

Motor competence in children aged 6–12 years: Cross-sectional associations with age, sex, and skill component

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Introduction: Motor competence is a multidimensional latent construct reflecting proficiency across distinct motor skill domains, shaped by both individual and contextual factors, and associated with physical activity, cognitive, and academic outcomes (Barnett et al., 2016). This study examined the influence of sex, age, and class context on domain-specific motor competence profiles in Greek primary school children.

Method: A cross-sectional sample of 312 children aged 6–12 years (156 girls) was assessed using the Movement Assessment Battery for Children–Second Edition (Henderson et al., 2007). Domain standard scores (manual dexterity, aiming–catching, balance) were analyzed via linear mixed-effects modelling with sex, within- and between-class age as fixed predictors and correlated domain-specific random slopes at both student and class levels. Post hoc pairwise contrasts were conducted with Westfall correction. Alpha was set at $\alpha = .05$. All analyses were performed in R statistical software.

Results: Balance yielded the highest domain scores, and manual dexterity was consistently lowest. Boys outperformed girls in aiming–catching. Within-class age negatively predicted manual dexterity scores. Class-level random effects accounted for substantial variance (23.1%), indicating marked between-class heterogeneity. At-risk prevalence was 10% (boys) and 15% (girls), with severe difficulties in 11.5% and 7.1% respectively; across age groups, 5–31% were at-risk and 4–17% severely impaired. Single-domain competence ranged from 8% (age 9) to 30% (age 8).

Conclusions: Motor competence in Greek primary school children is strongly domain-specific and classroom-dependent, with substantial and age-varying prevalence of below-threshold performance. Manual dexterity emerges as a curricular priority, age effects operate selectively across domains, and findings collectively underscore the need for domain-level screening and targeted school-based intervention.

References:

- Barnett, L. M., et al. (2016). Correlates of gross motor competence in children and adolescents: A systematic review and meta-analysis. *Sports Medicine*, 46, 1663–1688.
- Henderson, S. E., Sugden, D., & Barnett, A. L. (2007). *Movement Assessment Battery for Children-2*. The Psychological Corporation.