

COMPARISON OF PHYSIOLOGICAL AND 2D KINEMATIC VARIABLES DURING 2 KM TIME TRIAL ON STATIONARY VERSUS DYNAMIC ROWING ERGOMETER

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(Received 15 May 2018; accepted 1 October 2018; published online 17 January 2019)

To cite this article: Zahiran, A., Abdullah, M. I., & Shahrudin, S. (2019). Comparison of physiological and 2d kinematic variables during 2 km time trial on stationary versus dynamic rowing ergometer. *Malaysian Journal of Movement, Health & Exercise*, 8(1), 185-195.

<https://doi.org/10.15282/mohe.v8i1.244>

Link to this article: <https://doi.org/10.15282/mohe.v8i1.244>

Abstract

This study was conducted to evaluate the differences of physiological and biomechanical variables during 2 km rowing time trials on a stationary versus dynamic ergometer. Ten state-level rowers (male: 6, female: 4) voluntarily participated in the study. Two sessions of 2 km time trial were conducted: one on a static ergometer and another on a dynamic ergometer. Data on oxygen consumption, blood lactate concentration, maximum heart rate, stroke rate, time to completion and lower limb angles at sagittal plane were collected and analysed during the tests. A paired T-test was used to compare the physiological and biomechanical variables across stationary and dynamic ergometer. Stroke rate, maximum heart rate, drive to recovery phase ratio and VO₂max showed statistically significant differences during 2 km rowing time trials on stationary versus dynamic ergometer. Moreover, VO₂max was inversely related with high correlation to time to completion of 2 km rowing test on both ergometers. Height, body fat and VO₂max are the major determinants of 2 km rowing time trials on stationary and dynamic ergometer. The outcomes from this study are important to enhance rowing performance especially for rowers.

Keywords: Biomechanics, ergometer, physiology, rowing