Author’s response to reviews

Title: Three-dimensional quantitative analysis of adhesive remnants and enamel loss resulting from debonding orthodontic molar tubes

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Author’s response to reviews:

Dear Sirs,

The authors thank for all the comments and corrections. We have done our best to introduce all of them, as proposed.

Professor Domenico Dalessandri

1) "The brackets used in the present study have a wide base and in our opinion..." "Molar tubes" instead of "brackets" is more appropriate.

"Brackets“ have been replaced by „molar tubes“. (In Discussion, 1st Paragraph, 5th line)

Professor Abbas R Zaher

“1. The author mentioned in his response to the reviewers that since a great difference between the surface before bonding and after debonding, no calculations were used to assess the sample size. Even if a great difference was expected, the author need to mention how sample size was calculated to detect these significant differences in enamel loss and adhesive remnants before bonding and after debonding. For example, why did the authors choose 15 experimental teeth in this study?”

Study sample size appropriateness has been verified as suggested. A paragraph (the third one) has been added to the Material and methods section.

“2. The authors mentioned in his letter that no study error was calculated and that the precision of the scanner (2µm) was maintained by the calibration procedure to overcome errors during analysis. This statement need to be added to the materials and methods section.”

Information on calibration procedure and on the lack of error study has been added to the Material and Methods section as proposed (last sentence of the 5th paragraph).

The aims have been rephrased as kindly suggested. Now they are: Presenting a new method for direct, quantitative analysis of enamel surface. Measurement of adhesive remnants and enamel loss resulting from debonding molar tubes.

“4. In Conclusion: “Enamel loss is a side effect of fixed orthodontic treatment.” This conclusion is not coherent with the present study.”

Conclusions have been corrected according to the suggestion. They are now: Blue-light 3D scanning is able to provide direct precise scans of the enamel surface, which can be superimposed in order to calculate shape alterations. Debonding molar tubes leaves a certain amount of adhesive remnants on the enamel, however the interface fracture pattern varies for particular teeth and areas of enamel loss are present as well.

“5. In Discussion Section, Paragraph 1, Line 2: “In our opinion, the area of enamel damage and the volume of enamel loss are dependent on the bracket square surface size.” Using the term “In our opinion” is inappropriate. It is better to add a supporting reference.”

A reference has been added to the first paragraph of Discussion section as suggested.

“6. In Discussion, 1st Paragraph, 5th line: “The brackets used in the present study ... “ The word “brackets” should be replaced with “molar tubes”’”

„Brackets“ have been replaced by „molar tubes“.

“7. In Discussion, 2nd Paragraph, 5th and 6th lines: “Due to light reflection direct analysis of enamel surface was impossible, but plaster models of the surfaces to be scanned were made, thus causing an inevitable measurement error [20].” The entire statement is unclear and needs rephrasing.”

Unclear sentences have been rephrased as kindly suggested. Now there is: Direct analysis of enamel surface was impossible due to light reflection [21]. Thus plaster models of the surfaces were made and scanned, causing an inevitable measurement error.

“8. In Discussion, 10th paragraph, 2nd line: “The accuracy of the Atos scanner declared by the produced and maintained by regular calibration is 2µm.” The statement needs correction.”

This sentence has been corrected as suggested and is now: The accuracy of the Atos scanner declared by the manufacturer and maintained by regular calibration is 2 µm.

“9. Figures 2, 3 and 4 could be better combined in a single figure with the same
figure caption.”
Figures 2, 3 and 4 have been combined into a single figure as proposed. Figure numbering has been adjusted.

“10. The article needs some correction regarding the use of punctuation marks especially the addition of commas (,) and colons (:) whenever appropriate.”
The article has been revised for punctuation marks.

The authors are very grateful for the all the wishful remarks, as they improve the manuscript quality. We would be very proud to have our article published in Head and Face Medicine.

Yours sincerely,
Joanna Janiszewska-Olszowska