Reading Project

Medical Cannabis

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INTRODUCTION

This Project summarizes and analyzes what is known about the medical use of marijuana; it emphasizes evidence-based medicine (derived from knowledge and experience informed by rigorous scientific analysis), as opposed to belief-based medicine (derived from judgment,intuitionand beliefs untested by rigorous science).

Scientific data on controversial subjects are commonly misinterpreted, overinterpreted, and misrepresented, and medical marijuana debate is no exception. We have tried to present the scientific studies in such a way as to reveal their strengths and limitations.

Can marijuana relieve health problems? Is it safe for medical use?Although many have argued that current drug laws pertaining to marijuana are inconsistent with scientific data, it is important to understand that decisions about drug regulation are based on a variety of moral and social considerations, as well as on medical and scientific ones.

Even when a drug is used only for medical purposes, value judgments affect policy decisions concerning its medical use. For example, the magnitude of a drug's expected medical benefit affects regulatory judgments about the acceptability of risks associated with its use.

Also, although a drug is normally approved for medical use only on proof of its “safety and efficacy,” patients with life-threatening conditions are sometimes (under protocols for “compassionate use”) allowed access to unapproved drugs whose benefits and risks are uncertain. Value judgments play an even more substantial role in regulatory decisions concerning drugs, such as marijuana, that are sought and used for nonmedical purposes.Then policymakers must take into account not only the risks and benefits associated with medical use but also possible interactions between the regulatory arrangements governing medical use and the integrity of the legal controls set up to restrict non-medical use.

1.1MARIJUANA AND MEDICINE

Marijuana plants have been used since antiquity for both herbal medicationand intoxication. The current debate over the medical use of marijuana is essentially a debate over the value of its medicinal properties relative to the risk posed by its use.Marijuana’s use as an herbal remedy before the 20th century is well documented.1,10,11 However, modern medicine adheres to different standards from those used in the past. The question is not whether marijuana can be used as an herbal remedy but rather how well this remedy meets today’s standards of efficacy and safety. We understand much more than previous generations about medical risks.

Our society generally expects its licensed medications to be safe, reliable, and of proven efficacy; contaminants and inconsistent ingredients in our health treatments are not tolerated. That refers not only to prescription and over-the-counter drugs but also to vitamin supplements and herbal remedies purchased at the grocery store. For example, the essential amino acid l-tryptophan was widely sold in health food stores as a natural remedy for insomnia until early 1990 when it became linked to an epidemic of a new and potentially fatal illness (eosinophilia-myalgia syndrome).When it was removed from the market shortly thereafter, there was little protest, despite the fact that it was safe for the vast majority of the population. The 1,536 cases and 27 deaths were later traced to contaminants in a batch produced by a single Japanese manufacturer.

Although few herbal medicines meet today's standards, they have provided the foundation for modern Western pharmaceuticals. Most current prescriptions have their roots either directly or indirectly in plant remedies.7 At the same time, most current prescriptions are synthetic compounds that are only distantly related to the natural compounds that led to their development. Digitalis was discovered in foxglove, morphine in poppies, and taxol in the yew tree. Even aspirin (acetylsalicylic acid) has its counterpart in herbal medicine: for many generations, Indians relieved headaches by chewing the bark of the willow tree, which is rich in a related form of salicylic acid.

Although plants continue to be valuable resources for medical advances,drug development is likely to be less and less reliant on plants and more reliant on the tools of modern science. Molecular biology,bioinformatics software, and DNA array-based analysis of genes and chemistry are all beginning to yield great advances in drug discovery and development. Until recently, drugs could only be discovered; now they can be designed. Even the discovery process has been accelerated through the use of modern drug-screening techniques. It is increasingly possible to identify or isolate the chemical compounds in a plant, determine which compounds are responsible for the plant's effects, and select the most effective and safe compounds—either for use as purified substances or as tools to develop even more effective, safer, or less expensive compounds.

History

Although medical marijuana is illegal in many parts of the world, its use as a medicine dates back thousands of years.

As the debate over legalizing marijuana heats up, many continue to dispute the value of marijuana as a treatment for various ailments. But, as the following facts show, history tells a much clearer story.

1. The earliest record of medical marijuana comes from ancient China.

Cannabis, called *má*(meaning "hemp; cannabis; numbness") or *dàmá* (with "big; great") in Chinese, was used in Taiwan for fiber starting about 10,000 years ago. The botanist Li Hui-Lin wrote that in China, "The use of Cannabis in medicine was probably a very early development. Since ancient humans used hemp seed as food, it was quite natural for them to also discover the medicinal properties of the plant." The oldest Chinese pharmacopeia, the (CA. 100 AD) *Shennong Bencaojing*("Shennong's Materia MedicaClassic"), describes *dama* "cannabis".

"The flowers when they burst (when the pollen is scattered) are called [*mafen*] or[*mabo*]. The best time for gathering is the seventh day of the seventh month. The seeds are gathered in the ninth month. The seeds which have entered the soil are injurious to man. It grows in [Taishan] (in [Shandong] ...). The flowers, the fruit (seed) and the leaves are officinal. The leaves and the fruit are said to be poisonous, but not the flowers and the kernels of the seeds."

The early Chinese surgeon Hua Tuo (c. 140-208) is credited with being the first recorded person to use cannabis as an anesthetic. He reduced the plant to powder and mixed it with wine for administration prior to conducting surgery. The Chinese term for "anesthesia" (*mázui*) literally means "cannabis intoxication". Elizabeth Wayland Barber says the Chinese evidence "proves a knowledge of the narcotic properties of *Cannabis* at least from the 1st millennium B.C." when *ma* was already used in a secondary meaning of "numbness; senseless." "Such a strong drug, however, suggests that the Chinese pharmacists had now obtained from far to the southwest not THC-bearing *Cannabis sativa*but *Cannabis indica*, so strong it knocks you out cold.

In 2737 BC, Chinese Emperor Shennong wrote a book on medicine that included cannabisas a treatment for many conditions. According to ancient Chinese texts, cannabis was thought to be helpful for constipation, gout, rheumatism and absent-mindedness.

Interestingly, Shennong was not only an emperor but a pharmacologist as well. He was said to have tried hundreds of herbs on himself in order to test their medical value.

2. Ancient Egyptians were the first to use cannabis as a treatment for tumors.

The 2nd century Fayyum Medical Papyrus, an ancient Egyptian text, is believed to contain the earliest record of cannabis as an ingredient in cancer medicine.

While little is known about the successes of ancient Egyptian cancer treatments, cannabis continues to receive significant interest as a cancer therapy today.Around 2,000 BCE, the ancient Egyptians used cannabis to treat sore eyes. The Egyptologist Lise Manniche notes the reference to "plant medical cannabis" in several Egyptian texts, one of which dates back to the eighteenth century BCE.

3. Cannabis was used as a veterinary medicine in ancient Greece.

The ancient Greeks used cannabis to dress wounds and sores on their horses after battle. The plant was also given to humans for a variety of ailments, including ear pain and inflammation. Interestingly, the practice of medical cannabis is believed to have spread to Arabic countries from ancient Greece.

4. Medical marijuana was introduced to Western medicine in the mid-1800s.

In the 1830s, an Irish physician by the name of William Brooke O'Shaughnessy observed the use of medical marijuana during a trip to India.

