

Saving Our Youth from the Harms of Marijuana

PREVENTING YOUTH MARIJUANA USE



**JOHNNY'S
AMBASSADORS**

**Distributed by
Johnny's Ambassadors
Youth Marijuana Prevention Nonprofit
JohnnysAmbassadors.org**



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MARIJUANA FACTS

CANNABIS

is a genus with different plant species. These species contain hundreds of different chemicals called "cannabinoids."

MARIJUANA

is a variety of cannabis that contains greater than .3% THC and is used to make drugs. THC comes from marijuana and is psychoactive.

THC

stands for delta-9-tetrahydrocannabinol and is the most common cannabinoid in the cannabis plant. It is psychoactive, meaning it affects your mind. This gives users a high feeling.

CBD

stands for cannabidiol and is the second most common cannabinoid in the cannabis plant. It is not psychoactive by itself, but delta-8-THC can be created chemically from CBD and is psychoactive.



HEMP

is a variety of cannabis that contains less than .3% THC and is used to make paint, rope, and paper.

WHY ARE THE TERMS "CANNABIS" AND "MARIJUANA" NOT INTERCHANGEABLE?



THC POTENCY

Many people think marijuana is safe, but there are real risks.

Old-school marijuana (before you were born) contained **2–5%*** THC. Today's marijuana has been cultivated to be much stronger, **15–30%*** THC and sometimes more (it's like smoking several old-school joints at one time).

Old-school marijuana used to contain equal amounts of CBD and THC, which was a protective factor. Today's marijuana contains almost no CBD, just THC.

Today's chemists invented new marijuana products that didn't exist in the past. Raw THC is extracted from marijuana using a machine and turned into concentrates. These products, such as wax, shatter, and crystal (called dabs), can be **60–99%*** pure THC. Extracted THC can be further distilled into oils,

which can be **80–99%*** pure.

These oils can be vaped or put into edibles. Marijuana might start as a plant, but these products are created in a lab, and there's nothing natural about them!

Marijuana is a very different drug than it used to be—it's like comparing apples to oranges. Many plants, such as poison ivy, arsenic, hemlock, and marijuana, aren't safe and can hurt you, which is why we don't mess with them!



ALL THE RESEARCH DONE ON YOUTH MARIJUANA USE HAS PROVEN IT'S HARMFUL AND NO STUDIES OF TODAY'S HIGH-POTENCY MARIJUANA HAVE SHOWN ANY BENEFIT FOR YOUTH. DOES THIS WORRY YOU? ARE YOU WILLING TO ROLL THE DICE WITH YOUR BRAIN AND YOUR FUTURE?



FACT:

ALL marijuana products today, whether flower, dabs, vapes, or edibles are **HIGH POTENCY** (over 10% THC) and **UNSAFE**. There are **NO** studies that indicate today's high-potency marijuana products are healthy for youth.

**THC percentages are based on samples seized by the DEA and current marijuana products available in dispensaries.*

THE ENDOCANNABINOID SYSTEM

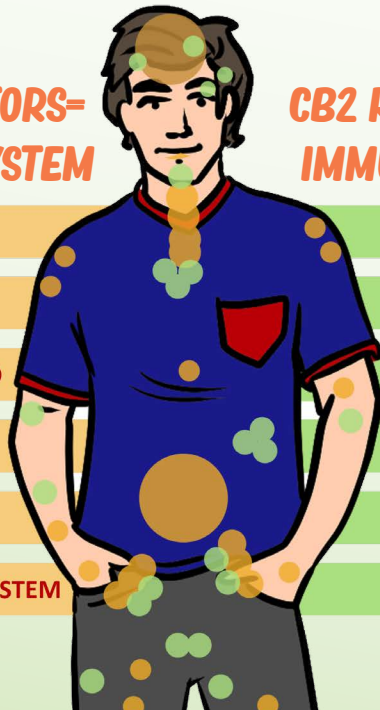


Recently, researchers studied how the THC in marijuana makes people high. They found the receptors it binds to and named them the Cannabinoid-1 (CB1) receptor in the nervous system and the Cannabinoid-2 (CB2) receptor in the immune system. Our brains are rich in CB1 receptors, which control central nervous system functions such as pain, sleep, metabolism, and movement.

