Marijuana 101

Maine AAP  April 30, 2023

Marijuana Cannabis which is it

- DEA Lists as Marijuana = “Marijuana is a mind-altering (psychoactive) drug, produced by the Cannabis sativa plant.”¹
- Used interchangeably
  - Goes by many street names Refer/ weed/dope/ganja²
- Hemp is strain of Cannabis sativa that legally is less than 0.3% THC

Cannabis is a plant

- Cannabis sativa
- Cannabis indica
- Cannabis ruderalis

- More than 550 molecules including alkaloids/carotenoids/flavonoids/lignanamides/

- Cannabinoids- Cannabidiol and Δ-9-Tetrahydrocannabinol

Marijuana is a Schedule One Substance

- Schedule one drugs substances or chemicals have no currently accepted medical use and high potential for abuse (Heroin LSD marijuana ecstasy..)

- THIS DOES NOT APPEAR TO BE THE CASE FOR MARIJUANA
  - Epidiolex- Cannabidiol for use in treating certain rare severe seizure disorders Dravet/Lennox Gastaut
  - Manufactured pharmaceutical cannabinoids- dronabinol/nabilone
Marijuana Used to Treat

- Appetite Stimulation - in AIDS wasting syndrome
- Treatment of Chemotherapy induced nausea and vomiting
- Severe pain
- Spasticity
- Other indications where studies indicate use: Glaucoma, Epilepsy, Anti-Inflammatory

### Risk of Harm

- Teens NSDUH Risk of harm: 19% reported no risk in monthly cannabis use and 29% reported slight risk in monthly cannabis.
- Qualitative opinions adult use changing/many adults worry about teen use [2]
- Children of Parents who use marijuana are much more likely to use marijuana [2]
- About 1/3 of adults in recreational states use marijuana products [3]
- Prevalence in recreational marijuana states is double that of both nonlegal and medical marijuana use states [3]

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### Cannabis Epidemiology in Youth

- In 2017 daily cannabis use exceeded daily cigarette use
  - 8th graders (0.8% vs. 0.6%) – 1st year this ever happened in this age group according to NIDA
  - 10th graders (2.9% vs 2.2%) – this trend began in 2014
  - 12th graders (5.9% vs 4.2%) – this trend began in 2015
- 12th graders are 82.1% more likely to use cannabis in their lifetime than they are to smoke a cigarette
- 12th graders prevalence of using cannabis daily for a month or more during one’s lifetime
  - 1982 – 21% (first time measured)
  - 1992 – 8%
  - 1997- 19%
  - 2018 – 12%
  - 2022 – 14%

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Marijuana use in past 12 months

MIYHS Maine HS
Cannabis Ingestions with Increases in Recreational and Medical Use In States

**Figure 1**

Pediatric edible cannabis product ingestions per 1000 pediatric calls to the National Poison Data System by year.


New England Poison Center

**Figure 2**

Exposures to Cannabis Among Children Less Than 20 Years Old: NEPC
Cases from Maine, New Hampshire and Vermont, 2013-2022
Increasing Potency THC

![Graph showing increasing potency of THC over time](image)


**Forms**

- Inhalation- Smoked/Vaped/
- Oral Mucosa- Sprays
- Ingested- Edibles/Drinkables/Tablets Capsules
- Topicals- Ointments/Rubs
- Synthetic-Spice/
- Δ8THC- synthesized from Hemp

[Image: Bhang- ground fresh leaves stems flowers](https://www.travelandleisureasia.com/in/dining/bhang-holi/)

Bhang- ground fresh leaves stems flowers
Other Forms

- Hashish
- Dried flower buds/stems/leaves
- Oil
- Tinctures

A Quick Word About Dabs

- High Concentrations THC 80-90%
- Extract oil with
- Special rigs
Look Familiar

Marijuana vaping devices

Pods

https://www.pax.com/

Mechanism of Action

- Δ9THC partial CB1 and CB2 agonist
- Neuronal activity modulation affecting GABA/Glutamate and Dopamine
- Developmentally endocannabinoid system important for scaffold of burgeoning nervous system and synaptic connections during adolescence.


