

# Impact of a multicomponent physical activity intervention on cognitive performance: The MOVI-KIDS study

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**Introduction:** This study examined the impact of a multicomponent physical activity (PA) intervention (MOVI-KIDS) on improving cognition in schoolchildren. This paper also analyzed the mediator role of motor fitness between MOVI-KIDS and cognition. **Methods:** Propensity score analysis of data from a cluster randomized controlled trial (MOVI-KIDS study). This analysis including 240 5-7 years old children from nine schools in the provinces of Cuenca and Ciudad Real, Spain. MOVI-KIDS program consisted of: (a) three weekly after-school sessions of recreational non-competitive PA lasting 60 minutes during one academic year, (b) educational materials for parents and teachers, and (c) school playground modifications. Changes in cognition (logical reasoning, verbal factor, numerical factor, spatial factor, and general intelligence) were measured. A propensity score cross-cluster matching procedure and mediation analysis (Hayes's PROCESS macro) were conducted. **Results:** All cognitive variables pre-post mean changes were significantly higher ( $P < 0.05$ ) in children from intervention schools than those from control schools (effect size ranged from 0.33 to 1.48). The effect of the intervention on the spatial factor and general intelligence was partially mediated by motor fitness (indirect effect = 0.92, 95% CI: 0.36; 1.65; and indirect effect = 1.21, 95% CI: 0.06; 2.62, respectively). **Conclusions:** This study shows that a

one-school-year multicomponent intervention consisting of a recreational non-competitive PA program, educational materials for parents and teachers, and school playground modifications improved the cognition of first-grade children. Further, our results suggest that the effect of the intervention on cognition was mediated by changes in motor fitness. © 2019 John Wiley & Sons A/S.

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