

Eye-movements in French dyslexic University students while reading aloud a text with spelling errors

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Purpose: Dyslexia is as a multifactorial deficit, involving both phonological and visuo-attentional troubles. This study examined dyslexic students' eye movements in a more ecological reading situation, namely a text extracted from a French daily newspaper containing spelling mistakes. We aimed to investigate the oculomotor patterns associated with the processing of these mistakes to determine whether dyslexics could perceive them in real time. We hypothesized that an abnormal oculomotor pattern would be even found in university dyslexic students despite their good reading experience.

Method: Eye movements were recorded with EyeLink 1000 in forty French university students (20 with and 20 without dyslexia) during reading a text extract from a daily newspaper. We modified 16% of words belonging to different grammatical categories to create orthographic errors (par ex. **attindu* versus *attendu* (expected)). Reading times, number and amplitude of saccades, and number and duration of fixations were measured both in the whole text and on each mistaken word. After reading, participants had to answer five questions relating to the text and to detect the errors in the text.

Results/Conclusions: Dyslexic students made significantly more fixations both in the overall text and on mistaken words and more retro-saccades with respect to non-dyslexic students. Moreover, they struggled more with error detection. Interestingly, the reading comprehension performances were similar in the two groups. These findings suggest that dyslexic students may employ compensatory strategies to quickly build a coherent interpretation of the text read. However, they still showed difficulties in processing spelling errors most likely due to both phonological and visuo-attentional deficits.