



Review

Cognitive consequences of cannabis use: Comparison with abuse of stimulants and heroin with regard to attention, memory and executive functions

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Abstract

This review aims to compare cognitive consequence between cannabis, and stimulants and heroin with regards to attention, memory and executive functions. The available studies using brain imaging techniques and neuropsychological tests show that acutely, all drugs create a disharmony in the neuropsychological network, causing a decrease of activity in areas responsible for short-term memory and attention, with the possible exception of heroin. Cannabis induces loss of internal control and cognitive impairment, especially of attention and memory, for the duration of intoxication. Heavy cannabis use is associated with reduced function of the attentional/executive system, as exhibited by decreased mental flexibility, increased perseveration, and reduced learning, to shift and/or sustain attention. Recent investigations on amphetamine/methamphetamine have documented deficits in learning, delayed recall, processing speed, and working memory. MDMA users exhibit difficulties in coding information into long-term memory, display impaired verbal learning, are more easily distracted, and are less efficient at focusing attention on complex tasks. The degree of executive impairment increases with the severity of use, and the impairments are relatively lasting over time. Chronic cocaine users display impaired attention, learning, memory, reaction time and cognitive flexibility. Heroin addiction may have a negative effect on impulse control, and selective processing.

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