

EDUCATIONAL TOOLKIT FOR *A NIGHT IN JAIL*

Written by

Heidi A. Swan

and

Dr. Christine L. Miller

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www.ANightInJail.com

NOTE ABOUT THIS TOOLKIT

FROM HEIDI A. SWAN, CO-AUTHOR OF *A NIGHT IN JAIL*

Since I finished writing *A Night In Jail* with my brother, K., in 2017, I have devoted much of my time to publicizing the book. The book's purpose is to educate about the lesser-known negative effect of marijuana use: that it is associated with serious mental illnesses. I regularly speak about this--in private, in public, on social media.

In the last two and a half years, I have reached out to young and old. Most have not heard there are any risks at all. Interestingly, yet probably not surprisingly, after they've seen or heard the evidence which supports the theme of the story, many responses seem dictated by the person's generation.

For instance, I have heard a parent (or senior) say, "I did it when I was young and I'm fine."

I have heard a person under the age of 26 say, "It's not a drug. It's natural."

One comment that bridges the gap between generations is, "My teacher says it's not addictive."

Responses like these inspired me to piece together educational materials to travel with the film or the play (or book) to serve as evidence-based discussion material. This toolkit gives up-to-date answers, with scientific references, to comments like the ones above and more. When applicable, I reference the story to help illustrate a point.

My science advisor for this project is a longtime schizophrenia researcher, Dr. Christine L. Miller. Her biography is too extensive to list here (look on www.ANightInJail.com), but suffice it to say, years ago, her research helped to give me the courage to set about writing the book in the first place. Her contribution to this document cannot be overstated. I am deeply indebted the generosity of Dr. Miller's knowledge, expertise, time and friendship.

This work is in no way a "Pro's and Con's" of the benefits of marijuana. There is plenty of marketing and lobbying from the marijuana industry about the purported benefits.

Rather, the story and this toolkit shines a light on the potentially dire consequences a teen may face if he/she decides to use pot. I am not unique nor am I radical in saying this. Even the proponents of marijuana legalization say teenagers should not use it.

However, as I write this in 2020, teen marijuana use is up. Teen mental illness and teen suicide are also up. Homelessness is way up. Of course, I would never say the uptick of pot use is the sole reason for any of these. But to *not* warn teenagers about an association between marijuana and mental illness is completely irresponsible.

Because these risks are most pronounced for youth, it is crucial parents, educators and especially, teenagers, understand the science.

There are two sections, one with questions and comments a teen might have to a section which covers those of a parents/adult. It is strongly suggested both adults and teens read the whole document.

Some answers to comments may appear to be repetitive when both sections are read together. For instance, “I give THC my kids. It calms them down.” The response to marijuana as a means of curbing teen anxiety is more fully addressed in the teen section. However, the comment coming from a parent could reveal an assumption which could potentially benefit by further consideration of the science.

There is one comment which has pushed me forward and continues to do so today. It is attributed to my brother and co-author: “If I knew marijuana would make me go crazy I never would have tried it.”

With *A Night In Jail* and this Toolkit, we want to help make it common knowledge that marijuana use, especially teen use, raises the risk for a suite of mental illnesses...some of which may never go away.

To protect the brains of our youth, let’s spread this information far and wide.

-Heidi A. Swan

Table of Contents

QUESTIONS OR COMMENTS A <i>TEENAGER</i> MAY HAVE	6
"I don't believe marijuana is harmful. It's safe. I know people who use it and they're fine."	6
"It's not a drug. It's natural."	9
"THC products are safer than alcohol."	12
"How much THC is safe for a school-age kid?"	14
"Which is worse? Edibles, drinking it, body oils/soaps/lotions/tampons, vaping or smoking it?"	16
"What's the difference between marijuana, THC and CBD?"	18
"CBD is the one that's completely safe, right?"	20
"It's not a big deal if someone feels paranoid when they're high."	22
"What should I do if marijuana makes me hear voices or think I see things no one else can?"	23
"What's the difference between psychosis and schizophrenia?"	24
"It helps me relax. I get anxious when I don't use it."	26
"Can you predict in advance who can use marijuana safely with no lasting effects that are harmful?"	27
"What can THC possibly have to do with suicide? "	28
"Marijuana doesn't have anything to do with homelessness. It's harder drugs."	29
"Can I be affected if I'm exposed to second hand vape/smoke?"	32
"Everyone knows THC isn't addictive."	35
"THC makes me a better driver."	36
Is it true that potent marijuana is associated with abnormal heart rhythm and stroke even in teens and young adults?"	37
QUESTIONS OR COMMENTS AN <i>ADULT</i> MAY HAVE	38
"I did it when I was young and I'm fine."	38
"I give THC to my kids. It calms them down. There's so much pressure on teenagers."	39
"I use it with my kids. We relax together and it helps us bond."	40
"I heard we have natural cannabinoids in our brains so our brains are naturally wired to accept marijuana."	41
"We can't stop kids from experimenting. Besides, a little bit won't hurt them."	43
"D.A.R.E. didn't work. "Just say no" didn't work. Prevention education is useless."	45

“I don’t want my kids to lie to me or hide their use. They’re going to do it in college, anyway. If I let them use it now, they won’t go crazy with drug and alcohol use once they’re out of the house. And if my kids do it at home then I know they’re safe.” 46

“Medicinal marijuana is safer than recreational pot.” 48

QUESTIONS OR COMMENTS A TEENAGER MAY HAVE

"I don't believe marijuana is harmful. It's safe. I know people who use it and they're fine."

These are the risks for a person under the age of 26 who uses regularly:

Physical dependence, addiction, anxiety, agitation, paranoia, and psychosis.

Deficits in attention, memory, decision-making, and motivation.

Impaired learning, decline in IQ, school performance. These will jeopardize professional and social achievements, and life satisfaction.

There are increased rates of school absence and drop-out, as well as suicide attempts.

Risk for and early onset of psychotic disorders, such as schizophrenia.

More information:

People can feel fine for a while. In the film, Danny seems like a normal, healthy kid who got in trouble for just having fun. But Danny didn't realize the effects his drug use was having on his brain.

Because he's under the age of 25, his brain is still developing. Marijuana has a unique ability to disrupt proper brain development.

These effects were not obvious to Danny at the point in his life when he was finishing high school. But the truth was--Danny's life was not fine. His addiction was growing. Things which were important to him (grades, basketball, life goals) had become less important because he was more focused on getting high. He didn't notice his academic consequences at this point, but he would go on to have a difficult time studying in college because marijuana affects memory¹

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4586361/>

People who use it regularly have brains which have a decrease in functional connectivity over time. Over 18 months, people who used higher amounts had lower I.Q., lower intelligence and slower cognitive function.^{2 3}

He had also raised his risk for using other illicit drugs:

“...those who were daily users before age 17 years had clear reductions in the odds of high school completion and degree attainment and substantially increased odds of later cannabis dependence, use of other illicit drugs and suicide attempt.”⁴

Unbeknownst to Danny, he was also on a path toward mental illness. This path was even more compounded by his marijuana use than for the other recreational drugs that cause psychosis.

“The highest conversion rate was found for cannabis-induced psychosis, with 47.4% (95% CI=42.7–52.3) converting to either schizophrenia or bipolar disorder. Young age was associated with a higher risk of converting to schizophrenia....Half the cases of conversion to schizophrenia occurred within 3.1 years after a substance-induced psychosis, and half the cases of conversion to bipolar disorder occurred within 4.4 years.”⁵

There is evidence to suggest neuropsychological decline might not be recovered even after a teen stops using pot. (Neuropsychological evaluation is an assessment of how one’s brain functions, which indirectly yields information about the structural and functional integrity of your brain.-- UNC School of Medicine).⁶

Of course, the tragic things which happened to Danny do not happen to everyone. But we have to understand that the vast majority of studies have been done on low potency marijuana. We haven’t had the same amount of research done on the long-term consequences of the high potency products. We do know that even if you don’t have a family history of psychosis, you are still not safe.⁷

² <https://academic.oup.com/cercor/article/27/3/1922/3056289>

³ <https://ajp.psychiatryonline.org/doi/10.1176/appi.ajp.2018.18020202>

⁴ [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(14\)70307-4/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(14)70307-4/fulltext)

⁵ https://ajp.psychiatryonline.org/doi/full/10.1176/appi.ajp.2017.17020223?rfr_dat=cr_pub%3Dpubmed&url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&journalCode=ajp

⁶ <https://www.pnas.org/content/109/40/E2657>

⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3055738/pdf/npp2010222a.pdf>

Here's what our Surgeon General said about it in August 2019:

- Risks of physical dependence, addiction, and other negative consequences increase with exposure to high concentrations of THC and the younger the age of initiation. Higher doses of THC are more likely to produce anxiety, agitation, paranoia.... Changes in the areas of the brain involved in attention, memory, decision-making, and motivation. Deficits in attention and memory have been detected in marijuana-using teens even after a month of abstinence.
- Impaired learning in adolescents. Chronic use is linked to declines in IQ, school performance that jeopardizes professional and social achievements, and life satisfaction
- Increased rates of school absence and drop-out, as well as suicide attempts

Risk for and early onset of psychotic disorders, such as schizophrenia. The risk for psychotic disorders increases with frequency of use, potency of the marijuana product, and as the age at first use decreases. However, the impact of age at first use was not as important as potency and frequency, meaning that those who commenced use after their teens were still at risk.⁸

⁸ [Surgeon General's Advisory: Marijuana Use & the Developing Brain](#)

“It’s not a drug. It’s natural.”

