Author’s response to reviews

Title: Comparison of dental plaque reduction after use of electric toothbrushes with and without QLF-D-applied plaque visualization: A 1-week randomized controlled trial

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MY REMARK: What do you expect of the amount of bias caused by:

a) The fact that blinding of the study participants was not possible? Irrespective of your claim that participants were blinded for treatment intervention: "To ensure blinding with regard to monitor usage, the monitor-non-use group first performed the procedures for 1 week, followed by the monitor-usage group."

REPLY TO COMMENT:
Although the monitor-use group used the monitor, participants recognized that the aim of this study was to evaluate the effect of the toothbrush on plaque removal. Moreover, neither group was aware of the toothbrush used in the other group. We have added this statement in the methods section (p10, line 10).

YOUR TEXT: Participants in the two study groups were instructed on the use of the electric toothbrush, and the monitor usage group received an additional explanation concerning the operation of the monitor. To ensure blinding with regard to monitor usage, the monitor-non-use group first performed the procedures for 1 week, followed by the monitor-usage group. Thus each group did not know toothbrush which another group used.

NEW REMARK: This new sentence is not grammatically correct, please add: Participants were informed that the toothbrush was newly developed and that the aim of this study was to evaluate the plaque-removable effect of this toothbrush. Neither group was aware of the toothbrush used in the other group.
Reply to new comment
Thank you for reviewer’s comment. New sentence indicated by reviewer was added in the methods section (p10, line 12).

MY REMARK: b) The dependence of the dental students on the researchers for their grades at dental school?
REPLY TO COMMENT:
All participants were school of dentistry students. All researchers were staff members of the school of oral health sciences. As such, the students did not depend on the researchers for their grades.
NEW REMARK: Please add this information when describing the study settings at the start of the Materials and Methods section.

Reply to new comment
As reviewer indicated, the sentence was added in Methods section (p6, line 12)

MY REMARK: Demographics of the two groups (age and sex) can simply be mentioned in the text. There is no need to include this in a data table. Data in Tables 1 and 2 can be combined
REPLY TO COMMENT:
It is important to keep Tables 1 and 2 separate to indicate that there was no statistical difference between the intervention and control groups. Similarly, although no change in GI or SEOH was observed in the two groups, we believe that all statistical data should be included.
NEW REMARK: I disagree. All information in Table 1 except gender and age for the two groups is repeated in Table 2. The information regarding gender and age and that the two groups are not significantly different at baseline regarding these demographics can be mentioned in the text. Hence Table 1 is superfluous.

Reply to new comment
As reviewer’s comment. Table 1 was deleted, and sex and age of each group was described in results section (p11, line 11).

MY REMARK: Discussion: What effect on the gingiva was anticipated from the QLR-brush, that could be reflected in the GI?
REPLY TO COMMENT:
Due to the camera device, the height of head of the toothbrush was higher than that of a common electric toothbrush. However, the unique shape did not have a harmful effect. Moreover, irradiation of light with a wavelength of 400 nm did not induce inflammation or scalding of the gingiva.
NEW REMARK: The extra height of the brush head may be mentioned when describing the QLR-brush. The intensity of 400nm light used for fluorescence imaging should not be harmful to the gingival tissues. It may suppress inflammation. This could not be assessed with GI, since
having gingival was an exclusion criterion. inflammation Also the GI does not reflect scalding, only inflammation.

Reply to new comment
The extra height of the brush head was added to explain that the brush head had no impact on gingival health in Discussion section (p13, line 10). As reviewer indicated, GI does not reflect scalding.