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Finger gnosis predicts a unique but small part of variance in initial arithmetic performance.

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Summary: Recent studies indicated that finger gnosis (i.e., the ability to perceive and differentiate one's own fingers) is associated reliably with basic numerical competencies. In this study, we aimed at examining whether finger gnosis is also a unique predictor for initial arithmetic competencies at the beginning of first grade – and thus before formal math instruction starts. Therefore, we controlled for influences of domain-specific numerical precursor competencies, domain-general cognitive ability, and natural variables such as gender and age. Results from 321 German first-graders revealed that finger gnosis indeed predicted a unique and relevant but nevertheless only small part of the variance in initial arithmetic performance ($\sim$ 1%–2%) as compared with influences of general cognitive ability and numerical precursor competencies. Taken together, these results substantiated the notion of a unique association between finger gnosis and arithmetic and further corroborate the theoretical idea of finger-based representations contributing to numerical cognition. However, the only small part of variance explained by finger gnosis seems to limit its relevance for diagnostic purposes.

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