**Author’s response to reviews**

**Title:** Occlusal height difference between maxillary central and lateral incisors: should aesthetic perception influence bracket placement?

**Authors:**

Jan Hourfar (hourfar@t-online.de)

Dirk Bister (d.bister@doctors.net.uk)

Björn Ludwig (bludwig@kieferorthopaedie-mosel.de)

Gero Kinzinger (gero.kinzinger@gmx.de)

Jörg Alexander Lisson (joerg.lisson@uks.eu)

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Answers to Reviewers’ reports

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Occlusal height difference between maxillary central and lateral incisors: should aesthetic perception influence bracket placement?

The due date for submitting the revised version of your article is 17 Feb 2019.

Reviewer reports:

Reviewer #3: Dear Editor,

I very much appreciate the opportunity you have given to me to review the paper entitled: "Occlusal height difference between maxillary central and lateral incisors: should aesthetic perception influence bracket placement?".

Our response: Thank you for your compliment

This is an interesting paper which looked at a debated aspect in clinical orthodontic: the upper incisors aesthetic outcome. The Authors followed the suggestions of the previous reviewers and significantly improved the manuscript.
Unfortunately, the paper still suffers from an important methodological bias: measurement of clinical crown heights is affected by the head position (as underlined by previous reviewer). To avoid or reduce this bias, I suggest performing a second "method of error" test in which the Authors will evaluate different photographs of the same subject (e.g. orthodontic patients) in different angulation/head position and evaluate if the method of error will result clinically acceptable.

Our response:

We have already addressed the issue of reproducibility and are well aware of the imminent problems arising from using non-standardized photography. The main problem remains that even with a standardized setup of the orthodontic patient group, the very same parameters cannot be reproduced or checked upon in the publicly available material that was analyzed. We reckon that the important information deriving from our results is the existence of a highly significant difference between commercially accepted representation of facial features and those commonly provided by bracket manufacturers and consequently deriving results represented in orthodontic textbooks. Even if the differences were lesser after application of a standardized setup, they would still be there and thus the same results also.

Then, to better understand the "aesthetic concept" of the paper, I suggest adding some photographs used for the measurements …

Our response: Thank you for your comment! Regretfully, for copyright reasons we are unable to add any of the photographic material.

… and a graph in addition or instead of the tables.

Our response: Thank you for your suggestion. We added “figure 2” to the revised version of the manuscript because in complements table 2 in a favorable manner.

I also suggest improving the conclusion paragraph with a more clinical recommendation.

Our response: Thank you for you recommendation. We amended the conclusion part in revised version of the manuscript. Please also see below (response to comment of reviewer #4).

In conclusion, the manuscript in the present form could be considered for the publication on Head & Face Medicine and need MINOR REVISION.

Our response: Thank you!
Thank you for giving me the opportunity to consider this work.

Yours sincerely

Reviewer #4: An interesting and different approach to incisor esthetics / perceptions; while most papers in this field use photo alteration by image software, these authors assessed incisor positions in female model advertisement photographs compared to dental photographs in orthodontic textbooks.

I am receiving this paper in an already refined state and following some previous revisions based on suggestions by two other reviewers, who have already addressed some relevant points.

Some minor suggestions:

The main drawback of this approach may be seen in a potential selection bias when choosing the photographs; the authors tried to address this by asking both lay persons and dental professionals to contribute images. Inclusion of photographs was by two examiners who may have had esthetic preferences. Maybe this potential bias could be addressed a little more in the discussion.

Our response: Thank you for comment. We added an additional paragraph to the revised version of the manuscript discussing possible selection bias.

Measurements

Try to re-phrase wording that implies interpretation in this section, such as:

„ „Averaging" the real crown length using the standardized value of 10.5 mm, as described above, may have influenced our results". (I would also recommend to remove quotation marks, here).

Our response: Thank you for your valuable comment! We rephrased this sentence accordingly.

Results

Try to avoid wording that implies interpretation in the result section, such as „It was interesting to note..“

Our response: Thank you for you valuable comment! We amended this in the revised version of the manuscript.
Discussion

Potential drawbacks of the chosen method of using advertising photographs, such as the effect of variation in head position, have been adequately discussed.

Our response: Thank you!

Discrepancies of central / lateral OHDs were up to 0.77mm (between 0.62 and 1.39 mm) between advertisement photographs and orthodontic textbooks. Could be challenging from patient's point of view to judge final incisor position at the treatment planning stage, as suggested by the authors; maybe this consideration is more relevant during the final tx stages when it comes to finishing and final adjustments.

Our response: Thank you for your valuable comment! Agreeing with your concern, we added this to the revised version of the manuscript.

One more consideration: (Photogenic) females in advertisements or actresses are not necessarily Angle-Class I occlusion subjects. Moderately expressed Angle-Class II is not too rarely seen in photogenic females, and these could well be in this sample, too. Especially Angle-Class II/2 occlusions may have tendencies to stronger expressions of central / lateral OHDs. Maybe this topic of transferability to the common orthodontic treatment target of Angle-Class I occlusion may be shortly touched in the discussion.

Our response: Thank you for your consideration. We completely agree that Class II subjects, especially those showing Class II Division 2 frequently appear in fashion photography. This is probably less due to a certain tooth position but more to high cheekbones which are not uncommon in Class II Division 2 with a tendency towards a large maxilla. However, our results represent the reality exactly, which is a discrepancy between the proposed ideal of a 0.5mm height difference in catalogues and orthodontic textbooks and the resulting reality in advertisement and fashion photography, i.e. real life. Therefore, we have added a passage stating that there is no imminent pressure to achieve an OHD of 0.5mm in all cases but a necessity to reach informed consent with the patient during the finishing phase.

Reviewer #5: The authors performed a cross-sectional study assessing the average maxillary central-to-lateral incisor OHD differences in printed advertisements in various dental, orthodontic as well as fashion publications and found distinctly increased OHD in advertisements compared to the standard values published in orthodontic textbooks, implicating a tendency within society to prefer these elevated OHD values and thus the need to adjust bracket placement for frontal teeth accordingly.

Our response: Thank you.
The study subject is new and innovative and clinically and scientifically relevant. The methodology used is also sound and suitable with reliability of assessments corroborated and sources of bias properly discussed. The previous comments by the reviewers have been properly addressed by the authors.

Our response: Thank you for your compliment!