

Cannabinyzed: The Mental and Physical Effects of Marijuana

By CNS Productions, Inc. copyright 2016

Cannabis is a psychoactive drug that has been in continuous use for centuries. It was used in Chinese medicine, found in the tombs of Egyptian mummies, and used in the pharmacopeia for hundreds of years before being prohibited in the 1930s. This film is neither about the medical properties of marijuana or its prohibition.

Cannabis has 500 or possibly more biologically active chemicals and at least 80 of these are brain active. But despite this cannabis is complex but the knowledge of what it is and how and why it works is being scientifically pursued. When smoked marijuana converts to 2,000 or more chemicals but the commercialization of high potency THC beyond what a normal plant could produce has included genetic modifications, chemical fertilizers, pesticides, and rodenticides which introduce hundreds of more biologically diverse . chemicals not meant for human consumption. Marijuana has many physical effects but it is the primarily the desire for mental effects that has caused it to be the most widely used illicit drug in the world.

Titles: Cannabineyzed

The physical and mental effects of marijuana

Noah- Well for me marijuana was something I wanted to do all the time,. in a perfect world I would want to be high 24/7...

Courtney- I think marijuana makes you comfortable in the fact that it alters your mind.

Kat- There's weed, it is easy as spark put it to your mouth and there you go. You are happy a, for about an hour and a half.

DeJohn- It is something that we grew up around, so we kind of normalized in regards to the drug.

Dr. Leslie Walker- there are some people who the first time they use marijuana it is the best thing that their brain has ever seen they are just hardwired....

Title: Brain's Survival/ Reinforcement Pathway

The endocannabinoids have a wide variety of roles in the brain and body that effect memory, appetite, mood, novelty awareness, pain sensation - they also activate the brain's survival reinforcement pathway to encourage it to repeat behaviors that are viewed as important for survival.

Anandamide, the first endocannabinoid to be discovered, was found in the 1990s. Since then a few more have been discovered, like arachidonylglycerol- known as 2AG plus AGE, NADA, and OAE . When marijuana is ingested, its phytocannabinoids are mistaken by the brain and body for its naturally produced endocannabinoids at receptor sites.

Narration: Endocannabinoids are neurotransmitters that help the brain communicate information through a series of chemical and electrical messages within the context of 100 billion brain cells and over 100 trillion connections.

These brain chemicals regulate:

brain development,

memory and cognition,

appetite,

reproduction,

movement and coordination,

pain and analgesia.

Narration: There are two main receptor sites for endocannabinoids in the human body, CB1 and CB2.

Narration: CB1 receptors work in the brain

Muscles,

Liver,

gastro intestinal tract,

and the pancreas.

Narration: CB2 receptors are located through out the body and primarily work on the immune system.

Narration: Because it is a psychoactive drug, society's main concern about marijuana use is its mental effects which can be unpredictable in some people.

DeJohn- My experiences with marijuana varied, while I did have these euphoric happy type moments with the drug there were also times in which I experienced extreme paranoia.

Dr. Walker- While one person might feel euphoria the next person feels like they are going to die, one person feels calm the next person has a panic attack, one person feels like their nausea is better and another person –we've seen kids in the hospital with excessive vomiting., unable to stop vomiting until they stop using marijuana.

Narration: It took centuries of accumulated scientific research to figure out how marijuana works in the brain due to its unique actions at brain cell synapses where brain neurons communicate with each other.

The THC in marijuana activates receptors on axons just like anandamide would. THC forces the release of dopamine which then stimulates the survival reinforcement pathway.

Dr. Leslie Walker- That chemical looks almost exactly almost exactly like another chemical in the brain that is used for development of the brain so when young people are smoking it the brain will preferentially connect with the THC and if it does that it does not allow the other chemical that is really needed for development and maturation of the brain to go forward.

Brandon- I was probably 9 years old and I started smoking marijuana because I was smoking cigarettes and it was something else to do other than cigarettes and I thought it was cool.

Torres- I was 12 when I first started to use-that was with my older friends. They got me into using. .

Dr. Walker- It is very obvious when you begin talking to somebody you can tell when they begin to use and some of that –it's a complete delay. So, for young people if they're normal and healthy what's happening is connections are being made that they need for the rest of their lives.

Torres- I wanted to be high like if I didn't have it I was going to be mad and angry the rest of the day if I wasn't high. It changed my moods if I didn't have it, I'd lose my temper really quick.

Dr. Walker-We see much more dependence when young people begin to use. They hardwire that, their brain begins to incorporate that a lot faster than a fully developed adult brain.

