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The relationship between motor competence and physical fitness from early childhood to early adulthood: A meta-analysis

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Abstract

Motor competence and physical fitness are important for the development of positive trajectories of health over time (Robinson et al., 2015). In their conceptual model, Stodden et al. (2008) highlighted the role of both factors in physical activity. Furthermore, the authors hypothesized that the relationship between motor competence and physical fitness is reciprocal and changes over time (see also Burton & Rodgerson, 2001). Although more research investigating this relationship has been conducted recently, there is still little known on changes in associations across age. The present meta-analysis synthesizes the research on associations between motor competence and physical fitness from early childhood to early adulthood to have a better understanding on this relationship and possible changes across age. Following the PRISMA guidelines, we identified 60 studies between 1990 and 2016. Thirteen studies comprising of 27 samples and 15,101 participants aged 4.5 to 20.4 years ($M_{age} = 12.94$, $SD = 4.84$) were included in the analysis. A random effects model was conducted for the meta-analysis with age as a moderator using R. The association between motor competence and physical fitness was moderate to strong ($r = .48$, 95% CI [.38-.57], $p < .001$) after controlling for multiple effects including dependent samples and small sample sizes. Additionally, age was not a significant moderator of the effect size, but was positive from a descriptive point of view. The findings provide support for a medium to strong relationship between motor competence and physical fitness, which does not substantially change from early childhood to early adulthood.