

Understanding the Social and Biological Aspects of Adolescent Development and Substance Use Disorders

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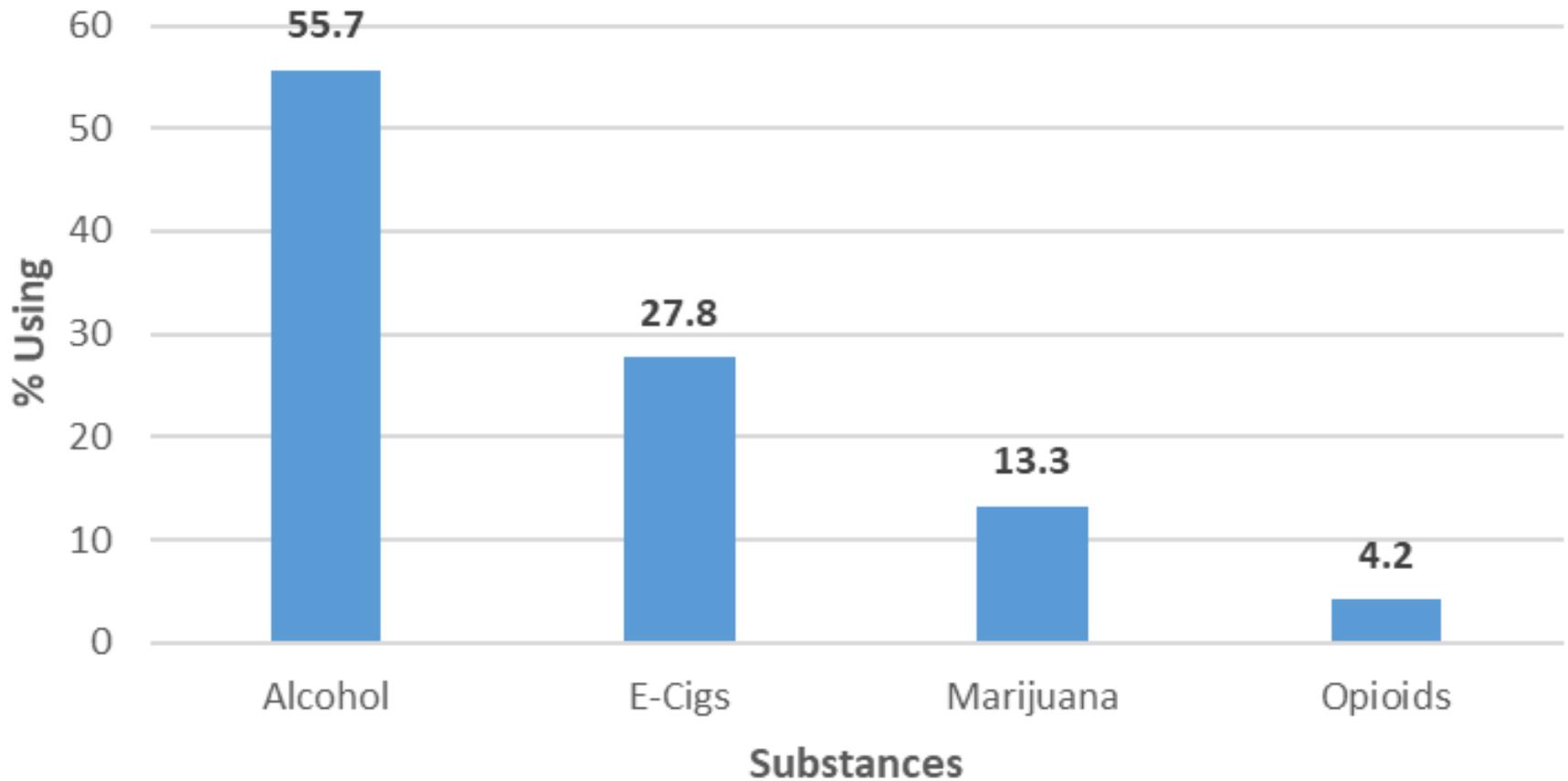
Webinar Housekeeping Items

- A recording of this webinar and slides will be posted on: <https://idph.iowa.gov/substance-abuse/families-in-focus>
- Survey following the webinar and 30-day follow-up
- Approved for 1 hour Substance Abuse Continuing Education Units

