

Study reveals how cannabis-based drugs harm the brain

Scientists have shown that prolonged intake of chemical compounds found in marijuana has a negative impact on brain function and memory.




HEALTH



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With the heated debate on the laws controlling the use of cannabis around the world and its legalisation for medical purposes in particular, research into the topic has intensified in recent years. Although there are several studies highlighting the risk of developing mental health problems involved with heavy, regular cannabis use, the potential side effects of long-term exposure to cannabis-based drugs are not yet clear.

Scientists partially supported by the EU-funded SynaNet project have found that continued use of either cannabis or cannabis-based drugs impairs memory. Their study was published recently in the [‘Journal of Neurochemistry’](#) . “We found out that adult mice chronically exposed to WIN 55,212-2 displayed impaired recognition memory and differences in metabolic brain activity and dysfunctional connectivity in circuits that underlie memory processing,” they said.

Side effects

Researchers from the University of Lisbon and Lancaster University examined the impact of chronic, intermittent (30 days) cannabinoid exposure on brain metabolism, functional brain connectivity and recognition memory. They focused on the consequences of a specific cannabinoid drug, WIN 55,212-2, a chemical described as an aminoalkylindole derivative. This produces effects similar to those of cannabinoids such as tetrahydrocannabinol, the active principle of cannabis. The

authors highlighted the relevance of the work for those using cannabinoid-based therapies to treat medical conditions. “Elucidating how cannabinoids affect brain function is instrumental for the development of therapeutic tools aiming to mitigate ‘on target’ side effects of cannabinoid-based therapies.” Such cannabis-based medicines are increasingly being used to combat several diseases, including epilepsy, multiple sclerosis and chronic pain.

Explaining the findings in a [press release](#) by the Instituto de Medicina Molecular João Lobo Antunes, group leader Ana Sebastião said: “As for all medicines, cannabinoid-based therapies have not only beneficial disease-related actions, but also negative side effects.” She emphasised that the “results are very important for the development of pharmacological strategies aiming to decrease cognitive side effects of currently used cannabinoid-based therapies, which proved effective against several nervous system disorders.”

As summarised on the [project website](#), SynaNet was set up to “promote collaborative multidisciplinary and translational research by enhancing effective knowledge transfer, exchange of best research practices, and the mobility of early stage researchers.” The programme includes researchers from four universities in Italy, Portugal, Finland and the United Kingdom.

The SynaNet (Neurologic and Psychiatric Disorders: from synapses to networks) project aims to understand neurologic and psychiatric diseases and offers a broad range of research and training opportunities. Research topics cover “ageing, neurodegenerative and neuroexcitability diseases (either with psychiatric or neurologic expression), neuroinflammation, neuronal synchronization/desynchronization,” according to [CORDIS](#). The partners believe that topics studied under the SynaNet project are very relevant to societal needs in Europe and worldwide. These include the influence of cannabinoids in brain circuitry, synaptic dysfunctions in Alzheimer’s disease, synaptic dysfunctions in schizophrenia and synaptic correlates of sleep dysfunctions.

For more information, please see:

[SynaNet project website](#)

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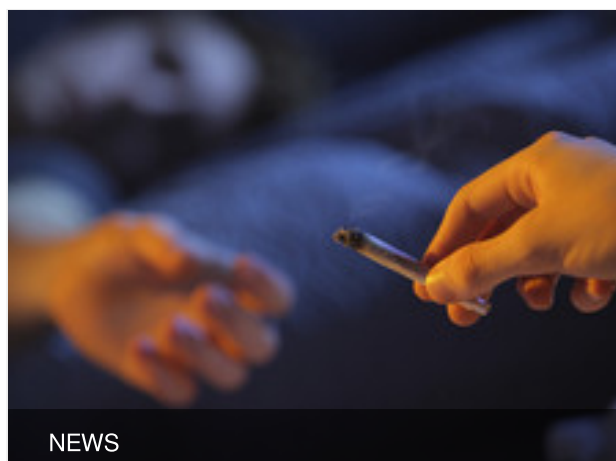
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