CB1 RECEPTORS= NERVOUS SYSTEM

CB2 RECEPTORS= IMMUNE SYSTEM

BRAIN	DIGESTION
RETINA	LIVER
SPINAL CORD	BONES
LUNG	SPLEEN
HEART	COLON
REPRODUCTIVE SYSTEM	PANCREAS



We have an internal endocannabinoid in our bodies called anandamide. This is the brain's natural feel-good chemical, which naturally binds with our receptors. It is released after running, for example, which is often called the runner's high. Anandamide is also found in chocolate!

THC and anandamide molecules aren't exactly the same, but THC is close enough to TRICK THE BRAIN into letting it bind to the CB1 receptors! When THC gets into the brain, it interferes with our normal bodily functions. Teens who use marijuana may have attention deficits, memory loss, and impaired learning ability. When your brain is forming, marijuana use can change its structural development, causing changes in the prefrontal cortex. You want your brain to function and develop the way it's supposed to!

Research: www.ncbi.nlm.nih.gov/pmc/articles/PMC4789136

WHY ARE ATTENTION, MEMORY, AND LEARNING IMPORTANT TO YOUR FUTURE CAREER GOALS?

TEEN BRAIN DEVELOPMENT



It's illegal for youth under 21 years old to use marijuana because your brain is still forming. The human brain continues to grow until age 25 for females and up to age 30 for males. Anything that interferes with brain programming can lead to cognitive, emotional, and mental health problems.

Some teens believe regular cannabis use isn't harmful to their mental health or think, "It won't happen to me." Nothing could be further from the truth!

In one study, researchers performed MRI scans on the brains of 799 youth ages 14 and 19. The more these teens used marijuana, the thinner their prefrontal cortex became. Without all your brainpower available, your ability to make decisions when you get older will be impacted.



Researchers also found heavy marijuana use as an adolescent predicts an 8-point drop in IQ! So, if you are an A student, that is a C. If you are a C student, that is an F.

When your brain doesn't form correctly, you won't have all the brainpower you would have had to make good decisions as an adult, and your career opportunities could be



HOW COMFORTABLE ARE YOU KNOWING THAT USING MARIJUANA IS LITERALLY CAUSING DAMAGE TO YOUR BRAIN?

Research links:

jamanetwork.com/journals/jamapsychiatry/fullarticle/2781289
www.pnas.org/content/109/40/E2657

MARIJUANA ADDICTION & DEPENDENCE



"I would never get addicted to marijuana." Contrary to common belief, you CAN become addicted to marijuana, which medical professionals call Cannabis Use Disorder (CUD). One out of six teens who start using marijuana at a young age will become addicted to it, and one in three teens who use marijuana daily will become addicted.

According to the American Psychiatric Association (APA), as listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), if you answered YES:

- To two or three of these questions, you have a mild addiction.
- To four or five questions, you have a moderate addiction.
- To six or more questions, you have a severe addiction.

The good news is it's never too late to get help! Talk with a parent, counselor, teacher, or trusted adult and tell them you are having problems with your marijuana use and wish to stop!



If you are using marijuana, how do you know if you are addicted?

Ask yourself these questions. Do you:

1. Use marijuana longer than you meant to?
2. Try to cut back but can't?
3. Spend a lot of time getting, using, and recovering from marijuana?
4. Crave marijuana and want to use it all the time?
5. Skip school or miss work because you're high?
6. Keep using marijuana, even when it causes problems in your life?
7. Stop doing activities you used to enjoy?
8. Use marijuana, even when you feel sick?
9. Keep using, even when you have physical or mental problems from it?
10. Have to use more marijuana to feel as high as you used to?
11. Feel bad when you attempt to stop?

QUESTIONS: WHEN YOU FEEL UNCOMFORTABLE, WHAT COULD YOU DO TO FEEL BETTER INSTEAD OF USING A CHEMICAL? WHAT DO YOU USUALLY DO WHEN YOU'RE HAPPY? HOW CAN DOING THINGS THAT MAKE YOU HAPPY HELP YOU FEEL BETTER WHEN YOU'RE SAD?

