

## **ABNORMAL FUNCTIONAL CONNECTIVITY DURING INHIBITORY CONTROL UNDER THE EFFECTS OF CANNABIS**

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Cannabis can produce psychotic symptoms as well as increase the risk of developing schizophrenia after long-term use. Furthermore, impaired cognitive control can also occur under the effects of cannabis, resulting in impulsivity and risky behaviour. The dysconnection hypothesis of schizophrenia postulates that psychotic symptoms in schizophrenia are caused by an abnormal integration of different brain regions. Recently, it has been proposed that abnormal functional connectivity could also underlie impaired cognitive control in schizophrenia. The dysconnection hypothesis of schizophrenia has been extensively investigated in structural and functional connectivity studies. However, little is known about the functional connectivity of the brain under the effects of cannabis. The aim of this study was to study the functional connectivity of the inferior frontal gyrus (IFG), an area of the brain involved in inhibition control that has previously been seen to be affected by  $\Delta 9$ -THC, the main psychoactive component of cannabis. Thirty-six participants under the effects of either placebo or  $\Delta 9$ -THC were studied on two different occasions using functional magnetic resonance imaging (fMRI) while they performed an inhibitory control task and a psychophysiological interaction (PPI) analysis was carried out using the IFG as a seed region. An increased functional connectivity between the IFG and the caudate, a region involved in psychotic symptoms, was observed. This result suggests that abnormal functional connectivity may underlie the psychotic symptoms and impaired cognitive control experienced under the effect of cannabis. It also may indicate that there is a link between a failure in inhibitory control and psychosis.