Laboratory tests ability to predict aerobic performance in army athletes #26

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Although VO\textsubscript{2}\text{max} is the index which represents maximum aerobic power, the corresponding exercise velocity (vVO\textsubscript{2}\text{max}) can be different in athletes with the same VO\textsubscript{2}\text{max} values. This study investigated associations between absolute (VO\textsubscript{2}\text{pabs}), relative (VO\textsubscript{2}\text{pre}) VO\textsubscript{2peak}, and vVO\textsubscript{2}\text{max} for aerobic performances determined in the field. Thirteen runners, aged 20.1±2.1 years, height 170±0.1 cm, and weight 66.0±3.7 kg participated from the 13\textsuperscript{th} Armoured Infantry Battalion (Brazilian Army) based in Ponta Grossa, PR, Brazil. Participants were submitted to an exhaustive progressive test in a treadmill with 12km.h\textsuperscript{-1} initial velocity, 3min stages, and 1 km.h\textsuperscript{-1} increments. Breath-by-breath gas samples were collected (Parvomedics – TrueOne, 2400 – USA) to determine VO\textsubscript{2}\text{pabs}, VO\textsubscript{2}\text{pre}, and vVO\textsubscript{2}\text{peak}. They later performed three maximum effort tests on an athletics track over 1200m (P1200), 2400m (P2400), and 2800m (P2800). Associations between laboratory and maximum performances were verified by the Pearson correlation test at 95% significance level. VO\textsubscript{2}\text{pabs} presented significant correlations with the 2400m (r=0.64; p=0.02) and 2800m (r=0.58; p=0.04) tests, but not the P2800. VO\textsubscript{2}\text{pre} significantly correlated only with the 2400m (r=0.61; p=0.02) test. However, vVO\textsubscript{2}\text{peak} presented high correlations with all three; P1200 (r=0.87; p=0.0001), P2400 (r=0.86; p=0.0001), and P2800 (r=0.80; p=0.001). We can therefore conclude that vVO\textsubscript{2}\text{peak} was the best predictor for P1200m, P2400m, and P2800m.

Key words: VO\textsubscript{2}\text{max}; vVO\textsubscript{2}\text{max}; maximum aerobic capacity; running.