

Radicle Health Team



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Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

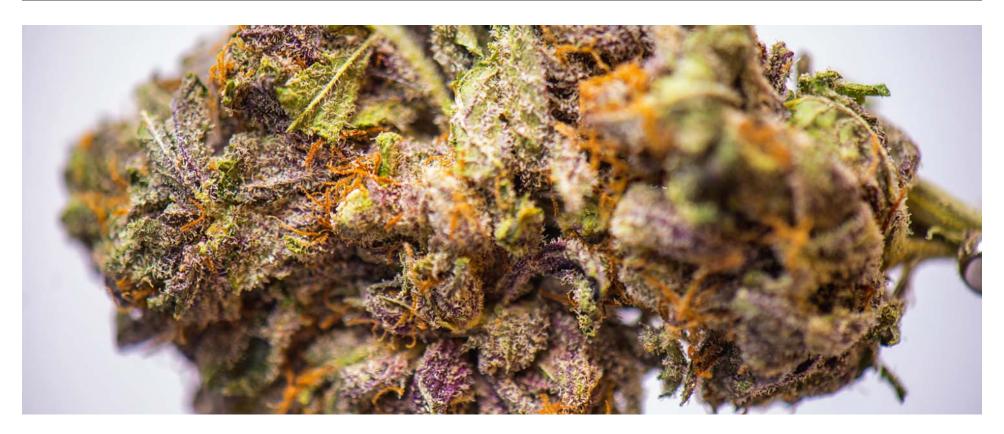


Eloise Theisen (MSN, RN, AGPCNP-BC) Co-founder of Radicle Health

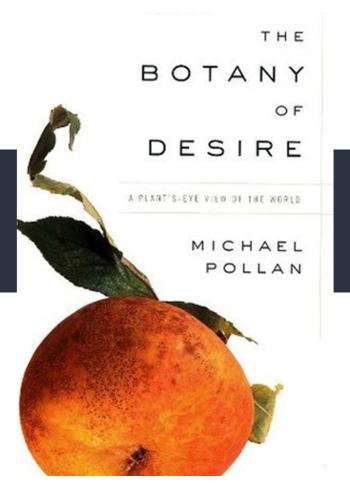
- Has treated over 4000 patients
- The average age of patient is 76
- 90% have previously never used cannabis
- 85% are female
- 45% want to use cannabis to treat pain
- 45% want to use cannabis to treat sleep issues
- Most new patients don't want psychoactivity
- Most new patients don't want to smoke



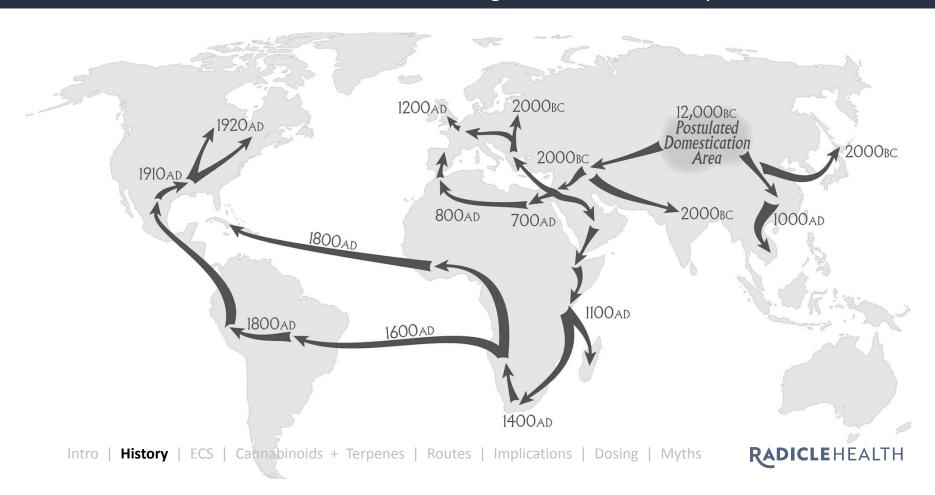
Humans use plants to affect experience.



"We use plants to calm us and to wake us up, to heal us and nourish and poison us; to astound our sense of smell, touch, and taste, even to change the contents of our minds and our experience of consciousness."

