



POTBOTICS

Whitepaper



Baby Boomers Ready to Give Medical Marijuana a Chance

ABOUT POTBOTICS



POTBOTICS

MEDICAL
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LESS GUESSING.

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Our mission is to elevate the cannabis industry to higher medical standards by creating technology solutions that streamline the cannabis recommendation and selection process.

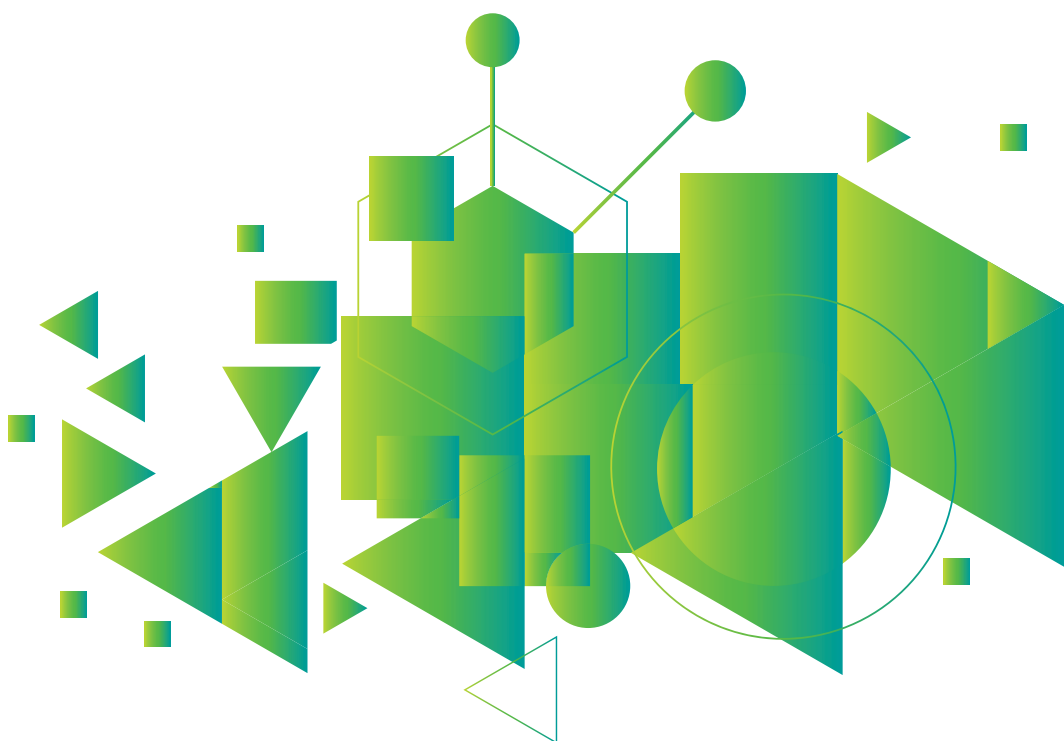
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BABY BOOMERS READY TO GIVE MEDICAL MARIJUANA A CHANCE.

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INTRODUCTION

The Baby Boomers, who started reaching retirement age in 2010, are not getting any younger. While many of the generation's "flower children" are well versed in marijuana, they find themselves interacting with it in new ways as they grow older. What was once a recreational pastime now emerges as an appealing medical alternative. Increasingly, Baby Boomers have been looking to medical marijuana to treat a variety of ailments, and their increased demand for medicinal cannabis may fund the industry well into the future.

Statistics show that Baby Boomers are, in overwhelming numbers, changing their opinions on medical marijuana, and patient and expert testimonials back this up. In showcasing the immense potential medical marijuana has for the Baby Boomer generation and providing testimonials from experts and patients in the field, PotBotics hopes that this report can serve as a learning tool for patients and others weighing the efficacy of medical marijuana, as well as raising general awareness about this critical issue.





MEDICAL MARIJUANA: A SAFE AND LEGAL OPTION

Medical marijuana policy in the United States hinges on a divide between state law and federal law. Despite medical marijuana's legal status in 23 states and the District of Columbia, federal policy still prohibits marijuana on a national scale and does not advocate for marijuana as a medical alternative. Understandably, when California became the first state to legalize medical marijuana by ballot initiative, something had to be done to address this contradiction. The case of *Conant v. Walters*¹ set the precedent in dealing with this conundrum. The court's decision in the case allowed the federal government to maintain its anti-marijuana stance, but forbids the federal government from hindering medical marijuana recommendation in states where it is legal. According to the United Patients Group, marijuana holds the potential to treat approximately 173 different ailments².

