Author's response to reviews

Title: Three lateral osteotomy designs for bilateral sagittal split osteotomy: biomechanical evaluation with three-dimensional finite element analysis

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Author's response to reviews: see over
Dear Professor Thomas Stamm,

MS: 3437602562905532
re: Three lateral osteotomy designs for bilateral sagittal split osteotomy: biomechanical evaluation with three-dimensional finite element analysis
Hiromasa Takahashi, Moriyama Shigeaki, Haruhiko Furuta, Hisao Matsunaga, Yuki Sakamoto and Toshihiro Kikuta

In this study, we compared the Trauner–Obwegeser, Obwegeser, and Obwegeser–Dal Pont methods for bilateral sagittal split osteotomy by using three-dimensional finite element analysis to evaluate the mechanical behavior of the mandible and screw–miniplate system. To date, no consensus has been reached regarding the ideal location for the lateral osteotomy cut from the perspective of biomechanics. By simulations of an anatomically matched synthetic mandible model with titanium miniplates and screws, we found that the Obwegeser–Dal Pont method has lower magnitudes of tooth displacement, mechanical bone stress in the vicinity of the screws, and von Mises stress on the screw–miniplate system than the other two methods following both incisal and contralateral molar loadings. We have clearly demonstrated that the Obwegeser–Dal Pont method allows greater mechanical stability of the mandible than the other two BSSO techniques and that miniplates placed along Champy’s lines provide greater mechanical advantage than those placed at other locations.

We have addressed all the comments by referee 1 and 2, as indicated on the attached pages, and we hope that our explanations and revisions are satisfactory.

We hope that the revised version of our paper is now suitable for publication in the *Head & Face Medicine* and we look forward to hearing from you at your earliest convenience.

We are grateful to Professor Johannes Kleinheinz and Professor Edela Puricelli for the critical comments and useful suggestions that have helped us to improve our paper. As indicated in the responses that follow, we have taken all these comments and suggestions into account in the revised version of our paper.
**Referee 1**

Comment #1
Page 1: address of corresponding author is missing

Response
In the revised version of our paper, we indicated the institutional addresses.

Comment #2
The abstract should not extend over one page.

Response
We shortened the abstract.

Comment #3
Change the word lesser into less in all text

Response
We changed lesser into less in all text.

Comment #4
Please indicate in the discussion clearly that these results only refer to the miniplate fixation technique and not to screw or semirigid systems.

Response
We indicated “these results only refer to the miniplate fixation technique and not to screw or semirigid systems” in the discussion on page 9 (lines 23-34).

**Referee 2**

Comment
I suggest that either the sentence is changed, or the correct reference is mentioned.

Response

Thanking you in anticipation,
Sincerely,
Hiromasa Takahashi

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