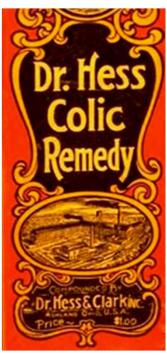


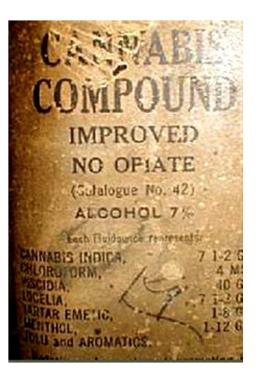
Humans have been cultivating cannabis for 12,000 years.



There were 600 commercially sold medical products with cannabis prior to 1937.







Evil Mexican Plants That Drive You Insane.

with it not only the ravages of war, but also the degradation of the social conditions of soldiers and prisoners. One of the latest forms of dissipation in the ranks of federals and rebels alike is the habit of smoking marihuans, a deadly native plant of Mexico. According to reports many of the Mexican prisoners in the Belem prison in the City of Mexico are losing their minds as a result of smoking this weed.

The dry leaves of marihuana, alone or mixed with tobacco, make the smoker wilder than a wild beast. It is said that after the first three or four draughts of smoke the smoker feels a slight headache, then he sees everything moving, and finally loses all control of his mental faculties.

The next stage of the intoxication is full of terrors. Troops of fercolous wild animals march before the vision of the smoker. Lions, tigers, panthers and other wild beasts occurry his vision. These wild

animals are then attacked by hosts of devils and monsters of unheard-of shapes. The smoker becomes brave and possessed of superhuman strength. It is at this stage of the debauch that murders are committed by smokers of the marihuana weed.

A few Americans have experimented with the weed. A few years ago a well-known citizen of San Antonio purchased a large coffee plantation in southern Mexico. He was induced to try smoking marihugna; he became addicted to the habit, which rendered him insane and finally caused his death.

In another instance the superintendent of a mine in Mexico, who was an American, became the object of hatred of one of the men in his employ. The Mexican mixed marihuans with the American's to-bacco. The latter became wildly insane from smoking the mixture, made a vicious attack upon a party of miners, was shot and killed in the affray.

Not long ago a Mexican of the lower

class, living in the City of Mexico, who had smoked a marihuana cigarette hecame insanc, attacked and killed a policeman and hadly wounded three others.

Maribuana is one of the most dangerous drugs found in Mexico. The weed grows wild in many localities in the southern part of that country. Its wonderful powers as an intoxicant have long been known to the natives, and many are the wild orgies it has produced. So dangerous is this weed that in the City of Mexico and other Mexican cities the Government keeps special inspectors constantly employed to see that it is not sold in the markets.

There is in the State of Michoacan angerous, among them the "totrache," a sort of "loco" weed. The seeds of this plant boiled and drunk as tea will make a person insane. Among some classes of Mexicans it is stated that Carlota, the former Empress of Mexico, lost her mind because she was given totrache in a refreshment by her enemies.

Harry Anslinger, the first commissioner of the Federal Bureau of Narcotics



"Colored students at the Univ. of Minnesota, partying with white female students, smoking marijuana and getting their sympathy with stories of racial persecution. Result: pregnancy."

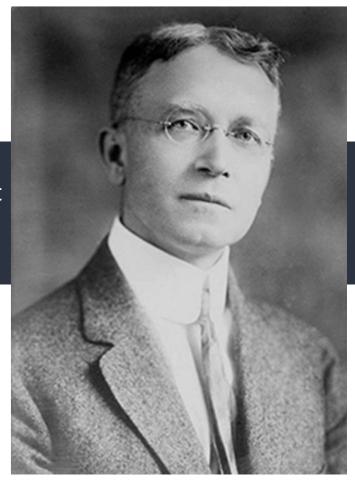
"Two Negros took a girl fourteen years old and kept her for two days under the influence of hemp. Upon recovery she was found to be suffering from syphilis."

"Reefer makes darkies think they're as good as white men."

-Harry Anslinger

"To say... that the use of the drug should be prevented by a prohibitive tax, loses sight of the fact that future investigation may show that there are substantial medical uses for Cannabis."

William C. Woodward, M.D.



ECS: A group of neuromodulatory lipids, their receptors, enzymes, and neurons.