Marijuana has changed greatly in the last 20-40 years. Many of these newer forms are no longer in marijuana’s natural state. Additionally, its potency has grown from 4% THC up to 99% THC.

Marijuana concentrates (called dabs, waxes) have the highest THC potency. Processes by which some of these are made can cause explosions on par with meth labs. Because it’s impossible to know the source of all the ingredients, some products are deadly to use.

As for the plant itself (what people most often think of when they think “natural”), it has been genetically engineered so that, today, it is several times higher in THC.

The natural origin of THC products does not make them safe to use nor does it preclude them from being classified as drugs. Other drugs are derived from natural sources, like heroine which comes from poppies.

More information:

A Night In Jail is set in 1978. Marijuana was in its natural state in the 1970’s. The THC content was about 5%. More on marijuana as a natural plant below.

It’s important to understand that since about 1990, marijuana has gone through several changes. In many of its newer forms, it’s unrecognizable. Because of this, there are several replies to the comment, “It’s natural.”

- 1.) In many newer forms, marijuana is no longer in its natural state.
 - a.) It has been made into concentrates. Concentrated products, commonly known as dabs or waxes, are far more widely available to recreational users today and may contain between 23.7% and 75.9% THC.⁹ These are mostly what kids are vaping & dabbing today and what is used in edibles. Read this description from a pro-marijuana publication:

“Extracting hash oil from cannabis is dangerous because typically it requires pouring highly-flammable butane or some other volatile solvent in a cannabis-filled pipe. The butane strips THC from the plant... In the 33 states where the drug is legal for medical or recreational use, at least 10 fires or explosions have occurred in the past

⁹ <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html>

five years at facilities that extract hash oil used in edible products.”¹⁰

- b.) There is a new product called “Crude Oil.” This is dangerous and deadly. It has been found in black market vaping cartridges. There is no way of knowing where a black market product has been manufactured. Please do not use black market concentrates.¹¹
- c.) There is a product called "THC-O". This is not THC. The process to make it is the same as the process of making heroin from morphine. THC-O is 300x stronger than THC. This product can be smoked. Do not use it. It is also known as ATHC, where the "A" is for the acetate part of the molecule. Please see this quote from a pro-marijuana publication:

“The second major difference is that ATHC can only be produced in a laboratory environment. You can’t pick up a few tools at your local hardware and whip a batch of ATHC in your kitchen. The results would be disastrous (that means flaming death, boys and girls)...The thing about THC-O is that it is *not* a naturally occurring cannabinoid (like THC and CBD). It takes some pretty hefty — and volatile — chemistry to create THC-O in a lab. That processing strips away all the other beneficial chemical compounds (terpenes and flavonoids) and leaves behind a potent THC isolate with no flavor and no aroma...Hold on to your butts! Lab tests show that THC-O can be 300 percent stronger than regular THC. Yes, you read that right: 300 percent stronger.”¹²

2.) Even the marijuana which looks like the kind Danny uses in the story (dried marijuana rolled in a joint), it is still much stronger today than it was in the 1970’s. Pot has been genetically modified over the years to make the THC content stronger. See this quote from our Surgeon General:

“The THC concentration in commonly cultivated marijuana plants has increased three-fold between 1995 and 2014 (4% and 12% respectively). Marijuana available in dispensaries in some states has average concentrations of THC between 17.7% and 23.2%.¹³

3.) As for marijuana being "natural", understand that many pharmaceuticals have a "natural" origin and that characteristic does not make them safe for just anyone to use. Did you know that heroin comes from a "natural" source (poppies)? The same is true for other medications, drugs

¹⁰ <https://www.420magazine.com/420-news/new-problem-for-legal-weed-exploding-pot-factories/>

¹¹ <https://news.yahoo.com/illegal-crude-oil-marijuana-floods-163136314.html>

¹² <https://honestmarijuana.com/thc-o/>

¹³ <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html>

like digoxin (from foxglove), aspirin (from aspen bark), atropine (from Nightshade mushrooms, can be deadly), and scopolamine (from jimsonweed, too much of which can be fatal), to name a few. In fact, a very large number of drugs developed in the last couple of centuries came from plants. Nature makes a lot of things that can be very harmful depending on the dose.

“THC products are safer than alcohol.”

In increasing numbers, overconsumption of marijuana is sending people to the emergency rooms for Vaping Lung Illness, psychotic symptoms and chronic vomiting.

Long-lasting consequences of marijuana are greater than those for alcohol: more cognitive decline, memory impairment and loss of perceptual reasoning.

THC products are associated with long-term psychosis--and it's not possible to know how much is safe for an individual nor if the onset will happen after as few as five uses or after using for several years.

With alcohol, a person can consult charts to accurately determine how much alcohol is safe to drink without causing damage to the liver, over impairment or addiction.

More information:

The morning after consuming pot, Danny appears to be physically okay even though he had a harrowing cannabis-induced psychotic experience. Perhaps because the conditions of marijuana overuse are usually experienced mentally; and the signs for alcohol overuse can result in anything from a major hangover, to death in severe alcohol poisoning, people assume pot is safer for teenagers than alcohol. The prevailing myth on marijuana is that relaxes people and there's no possibility of over consumption.

However, especially with the new high potency marijuana products on the market today, overconsumption of marijuana is sending people to the emergency room in increasing numbers. We have all heard about Vaping Lung Illness. But there's more: “We see more kids with psychotic symptoms like hallucinations and delusions and other mental health symptoms. We also see more and more kids presenting with chronic vomiting.”¹⁴

Chronic vomiting from marijuana use is called Cannabinoid Hyperemesis Syndrome. This can lead to dehydration and death.¹⁵

In terms of long-lasting consequences, when comparing regular adolescent use of alcohol to marijuana, recent studies have shown the negative effects of pot to be greater. “The study

¹⁴ <https://www.reuters.com/article/us-health-marijuana-kids-idUSKBN1HO38A>

¹⁵ <https://www.cedars-sinai.org/health-library/diseases-and-conditions/c/cannabinoid-hyperemesis-syndrome.html>

concluded that marijuana had a more damaging effect on teenagers' long-term cognitive abilities than alcohol. Even after students reported stopping marijuana, their cognition did not improve."¹⁶

"Cannabis use, but not alcohol consumption, showed lagged (neurotoxic) effects on inhibitory control and working memory and concurrent effects on delayed memory recall and perceptual reasoning (with some evidence of developmental sensitivity). Cannabis effects were independent of any alcohol effects....the lasting effects of adolescent cannabis use...appear to be more pronounced than those observed for alcohol."¹⁷

The elephant in the room, though, is marijuana's association with the development of long-term psychosis. It can change your life forever, as Danny goes on to discover.¹⁸

And it is not possible to predict in advance who is going to be safe from this long-lasting side effect and what level of marijuana use an individual can tolerate. For some, it takes as little as 5 times of use.^{19 20}

But for others it can hit home after a few years of regular use.^{21 22}

This is where alcohol is different. We can consult charts, look at our body weight and gender, and see how many beers are safe over a night of partying and read about what level of use per week causes liver toxicity or leads to addiction.

