

Creatine Supplementation Improves Performance Without Deleterious Cardiovascular Parameters in Trained Females

CITLALY JAUREGUI¹, STEVEN B. MACHEK¹, KATIA S. AZEVEDO², WARLEYSON J. AZEVEDO², JEFFREY M. WILLARDSON³, & MARCO MACHADO^{2,4}

¹Kinesiology Department, California State University, Monterey Bay; Monterey Bay, CA, USA

²Laboratory of Physiology and Biokenetics, UNIG Campus V at Itaperuna; Itaperuna, Brazil

³Health and Human Performance Department, Montana State University, Billings; Billings, MT, USA

⁴Laboratory of Human Movement Studies, University Foundation of Itaperuna; Itaperuna, Brazil

Category: Undergraduate

Machado, Marco (marcomachado1@gmail.com)

ABSTRACT

Creatine monohydrate supplementation is broadly substantiated to elicit both favorable ergogenic and health-associated advantages amidst vast demographics. Nevertheless, its impacts on human cardiovascular outcomes are hitherto undescribed in generally healthy populations. Furthermore, females are largely underrepresented in the ergogenic creatine literature and their potentially differential cardiovascular responses are unknown. **PURPOSE:** to determine whether young, healthy females would glean discernible hypertrophy and enhanced performance, commensurate to favorable post-resistance training cardiovascular parameters and relative to placebo-matched controls across a four week training timeline. **METHODS:** Twenty-eight resistance trained women (25.5±6.1 years) were randomly assigned to supplement creatine monohydrate (CRE; 5g creatine monohydrate + 5g dextrose) or placebo (PLA; 10g dextrose) four times per day for 7 days in double-blind fashion. Each subject subsequently completed three resistance training sessions per week for four weeks that involved four consecutive sets to muscular failure of both smith machine half-squat (SMHS) and leg press exercise. The change in body mass, exercise repetition number, rated perceived exertion (RPE), and cardiovascular variables (heart rate, as well as systolic and diastolic blood pressures) were assessed at sessions 1, 6, and 12. All aforementioned experimental dependent variables were assessed with multiple three-way (supplement [CRE, PLA] x session [1, 6, 12] x set [1st, 2nd, 3rd]) mixed model ANOVA with repeated measures at a significance level of p≤0.05. **RESULTS:** Analyses revealed a significant CRE-specific body mass increase (p=0.013; 57.9±7.7kg to 58.7±7.7kg), as well as significant SMHS (p=0.006) and leg press (p=0.017) repetitions per set versus PLA. Additionally, CRE demonstrated significantly lower relative RPE values at session 12 compared with sessions 1 and 6. Analyses failed to reveal any significant main or interaction effects for any aforementioned cardiovascular variable. **CONCLUSION:** The present data both demonstrate the safety of combined creatine monohydrate supplementation and resistance training on cardiovascular parameters, whilst simultaneously substantiating its ergogenic efficacy in females subjects.