

Three-dimensional facial morphometry in patients rehabilitated with implant-supported prostheses

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The aim of the present study was to assess a low-cost, non-invasive facial morphometric digitizer to assist the practitioner in three-dimensional soft-tissue changes before and after oral rehabilitation. The method should provide quantitative data to support an objective assessment of the facial esthetic outcome [1].

Twenty-two patients aged 45-82 years, all with edentulous maxilla and mandible, were assessed both before and after receiving their definitive complete implant-supported prostheses (each received 4-11 implants in each dental arch; full-arch fixed prostheses were made). The three-dimensional coordinates of 50 soft-tissue facial landmarks were collected with a non-invasive digitizer; labial and facial areas, volumes, angles and distances were compared without/ with the prostheses [2].

Dental prostheses induced significant reductions in the nasolabial, mentolabial and interlabial angles, with increased labial prominence ($p < 0.05$, Wilcoxon test). Lip vermilion area and volume significantly increased; significant increments were found in the vertical and anteroposterior labial dimensions. The presence of the dental prostheses significantly ($p < 0.001$) modified the three-dimensional positions of several soft-tissue facial landmarks.

The current approach enabled quantitative evaluation of the final soft-tissue results of oral rehabilitation with implant-supported prostheses, without submitting the patients to invasive procedures. The method could assess the three-dimensional appearance of the facial soft tissues of the patient while planning the provisional prosthetic restoration, providing quantitative information to prepare the best definitive prosthesis.

Dote ricerca: FSE, Regione Lombardia

References

- [1] Bidra (2011) Three-dimensional esthetic analysis in treatment planning for implant-supported fixed prosthesis in the edentulous maxilla: review of the esthetics literature. *J Esthet Restor Dent* 23: 219-237.
- [2] Sforza et al. (2010) Age- and sex-related changes in three-dimensional lip morphology. *Forensic Sci Int* 200:182.e1-182.e7.

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