¹⁶ <https://www.nbcnews.com/health/kids-health/marijuana-may-be-worse-teen-brains-alcohol-study-finds-n916296>

¹⁷ <https://ajp.psychiatryonline.org/doi/full/10.1176/appi.ajp.2018.18020202?journalCode=ajp>

¹⁸ <https://www.reuters.com/article/us-health-cannabis-psychosis/daily-cannabis-and-skunk-users-run-higher-psychosis-risk-idUSKCN1R02V3>

¹⁹ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC539839/pdf/bmj3300011.pdf>

²⁰ https://www.cambridge.org/core/services/aop-cambridge-core/content/view/D5CAA12A5F424146DABB9C6A6AB4CB56/S0007125017000526a.pdf/adolescent_cannabis_use_baseline_prodromal_symptoms_and_the_risk_of_psychosis.pdf

²¹ <http://archpsyc.ama-assn.org/cgi/reprint/65/11/1269>

²² <https://www.psychiatrist.com/jcp/article/Pages/2013/v74n01/v74n0115.aspx>

“How much THC is safe for a school-age kid?”

Because it is impossible to predict how a person will respond, particularly when their brain is still developing, an amount that gets you even a little high is risky for a person under the age of twenty-five.

In addition to raising the risks to mental illness (like psychosis, schizophrenia, anxiety, depression, bipolar disorder, panic attacks and suicide) and deficits in learning, memory and attention, there may not be improvement even after several weeks of abstinence.

More information:

There is no amount which is safe for a person under the age of twenty-five. If Danny had waited until his mid-late twenties to try it, he would have lessened several risks to the health of his brain. Quitting early on would have helped to lower his risks for mental illness (like psychosis, schizophrenia and suicide), and for deficits in learning, memory and attention.^{23 24 25 26}

Even after quitting using, studies describe how there may not be improvement in learning, memory and intelligence. One study says, “Changes in brain maturation and intellectual function, including decreases in intelligence quotient, have been noted in chronic users and appear permanent...”²⁷

Additionally, “Verbal learning and memory and attention are most consistently impaired by acute and chronic exposure to cannabis. Psychomotor function is most affected during acute intoxication, with some evidence for persistence in chronic users and after cessation of use. Impaired verbal memory, attention, and some executive functions may persist after prolonged abstinence.”²⁸

The natural reward pathways in the brain are dampened with teen pot use (eg: getting a good grade on a test doesn't feel good anymore). This dampening can partially explain how Danny

²³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3080669/pdf/sbp126.pdf>

²⁴ [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(15\)00363-6/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(15)00363-6/fulltext)

²⁵ <https://www.sciencedirect.com/science/article/abs/pii/S0165178118323321>

²⁶ <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html>

²⁷ [https://www.amjmed.com/article/S0002-9343\(18\)30872-6/fulltext](https://www.amjmed.com/article/S0002-9343(18)30872-6/fulltext)

²⁸ <https://www.ncbi.nlm.nih.gov/pubmed/26858214>

lost his motivation to succeed in life. Research shows, “Acute THC causes increased dopamine release and neuron activity, whilst long-term use is associated with blunting of the dopamine system.”²⁹

And “just a little bit” makes a big difference: “This study presents evidence suggesting structural brain and cognitive effects of just one or two instances of cannabis use in adolescence.”³⁰

Because Danny was so young when he started, he may have impaired the structural development of his brain. This kind of interruption to brain development may underlie a wide range of cognitive disturbances and psychological symptoms, including vulnerability to psychosis, depression, and anxiety disorders.

If someone had told Danny that it only took five tries of marijuana to increase his risk of experiencing psychosis, he might not have tried it at all. In fact, this is the inspiration for this story. If you feel you must use it, please put off trying it for as long as possible (mid-twenties).³¹
32 33

²⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5123717/>

³⁰ <https://www.jneurosci.org/content/39/10/1817>

³¹ <https://www.ncbi.nlm.nih.gov/pubmed/22669080>

³² <https://www.sciencedirect.com/science/article/pii/B9780128007563000466>

³³ https://www.cambridge.org/core/services/aop-cambridge-core/content/view/D5CAA12A5F424146DABB9C6A6AB4CB56/S0007125017000526a.pdf/adolescent_cannabis_use_baseline_prodromal_symptoms_and_the_risk_of_psychosis.pdf

“Which is worse? Edibles, drinking it, body oils/soaps/lotions/tampons, vaping or smoking it?”

People who use concentrates are more likely to become addicted and suffer withdrawal symptoms.

Dabbing and edibles are most often associated with Emergency Room visits, which are on the rise, as mentioned earlier. Vape pens are often mislabeled.

There is very little information about soaps, lotions, etc. Buyer beware.

More information:

In the 1970's the only products available to Danny were flower products which could be used in joints, blunts, bong and pipes. As mentioned earlier, the potency of the flower products has risen greatly. Today, there are several other ways to use pot. There are devices which can be used for vaping and dabbing. The concentrates, which are used in vaping and dabbing, are several times stronger than the new flower products. Additionally, there are now marijuana edibles, sprays & tinctures.

Many people assume pot is the same today as it was in the era when *A Night In Jail* is set. As already described, the potency of the products has increased along with the variety of ways to consume it. Many people are unaware that the increase of THC also includes an increase in side effects.

There aren't many studies which compare the products. In fact, there are some products which have not had any studies done at all which prove safety or efficacy. When a manufacturer makes health claims about a product without scientific evidence there is good reason to be cautious.

Here is what is known:

One study sought to compare the user profiles of people who used vaped/dabbed concentrates compared with people who only used flower and those who didn't use any marijuana at all. What they discovered was the concentrate users were more likely to become addicted. They also found concentrates may contribute to greater cannabis dependence and withdrawal symptoms.³⁴

The full set of risks uniquely associated with different cannabis products clearly need more study.³⁵

³⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6111049/>

³⁵ <https://www.jwatch.org/na38223/2015/06/15/dabbing-blasting-and-oil-rig-new-language-marijuana>

A bulletin from the Division of Adolescent Medicine at Stanford Medicine University notes the THC potency of the liquid used in vape pens varies and they are often mislabeled.³⁶

They add that dabbing is one of the means most associated with Emergency Room Visits due to cannabis exposure.³⁷

Edibles take longer for a person to feel the effects.³⁸

Because of this, a person may feel the need to use more thereby overconsuming. Overconsumption of edible products can also lead to Emergency Room visits.³⁹

Like the vaping products, edibles are often labeled inaccurately. Therefore, it can be unclear how much THC is in a serving-- and what even constitutes a serving. One study showed, "Regulation and quality assurance for edible product cannabinoid content and labeling are generally lacking."⁴⁰

This is another contributing factor to why there have been so many instances of people overdosing on edibles.

As for soaps, suppositories ("tampons"), lotions, bath products, gum, etc., a bulletin from the Division of Adolescent Medicine at Stanford Medicine University says these products have not actually been evaluated.⁴¹

Buyers should beware. This is especially true for young people who have greater consequences from marijuana use.

³⁶<http://med.stanford.edu/content/dam/sm/cannabispreventiontoolkit/documents/HealthEffects/MethodsofUse/-Vaping-Cannabis.pdf>

³⁷<http://med.stanford.edu/content/dam/sm/cannabispreventiontoolkit/documents/HealthEffects/MethodsofUse/Dabbing.pdf>

³⁸ <https://accp1.onlinelibrary.wiley.com/doi/abs/10.1002/jcph.778>

³⁹ <https://annals.org/aim/article-abstract/2729210/emergency-department-visits-from-edible-versus-inhalable-cannabis>

⁴⁰ <https://jamanetwork.com/journals/jama/fullarticle/2338239>

⁴¹<http://med.stanford.edu/content/dam/sm/cannabispreventiontoolkit/documents/HealthEffects/MethodsofUse/Tinctures-Sprays-Pills-Capsules.pdf>

“What’s the difference between marijuana, THC and CBD?”

THC and CBD are both naturally occurring chemical compounds found in the marijuana plant.

THC is unique because it is psychoactive (meaning it affects brain function and perception).

The higher the amount of THC in the marijuana plant, the greater the psychoactive effects which gets a person high).

CBD is known for its lack of psycho-activity. This means it won’t get you high. CBD helps to inhibit the negative psychoactive effects of THC.

The naturally occurring ratio of THC to CBD has changed over the years, so there is less CBD (although some new strains with greater CBD ratios are being developed).