Key Questions

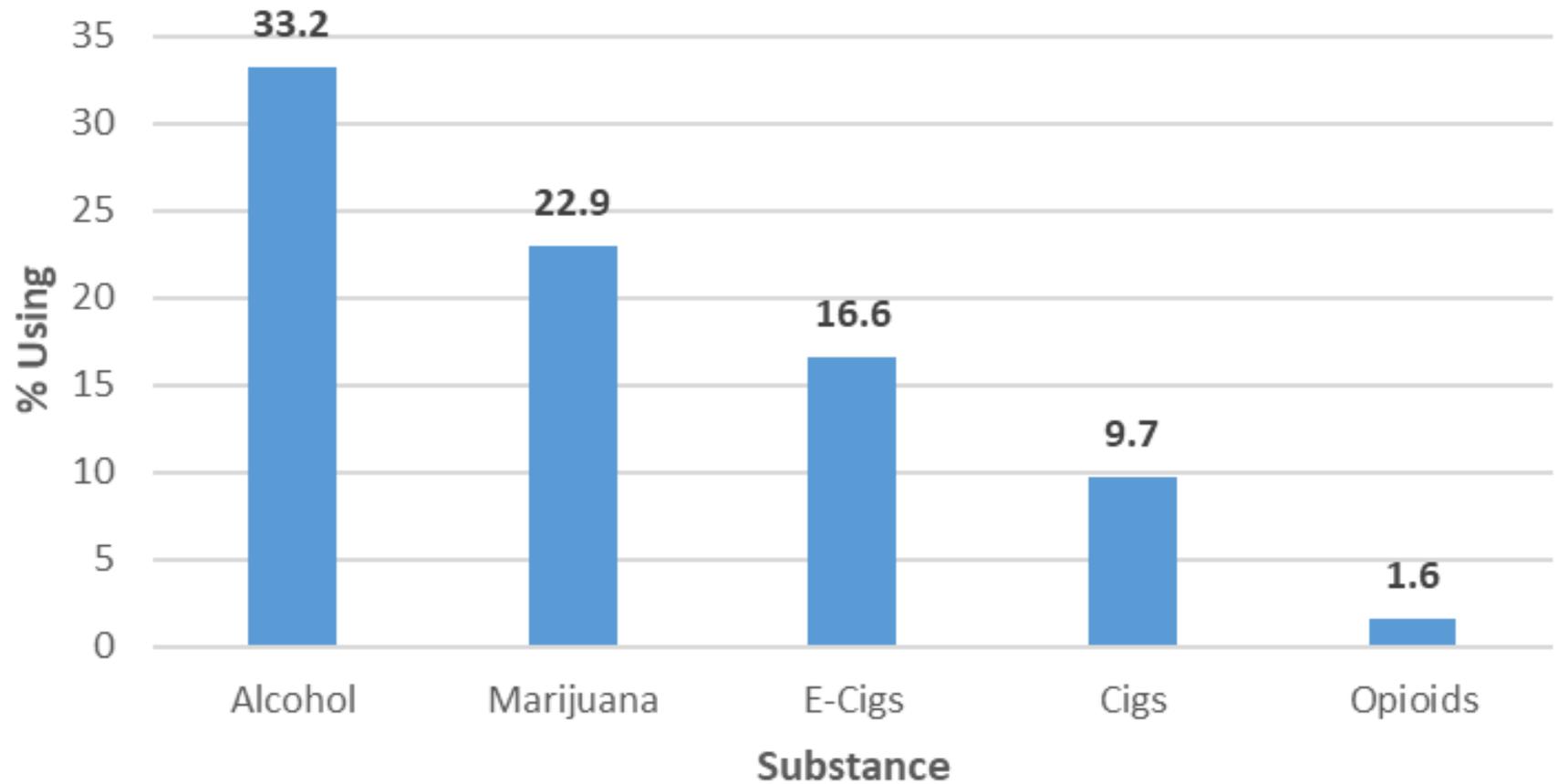
- What are the prevalence rates for adolescent substance use and substance use disorders?
- What are important biological and social developmental milestones for adolescents?
- What is the relation between developmental milestones and intervention/treatment for substance use disorders?

Annual Use: 12 Grade



Source: Miech et al., 2018: Monitoring the Future

30 Day Use: 12th Grade



Source: Miech et al., 2018: Monitoring the Future

Need and Received Substance Use Treatment in Past Year

- Adolescents ages 12-17:
 - 4.1% needed treatment* or about 1 million
 - 0.7% received treatment or about 184K
- Young Adults ages 18-25
 - 15.1% needed treatment or about 5.2 million
 - 1.9% received treatment or about 641K

*Met criteria for an SUD or received SUD treatment at specialty facility in past year

Source: SAMHSA 2018: Results from 2017 NSDUH

Why is Adolescent Brain Development Important?

