

Legalized or Not: *The Impact of THC on the Developing Brain*

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Disclosures

- RELATIONSHIP(S) WITH INELIGIBLE COMPANIES
 - *NONE*
- REFERENCES TO OFF-LABEL USAGE(S) OF PHARMACEUTICALS OR INSTRUMENTS
 - *NONE*
- The information in this presentation is for educational purposes only and is **the sole opinion of the presenter.**



Learning Objectives

1. Recognize how the legalization of cannabis has impacted adolescent use trends.
2. Analyze the physiological and psychological impact THC has on the developing brain.
3. Identify prevention strategies for educating children and parents on the impact of THC on the brain.

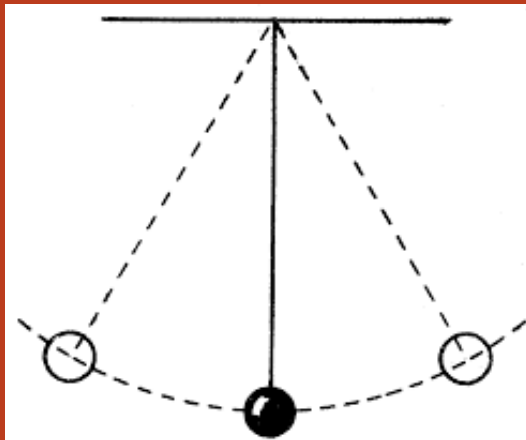
Goal: Information to enhance your knowledge and practice



Marijuana
What's in it?
Why do we use it?

- **Tetrahydrocannabinol**
 - **Delta-9**
- **One of 113 psychoactive chemicals**
- **Has its own drug classification**

History of Marijuana in the United States



National
Use
Trends
2023

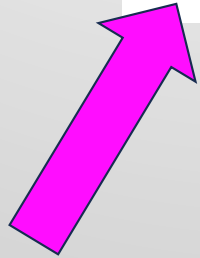


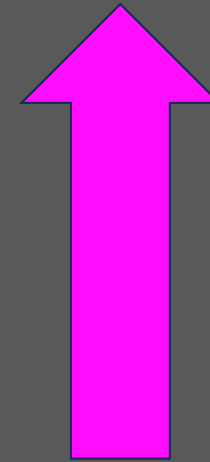
TABLE 4-2
**Annual Prevalence of Use of Various Drugs by Subgroups
for 8th, 10th, and 12th Graders, 2023**
(Entries are percentages.)

Total	<u>Marijuana</u>		
	8th	10th	12th
Gender	8.3	17.8	29.0
Male	6.8	14.4	28.0
Female	9.5	19.6	28.9



