

# THE CONNECTION BETWEEN ADDICTION AND TRAUMA

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# Case Study

- 45 year old experienced pilot with severe turbulence but uneventful landing
- Pilot is anxious flying same route
  - Nightmares or flashbacks
  - Nervous system activation
  - Affects Functioning - missed work
  - Alcohol use becomes problematic

# What happened next

- Assessed and Diagnosed with PTSD
- Participates in PA programs but
  - Marginal improvement
  - Still having episodes of severe symptoms
  - Alcohol use still problematic
  - Off work & considering long term disability

# Issues

- Why is he still unwell?
- How are the alcohol and PTSD connected?

# Objectives

- What is the human stress response and how is it affected by PTSD and Trauma?
- What is Addiction and how does it affect PTSD treatment?

# Essentially...

- Life is about managing unexpected or stressful situations
- Fortunately, most of life is routine...

# Smooth Sailing...

“The patient is in ICU, but their vital signs are normal and they are currently stable”

“We have now reached our cruising altitude of 30,000 feet, and expect a smooth trip to Washington, DC”

# But what if something goes wrong...

- Need an emergency system
- Ideal Crisis Response System
  1. Immediate
  2. Intense
  3. Streamlined
  4. Memory – capable of learning from past



# Human Stress Response System

- Essential to survival
  - Prepares for life threatening situations
  - Hard wired
- Fine tuned from infancy to adulthood
  - We learn to turn down the volume
- Altered in PTSD

# Managing Life Stressors

- What changes from age 2 to 20?
  - Physical Abilities
  - Intellectual Abilities
  - Emotional Experience
  - Brain development – areas grow and mature

# Human Stress Response System

- Autonomic Nervous System – 2 branches
  - Sympathetic - Fight/Flight
  - Parasympathetic – Freeze

# What this feels like...

## HYPERAROUSAL

Hyper-vigilant  
Immediate Reactivity  
Elevated heart rate, BP  
Noradrenaline  
Fight/Flight: Intense emotions  
Fear  
Panic

## DISSOCIATION

Detached  
Suspension of time  
Lower heart rate, BP  
Endorphins - Opiates  
Freeze: Numbed Emotion  
De-realization  
De-personalization

# Normal Development: Autonomic Nervous System

- Parasympathetic Nervous System
  - Extreme response is dissociation
- Sympathetic Nervous System
  - Extreme response is panic
- “Smart” Vagus or Social Engagement System
  - Modulates above systems
  - Dependent on healthy attachment

# During Crisis

- It's not in your head, it's in your body
  - The alarms are still on...
  - The light are still flashing...
  - A crisis is still occurring

# During PTSD

- It's not in your head, it's in your body
  - The alarms are still on...
  - The light are still flashing...
  - A crisis is still occurring
  
- But no one else can see it...

# Our Pilot

- PTSD is treatable and he follows through with all treatment recommendations
- He still has severe episodes of panic and/or dissociation
- Why is his stress response still altered?



# What else is affecting the Stress Response?

## 1. Past Childhood Trauma

- Stress response never evolved properly
- Still affecting the present

## 2. Underlying Addiction

- Substance use does not stop once symptoms are gone
- Substance use is not restricted to periods of intense symptoms

# What else is affecting the Stress Response?

- Past Childhood Trauma
  - Stress response never evolved properly
  - Still affecting the present
- New trauma adds to past