After studying its effects, he introduced cannabis to physicians in England as a treatment for a wide range of conditions, including muscle spasms, rheumatism, epilepsy and pain. As early reports of its effectiveness were published, the popularity of cannabis-based medicines quickly spread across Europe and North America.

5. The name 'indica' refers to Indian cannabis.

Cannabis was a major component in religious practices in ancient India as well as in medicinal practices. For many centuries, most parts of life in ancient India incorporated cannabis of some form. Surviving texts from ancient India confirm that cannabis' psychoactive properties were recognized, and doctors used it for treating a variety of illnesses and ailments.

These included insomnia, headaches, a whole host of gastrointestinal disorders, and pain: cannabis was frequently used to relieve the pain of childbirth. One Indian philosopher expressed his views on the nature and uses of bhang (a form of cannabis), which combined religious thought with medical practices. "A guardian lives in the bhang leaf. …To see in a dream the leaves, plant, or water of bhang is lucky. …A longing for bhang foretells happiness. It cures dysentery and sunstroke, clears phlegm, quickens digestion, sharpens appetite, makes the tongue of the lisper plain, freshens the intellect and gives alertness to the body and gaiety to the mind. Such are the useful and needful ends for which in His goodness the Almighty made bhang."

The name Cannabis indica was originally thought up by a French biologist in 1785. Jean-Baptiste Lamarck was also visiting India when he observed a difference between locally-grown cannabis and its European cousin, the hemp plant.

European hemp was mostly used for agricultural purposes and was known at the time as Cannabis sativa. Lamarck decided to classify the Indian species separately, giving it the name Cannabis indica.

6. Cannabis was listed in the United States Pharmacopeia from 1851 until 1941.

The United States Pharmacopeia (USP) provides a list of acceptable medical products each year, and cannabis was recognized in many of its earliest editions. But while cannabis preparations were widely prescribed in the late 1800s, they began to be replaced by synthetic drugs during the 20th century.

2.1 Modern History:-

In the mid 19th century, medical interest in the use of cannabis began to grow in the West. In the 19th century cannabis was one of the secret ingredients in several so called patent medicines. There were at least 2000 cannabis medicines prior to 1937, produced by over 280 manufacturers. The advent of the syringe and injectable medicines contributed to an eventual decline in the popularity of cannabis for therapeutic uses, as did the invention of new drugs such as aspirin.

An Irish physician, William Brooke O'Shaughnessy, is credited with introducing the therapeutic use of cannabis to Western medicine. He was Assistant-Surgeon and Professor of Chemistry at the Medical College of Calcutta, and conducted a cannabis experiment in the 1830s, first testing his preparations on animals, then administering them to patients to help treat muscle spasms, stomach cramps or general pain. Modern medical and scientific inquiry began with doctors like O'Shaughnessy and Moreau de Tours,who used it to treatmelancholia and migraines, and as a sleeping aid, analgesic and anticonvulsant.

At the local level authorities introduced various laws that required the mixtures that contained cannabis, that was not sold on prescription, must be marked with warning labels under the so-called poison laws. In 1905 Samuel Hopkins Adams published an expose entitled "The Great American Fraud" in *Collier's Weekly* about the patent medicines that led to the passage of the first Pure Food and Drug Act in 1906.This statute did not ban the alcohol, narcotics, and stimulants in the medicines; rather, it required medicinal products to be labeled as such and curbed some of the more misleading, overstated, or fraudulent claims that previously appeared on labels.

Later in the century, researchers investigating methods of detecting cannabis intoxication discovered that smoking the drug reduced intraocular pressure. In 1955 the antibacterial effects were described at the Palacký University of Olomouc. Since 1971Lumír Ondřej Hanuš was growing cannabis for his scientific research on two large fields in authority of the University. The marijuana extracts were then used at the University Hospital as a cure for aphthae and haze. In 1973 physician Tod H. Mikuriya reignited the debate concerning cannabis as medicine when he published "Marijuana Medical Papers". High intraocular pressure causes blindness in glaucoma patients, so he hypothesized that using the drug could prevent blindness in patients. Many Vietnam War veterans also found that the drug prevented muscle spasms caused by spinal injuries suffered in battle.

Later, in the 1970s, a synthetic version of THC was produced and approved for use in the United States as the drug Marinol. It was delivered as a capsule, to be swallowed. Patients complained that the violent nausea associated with chemotherapy made swallowing capsules difficult. Further, along with ingested cannabis, capsules are harder to dose-titrate accurately than smoked cannabis because their onset of action is so much slower. Smoking has remained the route of choice for many patients because its onset of action provides almost immediate relief from symptoms and because that fast onset greatly simplifies titration. For these reasons, and because of the difficulties arising from the way cannabinoids are metabolized after being ingested, oral dosing is probably the least satisfactory route for cannabis administration.

Relatedly, some studies have indicated that at least some of the beneficial effects that cannabis can provide may derive from synergy among the multiplicity of cannabinoids and other chemicals present in the dried plant material.

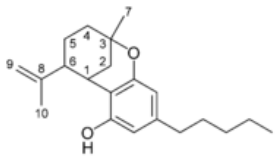
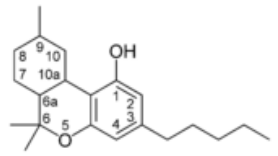
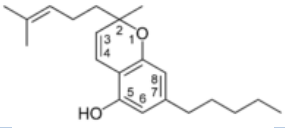
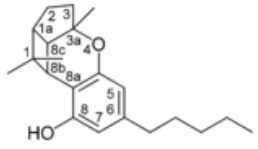
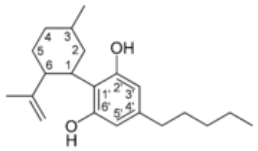
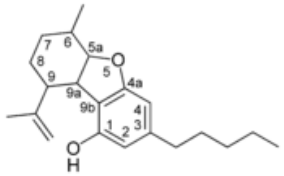
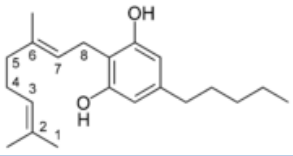
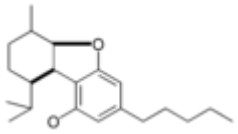
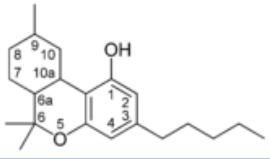
Among the more than 108,000 persons in Colorado who in 2012 had received a certificate to use marijuana for medical purposes, 94% said that severe pain was the reason for the requested certificate, followed by 3% for cancer and 1% for HIV/Aids. The typical card holder was a 41-year-old male. Twelve doctors had issued 50% of the certificates. Opponents of the card system claim that most card holders are drug abusers who are faking or exaggerating their illnesses; three-fourths male patients is not the normal pattern for pain patients, it is the normal pattern for drug addicts, claim the critics.

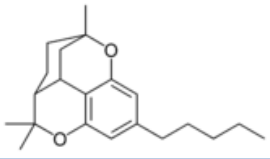
3.CANNABIS AND THE CANNABINOIDS

Marijuana is the common name for Cannabis sativa, a hemp plant that grows throughout temperate and tropical climates. The most recent review of the constituents of marijuana lists 66 cannabinoids .