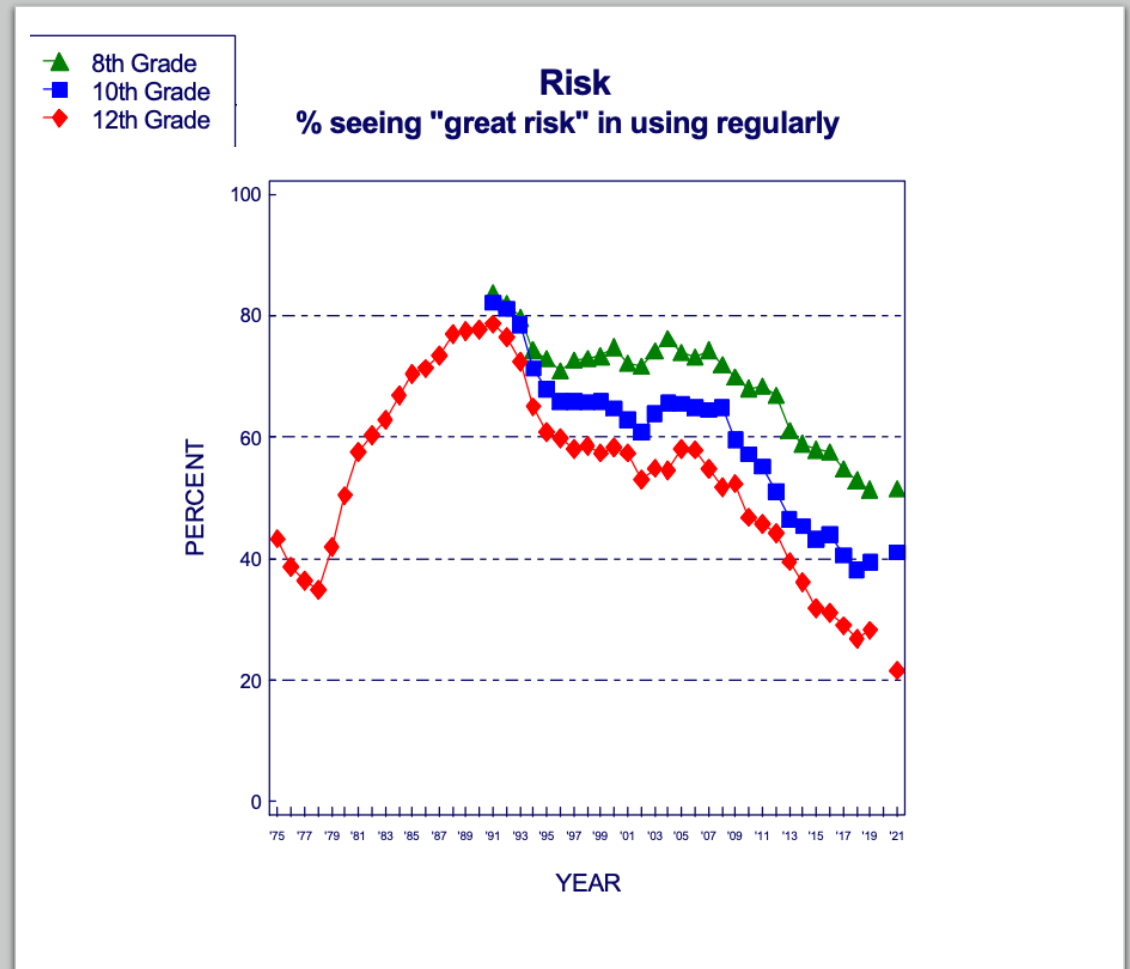


What has led to this increase?

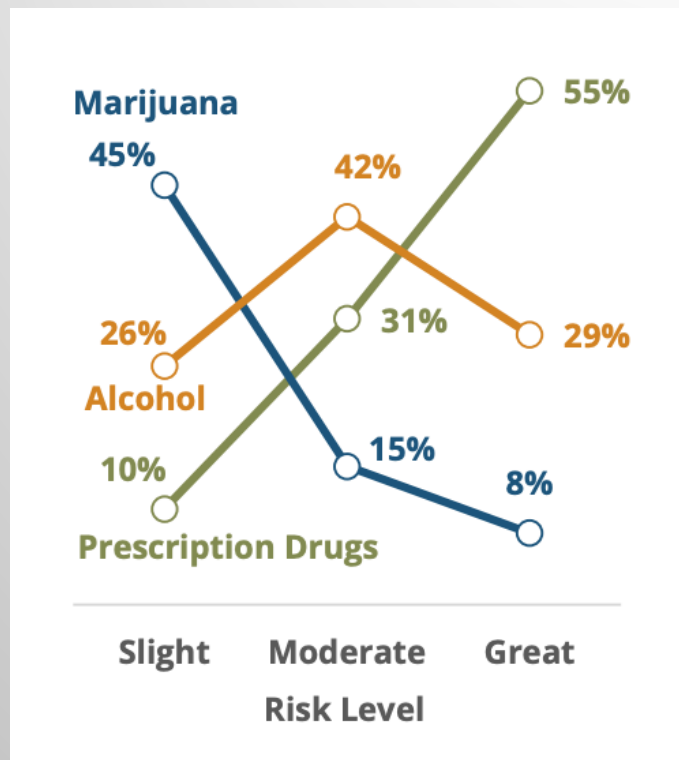


Belief the drug is safe

- It's legal
- It's a medicine
- No one overdoses
- It's not addictive
- It's better for you than alcohol/cigarettes



Survey of North Dakota Young Adults- 2020



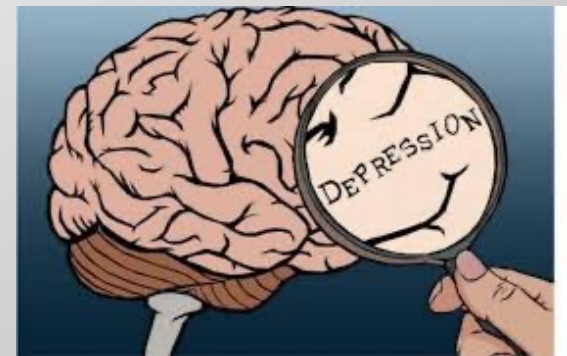
Is it safe?

