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Marijuana and Teenage Driving Risks in the Midwest

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Presentation to the
Midwest Injury Prevention Alliance

10 March 2021

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Overview of Presentation

- **Marijuana Law(s) in Illinois, Indiana, Minnesota, Michigan, Ohio, and Wisconsin**
- **Other states' marijuana laws and vehicle crash rates**
- **The use of marijuana by teenagers in Illinois**
- **Marijuana effects on the body**
- **The teenager's brain**
- **Likely risks on teenage driving and use of marijuana**



Marijuana is still illegal at the federal level and remains classified as a Schedule I drug under the federal Controlled Substances Act. Schedule I drugs, substances, or chemicals are defined as drugs with no currently accepted medical use and a high potential for abuse.

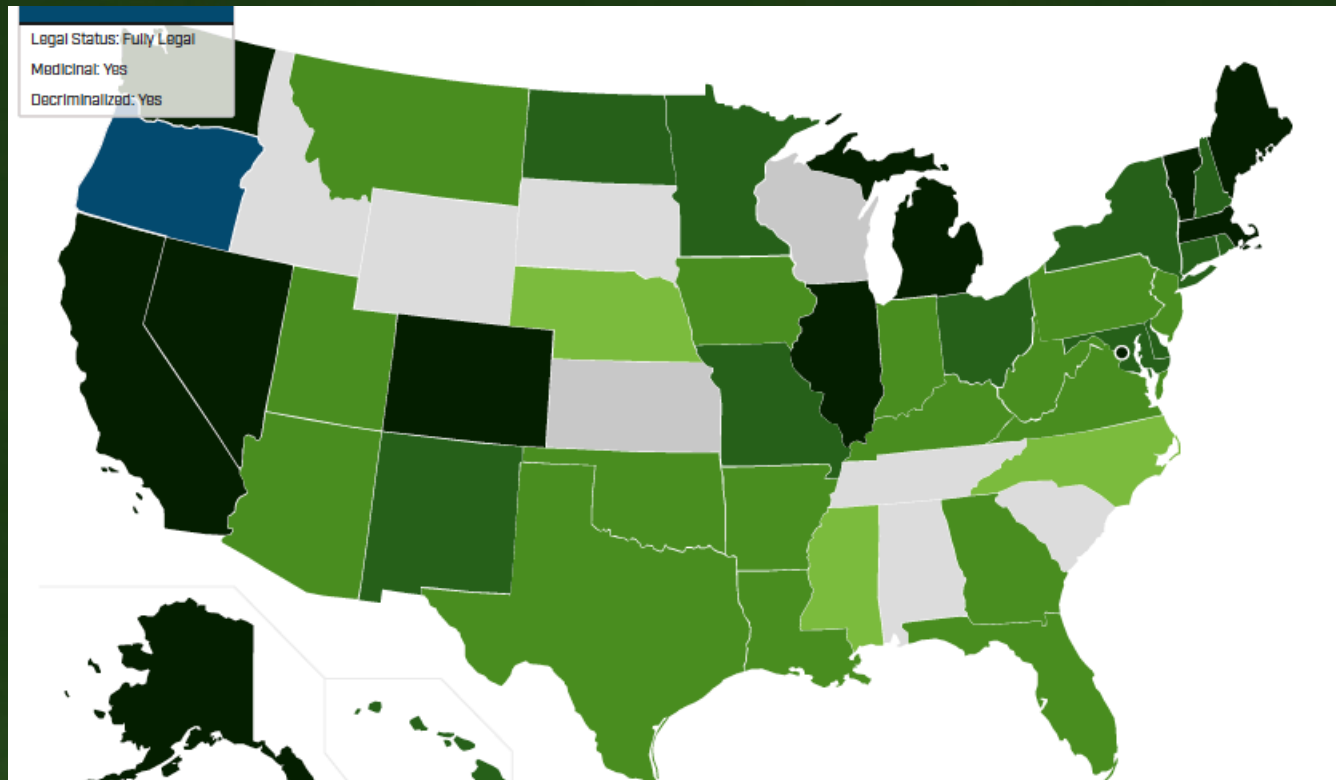
Despite this, as of 1 March 2021, medical cannabis use is legal in 36 states and recreational cannabis use is legal in 15 states (Alaska, Arizona, California, Colorado, Illinois, Maine, Massachusetts, Michigan, Montana, Nevada, New Jersey, Oregon, South Dakota, Vermont and Washington).

<https://www.ncsl.org/research/health/state-medical-marijuana-laws.aspx>

<https://www.ncsl.org/research/transportation/drugged-driving-overview.aspx>

The current status of state marijuana legalization is shown in the following map

Black= Legalized;
Dark Green= Medical and Decriminalized;
Green= Medical;
Light Green= Decriminalized;
Gray= Fully illegal



<https://disa.com/map-of-marijuana-legality-by-state>



Illinois Medical Marijuana Law

- On 1 August 2013, Illinois launched a medical marijuana law called The Compassionate Use of Medical Cannabis Pilot Program Act.
- In 2014, the governor and legislature improved the law by adding a qualifying condition — seizures — and by making it possible for minors to qualify.
- The law allows physicians to recommend the therapeutic use of medical marijuana to patients who are under their doctors' care for at least one of the 49 qualifying medical conditions.
- Qualifying patients who receive a written certification may register with the state Department of Public Health for legal status as a medical marijuana patient.

<https://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=3503&ChapterID=35>

The Illinois Cannabis Regulation and Tax Act – Personal use of Cannabis



Starting 1 January 2020, adults over 21 were able to legally purchase cannabis for recreational use from licensed dispensaries across the state.

Possession limit for Illinois residents:

- 30 grams of cannabis flower;
- 5 grams of cannabis concentrate; and
- No more than 500 milligrams of THC contained in a cannabis-infused product; and
- Registered patients in the medical cannabis pilot program may possess more than 30 grams of cannabis if it is grown and secured in their residence under certain conditions.

The Illinois Cannabis Regulation and Tax Act – Personal use of Cannabis Continued

Possession limit for non-Illinois residents:

- **15 grams of cannabis flower;**
- **2.5 grams of cannabis; and**
- **No more than 250 milligrams of THC contained in a cannabis-infused product.**

The possession limits are to be considered cumulative.

<https://www.ilga.gov/legislation/publicacts/101/101-0027.htm>



Driving Under the Influence - Illinois



- Driving under the influence of cannabis is illegal and strictly prohibited.
- Those caught behind the wheel under the influence of marijuana face steep charges in the same fashion of an alcohol DUI.
- In addition to driving a motor vehicle under the influence of cannabis, it is also illegal to operate an aircraft, motorboat or any other motor vehicle while under the influence of cannabis.
- It is illegal to transport marijuana in car unless it is in a secured, sealed and tamper-evident container that is inaccessible while the vehicle is moving. The vehicle must also be private and not open to the public. Under no circumstance is it legal for a driver or passenger to consume recreational or medical cannabis inside of a vehicle.

