

Motor Coordination and Body Mass Index in Primary School Children

Authors : Ingrid Ruzbarska, Martin Zvonar, Piotr Oleśniewicz, Julita Markiewicz-Patkowska, Krzysztof Widawski, Daniel Puciato

Abstract : Obese children will probably become obese adults, consequently exposed to an increased risk of comorbidity and premature mortality. Body weight may be indirectly determined by continuous development of coordination and motor skills. The level of motor skills and abilities is an important factor that promotes physical activity since early childhood. The aim of the study is to thoroughly understand the internal relations between motor coordination abilities and the somatic development of prepubertal children and to determine the effect of excess body weight on motor coordination by comparing the motor ability levels of children with different body mass index (BMI) values. The data were collected from 436 children aged 7–10 years, without health limitations, fully participating in school physical education classes. Body height was measured with portable stadiometers (Harpenden, Holtain Ltd.), and body mass—with a digital scale (HN-286, Omron). Motor coordination was evaluated with the Kiphard-Schilling body coordination test, Körperkoordinationstest für Kinder. The normality test by Shapiro-Wilk was used to verify the data distribution. The correlation analysis revealed a statistically significant negative association between the dynamic balance and BMI, as well as between the motor quotient and BMI ($p < 0.01$) for both boys and girls. The results showed no effect of gender on the difference in the observed trends. The analysis of variance proved statistically significant differences between normal weight children and their overweight or obese counterparts. Coordination abilities probably play an important role in preventing or moderating the negative trajectory leading to childhood overweight and obesity. At this age, the development of coordination abilities should become a key strategy, targeted at long-term prevention of obesity and the promotion of an active lifestyle in adulthood. Motor performance is essential for implementing a healthy lifestyle in childhood already. Physical inactivity apparently results in motor deficits and a sedentary lifestyle in children, which may be accompanied by excess energy intake and overweight.

Keywords : childhood, KTK test, physical education, psychomotor competence

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