DeJohn- It did make me impulsive and do things that maybe I normally wouldn't have done. .It made me put the drug first before family members , it made me put the drug before friendships.

Novelty Center

Miles- I'd feel like I am open to anything. I'm high –I can do anything but at the same time there was this little part of my brain that knew that there was only thing that I could do. There was only one route I could go.

Darryl- The actions of anandamide and the other endocannabinoids is to produce in the brain a sense of awe, a sense of curiosity, a sense of wonder, this helps the brain get interested in and learn something new. It sort of creates a sense of novelty. Over time the THC induced novelty replaces the natural novelty and reality becomes boring.

Jon- You loose sight of things that seemed fresh and new to you and fun. You'll ah- What happened to me was I lost interest in everything around me.

Torres- I didn't care about school, all I wanted to do was just get high. I wanted to skip school and kick it with my hommies and get high.

Memory

RH- I used to be, I had a 4.0, I was a really good student. Right now I have a 1.6 because I was skipping school and to go smoke and I can't remember anything.

DeJohn- Marijuana definitely impeded my ability to conduct simple processes such as unplugging a toaster or trying to remember certain steps involved in doing something so I can say that my usage of the drug right then and there did affect my memory in a negative way.

Narration: The hippocampus is part of the limbic system, an area of the brain with a high concentration of cannabinoid receptors. The limbic system is where emotions and memory are regulated. When THC is introduced it disrupts the processing of short term memory

resulting in decreased ability to hold onto information meant to be retained for a short period of time.

Guy- I am quiet spacey, naturally spacey but now my memory is horrible. I have maybe t half my short term memory of what I had before.

Narration: Heavy or long term use of THC disrupts the connectivity of the hippocampal neurons and can change its shape and function. This results in a noticeable reduction of memory, processing speed, and the ability to accurately recall and retain information.

Luppe- It came to a point when I started feeling different when I would get high. I would not feel comfortable with myself. I would just feel ah. I would feel dumb, I would feel like I couldn't speak to my friends. Like I knew what I wanted to say but the words would not come out the same way I would want to finish my sentence.

Narration: At the tip of the hippocampus is the amygdala, a critical part of the survival reinforcement pathway. This is where emotional memories including trauma and other powerful emotions are formed and stored on dendritic spines.

DeJohn- the loss of my cousin was such a traumatic event that pierced the deepest depths of my soul. When I realized that a lot of the negative things that I was experiencing were centered around my usage of marijuana, me choosing to cut it off right then in that moment really established it in my mind frame that my life would change for the best.

Narration: The more marijuana is used, the more permanent emotional memories of its use become. This increases the

unconscious drive to continue to use marijuana resulting in slips and relapses in those trying to stop use.

Guy-I have never had the feeling that I need to stop what I am doing and go get stoned. I need to stop what I am doing and get stoned...I personally have not reached that point...Yet.

Nichel- I would think about it non stop when I didn't have it. That's really how pot consumed me.

Coordination and Visual Perception

Narration: A third area of the brain that has a very high concentration of endocannabinoid activity is the basal ganglia and the cerebellum. These areas are very involved in controlling motor activity.

RH- I was really clumsy when I was high, I'd fall all over the place

Dr. Walker- Cerebellar- it also can affect their balance if you are skateboarding and high it is probably not good, you're falling off your skateboard or not do the trick well.

Narration: Overall marijuana decreases reaction time and slows physical movements while disrupting depth perception. These impairments are further compounded by how it affects the muscles in the eye.

Narration: Marijuana use has also been associated with a spatial temporal disintegration that impairs the ability to carry out complex tasks, follow instructions or operate machinery.

Courtney Popp- Teens perspective on marijuana legalization and the dangers it presents are lessening with every year and of course with the increased legalization they don't perceive it as a dangerous substance or really almost as a drug at all and so their use is increasing and they don't

understand the tie between the use of marijuana and impairment that causes danger on the roads/

Marijuana puts users in a subdued or trance like state but driving requires greater focus and interactivity which means overcoming marijuana's tranquilizing physical effects while avoiding collision.

Using marijuana and driving has also been shown to induce weaving inside a lane equivalent to that induced by a blood alcohol level of 0.08%. The use of alcohol and marijuana together has become the number one cause of fatal teenage motor vehicle accidents in states where it has been legalized

Adverse Medical Effects

Narration: There's been a major increase in the number of people arriving at emergency rooms for acute physical and emotional trauma from marijuana. These negative reactions are thought to be tied to the increase of THC in edibles, marijuana concentrates known as dabs, amber or wax and through the use of the so called synthetic marijuana disguised as incense, potpourri, or even aroma therapy oils. Since the early 1970s marijuana potency has increased by more than 2,500 % or more.

