

# The Effects of Marijuana on Mixed Sensorimotor Chronic Inflammatory Demyelinating Polyneuropathy: A Case Report

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## Introduction

Chronic inflammatory demyelinating polyneuropathy (CIDP) is an acquired immune-mediated neuromuscular disease of the nerve roots and peripheral nerves which often leaves the affected individual with neuropathic pain in their extremities. For individuals with refractory neuropathic pain, tetrahydrocannabinol (an active ingredient in marijuana) may have beneficial effects. This case study presents the first case in the literature of neuropathic symptoms alleviated by marijuana in mixed sensorimotor CIDP.

## Case Summary

A 41-year-old male presented for an acute exacerbation of his mixed sensorimotor CIDP. To control this exacerbation, he was started on monthly intravenous immune globulin (IVIG) infusions. According to the patient, the IVIG infusions significantly helped him, but the burning and pain in his hands would often return quickly between treatments. He worked as a master jeweler, and the neuropathic pain in his hands greatly impacted his ability to perform the necessary tasks of his craft. Exploring ways to control his neuropathy, the patient decided to restart a college-old habit of marijuana use, in attempted relief from his symptoms. Within days of beginning daily marijuana use, he noticed a significant improvement in his peripheral neuropathic symptoms. With a greater relief from his neuropathy, he was able to perform his master jeweler craft again. Marijuana decreased the neuropathic pain and gave him the ability to work between IVIG infusions.



## Discussion

### Medicinal Marijuana and Neuropathy

To our knowledge, marijuana use for alleviation of neuropathic symptoms in CIDP has never been previously reported in the literature; however, it has been trialed extensively in cases of painful neuropathy secondary to other disease processes. Feelings of “neuropathy” can be subdivided into several different underlying symptoms. For some, neuropathy manifests as dysesthesias - abnormal sensations including feelings of heat or cold, electric shocks, or numbness. Others can experience allodynia - extreme pain evoked by even light touch. Our patient had many elements of neuropathy, and allodynia was his worst, often causing difficulty in ambulation. While there are many underlying pathologies that cause neuropathy (diabetes mellitus, alcohol abuse, demyelinating disorders, genetic conditions, HIV/AIDS, etc.), the symptoms experienced are often very similar. Marijuana usage has been effective in relieving neuropathic symptoms in several of these conditions. While the mechanism for these improvements is not currently well understood, one study found decreases in the network connectivity in pain-processing locations of the dorsolateral prefrontal cortex after the administration of marijuana. These results were clinically correlated with pain reduction in those individuals. This suggests that the use of marijuana may have potential benefits regarding the alleviation of neuropathic symptoms and may not be dependent upon the underlying pathology originally responsible for the development of this neuropathy.

Despite the perceived positives of marijuana, its use is not completely benign. Individuals who use marijuana may expect to experience a multitude of adverse neuropsychogenic effects, such as impaired attention, concentration, learning, memory, and psychomotor speed, in addition to anxiety, confusion, disorientation, dizziness, dysphoria, headaches, and sedation. Many report the feeling of being “high,” “stoned,” “sedated,” or “impaired.”. Some also state experiencing increased fatigue and nausea.

### Legal Status of Medicinal Marijuana

The legal history of marijuana in the United States (U.S.) is complicated, but there has been an increase in state-wide legalization of marijuana for both recreational and medical purposes. In 1850, marijuana was widely utilized as a patent medicine and was even described in the U.S. Pharmacopoeia. In 1937, the federal government restricted the use and sale of marijuana. In 1942, it was removed from the U.S. Pharmacopoeia and by 1970 it was labeled as a schedule I controlled substance, which legally implied the absence of known medical benefits. Years later, in 1996, California became the first state to permit legal access to and use of botanical cannabis for medical purposes, under physician guidance. The laws throughout the individual states are changing as the body of research data continues to grow, but the federal ban remains unchanged, creating a difficult middle-ground for physicians attempting to treat their patients.

## Conclusion

The use of medical marijuana is still controversial in the United States. Yet, there is always an ongoing search for additional, even alternative or complementary, treatments for chronic progressive conditions, such as CIDP. With progression comes worsening pain and a disabling loss of function. Yet, in this case study the patient was able to return to his craft thanks to a combination of conventional, and recommended, IVIG treatments, in addition to unconventional, but seemingly beneficial, marijuana usage. Anecdotal evidence from this case study shows that it might be an effective future therapy for peripheral neuropathy secondary to CIDP.

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