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Responding to Co-Occurring Cognitive Impairment in Substance Use Disorder Treatment

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Learning Objectives

- Define Addiction and Recovery
- Increase understanding of Neurologic Informed Care
- Learn new ways to work with adults with co-occurring cognitive impairment in substance use disorder treatment.

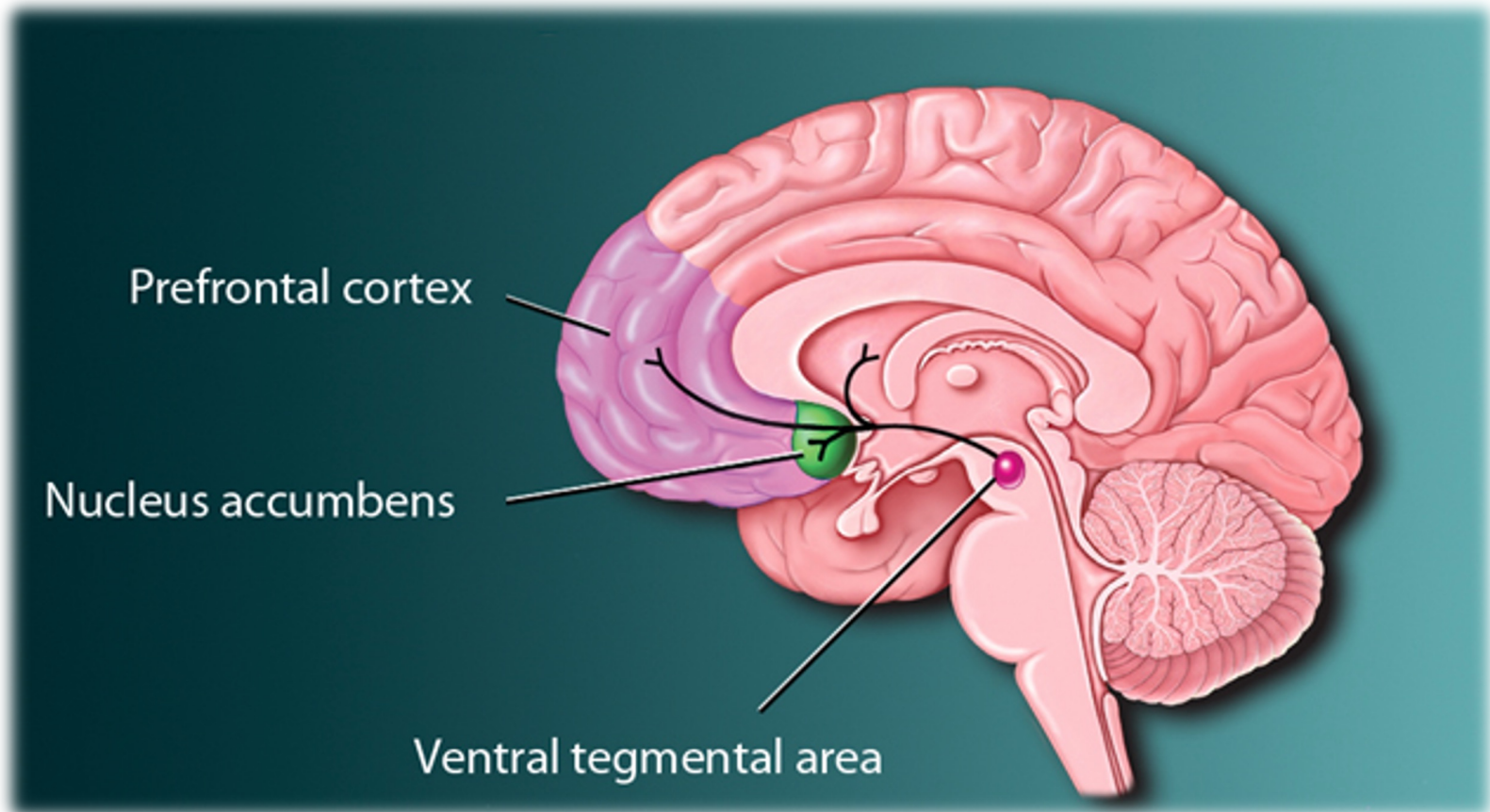
American Society for Addiction Medicine

A treatable chronic medical disease involving complex interactions among brain circuits, genetics, the environment, and an individual's life experiences. People with addiction use substances or engage in behaviors that become compulsive and often continue despite harmful consequence. Prevention efforts and treatment approaches for addiction are generally as successful as those for other chronic diseases.



