

Objectives

- ♦ Define medibles
- ♦ Explain Cannabinoids in the human system
- ♦ Discuss adverse Effects of Marijuana in Pediatrics
- ♦ Discuss Treatment for overdose of Marijuana in Pediatrics

What is the definition of a Medible?

Found in Urban Dictionaries
Found online
Known "street" terminology

Medibles
Medical cannabis edibles.
Brownies, **cookies, cakes**, peanut butter balls, etc., prepared with cannabis as medical alternative to smoking, vaping, etc.
for example:
Balls of Confusion
These tasty peanut butter balls have Ground Bud Cannabis & Ground Bud Cannabis Butter. **Dipped** in Medicated White or Dark Chocolate.

How does THC affect the system

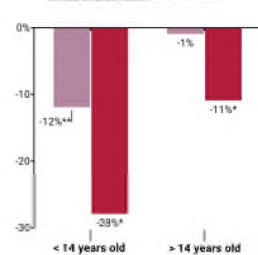


Adverse Effects of Marijuana Use In Pediatrics

Early marijuana use and intensity of use are associated with lower educational attainment

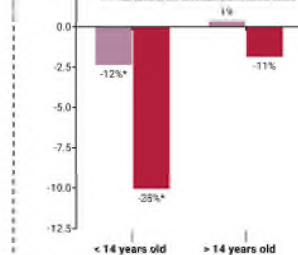
High School Completion

Marijuana users show much higher high school dropout rates than non users



University Entrance Score

Marijuana users that complete high school still do poorly on university entrance tests



*p<0.05, **p<0.005
Low intensity use
Med/high intensity use

Source: Clark et al. <http://dx.doi.org/10.1177/0898010113508000>


- Exposure to Cannabinoids among adolescents causes long-term **behavioral changes**
- MRI scans indicate **brain anatomy alterations** in young adult users
- Regular heavy use by adolescents is linked to **IQ loss** which persists into adulthood, even if marijuana is no longer used

◦ <https://nasa.org>

- Low level childhood lead exposure **decreases IQ** by 7.4 points and high level exposure **decreases IQ** by another 2.5 points
- Interestingly Marijuana use in-utero during the first trimester, predicts a **5 point decrease** in the IQ studies done at age 6
- Heavy marijuana use during adolescents **decreases IQ by 8 points** in studies, loss is permanent

◦ *Child & Adolescent Addiction Psychology, UCD, Dr. Thurstone*

- Studies found a correlation between marijuana use and developing mental illnesses in adolescents such as schizophrenia and other forms of psychosis
- Adolescents who use marijuana daily are 7 times more likely to commit suicide
- Adolescents are twice as likely to become addicted as older users
- Children whose parents use marijuana are 52% more likely to use than ones whose parents don't



◦ <https://nasa.org>

- Physically children can experience intoxication, altered perception, anxiety, panic, paranoia, dizziness, weakness, slurred speech, poor coordination, apnea, and heart arrhythmias
- Adolescents suffer the same consequences with the added poor lung health of longtime use, impaired memory and cognitive changes, and motor and coordination changes that can be associated with unintentional injuries or death
- Infants can have side effects from breastfeeding; decreased feeding, lethargy, and coordination

• JAMA Pediatrics, 2016

Most Common Clinical Effects of Pediatric Marijuana Ingestion

- Drowsiness or Lethargy (**most common**)
- Ataxia or Dizziness
- Agitation/Irritability
- Nausea/Vomiting
- Tachycardia
- Dystonia/Muscle rigidity
- Seizures
- Respiratory Depression, Bradycardia, Hypotension

Numbers after Legalization and Recreational Marijuana Laws

- Washington made marijuana recreational in the state in 2012
- WA young adult drivers (18-25) driving while using marijuana, rose 5% above the national average during 2012-2013
- Incidents of marijuana impaired driver with active THC in the blood involved in fatal accidents has risen 122% since Legalization in WA

• WASTSC, report, 2016

- Washington poison control in 2014, states 45% of calls related to unintentional marijuana ingestions are under 20yo
- 2014-2016 under 20yo, 80% calls were related to unintentional marijuana ingestion
- Cookies and desserts are 70% of the medible WA market
- WPC logged 312% more calls related to medibles and youth 2014-2015, of those calls 50% were related to chocolate and candy and 25% were related to baked goods