<https://www.ilga.gov/legislation/publicacts/101/101-0027.htm>

Indiana Marijuana Laws



- Any possession, sale, cultivation, or manufacture of marijuana is a crime in Indiana, as is possession or manufacture of cannabis concentrates. The state's anti-drug laws are very harsh, some of the harshest in the country. **CBD** products are specifically excepted from the state's criminal definition of marijuana, as long as they contain **no more than 0.3% THC**.
- Simple possession of any amount of marijuana up to 30 grams (roughly one ounce) is considered a **misdemeanor in Indiana** and can be punished by as much as 180 days in jail and a \$1,000 fine on a first offense. Penalties for subsequent offenses are up to one year in jail and \$5,000 in fines.
- Possession of any amount greater than 30 grams is a felony punishable by at least six months in jail and as many as 2 1/2 years in prison, plus a \$10,000 fine.
- **MEDICAL MARIJUANA**
 - Indiana passed a medical CBD law in May 2017 allowing the use of cannabis extracts high in CBD and low in THC, when recommended by a physician for a state-qualifying condition.
 - **QUALIFYING CONDITIONS:**
Treatment-resistant epileptic conditions, including Dravet syndrome and Lennox-Gastaut syndrome
 - **PATIENT POSSESSION LIMITS:**
Extracts must contain at least 10 percent cannabidiol (CBD) and no more than 0.3 percent THC.
 - Retailers are authorized to sell "low-THC hemp products" that are lab-certified to contain no more than 0.3 percent THC, subject to labelling and packaging requirements.

<https://marijuanaandthelaw.com/state-laws/indiana/>

Indiana Marijuana and Driving Laws

- Indiana has a **zero tolerance** per se drugged driving law enacted for cannabis, cannabis metabolites, and other controlled substances. (Indiana Code Annotated, Section 9-30-5-1 & Section 9-30-5-2)
- Violating the law is punishable by up to 60 days in jail upon conviction for a first offense.

• <https://norml.org/laws/drugged-driving/indiana-drugged-driving/>

Minnesota Marijuana Law

- Marijuana is illegal for recreational use in Minnesota, but it is explicitly allowed for a variety of medical conditions.

MEDICAL MARIJUANA

- *Minnesota's medical marijuana law was signed into law in 2014. The law removes criminal penalties for the medicinal use of marijuana by qualifying patients.*
- **QUALIFYING CONDITIONS:** Amyotrophic Lateral Sclerosis, Autism, Cancer/cachexia, Crohn's disease, Glaucoma, HIV/AIDS, Intractable pain, Post-traumatic stress disorder, Seizures, Severe and persistent muscle spasms, Sleep apnea, Terminal illness, Tourette's Syndrome
- **PATIENT POSSESSION LIMITS:** 30-day supply. **Only non-smokable forms of marijuana** are permitted.
- <https://marijuanaandthelaw.com/state-laws/minnesota/>

Minnesota Marijuana and Driving Laws

- A person is guilty of a misdemeanor if the person is the owner of a private motor vehicle, or is the driver of the motor vehicle if the owner is not present, and possesses on the person, or knowingly keeps or allows to be kept within the area of the vehicle normally occupied by the driver or passengers, **more than 1.4 grams of marijuana**.
- This area of the **vehicle does not include the trunk** of the motor vehicle if the vehicle is equipped with a trunk, or another area of the vehicle not normally occupied by the driver or passengers if the vehicle is not equipped with a trunk.
- A utility or glove compartment is deemed to be within the area occupied by the driver and passengers.

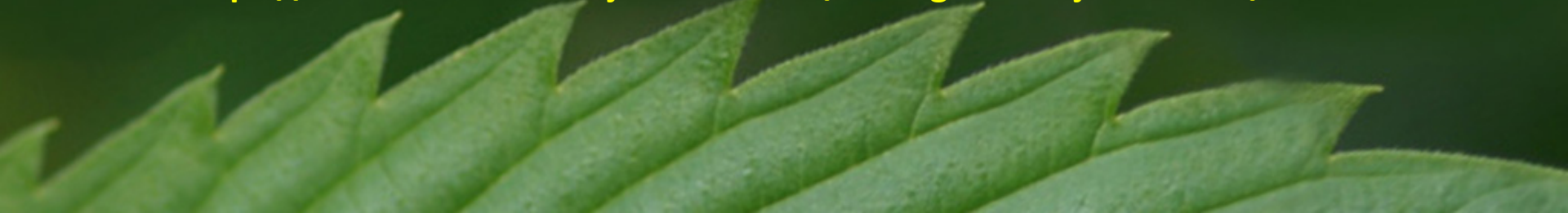
<https://www.revisor.mn.gov/statutes/cite/152.027>



Michigan Marijuana Law

- **Use and possession of marijuana is legal in Michigan for both medical and recreational purposes.** Possession limits are relatively high, home cultivation is permitted, and marijuana will be available from licensed dispensaries across the state.
- Recreational Marijuana law
 - Michigan became the 10th state to legalize recreational marijuana in November 2018. Proposal 1, also called the Marijuana Legalization Initiative, **permits adults 21 and older to buy up to 2 1/2 ounces of marijuana, and keep up to 10 ounces at home.** Any amounts over 2.5 ounces must be secured in locked containers. Adults can also grow up to 12 cannabis plants for personal use. Michigan's recreational marijuana law took effect 10 days after the election results are certified.
 - The new law also creates a state licensing system for marijuana businesses, including growers, processors, transporters, and retailers. Municipalities retain the right to ban or restrict marijuana businesses. .

<https://www.medicalmarijuanainc.com/michigan-marijuana-laws/>



Medical Marijuana Law in Michigan

- Medical marijuana became legal in Michigan in November 2008. Registered patients **can possess up to 2.5 ounces of 'useable marijuana', or up to 12 marijuana plants in an enclosed, locked facility.** The law allows for patients to have a primary caregiver.
- Under Michigan marijuana laws, the **approved list of qualifiable conditions for medical marijuana** include: Alzheimer's Disease, Amyotrophic Lateral Sclerosis (ALS), Arthritis, Autism, Cachexia or Wasting Syndrome, Cancer, Chronic Pain, Colitis, Crohn's Disease, Glaucoma, HIV/AIDS, Hepatitis C, Inflammatory Bowel Disease, Nail-Patella Syndrome, Nausea, Obsessive Compulsive Disorder, Parkinson's Disease, Post-Traumatic Stress Disorder (PTSD), Rheumatoid Arthritis, Seizures, Severe and Persistent Muscle Spasms, Spinal Cord Injury, Tourette Syndrome, Ulcerative Colitis

<https://www.medicalmarijuanainc.com/michigan-marijuana-laws/>



Michigan Marijuana and Driving Laws

- The Michigan Regulation and Taxation of Marihuana Act prohibits both consuming and smoking weed (recreational marijuana) while driving. Now that recreational marijuana is legal, here are the marijuana and driving laws in Michigan that drivers must obey. They include the following:
 - People cannot operate a vehicle under the influence of marijuana
 - People cannot consume marijuana while driving
 - People cannot smoke marijuana inside the passenger compartment of a car or truck while it's on a public road

