

“Normal” Adolescent Development

Michelle Maloney, PhD

System Executive Clinical Director of Addiction Services

Sean LeNoue, MD

Child/Adolescent, Adult, & Addiction Psychiatrist

Medical Director – Outpatient Services

Disclosures

The presenter has declared that neither they nor does their family have any financial relationship in any amount occurring in the last 12 months with a commercial interest whose products or services are discussed in the presentation. The presenter has declared that they do not have any relevant non-financial relationships. Additionally, all planners involved do not have any financial relationships.

Learning objectives

Upon completion of the instructional program, you should be able to:

1. Review diagnostic criteria for substance use disorders
2. Explore the neurobiology of the adolescent brain & addiction pathways
3. Evaluate considerations for “normal” experimentation vs. substance use disorder in adolescence

What is a Substance Use Disorder?

What is a Substance Use Disorder?

- Substance use disorders are characterized by direct activation of the brain reward system and are associated with several specific DSM-5 criteria (see below):
- **Impaired Control over substance use**
 - Using more / for longer than originally intended (criterion 1)
 - Unsuccessful attempts to stop or cut down (criterion 2)
 - Significant time spent obtaining, consuming, and/or recovering from substance (criterion 3)
 - Cravings – most likely to occur in specific environments (criterion 4)
- **Social Impairment**
 - Use interferes with role obligations at work, school, and/or home (criterion 5)
 - Persistent use despite notable social and/or interpersonal problems (criterion 6)
 - Withdrawal from or reduction of important social, occupational, or recreational activities (criterion 7)

Substance Use Disorder (continued)

- **Risky Use**
 - Recurrent use in physically hazardous situations (criterion 8)
 - Persistent use despite physical and/or psychological problems in association with it (criterion 9)
- **Pharmacological criteria (*not required for diagnosis of substance use disorder*)**
 - Tolerance (criterion 10)
 - Requiring more of the substance to achieve the desired effect
 - Markedly reduced effect when usual dose is consumed
 - Withdrawal (criterion 11)
 - After prolonged use, individuals consume the substance to alleviate negative symptoms associated with the decline of substance concentrations in blood and/or tissue
 - Most noticeable in discontinuation of alcohol, opioids, sedatives, hypnotics, and anxiolytics

Substance Use Disorder (continued)

- Severity levels
 - Mild
 - meets 2-3 criteria
 - Moderate
 - meets 4-5 criteria
 - Severe
 - meets 6 or more criteria
- Types of substances commonly abused
 - **Tobacco**
 - **Alcohol**
 - **Marijuana**
 - Opioids
 - Stimulants

Epidemiology

Epidemiology



Who is affected?

Epidemiology



EVERYONE

Epidemiology – Children/Adolescents

Substance Use (Lifetime Prevalence, 12th graders)

Tobacco: **26.6%**

Alcohol: **61.5%**

Marijuana: **45.0%**

Any Illicit Drugs: **48.9%**

U.S. 12th graders

5.9% report daily marijuana use

24.9% report using marijuana in the last 30 days

1.2% report daily alcohol use

30.2% report using alcohol in the last 30 days



youth.gov

Epidemiology – Children/Adolescents

Co-Occurring Mental Health / Substance Use Disorders

In youth (13-18 yrs) with a substance use disorder: **60-80%** had comorbid mental health disorder (Couwenbergh et al., 2005)

Attention Deficit Hyperactivity Disorder (ADHD) → ADHD + Cannabis (marijuana) use disorder (lifetime prevalence/use): **OR: 1.6**

(Lee, Humphreys, Flory, Liu, & Glass, 2011)

Oppositional Defiant Disorder/Conduct Disorder: **25-50%** have co-occurring substance use disorder (Buckstein, 2015)

Anxiety and Tobacco Use (lifetime prevalence/use): **OR: 3.0**

(Wu et al., 2010)

Median age onset of a substance use disorder: **15** years of age

(Merikangas et al., 2010)