But that does not mean there are 66 different cannabinoid effects or interactions.Most of the cannabinoids are closely related; they fall into only 10 groups of closely related cannabinoids, many of which differ by only a single chemical moiety and might be midpoints along biochemical pathways—that is, degradation products, precursors, or byproducts.16,18 Δ9-tetrahydrocannabinol (Δ9-THC) is the primary psychoactive ingredient;depending on the particular plant, either THC or cannabidiol is the most abundant cannabinoid in marijuana . Throughout this report,THC is used to indicate Δ9-THC. In the few cases where variants of THC are discussed, the full names are used. All the cannabinoids are lipophilic—they are highly soluble in fatty fluids and tissues but not in water.Indeed, THC is so lipophilic that it is aptly described as “greasy.”

Cannabinoids Identified in Cannabis:-

Cannabinoid Group	Common Abbreviation	No. of Known Variants in Each Group	
Δ9-Tetrahydrocannabinol	Δ9-THC	9	
Δ8-Tetrahydrocannabinol	Δ8-THC	2	
Cannabichromene	CBC	5	
Cannabicyclol	CBL	3	
Cannabidiol	CBD	7	
Cannabielsoin	CBE	5	
Cannabigerol	CBG	6	
Cannabinidiol	CBND	2	
Cannabinol	CBN	7	

Cannabitriol	CBT	9	
Miscellaneous types		11	
Total		66	

marijuana refers to unpurified plant extracts,including leaves and flower tops, regardless of how they are consumed—whether by ingestion or by smoking. References to the effects of marijuana should be understood to include the composite effects of its various components; that is, the effects of THC are included among the effects of marijuana, but not all the effects of marijuana are necessarily due to THC.Discussions concerning cannabinoids refer only to those particular compounds and not to the plant extract. This distinction is important; it is often blurred or exaggerated.

Cannabinoids are produced in epidermal glands on the leaves (especially the upper ones), stems, and the bracts that support the flowers of the marijuana plant. Although the flower itself has no epidermal glands,it has the highest cannabinoid content anywhere on the plant, probably because of the accumulation of resin secreted by the supporting bracteole (the small leaf-like part below the flower). The amounts of cannabinoids and their relative abundance in a marijuana plant vary with growing conditions,including humidity, temperature, and soil nutrients (reviewed in Pate, 199414). The chemical stability of cannabinoids in harvested plant material is also affected by moisture, temperature, sunlight, and storage.They degrade under any storage condition.

Types of Cannabinoids:-

All classes derive from cannabigerol-type compounds and differ mainly in the way this precursor is cyclized.The classical cannabinoids are derived from their respective 2-carboxylic acids(2-COOH) by decarboxylation(catalyzed by heat, light, or alkaline conditions).

- CBG (Cannabigerol):-

  Cannabigerol (CBG) is non-psychoactive but still affects the overall effects of Cannabis. CBG has been shown to promote apoptosis in cancer cells and inhibit tumor growth in mice. It acts as an α_2-adrenergic receptor agonist, 5-HT_{1A} receptor antagonist, and CB_1receptor antagonist. It also binds to the CB_2 receptor.

- CBC (Cannabichromene):-

  Cannabichromene (CBC) is non-psychoactive and does not affect the psychoactivity of THC.CBC has shown antitumor effects in breast cancer xenoplants in mice. More common in tropical cannabis varieties.

- CBL (Cannabicyclol):-

  Cannabicyclol (**CBL**) is a non-psychoactivecannabinoid found in *Cannabis*. CBL is a degradative product like cannabinol. Light converts cannabichromene into CBL.

- CBV (Cannabivarin):-

  Cannabivarin, also known as **cannabivarol** or **CBV**, is a non-psychoactivecannabinoid found in minor amounts in the hemp plant*Cannabis sativa*. It is an analog of cannabinol (CBN) with the side chain shortened by two methylene bridges (-CH_2-). CBV is anoxidation product of tetrahydrocannabivarin (THCV, THV).

- THCV (Tetrahydrocannabivarin):-

  Tetrahydrocannabivarin (**THCV**, **THV**) is a homologue of tetrahydrocannabinol (THC) having a propyl (3-carbon) side chain instead of a pentyl (5-carbon) group on the molecule, which makes it produce very different effects from THC.This terpeno-phenolic compound is found naturally in *Cannabis*, sometimes in significant amounts.

- CBDV (Cannabidivarin):-

  cannabidivarin (CBDV) is usually a minor constituent of the cannabinoid profile, enhanced levels of CBDV have been reported in feral cannabis plants from the northwest Himalayas, and in hashish from Nepal.

- CBCV (Cannabichromevarin):-

  “Phytocannabinoids, also called ”natural cannabinoids”, ”herbal cannabinoids”, and ”classical cannabinoids”, are only known to occur naturally in significant quantity in the cannabis plant, and are concentrated in a viscous resin that is produced in glandular structures known as trichomes.In addition to cannabinoids, the resin is rich in terpenes, which are largely responsible for the odour of the cannabis plant.Phytocannabinoids are nearly insoluble in water but are soluble in lipids, alcohols, and other non-polar organic solvents. However, as phenols, they form more water-soluble phenolate salts under strongly alkaline conditions.

- CBGV (Cannabigerovarin)
- CBGM (Cannabigerol Monomethyl Ether)

Cannabinoid receptors:-

The discovery of the first cannabinoid receptors in the 1980s.These receptors are common in animals, and have been found in mammals, birds,fish,reptiles. At present, there are two known types of cannabinoid receptors, termed CB-1 and CB-2. The human brain has more cannabinoid receptors than any other G protein-coupled receptor(GPCR) type.

1.Cannabinoid receptor type 1:-

CB_1 receptors are found primarily in the brain, more specifically in the basal ganglia and in the limbicsystem including the hippocampus.They are also found in the cerebellum and in both male and female reproductive systems.CB_1 receptors are absent in the medulla oblongata, the part of the brain responsible for respiratory and cardiovascular functions.

2.Cannabinoid receptor type 2:-

CB_2 receptors are predominantly found in the immune system or immune-derived cells with the greatest density in the spleen.While found only in the peripheral nervous system, a report does indicate that CB_2 is expressed by a subpopulation of microglia in the human cerebellum.CB_2 receptors appear to be responsible for the anti-inflammatory and possibly other therapeutic effects of cannabis seen in animal models.

4.THE MEDICAL VALUE OF MARIJUANA AND RELATED SUBSTANCES

Medical cannabis has several potential beneficial effects. Evidence is moderate that it helps in chronic pain and muscle spasms.Lesser evidence supports its use for reducing nausea during chemotherapy, improving appetite in HIV/AIDS, improving sleep, and improving tics in Tourettes syndrome.

The National Institute on Drug Abuse (NIDA) states that cannabis is unlikely to be useful as medicine as "(1) it is an unpurified plant containing numerous chemicals with unknown health effects; (2) it is typically consumed by smoking further contributing to potential adverse effects; and (3) its cognitive impairing effects may limit its utility." Due to risks and little evidence supporting its use theAmerican Society of Addiction Medicine in March 2011 recommending a halt on use of marijuana as medication in the United States, even in states where it had been declared legal. It is recommended that cannabis use be stopped in pregnancy.

