Author's response to reviews

Title: Pro- and antisaccades in children elicited by visual and acoustic targets - does modality matter?

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Author's response to reviews: see over
Dear Ms Rachel Neilan,

Thank you again for granting us a delay in revising the manuscript. We would also like to thank you and the referees for the helpful comments. We have made every effort to address all points raised by the referees. Please find enclosed our detailed responses to the specific points.

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

Sincerely yours,

Johanna Goepel
Referee

Major Compulsory Revisions

• The authors present no data on the amplitude gain of the saccades and antisaccades but it is likely that these showed large overlaps. It is possible that the lack of an eccentricity effect is related to this factor. The authors should discuss this.

We inserted the following paragraph on page 10:
Alternatively, the missing effects of target eccentricity might be explained by overlaps of the saccade amplitude because of the small visual angles. The analysis of amplitude gain might have yielded information about the overlap of the saccade amplitudes depending on the eccentricity but this was not analysed within the scope of this work.

• A mixed task was used that children find particularly difficult. Was there any evidence of forgetting or goal neglect resulting in missed trials?(1) No mention is made of missing data although seven year olds may have found the task rather difficult. The authors should comment on this.
• In the paper it is assumed that the latencies measured were those of the first saccade after stimulus onset, but it is possible that during these extremely long latencies in response to the acoustical cues, secondary saccades were made. Nothing is said about how secondary saccades, anticipatory saccades, or saccades not in response to the stimulus were identified or treated. Even if these parameters were not analyzed, this should be made explicit.

We inserted the following paragraph on page 7:
There were very few trials (a mean of 20.6 trials per child) where no reaction could be detected. Since the small amount of these trials did not warrant a separate analysis, secondary and anticipatory saccades were excluded from further analysis.

• The condition x modality interaction (p = 0.079) is non-significant, not just “marginally” so. The decision to use an alpha level less than 0.05 is made before the experiment and should be respected. The conclusions about a non-significant type x modality interaction for the error rates are, thus, not warranted and the post hoc comparisons invalid. They should be removed from the paper. The authors could describe their data as a trend that may or may not be replicated by future research.

We changed this part on page 9 and changed figure 3a.

• Correlations are not very convincing arguments that visual and acoustical cue tasks were comparable. This should be acknowledged.

We adapted the sentence on page 12:
The correlation between latencies in visual and acoustic conditions might indicate that the children’s abilities in both tasks are to some degree comparable supposable.

Minor Essential Revisions

Abstract

• Line 9. Insert the eccentricity values used.
• Change “errors were declining with age” to “errors declined with age”.
• The following sentence is not clear and should be rewritten:
  “The present results lay the ground for further studies of acoustically triggered
saccades in typically as well as atypically developing children in order to differentiate on physiological level children groups."

Introduction
• Page 3, line 12. Add “the” before “physiological”.
• Page 4, line 13. Add comma after “Ostensibly”.

All improvements were done.

Results
• Page 8, line 6. This sentence should be joined to the previous one by a semicolon, not after a full stop.
• Page 9, line 26. Change “whichever is” to “and this was”.
• Page 11, line 7. Change “nor” to “or”.
• Various lines. Inconsistent use of the number of decimals. Keep all values at two decimals except for p values less than 0.01.
• Various lines. Insert degrees of freedom for correlation coefficients.

All improvements were done.

Discussion
• Page 11, line 24. Change “references systems” to “reference systems”.
• Page 11, line 29. The following sentence is not clear should be rewritten: “One possible explanation might be the different stimulus presentation degree between modalities.”

All improvements were done.

Figures
• It is not clear what the error bars represent.

The error bars represent the error rate [in %] per condition modality, as mentioned in the text on page 9.

Throughout the paper
• Change “i.e.” to “i.e.,” unless it is the journal’s style to omit the commas.
• Change “dependant” to “dependent”.

All improvements were done.

Reference:

We inserted this reference.