

Dyslexia linked to difficulties in perceiving rhythmic patterns in music

June 29 2011

Children with dyslexia often find it difficult to count the number of syllables in spoken words or to determine whether words rhyme. These subtle difficulties are seen across languages with different writing systems and they indicate that the dyslexic brain has trouble processing the way that sounds in spoken language are structured. In a new study published in the June issue of *Cortex*, researchers at Cambridge have shown, using a music task, that this is linked to a broader difficulty in perceiving rhythmic patterns, or metrical structure.

Martina Huss, Usha Goswami and colleagues gave a group of 10-year-old children, with and without dyslexia, a listening task involving short tunes that had simple metrical structures with accents on certain notes. The children had to decide whether a pair of tunes sounded similar or different. To make two tunes sound "different", the researchers varied the length of the stronger notes. However, it was not the perception of the length of these notes that was shown to affect how successful a child completed the task, but the child's perception of "rise time", which is the time it takes for a sound to reach its peak intensity. In speech, for example, the rise time of a syllable is the time it takes to produce a [vowel](#). Stressed syllables have longer rise times, so rise time is a critical cue that helps in the perception of rhythmic [regularity](#) in speech.

The children with [dyslexia](#) found the music task quite difficult, even when presented with simple tunes containing just a few notes. The findings of the study indeed showed a strong relationship between the ability to perceive metrical structure in music and learning to read.

The researchers argue that the ability to perceive the alternation of strong and weak "beats" (stressed and unstressed syllables) is critical for the efficient perception of phonology in language. Furthermore, as rhythm is more overt in music than language, they suggest that early interventions based on musical games may offer previously unsuspected benefits for learning to read.

More information: The article is "Music, rhythm, rise time perception and developmental dyslexia: Perception of musical meter predicts reading and phonology" by Martina Huss, John P. Verney, Tim Fosker, Natasha Mead and Usha Goswami, and appears in *Cortex*, Volume 47, Issue 6 (June 2011)

Provided by Elsevier

Citation: Dyslexia linked to difficulties in perceiving rhythmic patterns in music (2011, June 29) retrieved 20 April 2024 from

<https://medicalxpress.com/news/2011-06-dyslexia-linked-difficulties-rhythmic-patterns.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.