After the question of legality, the question of safety is the next to emerge in the spotlight. It has been hotly debated for a number of years whether or not marijuana is a safe medical alternative. Despite these arguments, a number of reports have been

drafted in the United States that attest to the safety of marijuana.

The LaGuardia report³ was well ahead of its time and was released in 1944. Its mission was to observe the effects of marijuana on random test subjects. Though the report asserts that some of the test subjects were prone to feeling anxiety after consumption, the vast majority instead experienced feelings of pleasure. The report could identify no immediate safety risks of consuming marijuana and therefore makes no explicit recommendations for its prohibition. This report came well before the Controlled Substances Act of the 1970's, which established the scheduling system we know today, and classified marijuana as a schedule 1 drug, along with heroin and LSD.

Interestingly enough, a report commissioned under the Nixon Administration also attests to the safety of marijuana as a medicine. The Shafer Report⁴, drafted in 1972, was meant to look at the social and health impacts of marijuana use. Though the report still identified marijuana abuse as a societal

problem, the findings overwhelmingly point to the fact that the issues surrounding marijuana prohibition are often blown out of proportion and based on little scientific evidence. Indeed, the report proved unable to find any concrete, scientific health risks about the safety of marijuana and instead implied that society could benefit from re-evaluating its disdain for marijuana and focusing on more pressing health issues. Many attest that this is one of the few times a sitting U.S. President came close to portraying the substance in an accurate light.

In 1999, the Institute of Medicine⁵ made waves when it released a report showcasing the safety and efficacy of marijuana as a medicine. With medical marijuana programs underway in a few states at the time, the Institute of Medicine had more leverage to assert marijuana's safety and efficacy in treating certain ailments. Though the report exercises caution surrounding smoking as a consumption method, the overall conclusions indicate that, if consumed in alternate ways, the potential benefits of marijuana outweigh the negatives. Indeed, the Institute of Medicine contends that the negative side effects of marijuana are the same as — if not less than — what we consider “acceptable” in manufactured medicine.

Despite attempts to say otherwise, these reports stand the test of time in showcasing

marijuana as a safe, medical alternative. While there may be some merit to the claim that smoking marijuana poses a health risk, these reports show a consensus that we, as a society, have vastly overestimated marijuana's health risks and, in doing so, have ignored its potential in treatment. As more programs take hold, however, this narrative is changing.



With medical marijuana programs in full swing, a wealth of new research is emerging daily that speaks to the efficacy and safety of marijuana treatments. Institutions such as the University of California's Center for Medicinal Cannabis Research (CMCR) are dedicated solely to this endeavor. CMCR boasts multiple published scientific studies on a variety of subjects. Topics vary widely from marijuana's potential in treating patients who are HIV positive to how low doses of vaporized cannabis can provide unprecedented relief in reducing neuropathic pain⁶.

Research institutions such as CMCR are pivotal forces in shaping the public discourse on medical marijuana and their research plays a crucial role in finding new treatments that incorporate medical marijuana. Reports issued by CMCR bolster claims to marijuana's safety and efficacy, making it virtually impossible to argue that marijuana has no public health potential.

Other organizations, such as the National Organization for the Reform of Marijuana

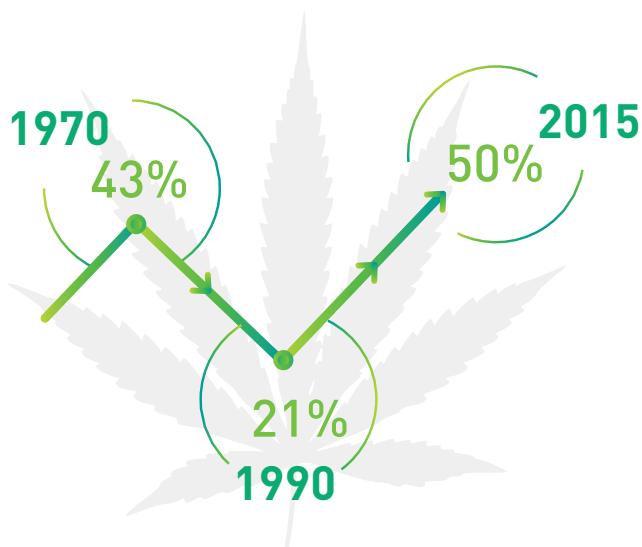
Laws⁷ (NORML), shed light on this issue through advocacy. NORML provides its readers with an extensive database of research as well. Within this database, countless reports attest to marijuana's potential in treating Alzheimer's disease, Parkinson's Disease, various forms of cancer, arthritis and epilepsy, just to name a few.

