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## Assessing Mood and Cognitive Performance of EMT Students During Occupational and Heat Stress

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Maintaining mental acuity under occupational duress is crucial for first responders. Presently, there is limited research within the population of EMT students detailing the attenuation of cognitive function during occupational tasks in a hyperthermic environment. **PURPOSE:** To observe the impact of a hyperthermic environment on cognitive responses in EMT students performing a simulated occupational task. **METHODS:** Ten EMT students reported to the lab for a familiarization session consisting of maximal exercise testing and one trial through all computer-based assessments. Experimental condition was assigned in counterbalanced fashion; a thermoneutral environment, or hyperthermic condition (100°F, 60-70% RH). Baseline cognitive and mood values were assessed outside of the environmental chamber and again immediately upon entering for the following dependent variables; total mood disturbance (TMD), word score (W), color score (C), word-color score (WC), and mean response time (MRT). Following 30 minutes of acclimation participants completed an aerobic bout of exercise followed immediately by an anaerobic bout of exercise. This process was repeated for a total of two aerobic bouts of exercise, and two anaerobic bouts of exercise. After the final anaerobic bout, participants exited the chamber for a ten-minute passive recovery. **RESULTS:** A two condition by nine time point analysis of variance (ANOVA) was conducted on all dependent variables. Post hoc analysis via paired samples t-test were conducted to further explain all main effects and interactions. A main effect of time was observed for TMD ( $p < 0.001$ ), in that mood improved following exercise ( $-69.08 \pm 76.19$ ) compared to a rested state ( $19.95 \pm 42.01$ ). A main effect of time was also found for W ( $p < 0.001$ ), WC ( $p = 0.002$ ), and C ( $p = 0.001$ ). Improvement of all aforementioned cognitive variables led to a reduced MRT following acclimation ( $454.84 \pm 149.28$ ) compared to baseline ( $487.65 \pm 154.58$ ), as well as a reduced MRT post-exercise ( $423.07 \pm 133.95$ ) compared to all other time points ( $p < 0.001$ ). **CONCLUSION:** It appears performing an occupational task may improve mood compared to a rested state in both a normothermic and hyperthermic condition. Mental acuity improved over time in both conditions, while participants compensated via reduced response time.