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Effects of training status and different treadmill exercises on the activity of complement receptor type 1 of erythrocytes

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The aims of this study were to investigate the effects of training status, different intensities, durations and modes of exercises on the activity of complement receptor type 1 (CR1) of erythrocytes. Fifteen sedentary male adults and 15 male adult endurance athletes performed five separate treadmill exercise trials: test (T1), exercise at 40% for 30 min (T2), 80% for 30 min (T3) and for 60 min (T4) and downhill running (-10% gradient) at 60% for 30 min (T5). Blood samples were taken before exercise, immediately, one h, two h and 24 h after each exercise trial to assay the activity of erythrocyte CR1. The results showed that there was no significant difference between trained and untrained participants in erythrocyte-tumor cell rosette (ETCR) formations at rest ($p > 0.05$). ETCR was significantly decreased after five exercise trials ($p < 0.05$). Changes in ETCR were more obvious after T1, T3 and T4. ETCR 24 h after T5 was significantly lower than that after uphill running. Greater reductions and slower recoveries in ETCR were found in the untrained group than in the trained group. The results indicated that erythrocyte CR1 activity at rest was not affected by training status, but was significantly inhibited by acute exercise. Exercise at higher intensities and longer durations resulted in a greater suppression in the activity of erythrocyte CR1. The suppression was more marked in the untrained participants than in the trained participants. Downhill running induced a longer delay in recovery in erythrocyte CR1 activity compared to uphill running.

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