W. Hall and L. Degenhardt, "Adverse Health Effects of Non-Medical Cannabis Use," Lancet 374 (2019): 1383-1391.



SHORT- & LONG-TERM EFFECTS



When you use marijuana, some things happen to you in the short term, and if you keep using it, more things can happen in the long term. Short-term effects of marijuana include:

- Lethargy
- Impaired coordination and balance
- Slurred speech
- Increased heart rate
- Poor decision making
- Anxiety and panic attacks

Possible death. While overdosing on marijuana won't stop your breathing, it does kill people indirectly by:

- Increased car crashes from driving high, which causes slowed reaction time
- House fires from people trying to make homemade marijuana concentrates
- Increased thoughts of suicide
- Non-stop vomiting, called cannabinoid hyperemesis syndrome, which causes your organs to shut down from dehydration

Research: www.samhsa.gov/marijuana

Long-term effects on youth who use marijuana include:

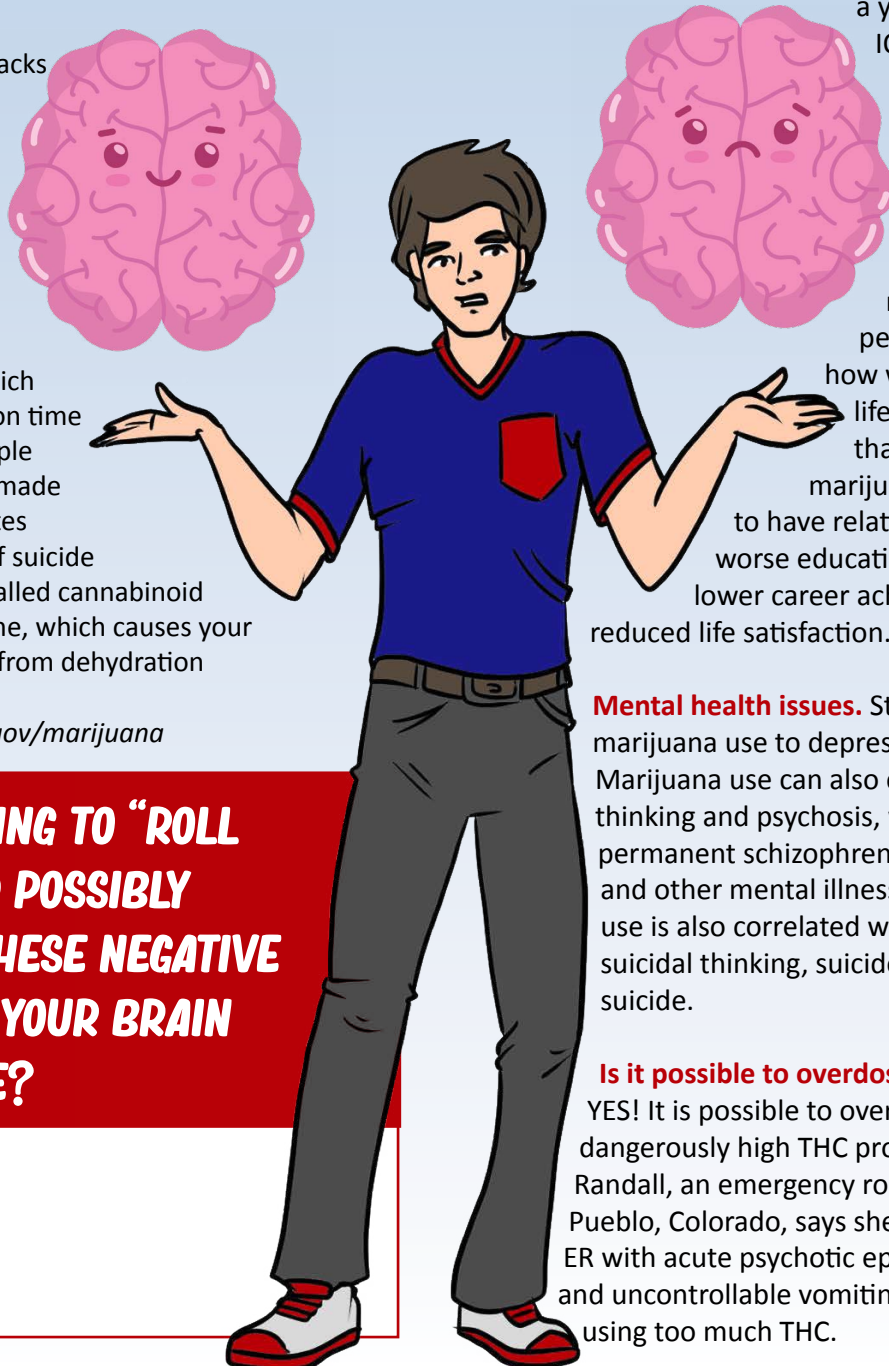
Brain impacts. Teens who use marijuana have impaired cognition and memory problems. They also have lower graduation rates and lower IQ. Marijuana can cause permanent IQ loss of as much as eight points when people start using it at a young age. These IQ points do not come back, even after quitting marijuana.

