

Association between gross motor competence and health-related quality of life in (pre)schoolchildren: the mediating role of cardiorespiratory fitness

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Background: Motor competence, defined as a person's ability to execute different motor skills, is directly associated with children's physical, mental, and social development and may be essential in encouraging an active lifestyle in childhood. Although health-related quality of life (HRQoL) in children has been described as an individual's subjective perception of the impact of health status on physical, psychological and social functioning, in very young children, a HRQoL parent-proxy report is needed since (pre)schoolchildren have problems expressing their feelings and understanding items on HRQoL instruments. In addition, the influence of motor competence on fitness levels has strong empirical support, so it seems reasonable to hypothesize that cardiorespiratory fitness might play a crucial role in the association between motor competence and HRQoL in children. **Objectives:** This study examined the association between gross motor competence (G-MC) and HRQoL in typically developing children, and whether this association between G-MC and HRQoL was mediated by cardiorespiratory fitness. **Methods:** An observational cross-sectional study with 1088 (pre)schoolchildren (51.84% boys, 48.16% girls) aged between 4 and 7 years (5.32 ± 0.60) belonging to 21 schools in the Spanish provinces of Cuenca and Ciudad Real were included. G-MC was evaluated using the MABC-2 battery, HRQoL was assessed using the KINDL-R questionnaire and cardiorespiratory fitness using the 20m-shuttle-run-test. Partial correlations, covariance models and mediation analyses were conducted. **Results:** The mean scores of HRQoL (physical well-being, self-esteem, friends, school and global score index) were

significantly higher ($p < 0.05$) in children with higher G-MC. When cardiorespiratory fitness was added as a covariate, all the results remained unchanged ($p < 0.05$), except for physical well-being for the total sample as well as emotional well-being and the global score index for girls. Simple mediation analyses showed that cardiorespiratory fitness acted as a mediator between G-MC and physical well-being (Indirect Effect = 0.04 [95% CI = 0.01; 0.07]) for the total sample. For boys, it acted as a mediator between G-MC and physical well-being (Indirect Effect = 0.04 [95% CI = 0.00; 0.08]) and school (Indirect Effect = 0.05 [95% CI = 0.01; 0.09]), and, for girls, between G-MC and emotional well-being (Indirect Effect = 0.04 [95% CI = 0.01; 0.08]) and the global score index (Indirect Effect = 0.02 [95% CI = 0.00; 0.05]).

Conclusions: The results of this study suggest that good G-MC levels are associated with better HRQoL, mainly in global score index of HRQoL and self-esteem, friends, and school dimensions in typically developing children. Further, cardiorespiratory fitness mediates the association between G-MC and the physical dimension of HRQoL in (pre)schoolchildren. Additionally, physical and academic dimensions are mediated by cardiorespiratory fitness for boys and the emotional and global score indices of HRQoL are mediated by cardiorespiratory fitness for girls. These findings provide scientific evidence that improving motor competence and cardiorespiratory fitness might be a practical strategy to increase HRQoL in children. Thus, families and the educational community should promote effective interventions and incorporate opportunities inside and outside school that aim to jointly improve motor competence and cardiorespiratory fitness. © 2020 Association for Physical Education.

child

Health-related quality of life

motor competence

motor skill

physical fitness