

Clinical study: Medicinal cannabis is a 'life-changing treatment' for people with Tourette syndrome

June 9 2023



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Australian researchers have published the first robust clinical study proving that medicinal cannabis effectively treats the debilitating effects of Tourette syndrome.

The findings—which show a statistically and clinically significant reduction in motor and [vocal tics](#) in just six weeks—are published in the journal *NEJM Evidence*.

The clinical trial was led by neuropsychiatrist Dr. Philip Mosley, a Research Fellow at the Wesley Research Institute and QIMR Berghofer Medical Research Institute.

The University of Sydney's Lambert Initiative for Cannabinoid Therapeutics, with Wesley Research Institute, assisted with [study design](#) and execution, and analyzed blood levels of cannabinoids among participants. The analysis found a significant association between levels of cannabis in the bloodstream and the response to active treatment.

THC (tetrahydrocannabinol) is the active hallucinogenic compound in cannabis that produces a "high" effect, while CBD (cannabidiol) is a non-psychoactive compound. Both are used medicinally in Australia.

Study co-author Professor Iain McGregor, the Academic Director of the Lambert Initiative, said, "We were delighted to be able to work with Professor Mosley and this team to deliver this important clinical trial showing the efficacy of oral THC and CBD in treating Tourette syndrome."

"This is such a difficult syndrome to treat. It severely impacts the quality of life of one in 100 young Australians. It is gratifying to know that our result provides strong evidence of an alternative treatment method for these patients in need."

"While there are well-known concerns about the side effects of THC on cognition and [mental health](#), this trial demonstrates that careful dosing with THC in an oral formulation is very well tolerated in a relatively young patient group."

"It is also a happy coincidence that this paper was just published by *NEJM Evidence* on [Tourette] Awareness Day, the 7th of June."

The study involved testing 22 adult patients with severe Tourette symptoms. In the double-blind study, participants received both [medicinal cannabis](#) oil and a placebo over two six-week blocks.

"This is the first rigorous and methodical trial of medicinal cannabis to be undertaken in a sufficiently large group of people to make definitive conclusions about its effectiveness," Dr. Mosley said.

"It shows that medicinal cannabis can reduce tics by a level that makes a life-changing difference for people with Tourette syndrome and their families."

"In addition, we found that other symptoms associated with Tourette syndrome in our participants also reduced, particularly symptoms of obsessive compulsive disorder and anxiety."

Tourette syndrome affects about one percent of the population and is four times more common in men than women. The neurological disorder often begins in childhood and is characterized by involuntary movements and vocalizations, or tics.

"Cannabis interacts with specific receptors on [nerve cells](#) in the brain that are part of the body's own 'endocannabinoid' system," Dr. Mosley said.

"Effectively, stimulation of these receptors tightens a leaky filter that now stops the involuntary movements and vocalizations from getting out and being expressed by our participants."

Medicinal cannabis is available on prescription to approved patients. Patients are unable to drive a vehicle or operate heavy machinery while using the medication that is typically taken orally, in small doses, several times a day.

More information: Philip E. Mosley et al, Tetrahydrocannabinol and Cannabidiol in Tourette Syndrome, *NEJM Evidence* (2023). [DOI: 10.1056/EVIDoa2300012](https://doi.org/10.1056/EVIDoa2300012)

Provided by University of Sydney

Citation: Clinical study: Medicinal cannabis is a 'life-changing treatment' for people with Tourette syndrome (2023, June 9) retrieved 4 May 2024 from <https://medicalxpress.com/news/2023-06-clinical-medicinal-cannabis-life-changing-treatment.html>

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