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» Journal Abstract

Effect of eccentric and concentric exercise on plasma creatine kinase (CK) and lactate dehydrogenase (LDH) activity in healthy adults

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The aim of the research was to determine the influence of concentric and eccentric muscular work on plasma creatine kinase (CK) and lactate dehydrogenase (LDH) activity during a graded exercise protocol. The research material included 10 students of physical education. All of them performed the treadmill exercise protocol twice, under different conditions (test I – uphill run- concentric work, test II – downhill run – eccentric work). Oxygen uptake was registered during both tests. Blood samples were taken from the antecubital vein before, during and 2, 7 and 24 h after the test. The effort with a predominance of concentric muscular work elicited a significantly ($P<0.01$) higher blood acidosis in comparison to the eccentric one. Both efforts caused a significant ($P<0.05$) increase in plasma CK and LDH activity. After 24 h of rest CK activity continued to rise while plasma LDH activity returned to pre exercise value. After 7 and 24 h of recovery plasma CK activity was significantly ($P<0.05$) higher following the eccentric form of exercise. Simultaneously, increase of CK activity during recovery after the eccentric work, pointing at the deterioration of muscle cells, was stated just after 7 h of rest. It proves proper functioning of adaptive mechanisms and that the level of CK activity in plasma immediately after effort does not reflect muscles functioning disturbances.

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