

Creatine supplementation improves muscular performance in older men.

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Source

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Abstract

PURPOSE:

Creatine supplementation has been shown to enhance muscle strength and power after only 5-7 d in young adults. Creatine supplementation could therefore benefit older individuals because aging is associated with a decrease in muscle strength and explosive power.

METHODS:

We examined the effects of 7 d of creatine supplementation in normally active older men (59-72 yr) by using a double-blind, placebo-controlled design with repeated measures. After a 3-wk familiarization period to minimize learning effects, a battery of tests was completed on three occasions separated by 7 d (T1, T2, and T3). After T1, subjects were matched and randomly assigned into creatine (N = 10) and placebo (N = 8) groups. After T2, subjects consumed supplements (0.3 g x kg⁻¹ x d⁻¹) for 7 d until T3. All subjects were tested for maximal dynamic strength (one-repetition maximum leg press and bench press), maximal isometric strength (knee extension/flexion), upper- and lower-body explosive power (6 x 10-s sprints on a cycle ergometer), and lower-extremity functional ability (timed sit-stand test and tandem gait test). Body composition was assessed via hydrostatic weighing, and blood samples were obtained to assess renal and hepatic responses and muscle creatine concentrations.

RESULTS:

No significant increases in any performance measures were observed from T1 to T2 with the exception of isometric right-knee flexion in the placebo group indicating stability in the testing protocols. Significant group-by-time interactions indicated the responses from T2 to T3 were significantly greater ($P \leq 0.05$) in the creatine compared with the placebo group, respectively, for body mass (1.86 and -1.01 kg), fat-free mass (2.22 and 0.00 kg), maximal

dynamic strength (7-8 and 1-2%), maximal isometric strength (9-15 and -6 to 1%), lower-body mean power (11 and 0%), and lower-extremity functional capacity (6-9 and 1-2%). No adverse side effects were observed.

CONCLUSION:

These data indicate that 7 d of creatine supplementation is effective at increasing several indices of muscle performance, including functional tests in older men without adverse side effects. Creatine supplementation may be a useful therapeutic strategy for older adults to attenuate loss in muscle strength and performance of functional living tasks.