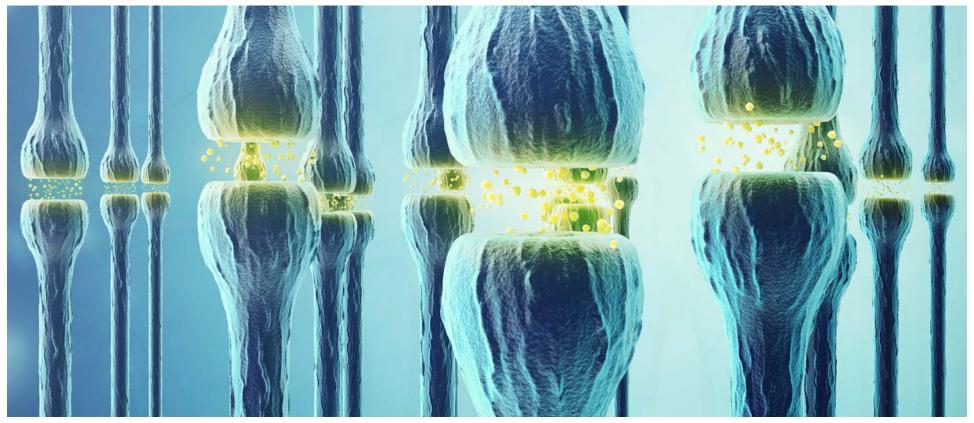
Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Cannabinoids Cacluallein projet ace ruhabinicalds prepoduced anthritia to act sy nared sy to the tic cannabinoids.



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Your endocannabinoids are anandamide (AEA) and 2-arachidonoylglycerol (2-AG).



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Dronabinol and Nabilone are synthetically-made cannabinoids.

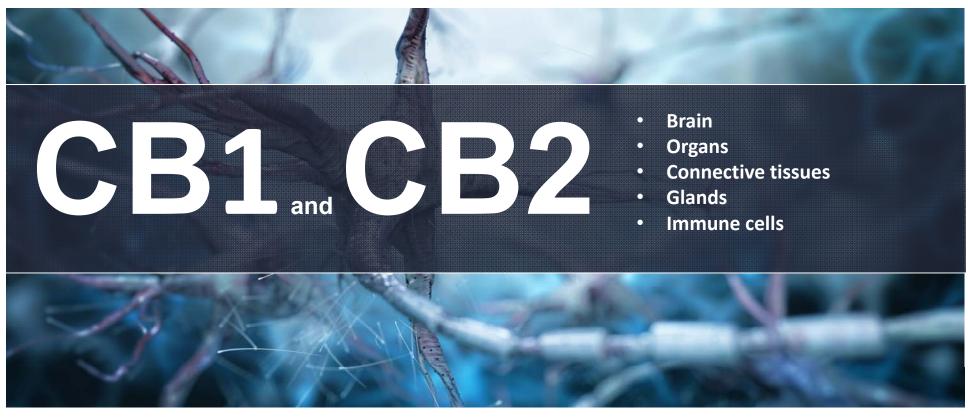


Marinol (Dronabinol) was approved for N/V and for appetite stimulation. The average dose is between 2.5-20mg per day.

Cesamet (Nabilone) was approved for N/V. The average dose is between 1-2mg BID.

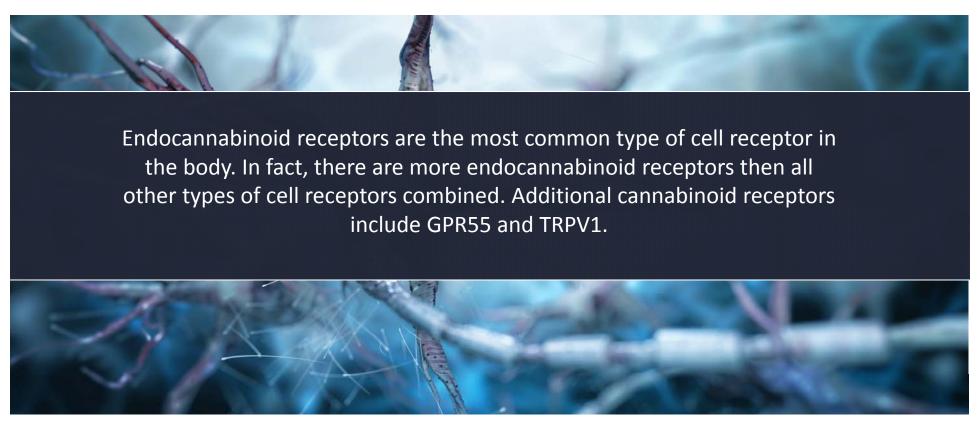


The primary cannabinoid receptors are CB1 and CB2.

