



TEEN GAMBLING  
ISN'T FUN...  
IT'S A TRAP.

## Outreach and Awareness

- 23,384 students have participated in the YPE from 2016-2024
- 10,642 students participated in Choice Led Health curriculum in 2021
- Budget is less than \$300,000 each year

# What is Next for the NCPGP Youth Prevention Program?



## The Neuroscience Behind Risky Behaviors and Environmental Impact on Brain Health with Sam the Fish: A Youth Problem Gambling Prevention Program

- Primary Course Objectives:
  - Awareness of how the environment impacts our thoughts feelings and behaviors
  - A sense of agency and control over promoting overall health and wellbeing through understanding the impact of risk and protective factors
  - Understanding that addiction to substances and behaviors originate from unhealthy coping strategies and inability to understand or express emotions
  - Awareness of how toxic stress and loneliness impacts wellbeing
  - Understanding the connection between overall health and wellbeing and literacies in health, mental health, and media.
- Ability to make smart choices and critically analyze information and produce information responsibly.

## Neuroplasticity Man

Why don't old brains ever get stuck in their ways?

*Because neuroplasticity means there's always room for a plot twist!*



## What do you think?



All video clips were recorded from YouTube

Who created this message?

What creative techniques are used to attract my attention?

How might different people understand this message differently than me?

What values, lifestyles, and points of view are represented in, or omitted from, this message?

Why is this message being sent?



# Inclusive Strategies

# How do we create an environment for learning in the classroom?



## Movement Matters

- Movement during learning is beneficial because it ignites neuron connections, activates different areas of the brain and reduces anxiety and depression.
- This includes recess, brain breaks, and mindfulness.



## Relationships Matter

- Relationships can make or break a student's experience at school.
- Student success depends on the teacher's ability to connect and create a relationship with a student.



## Inclusion Matters

- Inclusion in the classroom enhances academic performance, improved social development, and community building.

# How do we create an environment for learning in the classroom?



## Mindful SEL Strategies Matter

- Hundreds of studies involving more than 1 million students worldwide offer consistent evidence that SEL has a positive impact on students' academic achievement, reduces emotional distress and enhances emotional regulation, coping skills, and resiliency.



## Peer to Peer Interaction Matters

- Children working in groups increasing gains in learning and SEL Competencies including developing positive relationships, positive intergroup attitudes, and learning communication and collaboration skills.



## Project-Based Learning Matters

- Thousands of students in diverse school systems across the U.S., project-based learning **significantly outperformed traditional curricula**, raising academic performance across grade levels, socioeconomic subgroups, and reading ability.

**Thank you!**

**Please email me at  
[alison.wood@dhhs.nc.gov](mailto:alison.wood@dhhs.nc.gov)  
with any questions.**

**Alison Wood, MPA, MSW**

