# Implicit Sequence Learning In Developmental Dyslexia: New Evidence From A Probabilistic Sequence Learning Task

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**Abstract**

Implicit learning underlies the acquisition of various critical skills, including reading. Previous research has reported that certain implicit learning tasks are impaired while others are spared in developmental dyslexia (e.g., Pothos & Kirk, 2004; Vicari et al. 2005; Howard et al. 2006; Russeler et al. 2006). In the present study, we used the Alternating Serial Reaction Time (ASRT) paradigm (Howard & Howard, 1997; Nemeth et al., 2010) to assess implicit probabilistic sequence learning in both children (18 dyslexic and 20 normally-developing 12-year-olds), and adults (15 dyslexic and 22 normal 20-year olds). The ANOVA revealed sequence-specific learning ($p < 0.001$), as well as general skill learning ($p < 0.001$). The two groups (dyslexic and control) did not differ either in overall sequence-specific or in general skill learning, regardless of the age group (all p's $> 0.34$). However, dyslexic children were generally slower compared to the normally-developing children ($p = 0.015$), though this difference disappeared in the adult groups ($p = 0.71$). Results are discussed with regard to previous findings. In particular, it is suggested that the mixed pattern of results of implicit sequence learning in dyslexia can be accounted for by the type of the sequence, the explicitness of the stimuli, and the nature of the task demands.

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