Cannabidiol enhances verbal episodic memory in healthy young participants: A randomized clinical trial

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Cannabis contains a multitude of different compounds. One of them, cannabidiol - a non-psychoactive substance - might counteract negative effects of Δ-9-Tetrahydrocannabinol on hippocampus-dependent memory impairment. The aim of the present study was to investigate the effect of vaping cannabidiol on verbal episodic memory in healthy young subjects. We used a double-blind, placebo-controlled, randomized crossover trial in 39 healthy young subjects. Participants received once a single dose of cannabidiol e-liquid (0.25 ml, 5% cannabidiol, 12.5 mg cannabidiol) and once placebo for vaping after learning 15 unrelated nouns. The primary outcome measure was the short delay verbal memory performance (number of correctly free recalled nouns) 20 min after learning. 34 participants (mean age: 22.26 [3.04]) completed all visits and entered analyses (17 received cannabidiol and 17 received placebo first). Cannabidiol enhanced verbal episodic memory performance (placebo: 7.03 [2.34]; cannabidiol 7.71 [2.48]; adjusted group difference 0.68, 95% CI 0.01 to 1.35; R; 2β; = .028, p = .048). Importantly, we did not detect medication effects on secondary outcome measures attention or working memory performance, suggesting that CBD has no negative impact on these basic cognitive functions. The results are in line with the idea that vaping cannabidiol interacts with the central endocannabinoid system and is capable to modulate memory processes, a phenomenon with possible therapeutic potential. Further studies are needed to investigate optimal dose-response and time-response relationships.
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