<https://www.michiganautolaw.com/blog/2020/02/06/marijuana-and-driving-laws/>

Ohio Marijuana Laws

- Ohio became the 25th U.S. state to legalize medical marijuana when the law took effect in September 2016. Under the law, patients with a recommendation from a Ohio-licensed doctor are allowed cannabis plant material, edibles, patches, oils and tinctures. The law, however, prohibits smoke-able marijuana products and home cultivation.
- The following **conditions are approved for medical marijuana prescription** in the state:: Amyotrophic Lateral Sclerosis (ALS), Alzheimer's Disease, Cancer, Chronic Traumatic Encephalopathy (CTE), Crohn's Disease, Epilepsy and other Seizures Disorders, Fibromyalgia, Glaucoma, Hepatitis C, HIV/AIDS, Inflammatory Bowel Disease, Multiple Sclerosis, Pain (Chronic, Severe or Intractable), Parkinson's Disease, Post-Traumatic Stress Disorder (PTSD), Sickle Cell Anemia, Spinal Cord Disease or Injury, Tourette's Syndrome, Traumatic Brain Injury, Ulcerative Colitis.



<https://www.medicalmarijuanainc.com/ohio-marijuana-laws/>

Ohio Marijuana and Driving Laws

- Ohio code 4511.19 is the law that governs operating a vehicle under the influence of alcohol or drugs. It describes what amount of marijuana (or other commonly used drugs) and alcohol you can have in your system while driving before being found intoxicated and arrested.
- As far as marijuana, you can be arrested and charged with a DUI if you have the following amounts of the drug in your system:
- Per Milliliter of Blood
 - Two or more nanograms of THC
 - Fifty or more nanograms of marijuana metabolite
 - Five or more nanograms of metabolite in combination with alcohol or other drugs.
- Per Milliliter of Urine
 - Ten or more nanograms of THC
 - Thirty-five or more nanograms of marijuana metabolite
 - Fifteen or more nanograms of metabolite in combination with alcohol or other drugs.

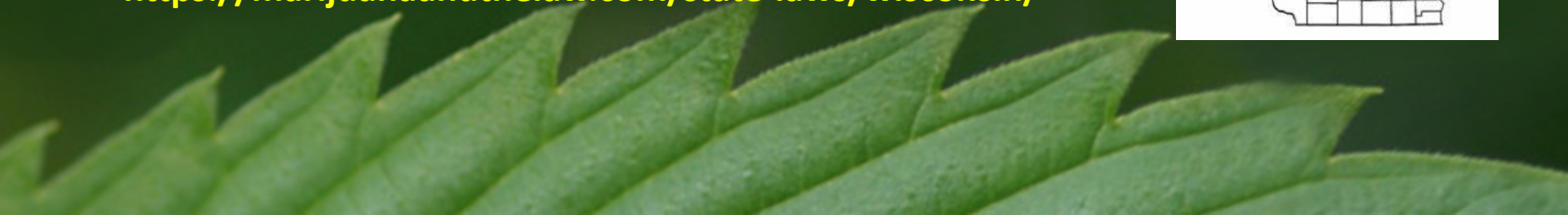
<https://ohioduidude.com/marijuana-dui-lawyer/marijuana-driving-laws/#:~:text=Understanding%20Marijuana%20Driving%20Laws%20in%20Ohio%20Ohio%20code,while%20driving%20before%20being%20found%20intoxicated%20and%20arrested.>

Wisconsin Marijuana Laws

- Wisconsin marijuana laws are particularly strict, and the only permitted use of the drug is medical CBD oil. The law states that the medicinal use of CBD oil can be recommended by a physician. Certain localities have decriminalized simple possession, replacing criminal penalties with no more than a fine.



<https://marijuanaandthelaw.com/state-laws/wisconsin/>



Wisconsin Marijuana and Driving Laws

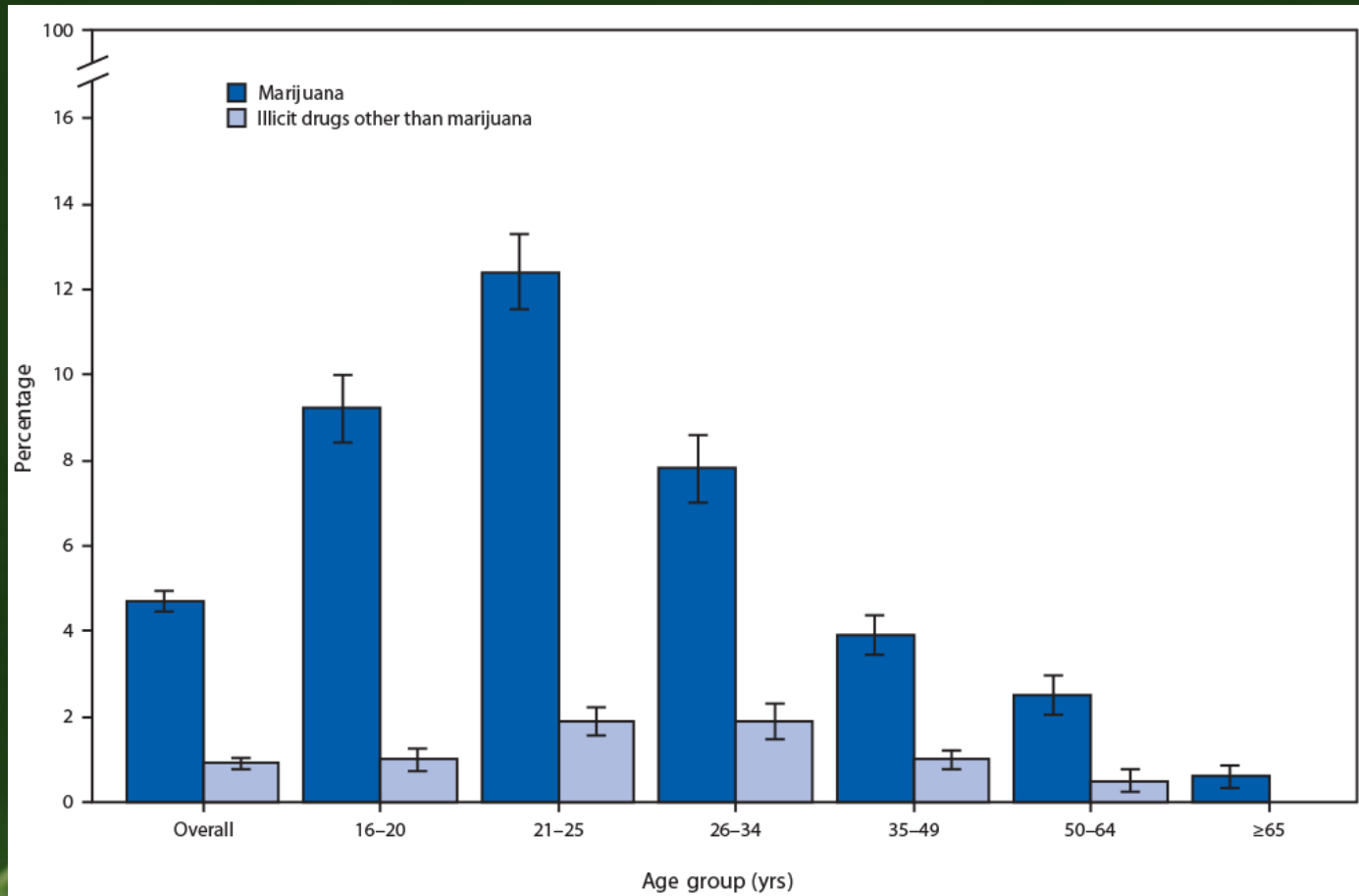
- Wisconsin has a **zero-tolerance** stance against driving under the influence of marijuana.
- If a blood test reveals “any detectable amount” of Delta-9 THC, the active ingredient in marijuana, it can result in serious penalties. That means that a driver who is not impaired or even slightly influenced by the THC can still be charged an Operating While Intoxicated (OWI) DUI – Marijuana in Wisconsin.

