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An Empirical Evaluation of Treatment Directions for Developmental Neglect Dyslexia

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Introduction

Readers with word-based neglect dyslexia (or neglectia) neglect letters on one side of the word, typically its left side. Word reading is characterized by omissions, substitutions, and additions of letters on the neglected side of the word (e.g., they might read the word "flower" as "lower" or "slower"). Cases of acquired visuospatial neglect and neglect dyslexia have been thoroughly studied and reported over the last century. However, cases of neglect in children have been sparsely reported. In the current study we explore the reading of 21 children with developmental neglectia, who show neglect on the word level but not on the text level. Because Hebrew is read from right to left, left neglectia causes a problem with final, rather than first letters.

The research aimed at characterizing various aspects of developmental neglectia, and evaluating various directions for treatment.

Participants

The participants were 21 individuals with developmental neglectia, 17 boys and 4 girls, aged 7;7-12;11, and one aged 21. None of them had a history of neurological disease or head trauma.

Experimental Investigation

The reading tests included letters, sequences of letters, words, word pairs, and sentences, and the tasks were reading aloud, same-different decision, lexical decision, written word comprehension, synthesis, and letter-by-letter naming. The words in all the tests were chosen so that another existing word that the children knew could be created by final letter omission or substitution.

Results

The children showed a significant deficit in reading words aloud. They read correctly only 8%-71% of the single words, with mainly or only left neglect errors. Most of their neglect errors were omission or substitution of a letter or several letters, and for 12 participants most of the responses were lexical.

Most of the participants identified all single letters correctly. When they named the letters in a word one-by-one, they had a significantly higher success rate than when they read the word as a whole, indicating that neglectia mainly affects stimuli perceived as words (similarly, number reading was much better than word reading).

The neglect errors affected the comprehension of the words – words were comprehended the way they were read, and other tasks that required reading without reading aloud – lexical decision, same-different decision, and word

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definition -- were also affected by the neglectia.

Evaluation of treatment directions

We examined various treatment methods for neglectia. Seven methods were used to try and shift the children's attention to the left side of the word: We put a flashing light to the left of each printed word, colored the final letter of the word in green, drew a green line to the left of each word in a sentence, asked the participants to tap their finger to the left of each word, or to track the word letter-by-letter with their finger. We also evaluated reading with double spacing between letters in the word, and reading of words presented vertically. We compared these treatment methods for each of the participants and for the group to the baseline performance, each condition included 30 words.

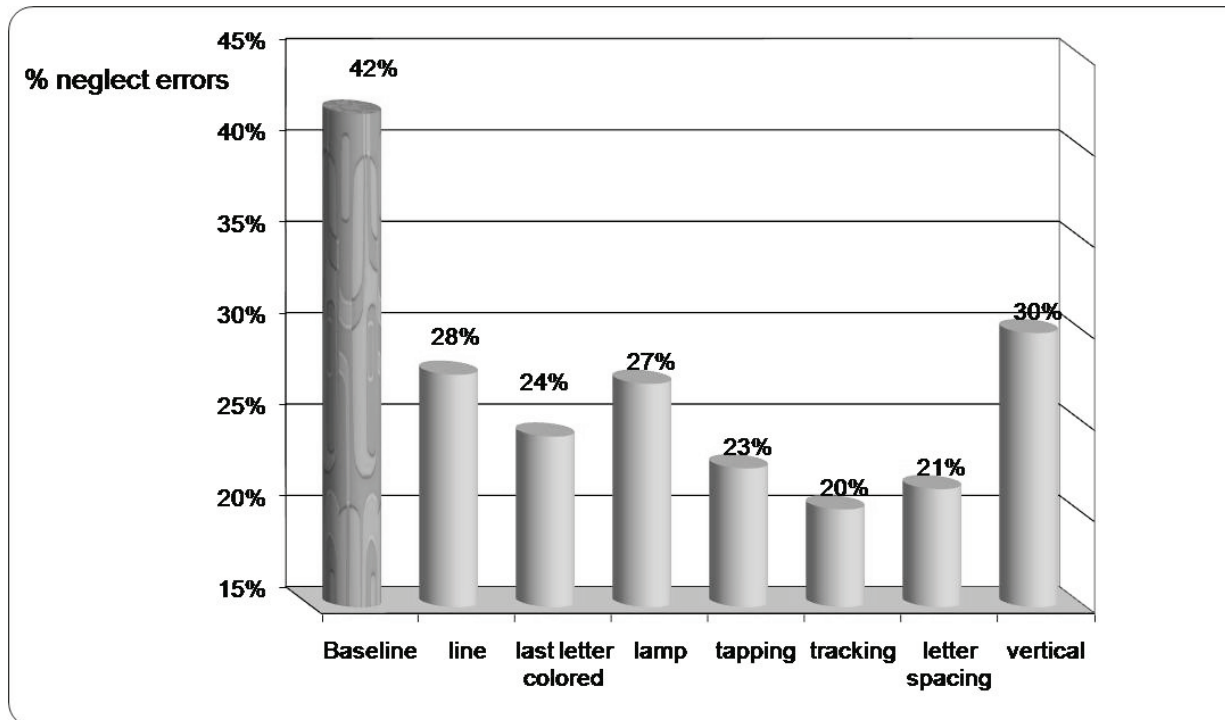


Figure 1. The effect of the various treatment techniques on reading compared to the baseline

Results

The results, presented in Figure 1, showed that letter tracking was the most effective method, but all the methods helped at least some of the participants. The effect of treatment was maintained 2 months following treatment. We will discuss the differences between the different methods, and the way the direction of reading affects the efficacy of various intervention techniques.