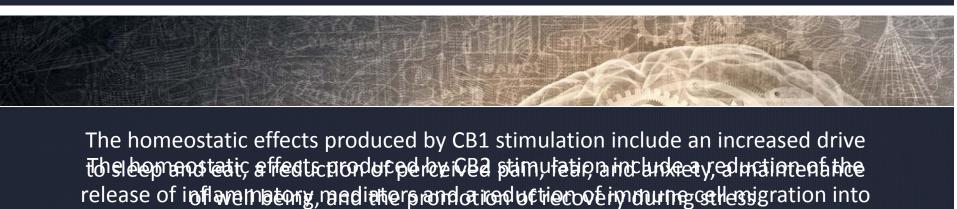


Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

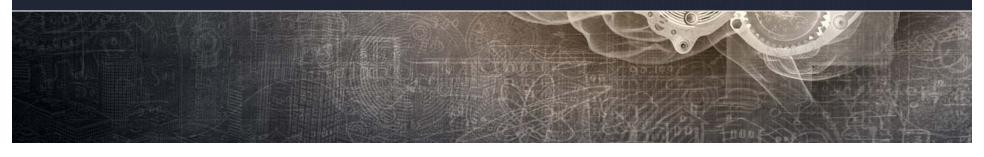
C1 and CB2 receptors are G-protein-coupled receptors.



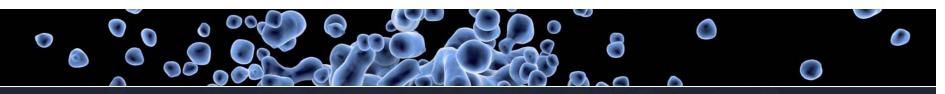
CB1: predominately in the nervous Baysteereptons neretipe intiasily, fgondds, tyleridsnaudeosystesm.



lease of inflorematory, madither and attendutive overy muring of lengigration into There are very few CB1 receptors the the diffusion or in the cardiorespiratory centers, which accounts for the absence of a lethal dose with cannabis.



Clinical Endocannabinoid Deficiency: diseases that arise from deficiencies in the ECS.



CED may be the cause of FBM, migraines, IBS, cancer, depression, anxiety, heart disease, stress, Cystic Fibrosis, phantom limb pain, PTSD, and dysmenorrhea. CED is a condition characterized by a deficit in endocannabinoid system signaling. Dr. Ethan Russo suggests that all humans have a base level of endocannabinoids, and when this level is deficient, it manifests in diseases marked by chronic pain, dysfunctional immune systems, fatigue, and mood imbalances.



Stress seems to play a major role in CED.

Research in animal models has demonstrated that stress-induced anxiety is directly related to anandamide deficiency in mice, and that increasing anandamide levels reduces stress-induced anxiety.

CED can also arise from genetic or congenital issues or from intercurrent injury or disease.



Cannabinoids can be endogenous, plant-based, or synthetic compounds.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Phytocannabinoids are cannabinoids found in plants.

The resin secreted by cannabis flowers is stored in trichomes.



Many cannabinoids are psychoactive to varying degrees.



Cannabinoids are hydrophobic, lipophilic molecules. They are soluble in fats and they dissolve in solvents such as ethanol or methanol. Because cannabinoids are lipid-soluble, they can access areas of the brain that many neurotransmitters cannot reach.



THC binds to CB1 receptors and causes a change to the function of that cell.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

THC is a potent anti-inflammatory and analgesic.



THC is not a COX-1 or COX-2 inhibitor.



CBD has neuroprotective effects that are more potent than Vitamins C and E.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

CBD is cytotoxic in breast cells while preserving normal cells.



CBD is well-tolerated and safe, even at high doses.



CBD is not psychoactive in same manner as THC.



CBD can be used as an antipsychotic, an anxiolytic, and an antidepressant, and a substance that can relieve anxiety, depression, and psychosis is, in fact, a mood-altering substance, even if it doesn't necessarily produce euphoria.



CBN may be an immunomodulator because of its affinity with the CB2 receptor.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

As an analgesic, CBN is 3 times stronger than aspirin.



THCa can be a good option for patients wanting to avoid impairment.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

THCa is a potent anti-inflammatory.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

CBDa might inhibit the migration of human breast cancer cells.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

CBDa is effective at treating anticipatory nausea and vomiting.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

THCv is psychoactive and is an antagonist of both the CB1 and CB2 receptors.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

CBG can inhibit the uptake of GABA, which can decrease anxiety and muscle tension.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Terpenes produce plant aromas and protect from bacteria and fungus.