4.1 Diseases Cured :-

People with HIV have long realized that cannabis can ease many HIV-related conditions, including nausea, loss of appetite, depression, weight loss, and neuropathic pain,Cancer. In addition to treating common symptoms of HIV and side effects of antiretroviral drugs, research indicates that cannabis may help fight HIV itself.

1.Nausea and vomiting:-

Medical cannabis is somewhat effective in chemotherapy-induced nausea and vomiting (CINV) and may be a reasonable option in those who do not improve following preferential treatment. Comparative studies have found cannabinoids to be more effective than some conventional antiemetics such as prochlorperazine, promethazine, and metoclopramide in controlling CINV, but these are used less frequently because of side effects including dizziness, dysphoria, and

hallucinations.Long-term cannabis use may cause nausea and vomiting, a condition known as cannabinoid hyperemesis syndrome.

A 2010 Cochrane review said that cannabinoids were "probably effective" in treating chemotherapy-induced nausea in children, but with a high side effect profile (mainly drowsiness, dizziness, altered moods, and increased appetite). Less common side effects were "occular problems, orthostatic hypotension, muscle twitching, pruritis, vagueness, hallucinations, lightheadedness and dry mouth".

2.Pain:-

Cannabis appears to be somewhat effective for the treatment of chronic pain, including pain caused by neuropathy and possibly that due to fibromyalgia and rheumatoid arthritis. A 2009 review states it was unclear if the benefits were greater than the risks, while a 2011 review considered it generally safe for this use. In palliative care the use appears safer than that of opioids. A 2014 review found limited and weak evidence that smoked cannabis was effective for chronic non-cancer pain.

The review recommended that it be used for people for whom cannabinoids and other analgesics were not effective. A 2015 review found moderate quality evidence that cannabinoids were effective for chronic pain.A 2015 meta-analysis found that inhaled medical cannabis was effective in reducing neuropathic pain in the short term for one in five to six patients.Another 2015 systematic review and meta-analysis found limited evidence that medical cannabis was effective for neuropathic pain when combined with traditional analgesics.

3.Neurological problems:-

The efficacy of cannabis in treating neurological problems, including multiple sclerosis, epilepsy, and movement problems, is not clear. Studies of the efficacy of cannabis for treating multiple sclerosis have produced varying results. The combination of Δ9-tetrahydrocannabinol (THC) and cannabidiol (CBD) extracts give subjective relief of spasticity, though objective post-treatment assessments do not reveal significant changes. Evidence also suggests that oral cannabis extract is effective for reducing patient-centered measures of spasticity.A trial of cannabis is deemed to be a reasonable option if other treatments have not been effective.Its use for MS is approved in ten countries. A 2012 review found no problems with tolerance, abuse or addiction.

4.HIV/AIDS:-

An increasing number of scientific studies, conducted at well-known institutions and published in prominent medical journals, are revealing antiviral effects of cannabis against HIV. These studies detail diverse approaches in measuring favorable effects that cannabis may have in slowing HIV disease progression.

THC in monkeys may lessen HIV's damage in the gut.

During primary infection HIV attacks the gut-associated lymphoid tissue (GALT), where a substantial amount of the immune system is located, hitting CD4 cells hard and early during this process.

A study funded by the National Institutes of Health and the National Institute on Drug Abuse and published in AIDS Research and Human Retroviruses in 2014 found that THC, the best-known component of cannabis, had a positive effect on GALT in rhesus monkeys that were infected with SIV, the simian version of HIV, after 17 months of receiving THC. Checking the monkeys five months later, researchers from the Louisiana State University Health Sciences Center found that THC produced a generalized decrease in viral load and tissue inflammation and increased production of disease-fighting CD4 and CD8 central memory T cells in GALT.

How block HIV Entry??

The effects of cannabis are a result of interactions between cannabinoids and receptors located on many cells, including macrophages (a tissue cell of the immune system) and CD4 cells called cannabinoid receptor 1 (CB1) and cannabinoid receptor 2 (CB2). Researchers at New York City's Mount Sinai School of Medicine published data in 2012 demonstrating that stimulation of CB2 with compounds called cannabinoid receptor agonists can block the signaling process between HIV and CXCR4, one of the main types of receptors that allow HIV to enter and infect a cell. CXCR4 is used by HIV during advanced disease and allows for faster disease progression.

By stimulating activation of CB2 with cannabinoid receptor antagonists, Mount Sinai researchers decreased the ability of HIV to infect cells that utilize CXCR4, reducing the frequency of infected cells by 30 to 60 percent.

The future of cannabis in HIV??

Although Big Pharma is yet to make a serious commitment to the study of cannabis for the treatment of disease, many universities and a small number of biotech companies are investing in the research and development of cannabinoid-based medications. One such company has taken an interest in cannabis and HIV.

Dr. Donald Abrams Tells Us How Medical Marijuana Helps AIDS Patients:-https://www.youtube.com/watch?v=oAOGESbo22k

5.Hepatits C :-

Hepatitis C is a viral disease caused by the hepatitis virus that leads to inflammation of the liver. The hepatitis C virus (HCV) is a blood borne virus that is most commonly transmitted through unsafe injection practices, but can also be transmitted through unprotected sex with an infected individual.

HCV can cause both acute and chronic infections. The acute HCV virus is typically asymptomatic and only in rare cases is it life threatening. Fifteen to 45% of those with an acute HCV infection will clear themselves of the virus within 6 months and without any treatment. The remaining 55 to 85% of people will have their virus develop into chronic HCV infection, and 15 to 30% of those individuals will develop cirrhosis within 20 years. Chronic HCV can also develop into liver cancer.

Research suggests that cannabis has the potential of offering therapeutic benefits to patients with HCV and other liver diseases (Mallat, et al., 2011). The two major cannabinoids found in cannabis, tetrahydrocannabinol (THC) and cannabidiol (CBD) bind with or influence the cannabinoid receptors (CB1 and CB2) of the endocannabinoid system within the body. CB2 receptor activation has demonstrated anti-inflammatory and beneficial effects on alcoholic fatty liver, hepatic inflammation, liver injury, regeneration and fibrosis. A research review determined that the cannabinoids found within cannabis look to tame aspects of chronic liver disease (Zamora-Valdes, et al., 2005).

One study found that cannabinoids' anti-inflammatory properties effectively reduce inflammation of a damaged liver and researchers therefore suggested that cannabis could be developed as a potential drug for hepatitis (Lavon, et al., 2003).

Previous studies had actually implicated cannabis in the progression of cirrhosis, fibrosis, and other liver diseases (Fischer, et al., 2006). However, more recent research has found no link to marijuana smoking and the progression of liver disease (Brunet, et al., 2013). In addition, researchers have expressed that the potential treatment benefits of cannabis on hepatitis C outweigh the risks earlier studies had suggested (Fischer, et al., 2006).

Cannabis has also been reported as helping patients with hepatitis C manage the nausea and other symptoms associated with the antiviral treatment (Schnelle, Grotenhermen, Reif & Gorter, 1999).

