Heart rate and performance parameters in elite cyclists: a longitudinal study.

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Purpose: This study was designed to evaluate the stability of target heart rate (HR) values corresponding to performance markers such as lactate threshold (LT) and the first and second ventilatory thresholds (VT₁, VT₂) in a group of 13 professional road cyclists (VO₂max ~75.0 mL·kg⁻¹·min⁻¹) during the course of a complete sports season.

Methods: Each subject performed a progressive exercise test on a bicycle ergometer (ramp protocol with workload increases of 25 W·min⁻¹) three times during the season corresponding to the "active" rest (fall: November), precompetition (winter: January), and competition periods (spring: May) to determine HR values at LT, VT₁, and VT₂.

Results: Despite a significant improvement in performance throughout the training season (i.e., increases in the power output eliciting LT, VT₁, or VT₂), target HR values were overall stable (HR at LT: 154 ± 3, 152 ± 3, and 154 ± 2 beats·min⁻¹; HR at VT₁: 155 ± 3, 156 ± 3, and 159 ± 3 beats·min⁻¹; and at VT₂: 178 ± 2, 173 ±
3, and 176 ± 2 beats·min⁻¹ during rest, precompetition, and competition periods, respectively).

**Conclusion:** A single laboratory testing session at the beginning of the season might be sufficient to adequately prescribe training loads based on HR data in elite endurance athletes such as professional cyclists. This would simplify the testing schedule generally used for this type of athlete.

**Key Words:** TRAINING; CYCLING; VENTILATORY THRESHOLD; LACTATE THRESHOLD