

POSTER

The prototype concept in a full digital implant workflow

Area: Dental Technology and Technical Procedures

University/Department:

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Objective:

The aim of this study is to describe the innovative concept of the prototype in the digital implant workflow. The prototype was necessary to evaluate the accuracy of the impression, and aesthetic and functional parameters, prior to final framework realisation.

Materials:

Three digital impressions were obtained to create a master file, which contained information on the three-dimensional position of the implant, the gingival architecture, and the aesthetic/functional features of provisional restorations. A stereolithographic master model (SMM) featuring implant analogues was 3D-printed. A resin prototype (A) lacking implant connections was produced using the Straumann Digital Workflow process. Standard metal connections were luted into the SMM and tested on the patient. Inaccuracies in prototype A could be attributable to either the impression or to the model. To ascertain where the error lay, a prototype (B) with milled implant connections was produced. The try-in procedure and radiography were repeated but the transparency of the resin compromised accurate investigation. A third uncertified radiopaque resin prototype (C) was prepared using uncertified scanbody and implant libraries, but the accuracy was poor.

Results:

Use of a prototype allows the clinician to simultaneously test implant positions and aesthetic/functional parameters. However, a single radiopaque prototype is preferable to determine if an impression is inaccurate even if an uncertified workflow step exerts a negative impact on accuracy.

Conclusion:

When inaccuracy is present, only a one-piece radiopaque prototype allows for localisation of the error. The use of uncertified scanbodies and implant analogues is associated with poor accuracy.