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**Longitudinal mediators of achievement in mathematics and reading in typical and atypical development.**

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Summary: Longitudinal studies of neurodevelopmental disorders that are diagnosed at or before birth and are associated with specific learning difficulties at school-age provide one method for investigating developmental precursors of later-emerging academic disabilities. Spina bifida myelomeningocele (SBM) is a neurodevelopmental disorder associated with particular problems in mathematics, in contrast to well-developed word reading. Children with SBM ( $n = 30$ ) and typically developing children ( $n = 35$ ) were used to determine whether cognitive abilities measured at 36 and 60 months of age mediated the effect of group on mathematical and reading achievement outcomes at 8.5 and 9.5 years of age. A series of multiple mediator models showed that: visual-spatial working memory at 36 months and phonological awareness at 60 months partially mediated the effect of group on math calculations, phonological awareness partially mediated the effect of group on small addition and subtraction problems on a test of math fluency, and visual-spatial working memory mediated the effect of group on a test of math problem solving. Groups did not differ on word reading, and phonological awareness was the only mediator for reading fluency and reading comprehension. The findings are discussed with reference to theories of mathematical development and disability and with respect to both common and differing cognitive correlates of math and reading.

*Classification:* C31 C32 C41 C42 D72

*Keywords:* mathematics achievement; reading; cognitive correlates; longitudinal study; neurodevelopmental disorder; mediation

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