Author's response to reviews

Title: Word Processing differences between dyslexic and control children

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Author's response to reviews: see over
Dear Professor Newmark,

We thank you and the reviewers again for the comments on the manuscript. We have made every effort to address all points raised by the reviewers. Please find enclosed our detailed responses to the specific points.

Thank you for considering our manuscript for publication in BMC Psychiatry.

Reviewer Alice Mado Proverbio

1) *Dyslexic children do not read the words at all*

We added another sentence to the discussion: “One might argue that dyslexic children were simply not able to read the words at a presentation speed of 1 word per 350 ms. *If that was the case, we would have expected processing differences between the groups for all three wordtypes. However, the groups differed solely in their brain responses to LF words.*”

2) *Discussion of Mechelli’s data*

We had already added discussion of Mechelli’s fMRI data in our last revised manuscript (page 16, last paragraph).
Editorial advice Michael Posner

1) Change of the abstract and conclusion to account for the limited results

We followed the advice and changed both abstract and conclusion emphasising the limited nature of the results.

2) Pseudoword effect in normal children

We discussed the finding that low frequent words and pseudowords evoked different brain responses although they both require serial processing for successful decoding (discussion page 16, second paragraph).

Another explanation can be given by RSVP MEG data in 19 healthy adults (in preparation). We used the same stimulation paradigm with identical words in adults and computed a minimum norm estimate of brain activity. The figure below shows the global mean amplitude. As can be seen, both - pseudowords and low frequent words - do in fact evoke higher brain responses than low frequent words in a brief time period (100-120 ms). After that, pseudowords drop in amplitude and resemble high frequent words. We assume that due to the limited processing time (350 ms per word) pseudowords are not processed any further as soon it is recognised that no real word is present.

It is likely that we did not find this fine-grained processing pattern in the present study because we performed wavelet analysis on the MEG data. Activity between 80 and 150 ms is far more blurred with this analysis method (see fig. 2 in the original paper).