

Epilepsy

The causes of epilepsy remain unknown in about half of all cases. However, recent discoveries have revealed an intercellular signalling system involving the brain's cannabinoid receptors. Activation of these receptors has been implicated in helping to explain the anticonvulsant properties of cannabinoids.^{1, 2, 3, 4, 5}

Cannabidiol (CBD), which along with THC is the cannabinoid currently receiving the most attention for medical applications, has shown particular promise in reducing the frequency and severity of seizures.⁶ CBD has the added advantage of having minimal psychoactive effects, which may facilitate treatment for children.

"Preliminary, uncontrolled clinical studies suggest that cannabidiol may have antiepileptic effects in humans."⁷

- E. Gordon

"The concept that the endogenous cannabinoid system is activated on demand suggests that a promising strategy to alleviate seizure frequency is the enhancement of endocannabinoid levels by inhibiting the cellular uptake and the degradation of these endogenous compounds."⁶

- B. Lutz

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1. Romigi, A., Bari, M., Placidi, F., Marciani, M. G. et al. Cerebrospinal fluid levels of the endocannabinoid anandamide are reduced in patients with untreated newly diagnosed temporal lobe epilepsy. *Epilepsia* 2010 51:768-772.
 2. Wallace, M. J., Martin, B. R., and DeLorenzo, R. J. Evidence for a physiological role of endocannabinoids in the modulation of seizure threshold and severity. *Eur. J. Pharma* 2010 452:295-301.
 3. Wallace, M. J., Blair, R. E., Falenski, K. W., Martin, B. R. et al. The endogenous cannabinoid system regulates seizure frequency and duration in a model of temporal lobe epilepsy. *J. Pharmacol. Exp. Ther.* 2003 307:129-137.
 4. Shafaroodi, H., Samini, M., Moezi, L., Homayoun, H. et al. The interaction of cannabinoids and opioids on pentylentetrazole-induced seizure threshold in mice. *Neuropharmacology* 2004 47:390-400.
 5. Alger BE. Endocannabinoids and Their Implications for Epilepsy. *Epilepsy Currents* 2004 4(5):169-173.
 6. Lutz, B. On-demand activation of the endocannabinoid system in the control of neuronal excitability and epileptiform seizures. *Biochem. Pharmacol.* 2004 68:1691-1698.
 7. Gordon, E. and Devinsky, O. Alcohol and cannabis: effects on epilepsy and use by patients with epilepsy. *Epilepsia* 2001 42:1266-1272.