

Multi-unit implant impression accuracy: A review of the literature

Type: Article

Abstract:

Background: Accurate implant impressions are critical for the achievement of passive fit of an implant prosthesis which in turn contributes to the long-term success of the implant treatment. There is inconclusive evidence on the techniques and materials used for making multi-unit implant impressions. Objective: To evaluate the scientific data related to different aspects of multi-unit implant impression accuracy and draw useful conclusions from the review for application in clinical practice. Method and Materials: Studies from 1990 to November 2012 were evaluated. Papers examining implant impression accuracy for two or more implants were selected for review. Case reports, technique articles, and incomplete studies were excluded. Fifty-nine studies were selected in total for evaluation, three among them clinical and the rest in vitro. Results: Fifteen studies compared PVS (polyvinyl siloxane) and PE (polyether), 11 found no differences between the two materials in terms of impression accuracy. Thirty studies analyzed the splint effect, 13 found splinting better and 13 others elicited no differences between splinting and non-splinting. Among the 25 studies examining pickup and transfer impression techniques, 12 favored pickup over transfer and 11 found no differences between the two. Twelve studies assessed implant angulation effects and found significant differences in accuracy for 20- to 25-degree angulation, and no differences for 5- to 15-degree angulation for most studies, except two. Conclusion: PVS and PE were the preferred impression materials for multi-unit implant impressions. The evidence on splinting was inconclusive and the data supporting splint to non-splint were neutral. Pickup was the better performing technique than transfer, especially with increased number of implants. Implant angulation of 20 to 25 degrees negatively affected the multi-unit implant impression accuracy.

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