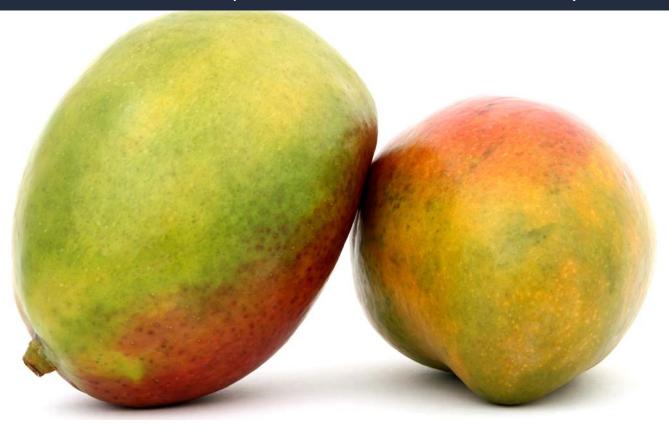
Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Limonene is anxiolytic, antifungal, antiproliferative, and an immunostimulant.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Myrcene is analgesic, anti-insomnia, antiproliferative, and anti-inflammatory.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths



Pinene is an anti-inflammatory, a bronchodilator, an antibiotic, and a memory aid.

The Japanese practice shinrin-yoku (forest bathing) lowers heart rate and blood pressure, reduces stress hormone production, boosts the immune system, and improves overall feelings of wellbeing.



Linalool is an analgesic, sedative, anxiolytic, and anesthetic.



Caryophyllene is anti-inflammatory, antimalarial, antiproliferative, and an antioxidant.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

The route of administration can influence how patients benefit from cannabis.



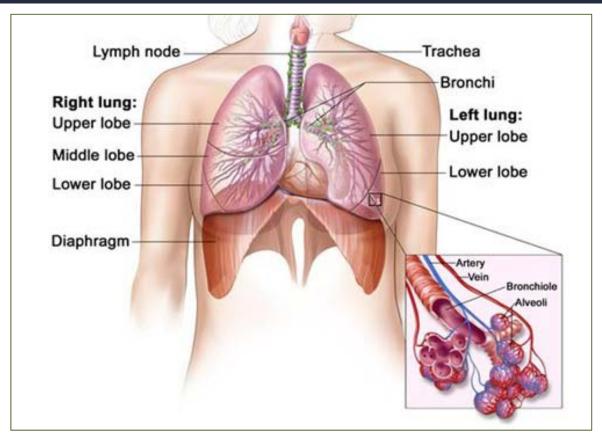
Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Smoking raw cannabis flowers can produce rich and nuanced therapeutic effects.

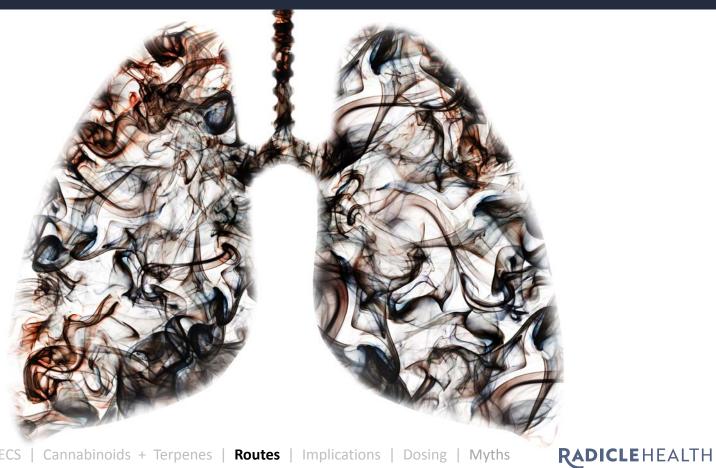


Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

Inhaled cannabis enters the body through passive diffusion into the capillaries.



Long-term, heavy cannabis smoking can lead to chronic bronchitis and airway inflammation.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths

When would you recommend vaporizing vs. smoking?



Multiple studies have shown that proplyene glycol and polyethelyne glycol break down the carcinogens formaldehyde and acetaldehyde — especially when vaped at high temperatures.

