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What Do We Learn from Dyslexia and Second Language Learners on the Difference Between Long-term Frequency and Short-term Sequence Repetition Effects?

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Abstract: Dyslexia is a common learning disability, but its core deficit is still under debate. The anchoring deficit hypothesis suggests that dyslexics' benefit from experimental stimuli statistics is impaired (e.g. Ahissar, 2007). In this study we asked whether dyslexia is also associated with reduced sensitivity to long-term statistics. Spans for lists of syllables were measured, and indeed, dyslexics benefited less than controls from syllabic frequency. However, dyslexics' benefit from sequence repetition was similar to controls'. In order to dissociate the impact of item familiarity from exposure unrelated factors, native English speakers performed the experiment. They were expected to benefit from repetition, but not from syllabic frequency (in Hebrew). Indeed, that was the case. These data suggest that benefits from long-term distributional statistics are impaired in dyslexia, whereas on-line benefits from sequence repetition are adequate. Moreover, our results suggest different underlying mechanisms for long-term distribution learning and short-term sequence learning.