



ABSTRACT BOOK

TUESDAY 14TH DECEMBER – THURSDAY 16TH DECEMBER 2021

The effects of menthol on a modified three-minute maximal test in the heat.

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Previous menthol studies have been demonstrated alongside endurance-based physical activity. However, in current literature there is a need for research with athletes participating in sports that require short bouts of exercise that exceed aerobic capacity. The aim of this study was to trial 0.1% menthol concentrate with participants completing a modified 3-minute maximal test in an environmental heat chamber ($33.0 \pm 3.0^\circ$ with RH $46.0 \pm 5.0\%$). In a randomised crossover single blind placebo-controlled study, 11 participants completed 3 modified maximal tests, and each trial included a different mouth rinse; either menthol (A), cold water (B) or placebo (C). Participants were asked their thermal comfort (TC), sensation (TS) and rating of perceived exertion (RPE) throughout the test while being measured for heart rate, core temperature, oxygen uptake ($\dot{V}O_2$), ventilatory equivalent (VE) and respiratory exchange ratio (RER) for the entirety of the test. Blood lactate (BLa) was taken before and after the test. Results reported small to moderate effects through effects sizes (Cohen's d) accompanying a 90% confidence interval. Main effects between solutions A, B and C in relation to relative power towards the end of the test. During 75-105 seconds between solutions A vs B (ES:0.795; 90% CI: 0.204 to 1.352) and A vs C (ES:1.059; 90% CI: 0.412 to 1.666) also between A vs B (ES:0.729; 90% CI: 0.152 to 1.276) and A vs C (ES:0.791; 90% CI: 0.202 to 1.348) for seconds 105-135 while also for 135-165 seconds there was a moderate effect seen for A vs B solution (ES:1.058; 90% CI: 0.411 to 1.665). This alludes to participants producing higher power for a longer duration at high intensities with the addition of the menthol mouth rinse. The use of menthol (0.1%) as a mouth rinse has shown small performance benefits for short bouts of high intensity exercise in the heat.