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NEUROFUNCTIONAL EFFECTS OF CANNABIS ON RESPONSE INHIBITION

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Background: This study examined the effect of Delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD) on brain activation during a motor inhibition task.

Methods: Functional magnetic resonance imaging and behavioural measures were recorded while 15 healthy volunteers performed a Go/No-Go task following administration of either THC or CBD or placebo in a double-blind, pseudo-randomized, placebo-controlled repeated measures within-subject design.

Results: Relative to placebo, THC attenuated activation in the right inferior frontal and the anterior cingulate gyrus. In contrast, CBD deactivated the left temporal cortex and insula. These effects were not related to changes in anxiety, intoxication, sedation, and psychotic symptoms.

Conclusions: These data suggest that THC attenuates the engagement of brain regions that mediate response inhibition. CBD modulated function in regions not usually implicated in response inhibition.

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