

RANDOMISED CONTROLLED TRIAL (RCT) OF DAILY AEROBIC EXERCISE FOR INPATIENT CANNABIS WITHDRAWAL

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Introduction: Increasing evidence exists for the benefits of regular exercise on mood, wellbeing and general health. The effects on brain structure and function include boosting proliferation and neurogenesis and increased volume of brain regions involved in mood and cognition. Emerging literature indicates that exercise assists in the clinical management of brain disorders and to have equivalent efficacy to antidepressants in improving mood for mild to moderate depression, and improve the management of drug dependence. Cannabis withdrawal is thought to be a major contributor in relapse to cannabis use and is now included in the DSM-5. Aerobic exercise relieves withdrawal symptoms from tobacco and other drugs, but has yet to be tested in cannabis users. To address this, a RCT was developed to examine whether aerobic exercise can ameliorate the symptoms of cannabis withdrawal in a cannabis-dependent population undergoing inpatient detoxification, and improve treatment outcomes for cannabis dependence.

Method: A single blind, parallel two-group RCT compared a structured daily aerobic exercise intervention to a control stretching intervention during a seven-day inpatient hospital admission, with follow-up at 28-days post-discharge. Participants in the intervention group underwent 35 minutes of aerobic exercise daily, at 60% of their VO₂ Max. Control group engaged in a structured non-aerobic stretching routine for 35 minutes. The primary outcome measure is the severity of cannabis withdrawal symptoms assessed daily using the Cannabis Withdrawal Scale and Marijuana Cravings Questionnaire, across the week. Mechanisms by which exercise may affect cannabis withdrawal were assessed by analyzing endogenous cannabinoids, plasma and urine cannabinoid levels.

Results: Forty-six cannabis dependent users, used \bar{x} 1.62 (1.07SD) grams/day over a \bar{x} of 19 years completed the 7-day inpatient detox. Mean age of participants was 35.49 (11.82SD) years, with BMI 23.93 (4.11SD). Twenty-five were randomized to daily aerobic exercise. Overall, patients who underwent the intervention arm (exercise) reported lower cannabis withdrawal symptoms over the 7-days compared to the control group $F_{1,53,20}=3.74$, $P<0.05$, reporting significant improvements in irritability [$F_{1,56,13}=6.16$, $P<0.05$], anxiety [$F_{1,51,58}=4.32$, $P<0.05$], sleep difficulty [$F_{1,53,24}=6.60$, $P<0.01$] and appetite [$F_{1,52,85}=4.00$, $P<0.05$].

Conclusion: The findings of this pioneering RCT of aerobic exercise for cannabis dependence has important implications for the treatment of cannabis and other drug withdrawals as an effective, inexpensive and accessible treatment approach.

Acknowledgements: Funded by National Health and Medical Research Council (NHMRC) of Australia (Project grant 1070520)