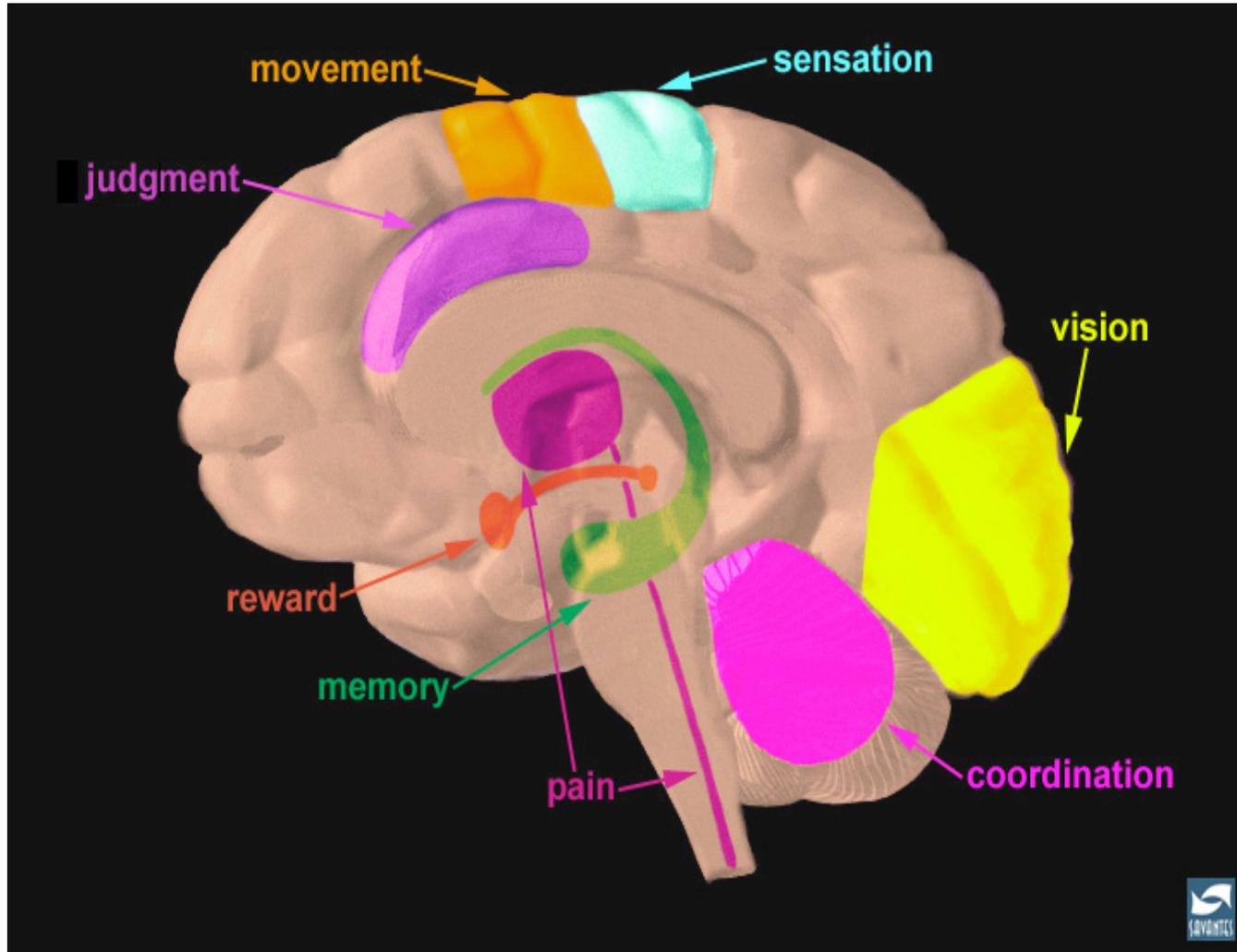
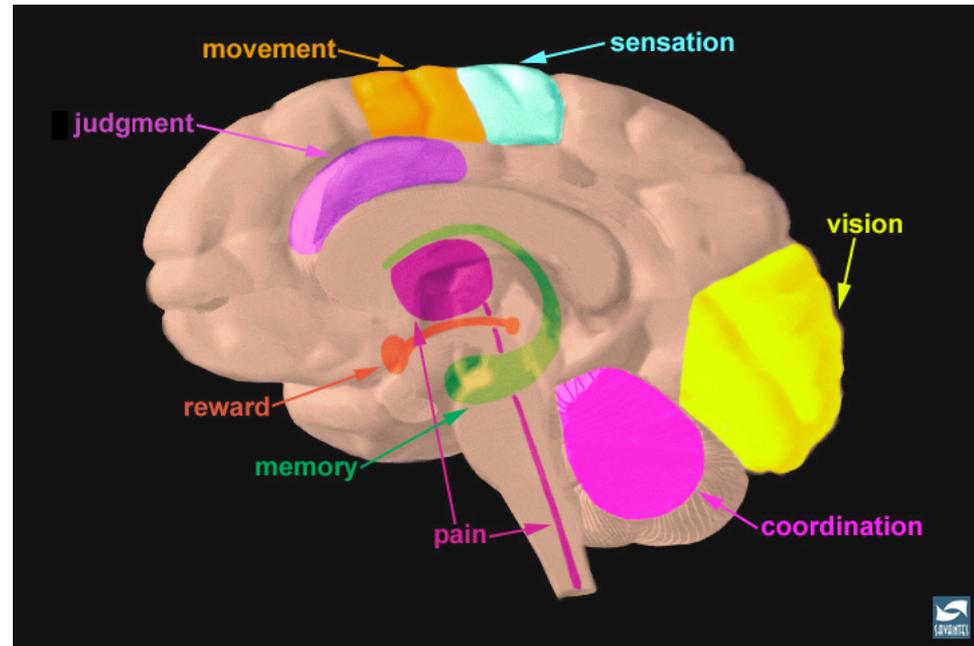


