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Reproducibility of a VO_{2max} protocol for runners using treadmill #63

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Test protocols applied to runners should reproduce the real training, outdoor race and should be able to unequivocally determine the submaximal parameters such as ventilatory threshold (VT) and respiratory compensation point (RCP). However, classical VO_{2max} protocols are still used for athletes, mainly due to familiarity, and most of them differ in methodological characteristics, such as stage duration and increment size. Other difficulty found is the lack of reliability, which can affect the precision assessment of the athlete's performance. The aim of this study was to verify the reproducibility of an incremental protocol for the treadmill based on metabolic concepts. Eleven amateur male runners underwent four repetitions of a protocol with 25-second stages, each increasing 0.3 $km \bullet h^{-1}$ in running speed while the treadmill grade remained fixed at 1%. We found no significant differences in the parameters analyzed ($p > 0.05$), including VT, RCP and VO_{2max}. All the results showed high within subject reproducibility (CV < 9.1%). We concluded that the VO_{2max} protocol proposed here was able to evaluate training effects on maximal and submaximal parameters, showing clear determination of the VT, RCP and VO_{2max}.

Key words: VO_{2max} test; ventilatory threshold; respiratory compensation point; amateur runners.