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Executive function and magnitude skills in preschool children.

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Summary: Executive function (EF) has been highlighted as a potentially important factor for mathematical understanding. The relation has been well established in school-aged children but has been less explored at younger ages. The current study investigated the relation between EF and mathematics in preschool-aged children. Participants were 142 typically developing 3- and 4-year-olds. Controlling for verbal ability, a significant positive correlation was found between EF and general math abilities in this age group. Importantly, we further examined this relation causally by varying the EF load on a magnitude comparison task. Results suggested a developmental pattern where 3-year-olds' performance on the magnitude comparison task was worst when EF was taxed the most. Conversely, 4-year-olds performed well on the magnitude task despite varying EF demands, suggesting that EF might play a critical role in the development of math concepts.

Classification: F21 C31

Keywords: executive function; magnitude; preschool children; early childhood; numerical concepts

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