- <https://www.wisconsin-owi.com/dui-owi/marijuana#:~:text=State%20law%20prohibits%20driving%20while%20under%20the%20influence,regardless%20of%20whether%20the%20driver%20appears%20physically%20impaired.>

The USA Data on Marijuana and Driving

- When people get high and then get behind the wheel of a car, they take on a great deal of risk, not only for themselves but also for everyone else on the road.
- As marijuana legalization has increased, the rate of marijuana-impaired traffic crashes has also increased. And to make matters even worse, the rate of marijuana-related traffic *deaths* has gone up as well.
- In 2018, about **12 million Americans**, or 4.7 percent of the population that's over the age of 16, drove under the influence of marijuana.
- About 2.3 million (or roughly 0.9 percent of that same age group) drove a vehicle under the influence of illicit drugs other than marijuana in 2018.

Percentage of all persons aged ≥ 16 years who reported driving a vehicle under the influence of marijuana or illicit drugs other than marijuana in the past year, by age group



Marijuana use by Drivers in Colorado



- Marijuana-related traffic deaths increased 66% in the four-year average (2013- 2016) since Colorado legalized recreational marijuana compared to the four-year average (2009-2012) prior to legalization. During the same time period, all traffic deaths increased 16%. In 2009, **9%** of traffic fatalities involved drivers who tested positive for marijuana. By 2016, that number more than doubled to **21%**.
- An online survey in April 2018 by the Colorado Department of Transportation found that **69%** of pot users said they had driven under the influence of marijuana at **least once in the past year** and **27%** said they **drove high almost daily**. Many recreational users said they didn't think it affected their ability to drive safely.

<https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2018/05/31/drugged-driving-deaths-spike-with-spread-of-legal-marijuana-opioid-abuse>

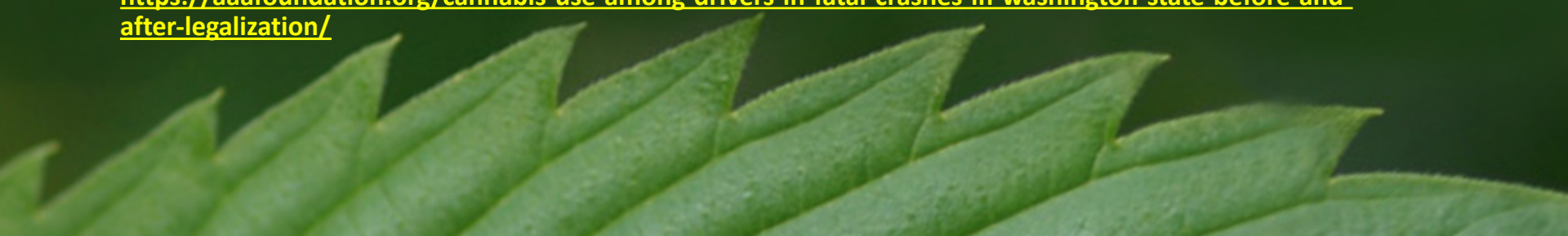
<https://www.codot.gov/news/2018/april/cdot-survey-reveals-new-insight-on-marijuana-and-driving>

RMHIDTA (2017). The Legalization of Marijuana in Colorado: The Impact; Vol. 5 Rocky Mountain High Intensity Drug Trafficking Area. <https://rmhidta.org/default.aspx?menuitemid=781&menugroup=RMHIDTA+Public+Overview>

State of Washington Fatal Crashes before and after Recreation Cannabis Use Legalization

- This study (published in January 2020) examines marijuana involvement in fatal crashes in Washington State before and after recreational use of cannabis became legal in the state.
- Washington State Initiative 502 (I-502), effective Dec. 6, 2012, legalized possession of small amounts of cannabis for recreational use by adults aged 21 years and older.
- It also included a prohibition against driving with 5 or more nanograms of delta-9-tetrahydrocannabinol (THC) per milliliter of blood, along with a zero tolerance prohibition for drivers younger than 21 years of age.

<https://aaafoundation.org/cannabis-use-among-drivers-in-fatal-crashes-in-washington-state-before-and-after-legalization/>



Overview of Washington Study



- Data on all drivers involved in fatal crashes in the state of Washington from 2008 through 2017 were obtained from the Washington Traffic Safety Commission (WTSC).
- The data included detailed information regarding whether each driver was tested for drugs, what type of specimen was tested (e.g., urine, blood, both, neither), and what drugs, if any, returned a positive test result.
- The latest AAA Foundation research found that between 2008 and 2012 – the five-year period before the drug was legal – an estimated **8.8%** of Washington drivers involved in fatal crashes were positive for THC. That **rate rose to 18%** between 2013 and 2017.

