Reviewer’s report

Title: Deviations in palatal region between indirect and direct digital models: An in vivo study

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Reviewer: Philippe Boitelle

Reviewer's report:

The manuscript titled "Deviations in palatal region between indirect and direct digital models: An in vivo study" proposes a study of palatal region accuracy scanning.

These evaluations include 3 measurement regions (teeth, palatal region, and palatal vault region), as well as an assessment of the trueness and precision palatal region scanning.

The manuscript could be more clearly write. From the responses to the comments below, the results will appear valid and the methodology appropriate. The authors must refer to the ISO 5785 standards, which defines clearly the trueness and precision. No interpretation of the results can be scientifically realized without these elements. After careful reading, several comments:

Major comments:

* The proposed methodology is composed of two digital measurement chain. Before any interpretation of the measurements, it is desirable to check the reproducibility of the superimposition in each region and the reproducibility of each digital measurement chain

* Indirect digital models can't use as reference because the scanning are realized on the plaster model. The conditions for obtaining a reference are very precise. The scans should be realized with the same devices (intraoral scanners).

* The impression for the reference model, needed to obtain the plaster model, should be made of alginate in order to avoid as much as possible the flexibility of the palatal mucosa by the impression materials.

* The major limitation of this study is the optical comportment of scanner in function of soft and hard tissue scanning. The optical proprieties are different between enamel and dentine and the palatal mucosa surface. A preliminary study is necessary to know if the difficulty in soft tissue accuracy of intraoral digital scans would be link to these optical proprieties.

Wishing you the best

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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