Image Source: NIDA, www.drugabuse.gov

Major Parts of the Adolescent Brain

- **Cortex Area**
 - Prefrontal Cortex
- **Limbic Area**
 - Emotion
 - Amygdala (fear, anger)
 - Hippocampus (new memories)
 - Hypothalamus (hormones)
- **Brain Stem**
 - Keeps us alive



Content Source: Walsh, 2013

Image Source: NIDA, www.drugabuse.gov

Reward Pathway

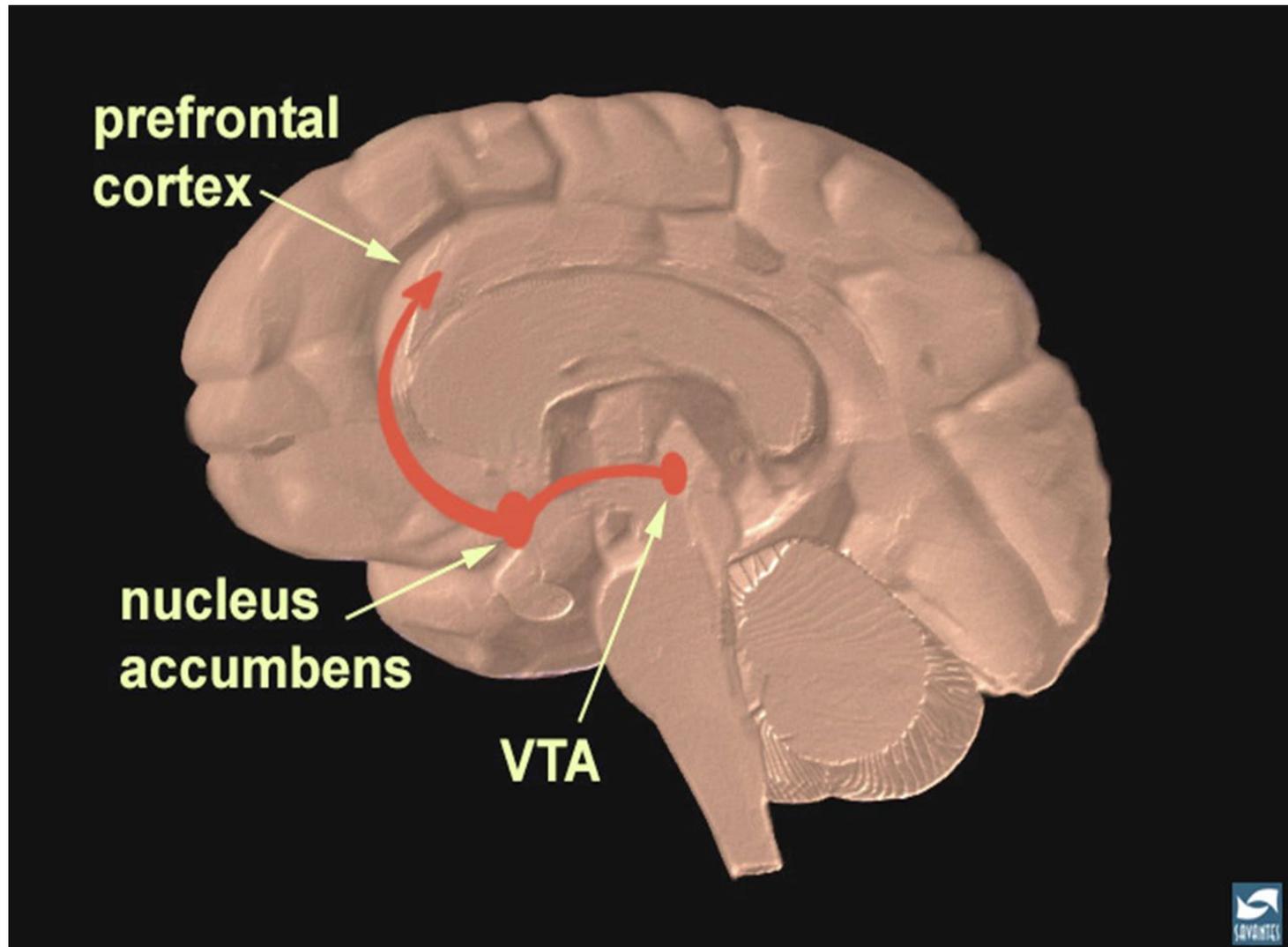
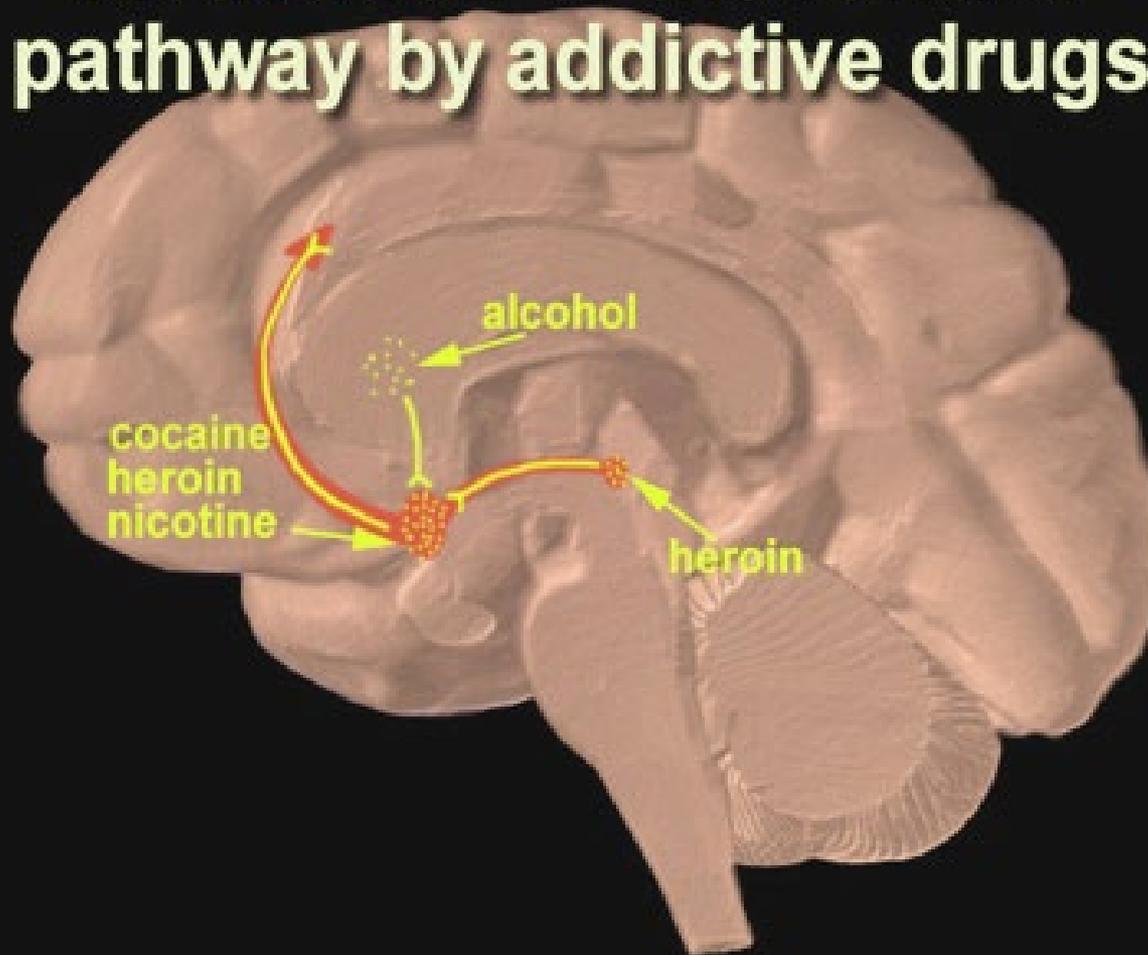