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The Neurobiology of Addiction

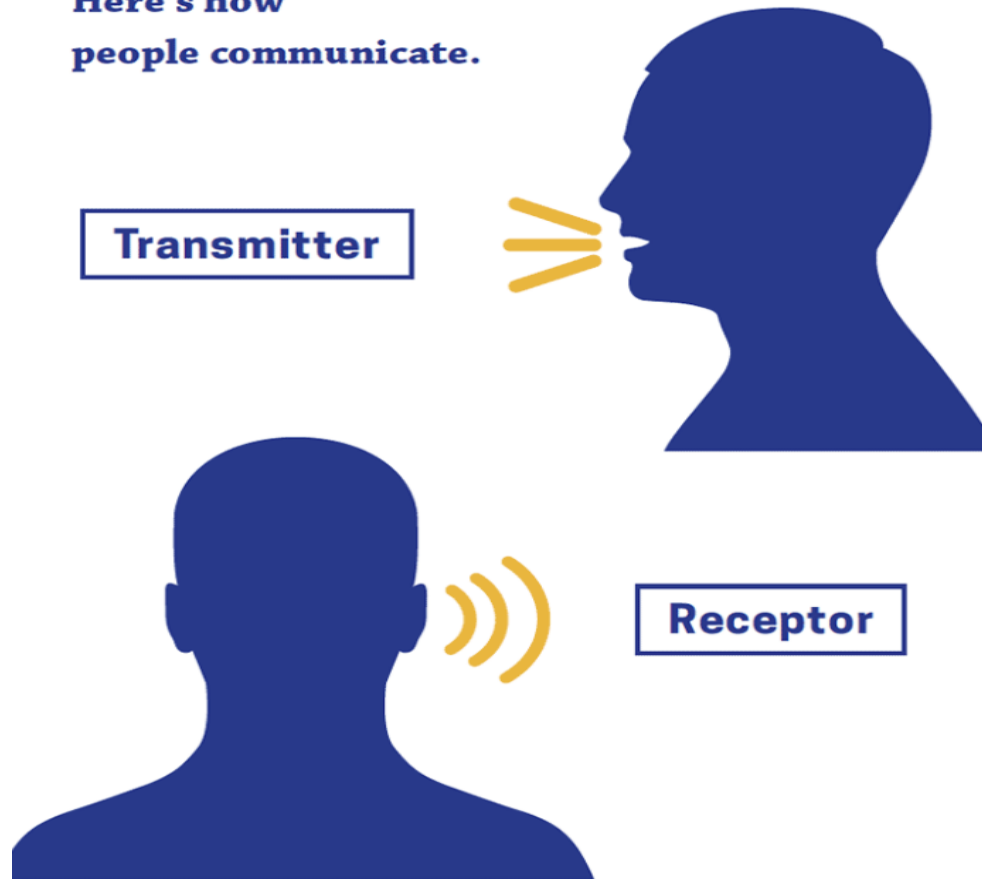


The Neurobiology of Addiction

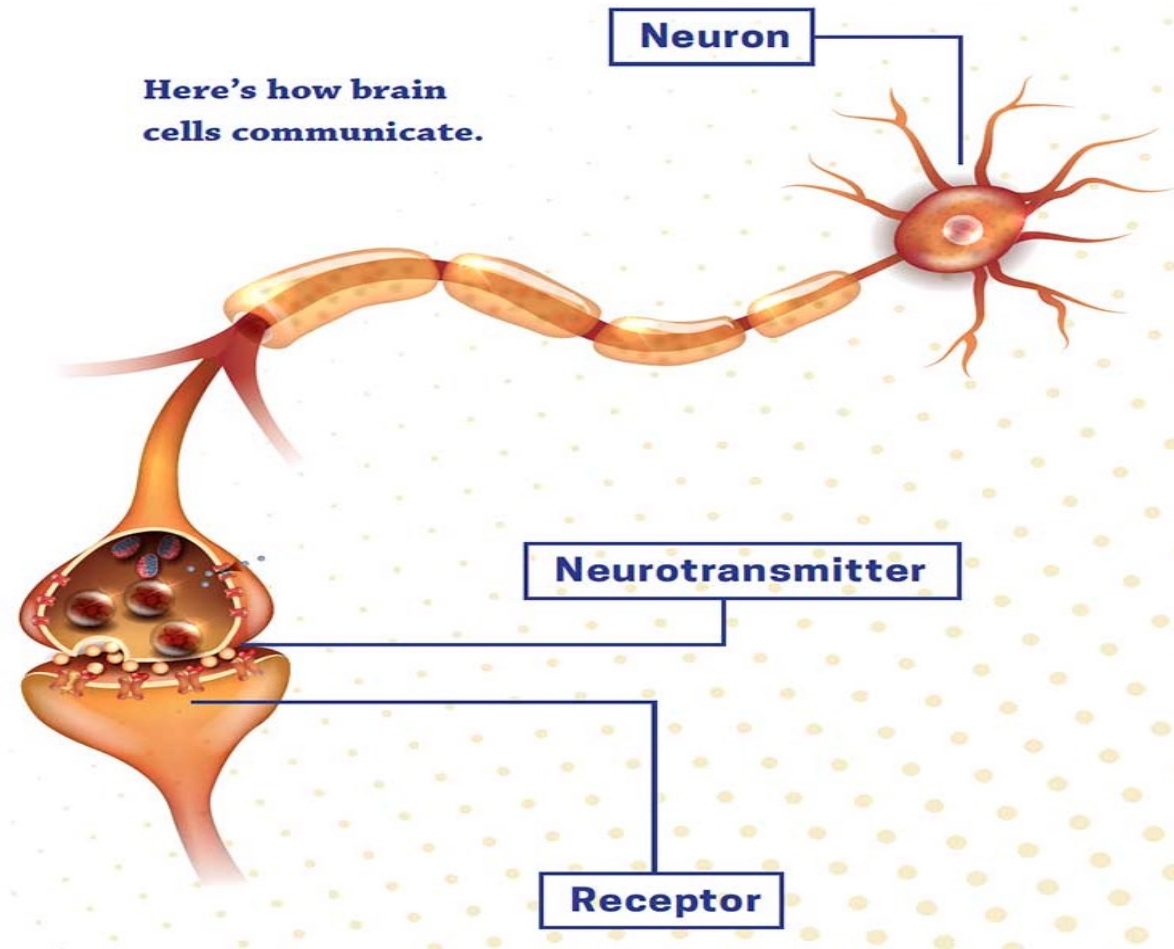
The Brain Stem / Hind Brain	Region That Connects to Spine Supports Basic Life Functions. Connected Closely to the Cerebellum. <u>VTA = Reward Network</u>
The Mid Brain / Limbic System	Heavy Influence on Behavior Emotion Center of the Brain Very "Hard Wired", Think "Automatic" Organizes External Signals with Internal Signals <u>Nucleus Accumbens = Reward Network</u>
The Forebrain / Cerebral Cortex	Self-Control , Self-Monitoring, Time Management, Working Memory, Organization, Flexibility , Task Initiation, Emotional Control, <u>Prefrontal Cortex = Reward Network</u>