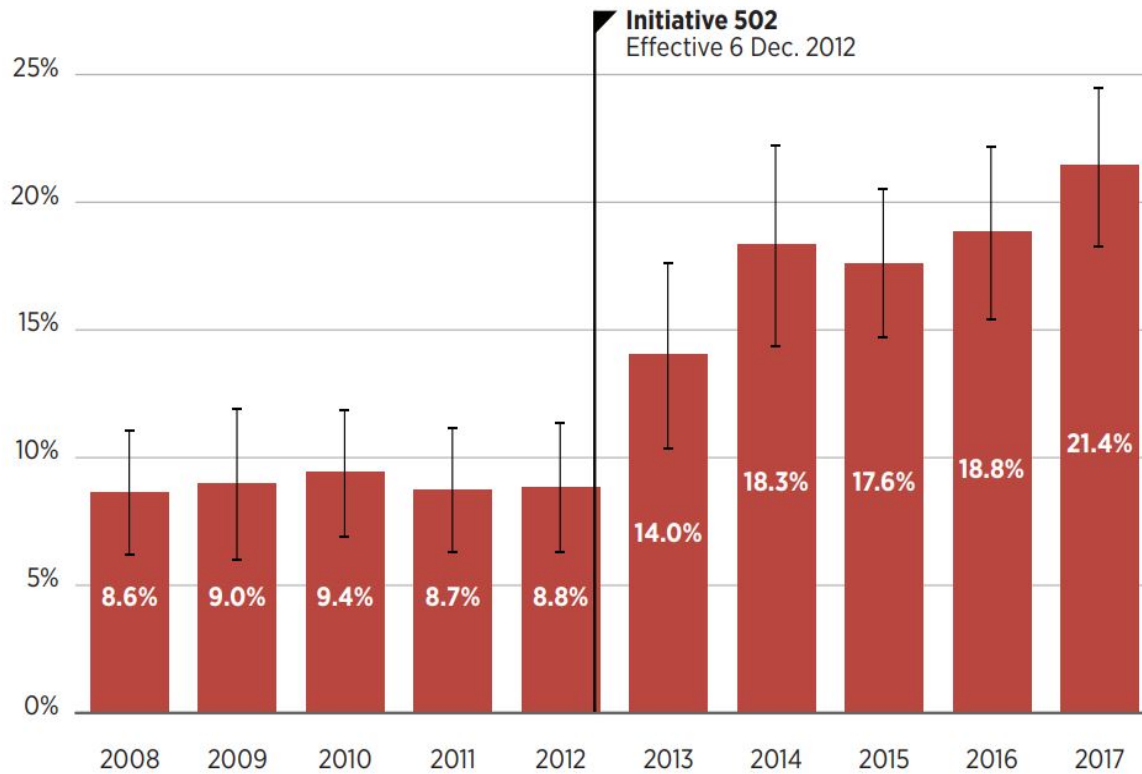
<https://aaafoundation.org/cannabis-use-among-drivers-in-fatal-crashes-in-washington-state-before-and-after-legalization/>

Overview of Washington Study

- The average number of THC-positive drivers increased.
- In the five years before legalization, an average of 56 drivers were involved in fatal crashes each year were THC-positive.
- In the five years after legalization, the average jumped to 130.
- The new numbers bolster the findings of a similar report the AAA Foundation released in 2016.
- The study did not attempt to determine if marijuana contributed to the crashes included in its latest research. It focused only on the prevalence of drivers who tested positive for active THC.

<https://aaafoundation.org/cannabis-use-among-drivers-in-fatal-crashes-in-washington-state-before-and-after-legalization/>

Overview of Washington Study



<https://aaafoundation.org/cannabis-use-among-drivers-in-fatal-crashes-in-washington-state-before-and-after-legalization/>

Summary of Washington Study

Results from the analysis suggest that legalization of recreational use of marijuana may increase the rate of THC-positive drivers involved in fatal crashes.

<https://aaafoundation.org/cannabis-use-among-drivers-in-fatal-crashes-in-washington-state-before-and-after-legalization/>



Marijuana Effects on the Body

- In the 1970s most marijuana contained less than 2% THC.
- Today, marijuana routinely contains 20% to 25% THC.
- We now have concentrated THC products such as oil, shatter, dab, and edibles that have been able to get the THC concentration upwards of 95%.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6312155/>

- **What does this mean to you?**
- 

Marijuana Effects on the Body

- Cannabinoids bind to two receptors in the brain, CB1 and CB2 — **CB1 is linked to the nervous system**, while **CB2 is connected to the immune system**. Tetrahydrocannabinol (THC) mainly targets the CB1 receptors, which means the chemical affects the brain.
- In the brain, THC mimics something known as the “bliss molecule,” or anandamide, a chemical that naturally occurs in the body.
- Anandamide and other endogenous cannabinoids affect the brain areas that play a role in pleasure, memory, cognition, concentration, movement, coordination, sensory perception, and perception of time, according to the National Institute on Drug Abuse.

Marijuana Effects on the Body

- One of the most important brain areas THC alters is the hippocampus, which plays a critical role in learning and memory.
- When you take THC, it limits the brain's capacity to learn new things and do complex tasks.
- At the same time, it stimulates your reward system to release more of the neurotransmitter dopamine, which all adds up to the feeling of being “high.”

<https://www.inverse.com/mind-body/thc-cbd-the-science-of-cannabinoids-and-the-brain>



Marijuana Effects on the Body

- When marijuana is smoked, THC and other chemicals in the plant pass from the lungs into the bloodstream, which rapidly carries them throughout the body to the brain.
- The person begins to experience effects almost immediately. Many people experience a pleasant euphoria and sense of relaxation.
- Other common effects, which may vary dramatically among different people, include heightened sensory perception (e.g., brighter colors), laughter, altered perception of time, and increased appetite.

<https://www.drugabuse.gov/publications/research-reports/marijuana/what-are-marijuana-effects>

What marijuana does to your body and brain

It can mess with your memory by changing the way your brain **processes information**.

It can make you feel **euphoric**, since THC causes brain cells to release the feel-good chemical dopamine.

Since weed makes blood vessels expand, it can **turn your eyes red**.

Since it affects brain areas that process what we see and hear, pot can make you **hallucinate**.

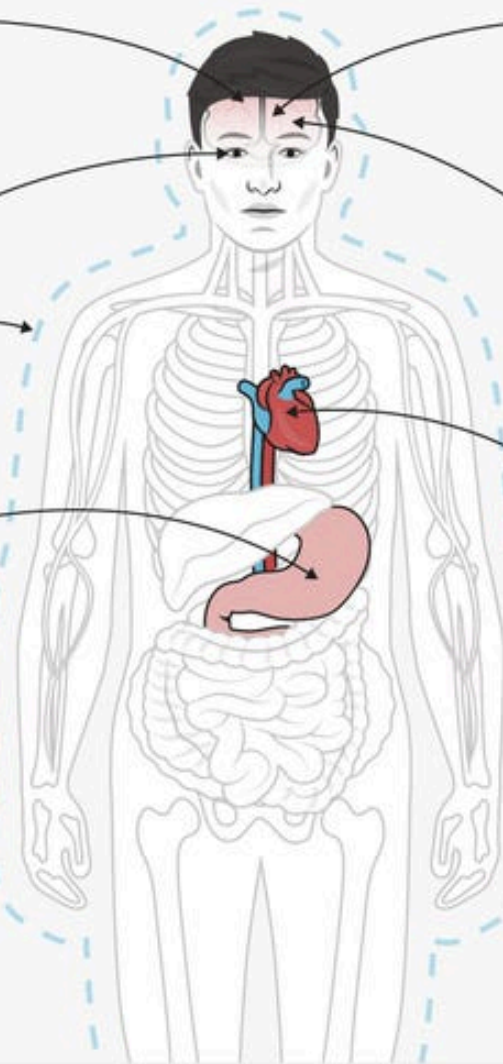
Extended, **heavy use can be addictive** or cause dependence.

