TACSM Abstract

The Acute and Chronic Effect of Korea Ginseng Supplement on Exercise Performance, Cognitive Function, and Fatigue Recovery

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ABSTRACT

The purpose of this study was to determine the acute and chronic effects of Korean ginseng supplements on exercise performance, cognitive function, and fatigue recovery. The study used double-blind, placebo-controlled, crossover design. Twelve healthy adult males (age = 31 ± 6.86 yrs) were randomly assigned to either KGD or placebo trials. All subjects conducted the exercise consisted with 30 minutes cycling at 70-75% of VO_2 max followed by 16 km time trial with 30 minutes resting periods. All subjects were tested for muscular power, strength, endurance, cognitive function, and fatigue. The subjects took KGD (280 ml containing 5.88 mg of ginsenosides) or placebo 90 mins before exercise trials and following 7 days. The blood sample was drawn for IL-6, myoglobin, and total antioxidant capacity immediately after time trial, as well as 2, 24, 48, and 72 hours. After 2 weeks of wash-out period, the subjects were crossed over into the opposite trial and performed the same test. Repeated measures ANOVAs were used to examine the effect of acute and chronic intake of ginseng on exercise performance and blood variables. An alpha of .05 was used, and the Greenhouse-Geisser (G-G) adjusted *F* and degrees of freedom were reported. In a placebo trial, peak power and mean power levels were significantly decreased across time, F (1.47, 13.24) = 4.63, G-G p = .039, η^2_p = .340 and F (1.46, 13.13) = 5.31, G-G p = .028, η^2_p = .371 while no differences were found in a ginseng trial. In a placebo trial, average reaction time (ART) was significantly increased across time, F (1.29, 11.63) = 10.81, G-G *p* = .005, η^2_p = .546, but in a ginseng trial, no difference in ART was found across time, F (1.54, 13.86) = 4.02, G-G *p* = .051, η^2_p = .309. There was a significant increase in TAC across time in a ginseng trial, F (1.42, 11.37) = 5.07, G-G p = .035, η^2_p = .388 while no difference was found in a placebo trial. No significant differences were found in other variables from placebo and ginseng trails. The 7 days of KRG supplementation significantly reduced the serum myoglobin concentration across time in the KGD trial, *F* (1.88, 13.17) = 5.18, G-G *p* = .023, while no difference was found in the placebo trial, *F* (2.21, 17.66) = .88, G-G *p* = .443. No significant differences were observed in serum total antioxidant activity and IL-6 between KGD and placebo trials. The study shows that Korean ginseng supplement before stating the exercise improve anaerobic capacity, cognitive function in particular psychomotor vigilance task, and fatigue recovery during cycling exercise. And 7 days of Korean ginseng supplement reduces muscle damage and fatigue after cycling exercise.