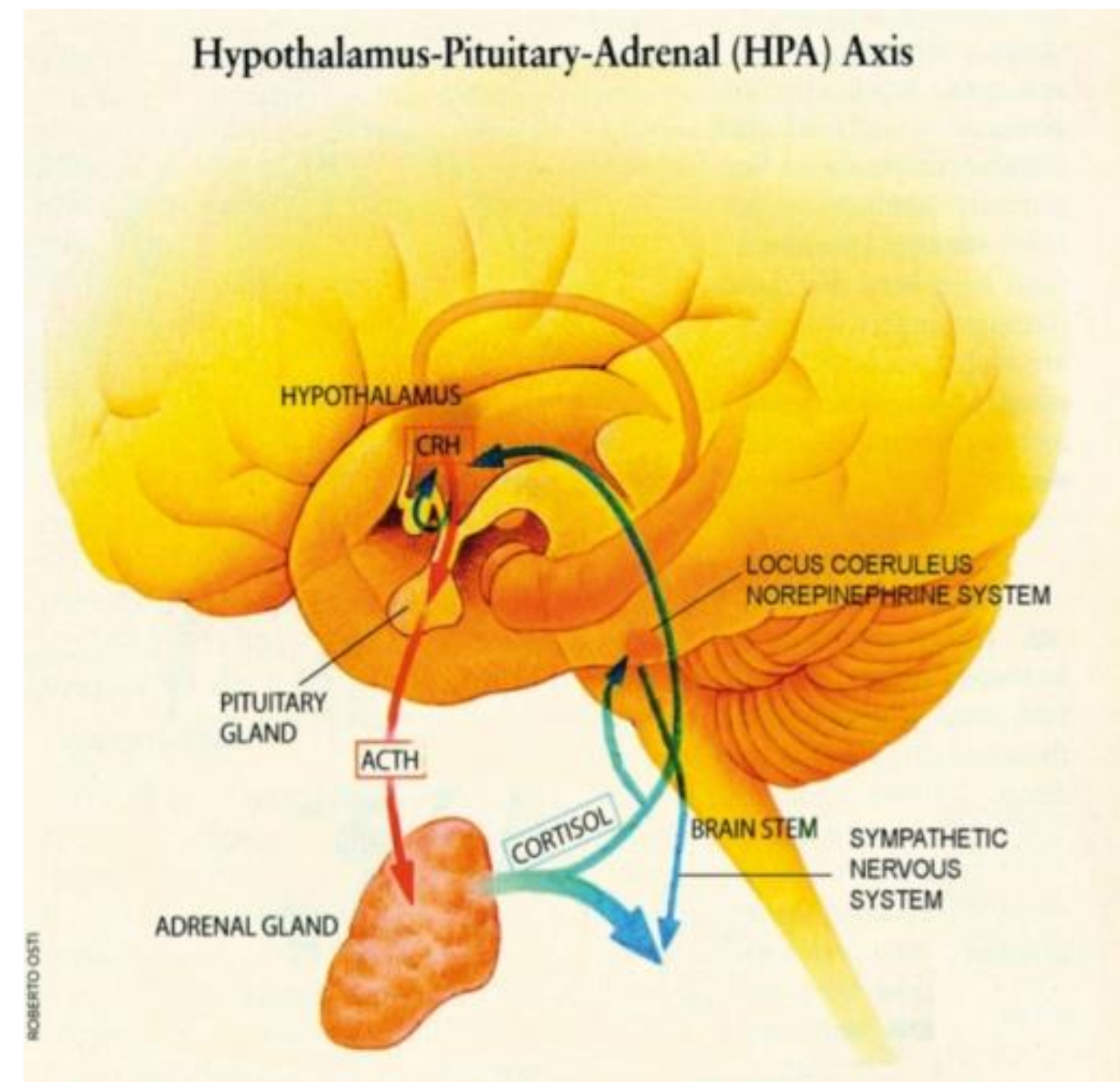
Neurobiology & Neurodevelopment

Neurobiology of Mental Health & Addiction

Hypothalamic Pituitary Adrenal (HPA) Axis

