Arabic Adult OMNI Scale of Perceived Exertion for Cycle Ergometer Exercise Application and Validation

Ibrahim Mufleh Dabayeh*

Abstract

Introduction: Adult OMNI scale of perceived exertion for cycle ergometer was formatted in English language and validated among American adults but it has not been validated in Arabic language nor in Arabic culture. Purpose: A perceptual estimation paradigm was employed to determine the validity of an Arabic translated version of OMNI scale to measure perceived exertion among young adult healthy females (N=25) and males (N=25) aged 18-26 yrs. Methods: Heart rate (HR, beats min⁻¹), and ratings of perceived exertion (OMNI-Cycle Scale; RPE) for the overall body (RPE-O), legs (RPE-L), and chest (RPE-C) were determined at the end of each of the four (three for females) continuously administered 3-min exercise stages. Power output (PO) of cycling intensity stages started at 50 Watt (W) with 50W increments per stage. Subjects performed the exercise test up to 200 W for males and 150 W for females. Results: Exercise responses ranges for all stages were: Heart rate HR: 111.26-167.48 beat/min; and OMNI RPE: 1.59- 9.04. Linear regression and correlation showed that RPE-O, RPE-L and RPE-C for each of the two groups, and for the combined sample of all subjects, distributed as a positive linear function for HR (beats min⁻¹). Correlations of RPE and HR (.87-.94) and regression functions were statistically significant (p < 0.01) for both males and females and for RPE-O, RPE –L, and RPE-C. Differences between undifferentiated (RPE-O) and differentiated (RPE -L & RPE-C) between intensities and at each stage were examined using ANOVA for repeated measures for the combine sample and for each group. At all four/three stages, RPE-Legs was higher than RPE-Overall and RPE-chest for the combined sample and for each group (P<.01). RPE-O was higher than RPE-C at 100W for females and at 150w for males (P<.01). ANOVA showed a progressive intensity effect on all RPEs (P<.01). Conclusion: The Arabic translated version of the adult OMNI-Cycle scale of perceived exertion validity is established. The scale may be used by adult females and males of Arabic origin and is a valid mean to measure perception of exertion.

Keywords: exercise physiology, exercise intensity, OMNI scale of perceived exertion, exercise physiology measurements for adult.
Adult OMNI Scale of Perceived Exertion for Cycle Ergometer Exercise Application …
Ibrahim Mufleh Dabayebeh

**OMNI Scale of Perceived Exertion**

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In this study, we aimed to develop an Arabic OMNI Scale of Perceived Exertion for cycle ergometer exercise application. The Arabic OMNI Scale (OMNI Scale) was developed to measure perceived exertion during exercise. The scale is based on a 10-point scale, with higher scores indicating greater perceived exertion.

The study involved 25 participants, 26-18 years of age, divided into two groups: males and females. The exercise protocol included three phases of increasing intensity, with each phase lasting 50, 100, 150, and 200 watts, respectively, for males and females.

The heart rate and perceived exertion were measured at the end of each phase, and the results were recorded. The analysis of the data showed a significant correlation between heart rate and perceived exertion, with a regression coefficient of 0.904 for females and 0.87 for males. This indicates that the OMNI Scale is a reliable tool for measuring perceived exertion during exercise.

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