In what is likely due to this symptom relief offered by cannabis, use of cannabis was found to significantly affect whether patients with hepatitis C were able to stick with their treatment prescription (Sylvestre, Clements & Malibu, 2006)

In US 9 states have approved medical marijuana specifically for the treatment of hepatitis C .

6.Arthritis:-

Arthritis refers to a wide range of illnesses that involve the inflammation of one or more joints in our bodies

Cannabidiol's anti-inflammatory properties have pointed scientists toward the possibility of CBD being used to slow or even reverse the symptoms of arthritis, and even though cannabidiol arthritis research is still in early stages, the initial results seem very promising.

Studies conducted in lab rats have shown that CBD drastically reduces a model of acute arthritis that applies to numerous different types of joint disorders. While these studies imply that CBD may only indirectly affect arthritis, the findings themselves are encouraging. Nonetheless, the exact mechanisms with which Cannabidiol interacts with arthritis are still not fully understood.

One other indirect benefit that CBD seems to have when administered for arthritis is that it has been shown to reduce the pain caused by several types of arthritis, including the prevalent rheumatoid arthritis. Still, it is not yet clear whether CBD's anti-inflammatory properties or its analgesic effects play the biggest part in alleviating arthritis-induced.

Some studies point toward both and if that is eventually proven, it may render CBD a widely accepted treatment for both arthritis and a host of arthritis-related pains.

All in all, Cannabidiol seems a very promising alternative to treating arthritis and long-term joint inflammations in general. Some cannabidiol arthritis studies have even demonstrated surprisingly positive results.

7.Asthma:-

In British Journal of Pharmacology, a new study shows marijuana may have a similar effect on the airways as some asthma medications.

Using samples of human lung tissue, French researchers found that THC could block muscle contractions caused by a signaling molecule called acetylcholine.

Acetylcholine is responsible for maintaining muscle tone of the airways and also contributes to contractions in asthma attacks. Interestingly, asthma medications block the same molecule, but from a slightly different angle.

8.Diarrhea:-

According to weedblog.com in the Indian Medical Gazette which provides actual evidence on how cannabis is used to treat diarrhea.

Dr. Turner, who worked at the Holloway Dispensary, came across a number of cases in which diarrhea was not only the main but also the underlying problem of many illnesses. He came up with a formula whose main component was cannabis. And it worked.

Diarrhea is most common during the summer, followed by a fair amount of depression, cramps and nausea. With the usage of cannabis, these symptoms have not only subsided but the overall condition of the patient improved greatly.

How did it work? Basically, diarrhea makes you lose your appetite, weed speeds up your digestive tract and makes you hungry, so you cure yourself.

9.Tinnitus:-

Medical marijuana may help in the management of tinnitus, as suggested by a 2009 study by a leading tinnitus researcher. The study showed that auditory circuits in the brain are involved in tinnitus, and an auditory imbalance causes the constant ringing in the ears.The study involved the use of mice with tinnitus and demonstrated that the endocannabinoid system that controls brain elasticity will react favorably with medical marijuana, providing relief from tinnitus. Some the conditions that cause tinnitus may be managed with medical marijuana and complications arising from tinnitus can also be eased with the use of medical marijuana.

10.Obesity:-

A **study** published in *Obesity* in December 2014 presents evidence that cannabis use may lead to lower rates of **obesity**.

Researchers used data gathered in 2004 from 786 Inuit adults, using the Nunavik Inuit Health Survey, and found that use was very common, with 57.4% of adults being cannabis users. They also found that cannabis use was associated with:

- a lower body mass index (**BMI**)- i.e. users weigh less than non-users for their given height
- a lower percentage of fat mass
- a lower amount of insulin in the blood when not eating, suggesting a decreased **chance** of having/developing prediabetes
- a lower homeostasis model assessment of insulin resistance (**HOMA-IR**), a measure of insulin resistance, also suggesting a decreased chance of having/developing prediabetes

However, after the researchers controlled for the effect of BMI, there were no differences in fasting insulin or in HOMA-IR between cannabis users and non-users. This detail signifies that the reason why cannabis users showed lower fasting insulin and lower HOMA-IR was not a direct result of cannabis use, but rather the result of a lower BMI potentially influenced by cannabis use.

Therefore, the study supports the idea that cannabis use directly leads to a lower BMI, which itself then leads to a decreased chance of having or developing prediabetes.

11.Cancer:-

There is no doubt that cannabinoids – both natural and synthetic – are interesting biological molecules. Hundreds of scientists around the world are investigating their potential in cancer and other diseases – as well as the harms they can cause – brought together under the blanket organizationThe International Cannabinoid Research Society.

Researchers first looked at the anticancer properties of cannabinoids back in the 1970s, and many hundreds of scientific papers looking at cannabinoids and cancer have been published since then. This Wellcome Witness seminar is also fascinating reading for aficionados of the history of medical cannabis, including the scientific, political and legal twists.

The scientific journal Nature has also published a supplement containing a number of review articles about various aspects of cannabis. It's free to access and worth a read.

But claims that this body of preclinical research is solid "proof" that cannabis or cannabinoids can cure cancer is highly misleading to patients and their families, and builds a false picture of the state of progress in this area. For example, we've taken a look at more than 30 scientific papers that are often claimed to "prove" that cannabis cures various types of cancer.

Lab Reseach:-

Virtually all the scientific research investigating whether cannabinoids can treat cancer has been done using cancer cells grown in the lab or animal models. It's important to be cautious when extrapolating these results up to real live patients, who tend to be a lot more complex than a Petri dish or a mouse.

Virtually all the research into cannabinoids and cancer so far has been done in the lab.

Through many detailed experiments, handily summarized in this recent article in the journal Nature Reviews Cancer, scientists have discovered that various cannabinoids (both natural and synthetic) have a wide range of effects in the lab, including:

- Triggering cell death, through a mechanism called apoptosis
- Stopping cells from dividing
- Preventing new blood vessels from growing into tumours
- Reducing the chances of cancer cells spreading through the body, by stopping cells from moving or invading neighboring tissue
- Speeding up the cell's internal 'waste disposal machine' – a process known as autophagy – which can lead to cell death

All these effects are thought to be caused by cannabinoids locking onto the CB1 and CB2 cannabinoid receptors. It also looks like cannabinoids can exert effects on cancer cells that don't involve cannabinoid receptors, although it isn't yet clear exactly what's going on there.

So far, the best results in the lab or animal models have come from using a combination of highly purified THC and cannabidiol (CBD), a cannabinoid found in cannabis plants that counteracts the psychoactive effects of THC. But researchers have also found positive results using synthetic cannabinoids, such as a molecule called JWH-133.

It's not all good news though, as there's also evidence that cannabinoids may also have undesirable effects on cancer.

For example, some researchers have found that although high doses of THC can kill cancer cells, they also harm crucial blood vessel cells, although this may help their anti-cancer effect by preventing blood vessels growing into a tumor. And under some circumstances, cannabinoids can actually encourage cancer cells to grow, or have different effects depending on the dosage and levels of cannabinoid receptors present on the cancer cells.

Others have discovered that activating CB2 receptors may actually interfere with the ability of the immune system to recognize and destroy tumor cells, although some scientists have found that certain synthetic cannabinoids may enhance immune defenses against cancer.