↑ Stress/Substance use → ↑ HPA Axis Activation → ↑ Cortisol

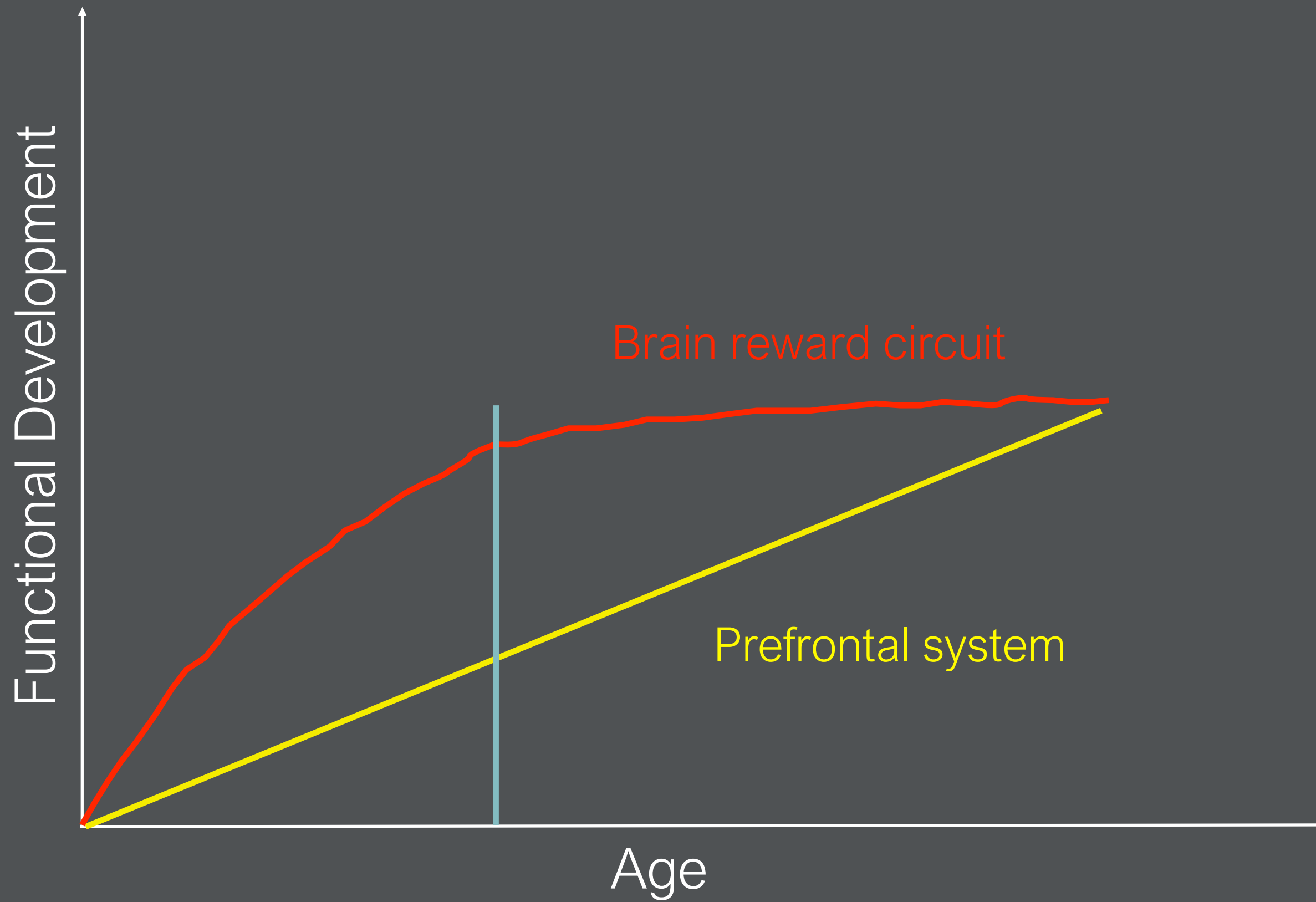
Endocrine system
Sleep
Immune system



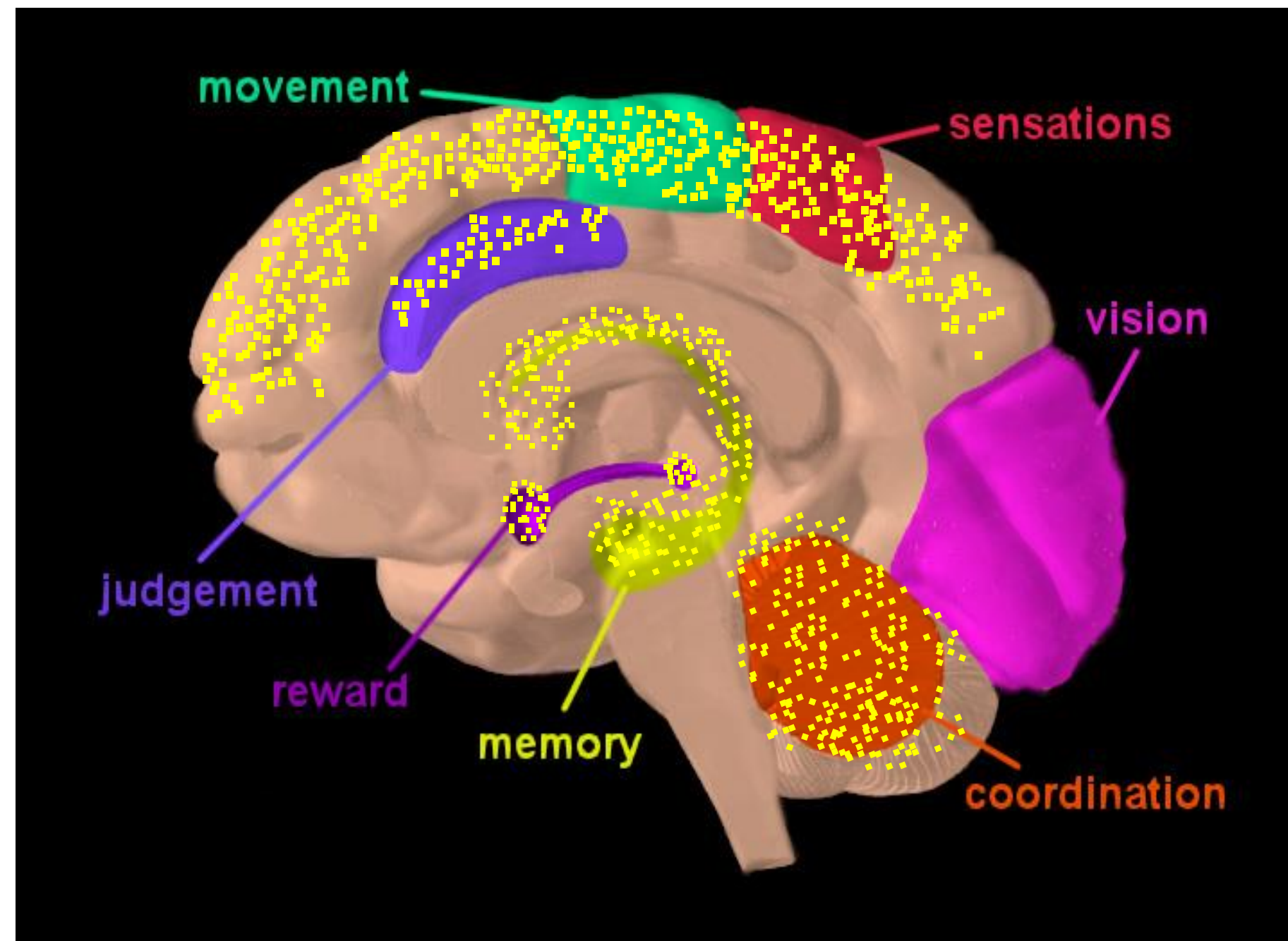
Sinha, 2001

15

Erb, Shaham, & Stewart, 1996
Sherin & Nemeroff, 2011



Effects of Cannabis on the Brain



- Brain Development
- Appetite
- Immunological Function
- Reproduction
- Pain Regulation/Analgesia