With the emergence of institutions such as CMCR and NORML, the potentials for medical marijuana are expanding every day. Unfortunately, most of this research is still taking place in academic and advocacy circles. In order for medical marijuana to gain the traction it needs, research needs to be funded across the board. With more research comes more credibility and a competition among those in the industry to find new uses for marijuana. Perhaps these organizations are the reason public opinion has shifted so dramatically.



BABY BOOMERS TURN TO MEDICAL MARIJUANA

Recent polling data indicates that Baby Boomers are re-evaluating their stances on the legalization of marijuana. The generation has one of the most interesting track records of opinion on legalization because of a constant evolution in attitudes. The graphic below showcases a bit of this change:

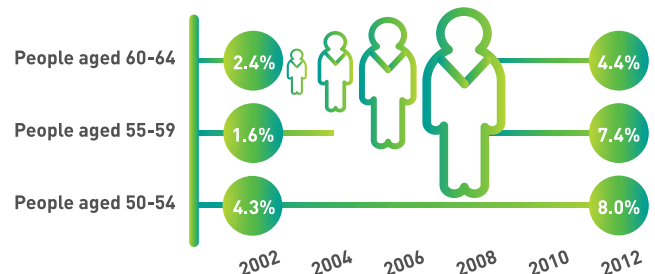


Baby Boomers Supporting Legalization

As can be seen above, legalized marijuana has been a hotly contested issue among the Baby Boomer generation. At the height of the Vietnam War and civil unrest, a significant chunk of the generation was in favor of legalization. The sharp drop in opinion is largely believed to be a result of the Reagan administration's "Just Say No"

campaign. Reagan, who was incredibly popular among Baby Boomers, may have played a large role in this shift in opinion. Now, support for legalization is higher than it has ever been among the Baby Boomers, and many attribute this to the sweeping reform happening across the country related to medical marijuana's legalization.

Not only has opinion changed, but some surveys also suggest that Baby Boomers are consuming more marijuana than they have in the past:

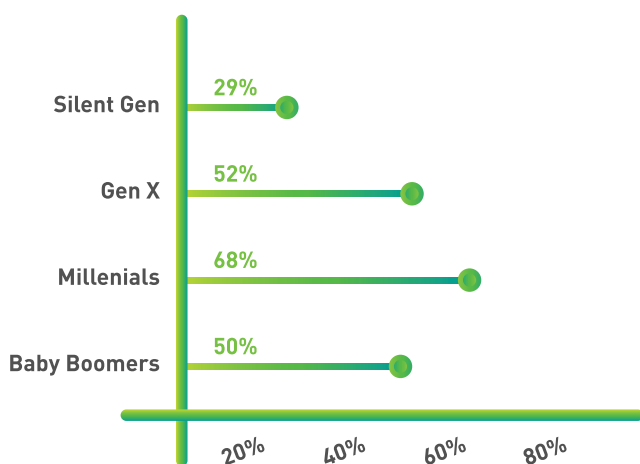


Increase in use of Marijuana over the years

The above graphic shows that, among this sample, Baby Boomers are consuming more marijuana than they have for nearly a decade. In people aged 55-59, this jump is most dramatic with nearly four times as many respondents admitting to consuming marijuana in 2012 when compared to 2002. The other two age subsets, though not

quite as dramatic, show a steady increase as well. The report these numbers are pulled from goes on to indicate that this trend will only continue moving upwards.