Pharmacokinetics

- Rapid absorption via inhalation or oral-mucosa-5
- Ingested products variable absorption / extensive first pass metabolism in liver onset often not for a 1.5-3 hours
- Poorly absorbed through skin
- Mostly excreted through feces (65%) 20% urine

Psychomotor and cognitive impairments reported up to 6 hours after acute use in adults


Acute Use

- Euphoric feeling
- Increased heartrate/BP
- Poor Coordination - MVA
- Poor Judgement - MVA/STI
- Red Eyes
- Munchies
- Dry Mouth
- Sedation
- Acute Anxiolytic
- Increased Anxiety
- Paranoia/Psychosis
- Rare- Cardiac Dysrhythmia, EVALI
- Hypertensive crisis, CV disease
- Cardiomyopathy, Several Case
- Reports of MI in Peds Population

Long Term Effects

- Increased Risk Cognitive Loss - Loss of IQ/Poor educational attainment
- A-motivational syndrome/diminished life satisfaction and achievement
- Increased risk mood disorders (Depression)
- Increased risk suicide - 3.5 the odds of making a suicide attempt
- Increased risk of psychotic disorder and exacerbation of the course of these illnesses
- Chronic Bronchitis
- Hyperemisis/Weight loss
- Cardiovascular disease


Risk of Addiction

- 1 in 6 teens who use will develop addiction
- Daily adolescent users have much higher risk 25 to 50%
- Onset of use in adolescence versus adulthood increases risk by 2 to 4 times of dependence in 2 years after initiation.
- Increases risk of other substance use.

Cannabis Use Disorder

- Cannabis is often taken in larger amounts or over a longer period than intended
- There is a persistent desire or unsuccessful efforts to cut down or control cannabis use
- A great deal of time is spent in activities necessary to obtain cannabis, use cannabis or recover from its effects
- Craving or a strong desire to use cannabis
- Recurrent cannabis use results in failure to fulfill role obligations at work, school or home
- Continued cannabis use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of cannabis
- Important social, occupational or recreational activities are given up or reduced because of cannabis use
- Recurrent cannabis use in situations in which it is physically hazardous
- Cannabis use continues despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by cannabis.
- Tolerance, as defined by either: (1) a need for markedly increased cannabis to achieve intoxication or desired effect or (2) a markedly diminished effect with continued use of the same amount of the substance.
- Withdrawal, as manifested by either (1) the characteristic withdrawal syndrome for cannabis or (2) cannabis is taken to relieve or avoid withdrawal symptoms.

Cannabis Withdrawal Syndrome

- Onset 24-48 post cessation/window of improvement after 4-7 days
- Symptoms: poor appetite/shakiness/poor sleep/strange dreams/sweating/chills/rarely fever Anxious/irritable/depressed/angry/aggressive
- More severe with CUD/psychiatric illness/polysubstance use

Marijuana Pregnancy/ Breast Feeding

- Limited evidence of association with growth restriction, preterm birth, still birth and NICU admission
- Evidence of poor neurodevelopmental outcomes in offspring of neonates exposed especially at higher doses
- ACOG and AAP recommend against
- American Academy of Breastfeeding Medicine – Reduce or Eliminate to reduce potential long term neurobehavioral effects of longterm exposure.


Treatments

- Psychotherapy is mainstay:
  - CBT/ ACRA/MET
  - Contingency Management
  - Family Therapies
- Treat comorbid psychiatric illness /substance use
- NAC studied in teens 1200mg bid
- Adults trials using pharmaceutical cannabinoids dronabinol

Prevention

- Parental Attitudes/Use
- Parental Monitoring
- Peer Attitudes
- School Engagement
- Engagement in Extracurricular Activities