Liquid cannabis extracts offer patients dosage control and fast-acting effects.



Cannabis-infused medications may not absorb well into the oral mucosa and much of the preparation is likely swallowed, meaning that the duration and effects follow the pattern of ingestion.



Edibles are associated with an onset that is both variable and lengthy.



Because the time of onset is variable and lengthy, edibles are difficult to dose and difficult to titrate. Many patients, and unfortunately, many first-time patients, can over-medicate using edibles and experience very unpleasant side effects.



A cannabis-infused tea (with fat) can be effective for treating body pain and sleep issues.



Topicals can treat itchy, painful areas of the skin.

Patients new to cannabis or anxious about using cannabis might be willing to try less invasive external applications. Generally, topicals have no systemic side effects.



Transdermal products enter the bloodstream, avoiding first-pass metabolism.



What can we treat effectively using cannabis?



Clinical Implications: Insomnia

Cannabis can be more effective and safer than many pharmaceutical sleep aids. Small amounts of inhaled THC and CBN (2 .5 mg to 5 mg) can facilitate sleep latency. Edibles and tinctures are effective for helping patients stay asleep. CBD can be stimulating in 2 /3 of patients.

Clinical Implications: Chronic Pain

Research supports a synergistic interaction between cannabinoids and NSAIDs. For example, Indomethacin was shown to increase 2-AG and Anandamide levels in mice and Acetaminophen was shown to increase Anandamide levels.

Also, NSAIDs can reduce the memory impairing effects of chronic THC use.

THCa, CBDa, CBG, and CBGa can inhibit COX-2 activity by as much 30%.



Cannabis is not toxic like opioids and other non-narcotic pain medications. Unlike opioids, cannabis does not cause constipation (though it can exacerbate it), does not cause any physical dependence, and has fewer side effects. Also, there is no lethal dose of cannabis.

Clinical studies have demonstrated that patients use fewer opioids when medicating with cannabis.



A cannabis treatment depends on the type of pain.



Clinical Implications: Anxiety and Depression

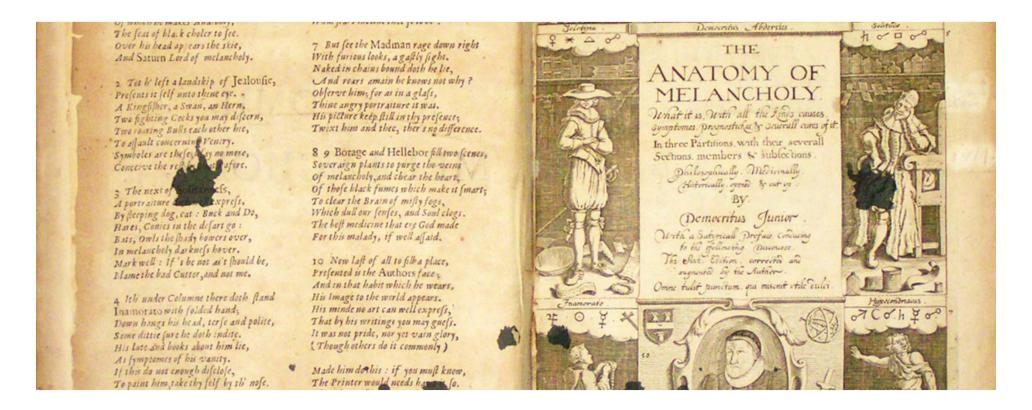


Anxiety and depression may be caused as a result of other underlying issues: pain, insomnia, other health issues, fear of aging and dying, or the loss of a spouse.

Medications prescribed for anxiety and depression are associated with severe side effects—they can be addicting and nearly impossible to wean from completely (ie, Benzodiazepines). Females typically need 30% less THC then males. Too much THC and CBD can cause anxiety.



In 1621, Robert Burton recommended cannabis for depression in *The Anatomy of Melancholy*.



Clinical Implications: Appetite and Weight Loss

Appetite issues can be a result of cancer, aging, pain, tremors, or due to a side effect.

CBD can suppress appetite. Cannabis strains with higher than normal levels of THCv can also decrease appetite.

Clinical Implications: Dementia, Alzheimer's, and Neurological Disorders

Patients can exhibit aggressive behaviors, wandering, and lack of appetite. Medications commonly prescribed to treat these issues often include a Black Box Warning.

Parkinson's tremors and rigidity affect quality of life and Carbidopa and Levodopa become less effective over time.

