Dyslexia and Motor Skills: A Meta-Analysis

Rita Obeid
Case Western Reserve University, Cleveland, Ohio, United States

Catherine Messina
Columbia University, New York, New York, United States

Nicole Zapparrata
College of Staten Island, Staten Island, New York, United States

Christopher Gravelle
College of Staten Island, CUNY, Staten Island, New York, United States

Patricia Brooks
College of Staten Island and the Graduate Center, CUNY, Staten Island, New York, United States

Abstract

Research suggests individual differences in motor skills may be associated with reading ability in school-age children. This meta-analysis explored whether deficits in motor skills are evident in developmental dyslexia, using estimates from 33 studies (k) with 122 effects (m) from dyslexic and age-matched neurotypical samples (N dyslexia = 1248, M age = 11.6 years, range 7.0 to 25.3 years). An overall effect of moderate magnitude, g = −.52 [95% CI −.74; −.29], confirmed that motor skills are impaired in dyslexia. Meta-regression analyses indicated no significant effects of participant age or language. Subgroup analyses revealed significant group differences for tasks with nonlinguistic stimuli (k = 28, m = 83), e.g., pegboard task, g = −.46 [−.71; −.22], or linguistic stimuli (k = 10, m = 39), e.g., word copying task, g = −.66 [−1.09; −.24]. Effects were significant for groups with confirmed dyslexia diagnoses (k = 27, m = 103), g = −.56 [−.81; −.30], but not for groups identified as poor readers, (k = 6, m = 19), g = −.32 [−.93; .28]. Effects were significant for fine motor skills (k = 29, m = 106), g = −.61 [95% CI −.83; −.39], but not for gross motor or composite measures (k = 10, m = 16), g = −.26 [95% CI −.76; .24]. The results suggest that fine motor tasks might help to identify children at risk of dyslexia. Longitudinal research may further elucidate relations between motor and reading skills.

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