

## Comments about adding depression as a debilitating condition

I have long numerous of medicine allergies and could not have anti depression RX from DR (MD) anything they have to offer, I actually am allergy to all RX as they make me headache or migraine also cause me throw up and nausea feeling very ill, some water retention, gain over 60 lbs. I have been smoking marijuana since teenager and I'm now in 50's. It has kept me sane whole time. Best to smoke marijuana and talk things out instead pop pills and being zombie with mind being fogged!

You will still cry.. Rather cry to get out of chest than bottle up with anti depression rx and end up like zombie. anti depression pills never make me laugh, or being real me.. marijuana makes me laugh, being so me.. Very natural rather than chemical.

Cannabis is my choice for a "happy"pill. It treats me alot better than meds and the super abusive UPC (hospital)

I have been seeking help for my major depression for over six years and I believe that if I were able to come home after work and use marijuana I could stop taking so many prescription pills.

I have suffered depression throughout my military career and have never received benefits from the prescription drugs like I have with cannabis. The pills only made my symptoms worse and messed up my digestive tract where I couldn't even make it to a bathroom. Cannabis has given me freedoms I couldn't enjoy while foggy and cloudy minded on anti-depressants and anti-anxiety pills.

Juicing is a safe and healthy alternative and this woman and her testimony is proof that it works:

<http://www.youtube.com/watch?v=S-iU9QN0fEM>

Personally, I have suffered from depression for 15 years. I have tried two medications: Paxil and Zoloft with bad side effects from both. Zoloft has given me headaches and a sharp pain at the top of my brain. When I stopped taking Zoloft, I was at the highest dose that you can prescribe. To wean myself off, I used cannabis. I have been a daily user of cannabis and it has worked wonders for me, my mental health and my physical health. I am a mother of four children, one of which is handicapped. The stress is a lot most days. Cannabis helps me eat, calms my heart and blood pressure and helps me cope with general day to day life.

Being able to escape is what people that are caught in a vicious cycle seek. To be able to forget your psychic and probably accompanying physical pain for a period of time daily would be a relief to the affected party as well as ER's and community counseling sites. The public system takes the major psychiatric and emotional tasks of managing this difficult population. Instant relief relaxation and forgetting one's own pain and get some sleep is what Marijuana can do in this situation.

States that have authorized medical marijuana have seen a reduction in suicides. Some of those authorized patients use cannabis for depression and I strongly urge you to add depression to the list of authorized medical cannabis ailments.

<http://ideas.repec.org/p/iza/izadps/dp6280.html>

"Using state-level data for the period 1990 through 2007, we estimate the effect of legalizing medical marijuana on suicide rates. Our results suggest that the passage of a medical marijuana law is associated with an almost 5 percent reduction in the total suicide rate, an 11 percent reduction in the suicide rate of 20- through 29-year-old males, and a 9 percent reduction in the suicide rate of 30- through 39-year-old males. Estimates of the relationship between legalization and female suicides are less precise and are sensitive to functional form."

Frank Lucido, MD, a private practice physician, stated in his article "Implementation of the Compassionate Use Act in a Family Medical Practice: Seven Years Clinical Experience," available on his website

(accessed June 2, 2006):

"With appropriate use of medical cannabis, many of these patients have been able to reduce or eliminate the use of opiates and other pain pills, ritalin, tranquilizers, sleeping pills, anti-depressants and other psychiatric medicines.."

Lester Grinspoon, MD, Professor of Psychiatry at the Harvard Medical School stated in his 1997 book *Marihuana: The Forbidden Medicine*:

"Thirty to forty percent of patients with bipolar disorder are not consistently helped by conventional treatment. For some of them cannabis may be useful in ameliorating the symptoms, reducing side effects of lithium, or both."

none

While using marijuana to treat chronic pain, I discovered a positive side-effect. The marijuana also managed my PTSD symptoms, which include depression. I have taken the prescriptions drugs my doctors have recommended over the years, but they were not effective. I did not feel normal and did not take them for very long. Marijuana has helped me with PTSD, depression, and anxiety while managing my chronic pain. And I am able to use my medicine with absolutely no side effects or toxicity by using edibles and tinctures. This medicine is natural and I can say from experience, it helps me manage the depression I have had my whole life, likely caused by childhood trauma. Therefore, I do not see why it would not help with depression in general. Concerning depression, Buder et al. (2006) reports common mental health symptoms include "major depressive disorder, anxiety disorders, and substance abuse" (p. 125). Buder et al. report "adults who had PTSD in childhood are 2 to 12 times more likely to smoke, abuse alcohol or drugs, develop depression, or attempt suicide" (p. 125).

Because Arizona would be the first state to add depression to the list of qualifying conditions, it will likely be difficult to obtain peer reviewed research regarding the benefits of marijuana on depression. As more people learn the positive qualities and many uses of marijuana, and see the benefit in themselves and their loved ones, we will be able to obtain more peer reviewed research so people can use marijuana to treat different medical conditions. By adding depression to the list of qualifying conditions, people will be able to have a healthier option to treat depression and live a healthier and more productive life. And there will be more opportunity for peer reviewed research. More importantly, people suffering with depression will be able to choose a healthier option than those drugs that may make them feel abnormal and cause more problems due to side effects. Thank you for taking the time to read this.

Sources:

Buder, K., Falcone, T. & Franco, K. (2006). Diagnosing and managing posttraumatic stress disorder, *Cleveland Clinic Journal of Medicine*, 73(2), 121-129.

I can only tell you, IT DOES help depression. Depression seems to lock one into recurring negative thoughts and possible suicide, Marijuana helps to alleviate those thoughts. That type of negative thought becomes only fleeting.

Cannabis has potentially powerful calming properties. It can make the less important worries go away as they should, while helping the person focus on what is truly important. Personally, my anger over how horrible people can be leads to episodes of depression, but with cannabis, I am able to cope with the mean people we all must live with less painfully. Then, I can stop dwelling on the bad and get to work fixing up the good things in my life.

I suffer from this condition and have for many years. Marijuana is and has been my ali for many decades and I am so grateful that I am able to see the great progress we have made in our country. The FED'S need to get on board and get the stick out of their desk drawers.

<p>I do not know of any specific studies, but I know what works for me. I have suffered from depression and anxiety since I was a teenager, for over 15 years. Where all other medications have failed, marijuana has succeeded in my personal case.</p>
<p>I would be concerned with adding this generalized condition as just about everyone has something to be depressed about. There may be certain specific patients who may have severe depression from dealing with something extremely traumatic for a long period of time who may certainly benefit from using Medical Marijuana. In most cases of depression of this magnitude would probably fall under PTSD or some other Anxiety Disorder so I would be leary of adding a generalized depression condition to the list of approved conditions.</p>
<p>Being treated for depression/Anxiety helps, however, the medication doesn't always help with all of the debilitating symptoms. Marijuana helps to calm down the anxiety &amp; balances out the depression concerns.</p>
<p>Many veterans and residences in Arizona are suffering from Depression. They are searching for another way to help their symptoms. Getting the people in need certified for medical marijuana would not only give patients another answer for therapy, but also an economical boost for the state of Arizona. Adding all four conditions benefits both the economy and citizens in our community.</p>
<p>No doubt I was a dpressed Teen. It is hard not to be these days. Once I started smoking cannabis, I often questioned if it was really worth getting "fucked up" all of the time. It took much experience but at the same time only a little to realize that cannabis does not "fuck you up". It actually does quite the opposite. So much , that through using it, I now do not get trashed drinking alcohol anymore. I no longer have a desire to drink what so ever. I have not smoked for months now due to some legal issues, but I still have no desire to use spice or alcohol. Cannabis not only bettered me, it cured me of depression and betted the life I have ahead of me. So proud to know that people are focused on spreading its many medical uses.</p>
<p>Just like with my PTSD, out of all the medications prescribed to me from the Veterans Administration nothing has come close to the relief medical marijuana provides for my depression. I also have no adverse side effects from medical marijuana which I cannot say the same about the prescription medications.</p>
<p>Depression can be mild or serious. smoking a little marijuana not only relieves anxiety but also calms the nervous system so that a person can feel better about themselves.</p>
<p>I think adding DEPRESSION would be of great benefit.I have suffered from it my whole life, and taking medical marijuana for my bad knee has also helped my DEPRESSION .Also it helps with the many side affects of the DEPRESSION pills that I take. Thank you</p>
<p>It takes my sadness away Op</p>
<p>I have found Cannabis far superior in treating my depression than any regimen of anti-depressants which made me suicidal.</p>
<p>I am bipolar with devastating depression episodes. I think that medical marijuana would go far to help curb some of my depression.</p>
<p>This comment is to address the concerns of the doctor who testified at the hearing against medical marijuana for the treatment of depression. The doctor pointed out that people who don't find releif with anti-depresssants should try other anti-depressants. I tried four different medicines before I found one that worked reasonably well and had side effects that I could tolerate. Even this medicine was ineffective against my worst depressive episodes. The doctor also stated that he did not beleive mmj would be of use for depression in the long term. I don't beleive he has empirical evidence to support that statement. Medicines affect different people differently, as the doctor pointed out. And, even if it is not a long-term cure for depression, even the doctor admits that it does help people suffering from depression in the short term. That in itself will save lives. It takes weeks and sometimes months for patients to find the right antidepressant. Anything that provids releif for symptoms of severe depression,even if it is only short-term</p>