The Neurobiology of Addiction

Here's how
people communicate.



The Neurobiology of Addiction



The Neurobiology of Addiction

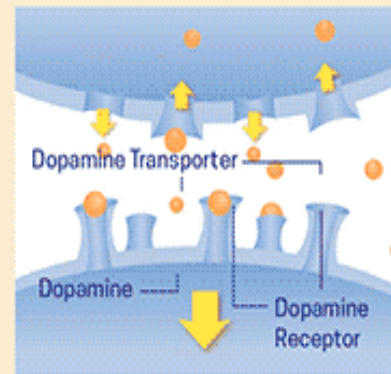
Some drugs target the brain's pleasure center

Brain reward (dopamine pathways)



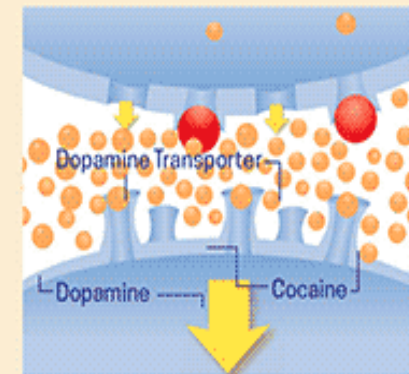
These brain circuits are important for natural rewards such as food, music, and sex.

How drugs can increase dopamine



While eating food

Typically, dopamine increases in response to natural rewards such as food. When cocaine is taken, dopamine increases are exaggerated, and communication is denied.



