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Document:
Statistical Analysis Plan

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Influence of Edible Marijuana on Endurance Exercise Performance

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All data, unless otherwise stated, are expressed as mean and standard deviation. To compare baseline values between placebo and edible marijuana for circulating concentrations of THC, and THC metabolites, one-way analysis of variance (placebo vs edible marijuana) was used, unless a non-parametric equivalent (i.e. one way analysis of variance on ranks) was required on account of unequal variance. The standardized exercise statistical analysis was conducted in R (R Core Team; Vienna, Austria) as linear mixed models using the Lmer and LmerTest packages (Bates et al., 2015), and Emmeans package was used for post hoc Tukey testing to explore main effects and interactions. Time and Condition were considered fixed effects, whereas Subject was considered a random effect to account for the repeated measures. Unlike an electrically braked ergometer, it is not feasible to externally fix the work rate on an air braked ergometer; the actual work rate is determined by the damper setting and the participant's pedal cadence. During the standardized exercise test, participants were instructed to exercise at 50, 100 and 150 W. Accordingly, for statistical analysis of these data, work rate error, defined as the difference between the prescribed work rate and the actual work rate, was considered as a covariate in our model. One- and two-way analysis of variance, with repeated measures, were employed to detect differences among variables during the performance of the FTP20 and in the sprint to fatigue tests using SigmaPlot 14.5 (Systat Software Inc., San Jose, California). Specifically, one-way repeated measures ANOVA was used to compare mean work rate (placebo vs edible marijuana). Two-way ANOVA with repeated measures (time) was used to compare power outputs across consecutive stages (placebo vs edible marijuana). One-way repeated measures ANOVA was used to compare mean power, peak power, time to fatigue, and total work done (placebo vs edible marijuana) during the sprint to fatigue tests. Significance was defined as $p < 0.05$. Wherever a significant difference was detected, a post-hoc Tukey test was utilized to further explore these differences.