<p>relief, will save lives. Because of the stigma associated with mental illness many people wait to seek treatment until they are suicidal. Mmj could provide those patients with immediate relief, and save their lives and improve the quality of their lives. Let people use this while they wait for their other drugs to take effect. Medical marijuana is not perfect, but what medicine is? There is no legitimate reason to keep this from patients who do find relief with it.</p>
<p>it should be added</p>
<p>I for one and very enthusiastic about this. Depression is at least partially a chemical process, but it is made so much worse by mental factors, the greatest of which is a distortion of perception. Depression makes one myopic and self-centered, while at the same time creating a sense of hopelessness. Marijuana can assist many people in achieving an objective perspective on their lives and situations. This view of the "big picture" has the effect of diminishing the perception of immediate problems and seeing them for what they are, temporary speedbumps. In addition, many people are able to see, from outside, their own thinking patterns, which allows them to identify and correct those that do not serve them. This treatment strikes the root, rather than masking symptoms. In the long term, it is a far, far better way to approach the problem.</p>
<p>Adding depression would help a lot of people out there that suffer from depression that don't want to take pills. Mental illness can be just as difficult to live with as physical illness.</p>
<p>As an individual who has suffered from episodes of extreme, suicidal depression, I believe cannabis has been more effective than any other drug I have used to ameliorate depression and suicidal thoughts. I have tried Prozac, Paxil, Wellbutrin, Lithium, Dexedrine, Ritalin and Concerta. I have also tried 5-htp, ginseng, tea, coffee, vitamins, minerals, and various supplements, No other substance has effectively halted a depressive episode as effectively as cannabis. It allowed me to feel again and stopped me from killing myself in very desperate times. Aside from its antidepressant potential, cannabis encouraged me to eat and sleep regularly, which conventional antidepressants do not encourage. This allowed me some stability and rational thoughts in a time when I needed them.</p>
<p>As a patient in California, as well as a resident in Arizona, I feel it is important that depression gets added to the list of conditions for medical marijuana use. With California allowing depression as a condition I have been able to get off of Cymbalta, Zyprexa, and Xanax for the last year and a half. I feel that now, not only can I drive without feeling nauseous because of the medication I was on, but I feel like my old self just by being able to medicate in the morning and evening. That's not smoking all day, just enough to take the edge off a few times per day. As well as the panic and anxiety attacks that I used to get frequently.</p>
<p>Pills can help make you happy. Drinking alcohol can cause people to be happy or mean and aggressive. Both can have devastating effects on the body. Marijuana makes people happy and hungry, with very little side effects. I think of the declining suicide rates in the states who passed Mmj years ago! That should speak for itself!</p>
<p>I believe it should be added</p>
<p>Depression is the lack of hope due to crushing social and economic factors. This is probably the best case scenario for these people who feel downtrodden all the time. Marijuana lifts the spirit and allows the individual to have a chance to gain a better perspective.</p>
<p>Hi. I have a medical history going back 27 years with a disease named 'Multifocal Motor Neuropathy/MMN'... through this I have been hospitalized on several occasions with PTSD, Depression &amp; GAD indirectly from dealing with this ailment. Every single time I used cannabis to control these issues, I have found comfort and a pathway to recovery. Please feel free to contact me for medical records and/or Doctor names for verification of this testimony. Thank You in Advance,</p>
<p>Add it. Cannabis helps this.</p>

<p>The prescribe medical MJ for depression in the Netherlands. I went there with another patient to see a doctor there about 15 years ago. He was prescribed marijuana for the depression and he was back able to work after many years of being totally shut in because of the depression. I really saw the difference it made in his life.</p>
<p>This simply makes sense. Depression stems from low serotonin levels, and marijuana temporarily increases serotonin production, and marijuana is safer than many current pharmaceutical treatments, which also tend to work for a certain stretch of time, them begin to lose their functionally.</p>
<p>When I was severely depressed and suicidal, cannabis was the only natural substance that when under it's influence would mitigate my negative thoughts, allow me to breathe, and allow me to take a step back to look at my situation and what I can do about it in a positively induced state of mind. It would allow me to perceive quite clearer. Infinite help.</p> <p>Self study. As legitimate as any.</p>
<p>This is a fantastic proposal. As a long time sufferer of both Depression and Anxiety disorder I can easily say that Marijuana worked great for me. I am originally from New York where it was decriminalized. When I moved to Arizona I had to give it up and I had to replace Marijuana with four different prescription drugs that took the place of the marijuana - and not only costed a great deal more financially - they also had several problematic side effects. Approving Medical Marijuana for patients suffering from these proposed conditions would not only help a great many people medically - it would also ease the financial burden on many people.</p>
<p>I have suffered from depression in the past related to P.T.S.D., and I have used medical cannabis since the passing of SB420 in California. It's replaced the need for other medications approximately 96% of the time. It's a much safer alternative to prescription medications offered for the same type of treatment. My doctors, both psychological and orthopedic, have recommended the use of marijuana for treatment in lieu of prescription medications.</p>
<p>I was diagnosed with major depression in 1996 and I've been taking anti-depressants as prescribed by a psychiatrist since that time. In 2002 I was diagnosed with Post Traumatic Stress Disorder by a Masters-level therapist. The trauma is related to several years of child abuse. I also experience anxiety and insomnia.</p> <p>The medicine I currently take, sertraline, is insufficient and has side effects I find unpleasant and debilitating in their own right. For example, in 2009 I suffered a loss that left me extremely depressed for months. I experienced suicidal thoughts at least once every day for over 100 days in a row, and often several times per day. This happened while I was taking the maximum dose of sertraline. The side effects I experience with sertraline include dry mouth, weight gain, personality changes which cause relationship difficulties, and insomnia. These side effects have almost as much negative impact on my life as the depression. When I tried a supplemental prescription I suffered these side effects even more, as well as confusion and memory problems that I found intolerable.</p> <p>Using marijuana elevates my mood and helps me fall asleep and stay asleep all night. It helps me relax, focus my thoughts and remain calm when I'm experiencing stress. I've used marijuana in the past to self-medicate for depression and anxiety. The withdrawal experience for marijuana was less of a problem than a common cold. And I quit smoking tobacco and kicked addictions to meth and cocaine, so I know what withdrawal feels like. I don't consider marijuana addictive. I think it is the least harmful, most beneficial alternative for my health condition. I should be allowed to choose the medicine that works best for me.</p>
<p>The pills that are prescribed for depression are UN-healthy, damaging to your system and addicting. Cannabis is a much safer choice.</p>
<p>Many people in California who suffer from this disorder have benefited from the use of MMJ.</p>
<p>Having severe pain and not being able to afford the operation to correct the problem</p>
<p>I know many patients who were certified through cancer or chronic pain, but also are now relieved from</p>