Dr. Leslie Walker A lot of kids when they come in are in panic. They can't come down. They are paranoid and it is frightening and it doesn't go away for a very long time so they show up in the ER and you find that their heart rate is fast or their blood pressure is really high.

Darryl- I currently have a client who has suffered severe cannabis emmesis syndrome. Actually he was in the emergency room of hospitals six times in two months with uncontrolled

vomiting. They injected him with drugs to control vomiting but he couldn't stop vomiting. It is a weird condition with the much more potent marijuana's right now and those potent marijuana's instead of decreasing nausea that marijuana is supposed to do actually stimulate that nausea.

Narration:

The toxic effects and or emotional trauma of acute marijuana intoxication are treated like as a drug overdose or poisoning, depending on the dose

Lungs

Dr. Walker- I've had kids come in with asthma attacks and needing to go to the intensive care unit smoking it has triggered their asthma even though some think that it helps asthma.

Nichel- For me, and this is something that I really knew it was a problem but didn't want to admit it ,I coughed up black resin for at least a good month or two after.

-It is estimated that 80% of people who smoke marijuana also smoke tobacco. This combination is particularly damaging to the lining of the lungs where tiny brush like follicles called cilia sweep dust and other debris out of the lungs. The use of marijuana and tobacco together impairs the airway and replaces the cilia with mucus secreting cells making infections and bronchitis more likely.

Continued use of marijuana and tobacco can cause lung damage, inflammation, and disruption of the air sacs making it hard to breath. This condition known as emphysema along with chronic bronchitis caused by smoking marijuana and tobacco result in

the respiratory disorder COPD or Chronic Obstructive Pulmonary Disease.

Compulsion, Tolerance, Dependence

RH- It got to the point where it wasn't even about being high because it was such a habit._ I just need to smoke, I just need to smoke, I just need to smoke, I am super high but I just need to smoke.

Guy-. I would wake up, walk to school and dab, dab before class, dab during class, dab during lunch, dab after school, dab walking home, dab before work, dab at work, dab after work, dab before going home and dab before going to bed. I found out that I could not smoke marijuana any more because my tolerance was so high.

Marijuana is absorbed by the fat cells in the brain and can remain there for months.

Noah- it felt like it was something I needed-

Darryl -When one uses marijuana chronically the brain becomes imbalanced. It senses an imbalance of its own endocannabinoids, things like anandamide and in sensing that they is too much of that the brain actually shuts down its production and actually shrinks in its receptor sites, something called down regulation. This results in an imbalance of the brain known as allostatis where the brain turns off its natural chemicals and now is out of balance and relies more and more on something external

Torres-My tolerance went up I had to smoke four or five bowls everyday just to feel good.

Mental Health

Ric Ries-We know that heavy marijuana use can in fact cause psychotic symptoms in people not all people, in some people, it can certainly cause a lot of anxiety and paranoia in people.

Miles There was this hail storm of anxiety it started to make it worse. There was a point where it worked and then it stopped and made it a lot worse..

Sam-Once I realized that it was affecting my mental health that bad, I knew it affected other areas of my life. I knew I shouldn't be doing it but once I realized it was- I smoke- my mental health deteriorates. I stopped.

Luppe- People should know their limits and I didn't know mine. I believe I am more paranoid , no, I believe I got paranoid and I got more anti-social because of it.

Darryl-. In its current form with high concentrations of the active chemical THC I have clients who have actually experienced schizophrenic like symptoms from using marijuana.

Jon- Because of marijuana I had delusions that were really really bad for about six months. Every day I would wake up and I would go through it where it would be audio and visual hallucinations it seemed like every second for six months.

Ric Ries-I think as marijuana has become more prevalent in our society and it has become much stronger I certainly don't think we have any evidence that mental disorders are getting better. I don't think we have any evidence that suicide is decreasing, in fact it is increasing, I don't think we have any evidence that other addiction disorders are decreasing in prevalence, in fact they seem to be increasing.

Reward -Survival Reinforcement Pathway

Noah- What I did it felt like I would smoke weed it felt like 24/7 you know. I was either sober and miserable or high and happy.

Narration: The amygdala has a high concentration of CB1 receptors that respond to THC. It is the emotional center of

the reward-survival reinforcement pathway also referred to as the addiction pathway. When this circuitry is stimulated by survival oriented actions such as eating, hydrating, exercise or sex a cascade of anandamide and other neurotransmitters causes the release of dopamine which then activates the nucleus accumbens inducing feelings of accomplishment or gratification. Dopamine encourages humans to repeat actions that are usually linked to increased chances of survival.

