

PROJECT REVIEW

“Clinical trial on the effects of tramadol and paracetamol on physical cognitive and brain performance during cycling”

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The present proposal builds up on a previous project funded by the WADA entitled: Tramadol and sport: Effects on physical and sustained attention performance during cycling exercise. The aim of this project is to investigate further the effect of tramadol on cycling performance at the physical, cognitive and brain levels by: 1) addressing the potential moderator effect of physical fatigue; 2) testing the effect of the pain-killer on intense short anaerobic efforts (as final sprint); 3) studying the effect of the combination of tramadol and caffeine. This is particularly relevant as it appears from anecdotal reports that pro-cyclists are consuming a combination of the two drugs in order to improve performance.

The project consists of a placebo-controlled, double blind experiment. A single dose of 100mg of tramadol, 6mg/kg of caffeine, and the combination of both, versus placebo, will be administered to participants (in separate sessions). They will then complete a 40-min cycling submaximal exercise (at 60% VO₂max). A 20-min indoor Time-Trial (TT) will follow this. Participants will complete a visual discrimination task while cycling both during the submaximal and TT tests. After that, participants will undertake three 30-sec Wingate tests. The Psychomotor Vigilance Task will be performed prior to and after the exercise phase. Electroencephalography will be continuously recorded throughout the cycling exercise and at rest. We will also obtain measures of subjective performance such as perceived effort and mental fatigue. Subjects will complete the Profile of mood state questionnaire before and after every session.

We will investigate the effect of tramadol, paracetamol and the combination of both vs. placebo on physiological and subjective parameters related to cycling performance (at the physical, cognitive and brain levels) at constant load, during a self-paced indoor time trial and during short maximal intensity efforts.