depression through using cannabis. I also know many patients waiting to be certified once Depression is passed as a qualifying medical condition. they are tired of the side effects of their anti-depressants
Without the illegal use of marijuana to calm me down when I reach lows, I would have taken my own life years ago. Please allow this to qualify so that I don't have to choose between being a criminal or being dead.
Myself and several members of my family suffer from depression, cannabis is extremely helpful and does not have the side effects of the pills i take for it. I recently found out that my liver is having problems due to the pills. Please add depression to the list of acceptable conditions. Thank you
I am a registerd patient in Vermont and find that medicinal cannabis relieves depression. I have been using cannabis for over a year.
My psychiatrist actually suggested this for off label use as he was aware I was trying to get it for chronic pain issues related to my back. At the time I was taking depakote, celexa, trazadone and xanax. After smoking regularly for a couple of weeks I was able to eliminate my insomnia (caused by the anxiety and depression) and therefore my trazadone use. I was able to stop the celexa and depakote almost immediately that was directly for the depression by replacing the morning pills with cannabis. I still take the xanax, but only because I work somewhere that has doesn't allow for possession on the property and some days are still worse than others, but we are hoping as this law progresses that will change and I will be able to eliminate all pharmaceuticals in my body.
I am currently being treated for depression at the Yavapai Guidance Clinic in Prescott. I KNOW for a fact that the medicinal benefits of marijuana would far outweigh anything I have been prescribed at the clinic. I have never asked or spoken to the psychiatrist in this regard for fear of repercussion. Paranoia is not something I needed to add to the list of what I have been diagnosed with.
As a sufferer of Major Depressive Disorder I found marijuana to be very helpful. It does not have the horrible side effects as of the common depression medication. And there is no two weeks to a month wait to find out if the medication will even work. And I never got suicidal from using marijuana to treat my depression. In a controlled manner I believe marijuana could be a great help for alot of fellow sufferers of depression.
PTSD can and often does lead to depression. Depression can result in a state like AZ to any average people who have lost jobs late in life and are losing their homes as well. AZ is one of the worst hit states for a depression. SCottsdale used to have an upmarket reputation and now it is consignment stores who rip off the people and GOODWILL warehouses opening everywhere. SCottsdale is NOT what it used to be and that is depressing if you live there and have watched the decline.
My wife suffers from clinical depression and is schizo-effective, she uses medical cannabis and it helps her feel so much better, it's like night and day. Please just legalize it as it's not only harmless but has many uses even beyond medical uses.
I personally have used marijuana to treat manic depression for the past 20 years.  IT works and has less side affects than antidepressants.
I am presently a covered patient under HCV; however prior to using Med Mar I suffered from moderate depression and anxiety and this is no longer the case. I attribute this to the medicine.
very good decision, i know it will help, ty
I think people who suffer from depression could also benefit from medical marijuana.
Cannabis is one medicine that doesn't give me depression as side effect

Certainly, a substance which makes one feel good, would seem like a great treatment for depression. It's hard to be depressed when you're high!
I feel that if a doctor deems marijuana use a proper medicine to give patients who suffer depression . It should be ok.
Marijuana cured my depression in so many ways..
Anyone who has ever experienced chronic depression can attest that it is a debilitating condition. As with the other mental health conditions proposed depression is all too often treated with drugs whose side affects are themselves debilitating. Medical marijuana with the direction of knowledgeable physicians, growers, and or dispensaries can become an important aspect of the treatment of depression. I believe that in cordination with therapy strains of marijuana can be beneficial in the treatment of this debilitating condition.
<p>Citations:</p> <p>The Therapeutic Potential of the Endocannabinoid System for the Development of a Novel Class of Antidepressants. Trends in Pharmacological Sciences, Volume 30, Issue 9, September 2009, Pages 484-493. Matthew N. Hill, Cecilia J. Hillard, Francis R. Bambico, Sachin Patel, Boris B. Gorzalka, Gabriella Gobbi.</p> <p>The endocannabinoid system and the treatment of mood and anxiety disorders. Hill MN, Gorzalka BB. Laboratory of Neuroendocrinology, The Rockefeller University, New York, NY, USA.</p> <p>J Pharmacol Exp Ther. 2006 Jul;318(1):304-11.</p> <p>Pharmacological evaluation of cannabinoid receptor ligands in a mouse model of anxiety: further evidence for an anxiolytic role for endogenous cannabinoid signaling. Patel S, Hillard CJ.</p> <p>Department of Pharmacology and Toxicology, Medical College of Wisconsin, Milwaukee, WI 53226, USA. J Pharmacol Exp Ther. 2006 Jul;318(1):304-11.</p>
<p>I am a father who happens to have two hidden disabilities. I couldn't agree more with George McMahon author and medical marijuana patient of the U.S. Federal Drug Administrations Investigational New Drug Program as he states in his 2003 book Prescription Pot: People who have never struggled with a life threatening or disabling illness often do not comprehend how debilitating the resulting depression can be. Long days spent struggling with sickness can wear patients down, suppress their appetites and slowly destroy their will to live.</p> <p>Lastly Mr.McMahon states that the elevated mood associated with cannabis definitely affected his health in a positive way more engaged with life. The same as it has done for me. Thank You.</p>
Depression should be added to the list of debilitating conditions. It could help people get off of much more dangerous Rx medicines that have a high overdose/death potential
<p>I am certified as a medical marijuana patient. I am also diagnosed with PTSD.</p> <p>In using my medicine to help me control my physical pain, it has also lessened my PTSD symptoms as well.</p> <p>I am certified as a medical marijuana patient. I am also diagnosed with Bi Polar disorder. In using my medicine to help me control my physical pain, it has also lessened my Bi Polar symptoms as well.</p>
Depression would only get worse if you didnt smoke or take it all day
I have also experienced evidence that medical marijuana aids in eliminating depression systems.

This is very obvious, Marijuana is a depressing drug, sedative, nonmotivated thought process and certainly does nothing but make the depression worse. Where is the documented research that is truly a validated reason to resolve a biochemical imbalance in the brain. My patients do not function on Marijuana they are addicted and do not function, use while pregnant and are very depressed and anxious due to withdrawal when they try to get off the drug. They are less alert, cognitive impairment and overall decreased quality of life.

People who are depressed have enough issues to deal with, without adding addiction to their woes

Marijuana has a high potential for abuse, has no currently accepted medical use in treatment in the United States, and has a lack of accepted safety for use under medical supervision. The drug is listed in Schedule I of the Controlled Substances Act (CSA), which is the most restrictive schedule. The Drug Enforcement Administration, which administers the CSA, continues to support that placement. The FDA concurred because marijuana met the three criteria I stated above for placement in Schedule I under 21 U.S.C. 812(b)(1)

Depression, as it is presently understood, is an effect of a full brain condition that has influences both psychosomatic and physiologic. The most commonly prescribed medications for depression are SSRIs or selective serotonin re-uptake inhibitors. These drugs allow for the neurotransmitter serotonin to remain present for a longer duration within the interstitial spaces of neurons, allowing for a longer time of action. Unfortunately, many SSRIs have a litany of unintended side effects, ranging from serotonin syndrome, sexual dysfunction to prolonged nausea, vomiting, and diarrhea. Medical marijuana can allow for patients with depression, ranging from mild to severe, to treat themselves with a substance that allows for increased production of serotonin, which can act in small doses without the side effects commonly seen with SSRIs. This treatment also allows patients who would otherwise choose to forgo treatment with synthetic drugs, an option to utilize medical marijuana in a way that is not otherwise deleterious to their health (ie: consuming edible foods containing THC or tinctures rather than smoking or vaporizing the substance). The THC in the cannabis acts directly on the cannabinoid receptors CB1 and CB2 in the brain and periphery CNS, both of which are known to suffer from reduced signaling in patients with diagnosed depression. The CB1 receptors in the prefrontal cortex and hippocampus exhibit increased serotonergic neurotransmission as well as noradrenergic neurotransmission and increased neurogenesis in regions of the hippocampus. I know from personal knowledge that those individuals diagnosed with depression gain a vast improvement in quality of life from the use of marijuana in limited amounts. I very strongly support and encourage the addition of depression and depressive disorders to the list of conditions that qualify for medical marijuana use. I cite the following articles:

- Denson, T.F.; Earleywine, M. Decreased depression in marijuana users. *Addict. Behav.*, 2006, 31, 738-742.;
- Gruber, A.J.; Pope, H.G.; Jr.; Brown, M.E. Do patients use marijuana as an antidepressant? *Depression*, 1996, 4, 77-80.;
- Bambico, F.R.; Katz, N.; Debonnel, G.; Gobbi, G. Cannabinoids elicit antidepressant-like behavior and activate serotonergic neurons through the medial prefrontal cortex. *J. Neurosci.*, 2007, 27, 11700-11711.;
- Adamczyk, P.; Golda, A.; McCreary, A.C.; Filip, M.; Przegalinski, E. Activation of endocannabinoid transmission induces antidepressant-like effects in rats. *J. Physiol. Pharmacol.*, 2008, 59, 217-228.;
- Jiang, W.; Zhang, Y.; Xiao, L.; Van Cleemput, J.; Ji, S.P.; Bai, G.; Zhang, X. Cannabinoids promote embryonic and adult hippocampus neurogenesis and produce anxiolytic- and antidepressant-like effects. *J. Clin. Invest.*, 2005, 115, 3104-3116.;
- Morrish, A.C.; Hill, M.N.; Riebe, C.J.; Gorzalka, B.B. Protracted cannabinoid administration elicits antidepressant behavioral responses in rats: role of gender and noradrenergic transmission. *Physiol. Behav.*, 2009, 98(1-2), 118-124.;
- McLaughlin, R.J.; Hill, M.N.; Morrish, A.C.; Gorzalka, B.B. Local enhancement of cannabinoid CB1 receptor signalling in the dorsal hippocampus elicits an antidepressant-like effect. *Behav. Pharmacol.*, 2007, 18, 431-438.;
- Hill, M.N.; Karacabeyli, E.S.; Gorzalka, B.B. Local enhancement of cannabinoid CB1 receptor signalling in the dorsal hippocampus elicits an antidepressant-like effect. *Psychoneuroendocrinology*, 2007, 32, 350-357.



<p>There is no research that constructively shows that MJ will aid someone with depression. MJ can have the opposite effects and cause a further and deeper depression.</p>
<p>How do you define depression and this is one of self-reporting or do you have to have a diagnosis of clinical depression? What about postpartum depression where the life of the child is in danger because of the deteriorating mental state of a new mother? What about the effects of breast feeding on new babies if the mother is on medical marijuana? Will children be taken away from their mothers if a positive test for cannabis is given and the mother is a medical marijuana patient? What protections will you offer to the patients if this condition is added? Also what test is available to show depression other than anecdotal? Most people suffering from depression self-medicate (alcohol being the number #1 mendicant) and how is now medicating with another substance (cannabis) going to interact with other medications (both OTC, legal and illegal) going to benefit someone with depression. How will this work in older patients who living in nursing homes where depression is a given especially with the lack of outdoor sunshine resulting in "Sundowners Syndrome." Will the AzDHS make all efforts to help patients that are confined in nursing homes and have so little say in their treatment plan an option of medical marijuana with the skilled nursing staff?</p>
<p>Why would we resort to an illegal drug when there are proven therapies that include behavioral and medical treatments to correct this illness?</p>
<p>Who gets to decide which emotionally disabled students need to smoke marijuana and at what age they should be entitled to do so? This is not something that should be considered with all of the medications currently in stock and approved for the treatment of depression. Counseling is more reliable and useful that drugs for depression. Human companionship, and compassion not drugs.</p>
<p>As someone who suffers from depression from chronic pain, it is not advisable to throw another drug in the mix to lift the mood temporarily when it could lead some to continual substance abuse.</p>
<p>A number of studies have shown an association between chronic marijuana use and increased rates of anxiety, depression, and schizophrenia. Some of these studies have shown age at first use to be an important risk factor, where early use is a marker of increased vulnerability to later problems. However, at this time, it is not clear whether marijuana use causes mental problems, exacerbates them, or reflects an attempt to self-medicate symptoms already in existence. - NIDA</p>
<p>Now a days almost everyone suffers from depression. I have many clients who effectively treat there depression with medication and I personally feel that the use of marijuana is unnessasary. Working at a substance abuse treatment center and working with psychiatrists daily I feel that this motion is ridiculous.</p>
<p>Again, I work with individuals with depression, I have not seen anyone that uses marijuana get better with it, in fact it just leads to other things.</p>
<p>There are current medications for this illness that work</p>
<p>as above</p>
<p>It is not appropriate for the Arizona Department of Health Services to add marijuana as a treatment for mental or physical conditions - knowing that marijuana remains an illegal substance under Federal Law.</p>
<p>There are better treatments for depression such as SamE and less debilitating therapeutic methods. Using marijuana for depression would further exacerbate the amotivational aspects of depression which occur as a result of the depressive disorder in the first place.</p>
<p>Enough is know about brain chemistry to fairly well determine which of the three classes of antidepressants would be the best medical treatment for depression. Is there a real reason to add marijuan to the mix, other than simply making it legal?</p>
<p>It is not appropriate for the Arizona Department of Health Services to add marijuana as a treatment for</p>

mental or physical conditions because marijuana is an illegal substance under Federal Law.

There is a huge correlation between the increase of 'medical' marijuana and increasing use of marijuana among teens. The data is very alarming as early use of marijuana greatly increases the risk for abusing other drugs and addiction.

Expansion of 'medical' marijuana for use in other conditions, although allowed under the Initiative Prop 203, should only be considered in extreme situations because of the Federal illegality, increasing substance abuse risks, health and safety risks it places upon youth and other Arizona citizens.

Further, the AZ Department of Health Services is not in the business of approving untested medication for treatment.

It is not appropriate for the Arizona Department of Health Services to add marijuana as a treatment for mental or physical conditions - knowing that marijuana remains an illegal substance under Federal Law.

Marijuana DOES NOT CURE an illness, rather it relieves symptoms, but so would a massage. This is ludicrous.

It is not appropriate for the Arizona Department of Health Services to add marijuana as a treatment for mental or physical conditions - knowing that marijuana remains an illegal substance under Federal Law.

Medical marijuana helps with lots of the symptoms of depression and you don't have to worry about the possible side effect of thoughts of suicide as well as many other harmful things the pills prescribed to treat this. Any time you see a commercial on tv to advertise depression treatment over half of the commercial is devoted to warning you of the side effects, which some of are worse than the illness itself.

Pharmacology and effects of cannabis: a brief review†

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#### ACTIONS OF CANNABIS IN HUMANS

Cannabis affects almost every body system. It combines many of the properties of alcohol, tranquillisers, opiates and hallucinogens; it is anxiolytic, sedative, analgesic, psychedelic; it stimulates appetite and has many systemic effects. In addition, its acute toxicity is extremely low: no deaths directly due to acute cannabis use have ever been reported. Only a selection of cannabis effects are described in this review; other actions are reviewed by Paton & Pertwee (1973), Pertwee (1995), Adams & Martin (1996) and many others.

#### Psychological effects

##### Effect on mood

The main feature of the recreational use of cannabis is that it produces a euphoriant effect or 'high'. The high can be induced with doses of THC as low as 2.5 mg in a herbal cigarette and includes a feeling of intoxication, with decreased anxiety, alertness, depression and tension and increased sociability (if taken in friendly surroundings). The high comes on within minutes of smoking and then reaches a plateau lasting 2 hours or more, depending on dose. It is not surprising that the overwhelming reason for taking cannabis given by recreational users is simply 'pleasure' (Webb et al, 1996, 1998). However, cannabis can also produce dysphoric reactions, including severe anxiety and panic, paranoia and psychosis. These reactions are dose-related and more common in naïve users, anxious subjects and psychologically vulnerable individuals. (Psychiatric reactions including aggravation or precipitation of schizophrenia are described by Johns, 2001, this issue).