More information:

Marijuana has over 550 chemical entities. THC and CBD are two of them.⁴²

THC is psychoactive enough to be classified as a hallucinogen, primarily because it distorts brain function and perception. The higher the amount of THC in the marijuana plant, the more likely perceptual disturbances become. It can create auditory hallucinations, and sometimes visual illusions, which means misinterpreting the meaning of what is seen (usually not outright visual hallucinations, which means seeing objects in space that contains nothing).⁴³

CBD helps to inhibit the negative psychoactive effects of THC. A doctor knighted for his work on this topic in Great Britain, Sir Robin Murray, spoke to the BBC along with colleague Dr. Tom Freedman about the Yin and Yang of THC versus CBD.⁴⁴

In the era *A Night In Jail* is set, there was no separate THC and CBD products available to purchase. As the novella describes, even though pot was illegal at both the state and federal level, the marijuana purchased had the plant’s natural levels of both THC and CBD in it.

⁴² <https://www.ncbi.nlm.nih.gov/pubmed/28120229>

⁴³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5890804/pdf/nihms939683.pdf>

⁴⁴ <https://www.bbc.com/news/science-environment-31518546>

However, since that time, the ratio of CBD to THC has changed greatly. According to *Marijuana Break*, “the ratio of THC:CBD went from 14:1 to 80:1 inside 20 years...with less CBD, the THC is likely to have an even greater effect.”⁴⁵

Switzerland has started marketing a more mellow form of cannabis that has the ratios reversed, so that CBD is over 20 times the concentration of THC, which is capped at 1%.⁴⁶

Unfortunately, we do not know who is at risk for mental illnesses associated with marijuana use. Some people suspect it is a matter of a genetic predisposition; however Dr. Christine Miller, neuroscientist and schizophrenia researcher, describes clinical studies from the U.K. where 40% of participants had psychotic reactions on moderate doses of THC (10%) —and there was no 1st degree family history of psychosis.⁴⁷

⁴⁵ <https://www.marijuanabreak.com/average-thc-content-over-the-years>

⁴⁶ <https://www.swissinfo.ch/eng/swiss-marijuana-champion-finds-new-markets-with-cannabis-light/43292224>

⁴⁷ <https://www.baltimoresun.com/opinion/op-ed/bs-ed-op-0419-marijuana-psychosis-20190415-story.html>

“CBD is the one that’s completely safe, right?”

CBD products found on store shelves/online have not been subject to any FDA review and their claim of benefits are often overblown.

The FDA has issued these warnings about CBD: can cause liver injury and impair kidney function and cause anemia. CBD can affect the metabolism of other drugs, causing serious side effects. Use of CBD with alcohol or other Central Nervous System depressants increases the risk of sedation and drowsiness, which can lead to injuries...consumers should use caution if planning on operating a motor vehicle after consuming any CBD products...CBD use can endanger unborn children.

The THC content in the CBD product can be significant even if it comes from hemp plants and the effect it can have on you is unknown.

More information:

It’s understandable a person would assume CBD is completely safe because it is in a vast array of products and food items and sold in mainstream retail stores. With the exception of an FDA approved medication called Epidiolex, all CBD products contain some amount of THC (more on that later).

An article about CBD in *Mother Jones* points out that many claims of benefits are overblown.⁴⁸

One of the most important and validated benefits is the effect of pure CBD in Epidiolex is in the treatment of two rare and life-threatening seizure disorders in children. This is the only product with FDA approval.

This means the CBD products found on store shelves/online have not been subject to any FDA review. So, even though they’re touted as being “safe” and “natural” and that it won’t get a person high, the FDA has issued these warnings:

CBD can cause liver injury and impair kidney function and cause anemia. CBD can affect the metabolism of other drugs, causing serious side effects. Use of CBD with alcohol or other Central Nervous System depressants increases the risk of sedation and drowsiness, which can lead to injuries...consumers should use caution if planning on operating a motor vehicle after consuming any CBD products. CBD can cause side effects that you might notice. These side

⁴⁸ <https://www.motherjones.com/food/2018/11/sorry-hipsters-cbd-will-not-solve-all-your-problems/>

*effects should improve when CBD is stopped or when the amount ingested is reduced. CBD use can endanger unborn children.*⁴⁹

The THC content in the CBD product can be significant even if it comes from hemp plants.⁵⁰ This can lead to positive drug tests for people who need to pass them for their job or other reasons.⁵¹

Although low concentrations of THC in hemp or marijuana products are safer, there is still a question mark about what the effect will be for you.

In *A Night In Jail*, Danny used 5% THC. He got high on it and he had long-term repercussions.

⁴⁹ <https://www.fda.gov/consumers/consumer-updates/what-you-need-know-and-what-were-working-find-out-about-products-containing-cannabis-or-cannabis>

⁵⁰ <https://modernfarmer.com/2020/02/what-makes-industrial-hemp-spike-to-illegal-levels-of-thc/>

⁵¹ https://www.eurekalert.org/pub_releases/2019-11/jhm-scp110419.php

“It’s not a big deal if someone feels paranoid when they’re high.”

Paranoia is often the very first symptom a person will have who is sensitive to the negative mental health effects of marijuana.

It is possible for symptoms of psychosis to go away, but only if that person discontinues use.

More information:

It actually is a big deal. Many people know paranoia is a common side effect with some people who use pot. But did you know paranoia is a form of psychosis?⁵² In fact, Dr. Christine Miller cautions one of the first indications a person is sensitive to the negative mental health effects of marijuana is having feelings of paranoia.⁵³

If you, or someone you know, feels paranoid while using marijuana that is a clear indication to stop using immediately. There can be long-lasting mental health consequences, like the onset of schizophrenia, if use continues. It is possible for symptoms of psychosis to go away, but only if that person discontinues use.⁵⁴

⁵² https://www.cannabisskunksense.co.uk/uploads/site-files/Psychiatric_Times_-_Cannabis-Induced_Psychosis_A_Review_-_2017-07-14.pdf

⁵³ <https://www.baltimoresun.com/opinion/op-ed/bs-ed-op-0419-marijuana-psychosis-20190415-story.html>

⁵⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3080669/pdf/sbp126.pdf>

“What should I do if marijuana makes me hear voices or think I see things no one else can?”

Stop immediately. This is psychosis. Users with psychosis who stop using marijuana do better with discontinued use.⁵⁵

⁵⁵ [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(15\)00363-6/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(15)00363-6/fulltext)

“What’s the difference between psychosis and schizophrenia?”

Psychosis can be a temporary condition of the mind where there has been some loss of understanding what is real and what is not. Some other symptoms of other disorders which can also occur with psychosis can include: depression, anxiety, sleep problems, lack of motivation and difficulty functioning.

Schizophrenia is not temporary. It is chronic, severe and disabling. People with schizophrenia seem to have lost touch with reality.

If a person has a psychotic episode from marijuana use which is severe enough to go to the Emergency Room, this person is at higher risk to develop schizophrenia. Of those affected people, about half will go on to recover completely, but only if they stop using.

The risk for psychosis goes up with these factors: the younger a person is, the higher the dose and the greater frequency of use.

More information:

Here is how the National Institute of Mental Health describes psychosis. This can be temporary.

“The word psychosis is used to describe conditions that affect the mind, where there has been some loss of contact with reality...During a period of psychosis, a person’s thoughts and perceptions are disturbed and the individual may have difficulty understanding what is real and what is not. Symptoms of psychosis include delusions (false beliefs) and hallucinations (seeing or hearing things that others do not see or hear). Other symptoms include incoherent or nonsense speech, and behavior that is inappropriate for the situation. A person in a psychotic episode may also experience depression, anxiety, sleep problems, social withdrawal, lack of motivation, and difficulty functioning overall.”⁵⁶

In an Op-ed, Dr. Miller explains most first-time psychotic episodes are temporary. She also makes clear that the vast majority of studies have been done on lower potency products (like from the 1900’s), which likely underestimate the magnitude of effects today. The older studies showed only 12-15% of users will experience a temporary psychotic symptom, like paranoia.⁵⁷

⁵⁶ <https://www.nimh.nih.gov/health/topics/schizophrenia/raise/what-is-psychosis.shtml>

⁵⁷ <https://www.baltimoresun.com/opinion/op-ed/bs-ed-op-0419-marijuana-psychosis-20190415-story.html>

This is how The National Institute of Mental Health describes schizophrenia. This can be permanent.

“Schizophrenia is a chronic and severe mental disorder that affects how a person thinks, feels, and behaves. People with schizophrenia may seem like they have lost touch with reality. Although schizophrenia is not as common as other mental disorders, the symptoms can be very disabling. People...may ‘lose touch’ with some aspects of reality.”

