inhibitory and excitatory regulatory mechanisms in the brain. There is evidence that the endocannabinoid system is altered in schizophrenia and accumulating evidence of disturbances in the system associated with exposure to cannabis or cannabinoids. This presentation will summarize what is known about the long-term cognitive effects of cannabis, describing some of the most recent research and its relevance to psychotic disorders.

01-03

fMRI in schizophrenia and cannabis users

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Background: The cerebral activation changes associated with the overlapping cognitive features of cannabis use and schizophrenia have not been systematically studied. The Tower of London Task (TOL) was used to assess functional brain activation in these two groups and in comorbid first-episode schizophrenia and cannabis users.

Methods: Event-related functional magnetic resonance imaging measured cerebral activation during the TOL task in 12 patients with first-episode schizophrenia, 17 recently abstinent long-term cannabis users, 7 recently abstinent cannabis using patients with schizophrenia and 17 healthy subjects. A two-stage random-effects analysis was used to model the BOLD response to assess cortical activation as a function of increasing task difficulty and to assess for the main effect of each diagnosis.

Results: We found prefrontal activation deficits in patients with schizophrenia that overlapped with cannabis users. A statistical trend in the comorbid subjects for reduced BOLD activation in the left superior parietal lobule and prefrontal cortices was observed. The diagnosis of schizophrenia largely accounted for the prefrontal deficit, while a history of heavy cannabis use associated with increased BOLD activation in the visual cortex.

Conclusions: There were common deficits in activation of the dorsolateral prefrontal cortex to the most difficult tasks. Ancillary brain regions were recruited, possibly to subserve the demands of complex TOL tasks. The combination of cannabis use and schizophrenia

may exert a synergistic effect on altering frontal lobe recruitment during high-demand cognitive tasks.

01-04

Visual scanpath comparisons between those people with and without comorbid cannabis abuse: the implications for eye movement research in schizophrenia

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Background: Cannabis use is associated with substantial social cognition impairment, as are illnesses such as schizophrenia. Schizophrenia is also strongly associated with comorbid cannabis use. Studies examining face processing disturbances show that people with schizophrenia display impaired visual scanpath (VS) strategies when viewing face stimuli. No studies to date have examined the impact of cannabis use on VS performance, and whether VS disturbances in schizophrenia are further impaired by comorbid cannabis use. This study examines whether VS disturbances to face stimuli are observed in cannabis users.

Methods: The sample consisted of 20 subjects with regular cannabis use and 20 healthy controls. Subjects were screened for psychosis (SCID-N/P). IQ was assessed using the NART and neuropsychological functioning using the RBANS. Personality was assessed using the SPQ and the IPDE. VSs were recorded using a ViewPoint (6.0) eye tracker. Recognition accuracy was recorded concurrently.

Results: Preliminary analysis indicates that the two groups did not differ from each other on age, gender, secondary school completion, IQ or neuropsychological functioning. However, cannabis users had significantly higher scores than controls on the SPQ items of odd beliefs/magical thinking and odd speech, but did not differ from each other on VS or facial expression recognition accuracy.

Conclusions: These findings suggest that the social cognition disturbances observed in cannabis users may be associated with social cue and personality disturbances rather than disturbances in face perception and processing. The implications for VS research in schizophrenia will be discussed.