### Effects on perception

Accompanying the high, and often contributing to it, cannabis produces perceptual changes. Colours may seem brighter, music more vivid, emotions more poignant and meaningful. Spatial perception is distorted and time perception is impaired so that perceived time goes faster than clock time. Hallucinations may occur with high doses.

### Effects on cognition and psychomotor performance

Not surprisingly, cannabis impairs cognitive and psychomotor performance. The effects are similar to those of alcohol and benzodiazepines and include slowing of reaction time, motor incoordination, specific defects in short-term memory, difficulty in concentration and particular impairment in complex tasks which require divided attention. The effects are dose-related but can be demonstrated after relatively small doses (5-10 mg THC in a joint), even in experienced cannabis users, and have been shown in many studies across a wide range of neurocognitive and psychomotor tests. These effects are additive with those of other central nervous system depressants.

### Driving and piloting skills

These effects combine to affect skills related to driving a vehicle or flying an aeroplane. Numerous studies have shown that cannabis impairs road-driving performance and have linked cannabis use with increased incidence of road traffic accidents. In the UK, USA, Australia, New Zealand and many European countries, cannabis is the most common drug, apart from alcohol, to be detected in drivers involved in fatal accidents or stopped for impaired driving. A large proportion of such drivers have not taken alcohol or have concentrations below the legal limit. For example, in two studies from the UK Department of Transport (Everest et al, 1989; Department of Environment, Transport and the Regions, 1998), no alcohol was detected post-mortem in 70% and 80%, respectively, in road traffic accident fatalities testing positive for cannabis. In Australia (Road Safety Committee, 1995) only half of surviving drivers of vehicle collisions involving death or life-threatening injuries who tested positive for cannabis had also taken alcohol. In Norway, 56% of a sample of drug-impaired drivers negative for alcohol gave positive blood samples for THC (Gjerde & Kinn, 1991). From the USA, McBay (1986) had earlier found that 75% of a sample of drivers with cannabinoids in their blood were also intoxicated with alcohol. The World Health Organization (1997, p. 15) concluded:

“There is sufficient consistency and coherence from experimental studies and studies of cannabinoid levels among accident victims...to conclude that there is an increased risk of motor vehicle accidents among persons who drive when intoxicated with cannabis....The risk is magnified when cannabis is combined with intoxicating doses of alcohol”.

Piloting an aeroplane is an even more complex task than driving a car and cannabis has been shown in several investigations seriously to impair aircraft piloting skills. The results of one placebo-controlled study are shown in Fig. 4 (Leirer et al, 1991). The subjects were nine licensed pilots, highly trained in a flight simulator task, who were current cannabis users. They received a cannabis cigarette containing 20 mg THC (a moderate dose by present-day standards). This dose caused a significant decrement in performance compared with placebo and the impairment lasted over 24 hours after this single dose. Furthermore, most of the pilots were unaware that their performance was still impaired at 24 hours. Several pilots reported that they had actually flown while high on cannabis, and the authors noted that in at least one aeroplane crash the pilot was known to have taken cannabis some hours before flying and to have made a similar landing misjudgement (poor alignment on the runway) as was noted in experimental studies.

Fig. 4

Effect of smoking a cannabis cigarette containing 20 mg tetrahydrocannabinol (THC) on pilot performance in a flight simulator landing task (Leirer et al, 1991). - - - - , 20 mg THC; -[UNK]-, placebo.

There is evidence that similar longlasting impairments apply to motor cyclists, train drivers, signal

operators, air traffic controllers and operators of heavy machinery. However, a problem is that because of the very slow elimination of cannabinoids, there is no accurate way of relating blood, urine, saliva or sweat concentrations to the degree of intoxication of the driver or pilot at the time of an accident, no way of telling exactly when the last dose was taken and no proof that cannabis was actually the cause of an accident.

#### Long-term effects of chronic use

There is considerable evidence, reviewed by Hall et al (1994), that performance in heavy, chronic cannabis users remains impaired even when they are not actually intoxicated. These impairments, especially of attention, memory and ability to process complex information, can last for many weeks, months or even years after cessation of cannabis use (Solowij, 1998). Whether or not there is permanent cognitive impairment in heavy long-term users is not clear.

#### Tolerance, dependence, withdrawal effects

Tolerance has been shown to develop to many effects of cannabis including the high and many systemic effects, and a cannabis withdrawal syndrome has been clearly demonstrated in controlled studies in both animals and man (Jones, 1983; Kouri et al, 1999). The withdrawal syndrome has similarities to alcohol, opiate and benzodiazepine withdrawal states and includes restlessness, insomnia, anxiety, increased aggression, anorexia, muscle tremor and autonomic effects. A daily oral dose of 180 mg of THC (one or two modern, good-quality joints) for 11-21 days is sufficient to produce a well-defined withdrawal syndrome (Jones, 1983). The development of tolerance leads some cannabis users to escalate dosage, and the presence of withdrawal syndrome encourages continued drug use. Thus, chronic cannabis use can lead to drug dependence, and reports from the USA, UK and New Zealand (Roffman & Barnhart, 1987; Stephens et al, 1993) indicate that many cannabis users are now seeking treatment for cannabis dependence.

J Addict Med. 2011 Mar;5(1):1-8.

An evidence based review of acute and long-term effects of cannabis use on executive cognitive functions.

Crean RD, Crane NA, Mason BJ.

#### Source

Committee on the Neurobiology of Addictive Disorders; The Scripps Research Institute; La Jolla, CA 92037, USA.

#### Abstract

Cannabis use has been shown to impair cognitive functions on a number of levels—from basic motor coordination to more complex executive function tasks, such as the ability to plan, organize, solve problems, make decisions, remember, and control emotions and behavior. These deficits differ in severity depending on the quantity, recency, age of onset and duration of marijuana use. Understanding how cannabis use impairs executive function is important. Individuals with cannabis-related impairment in executive functions have been found to have trouble learning and applying the skills required for successful recovery, putting them at increased risk for relapse to cannabis use. Here we review the research on the acute, residual, and long-term effects of cannabis use on executive functions, and discuss the implications for treatment.

Please don't add. It is so difficult raising children now, a 20 year old young man told me the other day he was going to get a medical marijuana card because he can't eat or sleep without smoking pot. That is called addiction, not depression.

Depression is a debilitating condition based on the fact that the joy one gets from life is taken away, and