It may give you the munchies. A study in mice suggests that pot effectively **flips a circuit** in the brain that controls the appetite.

Within minutes of inhaling marijuana, your heart rate can **increase** by 20–50 beats per minute. It can last from 20 minutes to 3 hours.

It may **throw off your balance**, since it influences activity in two brain areas which **help regulate** balance, coordination, reaction time, and posture.

You may feel **anxious or panicky**, a common side-effect of taking too much.



Sources: Journal of Cell Science (2012); Nature (2015); Neuropharmacology (2002); Physiological Reviews (2013); Psychopharmacology (2015); LiveScience

BUSINESS INSIDER

Marijuana and Effects on Driving

- Marijuana use can inhibit concentration, slow reaction times and cloud judgment. Its effects vary by individual, but a number of studies have concluded that marijuana use impairs the ability to drive safely. Previous research suggests that users who drive high are up to twice as likely to be involved in a crash.
- Two large European studies found that drivers with THC in their blood were roughly twice as likely to be culpable for a fatal crash than drivers who had not used drugs or alcohol.

Biecheler M-B, Peytavin J-F, Sam Group, Facy F, Martineau H. SAM survey on "drugs and fatal accidents": search of substances consumed and comparison between drivers involved under the influence of alcohol or cannabis. *Traffic Inj Prev.* 2008;9(1):11-21. doi:10.1080/15389580701737561

DRUID Final Report: Work Performed, Main Results and Recommendations. EU DRUID Programme; 2012. <http://www.roadsafetyobservatory.com/Evidence/Details/10940>

Marijuana and Effects on Driving

- However, the role played by marijuana in crashes is often unclear because it can be detected in body fluids for days or even weeks after intoxication and because people frequently combine it with alcohol.
- Those involved in vehicle crashes with THC in their blood, particularly higher levels, are three to seven times more likely to be responsible for the incident than drivers who had not used alcohol or other drugs.
- The risk associated with marijuana in combination with alcohol appears to be greater than that for either drug by itself.

Hartman RL, Huestis MA. Cannabis effects on driving skills. *Clin Chem.* 2013;59(3):478-492.
doi:10.1373/clinchem.2012.194381



Youth Marijuana Use in Illinois

- The information that follows is adopted from the Illinois Youth Survey taken every two years by the Center for Prevention Research and Development, School of Social Work, University of Illinois at Urbana-Champaign. The most recent data is from 2018.

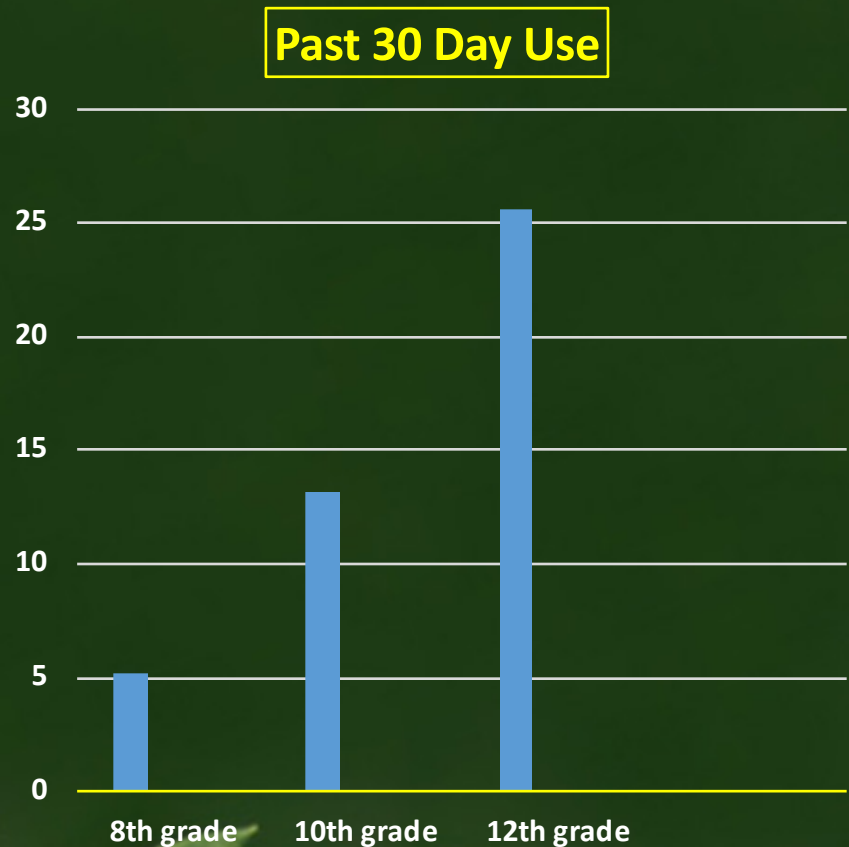
Stability of Marijuana Use by Grades in Illinois

- The 2018 marijuana use at any grade level has remained stable since 2008.
- This will be an important indicator to monitor in the future with the changing landscape of marijuana.
- Since recreational marijuana has become legal statewide in Illinois, use would still remain illegal for young people under 21.

Past 30 Day Use by Grade

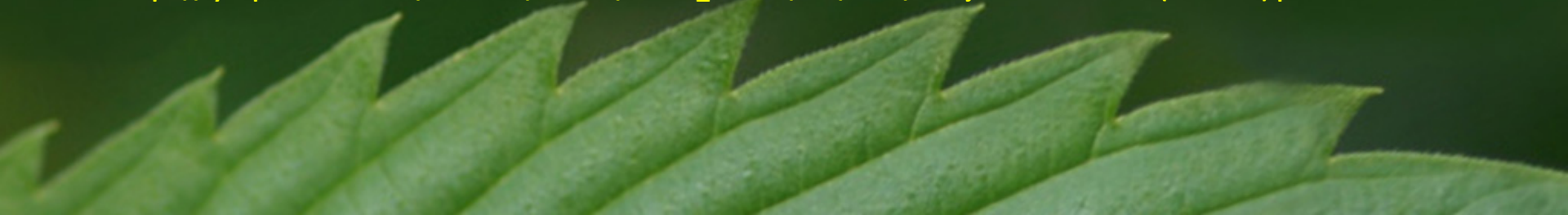
- Youth marijuana use increases dramatically as a young person progresses through high school.
- Why only 1 in 20, 8th graders reported use, 4 in 20, 12th graders reported using marijuana in the past 30 days.

[https://iys.cprd.illinois.edu/UserFiles/Servers/Server_178052/File/2018/Marijuana%20Use%20\(12.18.19\).pdf](https://iys.cprd.illinois.edu/UserFiles/Servers/Server_178052/File/2018/Marijuana%20Use%20(12.18.19).pdf)



Breakdown of Use in last 30 days

- There are no real differences in marijuana use patterns between males and females.
- African American teens reported higher 30 day marijuana use than any other racial category.
- Marijuana use patterns are different among areas of the state with use reported higher within the City of Chicago.