The National Institute of Mental Health goes on to describe symptoms of schizophrenia: hallucinations, delusions, thought disorders, movement disorders, reduced expressions of emotions, reduced feelings of pleasure in everyday life, difficulty beginning and sustaining activities, reduced speaking, poor ability to understand information and make decisions, trouble focusing or paying attention, problems with the ability to use information immediately after learning it.”⁵⁸

Nearly half of affected individuals will develop schizophrenia after a full psychotic break from marijuana. In other words, if it's not just an occasional symptom but more than one symptom happening at once and is severe enough to merit a trip to the Emergency Department. The flip side is about half can recover from such a marijuana-induced psychotic break if they quit using pot.⁵⁹

Remember three important things: the younger a person is, the more often a person uses, and the more potent the marijuana is, the higher the risk goes up to have psychotic outcomes. As mentioned, users with psychosis who stop using marijuana do much better.⁶⁰

⁵⁸ <https://www.nimh.nih.gov/health/topics/schizophrenia/index.shtml>

⁵⁹ https://ajp.psychiatryonline.org/doi/abs/10.1176/appi.ajp.2017.17020223?rfr_dat=cr_pub%3Dpubmed&url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&journalCode=ajp

⁶⁰ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3080669/pdf/sbp126.pdf>

“It helps me relax. I get anxious when I don’t use it.”

Cannabis use among adolescents places them at greater risk for maintaining higher levels of anxiety over time.

Higher concentration products create greater anxiety severity, in feeling nervous, anxious, or on edge.

More information:

Danny felt anxious when he didn’t have pot so he used a little bit every day. If studies were available for him in the 1970’s he would have learned that, even though he felt relief from his anxiety temporarily, pot use actually causes anxious feelings in the long run. This is because a brain becomes dependent on the drug. When a dependent person stops using, he/she will experience anxiety because it is a symptom of withdrawal.

Because so many people believe it helps their anxiety, a study was done to examine whether people who are anxious use cannabis or users of cannabis become more anxious. It showed “early cannabis use has a greater influence on prospective reports of anxiety, than vice versa...Overall, our results suggest that higher levels of CU (cannabis use) among adolescents place them at greater risk for maintaining higher levels of anxiety over time.”⁶¹

Another study showed how the higher concentration products create “greater anxiety severity, in feeling nervous, anxious, or on edge” than the products which are lower in THC.⁶²

⁶¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5819339/pdf/nihms927617.pdf>

⁶² [Exploring cannabis concentrates on the legal market: User profiles, product strength, and health-related outcomes](#)

“Can you predict in advance who can use marijuana safely with no lasting effects that are harmful?”

No. High potency products are putting more people at risk for long-lasting effects like schizophrenia, poor adult outcomes and suicide.

More information:

It has been suggested only users with a familial predisposition to psychotic mental illness are at risk (about 10% of the population). However, a study from Denmark shows the risk for the long-lasting effects of schizophrenia from cannabis use to be independent of family history of psychosis. The high potency products are putting more people at risk.⁶³

In addition to psychosis, there are several other studies which show other poor adult outcomes with regular use, including the risk for suicide.⁶⁴

⁶³ <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/482877>

⁶⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4219077/pdf/wps0013-0322.pdf>

“What can THC possibly have to do with suicide? “

There are several sources which show teen daily users of marijuana substantially raise their risk for suicide. In 2019, teen suicide increased by 58% in three years in Colorado.

More information:

Danny’s future life history illustrates the results of a study which says, “...those who were daily users before age 17 years had clear reductions in the odds of high school completion and degree attainment and substantially increased odds of later cannabis dependence, use of other illicit drugs and suicide attempt.”⁶⁵

Although not depicted in the story, Kirk Anderson (the real-life Danny) did consider suicide. He became isolated and depressed after he was put on psychiatric medication because it allowed him to comprehend all he had lost in his life.

There is additional data which shows the relationship between teen use and suicide.

Our U.S. Surgeon General VADM Jerome Adams, issued a warning in August 2019 that use of high potency THC products raises the risk for teenagers to consider suicide.⁶⁶

In Colorado 2017, the #1 substance found in teens, age 10-19, who committed suicide, is pot.⁶⁷

In 2019, Colorado Public Radio reported the rate of teen suicide increased 58% in 3 years.⁶⁸

As for age 20 and older: The percentage of suicides in Colorado involving marijuana went from 6.1% in 2009 (marijuana commercialization) to 22.45% in 2017.⁶⁹

⁶⁵ [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(14\)70307-4/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(14)70307-4/fulltext)

⁶⁶ <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html>

⁶⁷ <https://rmhidta.org/files/D2DF/FINAL-Volume6.pdf> (page 42)

⁶⁸ <https://www.cpr.org/2019/09/17/the-rate-of-teen-suicide-in-colorado-increased-by-58-percent-in-3-years-making-it-the-cause-of-1-in-5-adolescent-deaths/>

⁶⁹ <https://rmhidta.org/files/D2DF/FINAL-Volume6.pdf> (pg 42)

“Marijuana doesn’t have anything to do with homelessness. It’s all the harder drugs.”

Although no studies have been done directly linking the two: marijuana is associated with developing schizophrenia, and schizophrenia is associated with becoming homeless, thus marijuana is associated with homelessness.

Homelessness in legalized states has risen since legalization.

Teen marijuana use is a predictor of Opioid Use Disorder which is commonly understood as a risk factor in homelessness.

More information:

A study out of UCLA's California Policy Lab found that 78% of people living on the streets suffer from one form of mental illness or another.⁷⁰

Estimates place the proportion of mentally ill homeless individuals who have schizophrenia as their diagnosis, at about 68%, with the remainder of the mentally ill homeless suffering from mood disorders.⁷¹

Thus, 0.68×0.78 , or about half of homeless individuals in California are likely to be living with schizophrenia. And California has legalized marijuana, resulting in greater marijuana use in all age groups but of particular concern for youth. A study published online in *JAMA Psychiatry* showed 'problematic' teen marijuana use (ages 12-17) is up 25% in legalized states as compared to states where pot is not legal.^{72 73}

But as far back as 2015, the trend for increasing marijuana use was evident, as more and more states debated the possibility of legalization.⁷⁴

The impact of greater use on psychosis rates is concerning, according to a recent paper written by the prominent researcher, Sir Robin Murray of the U.K., which states, “it seems likely that the

⁷⁰ <https://www.capolicylab.org/health-conditions-among-unsheltered-adults-in-the-u-s/>

⁷¹ <https://link.springer.com/article/10.1007/s10597-013-9607-5>

⁷² <https://www.insurancejournal.com/news/national/2019/11/13/548160.htm>

⁷³ <https://jamanetwork.com/journals/jamapsychiatry/article-abstract/2755276>

⁷⁴ <https://www.nih.gov/news-events/news-releases/prevalence-marijuana-use-among-us-adults-doubles-over-past-decade>

current commercialization of recreational cannabis in North America will be followed in a few years by a rise in the incidence of new cases of psychosis and in the prevalence of people with more chronic psychoses."⁷⁵

Of all the recreational drugs, marijuana has been shown to be the most likely to lead to chronic psychosis.^{76 77}

The increase in use and resulting psychosis does not bode well for homelessness. Addiction recovery centers describe how difficult it can be to treat marijuana addiction and co-occurring mental illness.⁷⁸

Opioid addiction is recognized as another contributing factor for homelessness. This quote from a recent study shows one of the main predictors of Opioid Use Disorder is youth marijuana use:

"Early initiation of marijuana (before 18 years) emerged as the dominant predictor. Decision trees revealed that early marijuana initiation especially increased the risk if individuals: (i) were between 18-34 years of age, or (ii) had incomes less than \$49,000, or (iii) were of Hispanic and White heritage, or (iv) were on probation, or (v) lived in neighborhoods with easy access to drugs. Conclusions: Machine learning can accurately predict adults at risk for OUD, and identify interactions among the factors that pronounce this risk. **Curbing early initiation of marijuana may be an effective prevention strategy against opioid addiction, especially in high risk groups.**"⁷⁹

And homelessness has been on the rise on California since marijuana legalization. These quotes from KCET and The Greater Los Angeles Homeless Count, respectively, describes the rise in homelessness in Los Angeles County:

"According to homelessness counts between 2010 and 2017, the number of homeless people across Los Angeles County went from 38,700 to over 55,000 - an increase of 42%."⁸⁰

⁷⁵ file:///C:/Download/jamapsychiatry_murray_2020_vp_200007.pdf

⁷⁶ <https://www.psychiatrist.com/jcp/article/pages/2013/v74n01/v74n0115.aspx>

⁷⁷ https://ajp.psychiatryonline.org/doi/full/10.1176/appi.ajp.2017.17020223?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed&

⁷⁸ <https://www.therecoveryvillage.com/marijuana-addiction/related-topics/mental-health/#gref>

⁷⁹ [Understanding Opioid Use Disorder \(OUD\) using tree-based classifiers
https://www.sciencedirect.com/science/article/abs/pii/S0376871620300041?via%3Dihub](https://www.sciencedirect.com/science/article/abs/pii/S0376871620300041?via%3Dihub)

⁸⁰ <https://www.kcet.org/neighborhood-data-for-social-change/a-2018-snapshot-of-homelessness-in-los-angeles-county>

"The results of the 2019 Greater Los Angeles Homeless Count, which showed 58, 936 people in Los Angeles County experiencing homelessness, representing a 12% rise from last year's point-in-time count of 52, 765."⁸¹

There's another contributing factor to why marijuana is associated to homelessness. Drug users are drawn to counties, like Los Angeles, where marijuana use is legal and they can use openly.

"Users and would-be users may also have been attracted to locations where it is possible to use drugs of all kinds without fear of penalty or jail. This appears to have been the case in Colorado. The increase in the number of homeless and in the number of encampments of homeless have been noticeable since the legalization of marijuana in Colorado in 2014. So too has been the increase in polydrug use in general and in opiod use and addiction."⁸²

The article goes on to describe how legalized states also have thriving black market businesses. It says, "As users become customers of black marketers, they can be and are too often introduced to a variety of other drugs, including methamphetamine, cocaine, and opioids...This has increase substantially not only the number of marijuana addicts, but the number of polydrug users, and opiod addicts as well."

The trends in California are not unique. Other legalized states that have experienced marked increases in homelessness are Washington, Alaska and Oregon.^{83 84 85 86}

⁸¹ <https://www.lahsa.org/news?article=558-greater-los-angeles-homeless-count-shows-12-rise-in-homelessness>

⁸² <https://www.domesticpreparedness.com/healthcare/drugs-homelessness-a-growing-public-health-disaster/>

⁸³ <https://www.ibtimes.com/marijuana-legalization-colorado-how-recreational-weed-attracting-people-spiking-2374204>

⁸⁴ <https://www.seattlepi.com/news/article/How-the-state-of-homelessness-in-Seattle-has-14953962.php>

⁸⁵ <https://www.alaskapublic.org/2019/06/24/amid-public-outcry-over-homelessness-anchorage-seeks-more-shelter-beds/> <https://www.alaskapublic.org/2019/06/24/amid-public-outcry-over-homelessness-anchorage-seeks-more-shelter-beds/>

⁸⁶ <https://www.oregonlive.com/pacific-northwest-news/2019/12/rising-homeless-numbers-in-oregon-and-california-offset-improvements-across-country-us-housing-department-states.html>

“Can I be affected if I’m exposed to second hand vape/smoke?”

Yes. The vapor can harm bystanders' lungs and contribute to lasting damage and disease. Vaping and dabbing cannabis can create levels of indoor air pollution which is similar to severe industrial pollution and wildfires.

Marijuana smoke deposits four times more tar in the lungs² and contains 50 percent to 70 percent more cancer-causing substances than tobacco smoke does. Marijuana smoke can also be contaminated with mold and insecticides.

People who are exposed to secondhand marijuana smoke can have detectable levels of THC in their blood and urine which means people who aren't using pot can still get a "contact high". There is a specific risk of secondhand marijuana smoke to children.

Thirdhand smoke is the chemicals which are left behind on a person’s clothes, hair, and on surfaces from fumes. The smell are the chemicals coming off (and into your lungs).

More information:

The short answer is yes. CNET says, "If you're near a person breathing out vapor from an e-cigarette, you generally breathe in the same air that they're exhaling and can inhale the same vapor...Ultrafine particles can find their way from the vapor into the lungs of other people in the same space...The vapor can also harm bystanders' lungs and contribute to lasting damage and disease."⁸⁷

Included in many of the black market THC vapes is Vitamin E acetate which is a fat. Michelle Francl, a chemistry professor at Bryn Mawr College explains Vitamin E acetate's molecular structure means that “you have to heat it up pretty hot” for it to vaporize. Once the oil is heated hot enough to vaporize, it can potentially decompose, and “now you’re breathing in who-knows-what.” She goes on to explain that once the vapor cools in the lungs, it returns to its original state at that temperature. This means it has "coated the insides of your lungs with that oil," she said. Our lungs aren't made to handle oil.⁸⁸

⁸⁷ <https://www.cnet.com/news/secondhand-vaping-the-new-health-risk-you-didnt-even-know-was-an-issue/>

⁸⁸ <https://www.washingtonpost.com/health/2019/09/05/contaminant-found-vaping-products-linked-deadly-lung-illnesses-state-federal-labs-show/>

Purified THC itself is an oil at room temperature and is not healthy for the lungs either.⁸⁹

In addition to expelling Vitamin E acetate into the air, American Nonsmokers' Rights Foundation say vaping and dabbing cannabis can create levels of indoor air pollution which is similar to severe industrial pollution and wildfires. Exposure can cause cardiovascular and respiratory disease.⁹⁰

People are aware of the dangers of secondhand tobacco smoke, but many are unaware of the risks posed by smoke from marijuana. The Substance Abuse and Mental Health Services Administrations says, "Marijuana smoke deposits four times more tar in the lungs and contains 50 percent to 70 percent more cancer-causing substances than tobacco smoke does."⁹¹

Marijuana smoke can also be contaminated with mold and insecticides. Additionally, people who are exposed to secondhand marijuana smoke can have detectable levels of THC in their blood and urine.⁹²

This means people who aren't using pot can still get a "contact high". Tobacco Free CA says nonsmoking people in a confined space with people smoking high-THC marijuana reported mild effects and displayed mild impairments on performance in motor tasks. This is especially important to understand for people who plan on driving.⁹³

Studies of secondhand marijuana smoke in small spaces (equivalent to a car) have shown that people adjacent to the smoker can develop levels of THC that have a physiological effect, i.e. that "contact high."⁹⁴

There is a specific risk of secondhand marijuana smoke to children. In Colorado one in six infants and toddlers hospitalized for lung inflammation are testing positive for marijuana exposure. This has been a 100% increase since legalization (10% to 21%).⁹⁵

⁸⁹ <https://www.bostonherald.com/2019/09/27/vaping-illness-probe-focuses-on-thc-products/>

⁹⁰ <https://no-smoke.org/protecting-nonsmokers-secondhand-marijuana-smoke/>

⁹¹ <https://store.samhsa.gov/system/files/phd641.pdf>

⁹² <https://no-smoke.org/secondhand-marijuana-smoke-fact-sheet/>

⁹³ <https://tobaccofreeca.com/secondhand-smoke/marijuana-secondhand-smoke-dangers/>

⁹⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4747424/pdf/nihms684529.pdf>

⁹⁵ <https://www.sciencedaily.com/releases/2016/04/160430100247.htm>

Secondhand exposure to tobacco smoke causes an increased risk of sudden infant death syndrome, acute respiratory infections, middle ear disease, and more severe and frequent asthma attacks in infants and children, tobacco smoke and marijuana smoke contain similar harmful smoke chemicals.

Not surprisingly, children whose parents reported smoking marijuana in another room while children were home had detectable COOH-THC. Research on secondhand and thirdhand tobacco smoke has clearly revealed that smoking in the home, even in a different room, results in significant exposure to children.⁹⁶

Thirdhand smoke is the chemicals which are left behind on surfaces from tobacco fumes. Smokers, or people who have been exposed to smoke, carry the compounds with them and deposit them as they slowly evaporate. This is called “off-gassing” and it’s the reason why smokers smell. When we smell this we’re not smelling the chemicals bound to the person’s clothes we’re smelling the ones that are coming off.⁹⁷

It is suspected thirdhand smoke can present problems in confined and poorly ventilated spaces.

⁹⁶ <https://pediatrics.aappublications.org/content/142/6/e20180820>

⁹⁷ <https://www.sciencemag.org/news/2020/03/thirdhand-smoke-can-expose-moviegoers-emissions-10-cigarettes>

“Everyone knows THC isn’t addictive.”

Marijuana is addictive. A person can become addicted to low doses of marijuana at any age.

However, the factors which most increase the risk for physical dependence are: the younger a person is at initiation, the frequency of use and the higher the dose of THC.

More information:

A Night In Jail depicts how Danny is addicted to pot--so much so that, in order to feed his addiction, he makes choices which harm himself. There are several reputable sources which confirm THC is addictive, especially in the higher concentrations and especially with teenagers.

