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J Clin Psychopharmacol. 2004 Jun;24(3):305-13.

Effect of Delta-9-tetrahydrocannabinol and cannabidiol on nocturnal sleep and early-morning behavior in young adults.

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Author information

Abstract

The effects of cannabis extracts on nocturnal sleep, early-morning performance, memory, and sleepiness were studied in 8 healthy volunteers (4 males, 4 females; 21 to 34 years). The study was double-blind and placebo-controlled with a 4-way crossover design. The 4 treatments were placebo, 15 mg Delta-9-tetrahydrocannabinol (THC), 5 mg THC combined with 5 mg cannabidiol (CBD), and 15 mg THC combined with 15 mg CBD. These were formulated in 50:50 ethanol to propylene glycol and administered using an oromucosal spray during a 30-minute period from 10 pm. The electroencephalogram was recorded during the sleep period (11 pm to 7 am). Performance, sleep latency, and subjective assessments of sleepiness and mood were measured from 8:30 am (10 hours after drug administration). There were no effects of 15 mg THC on nocturnal sleep. With the concomitant administration of the drugs (5 mg THC and 5 mg CBD to 15 mg THC and 15 mg CBD), there was a decrease in stage 3 sleep, and with the higher dose combination, wakefulness was increased. The next day, with 15 mg THC, memory was impaired, sleep latency was reduced, and the subjects reported increased sleepiness and changes in mood. With the lower dose combination, reaction time was faster on the digit recall task, and with the higher dose combination, subjects reported increased sleepiness and changes in mood. Fifteen milligrams THC would appear to be sedative, while 15 mg CBD appears to have alerting properties as it increased awake activity during sleep and counteracted the residual sedative activity of 15 mg THC.

PMID: 15118485

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