Kat- I would smoke to like become myself again. My best friend, she told me like, you don't even smoke to get high, anymore. You smoke to be yourself, you smoke to be your normal self.

Miles- knowing I shouldn't smoke this weed right now but I am going to do it anyway.

Narration: The nucleus accumbens is the "Go Switch" which compels us to do things it interprets as necessary for survival. The second major part of the brain's survival pathway is a corresponding "Stop Switch" located in the frontal cortex which normally turns off the "Go Switch" when a survival need is satisfied.

Compulsive marijuana use results from an overactive "Go Switch", and underactive "Stop Switch" and a lack of communication between the two key components of the brain's survival reinforcement pathway.

Cannabis Use Disorder: Marijuana Addiction

RH- no, I could quit whenever I wanted, if I wanted to quit I could quit right now.

Darryl- I see dozens of clients each year with the problem of cannabis use disorder, marijuana addiction who can't stop smoking marijuana. It is estimated that 8-10 % of the people who use marijuana will develop this addiction.

Miles-I was really depressed when I was not smoking and then I started again and it was like all in and from there it was off to the races as they say.

Torres- I used to crave it a lot, like I would do anything to get high, pretty much, so I would go rob if I didn't have it- er just try to come up with a little money to get some weed.

Nichel- I was so attached to pot that when I didn't have it I would just lose my mind. I remember one time I just trashed my apartment because I was so angry and so frustrated.

Noah- It was like I had a high side and a realistic side and they both had to go together and the realistic side was so narrow that I couldn't really do anything with my imagination. I couldn't use them together because of how one dimensional I had become

Withdrawal

Narration: Withdrawal effects include anger or irritability, aches, pains chills, mild tremors changes in appetite, headaches- depression, inability to concentrate, sleep problems and cravings.

Darryl- In my experience of helping people through detox, most people won't experience all of these effects but heavy users of marijuana always mention craving.

Guy- Withdrawal, ah I would be ok for about a week and then after that I would have this feeling of that there wasn't any hope, that I wasn't going anywhere in life and I would just be angry and sad all the time for no apparent reason.

Kat- Quitting was like, it was like-of course there is that escape factor, it was marijuana kind of seemed like my life. There was a piece of me missing. I lost a piece of me when I had to quit.

Megan- I definitely noticed over the last few days I can't sleep as much. I'll be staring at the wall for hours with the lights off trying to sleep.

Noah-I usually do have some insomnia for the first few days, it is hard for me to go to sleep. I typically stay up later- reading really helps really helps me when I am going through withdrawals because it gives my mind some place to go.

Recovery

Narration: Breaking the pattern of marijuana dependency can be difficult and might require a treatment program, going to counseling and participating in 12 step groups.

Noah- Withdrawal for me later on , after I've quit for a week Anytime I do physical exercise , like ride my bike or go to the gym, go in the sauna, I feel high from it so for me to help myself get off weed I would do a lot of physical exercise and I would get a little bit of that high and I would find that after I would feel a little bit better.

Nichel- The day I stopped smoking pot I didn't think that was it for good. It just started that day and now it is 3 years later.

Guy- Funny story, I was on the bus the other day coming back from IOP and some guy signaled for me to take my headphones off and came over and sat next to me and started talking to me and introduced himself as Peazy. He whips out a bag of pot and he was all,oh smell this and shoves it in my face. Yeah, I am 60 years old and I have been smoking for 45 years. Don't stop doing it brother. He could barely put together any sentences. I realized -I, I can not, I can't let my self be that guy. I have things I want to do with my life right.

RH- My parents, they smoke and neither of them have a job. They are just living off welfare, that's their life. I don't want to end up like that I don't want to be those people who live off the state and don't do anything with their lives all they do is sit around the house and smoke weed that is not who I want to be

Darryl -Recovery is the exact opposite of addiction with continued addiction you loose everything that has any meaning in your life. You continue to suffer catastrophic consequences but with recovery you continue to gain. You gain your family back, you gain your relationships back, your spirituality, you gain your feelings, you gain a positive quality lifestyle -that's the promise. That's recovery.

Sam- One day I stopped, it was on my birthday, more than two years ago, and I just stopped that day and I knew I wasn't going to smoke again and I haven't... It is pretty miraculous !

DeJohn- You just have to enjoy life for what it is and you can do that soberly. I think that enjoying life soberly is the key to enjoying or maximizing the natural joy that is meant to be derived from the experience.

Copyright CNS Productions Inc. 2016

.