<p>no matter what one thinks, serotonin levels in the brain prevent that joy. Depression patients have a high risk of suicide. Cannabis is an effective alternative to antidepressants, because it has been shown to have antidepressant-like effects without the risk of dependency or addiction that is associated with actual antidepressants. Antidepressants carry a strong warning that patients just starting the drug may have an increased risk of suicide and therefore must be monitored closely. This is a legal drug, and it may cause a person to kill him/herself. Antidepressants can also reduce hunger, which is not healthy. Cannabis increases hunger and allows depressed patients to eat more. Another issue with antidepressants relates to sexual side effects. Antidepressants can cause impotence and lack of sexual desire. This type of side effect only compounds the original condition for which treatment was sought. Medical marijuana should be permitted for those with severe depression.</p>
<p>Marijuana is the safest anti-depressant known.</p>
<p>Needs to be added. Most effective non narcotic alternative.</p>
<p>I know that medical marijuana does help with depression, if only to allow an escape. There is the concern about depression being easily diagnosed, thus allowing it to be an easy pathway to getting illegitimate medicine, but this should NOT get in the way of people who actually want to treat their depression with medical marijuana. That problem should be handled in a way that does not obstruct the patients' pursuit of health.</p>
<p>Marijuana also lifts depression with out having to wait for weeks as with Prozac and similar medicines. It works very well. Why not use it? This illness also needs to be included in the schedule of diseases with the the State of Arizona.</p>
<p>I will put my concern under depression since depression is a common youth condition. My high school children now think that smoking marijuana is not harmful because of this law. It is now common for high school age students to purchase marijuana from someone with a medical marijuana card for rec use. If additional conditions are added that pertain to youth then the youth in their under-developed logic think marijuana is not harmful to them and they will continue to buy from someone with a card. Please do not add more conditions to this harmful law. I respect the truly ill and their desire for relief however, the risk to youth and their safety is a greater concern of mine in the overall picture. Unfortunately, many abuse the law and it is not easily enforceable.</p>
<p>Since becoming a licensed medical marijuana user I have noticed the beneficial effects with my depression diagnosis, I feel better than I have felt in 11 years since my cancer diagnosis. Depression is gone, happier, healthier, livelier and more self confident knowing I can medicate and be legal. Thank you Mr. Humble. Definitely add depression to the list of debilitating conditions.</p>
<p>I'm pro for adding depression. My mother has suffered from depression and suffers more almost from the side effects of prescribed medications. Following is an excerpt backing my pro opinion.</p> <p>"I think cannabis has a lot of potential in the treatment of mental illness," says Lester Grinspoon, emeritus professor of psychiatry at the Harvard School of Medicine. He says that it can be an effective treatment for bipolar disorder and depression. Like any medicine, he cautions, " it will not work for everyone. " Grinspoon has, over the last three decades, been one of the few psychiatrists willing to speak publicly on " mental marijuana."</p> <p>Two weeks ago, the Israeli army said it would provide, on an experimental basis, medical marijuana to troops suffering from post-traumatic stress disorder, another mental illness. Good enough for an army, good enough for me.</p>
<p>Marijuana will increase amotivation which is a major symptom of depression.</p>
<p>It works for depression when i have felt sad or depressed a little bit will make me feel back to my old self quite quickly</p>

<p>There is an incredibly strong correlation with marijuana use and depression--marijuana very often causes loss of motivation, which exacerbates and can even cause depression. It would interfere with treatment, and in fact long-term marijuana use can make a person treatment resistant. Again, users would be self-medicating for the rest of their lives--it is just an excuse to continue using marijuana, despite the side effects it causes, including depressive symptoms over time.</p>
<p>Please add.</p>
<p>Woefully low documentation</p>
<p>yes add it.</p>
<p>As a psychologist, I am concerned that people with depression would cover up their symptoms with marijuana rather than change a situation that may be the result of their depression. Treating their symptoms and eliminating the source of their depression with known interventions that are recognized as the best practice for this disorder should be the goal of any wellness program. Providing someone with an addictive drug is not good interventions for this very common problem. Intervention approaches such as Eye Movement Desensitization and Reprocessing (EMDR) and other cognitive behavioral interventions are effective treatment methods that do not interfere with healthy brain functioning like marijuana does. I support medical marijuana for medical conditions such as pain, which may have no symptom relief with any other intervention. If marijuana use for this diagnosis is approved, I would hope that one requirement prior to resorting to marijuana would be that all other forms of recognized effective mental health treatment and psychotropic medications would have been tried and had failed.</p>
<p>I'm sure you are getting a lot of comments about adding depression and GAD to the current medical marijuana law, so I appreciate you taking the time to read my comments and concerns.</p> <p>As a 35 y.o. living with Bipolar II, I do believe that there will be a lot of people who will fake both depression, GAD, or anxiety as a symptom to simply get a medical marijuana card. Knowing that, however, is also extremely frustrating to those of us who suffer from these conditions each and every day. My daily/nightly ritual has revolved around taking a mix of alprazolam 1MG 3x/day, Lyrica 100MG 2x/day, Viiibryd 40MG 1x/day at night, trazadone 100MG 1/day before bed, and now switching to lithium from lamotrigine 200mg/2x a day due to side effects. While they have helped a small bit in my anxiety/depression, they have also had the effect of numbing me more to life and losing any true feelings. While I'm not saying they don't work to a degree, they still have not stopped the bouts of insomnia; irrational anxiety about how I'm going to pay my bills (I have \$40K in a savings account because I refuse to move it in case I may lose my job; run in to a stop light and be denied insurance, be subject to a lawsuit etc). They haven't fully stopped the the depression that keeps me in bed some days, nor other symptoms from returning at a moments notice. For instance, I missed an 8 a.m. meeting with our largest corporate sponsor two weeks ago because I couldn't sleep for 36 hrs. straight the nights prior and then, when I finally did sleep, slept right through the three alarm clocks I must keep in my room for those days when I finally crash. How do you tell a client/sponsor "I'm sorry, but my crazy meds are acting up again."? Thankfully, I work for a non-profit health agency that is well suited to understand these issues, but what if I didn't?</p> <p>I would like your panel to remember that everything can be used inappropriately. Kitty Dukakis herself admitted to drinking rubbing alcohol as a substitute; people use spray paint to get high from the fumes; Benadryl is now behind counters because of its use in Meth production. These are all legal substances that, in the wrong hands, can be harmful. So I understand that your decision will likely face those dilemmas.</p> <p>However, I'd also like for you to keep in mind those of us who may benefit from marijuana. The only time I've ever used marijuana was when I was in my young 20's and visiting Amsterdam. I remember that it was the first time I truly laughed and felt at ease. And by 'truly laughed', I meant the laughter wasn't the fake 'this is where I'm supposed to laugh in a social situation' but a truly, heart felt laugh. It was amazing to feel so normal. To have my committee (as I like to call the numerous voices in my head telling me I need to be worried about X,Y, and Z) finally be silent and my own mind saying "it's OK. Just relax." Was</p>

an eye opening experience. Since that has been many, many years ago, I don't know if marijuana would work for me now but I feel I should at least be given the option to try. I read about how the military is using MDMA to help treat PTSD patients and I ask; why are we still so hung up on allowing marijuana to be used as a medication.

Will medical marijuana truly change our culture? If I wanted, I could sell the alprazolam and Lyrica I get each month from Walgreens to individuals who could use it to get high. Allowing the addition of marijuana as a treatment for these conditions will certainly lead to those who abuse the system, but these people already likely abuse the system by buying marijuana illegally so I do not believe there would be any societal change in usage. However, denying the addition would only harm those of us who follow the law and are allowed to physically and mentally suffer because of our conditions.

In summary, it is a damned if you do, damned if you don't decision and I don't envy the ultimate decision you will have to make. However, I sincerely hope you will choose to recognize that our current legal structure will only ensure that those who want marijuana for recreational purposes will continue to get it, while those of us who want it for medicinal purposes won't.

Thank you for taking the time to read my comments. I am more than happy to expand on the above information if you should so need it.  
Best regards

My Doctor Prescribed Zanax then Zolof, that lit me up and ended up in the ER, I stopped taking the meds, These affect a person in different ways, might as well try Marijuana and be a subject of the side effects. Use to smoke before moving to AZ but the the strict laws stopped using Marijuana, would like to go back without breaking the law.

Certain Sativa strains have eased my depression. Only certain ones though. Thinking about this, I realize how not having a dispensary with specific strains not available harms patients. Many depression patients already use cannabis. Most are at lower economic levels, and have not had their college paid for, etc. This is the primary thing already used to cure their depression with - along with alcohol unfortunately. I do not drink. This should absolutely be added to the list. The reduced fear of law enforcement alone will assist with curing their depression. No one can argue this point.

Recent studies show marijuana CAUSES depression. Adding depression as a condition will create more people suffering from depression, not alleviate it. Recent studies also confirm that marijuana makes people lazy, destroys brain cells and robs them of ambition. It is a bad idea to spread its use under the label "medical."

This should be added as there are plenty of studies that were done that show Medical Marijuana can be used to help people who suffer from depression and lower suicide rates.

I am currently suffering from depression. It has really crippled me for the past 6 months. I have had to drop out of school, I'm seeing a therapist, and I am on anti-depressants. These things all help to make my life a little better, but the depression just isn't going away. I have read peer review articles online and in journals that say that medical marijuana can truly help some people. I feel like it's worth taking a chance on medical marijuana if it truly could help people like me suffering from major depression.

