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D-30 Free Communication/Poster - Macronutrient Metabolism II - Carbohydrates: JUNE 2, 2011 1:00 PM - 6:00 PM:

ROOM: Hall B

The Effect of Energy Supplementation on Markers of Muscle Stress During Indoor Rock Climbing: 2257: Board #134 June 2 3:30 PM - 5:00 PM

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(No relationships reported)

The effect of nutritional supplementation on exercise induced markers of muscle stress has been extensively researched. However, no research exists on the influence of carbohydrate (CHO) or a carbohydrate-protein sports gel (GEL) supplementation on indices of muscle stress during rock climbing (RC). RC is an intermittent activity characterized by a high percentage of isometric muscle contractions combined with a moderate level of total energy expenditure. Climbers are limited to how much fluid they can carry, thus, liquid energy supplementation may also be limited. Ingesting an energy GEL may provide a viable alternative to carrying a large fluid volume.

PURPOSE: To determine whether CHO and GEL feedings have a significant effect upon plasma creatine kinase (CK) levels, post exercise blood lactate levels (LA), RPE, and exercise HR after 60 minutes of RC.

METHODS: Eight experienced subjects (3 males, 5 females; Mean \pm SD: 24 \pm 2 yrs) performed three bouts of climbing with a week between each bout. Each bout consisted of four 15 min intervals with a five minute rest between each interval. Subjects received one of three treatments during each RC session: a non-caloric placebo drink (PL); CHO drink; or GEL. The experimental treatments were isocaloric (1130 kJ or 270 kcal) and isovolumetric (600 mL). The liquid treatments were administered in a double blind crossover design. Heart rate and RPE's were collected after each RC interval. Blood samples were collected before, directly after, and 24 hrs after each RC bout for LA and CK analysis. Data were analyzed by ANOVA and t-tests.

RESULTS: 24 h change in CK was significantly different ($p < .05$) between all treatments (GEL: 24.5 + 29.7; CHO: 56.8 + 36.5; PL: 119.0 + 126.5 U). No statistical differences between treatments were observed for HR, LA, and change in RPE

CONCLUSIONS: Energy supplementation during RC significantly lowered muscle stress, as assessed by CK, when compared to PL. Additionally, the combining of protein and CHO provided an added benefit in minimizing muscle stress when compared to a CHO only drink. These findings indicate that GEL ingestion provided a viable option to energy supplementation when compared to a CHO only fluid.

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