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Effect of blood lactate level on oxygen uptake at the offset of middle-intensity exercise


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This study examines whether blood lactate level affects oxygen uptake at the offset of exercise (recovery $\dot{V}O_2$) in middle-intensity exercise. Work rates in the exercise were constants at 60, 100, 140, 180 and 220 watts, respectively. Recovery $\dot{V}O_2$ was approximated by a single or double exponential function to determine whether the kinetics of recovery $\dot{V}O_2$ has only a fast phase or fast and slow phases. Blood lactate was determined at rest and at 3 min during recovery. One phase was observed below a blood lactate level of 3 mM (low-intensity exercise), one or two phases observed at a blood lactate level between 3 and 6 mM (middle-intensity exercise) and only two phases were observed above 6 mM (high-intensity exercise). Thus, exercise intensities were divided into three levels. $\dot{V}O_2$ at 3 min during recovery was related to blood lactate at 3 min during recovery. The regression line obtained between them at 3 min during recovery ranged from the resting values of $\dot{V}O_2$ and blood lactate to the highest value in high exercise intensity. We concluded that blood lactate affects recovery $\dot{V}O_2$ even when it cannot be mathematically separated into two phases.

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