Depression is such a broad medical term that this could cause a flood of people getting medical marijuana cards. It does not take a lot to get diagnosed with depression and people know it. To add this to the list would create wide spread social and economic problems. Plus marijuana is a depressant and to help someone with depression you do not give them something that will just make them more depressed.

Last year, I became a registered patient of the Arizona Medical Marijuana Program. It has helped tremendously with my chronic back pain. At about the same time, I was undergoing therapy for bipolar depression, under cooperation between my medical doctor and my psychological therapist. Subsequently, I was put on Seroquel XR 300mg daily. This helped to even out the peaks of mania and valleys of depression, but does not eliminate them. It provided a measure of control where none existed before, but

it is not a cure by any means. I became aware of how the seroquel helped manage my condition. Quite by coincidence, I also became aware of how the medical marijuana not only helped manage my back pain, but I was surprised to note that it had a similar palliative benefit on my depression as did seroquel. Further, I noticed that of the two major strains, Sativa and Indica, it was the more Sativa-dominant strains that helped the most with depression, while the more Indica-dominant strains helped the most with pain. I encourage the Arizona Department of Health Services to add depression to the list of debilitating conditions.

Article taken from Science News:

Not just a high Scientists test medicinal marijuana against MS, inflammation and cancer

By Nathan Seppa

June 19th, 2010; Vol.177 #13 (p. 16)

## NOT JUST A HIGH

Cannabis compounds show their stuff against a host of medical problems, relieving symptoms far beyond pain and nausea.

KatsgraphicsLV/iStockphoto

In science's struggle to keep up with life on the streets, smoking cannabis for medical purposes stands as Exhibit A.

Medical use of cannabis has taken on momentum of its own, surging ahead of scientists' ability to measure the drug's benefits. The pace has been a little too quick for some, who see medicinal joints as a punch line, a ruse to free up access to a recreational drug.

But while the medical marijuana movement has been generating political news, some researchers have been quietly moving in new directions – testing cannabis and its derivatives against a host of diseases. The scientific literature now brims with potential uses for cannabis that extend beyond its well-known abilities to fend off nausea and block pain in people with cancer and AIDS. Cannabis derivatives may combat multiple sclerosis, Crohn's disease and other inflammatory conditions, the new research finds. Cannabis may even kill cancerous tumors.

Many in the scientific community are now keen to see if this potential will be fulfilled, but they haven't always been. Pharmacologist Roger Pertwee of the University of Aberdeen in Scotland recalls attending scientific conferences 30 years ago, eager to present his latest findings on the therapeutic effects of cannabis. It was a hard sell.

"Our talks would be scheduled at the end of the day, and our posters would be stuck in the corner somewhere," he says. "That's all changed."

## Underlying biology

The long march to credibility for cannabis research has been built on molecular biology. Smoking or otherwise consuming marijuana – Latin name *Cannabis sativa* – has a medical history that dates back thousands of years. But the euphoria-inducing component of cannabis, delta-9-tetrahydrocannabinol, or THC, wasn't isolated until 1964, by biochemist Raphael Mechoulam, then of the Weizmann Institute of Science in Rehovot, Israel, and his colleagues. Within two decades, other researchers had developed synthetic THC to use in pill form.

The secrets of how THC worked in the body lay hidden until the late 1980s, when researchers working with rats found that the compound binds to a protein that pops up on the surface of nerve cells. Further tests showed that THC also hooks up with another protein found elsewhere in the body. These receptor proteins were dubbed CB1 and CB2.



A bigger revelation came in 1992: Mammals make their own compound that binds to, and switches on, the CB1 receptor. Scientists named the compound anandamide. Researchers soon found its counterpart that binds mainly to the CB2 receptor, calling that one 2AG, for 2-arachidonyl glycerol. The body routinely makes these compounds, called endocannabinoids, and sends them into action as needed.

“At that point, this became a very, very respectable field,” says Mechoulam, now at Hebrew University of Jerusalem, who along with Pertwee and others reported the anandamide discovery in *Science*. “THC just mimics the effects of these compounds in our bodies,” Mechoulam says. Although the receptors are abundant, anandamide and 2AG are short-acting compounds, so their effects are fleeting.

In contrast, when a person consumes cannabis, a flood of THC molecules bind to thousands of CB1 and CB2 receptors, with longer-lasting effects. The binding triggers so many internal changes that, decades after the receptors’ discovery, scientists are still sorting out the effects. From a biological standpoint, smoking pot to get high is like starting up a semitruck just to listen to the radio. There’s a lot more going on.

## SANCTIONED SMOKING

View larger image | Though smoked cannabis has not been approved by the Food and Drug Administration, its use for medical purposes has been sanctioned by law in 14 states (shown in green, year given). Different states apply their own restrictions, some of which are highlighted.

kelly ann mccann; source: D.E. hoffmann and E. weber/nejm 2010

Though the psychoactive effect of THC has slowed approval for cannabis-based drugs, the high might also have brought on a serendipitous discovery, says neurologist Ethan Russo, senior medical adviser for GW Pharmaceuticals, which is based in Porton Down, England. “How much longer would it have taken us to figure out the endocannabinoid system if cannabis didn’t happen to have these unusual effects on human physiology?”

### Beyond the pain

Today smoked cannabis is a sanctioned self-treatment for verifiable medical conditions in 14 U.S. states, Canada, the Netherlands and Israel, among other places. It usually requires a doctor’s recommendation and some paperwork.

People smoke the drug to alleviate pain, sleep easier and deal with nausea, lack of appetite and mood disorders such as anxiety, stress and depression. Patients not wanting to smoke cannabis can seek out prescriptions for FDA-approved capsules containing cannabis compounds for treatment of some of these same problems.

Research now suggests that multiple sclerosis could join the growing list of cannabis-treated ailments. More than a dozen medical trials in the past decade have shown that treatments containing THC (and some that combine THC with another derivative called cannabidiol, or CBD) not only ease pain in MS patients but also alleviate other problems associated with the disease. MS results from damage to the fatty sheaths that insulate nerves in the brain and spinal cord.

“MS patients get burning pain in the legs and muscle stiffness and spasms that keep them awake at night,” says John Zajicek, a neurologist at the Peninsula College of Medicine and Dentistry in Plymouth, England. Patients can take potent steroids and other anti-inflammatory drugs, but the effects of these medications can be inconsistent.

Pertwee has analyzed 17 trials in which MS patients received some form of cannabis or its derivatives. Reports from the patients themselves, who didn’t know if they were getting real cannabinoids or a placebo in most of the trials, show improvements in muscle spasticity, sleep quality, shakiness, sense of well-being and mobility. Pertwee, who is also a consultant for GW Pharmaceuticals – which makes a cannabinoid drug that is delivered in spray form, called Sativex – reviewed the findings in *Molecular*

Neurobiology in 2007.

Sativex was approved in Canada for MS in 2005 after studies (some included in Pertwee's analysis) showed its success in relieving symptoms of the disease. GW Pharmaceuticals expects clearance for MS treatment in the United Kingdom and Spain this year. Later, the company plans to seek U.S. approval of Sativex for cancer pain.

Zajicek's team has also compared MS patients who received a placebo with patients receiving either a capsule containing THC or one with THC and CBD. Both of the cannabis-based drugs outperformed a placebo, and the researchers are now working on a multiyear MS trial.

Calming symptoms such as muscle spasticity and pain is useful, Zajicek says, but the true value of cannabinoids may exceed that. "To me, the really exciting stuff is whether these drugs have a much more fundamental role in changing the course of MS over the longer term," he says. "We've got nothing that actually slows progression of the disease."

Fighting inflammation

#### TUMOR SUPPRESSION

[View larger image](#) | In patients with aggressive brain tumors, THC seems to knock down MMP-2 (green in images above left), an enzyme that facilitates cancer's spread by breaking down tissues. Cannabinoids also affect other cancer cells in rodents and in lab-dish experiments (see table).

c. Blázquez

CBD, the same cannabis component that proved beneficial alongside THC for MS, may also work on other hard-to-treat diseases. Tests on cell cultures and lab animals have revealed that CBD fights inflammation and mitigates the psychoactive effects of THC.

