

Spasms: Cannabinoids and CBD Research Overview

Get Notifications

BY ECHO / 📅 FRIDAY, 17 FEBRUARY 2017 / 📁 PUBLISHED IN EDUCATION, SCIENTIFIC CANNABINOID RESEARCH



Muscle spasms are when a muscle tightens and contracts involuntarily, causing pain and potentially serious joint mobility issues. Studies have shown cannabinoids effectively reduce the frequency and intensity of spasms, including in patients diagnosed with multiple sclerosis.

Overview of Spasms

Spasms are when your muscles are stiff and experience involuntary contractions. Spasms, or cramps, are most commonly caused by long periods of physical labor or dehydration, but they can also be associated with serious conditions, like multiple sclerosis (MS). Their intensity can range from somewhat uncomfortable tightness to extremely painful and uncontrollable contractions. Spasticity can occur throughout all limbs, but is most common in the legs.

For those with multiple sclerosis, spasms can be stimulated by sudden movements, temperature changes, humidity and from wearing tight clothing.

Muscle spasms will interfere with regular motor function and can cause distressing symptoms. If left untreated, spasms can lead to soft tissue shortening, which in turn can cause frozen or disabling contractures in the hip, knee, ankle, shoulder and elbow joints.

Spasms are most commonly treated with medications and physical and occupational therapy.

Findings: Effects of Cannabinoids and CBD on Spasms

Along with pain, muscle spasm is the most common reason that cannabinoids is recommended and prescribed by medical professionals². Studies have demonstrated that cannabinoids offers significant improvements in muscle spasticity, both in mice trials and in human subjects^{1,2}.

The two major cannabinoids found in cannabis, tetrahydrocannabinol (THC) and cannabidiol (CBD), are responsible for cannabis' effectiveness at muscle spasm relief. There's strong evidence that suggests that cannabinoid-induced reductions in muscle tremors and spasticity are due to the activation of the cannabinoid receptors, CB₁ and CB₂, of the endocannabinoid system⁵. THC and CBD have demonstrated that they interact with the CB₁ and CB₂ receptors and their actions on the two receptors regulates the excitatory and inhibitory neurotransmitters necessary to curtail spasms^{6,8}.

For those whose spasms and spasms are related to multiple sclerosis, cannabis has demonstrated it can offer relief⁹. In what was the largest multinational clinical trial of its kind, multiple sclerosis patients suffering from spasms were treated with cannabis containing THC and CBD. After 12 weeks, the patients experienced significantly reduced spasticity severity compared with patients receiving the placebo. While the trial lasted 12 weeks, patients reported significant improvements in spasticity after just four weeks⁸. The same patients also reported

significant improvement in quality-of-life measures over the 16 weeks¹⁰. In another study, approximately two-thirds of patients reported improvements in spasticity after 50 weeks of treatment with cannabis containing THC and CBD⁴.

Cannabis has even shown to be effectively lower the frequency and intensity of spasms in multiple sclerosis patients whose spasms had been previously unrelieved by traditional anti-spasticity therapy. After 15 weeks of treatment, patients saw a significant reduction in spasticity. Improvements were seen within the first four weeks³.

States That Have Approved Medical Cannabis for Spasms

Currently, 17 states have approved medical cannabis for the treatment of spasms. These states include: Arizona, Arkansas, California, Colorado, Delaware, Florida, Hawaii, Louisiana, Maryland, Michigan, Minnesota, Montana, Nevada, New Hampshire, Oregon, Rhode Island, and Washington.

If muscle spasms are caused by multiple sclerosis, Alaska, Connecticut, Florida, Georgia, Illinois, Louisiana, Maine, Massachusetts, New Hampshire, New Jersey, New Mexico, New York, Ohio, Pennsylvania, Vermont, and West Virginia have approved medical cannabis for treatment purposes.

A number of other states will consider allowing medical cannabis to be used for the treatment of spasms not related to multiple sclerosis with recommendation by a physician. These states include: Connecticut (other medical conditions may be approved by the Department of Consumer Protection) and Massachusetts (other conditions as determined in writing by a qualifying patient's physician).

In Washington D.C., any condition can be approved for medical cannabis as long as a DC-licensed physician recommends the treatment.

Recent Studies on Cannabinoids and CBD's Effect on Spasms

Multiple sclerosis patients achieved a 30% reduction in spasticity severity after 4 weeks of being treated with cannabis that contained THC and CBD.

Delta-9-tetrahydrocannabinol-cannabidiol (Sativex): a review of its use in patients with moderate to severe spasticity due to multiple sclerosis.

(<http://www.ncbi.nlm.nih.gov/pubmed/24671907>)

Spasms that had previously proven to be untreatable by traditional efforts were significantly reduced after four weeks of cannabis treatment.

A double-blind, randomized, placebo-controlled, parallel-group study of Sativex, in subjects with symptoms of spasticity due to multiple sclerosis.

(<http://www.ncbi.nlm.nih.gov/pubmed/20307378>)

Resources:

1. Baker, D., Pryce, G., Croxford, J.L., Brown, P., Pertwee, R.G., Huffman, J.W., and Layward, L. (2000, March 2). Cannabinoids control spasticity and tremor in a multiple sclerosis model *Nature*, 404(6773), 84-7.
2. Borgelt, L.M., Franson, K.L., Nussbaum, A.M., and Wang, G.S. (2013, February). The pharmacologic and clinical effects of cannabinoids. *Pharmacotherapy*, 33(2), 195-209.
3. Collin, C., Ehler, E., Waberzinek, G., Alsindi, Z., Davies, P., Powell, K., Notcutt, W., O'Leary, C., Ratcliffe, S., Novakova, I., Zapletalova, O., Pikova, J., and Ambler, Z. (2010, June). A double-blind, randomized, placebo-controlled, parallel-group study of Sativex, in subjects with symptoms of spasticity due to multiple sclerosis. *Neurological Research*, 32(5), 451-9.
4. Fernandez, O. (2014). Advanced in the management of multiple sclerosis spasticity: recent clinical trials. *European Neurology*, 72. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/25278117>.
5. Pertwee, R.G. (2002, August). Cannabinoids and multiple sclerosis. *Pharmacology & Therapeutics*, 95(2), 165-74.
6. Smith, P.F., (2002, June). Cannabinoids in the treatment of pain and spasticity in multiple sclerosis. *Current Opinion in Investigational Drugs*, 3(6), 859-64.
7. Spasticity. (n.d.). *National Multiple Sclerosis Society*. Retrieved from <http://www.nationalmssociety.org/Symptoms-Diagnosis/MS-Symptoms/Spasticity>.
8. Syed, Y.Y., McKeage, K., and Scott, L.J. (2014, April). Delta-9-tetrahydrocannabinol-cannabidiol (Sativex): a review of its use in patients with moderate to severe spasticity due to multiple sclerosis. *Drugs*, 74(5), 563-78.
9. Thaera, G.M., Welik, K.E., Carter, J.L., Demaerschalk, B.M., and Wingerchuk, D.M. (2009, November). Do cannabinoids reduce multiple sclerosis-related spasticity? *Neurologist*, 15(6), 369-71.