Other polling data indicates that Baby Boomers, as a demographic group, may actually be one of the more pro-marijuana generations. Though millennials are most persistently in favor, Baby Boomers are close behind:



Baby Boomers Vs. Other Generations

As the bar graph shows, Baby Boomers and members of Generation X are virtually tied in terms of their support for legalization. This marks the first time in history that a poll has shown half or more of Baby Boomers in support of legalization. Though the Boomers still trail the Millennials, evidence indicates that this gap is closing. This dramatic shift in opinion may very well be because of marijuana's potential in treating ailments that now affect the Baby Boomer generation.



In understanding the medical benefits of cannabis, it is crucial to understand how medical marijuana stands up next to manufactured, pharmaceutical-grade alternatives already on the market. This report will go in-depth to look at four key ailments that are impacting the Baby Boomers as they age, and how medical marijuana can be an alternative to conventional medicine. While results differ on a case-by-case basis, medical marijuana overwhelmingly seems to deliver effective treatment with fewer negative side effects.

ARTHRITIS

The CDC⁸ estimates that nearly 1 in 5 American adults has some form of arthritis. The ailment, which causes pain, stiffness and swelling among the joints, is common among Baby Boomers and symptoms have a tendency to worsen with age. The two primary forms of arthritis are rheumatoid arthritis and osteoarthritis. Arthritis can stand in the way of physical activity, which, in turn, flares symptoms. Medicinal cannabis has proven effective in treating many of the symptoms associated with arthritis.

Aside from cannabis' proven ability as a pain-reducer, more recent studies show that medical marijuana holds the potential to act as an anti-inflammatory agent in lab tests done both on mice and humans.^{9,10} By reducing pain and inflammation, patients with arthritis who medicate with marijuana report being able to move more freely and easily, get better quality sleep at night, and report an overall higher quality of life. It is for this reason that many states with medical marijuana programs define arthritis as a qualifying condition.

Pharmaceutical solutions for arthritis focus predominantly on pain management. Most commonly, arthritis patients use over-the-counter solutions to fight their pain. Common remedies include aspirin, ibuprofen and acetaminophen. Acetaminophen (Tylenol, Excedrin, etc.) is preferred due to its perceived lack of side effects. However, some studies say long-term acetaminophen use can cause end-stage renal disease, especially in conjunction with alcohol¹¹. Even then, acetaminophen does not work when taken alone. To effectively reduce arthritis

symptoms, large quantities of aspirin must be taken daily. Though effective in pain reduction, aspirin is known to cause upset stomachs and has even been documented to cause damage to the stomach lining. Aspirin overdose is also known to claim hundreds of lives every year in the United States¹².

In severe cases, some arthritis patients will be prescribed painkillers such as codeine. Though some painkillers are more effective in reducing arthritis symptoms than over the counter solutions, they come with a high dependency rate and often cause nausea¹³. For cannabis patients, withdrawal symptoms are all but nonexistent, and consequently, does not pose a health risk to long term patients¹⁴.

CHRONIC PAIN

Chronic pain is a broad concept that impacts many Americans. Chronic pain is defined as pain that is permanent or lasts past being given adequate time to heal. Chronic pain can stem from a number of sources including ailments such as cancer and arthritis, but also reflects a person's mental health, socioeconomic background and overall quality of life. Sufferers of depression cite chronic pain as a symptom just as often as those suffering more physical ailments. As we age, we are more likely to experience chronic pain, and that is why it is of growing importance to the

Baby Boomer generation¹⁵.

Cannabis combats chronic pain in a variety of ways. First, medical marijuana acts as a natural pain-reducer. Secondly, cannabis reduces the nausea that is often cited as a side effect to most pain medications. Indeed, numerous areas of the brain that detect pain have been shown to respond positively to cannabis treatment, thus subduing the symptoms¹⁶.

Prescription painkillers are frequently given to patients who suffer chronic pain. The most common include codeine, oxycodone and morphine. Not only do these drugs have a startlingly high psychological and physical dependency rate, but they are also known to cause dizziness and lightheadedness, as well as nausea and vomiting¹⁷. Cannabis has proven effective in both reducing pain on its own, as well as reducing the nausea associated with these painkillers¹⁸.

SPASTICITY

Spasticity is defined by involuntary muscle spasms, tremors and other motor disorders. Spasticity is not a disease in its own right, but a symptom that appears as the result of many other ailments, including stroke, Parkinson's, MS and cerebral palsy. Many, though not all, of these diseases tend to affect older populations¹⁹.