CBD can reduce stiffness and rigidity; THC and THCa can improve tremors.

Clinical Implications: Cancer

Cannabis can reduce side effects associated with chemotherapy, biotherapy, and radiation.

And, side effects from cancer treatment can delay treatment, lead to reduced dosing, or

even termination of treatment.



The National Cancer Institute acknowledged that cannabis may help treat cancer.



As far back as 1975, the National Cancer Institute reported that THC inhibits growth of lung cancer tumors and that bone marrow treated with cannabinoids demonstrated dose-dependent resistance to cancer.

- A laboratory study of cannabidiol (CBD) in estrogen receptor positive and estrogen receptor
 negative breast cancer cells showed that it caused cancer cell death while having little effect on
 normal breast cells. Studies in mouse models of metastatic breast cancer showed that
 cannabinoids may lessen the growth, number, and spread of tumors.
- A laboratory study of cannabidiol (CBD) in human glioma cells showed that when given along with chemotherapy, CBD may make chemotherapy more effective and increase cancer cell death without harming normal cells. Studies in mouse models of cancer showed that CBD together with delta-9-THC may make chemotherapy such as temozolomide more effective.

Clinical Implications: Cancer

Many patients experience adverse drug reactions due to increased toxicity of phannable side in the length of the l

A starting dose depends on patient experience, route, frequency, and time of day.

DOSING



Begin with a low dose, especially with patients who have little experience with cannabis.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | **Dosing** | Myths

An average dose is between 1mg and 5mg.

Discuss with your patients how much of a medicine to take, how frequently to take it, and for how long. Discuss when and under what circumstances the patient should increase her dose, as well as the predicted length of therapy. And, consider whether the route of administration is one that will be the most effective at treating her condition.

Consider any drug-to-drug interactions.



THC is metabolized by CYP2C9 and CYP3A, and THC levels can be affected by other medications metabolized through these enzymes. Also, THC can increase warfarin levels.

CBD is metabolized by CYP3A4, CYP2C9, and CYP2C19. CBD can be an inducer or inhibitor of the P450 pathway and can decrease or increase the serum levels of other medications metabolized through the P450 enzymes.



Drug interactions have been noted with the following:

Opiates
Anti-psychotics
Warfarin
Benzodiazepines

Muscle relaxers
Hypnotics
Anticholinergics
Antihypertensives

Additional documented drug interactions include:



lorazepam, quetiapine, sertraline, dexamethasome, tamoxifen, diltiazzem, pembrolizumab (Keytruda), dabrafenib (Tafinlar) and trametanib (mekinist)

Other possible interactions are seen with antidepressants, AED's, and opiates. In one case, donnatal may have decreased the effectiveness of cannabis.





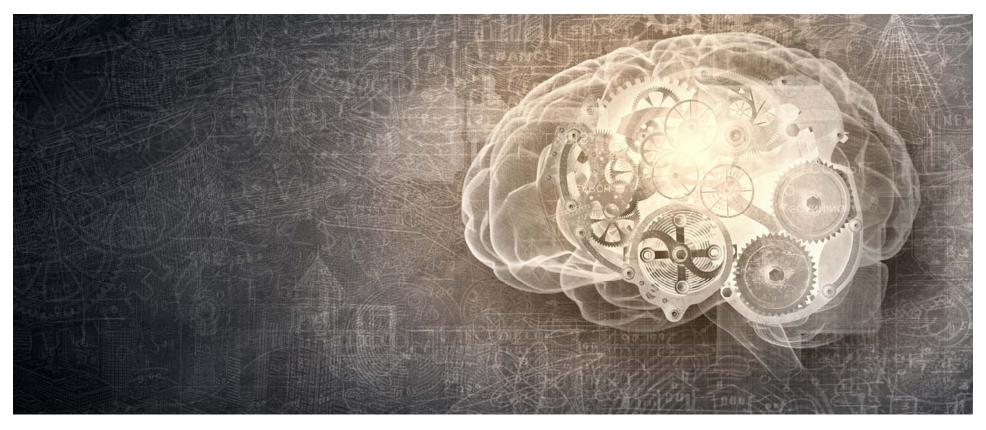
Patients should take a few small doses throughout the day.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | **Dosing** | Myths

Patients can use the same dose and ratio for several days and record the effects. RADICLEHEALTH Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Myths

Talk about possible side effects.

