Soft tissue facial morphometry before and after total oral rehabilitation with implant-supported prostheses

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Abstract

The objective of the current study was to assess a lowcost, noninvasive facial morphometric digitizer to assist the practitioner in three-dimensional soft-tissue changes before and after oral rehabilitation. Twenty-two patients aged 45 to 82 years, all with edentulous maxilla and mandible, were assessed both before and after receiving their definitive complete implant-supported prostheses (each received 4Y11 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 noninvasive digitizer; labial and facial areas, volumes, angles, and distances were compared without and with the prostheses. Dental prostheses induced significant reductions in the nasolabial, mentolabial, and interlabial angles, with increased labial prominence (P G 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 (PG 0.001) modified the three-dimensional positions of several soft-tissue facial landmarks. In conclusion, 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 threedimensional appearance of the facial soft tissues of the patient while planning the provisional prosthetic restoration, providing quantitative information to prepare the best definitive prosthesis.

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Author keywords
Computerized anthropometry; Face; Human; Implant-supported prostheses