

Résumé public

Projet ADys

Spatio-temporal brain dynamics of orthographic, morphological and semantic processing in dyslexic university students: a MEG study

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Understanding reading in adults with developmental dyslexia is a major scientific challenge. Indeed, most studies have focused on identifying deficits responsible for their persistent reading difficulties and confirmed the existence of orthographic and phonological processing deficits. However, dyslexic university students can attain a level of written comprehension comparable to skilled readers. It is possible that adult dyslexics may rely more heavily on semantic or morphological processing to compensate for lower-level deficits in orthographic and phonological processing. Indeed, the vast majority of words we read are morphologically complex and morphemes could constitute functional reading units making it possible to rapidly access “larger” orthographic units and connect those to meaning. We will use MEG to investigate the spatio-temporal brain dynamics of morphological processing during reading in dyslexic and skilled adult readers. In particular, we are interested in finding out to what extent the cortical generators that underlie morphological processing can be dissociated from those related to orthographic and semantic processing. To dissociate orthographic, semantic and morphological processing, we will use the priming paradigm with orthographic, morphological and semantic primes and target words that are identical across all prime conditions. Given the debate as to whether there is early morphological decomposition based on orthographic information alone, it is particularly interesting to investigate whether the cortical generators associated with early morphological processing are located in occipito-temporal areas in charge of orthographic processing or in more frontal areas in charge of higher-language functions and/or whether feedback from frontal areas affects early morphological decomposition in more posterior areas. For dyslexic readers, if morphology indeed serves as a mechanism to compensate for lower-level orthographic deficits, this research might open up new avenues for remediation.

Keywords: *morphological, orthographic, semantic processing; dyslexic university students; MEG; priming paradigm.*