

# Relation between physical fitness and executive function variables in a preschool sample

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**Background:** This study examined the association between key components of physical fitness with inhibition and cognitive flexibility in preschoolers. **Methods:** This was a cross-sectional study of 362 Spanish preschoolers. The key components of physical fitness and executive functioning were measured. **Results:** The partial correlation controlling for body mass index and family socioeconomic status showed that inhibition was positively related to cardiorespiratory fitness. No association was found between muscular strength (i.e., standing long jump and dynamometry) and speed/agility with inhibition or between physical fitness components and cognitive flexibility. The inhibition mean scores were significantly higher in preschoolers with higher cardiorespiratory than in their peers who were in lower categories, after adjustments were made for confounders. Additionally, the results showed that cardiorespiratory fitness was a significant predictor of inhibition, but for cognitive flexibility, age was the only significant predictor. **Conclusions:** Our data suggest that cardiorespiratory fitness is associated with inhibition in preschoolers. Likewise, our results also suggest that cognitive flexibility is an executive function that is more dependent on changes associated with age at this development stage. These findings are important for supporting initiatives that aimed at stimulating healthy brain development, and promote the improvement of cardiorespiratory fitness at early ages. © 2020, International Pediatric Research Foundation, Inc.