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Title: Back on track: an efficient computer-assisted multi-componential remediation program for dyslexic readers

Authors: Karine L. Harrar-Eskinazi, Ambre Denis-Noël, Bruno De Cara, Gilles Leloup, Julie Nothelier, Hervé Caci, Sylvane Faure, Johannes C. Ziegler

Contact details:

Johannes C. Ziegler
PhD in Neurosciences, Research Director
Aix-Marseille Université, CNRS, LPC, ILCB, Marseille
johannes.ziegler@univ-amu.fr

Karine L. Harrar-Eskinazi
PhD, Post-doctoral student in Neuropsychologie
Speech and Language Therapist
Université Côte d'Azur, LAPCOS, Nice
karine.eskinazi@univ-cotedazur.fr

Purpose: In line with multi-deficit models of developmental dyslexia, the purpose of this study was to design and evaluate a three-stage multimodal and multi-componential computer-assisted remediation program, which aimed at enhancing both underlying cognitive processes (audio-phonological, visual-attentional) and reading and spelling procedures. All dyslexic children received the three training programs and the specific content of each training was tailored to the specific deficits of each patient.

Method: 144 dyslexic participants, aged between 8-13 years, were included in a multicenter, longitudinal, clinical trial that contained three stages. In the first stage (within-subject pre-intervention baseline), they received weekly speech and language therapy. In the second stage, they received the three types of intensive computer-based interventions, audio-phonological, visuo-attentional and audio-visual in addition to their weekly speech and language therapy. The order of the first two training programs was crossed. In the third stage (post-intervention baseline), they continued weekly speech and language therapy and the intensive interventions were stopped.

Results and Conclusion: Compared to the pre-intervention baseline, the three intervention programs had a cumulative and significant effect on improving reading fluency. Furthermore, each intervention program significantly improved reading. At the end of the program, 48.8 % of the participants were free of reading disorder. These findings show that it is possible to implement an inexpensive and highly effective intervention program in the homes of dyslexic children that brings a large portion of them in the normal range of reading after only 6 months of intervention.