Peer Review File
Evaluation of cerebral visual functions in low myopic adolescents

Reviewer 1
MAJOR REVISIONS:

1. The paper should be more synthetic. It is necessary a condensation of all the examination performed.
2. It should be better remarked which are the utility, the application and the scientific innovations of this study.
3. A limit is that no NMR was performed, to better support the hypothesis of visual cortex deficiencies.
4. It should explain better how all this eye examination are correlated with visual cortex problem.
5. It should explain better if this study can have some practical implication in how a child is examined.

MINOR REVISIONS:
1. A linguistic revision is desirable.

Reviewer 2:
The manuscript till results section is of average quality and I have mentioned my comments to further improve it. However, the discussion section should be revised.

1. In the discussion section the authors need to discuss results of their own study and correlate with literature. In this manuscript authors did not wrote the discussion section in a way it should be. They wrote it in a mixed form (combination of literature review, methods and results).
2. Instead to discuss the results of this study with respect to available literature, authors gave explanation from the literature
3. Different citation style is used here. In some cases author’ name is mentioned in text and in some places it is not mentioned.
4. I did not do correction in the discussion section because whole section needs to be revised.

Response:
Response to Reviewers:
1) The paper should be more synthetic. It is necessary a condensation of all the examination performed.
In order to make our paper more clear and brief, we delated unnecessary paragraphs as well as sentences without changing its main idea. In the meantime, we add a few important outline statements to make our paper easy to understand. Generally speaking, our paper are more comprehensive and refined.

2) It should be better remarked which are the utility, the application and the scientific innovations of this study.
To highlight the utility, the application and the scientific innovations of this study, we enriched the “introduction” and “conclusion” part (page 2, line 21 and Page 12, line 15).
As it were mentioned (in page 2, line 3), the mechanisms of myopia remained unclear and has
been focused on local retina for years. Recently, increasing studies reported that visual cortex were also involved in myopia (page 2, line 7 to 12). Moreover, few studies reported the cerebral visual functions in myopia, let alone low myopia. Based on evidences above, we designed our study to fully explore cerebral visual functions in low myopia.

Speaking of the utility and application of our study, we remarked conclusion part (Page 12, line 15). We clearly pointed out the specific defects in low myopia (with or without anisometropia). And further practical implications were listed in our paper (page 12, line 25). Since the examinations we chose in our study were useful in assessing cerebral visual functions, they may provide solid foundation for further specific treatments. In the same time, they would be effective indicators in post-tracking evaluation. And we call on experts to pay more attention to the role of visual cortex in the development of myopia (page 12, line 26).

3) A limit is that no NMR was performed, to better support the hypothesis of visual cortex deficiencies.

To answer this question, we must admit that we do not conduct MRI study in our research. On one hand, we used the results of other MRI studies about neural defects in myopia (page 1, line 7). There were increasing MRI studies about the visual cortex in myopia. They hold the identical view that myopia, especially high myopia, had lower neural activity and its grey matter volume (represents the amount of neural cells) could be decreased as well.

On the other hand, in our study, we want to explore the cerebral visual functions instead of the organizational structure and the neural activity in low myopia. The focus of our study were cerebral visual functions. Thus, we used perceptual eye position, fixation stability and stereo tests to assess it. The effectiveness of these examinations had been proved by much studies in amblyopia and strabismus. Nevertheless, the MRI studies would be performed in our next step to better support our hypothesis.

4) It should explain better how all this eye examination are correlated with visual cortex problem.

In our study, we used perceptual eye position, fixation stability and stereo tests to assess cerebral visual functions. Examinations above were used in diseases with defects in visual cortex, such as amblyopia, strabismus or anisometropia (page 2, line 28). Plenty studies on such diseases had proved that they were useful in evaluating cerebral visual functions and closely correlated with visual cortex problems.

As we mentioned in our paper (page 3, line 31), “perceptual eye position is the reflection of the visual cortex's separation control on the eye position under dichoptic vision”. Fixation stability is the ability that eyes obtain a steady fixation direction (page 4, line 18). And we added the importance of stereoacuity in page 11 (line 3).

5) It should explain better if this study can have some practical implication in how a child is examined.

To draw more attention on its practical implication and make it easier to catch up, we revised the conclusion (page 12, line 21 to 27). As far as our results were concerned, low myopia do have certain defects in cerebral visual functions. By examining low myopic adolescents, we could screen such abnormalities in them. And then, we could set out to explore possible treatments to
restore them. In the meantime, the examinations we chose in our study were useful in assessing it. They may provide solid foundation for further specific treatments and they would be effective indicators in post-tracking evaluation (page 12, line 21). And we call on experts to pay more attention to the role of visual cortex in the development of myopia (page 12, line 26).

List of Major Changes:
(1) In the discussion section, we have re-written this part according to your suggestion. We only discussed our own results and literature correlated in this section. And we used same style for citations.
In discussion of PEP, we clarified our expression (page 10). First, PEP is different from apparent eye position and more accurate than it in the same time (line 10 to 16). Then, in diseases with defects in visual cortex, PEP is more sensitive in evaluating (line 18 to 24). Last, horizontal and vertical PEP might be controlled by different areas of cortex according to our results (ling 25 to 29).
We also revised the discussion of fixation stability (page 10 to 11). We found reasonable explanations to our results (line 36). Fixation stability was closely related with saccade and mircosaccade eye movements. Myopia could affect saccade and mircosaccade eye movements to further reduce the fixation stability (line 38).
In stereoacuity (page 11 to 12), we discussed the relationship between stereoacuity with distance in the beginning (line 10 to 34). Then, we analyzed the effects of low myopia as well as fixation stability on stereoacuity (line 37 to 16). Possible explanations were enclosed in our discussion.
(2) In conclusion part, we enriched the application and practical implication of our study (page 12 line 31). Accordingly, we revised our abstract (Page 1, line 31 to 33).
(3) The “stereoacuity test” are changed into “stereo test” (for example in page 1, line 12). In all cases below, it is corrected as well.
(4) In our paper, one of the statistical test was previewed as error code (for example in page 1, line 21), we replaced with “X2 test” in all cases below.
(5) When describing results of stereo test, we used “worse stereoacuity”. In our study, the results of stereo tests were categorized as normal or abnormal, we calculated the rate of normal subjects for further analysis. To make it clear, we use a different way expressing it. We use “had more abnormal results” to express it (page 1, line22).
(6) Page 2, line 22 to 32 we highlighted our scientific innovations of this study. And we also pointed out that examinations used in our study had proved effective in plenty studies.
(7) In procedures (page 3), “apparent eye position” were deleted for simplified expression. And we added necessary information in page 3 line 12.
(8) The definitions of PEP, fixation stability were respectively added in page 4 (line 3 and 23). In page 5 line2, we explained why 3D random-dot tests for zero-order were used.
(9) In result section, we put the P values at the end of the sentences as you suggested.

We did our best to avoid expression errors in our paper this time and we corrected all errors we could find.
All changes above were marked in red bold.
Thank you very much for the excellent and professional revision to our manuscript. Hope these will make it more acceptable for publication. We are willing to revise our paper according to your professional suggestions. We sincerely hope that our paper will be accepted in the end.