

Publication

Verification-phase tests show low reliability and add little value in determining VO2max in young trained adults

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This study compared the robustness of a [Formula: see text]-plateau definition and a verification-phase protocol to day-to-day and diurnal variations in determining the true [Formula: see text]. Further, the additional value of a verification-phase was investigated.; Eighteen adults performed six cardiorespiratory fitness tests at six different times of the day (diurnal variation) as well as a seventh test at the same time the sixth test took place (day-to-day variation). A verification-phase was performed immediately after each test, with a stepwise increase in intensity to 50%, 70%, and 105% of the peak power output.; Participants mean [Formula: see text] was 56 ± 8 mL/kg/min. Gwet's AC1 values (95% confidence intervals) for the day-to-day and diurnal variations were 0.64 (0.22, 1.00) and 0.71 (0.42, 0.99) for [Formula: see text]-plateau and for the verification-phase 0.69 (0.31, 1.00) and 0.07 (-0.38, 0.52), respectively. In 66% of the tests, performing the verification-phase added no value, while, in 32% and 2%, it added uncertain value and certain value, respectively, in the determination of [Formula: see text].; Compared to [Formula: see text]-plateau the verification-phase shows lower reliability, increases costs and only adds certain value in 2% of cases.

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