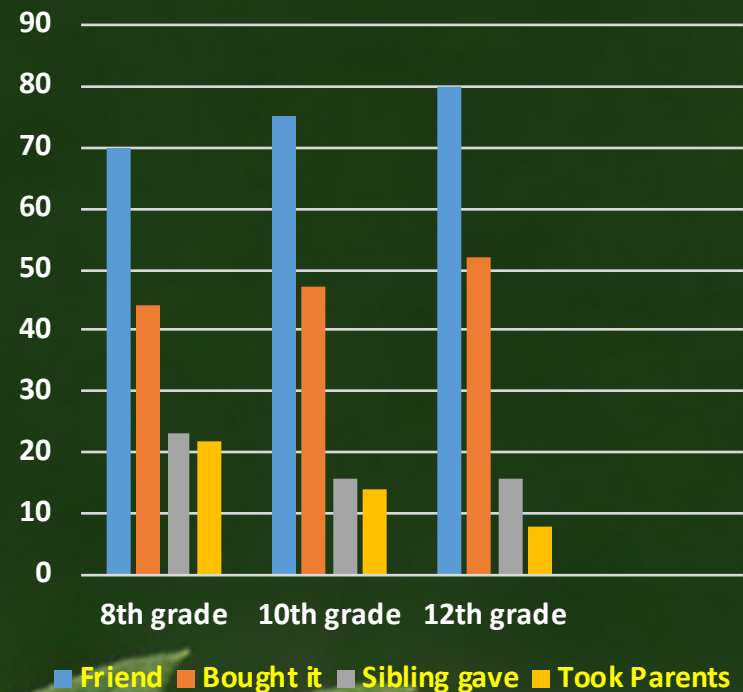


Where are youth reporting they are obtaining marijuana?

- Friends are the most common source
- The 2nd most common reported source is buying it from one who sells drugs
- The other sources include siblings and taking marijuana from parents.

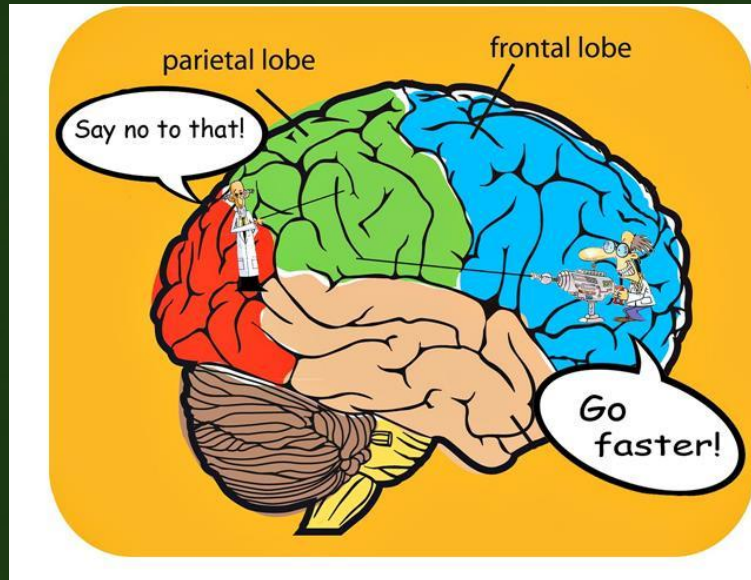
• [https://iys.cprd.illinois.edu/UserFiles/Servers/Server_178052/File/2018/Marijuana%20Use%20\(12.18.19\).pdf](https://iys.cprd.illinois.edu/UserFiles/Servers/Server_178052/File/2018/Marijuana%20Use%20(12.18.19).pdf)

Access Among Users



Teen brains aren't fully formed

- It's not so much what teenagers are thinking—it's how. Scientists used to think human brain development was mostly complete by age 10. But recent research about teenagers' brains is helping us understand developmental activities that might explain why teens behave the way they do.



<https://drjanestewart.wordpress.com/2016/12/08/teen-brains-arent-fully-formed/>

Teen brains aren't fully formed

- The gray matter of the brain peaks just before puberty, then gets pruned back as a child goes through adolescence.
- During this time, some of the most dramatic development takes place in the crucial frontal lobes, the seat of judgment and decision-making.

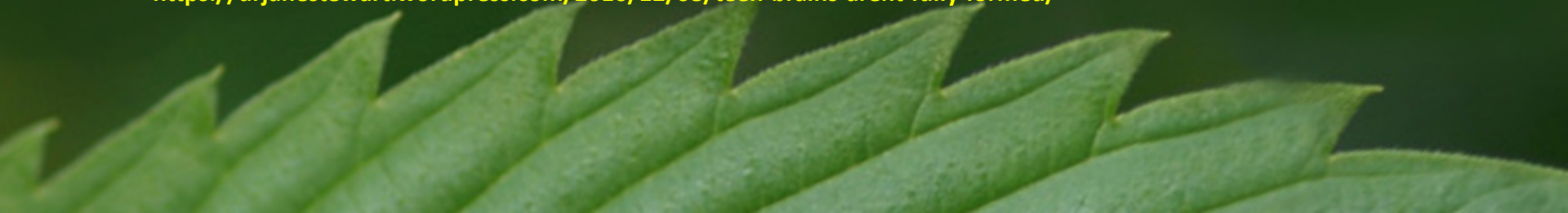
<https://drjanestewart.wordpress.com/2016/12/08/teen-brains-arent-fully-formed/>