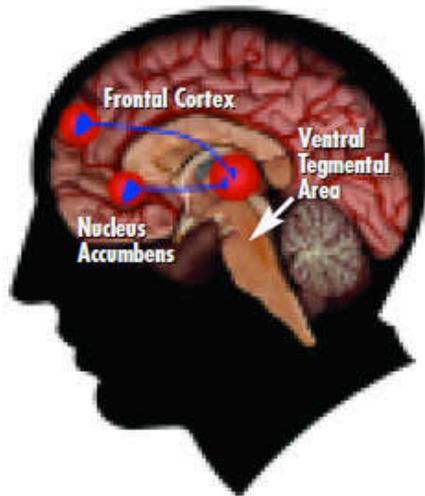
Image Source: NIDA, www.drugabuse.gov

Activation of the reward pathway by addictive drugs



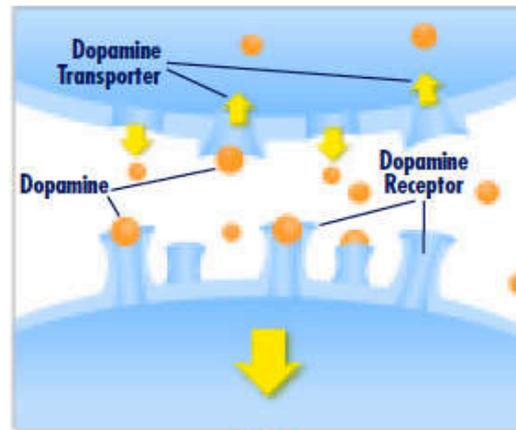
DRUGS OF ABUSE TARGET THE BRAIN'S PLEASURE CENTER

Brain reward (dopamine) pathways

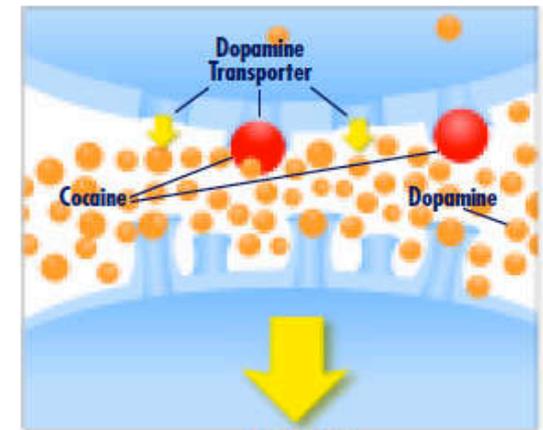


These brain circuits are important for natural rewards such as food, music, and sex.