While using cocaine

Genetics

Estimates Vary but Broadly Suggest that Genetic Influences Account for Approximately 50% of risk

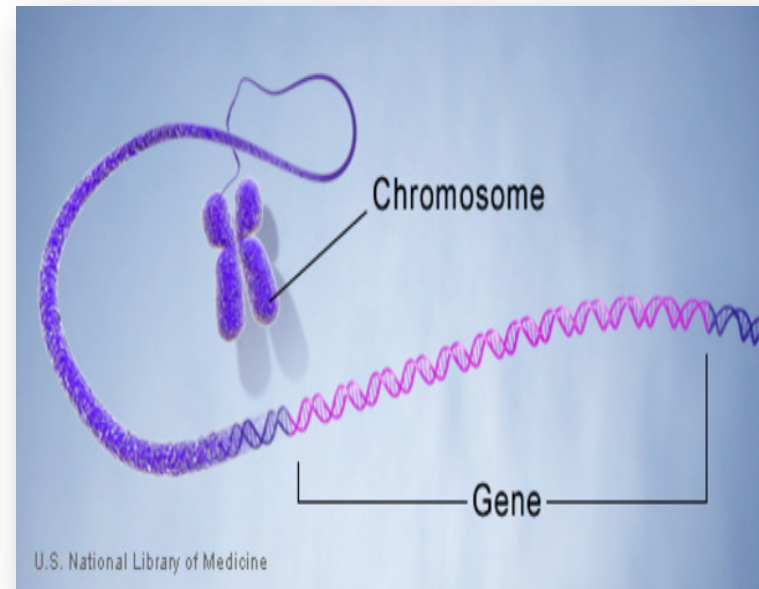
20,000 genes

On 46 chromosomes in 23 pairs

1 each between parents

Not all traits strictly genetic

Expression of many genes is also influenced by the environment



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Genetics

What Do Research Studies Reveal?

AS Hatoum, et al. 2023

Sample Size:

1,025,550 = European Ancestry

92,630 = African Ancestry

DNA between genes that act as biological markers help scientists locate genes associated with disease.

Specific biological markers associated with general addiction risk were found amongst participants.

Presence of biological marker appears to effect dopamine signaling circuits.

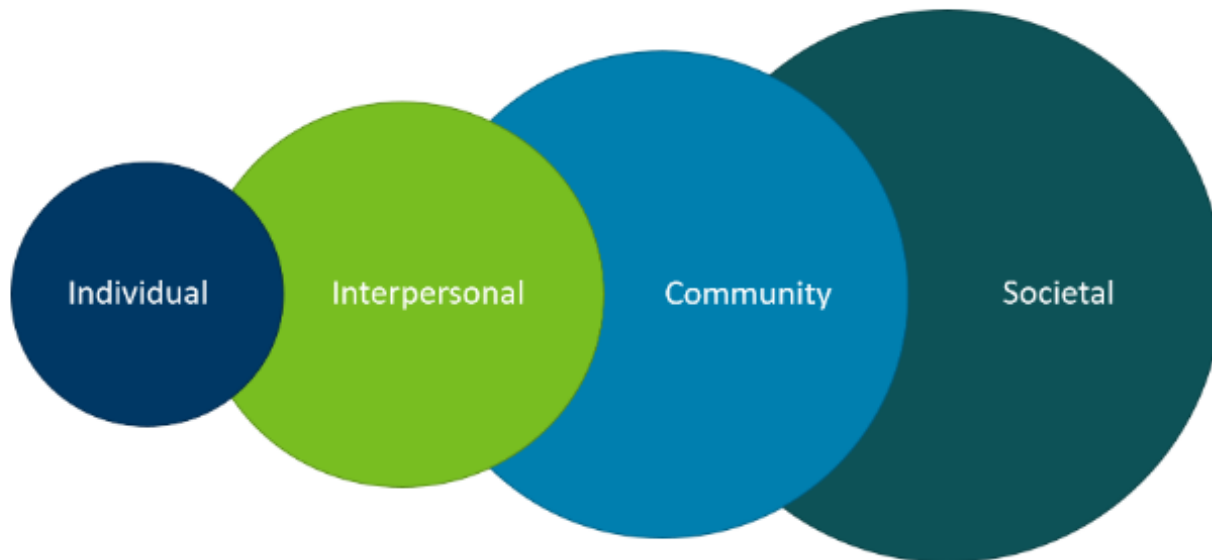
More dopamine signaling = more dopamine = more craving



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Social Determinants of Health

Figure 1: Social-Ecological Model of Substance Use and Overdose Prevention



Social Determinants of Health

- Individual

- Physical Health and Mental Health
- Trauma and Resiliency
- Social emotional learning and skills

- Interpersonal

- Access to peer support and family support
- Family History of Substance Use
- Attitudes and opinions about Substance Use and Pain Management

