

## **Learning Orthography in Adult Life: a magnetoencephalography study**

### **Results:**

Previous work demonstrated that there were differences between literate and illiterate subjects. These differences were found in the performance on several tests and on patterns of activation on PET and fMRI. In the present study subjects that learned to read and to write in adulthood (being previously completely illiterate) were compared with subjects that learned in school in the proper age. Magnetoencephalography was done while subjects were reading words. Results showed that although the reading performance was the same in both groups the pattern of font distribution was different between groups. There were more late fonts in right temporo-parietal areas of recent literate compared to old literate and more late fonts in left inferior frontal cortex in old literate subjects.

It is concluded that learning to read in adulthood is a process supported by different brain structures from the ones used when learning occurs in the proper age. This contributes to the understanding that the same task can be similarly performed relying on diverse functional brain anatomic networks.

### **Published Work:**

Castro-Caldas A., Nunes MV., Maestú F., Ortiz T., Simões R., Fernandes R., La Guia E., Garcia E., Gonçalves M, Learning orthography in adulthood: a magnetoencephalographic study; Journal of Neuropsychology, Volume 3, Part 1, p 17-30, 2009

Castro-Caldas, A., Nunes, V., Simões, R., Fernandes, R., Maestú F. & Ortiz, T., Mapeamento do cortex receptivo da linguagem em adultos letrados na infância e adultos letrados na vida adulta», Presented at the SLAN annual meeting. October 2003, Montreal

Nunes MV., Castro-Caldas A., Del Rio D., Maestú F., Ortiz T., The ex-illiterate brain. The critical period, cognitive reserve and HAROLD model; Dementia & Neuropsychologia, 3(3): 222-227, 2009.

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