Drugs of abuse increase dopamine



FOOD



COCAINE

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

Adolescent Risk Taking, Impulsivity, and Cognitive Control

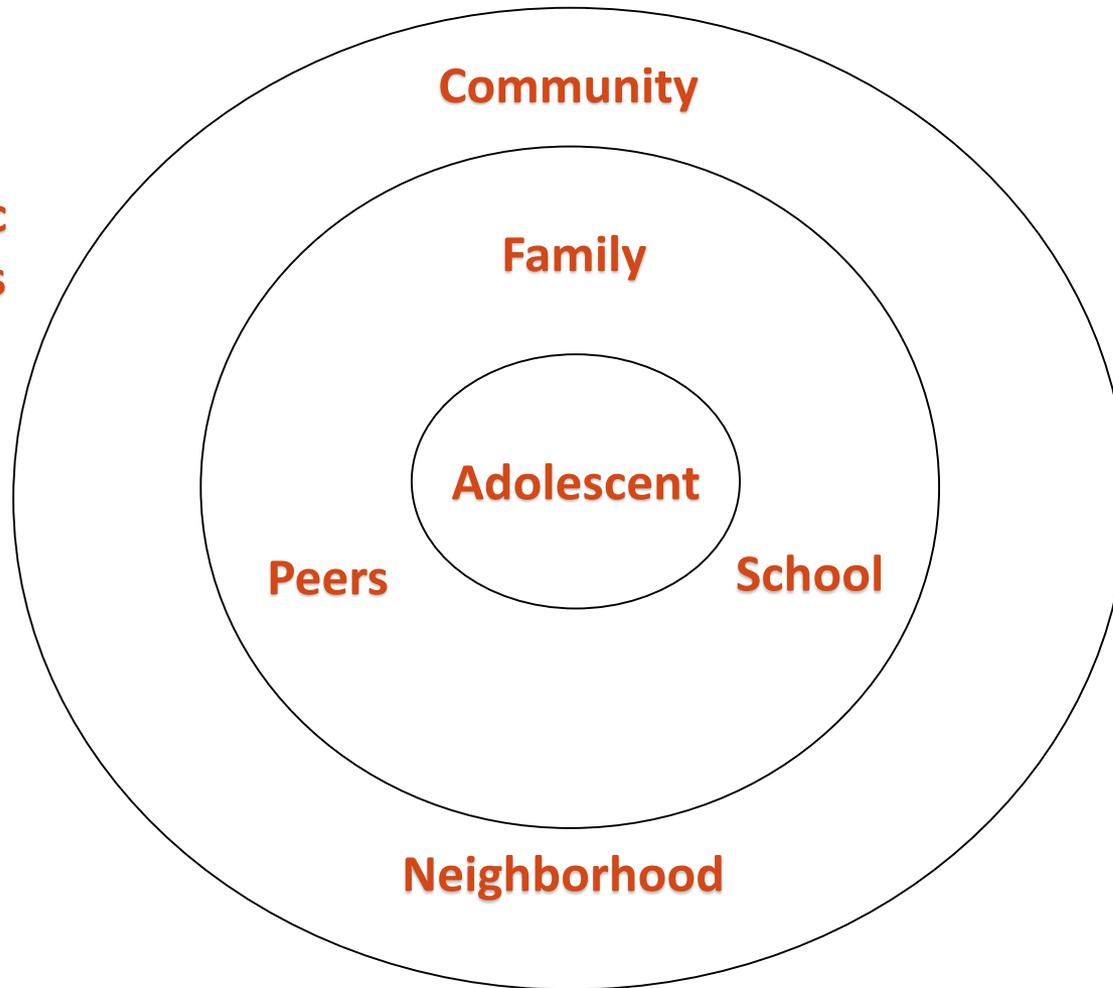
- **Risk taking**
 - Engage in sensation-seeking behaviors
 - Engage in more risk-taking than younger or older age groups
- **Impulsivity**
 - Correlates with risk-taking
 - Emotional rather than cognitive process
- **Cognitive Control**
 - Consequential thinking, decision making, problem solving

Source: Boucher & Sandhu (2013)

