Abstract

Hyperimmune egg protein (HIE) is a powdered, pure egg product derived from chicken hens immunized with more than 26 killed pathogens (e.g., Shigella, Staphylococcus, Escherichia coli, Salmonella, and Streptococcus) of human origin. Anecdotal evidence suggests that HIE supplementation improves performance and shortens recovery time after exercise. PURPOSE: To determine whether 10 d of oral HIE supplementation altered submaximal or maximal exercise responses. METHODS: Twenty-four recreationally active males aged 23.6 ± 0.8 yrs, height 176 ± 2 cm, weight 69.2 ± 0.6 kg and 17.1 ± 5.9 % body fat were randomly assigned to either HIE (n=12) or an egg protein placebo (PLA) group. Participants abstained from their regular exercise routine for the duration of the study and were supplemented with 4.5 g·d⁻¹ for 2 d, 9 g·d⁻¹ for 2 d and 13.5 g·d⁻¹ for 6 d. HIE and PLA supplements were identical in appearance and taste before and after mixing with 237 ml of low carbohydrate milk. On days 1, 8, and participants performed three 5 min submaximal exercise bouts on a treadmill at 0%, 3% and 6% grade with constant speed for each subject. HR was continuously monitored. Each participant also performed a Wingate test. ANCOVA was used to determine significant differences between or within the groups during the 10 d of supplementation with initial differences between groups serving as a covariate. Significance was set at α = 0.05.

RESULTS: Change in HR from Day 1, at all submaximal intensities, was significantly lower (p<0.05) between HIE and PLA on Day 8 (0%: ΔHIE -2.3 b·m⁻¹, ΔPLA -2.5 b·m⁻¹, 3%: ΔHIE -3.2 b·m⁻¹, ΔPLA -3.4 b·m⁻¹, 6%: ΔHIE -4.3 b·m⁻¹, ΔPLA -4.4 b·m⁻¹). Change in HR from Day 1 to Day 10 (0%: ΔHIE -4.2 b·m⁻¹, ΔPLA -5.0 b·m⁻¹, 3%: ΔHIE -4.3 b·m⁻¹, ΔPLA -5.2 b·m⁻¹, 6%: ΔHIE -4.5 b·m⁻¹, ΔPLA -5.7 b·m⁻¹). Peak power was significantly greater (p<0.05) between HIE and PLA on Day 8 (6 mph @ 3% grade) and Day 10 (6 mph @ 6% grade) of the submaximal aerobic treadmill tests on Days 1, 8 and 10. A significant decrease in submaximal HR following 48 hours recovery. Similarly, hyperimmune egg protein supplementation resulted in significant (P<0.05) increases in peak anaerobic power between HIE and PLA on Days 8 and 10. The supplement dosing was titrated over 5 days in an effort to prevent previously reported gastrointestinal disturbances. No subjects in PLA and only one subject in HIE reported any signs or symptoms of gastrointestinal disturbance and no subjects in either group reported any other changes in health status during their 10 d study period.

Introduction

Hyperimmune Egg (HIE) is a powdered, pure egg product derived from chicken hens immunized with more than 26 dead pathogens (e.g., Shigella, Staphylococcus, Escherichia coli, Salmonella, Pseudomonas, Klebsiella pneumoniae, Haemophilus, and Streptococcus) of human origin.

Oval supplementation of HIE’s specific immunoglobulins and immunomodulatory factors results in their digestion and absorption by the body. Once absorbed into the body these pathogens activate the autoimmune system which is responsible for protecting the body from foreign invading pathogens (i.e., similar to how vaccines function to protect against disease).

Enhancement of the autoimmune system may provide the body with the ability to initiate an enhanced activation of the processes associated with biological repair of damaged muscle tissue from a previous bout of intense exercise.

Improved recovery from previous exercise should ultimately increase submaximal and/or maximal exercise performance.

Discussion

The supplement dosing was titrated over 5 days in an effort to prevent previously reported gastrointestinal disturbances. No subjects in PLA and only one subject in HIE reported any signs or symptoms of gastrointestinal disturbance and no subjects in either group reported any other changes in health status during their 10 d study period.

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For further information contact:
Dr. Tim Scheett
Department of Health and Human Performance
College of Charleston
Charleston, SC 29424
Phone: 843-953-6538
ScheettT@cofc.edu

For further information contact: