

Amyotrophic Lateral Sclerosis (ALS): Cannabinoids and CBD Research Overview

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ALS is a rapidly progressive neurodegenerative disease that eventually causes the death of neurons that control voluntary muscles. Studies have shown cannabinoids effectively slow the progression of the disease, and help patients manage the disease's associated symptoms.

Overview of Amyotrophic Lateral Sclerosis

Amyotrophic Lateral Sclerosis, most commonly referred to as ALS or Lou Gehrig's disease, is a rapidly progressive neurodegenerative disease that affects the nerve cells in the brain, spinal cord, and motor cortex that are responsible for controlling voluntary muscles. The disease prevents the brain neurons from getting nourishment and thus eventually causes their demise. In turn, the brain is unable to initiate and control muscles, and voluntary movement is lost. Those who suffer from ALS can lose the capability to move, eat, speak and even breathe.

The cause of ALS continues to be unknown. There are two types of the disease— sporadic and familial. According to The ALS Association, sporadic ALS accounts for 90 to 95% of ALS cases in the United States. Familial

ALS, which is inherited, accounts for 5 to 10% of ALS cases in the U.S. The ALS Association reports that ALS most commonly affects people between the ages of 40 and 70 years. The disease is 20% more likely to develop in men than in women.

There is no cure for ALS and, according to the National Institute of Neurological Disorders and Stroke, most who develop the disease die from respiratory failure within three to five years from the onset of symptoms. Because there's no cure, the treatment for those with ALS is to slow the damage to motor neurons with the help of the medication riluzole. Riluzole, however, does not reverse neuron damage already done and prolongs survival for only several months.

Physicians will also commonly prescribe medications to help combat fatigue, ease muscle cramps, minimize muscle spasms and reduce excess saliva and phlegm. Physicians may also prescribe medications to help with depression, sleep problems, pain and constipation.

Findings: Effects of Cannabinoids and CBD on ALS

Cannabis has long been determined to be beneficial in slowing ALS's progression and offering relief from its associated symptoms. Preclinical studies indicate that cannabinoids found in cannabis, including the psychoactive compound tetrahydrocannabinol (THC) and non-psychoactive compound [cannabinol \(CBD\)](#), have antioxidative, anti-inflammatory and neuroprotective effects. Numerous animal trials have demonstrated that the administration of cannabinoids in cannabis can delay

the onset of ALS, prolong the survival of neurons and slow the disease's progression^{3,4,5}.

CBD has also been found to significantly slow the onset of ALS⁶.

Cannabis can also help ALS patients manage the [pain](#), appetite loss, [depression](#), [sleeping problems](#), [spasticity](#), and drooling symptoms associated with the disease^{1,4}. Cannabis combats ALS-associated pain because of its analgesia and [anti-inflammatory effects](#), and manages spasticity with its muscle-relaxing properties. Because of its appetite stimulating effects, it helps prevent the wasting that can occur in the final stages of ALS⁴.

States That Have Approved Medical Cannabis for ALS

Out of the 29 states that have adopted medical cannabis legislation, 19 have approved cannabis for treating ALS.

These states

include: [Arizona](#), [Arkansas](#), [Connecticut](#), [Delaware](#), [Florida](#), [Georgia](#), [Maine](#), [Massachusetts](#), [Michigan](#), [Minnesota](#), [New Hampshire](#), [New Jersey](#), [New Mexico](#), [New York](#), [North Dakota](#), [Ohio](#), [Pennsylvania](#), and [West Virginia](#).

Several other states will allow medical cannabis to be used for the treatment of ALS, but require an approval or a recommendation by a physician. These states include: [California](#) (any debilitating illness where the medical use of cannabis has been recommended by a physician), [Nevada](#) (other conditions subject to approval), [Oregon](#) (other

conditions subject to approval), [Rhode Island](#) (other conditions subject to approval), and [Washington](#) (any “terminal or debilitating condition”).

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 ALS

Cannabis found to prolong neuron cell survival, delay the onset of ALS and slow the progression of the disease.

Cannabis and amyotrophic lateral sclerosis: hypothetical and practical applications, and a call for clinical trials.

(<http://www.ncbi.nlm.nih.gov/pubmed/20439484>)

Cannabis was moderately effective at reducing symptoms of pain, appetite loss, depression and drooling symptoms associated with the disease.

Survey of cannabis use in patients with amyotrophic lateral sclerosis.

(<http://www.ncbi.nlm.nih.gov/pubmed/15055508>)

Resources:

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2. Amyotrophic Lateral Sclerosis (ALS) Fact Sheet. (n.d.) *National Institute of Neurological Disorders and Stroke*. Retrieved from http://www.ninds.nih.gov/disorders/amyotrophiclateralsclerosis/detail_ALS.htm.
3. Bilsland, L.G., Dick, J.R., Pryce, G., Petrosino, S., Di Marzo, V., Baker, D., and Greensmith, L. (2006). Increasing cannabinoid levels by pharmacological and genetic manipulation delay disease progression in SOD1 mice. *The FASEB Journal*, 20(7), 1003-1005.

4. Carter, G.T., Abood, M.E., Aggarwal, S.K., and Weiss, M.D. (2010). Cannabis and amyotrophic lateral sclerosis: hypothetical and practical applications, and a call for clinical trials. *American Journal of Hospice & Palliative Medicine*, 27(5), 347-356.
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6. Weydt, P., Hong, S., Witting, A., Moller, T., Stella, N. and Klot, M. (2005). Cannabinol delays symptom onset in SOD1 transgenic mice without affecting survival. *Amyotrophic Lateral Sclerosis & Other Motor Neuron Disorders*, 6(3), 182-184.
7. What is ALS? (n.d.). ALS Association. Retrieved from <http://www.alsa.org/about-als/what-is-als.html>.