Author’s response to reviews

Title: Stress on facial skin of Class III subjects during maxillary protraction: a Finite Element Analysis

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Replies to Reviewers’ comments

Luca Lombardo (Reviewer 1): I would like to thank the authors to submit this article. I like the topic and the methodology. Results are interesting and useful for the readers.

We would like to thank you the reviewer for his comments.

Romeo Patini, DDS, PhD, Post Graduate Diploma (Reviewer 2): Dear Author,

I have reviewed your article with great pleasure. The topic dealt with in your work is very original and the methodological consistency is excellent.

Before the work can be published, however, I suggest only a minor change: In the "Introduction" section, it has been correctly highlighted that three-dimensional (3D) Finite Element Analysis has been used in order to evaluate the displacement and stress distribution of orthopedic forces applied on maxillofacial structures. This section should be integrated with a reference to other methods of 3D analysis such as stereophotogrammetry on which recent systematic reviews have also been carried out.
Best Regards

We would like to thank you the reviewer for his comments and suggestion. The following reference (number 12) has been added to the text in the Introduction section (line 37, page 2) “Three-dimensional stereophotogrammetric analysis of nasolabial soft tissue effects of rapid maxillary expansion: a systematic review of clinical trials”. Staderini E, Patini R, De Luca M, Gallenzi P. Acta Otorhinolaryngol Ital. 2018;38(5):399-408.

Marco Tallarico (Reviewer 3): Dear author, I read the manuscript entitled "Stress on facial skin of Class III subjects during maxillary protraction: a Finite Element Analysis". The manuscript is well written. Nevertheless, I suggest some corrections that may improve overall quality.

Abstract

- In the Background section, authors reported the aim of the manuscript. Please modify according to the journal guidelines.

We would to thank you the reviewer for his comment. We modified according to journal guidelines.

- "to analyze tension loads produced by two different facial mask (FM) designs on Class III subjects' facial skin" SHOULD BE "to analyze tension loads produced by two different facial mask (FM) designs on Subjects with skeletal Class III"

Thank you for your suggestion. We modified the sentence as follows “to analyze tension loads produced by two different facial mask (FM) designs on facial skin of subject with skeletal Class III” (line 4, pag 1)

- Page 2 line 1

(FM) Authors report FM for both face mask and facial mask. Please use only one term in all the manuscript.
We want to thank you for your suggestion. We decided to use the term face mask in all the manuscript.

- Page 2 lines 41-46
I suggest to delete the follow sentence "However, no data are available in literature about the effects of tensile forces on facial skin areas contacted by the forehead and chin device's cups."
We want to thank the reviewer for his comment. As suggested we deleted the sentence.

Methods
- Page 3 line 39
ANSYS software. Authors reported 2 different versions. Please check.
Thank you for your observation. The right version is ANSYS 5.7. We modified the sentence as follow: “Each component of the two models was constructed and assembled using Rhinoceros 4.0 CAD software (Robert McNeel & Associates, Seattle, WA, USA) and then exported to ANSYS 14.0 (Ansys Inc., Canonsburg, PA, USA) for the FEA (Fig. 2)” (line 64, pag 3).

Results
- Page 4 lines 26-27
"Table 1 showed resulting tensions reported in kPa (kiloPascal)." It could be deleted
We thank you for your suggestion. We deleted the sentence as suggested.

- Page 4 line 51
Heavier or Higher? Please check.
Thank you for your observation. The right term is higher.
Discussion

- Page lines 5-12

"Several factors play a substantial role in terms of efficacy and effectiveness of orthopedic Class III treatment. Franchi et al.16 identified good and bad responders to early treatment considering some dento-skeletal predictive variables. Beyond the individual skeletal pattern, other variables regarding treatment management such as protraction device adaptation, patients' compliance, and device wear-time17-20 have to be considered for effectiveness and long-term stability" IT SHOULD BE "Several factors play a substantial role in terms of efficacy and effectiveness of orthopedic Class III treatment, including individual skeletal pattern, protraction device adaptation, patients' compliance, and device wear-time16-20."

We thank the reviewer for his comment. We modified the sentence as suggested. (Line 101, page 4)

- Page 5 lines 34-37

"Hence, the aim of the present investigation was to analyze the skin stresses during maxillary protraction by means of FEA." Please delete.

Thank you for your suggestion. We deleted the sentence.

Page 5 line 41

Please delete (Figs. 3, 4)

Thank you for your suggestion. We deleted the sentence.

Page 6 line 10

Please delete (Figs. 3B, 4B)

Thank you for your suggestion. We deleted the sentence.