Poor life outcomes. Using marijuana can affect performance and how well people do in life. Research shows that people who use marijuana are more likely to have relationship problems, worse educational outcomes, lower career achievement, and reduced life satisfaction.

Mental health issues. Studies link marijuana use to depression and anxiety. Marijuana use can also cause delusional thinking and psychosis, which can lead to permanent schizophrenia, bipolar disorder, and other mental illnesses. Marijuana use is also correlated with an increase in suicidal thinking, suicide attempts, and suicide.

Is it possible to overdose on marijuana?
YES! It is possible to overdose with today's dangerously high THC products. Dr. Karen Randall, an emergency room physician in Pueblo, Colorado, says she sees teens in the ER with acute psychotic episodes, poisonings, and uncontrollable vomiting as a result of using too much THC.

ARE YOU WILLING TO "ROLL THE DICE" AND POSSIBLY EXPERIENCE THESE NEGATIVE OUTCOMES ON YOUR BRAIN AND YOUR LIFE?





TOP TEN MARIJUANA MYTHS



1. You can't get addicted to marijuana.

Studies show 17% of adolescents who use marijuana become addicted, and 50% of daily users become addicted.

www.ncbi.nlm.nih.gov/pmc/articles/PMC4827335/pdf/nihms762992.pdf

2. Marijuana can't lower your intelligence.

Heavy marijuana exposure starting in adolescence predicts an 8-point drop in IQ. doi.org/10.1073/pnas.1206820109

3. Marijuana won't increase the odds of you using other drugs.

Adolescent marijuana users are 2.5 times more likely to abuse prescription opioids. www.ncbi.nlm.nih.gov/pmc/articles/PMC3552239/pdf/nihms388189.pdf

4. Marijuana makes you a better driver.

Marijuana decreases your reaction time, motor coordination, and driving skills.

www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/812440-marijuana-impaired-driving-report-to-congress.pdf

5. Students who use marijuana are less likely to drop out of school.

Young people who use cannabis are at an increased risk of poor academic performance and dropping out of school. pubmed.ncbi.nlm.nih.gov/11219366

6. Marijuana can't cause mental illness.

Marijuana use can increase your risk of psychosis and schizophrenia four-fold.

www.ncbi.nlm.nih.gov/pmc/articles/PMC4988731

7. Your fertility rates can't drop if you use marijuana.

Marijuana can reduce fertility due to decreased sperm counts and delayed ovulation. pubmed.ncbi.nlm.nih.gov/26283092

8. You'll feel more motivated to do things if you use marijuana.

Long-term marijuana users have lower levels of dopamine and are less ambitious and motivated.

www.sciencedaily.com/releases/2016/09/160901211303.htm

9. Smoking marijuana is not harmful to your health.

Marijuana smoke can cause symptoms of chronic bronchitis, a heavy cough, and lung irritation.

www.drugabuse.gov/publications/research-reports/marijuana/what-are-marijuanas-effects-lung-health

10. Marijuana can't kill you.

People have died from cannabinoid hyperemesis syndrome (CHS), characterized by uncontrollable vomiting. pubmed.ncbi.nlm.nih.gov/29768651