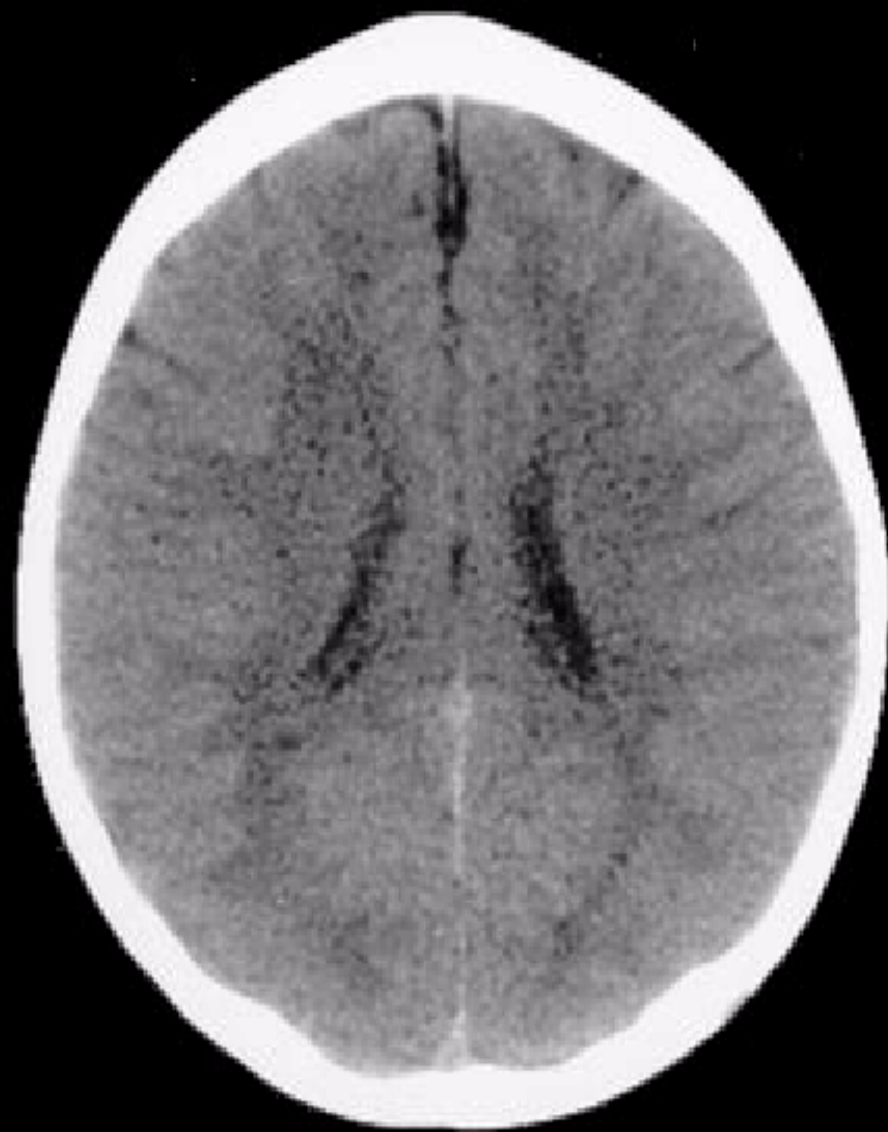
# Normal Childhood

- Stress response fine tuned from 2 to 20
- Specific brain region (pre- frontal cortex) develops
  - Allows better physical regulation
  - Cannot prevent nervous system response
  - We learn to turn down the volume

# Adult with Normal Childhood

- Can modulate self in stressful situations
- More responses than fight/flight (panic) and freeze (dissociation)
- Less physical and emotional extremes
- Makes better choices
- If trauma occurs as an adult, already has good regulation skills

# 3 Year Old Children



Normal



Extreme Neglect

# Effect of Childhood Trauma

- Pre frontal cortex does not develop normally
  - Smaller on CT scan
  - Fewer neurons
- Skill of affect regulation does not fully develop
- Damages development of evolving stress response
- Harder to make good decisions during stress response
- Can fully develop with later in life treatment

# What else is affecting the Stress Response?

- Underlying Addiction
  - Substance use does not stop once symptoms are gone
  - Substance use is not restricted to periods of intense symptoms

# What is Addiction?

- Negative consequences
- Inability to Control Usage
  - NOT inability to stop
- Compulsive Nature to Use
  - Building life around substance use

