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ASSESSMENT OF ENERGY EXPENDITURE OF WALKING BASED ON HEART RATE MONITORING BY GENDER

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ABSTRACT

It is a fact that the assessment of energy expenditure can play a pivotal role in promoting a healthy lifestyle and preserve lifespan. The study regarding energy expenditure index (EEI) of walking can be designated as the most recommended strategy to evaluate the oxygen uptake accurately and indirectly among people. Moreover, heart rate (HR) and walking speed have been previously shown to be linearly related to oxygen uptake at sub-maximal exercise levels. Combination of these two parameters yields a single value in beats per meter i.e. the energy expenditure index (EEI). This study was aimed to determine the differences of EEI of walking between males and females. Ninety six healthy students of age in average 22.3±1.5years from University Kebangsaan Malaysia (48 females and 48 males) participated in this study to be investigated for EEI values at speed of casual walking; 76.7m.min^{-1}. Information regarding the subject's medical history was acquired by a questionnaire. In addition, physical characters (weight, height and leg length) were measured using stadio meter, digital weighing scale and a non-elastic tape for both groups. The heart rate (HR) was assessed at resting position as well as walking on a treadmill with a HR monitor in order to determine the EEI of walking. The mean EEI values for females and males were 0.58 (±0.08) and 0.51 (±0.06) beats.m^{-1} respectively. The results of t-test demonstrated a significant difference between EEI's females and males (t= -4.527, p=0.00) at speed 4.6km.h^{-1}. In conclusion, this inconsistency might be explained by greater variability of subject's weight, leg length, height to leg length ratio, resting heart rate, speed, and gait parameters of walking which significantly influenced on EEI of walking in both genders.

KEYWORDS: Energy Expenditure Index, Walking, Casual Walking Speed, Gender