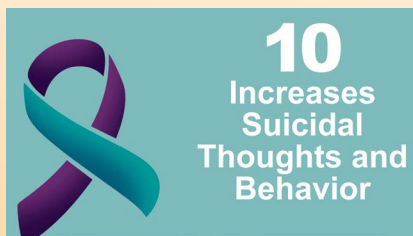


**WHICH ONE OF
YOUR BELIEFS ABOUT
MARIJUANA WAS CHANGED
BY THIS INFORMATION?**

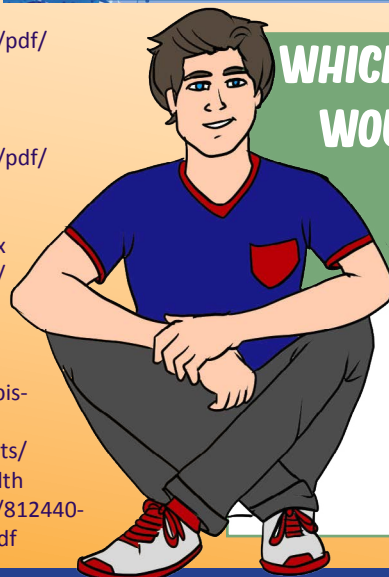


THE DIRTY DOZEN

NEGATIVE IMPACTS OF TEEN MARIJUANA USE



- 1 www.ncbi.nlm.nih.gov/pmc/articles/PMC4827335/pdf/nihms762992.pdf
- 2 sci-hub.se/10.1073/pnas.1206820109
- 3 www.ncbi.nlm.nih.gov/pmc/articles/PMC6991277
- 4 www.ncbi.nlm.nih.gov/pmc/articles/PMC3552239/pdf/nihms388189.pdf
- 5 pubmed.ncbi.nlm.nih.gov/29768651
- 6 sci-hub.se/10.1046/j.1360-0443.2000.951116213.x
- 7 www.ncbi.nlm.nih.gov/pmc/articles/PMC4988731/
- 8 pubmed.ncbi.nlm.nih.gov/26283092
- 9 www.sciencedaily.com/releases/2016/09/160901211303.htm
- 10 www.nih.gov/news-events/news-releases/cannabis-use-may-be-associated-suicidality-young-adults
- 11 www.drugabuse.gov/publications/research-reports/marijuana/what-are-marijuanas-effects-lung-health
- 12 www.nhtsa.gov/sites/nhtsa.gov/files/documents/812440-marijuana-impaired-driving-report-to-congress.pdf



**WHICH ONE OF THE DIRTY DOZEN
WOULD WORRY YOU THE
MOST IF IT HAPPENED TO
YOU?**

IS MARIJUANA MEDICINE? WILL IT HELP MY PROBLEMS?



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You may have heard that marijuana can help you get over negative things happening in your life. However, it's important to understand the difference between short-term symptom relief and long-term marijuana use. The fact is, the U.S. Food and Drug Administration (FDA) has only approved medical marijuana use for two rare seizure disorders, nausea associated with chemotherapy, and the treatment of anorexia wasting syndrome. So, contrary to popular belief, it's rare to receive a prescription for marijuana as medicine.



Getting a medical marijuana card means you are using drugs outside of approved, safe uses. There are NO studies showing any benefit of today's high-potency marijuana for teens. So, what problems are teens trying to treat using unapproved marijuana products?

PROBLEM CATEGORY 1: MENTAL HEALTH PROBLEMS

1. **Feelings of sadness can increase when you use marijuana.** Marijuana increases your risk of developing depression and suicidal behavior later in life. jamanetwork.com/journals/jamapsychiatry/fullarticle/2723657
2. **Using marijuana does not help with depression.** Marijuana use has been shown to double the risk of depression. www.ncbi.nlm.nih.gov/28750823
3. **Marijuana does not help with ADHD.** Adolescents with ADHD exhibit more severe symptoms with marijuana use. www.ncbi.nlm.nih.gov/pmc/articles/PMC3390681

**WHICH CATEGORY DO MOST OF
YOUR CHALLENGES TEND TO FALL
UNDER (MENTAL HEALTH, FEAR AND
ANXIETY, OR LIFE STRESSORS)?
WHAT ACTIVITY CAN HELP YOU
MEET THIS CHALLENGE, INSTEAD OF
USING MARIJUANA?**

PROBLEM CATEGORY 2: FEAR AND ANXIETY

1. **Marijuana will not help you reduce anxiety.** While "chilling out" can be a short-term effect, the long-term impact can be quite the opposite and make anxiety worse. pubmed.ncbi.nlm.nih.gov/12943018
2. **Using marijuana before a party will not help you calm your nerves.** Self-medicating with THC increases the risk of social phobia in anxious people. www.sciencedaily.com/releases/2011/08/110801172550.htm
3. **Marijuana use prevents you from learning to tolerate stress.** Those who start using marijuana frequently at a young age are more likely to have an anxiety disorder in early adulthood. pubmed.ncbi.nlm.nih.gov/17314727

