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## Effects of Acute Creatine Supplementation on Arterial Stiffness: a Pilot Study

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Arterial stiffness (AS) has long been regarded as an indicator of disease and is an independent predictor of cardiovascular events. Thus, identification and characterization of behaviors promoting the development of arterial stiffness are necessary. There is a void in our knowledge on the impact of exercise, in particular creatine monohydrate supplementation, on the stiffening process in the major elastic arteries. As of this writing, there is one experiment that examined the relationship between acute (< 7 day) creatine supplementation and arterial stiffness. However, the previous study used arterial stiffness indices that were dependent on several factors including blood pressure, thus subjected to interpretation. **PURPOSE:** To determine the effects of acute creatine monohydrate supplementation on AS. **METHODS:** 12 male, physically active participants were randomized in a double-blind fashion to placebo (PL) (n=6, 23±2 yrs) or creatine (CM) (n=6, 21±2 yrs) groups. Subjects received 0.3 g/kg/day creatine monohydrate or placebo in gelatin capsules for 6 to 7 days. Subjects were instructed to avoid nutritional supplements for at least 14 days prior to start of the study period. A series of anthropometric measurements, ultrasonography of the carotid artery, applanation tonometry, and blood pressure acquisition were conducted at baseline and on day 7 of the study period. **RESULTS:** There were no significant differences between PL and CM in carotid-femoral pulse wave velocity (CF PWV) (4.60±10.42 vs. -2.71±21.20 % change),  $\beta$ -stiffness index (5.81±26.3 vs. 1.65±41.35 % change), central pulse pressure (CPP) (-17.38±16.31 vs. 6.05±24.61 % change), and arterial compliance (AC) (19.79±37.50 vs. 12.48±53.89 % change) (all P>0.05). There were also no significant differences in body weight (0.53±0.79 vs. 0.20±0.87 % change), fat mass (-3.40±3.49 vs. -0.23±8.17 % change), and fat free mass (1.12±0.98 vs. 0.23±0.80 % change) between PL and CM, respectively (all P>0.05). **CONCLUSIONS:** Using a randomly controlled, double-blind trial with validated measurements of AS, acute creatine supplementation does not appear to impact vascular compliance in young, otherwise healthy males.