Furthermore, cancer cells can develop resistance to cannabinoids and start growing again, although this can be got round by blocking a certain molecular pathway in the cells known as ALK.

And yet more research suggests that combining cannabinoids with other chemotherapy drugs may be a much more effective approach. This idea is supported by lab experiments combining cannabinoids with other drugsincluding gemcitabineand temozolomide.

As might be expected, whenever research about cannabis or cannabinoids hits the news there is a lot of interest on social media. But often it turns out that the hype doesn't realistically reflect the work.

For example, this study from researchers at the University of East Anglia was done using cancer cells grown in the lab or transplanted into mice, to try and understand why different levels of purified THC seem to have different effects on cancer cells – something that has been noticed from previous experiments on cannabinoids and cancer cells.

The researchers found that THC seems to work through two different receptor molecules coming together – CB2 and GPR55 – and that high doses slow cancer cells growth while low doses don't. So they think that designing drugs that make sure the receptors come together in the right way to kill cancer cells could be a good way to harness the potential power of cannabinoids to treat cancer in a much more effective and targeted way.

But while it's an interesting scientific paper and helps to shed light on the molecular "nuts and bolts" that underpin how some cancer cells may respond to cannabinoids, and could point to ways to make cannabinoid drugs more effective in the future, it certainly doesn't tell us that cannabis can effectively treat cancer in patients at the moment.

There are long lists of scientific papers circulating on various internet sites claiming that they "prove" that "cannabis cures" all sorts of different types of cancer. Virtually all this work has been done in cells grown in the lab or in animal models of cancer, and certainly doesn't "prove" that cannabis or cannabinoids can cure cancer in patients. We've looked at the actual evidence presented in around 30 of these papers in the extensive comment below this post.

Clinical Research:-

But that's the lab – what about clinical research involving people with cancer? Results have been published from only one clinical trial testing whether cannabinoids can treat cancer in patients, led by Dr Manuel Guzman and his team in Spain. Nine people with advanced, terminal glioblastoma multiforme – an aggressive brain tumor – were given highly purified THC through a tube directly into their brain.

Eight people's cancers showed some kind of response to the treatment, and one didn't respond at all. **All the patients died within a year, as might be expected for people with cancer this advanced.**

The results from this study show that THC given in this way is safe and doesn't seem to cause significant side effects. But because this was an early stage trial, without a control group, it's impossible to say whether THC helped to extend their lives. And while it's certainly not a cure, the trial results suggest that cannabinoids are worth pursuing in clinical trials.

There is also a published case report of a 14-year old girl from Canada who was treated with cannabis extracts (also referred to as "hemp oil"), but there is limited information that can be obtained from a single case treated with a varied mixture of cannabinoids. More published examples with detailed data are needed in order to draw a fuller picture of what's going on.

Here in the UK, Dr Wai Liu at St George's University is researching cannabis and cannabinoids for treating cancer .

A handful of other clinical trials of cannabinoids are currently being set up. We are helping to support the only two UK trials of cannabinoids for treating cancer, through our Experimental Cancer Medicine Centre (ECMC) Network funded by Cancer Research UK and the devolved Departments of Health. One early-stage trial is testing a synthetic cannabinoid called dexanabinolin patients with advanced cancer, and the other is an early-stage trial testing a cannabis extract called Sativex for treating people with glioblastoma multiforme brain tumours

Cannabis oil:-

Cannabis oil is a thick, sticky, resinous substance made up of a high concentration of cannabinoids, such as THC and CBD, extracted from the cannabis plant (Cannabis sativa or Cannabis indica). Cannabis oil is a cannabis based product obtained by separating the resins from cannabis flowers using a solvent extraction process.Cannabis oil can also be known as marijuana oil, weed oil, pot oil, Rick Simpson Oil (RSO), Full extract cannbais oil (FECO), honey oil, hash oil, dabs, shatter, or wax.

Cannabis oil is the most potent of three main cannabis products, which are the actual cannabis flower (marijuana), resin (hashish), and oil (cannabis oil). Cannabis oil is the most concentrated form of the three main cannabis products. That is what makes cannabis oil the most potent.

Cannabis Oil produced and sold by "dealers" can have many contaminants and lots of times have little or no THC in them. Most of the time cannabis oil available on the street should be avoided for medicinal uses such as treating cancer. It's always better to make your own oil or to have someone you trust make your oil. This helps assure a very pure, high quality oil is obtained. If you know who made your oil, you can better know what your getting in your oil.

High quality cannabis oil can be used in many ways medicinally and can be used for many different conditions. Cannabis Oil can be orally ingested, vaporized into the lungs, used as a suppository or applied topically. You can also mix your oil with creams or salves for beauty treatments and other external uses.

Some of the conditions cannabis oil has been used for include: cancer, diabetes, crohn's disease, gout, pain relief, Glaucoma, Opioid Dependence, treating alcohol abuse, epilepsy, psoriasis, anorexia, asthma, adrenal disease, inflammatory bowel disease, fibromyalgia, rheumatoid arthritis, pain, migraines, Dravet syndrome, Doose syndrome, Multiple sclerosis.

Cannabis oil also posses antioxidant properties. This property makes cannabis oil useful in the treatment and prevention of wide variety of diseases, such as ischemic, age-related inflammatory and autoimmune diseases. Cannabis oil may also have a use as neuroprotectants for such things like limiting neurological damage following a stroke or head trauma. It can also be used in the treatment of neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease and HIV dementia.

Based on history cannabis is believed to have originated from Central Asia. Cannabis is one of the oldest plant medicines known to man. It is difficult to trace the beginnings of cannabis use use by humans because it was cultivated and consumed long before the appearance of writing.

12.Diabetes:-

There is emerging evidence that cannabidiol may help slow cell damage in diabetes mellitus type 1.There is a lack of meaningful evidence of the effects of medical cannabis use on people with diabetes; a 2010 review concluded that "the potential risks and benefits for diabetic patients remain unquantified at the present time".

GW is studying tetrahydrocannabivarin for type 2 diabetes.

There is many other diseases that can also be cured by cannabis.Research is continue.....

You can see how many may be cured by cannabis:-

http://www.unitedpatientsgroup.com/resources/illnesses-treatable

5. Test cases

1.The Kelly Hauf Story: How she Beat Brain Cancer Naturally with Cannabis Oil :-

My name is Kelly, I'm 52 years old, and I would like to share my amazing story with you.

On January 18, 2000, after a severe headache prompted a CAT scan, a 3cmtumor was discovered in the left frontal lobe of my brain. I was 38 years old. My two daughters were ages 15 and 12. Immediate brain surgery was recommended by my surgeon. However, after further discussion, due to slow growth and no adjacent edema, he felt it would not be negligent to postpone surgery and monitor the tumor every 3 months with an MRI. The tumor remained stable for a little over three years then suddenly grew 25%.

On September 4, 2003, when I was 41, on my husband's 42nd birthday, I had surgery at Cedars Sinai in Los Angeles. I spent the next day, our 19th wedding anniversary in ICU. The pathology report came back an Oligodendroglioma grade 2. The surgery was an apparent success and neither radiation nor chemotherapy were recommended. However, since it's unlikely every cancer cell can be detected and removed, and the nature of gliomas are to grow back over time, it was necessary to continue MRI monitoring every 3 months. Living from MRI to MRI had become our "normal".

