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Cannabidiol regulation of emotion and emotional memory processing: relevance for treating anxiety-related and substance abuse disorders.

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Abstract

Learning to associate cues or contexts with potential threats or rewards is adaptive and enhances survival. Both aversive and appetitive memories are therefore powerful drivers of behaviour, but the inappropriate expression of conditioned responding to fear- and drug-related stimuli can develop into anxiety-related and substance abuse disorders respectively. These disorders are associated with abnormally persistent emotional memories and inadequate treatment, often leading to symptom relapse. Studies show that cannabidiol, the main non-psychotomimetic phytocannabinoid found in *Cannabis sativa*, reduces anxiety via 5-HT_{1A} and (indirect) cannabinoid receptor activation in paradigms assessing innate responses to threat. There is also accumulating evidence from animal studies investigating the effects of cannabidiol on fear memory processing indicating that it reduces learned fear in paradigms that are translationally relevant to phobias and post-traumatic stress disorder. Cannabidiol does so by reducing fear expression acutely and by disrupting fear memory reconsolidation and enhancing fear extinction, both of which can result in a lasting reduction of learned fear. Recent studies have also begun to elucidate the effects of cannabidiol on drug memory expression using paradigms with translational relevance to addiction. The findings suggest that cannabidiol reduces the expression of drug memories acutely and by disrupting their reconsolidation. Here, we review the literature demonstrating the anxiolytic effects of cannabidiol before focusing on studies investigating its effects on various fear and drug memory processes. Understanding how cannabidiol regulates emotion and emotional memory processing may eventually lead to its use as a treatment for anxiety-related and substance abuse disorders. **Linked Articles** This article is part of a themed section on Pharmacology of Cognition: a Panacea for Neuropsychiatric Disease? To view the other articles in this section visit <http://onlinelibrary.wiley.com/doi/10.1111/bph.v174.19/issuetoc>.

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