

Accelerated Cure Project for MS

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*Accelerating research towards a
cure for multiple sclerosis*

Cannabis and MS – the “High”-lights

The Food and Drug Administration (FDA) has approved many treatments for MS to help modify the disease course, treat relapses and manage symptoms, but none are completely effective. Many people with MS continue to experience flares, disease progression, and ongoing symptoms. As discussed in our [August 2017 newsletter](#), some turn to alternative medicine to manage their symptoms and increase their quality of life, most often in combination with their prescribed MS treatments. One such treatment is cannabis, or marijuana. Cannabis is a tall Asian herb. The leaves and flowers of the mature plant are covered with trichomes (tiny glands) of oil. This oil contains chemical compounds that, when consumed, can cause physical and psychological effects. Cannabis can be taken via inhalation (smoked plant or vaporized extracts), orally (capsules, extracts, or “edibles”), or topically (lotions).



There are many types of chemical compounds in cannabis. [Flavonoids](#) are a large family of compounds found in most fruits and vegetables, in large part responsible for their vivid colors. They are important because they have been shown to have beneficial anti-inflammatory and anti-oxidant effects. [Terpenoids](#) (or terpenes) are aromatic chemicals responsible for marijuana’s unique smell. [Cannabinoids](#) are the chemical compounds that, when consumed, bind to cannabinoid receptors in the human body and alter nerve transmission in the brain (resulting in marijuana’s psychological effects).

The two major cannabinoids in cannabis that have been studied are [tetrahydrocannabinol](#) (THC) and [cannabidiol](#) (CBD). THC is thought to cause most of the psychological effects of cannabis.

CBD has significant medical benefits, but does not make people feel “stoned” and can actually counteract the psychological effects of THC. There are many different strains of cannabis that have different concentrations and proportions of THC and CBD. It’s important to note that the appropriate dose of cannabinoids for different medical conditions is not known. In addition, production of cannabis products sold at dispensaries is not standardized. Products can vary in potency, and it can be unclear exactly how potential contaminants (such as herbicides or pesticides) are removed from the final product.



It is becoming more common for people with MS to use cannabis to try to alleviate their symptoms. A [survey](#) of people with MS published in 2017 found that 47% of respondents have considered using cannabis to treat their MS symptoms, 26% have used cannabis for their MS symptoms, 20% have spoken with their physician about using cannabis, and 16% are currently using cannabis. Ninety-one percent

think marijuana should be legal in some form. It is important for people with MS and their providers to understand the available evidence surrounding cannabis treatment and to work together to make the choices that are right for them.

There have been numerous studies conducted to evaluate the therapeutic effectiveness of cannabinoids on MS-related symptoms. The [CAMS \(Cannabinoids in MS\) study](#) was the first large-scale study to evaluate this. In this study, 630 people with MS from 33 centers in the United Kingdom (UK) were assigned to receive a cannabis product or placebo twice daily for 15 weeks. Those taking cannabis reported significantly greater improvements in spasticity, spasms, and sleep compared to those taking placebo. There were no significant changes in tremor or bladder symptoms in any of the groups. More recently and also conducted in the UK, the [MUSEC \(MS and Extract of Cannabis\) trial](#) looked at patients’ perceptions of changes in muscle stiffness. In this study, 279 people with MS took either a cannabis product or placebo for 12 weeks. Those taking cannabis had almost twice as much relief from muscle stiffness as those taking placebo and they also had improvements in spasms and sleep. Pain is a common symptom of MS. Most MS-related pain is central neuropathic pain (pain caused from damage to the central nervous system) or pain from spasms. Another [study](#) showed cannabis-based treatment effective in reducing central pain in people with MS.

Botanical cannabis preparations (those obtained from the plant) have been legalized in many states for medical use and for recreational use in a smaller number of states. The laws governing the growers, dispensaries and prescribing of botanical products vary from state to state and are subject to change. For up-to-date information on state laws, it is best to check with the individual state government or the non-profit organization [Americans for Safe Access](#) website.



Although botanical cannabis has been legalized for medical and/or recreational use in a number of states, its use remains prohibited by federal laws. The [Controlled Substances Act of 1970](#) places drugs into one of five categories (schedules I – V), based on their perceived medical benefit and potential for abuse. Cannabis is a Schedule I category drug, which is considered to be the most dangerous category. However, in 2014 Congress passed the [Rohrabacher–Farr Amendment](#), which prevents the government from spending federal funds to prosecute cannabis-related activities if they are permitted under state-specific medical marijuana laws. It's important to note that this amendment does not change the federal legal status of cannabis, and it must be renewed every year in order to remain in effect. Interestingly, in June 2018, the FDA approved the first plant-derived cannabis drug, [Epidiolex](#), for treatment of two rare forms of epilepsy ([Lennox-Gastaut syndrome](#) and [Dravet syndrome](#)). This is in direct conflict with existing federal laws and there is much controversy surrounding whether or not cannabis should be downgraded to a Schedule II or III drug under the Controlled Substances Act.

CONTROVERSY

To date, the FDA has approved two synthetic forms of marijuana for medical use, [dronabinol](#) (Marinol) and [nabilone](#) (Cesamet). Both drugs are approved for treating chemotherapy-related nausea and vomiting that does not get better with standard treatment. Dronabinol is also approved for people with AIDS who have loss of appetite with weight loss. At this time, neither drug is approved for other uses. [Nabiximols](#) (Sativex), a cannabis extract mouth spray, is approved for treatment of MS-related spasticity in Canada, New Zealand, and several European countries, however it is not currently FDA-approved and is therefore not currently available in the U.S. Produced by the Institute for Clinical Research in Berlin, Germany, [Cannador](#) is a natural cannabis extract that has been used exclusively in research studies in Europe.

There are a number of challenges in advancing cannabis research in the US. In addition to obtaining funding for their studies, researchers must file an [Investigational New Drug \(IND\) application](#) with the FDA, obtain a license from the US Drug Enforcement Administration (DEA) to conduct research with Schedule I drugs, and obtain cannabis for the study. When botanical cannabis is investigated, it must come from the [University of Mississippi Marijuana Research Facility](#). The University of Mississippi has a contract with the federal government to grow cannabis for research. This marijuana may have been stored frozen for years (which may affect its quality and potency), and doesn't take into consideration other strains or hybrids that patients may encounter. These obstacles can make conducting these studies more time-consuming and challenging than other investigations.



Cannabis can have a range of adverse effects. These may vary depending on the product and the individual. [Recent research](#) demonstrates cannabis can worsen cognitive function in patients with MS. Other side effects may include psychosis, tolerance and dependence, an increased risk for cardiovascular disease, as well as anxiety, nausea, vomiting, dry mouth, dry eyes, sedation, increased appetite, headache, as well as impaired balance and coordination. In addition, cannabis may interact with a person's prescription and non-prescription medications. There is

[conflicting evidence](#) regarding whether or not smoking cannabis increases the risk of lung cancer. The long-term safety of marijuana use for MS symptom management is not yet known.

There are many open questions regarding cannabis use, including optimal strains, frequency of use, risks of long-term use, and which symptoms it effectively treats. [iConquerMS™](#) was developed to engage people with MS to drive and shape research and to fuel research on topics, like cannabis, of great interest to people living with the disease. If you haven't already done so, please consider [joining](#). With your participation and support, we can work together to find the answers to these, and many other important questions.

