

Does Marijuana Help Parkinson Disease?

Information for Persons with Parkinson's in Colorado

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April 23, 2019

What is cannabis?

Cannabis is a product made from the *Cannabis sativa* plant and consists of hundreds of chemical parts. The chief part is delta-9-tetrahydrocannabinol (THC), and the next highest in concentration is cannabidiol (CBD). THC is the major part that causes the intoxicating "high", and, among other things, CBD reduces the high sensation. Other than THC and CBD, there are terpenes and many other components in cannabis.

What is hemp?

Hemp is a *Cannabis sativa* plant with $\leq 0.3\%$ THC. CBD products available outside of marijuana dispensaries, for example at farmers markets, shops or online, are extracted from such plants. As these products are less regulated, the amount of CBD in them is generally less reliable than in products bought from dispensaries.

What are the effects of cannabis?

Cannabis has been shown to be beneficial for some conditions, suggested to be useful for many, and has known unfavorable effects. THC, as a pharmaceutical product, is FDA approved for the treatment of nausea due to chemotherapy and as an appetite promoter in people with AIDS. Statements from the American Academy of Neurology, National Academy of Sciences and the Colorado Department of Public Health and Environment report that cannabis is conclusively useful for nausea and chronic pain in adults, probably effective for some sleep conditions and probably not effective for reducing levodopa induced dyskinesia in PD. In addition, Epidiolex[®], which is purified CBD from a cannabis plant with $<0.15\%$ THC, has recently been FDA approved for severe seizure disorders in children. There is limited data suggesting that CBD is beneficial in reducing hallucinations, anxiety, insomnia, and REM sleep behavior disorder, i.e., acting out of dreams. Of note, laboratory studies suggest that CBD may slow progression of neurodegenerative disorders, via anti-inflammatory and anti-oxidant effects.

However, cannabis, especially the THC component, is well documented to cause transient psychosis, anxiety, slowness, and incoordination. Further, studies suggest that some chronic cannabis users have structural and functional brain changes. Research is ongoing to investigate its full effects on health.

What are the effects of cannabis in PD?

In a recent anonymous web-based survey conducted through the Michael J. Fox Foundation, 72% of PD patients reported current or past use, and 59% stated it had allowed them to reduce their prescription

medications. While there are many anecdotal reports of benefit, such as this survey, the medical literature is not definitive, as it consists of few randomized controlled studies and the components and dose of cannabis varies widely. Taken as a whole these studies suggest that cannabis may be beneficial in some ways. However, persons with PD often have cognitive, psychiatric and motor problems, such as being prone to falling. Thus, cannabis should be used cautiously, and CBD is likely to be more beneficial and safer than THC.

If I want to try marijuana, what do I do?

In Colorado, you can go to your local dispensary and talk with a “budtender”. However, these folks are not medical professionals, and we recommend that you proceed cautiously. And remember that it’s illegal to drive when you are “high”, which that may last for at least 6 hours after vaping or smoking and all day after taking THC by mouth.

First, discuss your interest in cannabis with your PCP, since it is a drug that can have effects on multiple body systems and also has potential interactions with other medications. Be sure to discuss with your neurologist also. In Colorado there are reputable physicians who are knowledgeable about medical marijuana, consulting with one of them is the safest way to proceed and is more likely to ensure a successful and safe experience. Such a physician is able to tell you what dose to take and what brands to try. There are many considerations: what type to take, e.g., THC vs. CBD content; what form to take, e.g., oral, smoking, vaporizing; what dose to take; and what brand. Your regular provider may not be well versed in these areas, and may be able to recommend a reputable medical marijuana physician. This visit is rarely covered by insurance, and a first visit is generally \$100- \$140-and follow up visits \$50- \$80.

A medical marijuana card is not needed to purchase cannabis at a dispensary, but if you have one the selection of products may be better, and, in Colorado, the tax will be much lower. To obtain a medical marijuana card in Colorado both you and your provider must apply to the Colorado Department of Public Health and Environment, which is most easily done online at <https://www.colorado.gov/pacific/cdphe/how-apply-colorado-medical-marijuana-card>. The physician will state the reason, or “qualifying condition”. PD is not an approved condition in Colorado, although it is in many other states. The physician can designate one of the Colorado approved qualifying conditions, such as pain or muscle spasms, on the application.

What type to take? Products sold at Colorado dispensaries are either marijuana plant material or are products extracted from plants. These products will be composed of both THC and CBD, as well as the many other components. In Colorado one can buy a range of products with varying compositions. Products with high CBD and low THC are likely to be more effective and safe in PD.

Dispensary products, like herbal products and supplements sold over the counter, are not FDA regulated. Many dispensary products may state they have no THC, but all products extracted from marijuana plants will have some THC, even if only small amounts. The state of Colorado regulates the marijuana industry at many points during product production in an effort to ensure that products are safe – checking for accuracy of labels, as well as toxins such as harmful microbes and heavy metals.

What form to take? Cannabis products can be taken orally (called “edibles”), inhaled (vaporized, smoked, dabbed), or applied to the skin (creams, patches). Oral products will generally have onset 30 - 45 minutes after eating. For an immediate, but shorter lasting effect, vaporizing is best, but smoking is not recommended as the literature suggests that marijuana smoke contains the same cancer-causing chemicals as tobacco smoke. Vaporizers come in various forms – table top machines, pens, and e-cigarettes. Dabbing is a form of vaporizing using an extract that has up to 80% THC, which can cause unpleasant intoxication.

What dose? A major problem with taking cannabis is that it is easy to use too much, especially with edibles. Many persons with PD have unintentionally taken too much THC - causing dizziness, hallucinations and other uncomfortable sensations. This often happens when a person takes a second (or third!) serving of an edible before the first has had a chance to have an effect. Always start with a low dose and if no effect occurs, then wait until another day and try a slightly higher dose. One serving of an edible is supposed to be clearly marked and to not have more than 10 mg of THC. Note that marijuana from the “good ole’ college days” had a much lower THC content than many products now sold at dispensaries. START LOW AND GO SLOW.

What brand? Specific brands that are popular, e.g., Charlotte’s Web and Mary’s Medicinals, are more likely to have reliable compositions and labeling.

How could I help promote research in cannabis in PD?

The exact effects of cannabis and its components, including THC and CBD, are not well understood and more research is needed. The University of Colorado Movement Disorders Center is presently conducting a randomized, controlled study (NCT03582137). Information regarding eligibility is available by calling 303-724-4644 or emailing nicola.haakonsen@ucdenver.edu. Clinicaltrials.gov and foxtrialfinder.michaeljfox.org websites are good sources to look for studies.