PROBLEM CATEGORY 3: LIFE STRESSORS

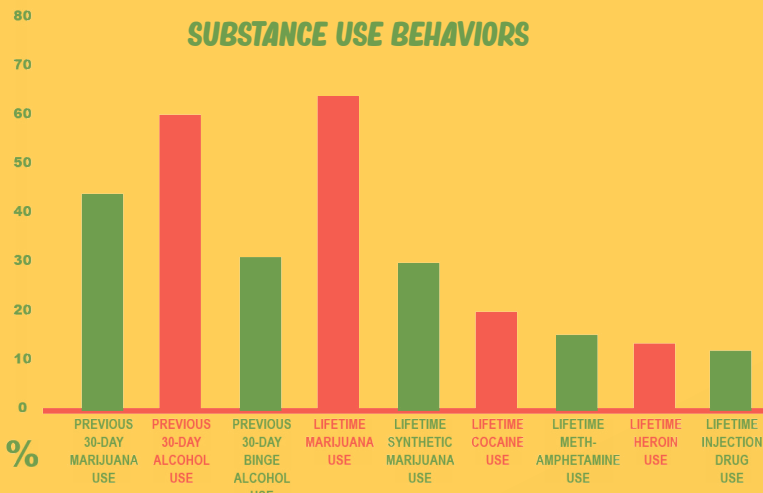
1. **Using marijuana to escape from painful problems won't help.** Self-medicating can have serious long-term consequences for mental illness and cause extreme paranoia. academic.oup.com/schizophreniabulletin/article/41/2/391/2526091
2. **Marijuana is not better than cigarettes.** In the U.S., dependence on marijuana has increased more than dependence on any other drug. www.ncbi.nlm.nih.gov/pmc/articles/PMC2797098/pdf/ascp-04-1-4.pdf
3. **You will not sleep better if you use marijuana.** Marijuana only makes insomnia and sleep problems worse. www.sciencedaily.com/releases/2016/10/161017155004.htm



MARIJUANA IS THE #1 GATEWAY DRUG



According to the Centers for Disease Control and Prevention (CDC), in their 2019 Youth Risk Behavioral Survey, the #1 predictor that teens have abused opioids in the past 30 days is whether they *have ever used marijuana* in their lifetimes — it's an even better indicator than previous 30-day alcohol use. In other words, using marijuana leads to teen opioid abuse more than any other drug.



Because of this, we see that increased marijuana use contributes to the current opioid crisis. In another study:

IN 2010, THERE WERE ABOUT 20,000 OVERDOSE DEATHS INVOLVING OPIOIDS.

IN 2021, THERE WERE OVER 80,000 OVERDOSE DEATHS INVOLVING OPIOIDS.

Marijuana being a gateway drug doesn't mean if you use it, you'll definitely use harder drugs as well. But people who are using harder drugs most likely started with marijuana—that's what a gateway means. If you went to a party and had never used any substances before, and a friend suggested you shoot up with heroin, would you? Of course not! But if you have been using marijuana and your tolerance has built up so much you can't get the same high as before, you are more likely to move on to a harder substance.

Research: www.cdc.gov/healthyyouth/data/yrbs/index.htm
www.nida.nih.gov/drug-topics/trends-statistics

LOOKING AT THESE TWO STUDIES, HOW DO YOU THINK THE LEGALIZATION OF MARIJUANA HAS CONTRIBUTED TO THE OPIOID EPIDEMIC?



THE LINK BETWEEN MARIJUANA & SCHIZOPHRENIA



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There are many different forms of mental illness, but two severe types can be brought on or made worse by using THC:

1. **Psychosis:** symptoms of delusional thinking, paranoia, and/or hallucinations
2. **Schizophrenia:** a mental disorder including chronic mood symptoms and symptoms of psychosis

Recent research suggests that using high-potency marijuana every day could increase the chances of developing psychosis by nearly five times compared to people who have never used marijuana. The amount of drug used, the age at first use, and genetic vulnerability have all been shown to increase your chance of psychosis.