All MRI reports remained stable until November 2013 when my quarterly MRI came back showing regrowth of the tumor. My brain surgeon in Los Angeles recommended 4-6 months of chemotherapy, and if that didn't work, another brain surgery to go in and clean up the regrowth would be considered. He also gave me anti-seizure medication for auras that had started to manifest as strong unexplainable odors. My doctor described this experience as an olfactory seizure. While researching Charlotte's Web cannabis oil as an alternative to the prescribed seizure medicine I also found out that cannabis oil was also showing promise as a cancer treatment and could be an alternative to chemotherapy. I was living in a state that did not have legal access to cannabis but my youngest daughter, Jillian, was living in San Francisco where medical marijuana was legal.

When Jillian came home for Christmas she and my husband, Rick, decided it was time for me to make a decision to do something. I wasn't ready to decide anything just yet. I wanted to have Christmas with my family. The day after Christmas I made up my mind to drive out to California to investigate cannabis oil as a treatment. My husband took an emergency leave of absence from his job. We then put away the Christmas tree ornaments, cleaned the house, loaded up the car, and headed to California. We talked with doctors, met with support groups taking the oil, read articles about successful brain tumor results in Spain and Amsterdam and gathered information wherever we could. We decided to give the cannabis oil a try, especially after we read a paper on a study about the chemotherapy my doctor had recommended. That study suggested patients with tumors like mine appeared to get better at first with the chemo but then the left over tumor cells would mutate and turn aggressive over time.

After many conversations with my husband we decided to commit to a 90-day cannabis treatment protocol. My San Francisco neuro oncologist felt like my situation was not a dire emergency and felt like I could be allowed the 90 days to try this unorthodox treatment, however if that didn't work, another surgery would be likely. After we had chosen this path incredible healers came forward to help support me through this unknown territory. These healers included one of the best neurological teams in the world. I know I have been incredibly fortunate. I am so very grateful to each person who came forward with his or her special expertise and other gifts to make this treatment possible for me.

After establishing residency in San Francisco, I was able to get a medical marijuana card. The card was for cancer treatment but, amazingly, the cannabis oil has helped me with my fibromyalgia pain, joint pain, and chronic headaches. I had this pain for many years and it was getting worse. I literally have no pain now. My blood pressure had been creeping up over the years and was consistently pre-hypertensive, now it’s consistently on the low side of normal. I have not taken any other medication except the cannabis oil, supplements, and good clean healthy food over the last 8 months.

When we arrived in San Francisco, my husband, Rick, became my Angel from Heaven. He took on my full time care, and I made him my legal caregiver so he could pick up my medicine at the dispensary if I was not able. He bought a good juicer and began juicing all organic non-GMO veggies every day. He prepared almost all of my organic gluten free meals and took me out for a walk and fresh air daily. Our temporary home was across the

street from the Golden Gate Park so we walked through the park down to the beach daily during my treatment. I began calling the park Grandmother GG, because I felt so nurtured in her abundance, and this daily ritual in the beauty of nature was, I believe, a major contributor to my healing. We got a machine to create pure alkaline drinking water. I had an arsenal of cancer fighting supplements, foods, and daily practices to work on my physical, spiritual and emotional health.

The plan was to do the Rick Simpson cancer treatment protocol of 60 grams of highly concentrated cannabis oil over a 90 day period, the higher the THC the better for killing tumors. My 90 day MRI was scheduled for April. I had not reached a gram a day by that time and was concerned that the MRI results wouldn't be what we were hoping for. Indeed the report showed no change in the main tumor’s regrowth; however, there was a smaller inoperable tumor, in the cingular gyrus that we had been monitoring since my first tumor surgery ten years prior that was completely gone. We were amazed and it gave us the encouragement we needed to continue the cannabis protocol. To get to the amount of a gram of oil a day took months of building up my tolerance. I had very physical challenges and setbacks during this process such as seizures, middle of the night walks, tremors, convulsions, nausea, frustration, lack of appetite, and many tears. I finally reached a gram a day and eventually up to two grams a day on the final two weeks before my second MRI at the end of August.

In August, eight months after beginning the cannabis treatment, my MRI was reviewed by a leading Radiologist, my Neuro Oncologist, and my world renowned Brain Surgeon, and it was concluded that all that was remaining of the tumor regrowth was scar tissue. I will have another MRI in December. Because these tumors are chronic and tend to grow back, I will always be living MRI to MRI, but the key word here is that I am living …and in great health with a great immune system. I was not left with my immune system compromised by chemo and radiation, which is the standard protocol for these types of tumors as well as other cancers.

By eating healthy food and walking every day we both lost a needed 35 lbs. I never experienced the dreaded “munchies” that some get on this medicine.Smoking marijuana is reported to have an appetite stimulating effect. I wasn't smoking it but was ingesting it in a capsule, so it had a much different effect for me. When I built up a tolerance to the THC, even though I was ingesting large amounts, I did not get an intense “high” like what would happen if a person were smoking it. For me, it produced a deep sense of well being. I have read other peoples testimonies on their experiences of ingesting large amounts of cannabis oil. Most just fall sleep. I felt more restless and needed to walk.

2.Ellen Lenox Smith of suburban Rhode Island:-

If you want to understand why it's happening, you should spend some time with Ellen Lenox Smith of suburban Rhode Island: a lively, petite, 60-year-old grandmother, former schoolteacher and one-time master swimmer.

When you meet Smith, you don't suspect anything's seriously wrong with her health. But in fact, she has two incurable diseases: One, called sarcoidosis, is ravaging her lungs. The other makes her tendons and ligaments loose and fragile.

"My knee tore, and two weeks later the other knee tore," Smith says. "And the same thing with my shoulder. It was one shoulder and then the other shoulder. So I was tearing like tissue paper, and no one knew why."

After years of misdiagnosis and surgical repairs, Smith learned she has a rare genetic disease of connective tissue called Ehlers-Danlos syndrome.

"My condition causes pain throughout the entire body," Smith says. Most people with Ehlors-Danlos "live on morphine and OxyContin," she says, but she has bad reactions to these and nearly all other painkillers. "I can't tolerate them."

An Unlikely Prescription

Feeling desperate with pain and suffering sleepless nights, Smith consulted pain specialist Dr. Pradeep Chopra. This was about four years ago, just after Rhode Island became the 11th state to legalize medical marijuana. Chopra had never recommended marijuana to a patient, and he never imagined he would

But in Smith's case, he says, "she had absolutely no other option. So very, very hesitantly, I said, 'Listen, why don't you try medicinal marijuana?' "

Smith says, "I can remember laughing and thinking, 'I wish my parents were alive to hear this conversation!' You spend your life being told to stay away from certain things, and here I have a doctor suggesting it could help me."

Smith appealed to one of her adult sons, who scrounged some pot from a friend. Because of her lung condition, she couldn't smoke it, so she soaked it in oil and stirred the oil into applesauce.

"I tried it that night — scared to death! I mean, I had no idea what to expect," she says. "The only time I'd ever tried marijuana was once in college, and it was so horrible. So I was really nervous about it.

"But it was so amazing! I took this oil, went to bed, and the next thing I know, it was morning," Smith says. "I had literally slept through the entire night for the first time in months."