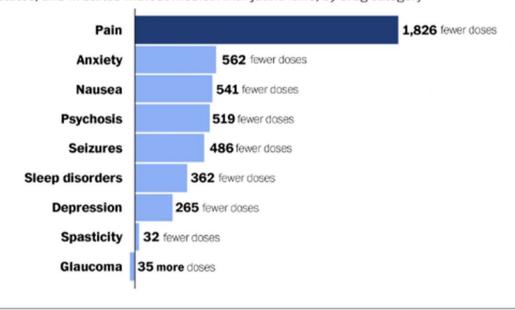


Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | **Dosing** | Myths

In legal cannabis states, patients are weaning themselves off dangerous pharmaceuticals.

Fewer pills prescribed in medical pot states

Difference between annual drug doses prescribed per physician in medical marijuana states, and in states without medical marijuana laws, by drug category



WAPO.ST/WONKBLOG

Source: Bradford and Bradford, Health Affairs, July 2016

MYTH: Cannabis Lowers Intelligence

In 2015, researchers at the UCLA and at the University of Minnesota evaluated whether cannabis use was associated with changes in intellectual performance in two cohorts of adolescent twins. Participants were assessed for intelligence at ages nine to 12, before they had any involvement with cannabis, and again at ages 17 to 20.

This was the largest ever longitudinal examination of cannabis use and IQ change. Investigators found no relationship between cannabis use and IQ decline. They also saw no significant differences in performance between cannabis-using subjects and their non-using twins.



Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths | RADICLEHEALTH

MYTH: Cannabis Is Responsible for the Opioid Epidemic

The Trump administration claim that cannabis use is leading to the rise in opioid abuse is not supported by the evidence. In fact, numerous studies have found just the opposite.

Researchers have linked cannabis access to lower rates of opioid use and of hospitalization and mortality from it. A 2016 study by the University of Michigan (Go Blue!) reported that chronic-pain patients reduced their opioid use by 64% when cannabis became available.

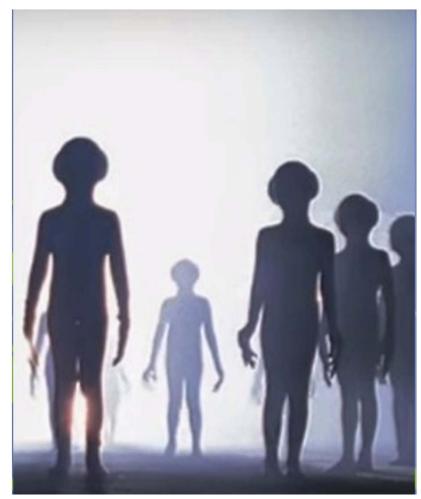


Intro | History | ECS | Cannabinoids + Terpenes | Routes | Implications | Dosing | Myths | RADICLEHEALTH

MYTH: Cannabis Legalization Is Linked to Rise in Traffic Fatalities

Data from states with legal cannabis show no increase in motor-vehicle crashes. "On average, medical-marijuana law states had lower traffic fatality rates than non-MML states," researchers at Columbia University reported in the December 2016 issue of the American Journal of Public Health.

In fact, cannabis laws are associated with reductions in traffic fatalities, especially among 25-44 yr olds. A 2011 assessment of traffic-fatality data from Colorado stated that cannabis was associated with a nearly 9% decrease in traffic fatalities, most likely due to its impact on alcohol consumption.



MYTH: CBD is Medical and THC is Recreational

There are no good cannabinoids and there are no bad cannabinoids. They can all be used to effectively treat conditions and disease. For many conditions, you must use THC to achieve relief.

Many people support medical cannabis use but do not support recreational cannabis use. Our patients use cannabis to treat symptoms related to serious conditions or disease—Parkinson's, cancer, Crohn's disease. Other patients use cannabis to treat less serious conditions but which can affect the quality of life—chronic pain, insomnia, anxiety and depression.

And some patients use cannabis because they want to improve their mood, be more communicative with their spouse, be more patient with their children.

These are all therapeutic uses for cannabis. They are all legitimate.



Questions?



Resources

American Cannabis Nurses Association

www.americancannabisnursesassociation.org

Society of Cannabis Clinicians

www.cannabisclinicians.org

Patients Out of Time

www.medicalcannabis.com

NORML

www.norml.org

Americans for Safe Access

www.safeaccessnow.org

United Patients Group

www.unitedpatientsgroup.com

