

The Effects of N-Acetylcysteine on Repeated Sprint Performance in College-Aged Recreationally Active Men and Women

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Frequent high-intensity exercise increases the production of free radicals in the body, leading to cellular damage that causes inflammation and interferes with muscle contraction. While free radicals eventually cause adaptations, consumption of antioxidants can help to improve exercise performance in the short term. **PURPOSE:** To determine the effect of n-acetylcysteine (NAC) on repeated sprint performance. **METHODS:** 600 mg of NAC were administered in a lemon-flavored beverage twice daily for seven days in recreationally active subjects ($n=9$, age: 20.3 ± 1.12 yr; height: 1.66 ± 0.109 m; weight: 74.8 ± 24.5 kg; body fat: $22.4\pm 9.5\%$; body mass index: 26.8 ± 6.40) using a single-blind randomized placebo controlled design. On the day of the sprint trials, subjects consumed one final 600 mg dose of NAC 1.5 hours prior to sprinting. The subjects performed 12, 30-meter maximal effort sprints with 35 seconds of rest in between. After a 7-day washout period, treatments were switched. Heart rate (HR) and rating of perceived exertion (RPE) were assessed after each sprint. Cumulative sprint time, average sprint time, and fatigue decrement were calculated. Two sample independent t-tests were used to analyze heart rate, RPE, sprint times and fatigue decrement. A multivariate ANOVA was used to determine the differences between individual sprint times. **RESULTS:** No differences in cumulative sprint time ($\alpha=0.05$, $t=-0.153$, $p=0.882$), average sprint time ($\alpha=0.05$, $t=-0.765$, $p=0.466$), individual sprint times ($df=12$, $F=0.806$, $p=0.650$) and fatigue decrement ($\alpha=0.05$, $t=-1.828$, $p=0.105$) were found between treatments. There were no differences in HR ($\alpha=0.05$, $t=-0.536$, $p=0.606$) and RPE ($\alpha=0.05$, $t=-1.413$, $p=0.195$). **CONCLUSION:** NAC supplementation of a relatively low dose for 7 days does not improve repeated sprint performance in recreationally active individuals.