Predicting laboratory measures of race walking performance from a time trial field test could be useful to athletes and coaches. In sub-elite runners Billat et al. (1994) reported time to exhaustion at the velocity at maximum oxygen uptake (v-VO2max) was 402 ± 113 s, which would represent a similar duration to an all out 2 km performance in a trained race walker. The purpose of this study was to examine the relationship between selected physiological variables identified during laboratory based race walking exercise and a field based 2 km race walking time trial.

Thirteen male and eight female athletes from the UK Athletics National Race Walking Squad volunteered for this study, which had University ethical approval. The mean ± SD age, height, body mass and VO2max were 22 ± 9 y; 1.75 ± 0.07 m; 62.3 ± 9.1 kg; and 55.6 ± 8.9 ml.kg⁻¹.min⁻¹. Subjects completed a discontinuous incremental race walking treadmill test until volitional exhaustion for determination of lactate threshold (Tlac) and maximum oxygen uptake (VO2max). Velocity at lactate threshold (v-Tlac) was identified as the velocity immediately preceding an increase in Blac by 1.0 mmol.l⁻¹ or more above baseline. V-VO2max was resolved by linear regression on sub-maximal race walking velocity and VO2 values. Within 24 hours subjects walked an all out 2 km race walking time trial on a 400 m Mondo surface athletics track.

The 2 km time trial performance time was 554 ± 65 s. V-2 km was compared to v-VO2max and race walk competition performances over 3 km, 5 km and 10 km recorded within four weeks pre- or post-laboratory test. V-2 km (13.2 ± 1.6 km.h⁻¹) was 0.2 % higher than v-VO2max (13.1 ± 1.5 km.h⁻¹) (p > 0.05); and 10.9 % higher than v-Tlac (11.7 ± 0.7 km.h⁻¹) (p < 0.05). V-VO2max accounted for 94 % of the variance in 2 km time trial performance when analysed by multiple stepwise linear regression. In relation to competition performances v-2 km was 0.3 % higher than v-3 km (p > 0.05); and 4.6 % and 8.4 % higher than v-5 km and v-10 km (p < 0.05).

The present study supports the use of a field based 2 km race walking time trial as a predictor of velocity at maximum oxygen uptake and velocity at lactate threshold in race walkers.