Effects of Ladder Climbing Exercise Combined with ISP Supplementation on Exercise Performance and Anti-fatigue

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Abstract

Introduction: "Interval training" is widely used in the field of scientific adaptation, which can effectively improve cardiopulmonary function, enhance aerobic system capacity and promote the improvement of lactic acid system. However, there is limited evidence of the effect of supplemental phytonutrients (isolates soy protein, ISP) and intermittent exercise training on physical performance and physical fatigue. Therefore, we investigated the potential beneficial effects of ISP and intermittent ladder training on physical performance and anti-fatigue performance after physical challenge

Methods: Female ICR mice were divided into 3 groups (n = 8 per group) and treated for 6 weeks with the following: 1) Sedentary control (SC) with vehicle 2) ladder climbing group (LC) and 3) ladder climbing group +isolate soy protein supplementation, LC+ISP (8.95g/kg/day). Exercise performance was evaluated by forelimb grip strength, time to exhaustion and anti-fatigue levels after a 15-min swimming exercise.

Results: After 6 weeks of treatment, LC+ISP increased the grip strength (P=0.0029) and decrease endurance climbing time (P=0.0006) in exercise training and ISP supplementation. LC+ISP also decreases in serum levels of lactate (P<0.0001) 、 CK(P=0.019) and ammonia (P=0.001), and also an increase in glucose level (P=0.03) after the 15-min swimming test.

Conclusions: The combination of ISP supplementation and intermittent exercise training can have practical effects on health promotion, performance improvement and anti-fatigue.

Keywords: Interval training, Isolate soy protein, Anti-fatigue