

## **VALIDATION OF A NEW LMS (LACTATE MINIMUM SPEED) EXERCISE TEST FOR OPTIMAL ASSESSMENT OF THE AEROBIC WINDOW OF SPORT HORSES**

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Standardized exercise tests (SETs) are golden standard to provide training advice. However, they require maximum intensity exercise, increasing injury risk. Our aim is to validate a modified LMS-test and to compare it with a SET. Standardbreds (♀, 3-4 years, n=6) were trained in standardized conditions. A SET and LMS-test were executed on Week0 and Week8. Tests encompassed respectively: for SET: incremental steps (4km/h; 3 min/step; 20-40 km/h); for LMS-test: first 3 min trot (36-40 km/h until blood lactate (BL) >5mmol/L), followed by incremental steps (start 20 km/h; 3min; 2 km/h, max34 km/h). GPS, heartrate (Polar®) and BL were monitored. Speed vs BL values were plotted. Curve parameters (R core team, 3.6.0) were: (For SET) VLa1.5/2/4 and (For LMS) AUCLMS and LMS. LMS validation entailed: >10 km at LMS and 110% LMS. Curve parameters and aerobic window (AW) were assessed for both tests and compared (paired T-test, except for LMS: paired Wilcoxon test; Significance pLMS (P=0.008)(flattening of the parabola curve). BLmax was significantly lower for LMS vs SET (p1mmol/L) occurred during validation at LMS, however did at 110%LMS. AW assessment showed significant overestimation for SET. Post training the LMS BL equilibrium is reached earlier and maintained longer. This modified LMS-test allows for a more robust assessment of the aerobic window at lower speed and BL when compared to SET. Keywords: training, SET, physiology