Crohn's disease, which can lead to chronic pain, diarrhea and ulcerations, could be a fitting target for CBD. In Crohn's disease, inflammatory proteins damage the intestinal lining, causing leaks that allow bacteria in the gut to spread where they shouldn't. This spread leads to a vicious cycle that can trigger more inflammation.

Karen Wright, a pharmacologist at Lancaster University in England, and her colleagues have found that CBD inhibits this inflammation and can reverse the microscopic intestinal leakiness in lab tests of human cells. Adding

THC doesn't seem to boost the benefit, Wright reported in December 2009 in London at a meeting of the British Pharmacological Society. The results bolster earlier findings by Wright's team showing that cannabinoids could improve wound healing in intestinal cells.

CBD's anti-inflammatory effect may work, at least in some cases, through its antioxidant properties – the ability to soak up highly reactive molecules called free radicals, which cause cell damage.

In the brain and eye, CBD slows the action of microglia, immune cells that can foster harmful inflammation when hyperactivated by free radicals. Working with rats whose retinas were induced to have inflammation, biochemist Gregory Liou of the Medical College of Georgia in Augusta and his team found that CBD neutralized free radicals, preventing eye damage. This finding could have implications for people with diabetes who develop vision loss.

Apart from being an anti-inflammatory and antioxidant, CBD tones down the psychoactive effect of THC without eliminating its medical properties. CBD also mutes the occasional anxiety and even paranoia that THC can induce. This has been welcome news to scientists, who consider the "buzz" of cannabis little more than psychoactive baggage.

But CBD has paid a price for this anti-upper effect. “CBD has essentially been bred out of North American black market drug strains,” Russo says. People growing cannabis for its recreational qualities have preferred plants high in THC, so people lighting up for medical purposes, whether to boost appetite in AIDS patients or alleviate cancer pain, may be missing a valuable cannabis component.

### Cannabis versus cancer

With or without CBD, cannabis may someday do more for cancer patients than relieve pain and nausea. New research suggests THC may be lethal to tumors themselves. Biochemists Guillermo Velasco and Manuel Guzmán of Complutense University in Madrid have spent more than a decade establishing in lab-dish and animal tests that THC can kill cancer of the brain, skin and pancreas.

THC ignites programmed suicide in some cancerous cells, the researchers reported in 2009 in the *Journal of Clinical Investigation*. The team’s previous work showed that THC sabotages the process by which a tumor hastily forms a netting of blood vessels to nourish itself, and also keeps cancer cells from moving around.

THC achieves this wizardry by binding to protein receptors on a cancerous cell’s surface. Once attached, the THC induces the cell to make a fatty substance called ceramide, which prompts the cell to start devouring itself. “We see programmed cell death,” Velasco says. What’s more, noncancerous cells don’t make ceramide when they come into contact with THC. The healthy cells don’t die.

Many compounds kill cancer in a test tube and even in animals, but most prove useless because they cause side effects or just don’t work in people. The Madrid team is now seeking funding to test whether cannabis derivatives can kill tumors in cancer patients. In an early trial of nine brain cancer patients whose disease had worsened despite standard therapy, the scientists found that THC injections into tumors were safe to give.

Early reports from other research groups suggest that THC also fights breast cancer and leukemia. “I think the cancer research is extremely promising,” Russo says. “Heretofore, the model for cancer was to use an agent that’s extremely toxic to kill the cancer before it kills you. With cannabinoids, we have an opportunity to use agents that are selectively toxic to cancer cells.”

### Looking ahead

Testing of cannabis and its derivatives has also begun on type 1 diabetes, rheumatoid arthritis, stroke, Tourette syndrome, epilepsy, depression, bipolar disorder and schizophrenia. Pertwee is particularly optimistic that cannabis will help people with post-traumatic stress disorder. Experiments in rats show that THC “speeds up the rate at which the animals forget unpleasant experiences,” he says. And a recent study in people with PTSD showed that THC capsules improved sleep and stopped nightmares.

Despite these heady beginnings, medical cannabis still faces an uphill climb. Although some states have sanctioned its use, no smoked substance has ever been formally approved as a medicine by U.S. regulatory agencies. Smoking cannabis can lead to chronic coughing and bronchitis, and smoking renders a drug off-limits for children, Mechoulam notes.

THC pills don’t have these downsides, but the drugs have received only lukewarm acceptance. Despite smoking’s drawbacks, “it is seen as better because you can regulate the amount of THC you’re getting by not puffing as much,” says pharmacologist Daniele Piomelli of the University of California, Irvine. Capsules can cause dizziness and make it hard to focus. “Patients suffering from neuropathic pain or depression don’t want to be stoned – they want relief,” he says.

Controlled, randomized trials that seek to clarify whether smoked cannabis delivers on its medical promise – with acceptable side effects – have been hard to come by. But scientists in California have recently concluded several studies in which patients with severe pain received actual cannabis cigarettes or cannabis cigarettes with the cannabinoids removed.

In one trial, researchers randomly assigned 27 HIV patients to get the real thing and 28 to get fake joints. All the patients had neuropathic pain, in which neurons can overreact to even mild stimuli. About half of the people getting real cannabis experienced a pain reduction of 30 percent or greater, a standard benchmark in pain measurement. Only one-quarter of volunteers getting the placebo reported such a reduction.

“That’s about as good [a reduction] as other drugs provide,” says Igor Grant, a neuropsychiatrist at the University of California, San Diego, who is among the scientists overseeing the trials.

While such studies provide evidence that smoked marijuana has medical benefits, future trials are more likely to explore the benefits of cannabis derivatives that don’t carry the baggage that smoking does.

Ultimately, the fate of medical cannabis and its derivatives will rest on the same make-or-break requirements that every experimental medicine faces – whether it cures a disease or alleviates its symptoms, and whether it’s tolerable.

“We have to be careful that marijuana isn’t seen as a panacea that will help everybody,” Grant says. “It probably has a niche.... We can’t ignore the fact that cannabis is a substance of abuse in some people.”

Getting cannabis in

When most people think of medicinal cannabis, smoking comes to mind. Though smoking works quickly and allows users to regulate their intake, it’s hardly a scientific approach: Cannabis quality is often unknown, and inhaling burned materials is bad for the lungs. These and other drawbacks have spawned new ways to consume medical marijuana.

Some people inhale cannabis by using a device that heats the plant without igniting it. This vaporization unleashes many of the same cannabinoid compounds as smoking does, without the combustion by-products, researchers say. Anecdotally, patients report that the effect is prompt, on a par with smoking.

Because cannabis derivatives can pass through the lining of the mouth and throat, a company called GW Pharmaceuticals has devised a spray product called Sativex. This drug contains roughly equal amounts of two key cannabinoids – THC and CBD – plus other cannabis components in an alcohol solution. A dose of Sativex is sprayed under the tongue; no smoking required.

In the face of these options, the “pot pill” seems almost passé. But capsules of synthetic THC exist. One called Marinol has been approved in the United States since 1985, and another called Cesamet was cleared more recently. Doctors can prescribe the drugs for nausea, vomiting, loss of appetite and weight loss. Though sales of capsules have increased recently, many users complain of psychoactive side effects and slow action.

Taken from:

[http://www.sciencenews.org/view/feature/id/59872/title/Not\\_just\\_a\\_high](http://www.sciencenews.org/view/feature/id/59872/title/Not_just_a_high)

I think medicinal marijuana would help get people off the "crazy pills" in a safe and natural way.

<http://www.cannabismd.net/depression/>

This DEFINATELY should have been on the original list. Anti-depressants are dangerous! I've used both medical marijuana and prescribed anti-depressants, and the medical marijuana has always worked, but I've had issues with prescriptions, some even making things worse.

I could not believe that depression wasn't part of the initial recognized medical conditions. It's a MUST.