Social Determinants of Health

- Community
 - Access to Culturally-Specific Providers, Peer Networks, and Behavioral Health
 - Access to Naloxone and Naloxone Training
 - Public Health and Harm Reduction Programming
- Societal
 - Health Insurance Coverage for Mental Health and Substance Use Treatment
 - Economic Wellbeing and Housing Stability
 - Reduce Stigma towards people who use drugs

Considerations When Working with Adults with Co-Occurring Cognitive Impairment



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In a country of over 300 million, we've unfortunately lost more than 1 million individuals to overdose deaths in the past two decades and there are potentially 40 million more Americans who have been impacted by those deaths. Known as overdose loss survivors, little is known about their experiences which can reverberate as grief, substance use, or even suicidal ideation



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Substance Abuse and Mental Health Services Administration

A process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential.



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Neurologic Informed Care

The Process of engaging in neurologic based education and training to promote an understanding of how affect, cognition , and behavior are influenced by neurologic processes.



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COGNITIVE PROCESSES

Alertness

Attention

Processing

Memory

Executive Function



What Happens Upstream Impacts What Happens Downstream



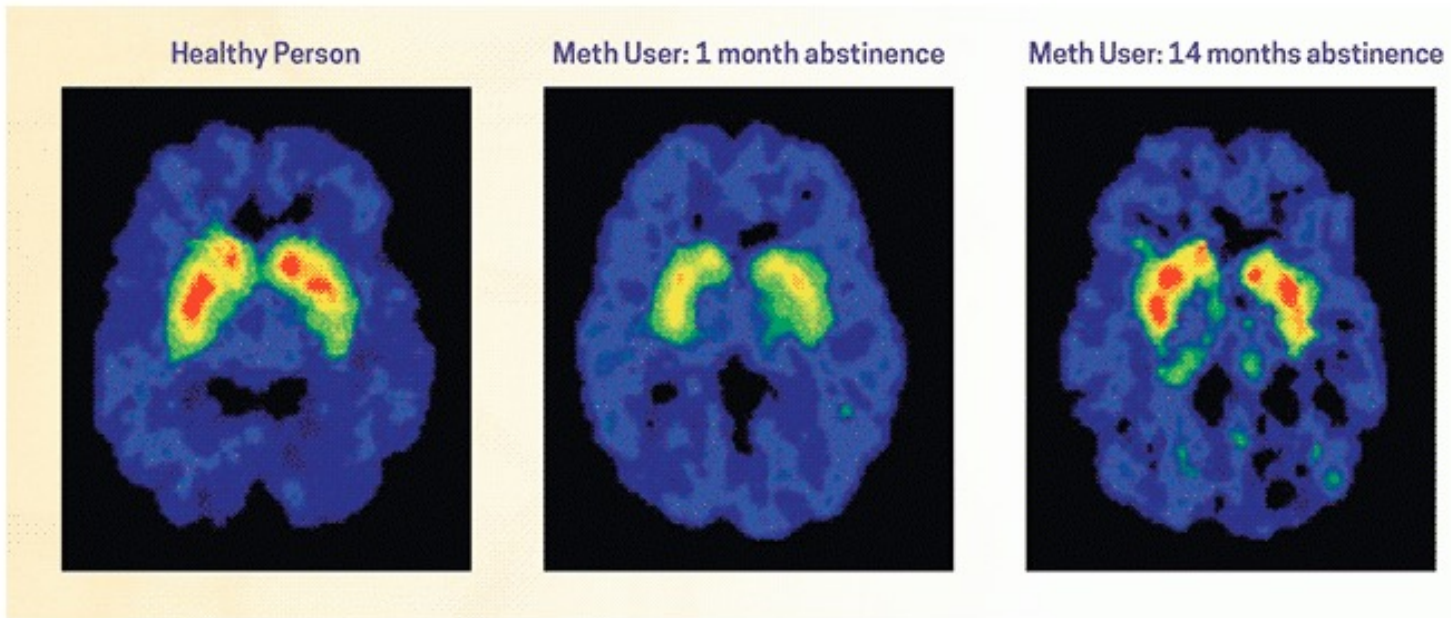
We are hardwired to connect with others, it's what gives purpose and meaning to our lives, and without it there is suffering.

— Brené Brown —



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The Neurobiology of Addiction



The Journal of Neuroscience, 21(23):9414-9418. 2001

These images showing the density of dopamine transporters in the brain illustrate the brain's remarkable ability to recover, at least in part, after a long abstinence from drugs—in this case, methamphetamine.⁵¹



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References

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Thank You for Your Attention and Participation !!

Feel Free to
Reach Out to
Me with
questions !