Patient: Marijuana Saved My Life

She's used marijuana ever since — sometimes during the daytime, too — and says she's never gotten high from it.

"I wake up in the morning, my head is clear, I read the papers, do my Sudoku puzzles, and my mind is fine," she says. "Somehow this drug attacks pain, and I get pain relief but I don't get stoned."

This point is controversial. Some researchers believe patients who use marijuana medically do have psychoactive effects, but they have the effect of shifting patients' attention away from their pain, perhaps in addition to a direct pain-relieving effect. JoAnne Leppanen of the Rhode Island Patient Advocacy Coalition says: "What pain patients tell me is, 'Cannabis does not get rid of my pain. It's still there. But I don't care so much.' So it's affecting their mental attitude."

For Smith, relief is far from total, but she can deal with her pain now, especially since she sleeps well. Smith says marijuana has saved her life.

"My husband says it, too," she says. "I don't think I'd be here. I think I probably would have passed away if I didn't have this drug. There was nothing — nothing left to help me."

A Slippery Slope?

Smith is exactly the kind of patient legislators have in mind when they allow marijuana to be used as a medicine. But some think legalization is dangerous.

"Approving medical use of marijuana by political referendum is a slippery slope," says Joseph Califano, director of the National Center on Addiction and Substance Abuse at Columbia University. "What's the next substance we'll approve by political referendum?"

Califano was U.S. Secretary of Health, Education and Welfare during the laetrile period.

"We have the best system in the world for clearing drugs in the Food and Drug Administration, and that's the system we should follow," he says.

There was a time when Califano's view was the prevailing opinion, but that may not be the case any more. It seems that many in the medical world who once were dead set against medical marijuana are now not so sure.

The FDA specifically opposes smoking marijuana for medical purposes. But spokeswoman Karen Riley said in an e-mail message that the FDA "is willing to consider proposals by investigators to conduct clinical trials using marijuana."

"We do have a number of open investigational new drug applications that study marijuana," Riley writes. "Some of these study the ability of marijuana to treat disease or medical conditions. Some use marijuana to assess treatments for addiction. Some could study the physiological or pathological effects of marijuana in the body.

3. Dr. David Casarett(Physician, author, researcher, and tenured professor at the University of Pennsylvania's Perelman School of Medicine.) Case:-

I was really hoping for any form of relief whatsoever, even just a few hours of relief from those muscle spasms, and I found it. I found it though, at least for me, at the cost of most of the most common side effects of acute use of medical marijuana — confusion, hallucinations.

I think — mostly because the dose I gave myself, being relatively unfamiliar with marijuana and very unfamiliar with the strength of what I managed to obtain — [I] was really blindsided by some of the acute side effects like confusion and hallucinations, which I honestly should have expected, but didn't. ...

After this Dr. Casarett research on marijuana and write a book "Stoned" on cannabis.

In Dr. 's word:-

No substance on earth is as hotly debated as marijuana. Opponents claim it’s dangerous, addictive, carcinogenic, and a gateway to serious drug abuse. Fans claim it as a wonder drug, treating cancer, anorexia, AIDS, chronic pain, glaucoma, arthritis, migraines, PTSD, and insomnia. Patients suffering from these conditions need—and deserve—hard facts based on medical evidence, not hysteria and superstition.

In Stoned, palliative care physician Dr. David Casarett sets out to do anything—including experimenting on himself—to find evidence of marijuana’s medical potential. He smears mysterious marijuana paste on his legs and samples pot wine. He poses as a patient at a seedy California clinic and takes lessons from an artisanal hash maker. In conversations with researchers, doctors, and patients around the world he learns how marijuana works—and doesn’t—in the real world.

Dr. Casarett unearths tales of near-miraculous success, such as a child with chronic seizures who finally found relief in cannabidiol oil. In Tel Aviv, he learns of a nursing home that’s found success giving marijuana to dementia patients.

On the other hand, one patient who believed marijuana cured her lung cancer has clearly been misled. As Casarett sifts the myth and misinformation from the scientific evidence, he explains, among other things:

• Why marijuana might be the best treatment option for some types of pain
• Why there's no significant risk of lung damage from smoking pot
• Why most marijuana-infused beer or wine won't get you high

Often humorous, occasionally heartbreaking, and full of counterintuitive conclusions, Stoned offers a compassionate and much-needed medical practitioner's perspective on the potential of this misunderstood plant.

He praised by **Nadine Strossen(** former president, American Civil Liberties Union),**Donald I. Abrams, M.D.(**chief, hematology-oncology, San Francisco),**Mitch Earleywine, Ph.D.**,(board chair, National Organization for the Reform of Marijuana Laws (NORML)).

There are many other cases inwhich patient of different diseases cured by cannabis.

6. SIDE EFFECT

1.SHORT-TERM EFFECTS:-

- Sensory distortion
- Panic
- Anxiety
- Poor coordination of movement
- Lowered reaction time
- After an initial "up," the user feels sleepy or depressed
- Increased heartbeat (and risk of heart attack)

2.LONG-TERM EFFECTS:-

- Reduced resistance to common illnesses (colds, bronchitis, etc.)
- Suppression of the immune system
- Growth disorders
- Increase of abnormally structured cells in the body
- Reduction of male sex hormones
- Rapid destruction of lung fibers and lesions (injuries) to the brain could be permanent
- Reduced sexual capacity
- Study difficulties: reduced ability to learn and retain information
- Apathy, drowsiness, lack of motivation
- Personality and mood changes
- Inability to understand things clearly

7. Conclusion

Although the federal government considers marijuana illegal, the evidence supports that there is proven medical benefits associated with its use. Several common medical conditions qualify for medical marijuana usage, making it an affordable alternative from traditional treatments. Studies have showed that marijuana is not addictive, and does not cause cancer as is commonly confused with cigarette smoking, and is by no means harmful to smoke or ingest. Limitations experienced during research include, not collecting information on a wide enough scale such as worldwide or across the country, limited in what resources were available during the research period, limited on the amount of time allotted to conduct research, and the availability of people to interview. Suggestions that I have for further research on the topic is to collect more wide-scale data and more in-depth information.

References

- https://en.wikipedia.org/wiki/Medical_cannabis
- http://www.cancer.gov/about-cancer/treatment/cam/hp/cannabis-pdq
- Book "MARIJUANA AND MEDICINE ASSESSING THE SCIENCE BASE"Janet E. Joy, Stanley J. Watson, Jr., and John A. Benson, Division of Neuroscience and Behavioral Health,

  INSTITUTE OF MEDICINE,Washington, D.C.

- http://www.davidcasarett.com/books/stoned-hc
- http://www.cancer.org/treatment/treatmentsandsideeffects/physicalsideeffects/chemotherapyeffects/marijuana-and-cancer
- http://www.livescience.com/24554-medical-marijuana.html
- http://www.unitedpatientsgroup.com/resources/illnesses-treatable
- https://collinkoschny.wordpress.com/medical-marijuana-research-paper/
- http://www.druglibrary.org/schaffer/hemp/hempmenu.htm#OtherLinks
- http://www.drugfreeworld.org/drugfacts/marijuana/short-and-long-term-effects.html