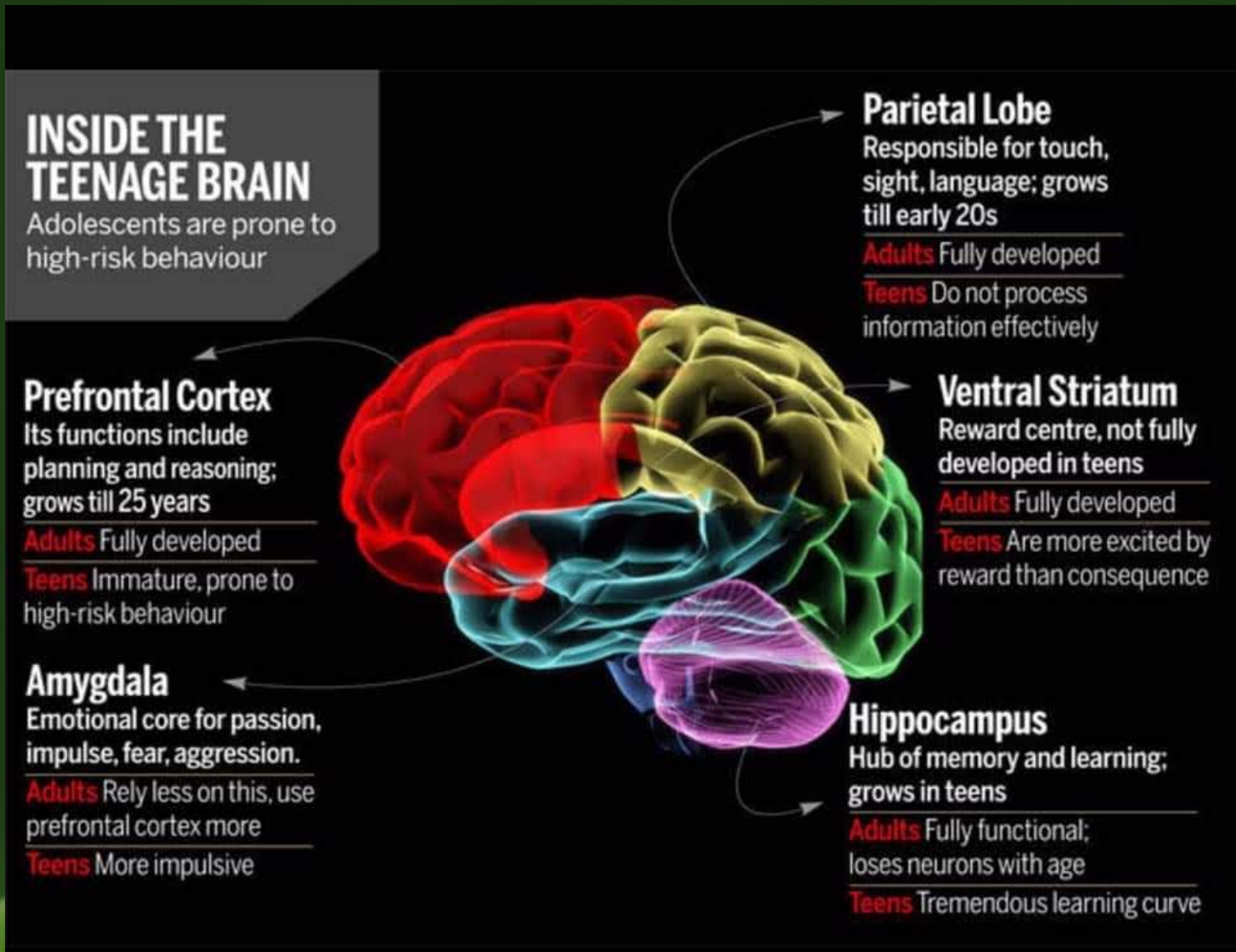
Teen brains aren't fully formed

- In the teenage brain, the nerve cells that connect the frontal lobes with the rest of the brain are sluggish. The nerves need a fatty coating called **myelin**, or “white matter,” for nerve signals to flow freely.
- But teens don't have as much myelin yet as adults do in the frontal lobe area, resulting in inefficient communication between one part of the brain and another.
- So in teens, the part of the brain that governs judgment is the last to be fully connected.

• <https://drjanestewart.wordpress.com/2016/12/08/teen-brains-arent-fully-formed/>

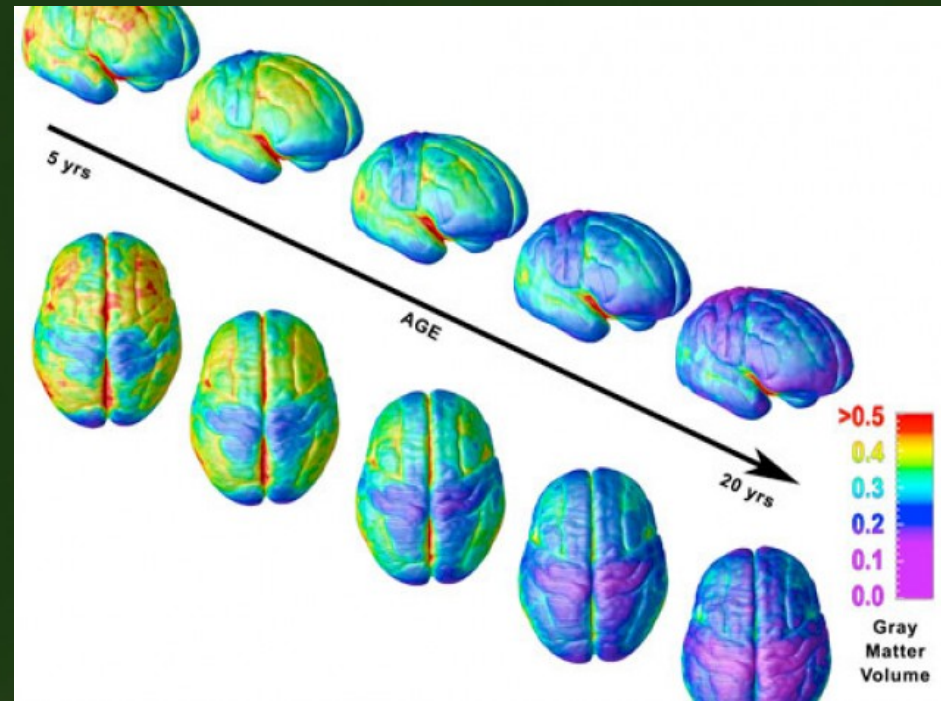


Teen brains and potential high risk behavior



Marijuana and the Teen Brain

- The brain continues to develop through a person's mid 20's, which makes the teen brain especially vulnerable to drug use.
- Studies show that marijuana interferes with attention, motivation, memory, and learning.
- Compared to those who don't use, students who use marijuana regularly may be functioning at a reduced intellectual level most or all of the time.
- Regular marijuana use can lower an adolescent's IQ by 8 points.
- As a result, users tend to get lower grades and are more likely to drop out of high school.



<https://harvardmagazine.com/2008/09/the-teen-brain.html>

THC affects the brain areas that play a role in pleasure, memory, cognition, concentration, movement, coordination, sensory perception, and perception of time.

Which of the above are important functions of driving?



Based upon the data and information presented and since the implementation of a recreation marijuana law, what do you predict will be likely outcome of teenage driving and use of marijuana in the Midwest?

Why?



**If you feel different, you drive
different!**



Questions?

Thank you!

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www.presentationmagazine.com



References for images used in presentation, but not referenced on slides.

- DUI stop sign image: <https://exchange.aaa.com/safety/substance-impaired-driving/drugged-driving/cannabis/cannabis-impaired-driving-laws/#.X4dRNdBKizc>
- Blurry image: <https://www.madd.org/colorado/marijuana-and-driving-what-you-should-know/#prettyPhoto>
- Car Key and marijuana leaf: <https://www.israel-cannabis.com/2019/02/20/understanding-cannabis-and-driving-the-road-to-improved-regulations/>
- Marijuana use and driving by age: <https://www.cdc.gov/mmwr/volumes/68/wr/mm6850a1.htm>
- Colorado and marijuana: <https://www.kktv.com/content/news/Marijuana-meeting-with-Colorado-Springs-officials-and-feds-closed-to-public-435319233.html>
- Washington and marijuana: <https://mjbizdaily.com/mandatory-pesticide-testing-for-washington-state-recreational-cannabis-on-hold-due-to-covid-19/>

Thank you!



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