- Difficulty thinking and problem-solving (Pre-Frontal Cortex)
- Problems with memory and learning (Hippocampus)
- Difficulty maintaining attention (Frontal Lobe)
- Reduced coordination (Cerebellum)



Mental Health and Marijuana

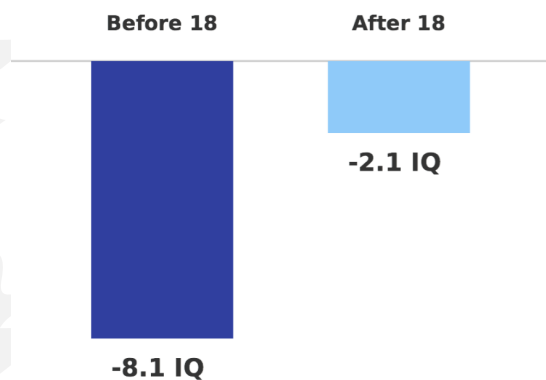
- Marijuana use in teens has been linked to a range of mental health problems, such as depression and anxiety.
(Shrinkage in the hippocampus and prefrontal cortex)
- Teens who use marijuana are more likely to develop temporary psychosis, not knowing what is real, hallucinations, and paranoia.
(Overactivation in the sensory cortex)
- Psychological dependence (addiction)
 - “I **want** the drug”
 - People who begin using marijuana before age 18 **are 4-7 times more likely** to develop cannabis use disorder



School Performance and Marijuana

- Marijuana dulls your attention, memory, and learning skills. These effects can last for days and sometimes weeks, depending on how often you use marijuana.
- Compared with teens who don't use, students who use marijuana are more likely not to finish high school or get a college degree.

Marijuana+IQ: Adults vs Kids



Adult Marijuana users who started as kids experienced an average loss of:

8 IQ Points

upon reaching adulthood.

Synthetic Marijuana- *It's not the same*



Prevention

- Education
 - Health consequences
 - *Criminal consequences*
- Screen for its use
- Instilling family values



**PREVENTING MARIJUANA USE
AMONG YOUTH & YOUNG ADULTS**

Case Study

Dr. Johnson, a family physician in rural North Dakota, recently reached out to you to consult on a 15-year-old female patient, Kennedy. In her most recent appointment, Kennedy's mental health screeners identified that she was experiencing symptoms of both depression and anxiety, which represents a change since her last visit.

When asked about the symptoms, Kennedy reported she has been "feeling off" for a few months. Kennedy goes on to report that she has been using a vape pen with THC cartridges to help her deal with her emotions. She reported reading somewhere that medical marijuana is helpful for anxiety and was easy to get at school. She reports feeling better while using the pen, but worse afterwards, which prompts her to use again.

Dr. Johnson, who self-admittedly isn't familiar with the impacts of THC or addiction, is hoping that you can provide some insight on how to treat this patient.

Resources

- National Institute on Drug Abuse (NIDA)
<https://archives.nida.nih.gov/publications/step-by-step-guides-to-finding-treatment-drug-use-disorders/if-your-teen-or-young-adult-has-problem-drugs>
- Partnership to End Addiction (Drug Free America)
https://drugfree.org/article/marijuana-what-you-need-to-know/?gclid=EAlaIQobChMI34TkwLip-wIVFHxvBB3GDwZIEAAYASAAEgJK8fD_BwE
- Substance Abuse and Mental Health Services Administration
<https://store.samhsa.gov/product/preventing-marijuana-use-among-youth/PEP21-06-01-001>
- Drug Enforcement Agency
<https://www.dea.gov/sites/default/files/2018-07/DEA-Marijuana-Prevention-2017-ONLINE.PDF>

Questions?

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