◦ WA Marijuana Impact Report, 3/2016

- Colorado passed recreational marijuana in the state in 2012
- After legalization of marijuana, CO experienced a 40% increase in drug related suspensions and expulsions in high schools all related to marijuana usage according to NCSA, 2016
- CO percentage of 12yo and older who use marijuana daily is 10% above the national average according to SAM.org, 2016
- CO marijuana related traffic deaths after legalization increased 92% (30% were young adults)whereas overall traffic deaths only increased by 8% in the same time frame
- 1 of every 5 fatalities, the driver, has been positive for marijuana use since legalization in CO

◦ Rocky MT HDTA

Marijuana: Harms to Non-Users

Availability of marijuana increases the danger of **accidental ingestion**, especially with children.

Eatible Marijuana Incidents

11 Children Exposed

6 Hospitalized

2 Admitted to ICU

Colorado, January 1 – April 30, 2014

The American College of Pediatricians found that, by 2011, poison centers in states which decriminalized marijuana prior to 2005 had experienced a tripling in calls related to accidental pediatric marijuana ingestion.

- After legalization in CO edibles were implicated in 2 deaths in youths
- 2008-2011 CO ED saw an average of 4 children ages 3-7 for unintentional marijuana ingestion, in 2013 they saw 8 children same ages for the same reason
- The first half of 2014 the ED saw 14 children of the same ages for the same reasons
- CO regional poison control reported of the 99 exposure cases 2013-2015 from marijuana 51 cases were from edibles (52%)

• JAMA Pediatrics, 2016 & CRPC

- Oregon made marijuana recreational in 2014
- 1 in 10 eighth graders and 1 in 5 eleventh graders in 2015 in OR use marijuana and state use more than cigarettes
- Youth state Marijuana easier to get in OR than cigarettes, using diverted marijuana
- 67% of youth state they get from friends and smoking marijuana is the most widely used choice
- Youth state they drive within 3 hours of marijuana use
- Oregon poison control has on average 10 calls a year of children less than 5yo related to unintentional marijuana ingestion since 2012
- Edibles is OPC number one involved unintentional marijuana ingestion

• OR Marijuana report.gov 2016

- Nevada finally legalized medical marijuana in 2016 and voted it recreational in 2017, faster than all of the other recreational states
- 9-12 graders in NV report use of marijuana in 2015, 39% male and 43% female according to NV HHS.gov
- Since legalization and recreational have only been within the past year reported numbers from NHTSA and NV poison control due to unintentional marijuana exposure are unavailable
- However Renown has had multiple pediatric ED visits for unintentional marijuana ingestion and one 2yo intubated patient this month

Doses of THC

- One single puff from smoking marijuana delivers approximately 5mg of THC to the user and has onset almost immediately to the CNS
- Peak onset times from smoking range from 15-30 minutes post smoking but are affected by puff, inhalation, hold times, and metabolism
- System concentrations can vary from hours to days
- Oral ingestion is absorbed slower due to route, vehicle, metabolism, and excretion, this also delays peak concentrations 2-5 hours and onset varies from 30 min-2 hours

• [Human Cannabinoid Pharmacokinetics, nih.gov](#)

- Medibles are multi dose units and come in many different forms
- A unit/dose has approximately 10mg of THC bioavailability in it
- Adult dose is 10-20 mg or 1-2 servings usually in an 8 hour period
- Packaging states how many servings or doses are available in the medible
- Medibles may have commonly 10 doses per item, 1 cookie, 1 cupcake, 1 candy bar, 1 package of gummies

• [SAM.org](#)

What child eats one bite of cookie, one gummy, or one bite of candy bar?



Treatment of **Overdose**

- Treatment is symptomatic and supportive
- LOC baseline and checks, GCS
- Safety of patient, antiemetic, fluids, oxygen, support airway, possible anticonvulsants
- Call regional poison control and bring to area emergency department

• JAMA, Pediatrics & K. Deeter, M.D.

Interesting Facts

- In the 1960's Marijuana contained 1-2% THC
- Marijuana today contains around 15% THC
- Some extractions today can contain 80-90% THC
- Denver hosts the "Cannabis Cup" yearly where different strains of marijuana compete to be the most **POTENT** strain

• NCSA.org



