

Supplementary Materials Table S2

Wireless EEG system for neurofeedback training

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Table S2. Nonparametric statistical comparison of the reading achievements.

<i>tasks</i>	pre-training dyslexics <i>mean ± se</i>	post-training dyslexics <i>mean ± se</i>	statistics <i>p</i> <i>χ</i> ²	
<i>Reading</i>				
duration of Reading word	786.87 ± 16.83	657.16 ± 14.67	0.001	9.48
Voice RT (ms)	1497.96 ± 30.5	1266.16 ± 27.9	1.7e-06	30.4
Success rate (%)	77.41 ± 3.8	90.05 ± 4.1	0.0002	16.39
Error (%)	11.3 ± 3.30	4.67 ± 3.58	0.0032	9.81
Omitted words (%)	11.3 ± 3.8	4.83 ± 4.1	0.02	5.26
Speed (N/20 sec)	10 ± 2	21 ± 2.3	0.01	6.54
<i>Visual discrimination word/pseudoword</i>				
word condition				
Success rate (%)	69.83 ± 2.75	78.6 ± 2.99	0.03	4.51
RT time (ms)	1333.8 ± 18.52	1369.3 ± 19.82	0.08	2.87
pseudoword condition				
Success rate (%)	55.58 ± 3.71	69.5 ± 5.04	0.02	5.29
RT time (ms)	1543.3 ± 22.6	1537.8 ± 22.2	0.70	0.07

1) Reading Tasks

Single words in Microsoft Sans Serif font are presented on a laptop at a distance of 57 cm from the observer. The black letters on a white background have an angular size of about 1° each. The age-appropriate words are balanced according to their frequency characteristics - low and high frequency of use and cover different parts of speech: adjectives, verbs, prepositions, numbers, pronouns, conjunctions, and adverbs. The series of multi-syllable words (2/3-syllables) contains 40 words in each block. The word remains on the computer screen for 800 ms. The word replaces another word in a pseudo-random sequence with an interval between the words of 1.5–2.5 s. In a reading task, the behavioral parameters were assessed for each child as a voice reaction time, duration of word reading, percent of error reading words, percent of omitted words, and speed of reading. The voice reaction time is determined from the beginning of the appearance of the visual stimulus (word) to the beginning of its pronunciation. The duration of reading is the difference in time from the beginning of word reading to its end reading. The speed is the number of correctly reading words to their common duration. The percent of dropped words also determines the accuracy of the reading. The success rate is defined by the correct reading words. After the training sessions, the task of reading words is repeated.

2) *Visual discrimination word/pseudoword*

Two types of visual-verbal stimuli consisted of words and pseudowords, are presented in pseudo-random order and stay on the computer screen for 800 ms. Its duration is defined by a reading task. The pseudowords are the same words in sequence but with all replaced vowels. The block contained 40 words and 40 pseudowords. The instruction is to push a right-side button when seeing a word and to push a left-side button when the stimulus is a pseudoword. The correctly identified words/pseudowords and the reaction time are reported.

The reading of words and the visual word/pseudoword discrimination are performed one month after the training ends with the visual nonverbal programs.

Irrespective of the verbal tasks, the experimental group with dyslexia receives an intensive procedure with training visual tasks over three months, performed twice a week into individual 45 min sessions.