Creatine Kinase and Lactate Dehydrogenase Enzymes Response to Lactate Tolerance Exercise Test

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Abstract

PURPOSE: This study aimed to assess alterations in serum creatine kinase (CK) and lactate dehydrogenase (LDH) levels after performing a lactate tolerance exercise test (LTET) in elite male swimmers.

METHODS: Fourteen male adolescent swimmers participated in this study. All subjects performed LTET (8×100-meter swimming) with a 1-minute recovery interval between eight trainings. Plasma CK and LDH (markers of muscle damage) levels were measured 30 minute before and 24 hours after the test. A paired t-test was used for statistical analysis of data.

RESULTS: Plasma CK and LDH levels increased immediately after LTET as compared to the values 30 minutes prior to exercise (188.91±34.04 vs. 148.83±29.63 mg/dL, p=.029; 318.17±53.89 vs. 272.08±52.93 mg/dL, p=.010, respectively). Both CK and LDH levels displayed a decreasing trend 24 hours post-LTET; however, there was no significant difference immediately after the test.

CONCLUSIONS: Plasma CK and LDH levels increased following LTET, which is representative of muscle damage.

Keywords: Lactate dehydrogenase enzymes, Muscle damage, Swimmer, Exercise