Our U.S. Surgeon General said it best: "The risks of physical dependence, addiction, and other negative consequences increase with exposure to high concentrations of THC and the younger the age of initiation."⁹⁸

People under the age of 26 are the most susceptible to become addicted to any substance because their brains are still forming. As mentioned earlier, the THC content in the pot Danny smoked was extremely low compared to what is available today. Yet, as the book describes, Danny could not go without using pot for more than a day because he would get irritable, shaky and sweaty.

Additional data shows cannabis concentrates (waxes, dabs, edibles) are the most addictive.⁹⁹

This quote describes the results of integrative analysis which shows how addiction to marijuana affects a person's entire life: “Those who were daily users before age 17 years had clear reductions in the odds of high-school completion (adjusted odds ratio 0·37, 95% CI 0·20-0·66) and degree attainment (0·38, 0·22-0·66), and substantially increased odds of later cannabis dependence (17·95, 9·44-34·12), use of other illicit drugs (7·80, 4·46-13·63), and suicide attempt (6·83, 2·04-22·90)”¹⁰⁰

⁹⁸ <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html>

⁹⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6111049/>

¹⁰⁰ <https://www.ncbi.nlm.nih.gov/pubmed/26360862>

“THC makes me a better driver.”

This is false. Never drive after having used marijuana. Never get in a car with a driver who recently used marijuana.

Marijuana users are more than twice as likely to get into a crash.

More information:

It doesn't matter if a person is using marijuana for recreational or medicinal purposes. The effect is the same: marijuana impairs drivers. Since 2007, the number of fatal vehicle crashes in Washington State where the driver tested positive for marijuana has more than doubled.¹⁰¹

Marijuana users are more than twice as likely to get into a crash.¹⁰²

Studies show a high percentage of drivers who use marijuana drive within an hour of getting high.¹⁰³ However, impairing effects of pot are usually experienced within four hours of using the drug.¹⁰⁴ And there is evidence to suggest the impairment can last for 12 hours or more.

No level of marijuana use is considered acceptable for pilots. One study found that impairments in piloting skills were impaired even 24 hours after use.^{105 106}

"Marijuana can significantly alter reaction times and impair a driver's judgement. Yet, many drivers don't consider marijuana-impaired driving as risky as other behaviors like driving drunk or talking on the phone while driving," said Dr. David Yang, Executive Director of the AAA Foundation for Traffic Safety.¹⁰⁷

It is never worth the risk.

¹⁰¹ <https://newsroom.aaa.com/2020/01/fatal-crashes-involving-drivers-who-test-positive-for-marijuana-increase-after-state-legalizes-drug/>

¹⁰² <https://www.sun-sentinel.com/features/fl-bz-marijuana-car-crashes-aaa-study-20190619-wdmcx2ollbeslcs44uzhpnzoqy-story.html>

¹⁰³ <https://abc7news.com/society/aaa-millions-get-behind-wheel-after-pot-use/5352913/>

¹⁰⁴ <https://www.sun-sentinel.com/features/fl-bz-marijuana-car-crashes-aaa-study-20190619-wdmcx2ollbeslcs44uzhpnzoqy-story.html>

¹⁰⁵ <https://www.marijuanamoment.net/federal-aviation-administration-clarifies-marijuana-and-cbd-policy-for-pilots/>

¹⁰⁶ <https://ajp.psychiatryonline.org/doi/abs/10.1176/ajp.142.11.1325>

¹⁰⁷ <https://abc30.com/society/aaa-millions-get-behind-wheel-after-pot-use/5352913/>

Is it true that potent marijuana is associated with abnormal heart rhythm and stroke even in teens and young adults?”

Yes. The risk for heart attack in teens and young adults who use marijuana is raised by 30%.

Smoking pot has many of the same cardiovascular problems as smoking tobacco, except high potency marijuana has been linked to immediate death.

More information:

Use of cannabis independently raises the risk for heart attack by 30% in people age 15-22.¹⁰⁸

In Quebec, the number of reported cases of cannabis poisoning, which includes elevated heart rate, blood pressure, and seizures have more than tripled in the first several months after the drug was legalized.¹⁰⁹

Why is this? Because smoking pot has many of the same cardiovascular problems as smoking tobacco.¹¹⁰

Unlike cigarette smoking by youth and young adults, however, potent marijuana use has been linked to immediate fatalities.¹¹¹

Stroke is also a major concern, though not usually fatal in the young.¹¹²

These negative effects go well beyond the heart and brain. This quote from a review of over 1000 studies shows “...a clear association between cannabis use and...respiratory adverse events, cancer, cardiovascular outcomes, and gastrointestinal disorders.”¹¹³

¹⁰⁸ <https://www.ncbi.nlm.nih.gov/pubmed/31611137>

¹⁰⁹ <https://www.cbc.ca/news/canada/montreal/cannabis-quebec-poison-control-1.5004183>

¹¹⁰ <https://www.ncbi.nlm.nih.gov/pubmed/31976871>

¹¹¹ <https://www.sciencedirect.com/science/article/pii/S0379073814000541?via%3Dihub>

¹¹² https://journals.lww.com/journaladdictionmedicine/Abstract/2017/10000/Multiple_Cerebral_I_nfarcts_in_a_Young_Patient.11.aspx

¹¹³ [The blind men and the elephant: Systematic review of systematic reviews of cannabis use related health harms. - PubMed - NCBI](#)

QUESTIONS OR COMMENTS AN ADULT MAY HAVE

“I did it when I was young and I’m fine.”

Marijuana potency has increased greatly; therefore, the risks for psychosis and adult schizophrenia has increased by 4-5 times.

The risk of other negative outcomes increases with use, especially when used by a person under the age of 25.

More information:

It’s very common for parents to assume marijuana is much the same as it was for them. This is not true: marijuana potency has risen greatly in the last 25 years. Because of this, the risks are exponentially higher.

A Night In Jail depicts the story of a person who is sensitive to the negative effects of low potency marijuana, at about 5% THC. Although we don’t know ahead of time who will suffer negative effects on low-to-moderate doses of THC, studies show about 12-15% of users will have a psychotic experience.

However, today’s marijuana is much stronger. Because of this, more people are at risk to experience psychosis and adult schizophrenia. So much so, the high potency products have raised the risk for a psychotic experience by 4 – 5 times that of nonusers.¹¹⁴

See this statement from our U.S. Surgeon General:

“Between 1995-2014, the commonly cultivated marijuana has grown stronger by three times (4% & 12% respectively). Dispensary pot is 17%-23.2%. Concentrated products (waxes, dabs) are up to 79%. The higher the concentration of THC, the greater the risk for negative outcomes. The younger a person is when he/she starts, the greater the risk.”¹¹⁵

¹¹⁴ <https://www.baltimoresun.com/opinion/op-ed/bs-ed-op-0419-marijuana-psychosis-20190415-story.html>

¹¹⁵ <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html>

“I give THC to my kids. It calms them down. There’s so much pressure on teenagers.”

Adolescents who use cannabis report more anxiety over time.

More information:

Marijuana has a uniquely negative mental health effects on brains under the age of 26 (this is with medicinal and recreational use).

Although administering THC to a teenager may provide temporary relief from daily pressures, the studies show adolescents who use cannabis report more anxiety over time. In fact, a study shows substance use may have long-term impacts on mental health. It also says preventing problematic cannabis use can actually help prevent future anxiety.¹¹⁶

¹¹⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5819339/>

“I use it with my kids. We relax together and it helps us bond.”

A parent who uses marijuana raises the risk for their children to become addicted (to pot, alcohol, tobacco and opioid misuse).

More information:

There are articles written suggesting this is a good way for parent and child to bond. However, in addition to inadvertently creating more anxiety in a teen in the long run, there is literature to show parental cannabis use can raise the risk for addiction in their children. The study says: “Parental marijuana use was associated with increased risk of marijuana and tobacco use and opioid misuse by both adolescent and young adult offspring and of alcohol use by adolescent offspring.”¹¹⁷

¹¹⁷ <https://pubmed.ncbi.nlm.nih.gov/31755950/>

“I heard we have natural cannabinoids in our brains so our brains are naturally wired to accept marijuana.”

All drugs with a biological effect must bind to something of importance in our body. When THC is consumed, the finely tuned regulation of the endocannabinoid system is being replaced by a drug that is not finely regulated to serve the needs of the brain.

These cannabinoid receptors are critical for brain development. Using THC at a young age impacts the proper formation of brain circuits.