Cannabis has been used throughout history to treat muscle spasms and continues to prove its potential through various reports and clinical trials. According to reports²⁰, cannabis is naturally high in a number of anti-spasticity and anti-tremor qualities, and can bring relief and improved mobility with virtually no side effects²¹.

It is important to stress that spasticity is virtually untreatable with manufactured medications and, as far as we know, has no cure. Oftentimes patients suffering from spasticity in some form will be given a prescription for Valium, which is highly addictive and causes patients to remain in a state of sedation²². Furthermore, spasticity patients taking Valium often complain that the medication does not offer complete relief. Studies completed by Steep Hill Labs have shown that CBN, a cannabis-derived cannabinoid, is twice as effective at producing a “relaxed” body sensation compared to Valium²³. Further exploration of cannabis’ anti-spasticity qualities could open up new potential in how we treat MS, Parkinson’s and other ailments affecting our motor skills.

CANCER

Cancer remains one of the most feared ailments in our society and can come in many forms. The CDC estimates that nearly one in every four American deaths is due to some type of cancer. Though it can

impact a variety of places, cancer is broadly defined as a disease that allows abnormal cells to grow and divide and impact other areas of the body. It is important to note that cancer, more accurately, is a number of different diseases²⁴.

Cannabis is often recommended to patients undergoing chemotherapy because of its potential to reduce nausea and increase appetite. Oftentimes, because of the nausea associated with chemotherapy, patients will experience a severe loss of appetite that can lead to wasting syndrome, as well as certain eating disorders²⁵. Perhaps this is why patients undergoing chemotherapy prefer cannabis to pharmaceutical-grade alternatives, which they often find to be difficult to digest when nauseous.

There has only been one clinical trial published to date exploring the potential of medical marijuana to actually combat cancer cells²⁶. The main findings were that cannabis came without negative psychoactive side effects in a clinical setting. Much of the pre-research that went into the study indicates that cannabis does, indeed, have tumor-reducing qualities²⁷.

Cancer patients are commonly given serotonin antagonists, which are meant to block off vomiting signals being sent to the brain. Despite these pharmaceutical grade medicines’ effectiveness in reducing nausea, they come with a long list of side

effects of their own, including fatigue, bone aching and loss of appetite²⁸. Another common approach is to use tranquilizers such as Haldol, which are meant to reduce nausea as well, but can cause decreased breathing rate and changes in blood pressure, as well as an increased heart rate²⁹. Cannabis and certain cannabis extracts remain one of the most tried and true anti-nausea remedies and may even hold the key to fighting cancer itself. This is why many activists advocate its increased use in cancer treatments.



Dr. David Bearman, M.D., California

Dr. Bearman is one of the foremost clinically knowledgeable medical marijuana experts in the country. He has spent 40 years in substance abuse treatment and pioneered one of the first free community health clinics in the country. Dr. Bearman is also the author of “**Drugs Are NOT the Devil’s Tools: How Discrimination and Greed Created a Dysfunctional Drug Policy and How It Can Be Fixed**”, which is published in two volumes.

Dr. Bearman first remembers thinking about medical marijuana with his father, who was a pharmacist. During his father’s time in college, at the height of alcohol prohibition, his class was tasked with making cannabis tincture. Ironically enough, the class was forced to exercise caution around the use of alcohol as opposed to cannabis, a staunch reversal of what might happen today. This inspired Dr. Bearman to look inside one of his father’s textbooks, where he discovered that, at the time, pharmacists were talking about the potentials of cannabis for pain relief.

“I thought, how quaint, that we used to use plants as medicine,” Dr. Bearman said. “At the time I assumed that manufactured medicine must be better. I got caught in the conventional wisdom.”

In 1967 Dr. Bearman started the third free clinic in the country in Seattle, where he began to become critical of the way the country was viewing substance abuse issues. A decade later, in the midst of the AIDS epidemic, when more U.S. studies were speaking to the efficacy of marijuana in treating wasting syndrome, Dr. Bearman began to view marijuana as a legitimate medical solution. “In 1976 there was a cover piece in High Times magazine that showed two doctors above a long list of ailments that medical marijuana could treat,” Dr. Bearman said. “At the time I thought they were pulling my leg and just trying to legalize the drug recreationally. Now, years later, I’ve seen patients seeking medical marijuana to aid in all of these ailments.”

