

# Current Evidence on the Use of Phytocannabinoids for Traumatic Spinal Cord Injuries

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**Background and Issues:** The United States is currently experiencing a resurgent crisis of opioid use and abuse, which directly correlates with an unprecedented number of deaths due to opioid-related incidents. The number of opioid prescriptions has nearly quadrupled over the last two decades [1].

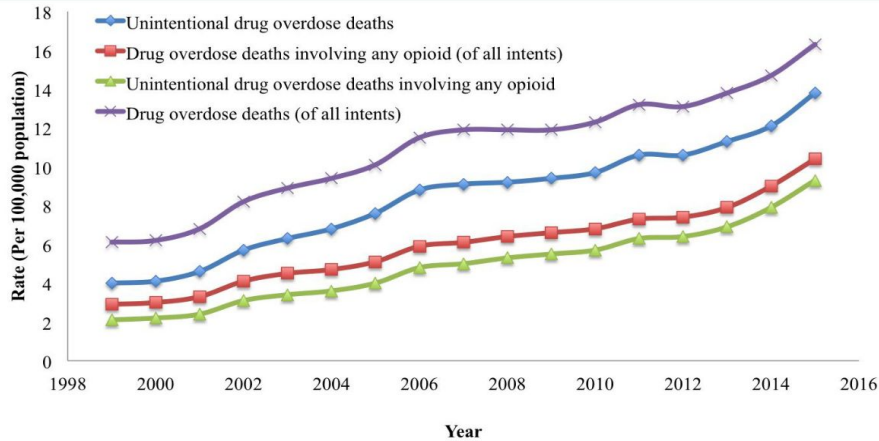
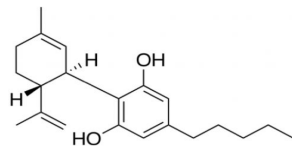
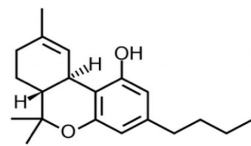


Fig. 1: Age-adjusted rates of drug overdose death and drug overdose deaths involving any opioid, for all intents and for unintentional intent, by year — United States, 1999–2015 (CDC 2017)

Emerging data suggests access to Medicinal Cannabis (MC) is correlated with an overall reduction in the number of opioid prescriptions, overdoses and deaths; both statewide and per-patient basis in locales where access has been permitted. In fact, states with established MC programs saw opioid related overdoses reduced by up to 33%, with each state seeing decreases of at least 25% [2-4].



Cannabidiol



Tetrahydrocannabinol

Traumatic Spinal Cord Injuries are known to be a major cause of severe chronic pain, spasms, and disability. When pain symptoms are refractory to conservative measures, patients may be offered prescription opioid medications, such as hydrocodone, oxycodone, methadone, morphine, and other opioids. These medications are known to cause constipation, nausea, vomiting, itching, addiction, withdrawal symptoms during abstinence, and potential overdose, due to respiratory depression. These side effects are much less likely to occur with the use of phytocannabinoids, in part, due to cannabinoid receptors being in low concentration in the brainstem respiratory centers.

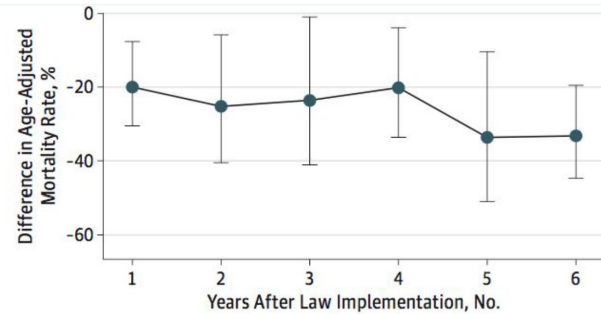


Fig. 2: Association Between Medical Cannabis Laws and Opioid Analgesic Overdose Mortality in Each Year After Implementation of Laws in the United States, 1999–2010 (Bachhuber, M.A., et al., 2014)

**Purpose:** To provide clinicians with an up-to-date review of the current evidence regarding the use of phytocannabinoids, cannabidiol (CBD) and tetrahydrocannabinol (THC), for chronic pain due to spinal cord injuries. In a clinical setting, phytocannabinoids may be invaluable alternative to opioid medicines. This is especially important in situations where it is desirable to practice ‘harm reduction’ by reducing, replacing, and/or completely abstaining from prescribing opioids for patients with severe chronic pain due to a spinal cord injury (SCI).

**Method:** The PubMed database search engine was searched up to February 6, 2023. The criteria were human studies with subjects diagnosed with a spinal cord injury and the use of cannabis for a therapeutic purpose. Non-human studies and those that did not have pain relief and/or spasticity relief as a primary outcome were excluded.

**Results:** 206 studies were screened and 2 Meta-analyses, 1 Systematic review, and 1 Randomized Control Trial (RTC) were included. No studies concurrently observed patient’s opioid intake while taking phytocannabinoids. Relief of pain and spasticity were the most common reasons for use. Phytocannabinoid use was associated with dizziness, somnolence, and nausea. One study suggested the optimal THC dose for spasticity is 15–20 mg.

**Conclusions:** Current evidence suggests patients seek phytocannabinoid use to reduce pain and spasticity. Further research is needed to delineate which SCI patients would benefit the most from the use of cannabinoids for relief of pain and spasticity. This research should also concurrently monitor opioid intake, in order to evaluate if there is an opioid-sparing effect.

## References:

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