More information:

It goes without saying that all drugs with a biological effect must bind to something of importance in our body. A few decades ago, receptors which bind to plant (phyto-) cannabinoids were identified on the cell surface in mammals and the receptors were therefore named *cannabinoid receptors*. Later, neurochemicals that our own body makes were found to bind to these same receptors and were given the name *endocannabinoids*.¹¹⁸

Phytocannabinoids are foreign to the body and as such, should be considered "exocannabinoids". Interestingly, the endocannabinoids bear little structural resemblance to the exocannabinoids THC and CBD.¹¹⁹

This structural difference undoubtedly has something to do with the functional difference between THC, CBD and the endocannabinoids, anandamide and 2-Arachidonoyl glycerol (2-AG). One of the most important functional differences is that the endocannabinoids are quickly degraded to inactive products by enzymes in the brain.¹²⁰

In contrast, THC in the brain is degraded to an active metabolite, 11-hydroxy-THC.¹²¹

¹¹⁸ <https://www.ncbi.nlm.nih.gov/pubmed/25315390>

¹¹⁹ https://www.researchgate.net/profile/Raphael_Mechoulam2/publication/266945311_Early_phytocannabinoid_chemistry_to_endocannabinoids_and_beyond/links/5469dbc30cf20dedafd13b85.pdf

¹²⁰ <https://www.nature.com/articles/s41598-018-26826-2.pdf>

¹²¹ <https://link.springer.com/article/10.1007/s11419-013-0181-x>

11-hydroxy-THC has been shown to be at least as potent as THC, and potentially more long lasting in its psychoactive effect.^{122 123}

The net result is that when THC is consumed, the finely tuned regulation of the endocannabinoid system is replaced by an exocannabinoid that is not finely regulated to serve the needs of the brain.

As our Surgeon General says, “These same cannabinoid receptors are also critical for brain development.” Using THC at a young age “impacts the formation of brain circuits.” As *A Night In Jail* depicts, this interruption can have life-long consequences regarding “decision-making, mood and responding to stress.”¹²⁴

¹²² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC302499/pdf/jcinvest00185-0033.pdf>

¹²³ https://link.springer.com/chapter/10.1007%2F3-540-26573-2_23

¹²⁴ <https://www.hhs.gov/surgeongeneral/reports-and-publications/addiction-and-substance-misuse/advisory-on-marijuana-use-and-developing-brain/index.html>

“We can’t stop kids from experimenting. Besides, a little bit won’t hurt them.”

Both assumptions are false. Especially with today’s high potency THC products. A person can have a psychotic experience from one single joint. As discussed earlier, this is detrimental to a developing brain.

There are proactive steps a parent can take (like creating a nurturing environment and not using marijuana, themselves). Parents have more influence than they might think.

More information:

Especially with today’s high potency THC products, the assumption that *a little bit won’t hurt them* is false. CNN reported recently an otherwise healthy adult can experience psychosis with a single joint of marijuana. As discussed earlier, this is harmful to a brain under the age of 26.¹²⁵

In addition, another study shows that even a small amount of cannabis can alter some aspects of brain structure in teens. The author of the study says, “You’re changing your brain with just one or two joints. Most people would likely assume that one or two joints would have no impact on the brain.”¹²⁶

In *A Night In Jail*, Danny believed using a little bit wouldn't harm him or his goals. It turned out to be the first step in his tragic journey.

As far as preventing our kids from taking risks, there are actually proactive steps a parent can take. The first, most important step is for parents to set an example by not using marijuana themselves.¹²⁷

Lessons from the field of alcohol abuse can be relevant as well, since examples set by parental use of alcohol can promote alcohol abuse by their teenage and young adult children.¹²⁸

¹²⁵ <https://www.cnn.com/2020/03/17/health/cannabis-psychiatric-symptoms-wellness/index.html>

¹²⁶ <https://www.sciencedaily.com/releases/2019/01/190114130855.htm>

¹²⁷ <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2755867>

¹²⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2716564/pdf/nihms104825.pdf>

The National Institute on Alcohol Abuse and Alcoholism says, "Parents have more influence than they might think on a child's alcohol use." The style of parenting and other factors present in the home environment can make a huge difference.¹²⁹

The National Institute on Drug Abuse ("Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide") explains how exposure to stress in childhood primes the brain to be sensitive to stress and to seek relief from it throughout life. This increases the risk for drug abuse and starting drugs early in life. "By the same token, a range of factors, such as parenting that is nurturing or a healthy school environment, may encourage healthy development and thereby lessen the risk of later drug use."¹³⁰

¹²⁹ <https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/parenting-prevent-childhood-alcohol-#15use>, "Parenting to Prevent Childhood Alcohol Use."

¹³⁰ <https://www.drugabuse.gov/publications/principles-adolescent-substance-use-disorder-treatment-research-based-guide/principles-adolescent-substance-use-disorder-treatment>

“D.A.R.E. didn’t work. *Just say no* didn’t work. Prevention education is useless.”

During D.A.R.E., marijuana use dropped significantly, including for seniors in high school.

Even though it took 40 years, prevention education has worked very well for tobacco.

More information:

During the era of implementing D.A.R.E. and "Just say no", marijuana use among young adults aged 18 to 28 dropped significantly, from 22% in 1986 to 13% by 1992.¹³¹

And for seniors in high school, a peak in monthly use occurred in 1980 at 34% using monthly, dropping significantly to 12% by 1992.¹³²

We have also learned that prevention education worked for tobacco, a substance more accepted by our culture at one time than was marijuana. It took 40 years of education, but tobacco use is down substantially according to HHS. In 1976, 29% of high school seniors were users, but by 2017 the number dropped to just below 4%.¹³³

¹³¹ http://monitoringthefuture.org/pubs/monographs/mtf-vol2_2011.pdf (p. 179)

¹³² http://monitoringthefuture.org/pubs/monographs/mtf-vol1_2011.pdf (p. 212)

¹³³ <https://www.hhs.gov/ash/oah/adolescent-development/substance-use/drugs/tobacco/trends/index.html>

“I don’t want my kids to lie to me or hide their use. They’re going to do it in college, anyway. If I let them use it now, they won’t go crazy with drug and alcohol use once they’re out of the house. And if my kids do it at home then I know they’re safe.”

When parents provide a good foundation, which includes discipline, kids are better able to make healthy decisions.

Permissive parenting increases the risk for their offspring to have problem use as adults.

It is important for a young person to put off substance and alcohol use for as long as possible.

Daily marijuana users who are under the age of 17 are less likely to graduate high school. They increase their odds of continuing to use marijuana and other illicit drugs and to attempt suicide.

More information:

According to the *National Institute on Alcohol Abuse and Alcoholism*, kids of parents who exert high control have less underage drinking than kids of permissive parents. They say, “The combination of discipline and support by authoritative parents promotes healthy decision making about alcohol and other potential threats to healthy development.”^{134 135}

This quote shows the importance of putting off use for as long as possible.

“...those who were daily users before age 17 years had clear reductions in the odds of high school completion and degree attainment and substantially increased odds of later cannabis dependence, use of other illicit drugs and suicide attempt.”¹³⁶

Our Surgeon General said, “Marijuana’s increasingly widespread availability in multiple and highly potent forms, coupled with a false and dangerous perception of safety among youth, merits a nationwide call to action.”

¹³⁴ <https://pubmed.ncbi.nlm.nih.gov/11213145/>

¹³⁵ <https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/parenting-prevent-childhood-alcohol-use>

¹³⁶ <https://pubmed.ncbi.nlm.nih.gov/26360862/>

We can also learn from studies of alcohol abuse, where parental permissiveness for alcohol use by teens in the home has been shown to increase risk for problem drinking behaviors in adulthood.^{137 138}

¹³⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2942998/pdf/nihms-228729.pdf>

¹³⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4108600/pdf/jsad590.pdf>

“Medicinal marijuana is safer than recreational pot.”

There isn't a difference between medical and recreational marijuana.

More information:

People who use medical marijuana are using it to help with a medical condition, but it is the same marijuana as is used recreationally, as shown in a recent study. The researchers found that the chemical composition of what is sold in recreational dispensaries and medical marijuana dispensaries was essentially the same.^{139 140 141}

¹³⁹ teens.drugabuse.gov/drug-facts/marijuana

¹⁴⁰ <https://www.analyticalcannabis.com/articles/theres-no-significant-difference-between-recreational-and-medical-marijuana-in-the-us-study-claims-312318>

¹⁴¹ <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0230167&type=printable>