

Study shows how cannabis use during adolescence affects brain regions associated with schizophrenia

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New research from the Royal College of Surgeons in Ireland (RCSI) published in Nature's Neuropsychopharmacology has shown physical changes to exist in specific brain areas implicated in schizophrenia following the use of cannabis during adolescence. The research has shown how cannabis use during adolescence can interact with a gene, called the COMT gene, to cause physical changes in the brain.

The COMT gene provides instructions for making enzymes which breakdown a specific chemical messenger called dopamine. Dopamine is a neurotransmitter that helps conduct signals from one nerve cell to another, particularly in the brains reward and pleasure centres.

Adolescent [cannabis](#) use and its interaction with particular forms of the COMT gene have been shown to cause physical changes in the brain as well as increasing the risk of developing [schizophrenia](#).

Dr Áine Behan, Department of Physiology, RCSI and lead author on the study said 'This is the first study to show that the combined effects of the COMT gene with adolescent cannabis use cause physical changes in the brain regions associated with schizophrenia. It demonstrates how genetic, developmental and environmental factors interact to modulate brain function in schizophrenia and supports previous behavioural research which has shown the COMT gene to influence the effects of adolescent cannabis use on schizophrenia-related behaviour's.

The three areas of the brain assessed in this study were found to show changes in cell size, density and protein levels.

‘Increased knowledge on the effects of cannabis on the [brain](#) is critical to understanding youth mental health both in terms of psychological and psychiatric well-being,’ Dr Behan continued.

The research was funded by the Health Research Board and Science Foundation Ireland.

Provided by Royal College of Surgeons in Ireland

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