

VALIDITY OF MTI (ACTIGRAPH) FOR PHYSICAL ACTIVITY MEASUREMENT IN CHILDREN WITH CEREBRAL PALSY

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INTRODUCTION Physical activity (PA) measurement among children with cerebral palsy (CP) has not been adequately established. CP involves a wide range of disabilities, and the assessment of PA in this population is of importance to the design and implementation of health, therapy, and physical education programs (Kim, 2009; Pirpiris & Graham, 2004). The purpose of this study is to examine the validity of MTI (Actigraph) as a PA measurement instrument for children with CP.

METHODS Participants included 31 children with CP (17 female and 14 male) aged 6 to 14 years ($M = 9.71$ years, $SD = 2.52$ years). The participants were classified within Gross Motor Classification System (GMFCS) I to III, and took part in two activity sessions: (1) structured activity protocol with increasing intensities and (2) free play session. MTI was used to measure activity counts, heart rate was measured using Polar Team System, and direct PA observation was done using the System for Observing Fitness Instruction Time (SOFIT). Linear regression was done using SOFIT as the criterion measure.

RESULTS Results showed that MTI and SOFIT data demonstrated a stronger association ($r=0.75$, $R^2 = 0.56$) than heart rate and SOFIT data ($r=0.65$, $R^2 = 0.43$) in structured activities. MTI and SOFIT data were also found to demonstrate a stronger association ($r=0.67$, $R^2 = 0.45$) than heart rate and SOFIT data ($r=0.14$, $R^2 = 0.02$) in free play activities.

CONCLUSION The findings suggest that the MTI is a valid instrument for measuring raw activity volume among children with CP and is suitable for use in studies attempting to characterize the PA of this population. This study is expected to contribute to the implementation of subsequent field-based studies that will examine the PA of children with CP.

REFERENCES Kim, S.Y. (2009). Assessing physical activity levels of students with disabilities in physical education? *Journal of Physical Education, Recreation & Dance*, 80, 3-4. Pirpiris, M, & Graham, H.K. (2004). Uptime in children with cerebral palsy. *Journal of Pediatric Orthopaedics* 24, 521-528.