



Grant Information Summary:

The Effects of Creatine Supplementation on Intracellular and Extracellular Water Content

Summary of Findings:

In the preset study, the effect of creatine (Cr) supplementation on fluid balance was investigated.

As expected, the loading phase (25-g/day x 7 days) of the supplementation protocol was sufficient for increasing the muscle Cr concentration. Following this phase, the Cr group's concentration (146.99 numl/kg dm) was significantly greater than pre-supplementation (123.1gnmiol/kgdm). This increase was maintained during the maintenance phase (5-g/day x 21 days) of the supplementation protocol. The placebo group failed to experience any changes. The Cr group also experienced a significant increase in body mass during the supplementation protocol, while the placebo group failed to experience any changes. There was an increase of .75-kg during the loading phase and an increase of 1.32-kg following the entire supplementation period (28 days). The increase in body mass was accompanied by an increase in the total body water (TBW) volume.

The increase occurred during the loading phase and was maintained during the maintenance phase. The increase in intracellular water volume experienced by the Cr group accounted for 70% of the TBW increase, however this was not significant. Finally, all relative fluid values were within normal limits and at no time did any of the subjects report any side effects.

Explanation and Overview

Muscle Creatine, body mass, and total body weight increased as a result of the loading phase of Creatine supplementation and these increases were maintained during the maintenance phase of the protocol. In contrast to our hypothesis, Cr supplementation did not affect fluid balance, as the increase in ICW was just enough to maintain the normal ICW/ECW ratio.

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