If marijuana use caused schizophrenia, you would see more cases of schizophrenia in a population as marijuana use and potency increased over time. That's what happened in Denmark. Denmark has a national healthcare registry of 7 million people, which enables researchers to study the entire population. In this case, they looked at diagnoses of schizophrenia and cannabis use disorder. Due to the increases in the use and potency of cannabis, their schizophrenia rate went from 2% to 8% between 1995 and 2010.

7M people.

2% schizophrenia
before cannabis.

8% schizophrenia
after cannabis.

2%
1995



Research:

[www.thelancet.com/article/S2215-0366\(19\)30048-3/fulltext](http://www.thelancet.com/article/S2215-0366(19)30048-3/fulltext)

www.jamanetwork.com/journals/jamapsychiatry/article-abstract/2782160

**HOW WOULD YOU FEEL ABOUT NOT BEING ABLE TO DISTINGUISH
FANTASY FROM REALITY?**

CAN MARIJUANA INCREASE YOUR RISK FOR SUICIDE?



Why should you even ask this question? Everyone is okay, right? Wrong. Current suicide figures show that teen suicide rates have increased. Why?

Research shows a dangerous trend. According to the Colorado Violent Death Reporting System, annual teen suicides have doubled since marijuana was legalized medically. In Colorado in 2004, there were 33 suicides in teens, ages 15–18, and in 2020, there were 68.

The increase in suicides correlates with:

- Broader use of THC by teens
- Increased potency of THC
- More easily accessible THC concentrates

In Colorado in 2004, 15.2% of teen suicides, ages 15–18, had marijuana as the primary drug found in autopsies. In 2018, that figure was 38.5% of suicides.

According to the study, “The Impact of Adolescent Cannabis Use, Mood Disorder, and Lack of Education on Attempted Suicide in Young Adulthood,” out of

700 TEENS, AGES 12-15:

- Marijuana use in those who weren't depressed before increased the risk of a suicide attempt by 7.5-fold.
- Any use of cannabis in the early adolescent period is a strong independent predictor of attempted suicide in young adulthood.

Research: www.ncbi.nlm.nih.gov/pmc/articles/PMC4219077



WHY DO YOU THINK USING MARIJUANA CAN MAKE TEENS FEEL MORE SUICIDAL?

SIGNS OF SUICIDE

You have a friend who's been using marijuana and seems to be struggling. How would you know if he or she is suicidal? Remember the acronym **C - A - R - E** and watch for these **FOUR SIGNS OF SUICIDE**:



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CIRCUMSTANCES (LIFE SITUATIONS)

- Divorce of parents
- Relationship breakup
- Bullying

ACTIONS (BEHAVIORS)

- Giving treasured items away
- Reaching out to loved ones to say goodbye
- Suddenly wanting to be closer to God

REMARKS (WORDS)

- "People would be better off without me."
- "I'm not going to be around to see it."
- "I'm done."

EMOTIONS (FEELINGS)

- Extreme sadness or crying
- Depressed state or hopelessness
- Suddenly happy after period of sadness

**IF YOU HAVE EVER
CONSIDERED SUICIDE OR
KNOW SOMEONE WHO HAS,
WHERE COULD YOU GO
TO GET HELP?**

If these warning signs apply to you or someone you know, get help as soon as possible. Call the National Suicide Prevention Lifeline at 1-800-273-8255 or text HELLO to 74174.

