

Amyotrophic Lateral Sclerosis (ALS)

[Amyotrophic lateral sclerosis \(ALS\)](#), also known as Lou Gehrig's disease, is a fatal neurodegenerative disorder that is characterized by the selective loss of motor neurons in the spinal cord, brain stem, and motor cortex. An estimated 30,000 Americans are living with ALS, which often arises spontaneously and afflicts otherwise healthy adults. More than half of ALS patients die within 2.5 years following the onset of symptoms.

At present, there is an absence of clinical trials investigating the use of cannabinoids as a disease-modifying therapy for ALS. However, preclinical models indicate that cannabinoids may hold the potential to delay ALS progression, lending support to anecdotal reports by some patients that cannabinoids may be efficacious in moderating the disease's development and in alleviating certain ALS-related symptoms such as pain, appetite loss, spasticity, depression and drooling.¹

For example, investigators at the California Pacific Medical Center in San Francisco reported in the journal *Amyotrophic Lateral Sclerosis & Other Motor Neuron Disorders* that the administration of THC both before and after the onset of ALS symptoms staved disease progression and prolonged survival in animals compared to untreated controls.² University of Arkansas researchers reported that the administration of the cannabinoid agonist AM-1241 more than doubled survival rates compared to controls. "[T]he magnitude of effect produced by AM-1241 initiated at symptom onset rivals the best yet reported for any pharmaceutical agent, even those given pre-symptomatically," authors concluded.³ A study of plant-derived cannabis extracts also documented delayed ALS progression during early stages of the disease.⁴

As a result, some experts are calling for clinical trials to assess the efficacy of cannabinoids in modulating the treatment of ALS progression. Writing in the *American Journal of Hospice & Palliative Medicine* in 2010, a team of investigators reported, "Based on the currently available scientific data, it is reasonable to think that cannabis might significantly slow the progression of ALS, potentially extending life expectancy and substantially reducing the overall burden of the disease." They concluded, "There is an overwhelming amount of preclinical and clinical evidence to warrant initiating a multicenter randomized, double-blind, placebo-controlled trial of cannabis as a disease-modifying compound in ALS."⁵ Authors of a 2016 review in the journal *Neural Regeneration Research* echoed these findings, opining: "[T]here is a valid rationale to propose the use of cannabinoid compounds in the pharmacological management of ALS patients."⁶

REFERENCES

¹ Amtmann et al. 2004. [Survey of cannabis use in patients with amyotrophic lateral sclerosis](#). *The American Journal of Hospice and Palliative Care* 21: 95-104.

² Raman et al. 2004. [Amyotrophic lateral sclerosis: delayed disease progression in mice by treatment with a cannabinoid](#). *Amyotrophic Lateral Sclerosis & Other Motor Neuron Disorders* 5: 33-39.

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³ Shoemaker et al., 2007. [The CB2 cannabinoid agonist AM-1241 prolongs survival in a transgenic mouse model of amyotrophic lateral sclerosis when initiated at symptom onset.](#) *Journal of Neurochemistry* 101: 87.

⁴ Moreno-Martet et al. 2014. [Changes in endocannabinoid receptors and enzymes in the spinal cord of SOD1\(G93A\) transgenic mice and evaluation of Sativex-like combination of phytocannabinoids: Interest for future therapies in amyotrophic lateral sclerosis.](#) *CNS Neuroscience and Therapeutics* 20: 809-815.

⁵ Carter et al. 2010. [Cannabis and amyotrophic lateral sclerosis: hypothetical and practical applications, and a call for clinical trials.](#) *American Journal of Hospice & Palliative Medicine* 27: 347-356.

⁶ Giacoppo and Mazzon. 2016. [Can cannabinoids be a potential therapeutic tool in amyotrophic lateral sclerosis?](#) *Neural Regeneration Research* 11: 1896-1899.