In 2001, at the request of Jack Herer (known by many as the “emperor of hemp,”) Dr. Bearman took over a practice in Santa

Monica where Herer would frequently refer patients seeking medical marijuana. When the original practice owner returned from abroad, Dr. Bearman returned to his home of Santa Barbara and opened his own practice.

Dr. Bearman, who primarily serves patients over the age of 27, believes the Baby Boomers can benefit just as much as any other generation when it comes to medical marijuana. He estimates about 70% of his patients are of the Baby Boomer generation. “I think what Baby Boomers gain is the same as what other patients gain: having a medicine that is effective and has very few side effects,” Bearman said.

The main reason cannabis is prescribed, Dr. Bearman asserted, is for pain management. “Many Baby Boomers suffer from rheumatoid arthritis or osteoarthritis. Some have pain as a result of surgeries on their back that have not been entirely successful,” Bearman said. Though Dr. Bearman was sure to note that these benefits span far beyond the Baby Boomer generation, he also alluded to cannabis’ efficacy in treating seizures, migraine headaches and nausea.

The side effects of medical marijuana are negligible compared to that of manufactured medication, according to Dr. Bearman. “The most common side effect

we hear about marijuana is euphoria,” Bearman said, “Others, usually naive users, may take a strain high in THC and have feelings of anxiety.”

Though Dr. Bearman recognizes the merit to these side effects, he argued that they pale in comparison to the side effects of other medications. “All therapeutic agents have side effects,” Bearman said. “But the side effects of marijuana, according to the DEA, are fewer than the vast majority of medications on the market.”

For patients concerned about the adverse health effects of smoking, Dr. Bearman recognizes looking into other methods of consumption, namely vaporization, edibles and other extracts. The respiratory side effects that come with smoking, Bearman argued, are easily avoidable.

In order for medical marijuana to gain traction, however, Dr. Bearman contends that we need to start talking about the plant in a new light. “I want to see marijuana talked about on the same level as any other medication,” he said. “In some instances it should even be talked about on the same level as some of the foods we eat.”

In order for this to happen, Dr. Bearman believes the government has to put forth a concerted effort to be more truthful in its discourse about marijuana and reflect this in its legislative initiatives.

Beyond this, Dr. Bearman echoed the need for more research into the specific qualities of certain strains of marijuana in treating different conditions. By doing so, he asserted, cannabis recommendation can be more targeted and streamlined, which benefits Baby Boomers as well as all other patients. "The idea of looking at various strains is right where the cutting-edge is," he said. "We need organizations

and media outlets that are looking at this issue."

Dr. Robert Melamede, Ph.D., Colorado

Dr. Robert Melamede has a Ph.D. in molecular biology and is recognized as an industry expert on the therapeutic uses of cannabis. Dr. Melamede has published dozens of papers on a wide variety of topics during his time as Chairman of the Biology Department at the University of Colorado. Now retired, Dr. Melamede leaves a long legacy of research surrounding cannabinoids, cancer, and DNA repair.

For Robert Melamede, marijuana is both a professional and personal issue. “Well, I’m a Baby Boomer and I use a lot of medical marijuana,” he said. Though Dr. Melamede is not a medical doctor, he has devoted his life to looking at the science behind marijuana and taught a number of classes on the subject during his time at the University of Colorado.

Most of the benefits Dr. Melamede has found have come through his personal use of the substance. “I’ve used cannabis for almost 52 years,” he said. “I’m very grateful

for it because of its anti-aging properties and because of my predisposition to inflammatory illnesses that are very nicely controlled with cannabis.”

Dr. Melamede’s advocacy of cannabis use applies to Baby Boomers, but spans far beyond that generation alone. “Cannabis is a necessary nutrient for modern man,” he said. “If you take more of it you live a healthier longer life, that’s based on extensive peer-reviewed science.”

Baby Boomers, however, do have much to gain from medical marijuana in an era where age-related illness is becoming more common. “We used to have a life expectancy of 30 or 40 years old,” Melamede said, “Now, you see that the number one cause of death is age related illness,” According to Dr. Melamede, human beings all have endocannabinoid systems within our biology and, with proper care, this system can be used to combat these age-related ailments. Through use of cannabis, he argued, we can bolster this system and harness cannabis’ anti-aging and anti-illness properties.

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