

Effects of Eleutherococcus Senticosus (CIWUJIA) on Fat Metabolism and Endurance Performance in Long Distance Runners

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Athletes use a variety of nutritional ergogenic aids to enhance performance. Eleutherococcus senticosus has been used in Chinese medicine for over 2,000 years to increase energy and vitality. Soviet scientists believed ES is an adaptogen that exerts effects on both sick and healthy individuals by correcting any dysfunctions without producing unwanted side effects. But how the ES exactly good to human? PURPOSE: To assess the effects of Eleutherococcus senticosus (ES) supplementation on fat metabolism and endurance performance in long distance runners.

METHODS: Ten men (age 19.8 ± 2.1 years, maximal O_2 uptake 65.3 ± 5.2 ml/min/ kg) were tested before and after ES as well as placebo consumption daily for 28 days, assigned randomly to two groups. The experimental group (N=5) took the ES supplementation 800mg/day while placebo group (N=5) took starch. The energy and nutrient intake of the subjects did not differ in ES and placebo trial. The endurance performance test included running time to exhaustion and HRmax. The fat metabolism test included total cholesterol and free fatty acid. Blood parameter test included GOT, GPT, BUN and creatinine.

RESULTS: After 28 days of treatment, (1) There were significant increased in running time to exhaustion (4138 ± 980 s vs. 4025 ± 1087 s, $p < 0.05$) and increased in HRmax (196 ± 4 beat/min vs. 183 ± 7 beat/min, $p < 0.05$) observed on the treadmill. (2) The concentration of free fatty acid increased (350 ± 62 μ mol/L vs. 270 ± 58 μ mol/L, $p < 0.05$) in post-test samples after ES supplementation, significantly differing from the pre-test concentration in the same trial as well as from that observed in post-test blood after placebo treatment. (3) There were no significant differences on blood parameter test.

CONCLUSIONS: Daily 800mg ES supplementation for 28 days increases the availability of fat for oxidation in working muscle during high intensity endurance exercise, and does improve endurance performance capacity. And this dosage have no side effect in human.

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