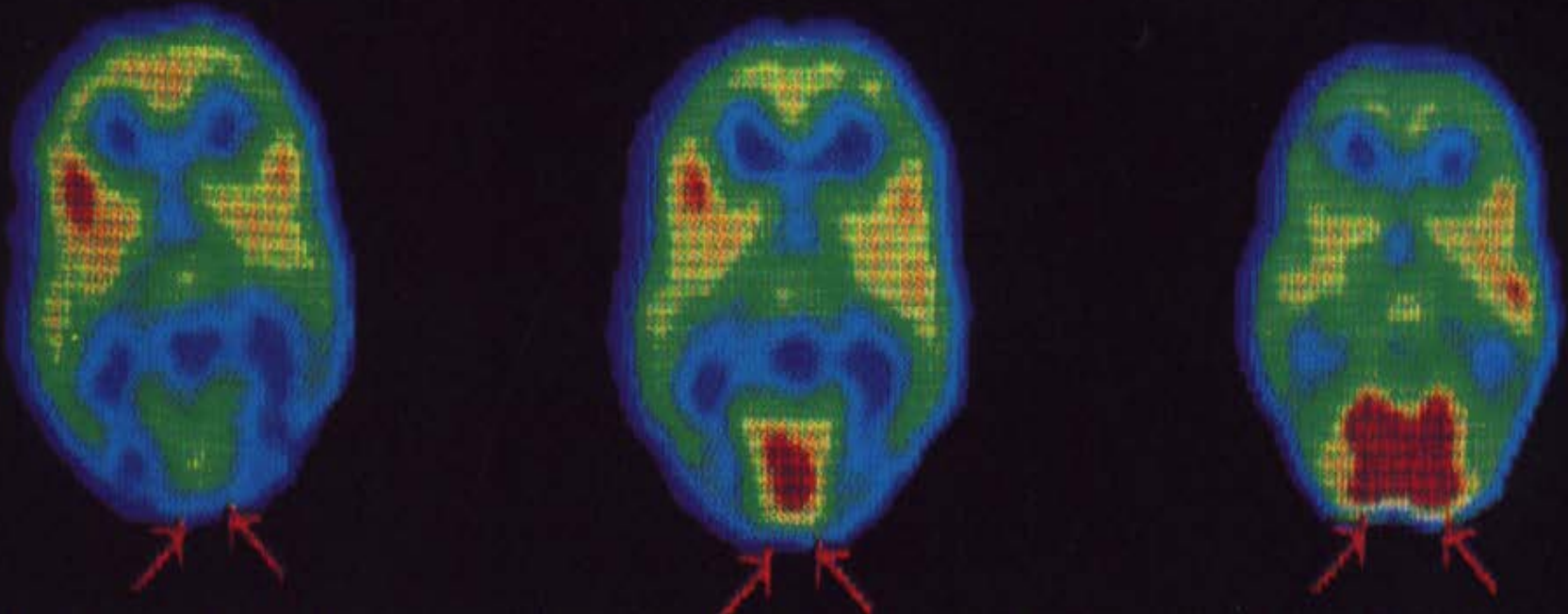


# All Brains are not created equal

- Substances do not affect all brains in the same fashion
- 10-12% of the population is wired differently
- These people are having a vastly different experience

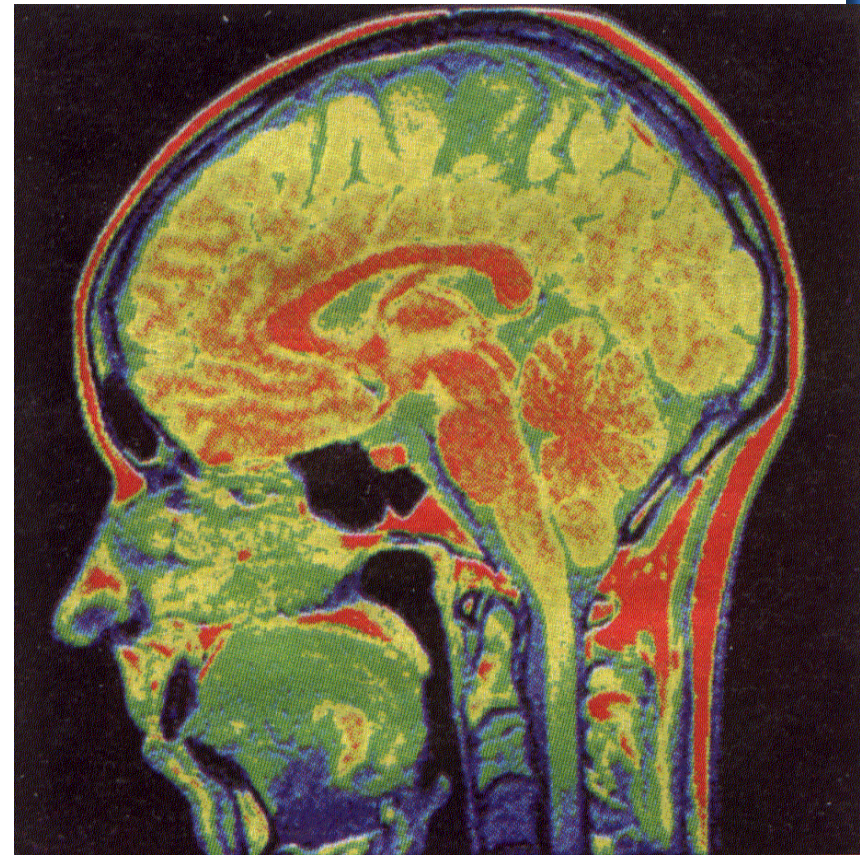
*“ I feel good when I have a drink...”*

- Non-addicted 19 year olds
- No Family History vs. Strong Family History of Addiction
- Exposure to a single drink
- Marked difference in dopamine & pleasure (3-5 times greater)



# All Brains are not created equal

- More Pleasure
  - 3 – 5X Dopamine release
- Reverse Cravings
  - Desire goes up, not down, as use continues



# What can be done

- Underlying Addiction
  - Substance Use has always been problematic
  - Get Addiction Assessment
- Past Trauma
  - Initial Treatments may be less effective
  - Longer term treatments can rewire the brain and restore normal stress response system

# The Bottom Line

- PTSD symptoms are not in your head, they are in your body. The stress response system is working, but it is reacting to the wrong threat and unable to regulate itself.
- In Addiction, all brains are not created equally and 10% of the population is wired differently
  - More pleasure per unit
  - Craving worsens with use instead of getting better

# Treatment Works

- If you have ***PTSD***, there are many effective treatments
- If you have ***Addiction***, patients who stay connected with treatment do extremely well
- If you have had ***childhood trauma*** and your stress response is under-developed, the brain can rewire itself with therapy. You will be able to correct what was missing.