

**PROPHYLACTIC SUPPLEMENTATION OF A NANO-SIZED SILICA MINERAL
ANTIOXIDANT COMPLEX ON CHANGES IN CLINICAL SAFETY PARAMETERS AND BODY
WATER**

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ABSTRACT

A nano-sized silica mineral antioxidant complex (MIC) is purported to alter cellular chemistry kinetics by delivering reduced hydrogen ions to the cell and reducing blood lactate levels. Furthermore, the chemical structure of MIC supports osmotic characteristics that may impact levels of body water.

PURPOSE: The purpose of this study was to examine the effects of 7 days of prophylactic MIC supplementation on changes in clinical safety parameters and body water.

METHODS: On three occasions, fifteen males (23.6 ± 3.7 yrs, 180 ± 8 cm, 85 ± 11 kg, 16 ± 5 %) were tested using identical procedures under a water control (CON), rice flour placebo (PLA) and microhydrin (MIC) condition. PLA and MIC supplementation was completed in a prophylactic fashion over a seven day period (4 x 250 mg capsules/day). After controlling for diet and exercise habits, participants arrived fasted and donated a blood sample before and after supplementation for determination of serum and whole blood clinical safety markers. Total body (TBW), extracellular (ECW) and intracellular (ICW) water measurements using bioelectrical impedance spectroscopy were taken before and after supplementation and before and after a peak VO_2 test. Repeated measures (2 x 3) ANOVA were completed on all variables using a p-value of 0.05.

RESULTS: No significant changes ($p > 0.05$) were found for any component of the lipid and metabolic panels, kidney/liver enzymes, markers of protein breakdown and complete blood counts. Supplementation resulted in no change in TBW ($p = 0.43$), ECW ($p = 0.65$) and ICW ($p = 0.38$) after each condition. Similarly, no significant group x time interactions were found for ECW ($p = 0.19$), although TBW ($p = 0.09$) and ICW ($p = 0.052$) tended to change. Significant time effects for TBW ($p < 0.01$) and ICW ($p < 0.001$) were found. Within-group analysis of post-exercise body water revealed significant increases in ICW in PLA (+0.51 L; $p < 0.005$) and MIC (+0.43 L; $p < 0.01$) along with a significant increase in TBW for MIC (+0.59 L; $p < 0.01$).

CONCLUSION: Clinical safety markers did not change after seven days of prophylactic MIC supplementation and the supplement was well tolerated. MIC supplementation did not stimulate any changes in body water compartments, while immediate increases in TBW and ICW after maximal exercise were found. Post-exercise ICW levels increased in PLA and MIC while TBW only increased in MIC.

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