Research: www.nimh.nih.gov/health/publications/warning-signs-of-suicide



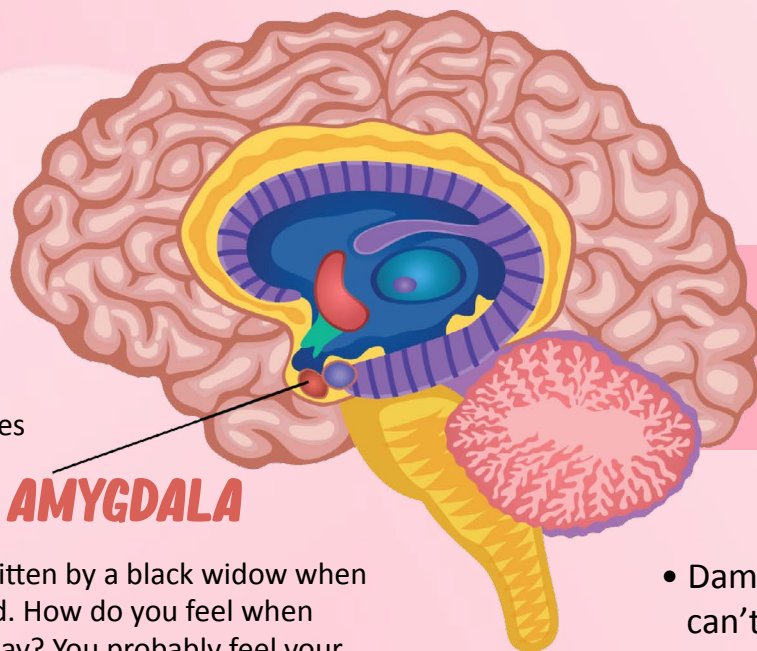
YOUR BRAIN IS YOUR BFF



There is a part of your brain called the amygdala that is extremely active in your teen years. To instantly see it work, think of something that scares you. For example, maybe you're afraid of spiders

because you were bitten by a black widow when you were 5 years old. How do you feel when you see a spider today? You probably feel your heart race a little just from thinking about it. Your negative emotional response was stored in the amygdala, and that memory reminds you to avoid spiders. This is a protective feature because it increases your motivation to AVOID harmful things.

It's the same way with marijuana. There can be some negative consequences of using marijuana that can change your life forever. Your brain is the only one you get, and marijuana can damage it. Your brain is your BFF, and you don't want to hurt it. Trust each other and take care of each other. Your brain is trying to be your BFF by helping you stay safe. Sometimes, healthy fear is a motivator to avoid danger.



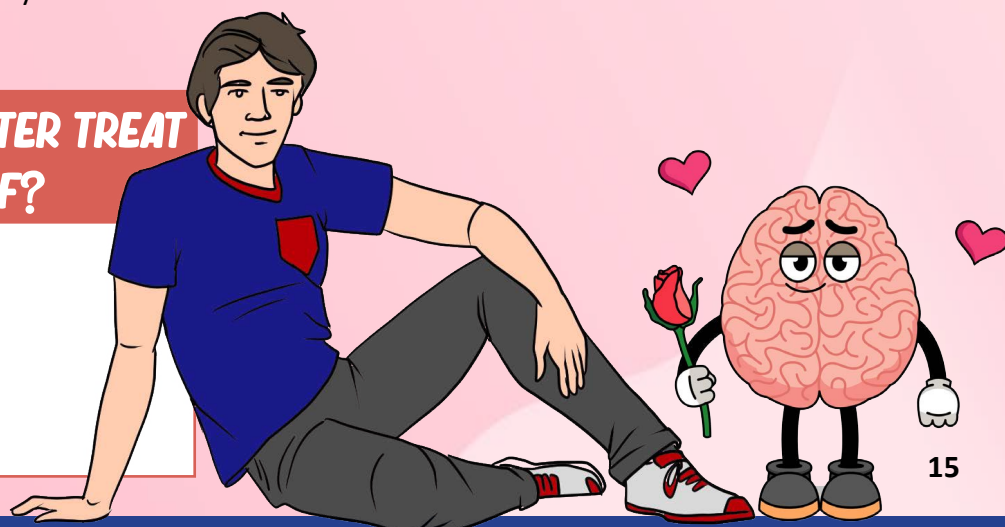
YOUR AMYGDALA GIVES YOU A HEALTHY FEAR OF:

- Triggering schizophrenia or paranoid delusions
- Damaging your memory so you can't succeed in school
- Losing your friends
- Not reaching your future goals

INSTEAD, TREAT YOUR BRAIN LIKE YOUR BFF:

- Avoid ALL THC products and substances.
- Choose friends that support your motivations.
- Take care of your brain with healthy food.
- Focus on the goals you want to achieve

WHAT CAN YOU DO TO BETTER TREAT YOUR BRAIN LIKE YOUR BFF?



15



Johnny's Ambassadors was formed after 19-year-old Johnny Stack became psychotic and died by suicide after using high-potency marijuana dabs and vapes in Colorado.

Johnny's Ambassadors' mission is to educate parents, teens, and communities about the dangers of today's high-THC marijuana on adolescent brain development, mental illness, and suicide.

SAVING OUR YOUTH FROM THE HARMS OF MARIJUANA

Visit our website for more information and resources
JohnnysAmbassadors.org

*This magazine is provided
in memory of
Johnny Stack.*

