The Causal Relationship between Dyslexia and Motion Processing

Seeing Stars for Phonological and Orthographic Processing in Reading and Spelling (SI)

PROFILE:

Number of Subjects:
- 47 Seeing Stars

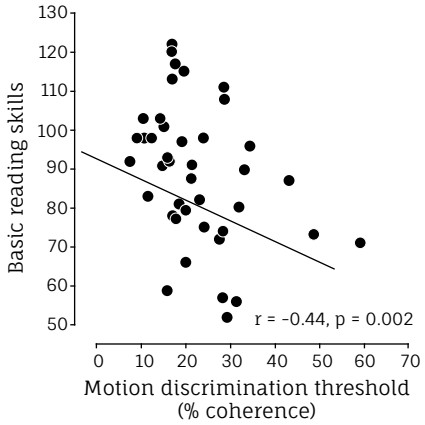
Age: 7-12

Program Implemented:
- Seeing Stars

Outcome Measures:
- Woodcock-Johnson IV
- Word Identification
- Word Attack

BACKGROUND:

As one part of ongoing Lindamood-Bell Learning Processes (LBLP®) intervention studies with dyslexics, the University of Washington's Institute for Learning and Brain Science examined anew the causal relationship between motion sensitivity and reading skills. This relationship has been debated for many years. This specific study used one of LBLP's intensive reading intervention programs (Seeing Stars) to test the causal relationship between learning to read and the comparative growth in reading as related to visual motion processing in dyslexics.



Note: Figured used with permission.

RESULTS:

Two interesting findings were revealed. First, motion sensitivity remained stable over the course of the intervention regardless of the deficit revealed. Additionally, motion sensitivity deficits, where noted, did not negatively impact the learning process (see graph). Dyslexics with poor motion sensitivity showed the same improvement in reading skills as children with typical motion sensitivity. The authors concluded that the findings call into question the view that motion processing deficits are due to poor reading experience. Interestingly, while a significant feature of the intervention used relied on the stimulation and synthesis of orthographic and phonological processing, the authors speculate that motion processing deficits are among a collection of correlated risk factors for reading difficulties. They further note that dyslexia is most likely a multifaceted impairment in learning to read, a view consistent with the rationale behind the Seeing Stars intervention used in this study, which posits that being able to mentally manipulate the symbols for reading plays an equally critical role in learning to read as manipulating the sounds of the English language. In sum, the data show that, while the reading intervention enhanced reading abilities, learning to read did not correlate to motion sensitivity.

LOCATION:

University of Washington, Institute for Learning and Brain Science, Seattle, WA, USA

Joo, S., Donnelly, P. M., & Yeatman, J. D. (2017). The causal relationship between dyslexia and motion perception reconsidered. Scientific Reports, 7, 4185. doi:10.1038/s41598-017-04471-5