PalaVeneer® Veneer Shells / Dentine

Bond strength – University of Regensburg
Investigation of adhesion between veneer shells and a metal framework

Especially in case of restricted space conditions such as of cover denture works, telescope works or implant-supported constructions the use of prefabricated veneers suggests itself. They offer the possibility to avoid time-consuming grinding of full-contour teeth as well as prevent potentially associated aesthetical impairments [1]. The following in-vitro investigation on the bond strength of prefabricated veneers indicates a stable adhesion of the shells and confirms highest adhesion of PalaVeneer/PalaVeneer Dentine to the metal framework.
Objective

Aim of the investigation was to determine the bond strength of industrially manufactured veneer shells on a metal framework.

Materials & Methods

Metal carrier for mounting the veneer shells PalaVeneer (Kulzer), novo.lign® (Bredent) and artVeneer® (Merz Dental) were fabricated using a CoCr-alloy (Heraenium CE, Kulzer) and were sandblasted with Al2O3 (110 µm, 3 bar). Further conditioning of the metal surface and the veneer shells was conducted according to the respective manufacturer’s instructions. The individual corresponding bonding systems PalaVeneer Dentine (cold-curing PMMA resin, Kulzer), combo.lign® (dual-curing adhesive composite, Bredent) and artDentine (cold-curing PMMA resin, Merz Dental) were used to attach the veneer shells to the metal carriers. According to ISO10477 the samples (n=10) were tested after 24 hours storage at 37°C, after thermocycling (TC: 2 x 5.000, 5°C/55°C) and after 150 days water storage at 37°C in the universal testing machine (Zwick, v=1 mm/min) with the compressive shear test. Statistical analysis was performed using SPSS (univariate ANOVA, Bonferroni Post-hoc, level of significance p<0.05).

Results

For all tested veneer shells no significant influence of the storage conditions on the bond strength could be found, indicating a stable adhesion of the shells to the metal framework. Overall, the system PalaVeneer/PalaVeneer Dentine showed the highest mean bond strength values in this in-vitro testing (fig. 1).


Source


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