**Societal
Norms**

Laws

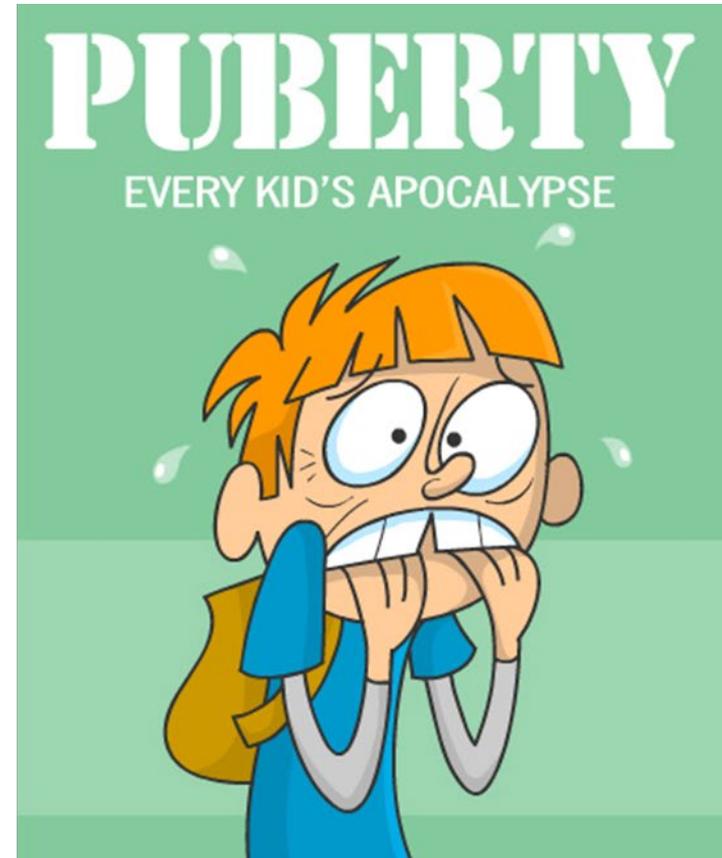
**Geographic
Differences**



Puberty



Nobody likes The Puberty Fairy.



Major Psychological Tasks

- Identity Development
 - Self
 - “How do I see myself?”
 - Others
 - “How do I see others?”
 - “How do others see me?”
 - World
 - “How do I see the world?”
 - “How does the world see me?”

Identity Worksheet

Descriptors

Evaluation

HOW DO I SEE MYSELF?

Self

Others

1. Write 3 words on the line below and in the center circle that describe yourself:

2. Write 1-2 words for each of the categories below and in the outer circle that describe how others see you:

Family:
Friends:
School:
Juvenile Justice:
Work:
Other:

3. Next to each word in the circles above write a "+" or "-" sign indicating if you think the word describes something positive or negative.

“+” or “-”

Social Markers of Adolescent Development

- Age-based social markers:
 - 13: Teenager
 - 16: Driver's License
 - 18: Adult
 - Vote
 - May or may not be eligible for youth/adolescent programming
 - Join Military
 - 21: Use Alcohol Legally

Adolescent Development

0

11-13

13-18

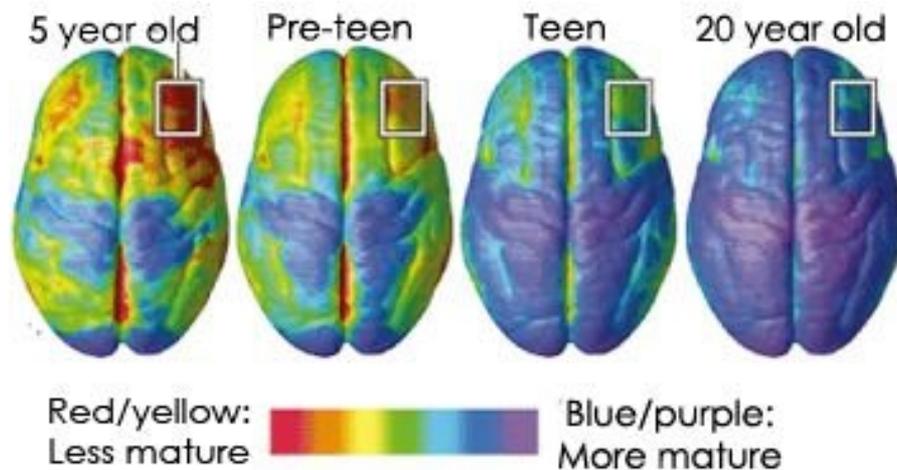
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Birth

Puberty

Adolescence

Young Adulthood



Intervention Practices Informed by Adolescent Biological and Social Development

- Prevention is important
 - Prevent substance use or prevent problem from worsening
- Teach about changes in body and brain
 - Developmental growth periods
- Teach emotional regulation
 - Anxiety, anger, and negative moods
- Teach problem-solving and decision-making skills
 - Understanding consequences, choices, and planning of behavior
- Teach influence of contextual pressure
 - Peer pressure

Ages, Developmental Tasks, & Areas of Intervention

Ages	Developmental Tasks	Intervention Areas
12-14	Identity, risk taking/impulsivity, emotional regulation	Emotional regulation, problem-solving, decision-making, peer relations
15-17	Identity, individuation, connection, exploration	Problem-solving, decision-making, etc.
18-20	Identity, school-to-work(school)	Goal setting, school and vocation skills
21-24	Identity, early adulthood	Stability, goal attainment, transitions from school or work

Thank You!!

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