

Accuracy of different polyvinylsiloxanes: A Clinical pilot study

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Objectives: The accuracy of an impression is a crucial factor for the fit of the final prosthodontic restoration. It was therefore the purpose of this study to compare the accuracy of 4 different pvs-materials in a clinical trial.

Materials and Methods: 44 impressions were taken from 76 abutment-teeth with mostly infragingival located finishing lines using the following pvs-materials with their corresponding wash materials: Affinis putty super soft (COLTÉNE/WHALEDENT), Aquasil putty soft (DE TREY/DENTSPLY), Dimension Penta-H and Imprint-2 (3M-ESPE), respectively (N=11 impressions/group). The first impression was taken in an one-step putty-wash technique (OSPWT). In case the finishing line or other areas were not reproduced sufficiently, a two-step putty-wash technique (TSPWT) was used for the second impression. Accuracy was determined by visual inspection of the finishing line in the impression. In addition, the marginal discrepancies of the final castings were measured in the patients mouth using five measuring explorers with standardized tip diameters of 100µm, 200µm, 300µm, 400µm and 500µm (AESCULAP) at 6 predefined measuring sites per tooth. Data were subjected to parametric statistics (Fishers exact test; p=0.05).

Results: In the visual inspection, impressions, taken with Affinis and Imprint-2, showed the fewest defects. The amount of exactly reproduced finishing lines ranged from 10.00% (Dimension Penta H), 20.00% (Aquasil) and 22.23% (Imprint-2) to 55.56% (Affinis). The differences in between the materials were significant (p<0.01). The castings of the Affinis and Imprint-2 group showed significantly lower marginal discrepancies compared to the other pvs-materials under investigation (p<0.05).

Conclusions: Within the limits of this study it can be concluded, that the impression material has a major impact on the accuracy and fit of the final restoration as well as the number of necessary retries. OSPWT showed satisfactory results, although finishing lines were often located infra-gingivally.

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