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Validity of critical frequency test for measuring table tennis aerobic endurance through specific protocol

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ABSTRACT

The aim of this study was to validate critical frequency specific test (critf) for the estimation of the aerobic endurance in table tennis players. Methods: Eight male international-level table tennis players participated of this study. Specific tests were applied by using a mechanical ball thrower to control the intensity of the exercise. The critf was determined by applying three or four series of exercises to exhaustion (Tlim). The critf was evaluated by using lactate steady state test (90, 100, and 106 % of critf intensity). The other specific test was an incremental protocol used to determine the anaerobic threshold (AnT_{BI}) and the onset of blood lactate accumulation (OBLA) using a ball thrower. Results: The critf ($39.87 \pm 3.31 \text{ balls}\cdot\text{min}^{-1}$) was not significantly different among AnT_{BI} ($48.11 \pm 7.36 \text{ balls}\cdot\text{min}^{-1}$) and OBLA_{3,5} ($49.36 \pm 12.04 \text{ balls}\cdot\text{min}^{-1}$) frequencies and it was correlated with AnT_{BI} parameter ($r = 0.78$). At frequencies of the 90 and 100% of critf a dynamic equilibrium was verified in lactate concentration between the eighth and twentieth minutes. However, this dynamic equilibrium was not found at 106% intensity. Conclusion: The data indicate that in table tennis the critf model can be used for measuring the aerobic endurance.

Key words: Anaerobic threshold, Aerobic endurance, Blood lactate, table tennis


Key Points

- In table tennis is need the use of a specific protocol for evaluation of the aerobic endurance.
- The critical frequency test in table tennis seems to represent the intensity of maximal equilibrium of lactatemia.
- The critical frequency test can be used for measuring table tennis aerobic endurance through specific protocol.

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