*Is this “normal” experimentation or
a problem?*

Normal experimentation versus problematic use – How to differentiate?

- The answer to this question is complex.
- Some factors to consider:
 - Has the child changed?
 - e.g., changes in personality, friends, interest in sports, interest in school
 - Has the child become preoccupied with drug culture?
 - e.g., changing clothing
 - Is there functional impairment?
 - e.g., failing grades, difficulties in relationships, reduced engagement with previously enjoyable activities, physical symptoms
 - What is the frequency, consistency, and duration of substance use?

Normal experimentation versus problematic use?

How to differentiate -

- More factors to consider:
 - Does anyone have concerns about the substance use?
 - Which substance is being used?
 - Typical experimental drugs: alcohol and marijuana
 - Outside of these two → probably not normal experimentation
 - If any injections are needed → beyond experimentation
 - If there are any risky behaviors involved → probably beyond experimentation

Cognitive Symptoms with Substance Use Disorder

- Depends on the type(s) of substance used
- Intoxication or withdrawal?
- Overlap with Anxiety
 - Stimulant intoxication
 - Sedative/hypnotic and marijuana withdrawal

Manifestations of Substance Use Disorder at School

- Declining academic performance
- Changing peer group
- Decreased participation in classes, athletics, clubs/groups, and/or extracurricular activities
- Decreased apparent interest in previous motivations/goals
- Changing behaviors/attitude

Reasons for addressing mental health and substance use disorders simultaneously

- Both mental health problems and substance use disorders are more difficult to treat when complicated by comorbid disorders.
- Active treatment of mental health concerns can temporarily exacerbate symptoms of SUD → resulting in increased substance use/cravings → possible increased MH symptoms (cycle repeats).
- Discontinuation of substance use can exacerbate MH symptoms (withdrawal +/- return of original MH symptoms).

Treatment

Treatment

- Multifaceted treatment approach often needed
 - Psychotherapy
 - Cognitive Behavioral Therapy, Dialectical Behavioral Therapy, Motivational Interviewing, & family therapy
 - Medications
 - Treat underlying mental health & substance use disorder simultaneously
 - Contingency Management
 - Community-based recovery support
 - Groups/meetings
 - Sponsor
 - Pro-social, recovery-informed activities

Summary

- Mental Health and Substance Use Disorders are **pervasive**.
- Both MH and SUDs more difficult to treat when complicated by comorbid disorder.
- Treat co-occurring mental health and substance use disorders **CONCURRENTLY**
- Engage **families** and **social supports** whenever possible
- Mental health and substance use disorders are often **chronic, relapsing/remitting illnesses** – DON'T GIVE UP!
- **Prevention** is key

Resources

**Substance Abuse & Mental Health Services Administration
(SAMHSA)** ([SAMHSA.gov](https://www.samhsa.gov))

National Institute on Drug Abuse (NIDA) ([drugabuse.gov](https://www.drugabuse.gov))

Thank you!



Q&A

Call or visit:

800-767-4411

rogersbh.org

ROGERS
Behavioral Health

Behavioral Health Awareness Series

If you are an Evernorth or Cigna customer and have questions about Substance Use treatment or about your benefits and how to use them, please contact:

Stephanie Gissal - 800.274.7603 x398516

Wanda Russell – 800.274.7603 x342063

Kari Mack – 800.274.7603 x1034994

Jordan Nielsen – 800.274.7603 x382620