SCIENTIFIC INFORMATION

Ufi Gel hard – Adhesion values

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The effect of water storage on shear adhesion and the fatigue fracture resistance was examined in a study at the University of Sao Paulo (Brazil). [1]

A significant degeneration of the alveolar bone especially occurs in the first 6 months after the loss of teeth. Due to this bone deterioration and the concomitant changes, relining the dentures is required in many cases. The dentist basically has two alternatives from which to choose: a relining with PMMA materials from a dental laboratory or a direct relining on the patient using dimethacrylate-based systems.

Examination of adhesion on denture bases

2 relining materials were examined in the study presented here: Ufi Gel hard (VOCO) and Tokusa Rebase Fast (Tokuyama). Acron MC (GC) and Lucitone 550 (Dentsply) were selected as materials for the denture bases. The denture bases were fabricated according the manufacturer's instructions and roughened with silicon carbide sandpaper (240-grit). The relining materials were applied after applying the system-specific adhesive systems. The fabricated test specimens were then divided into two groups. In the first group, the initial adhesive value and the initial cyclic fatigue fracture limit were determined. The second group was stored in 37°C warm distilled water for 30 days prior to these tests. The results of the initial shear adhesion are displayed in Figure 1.

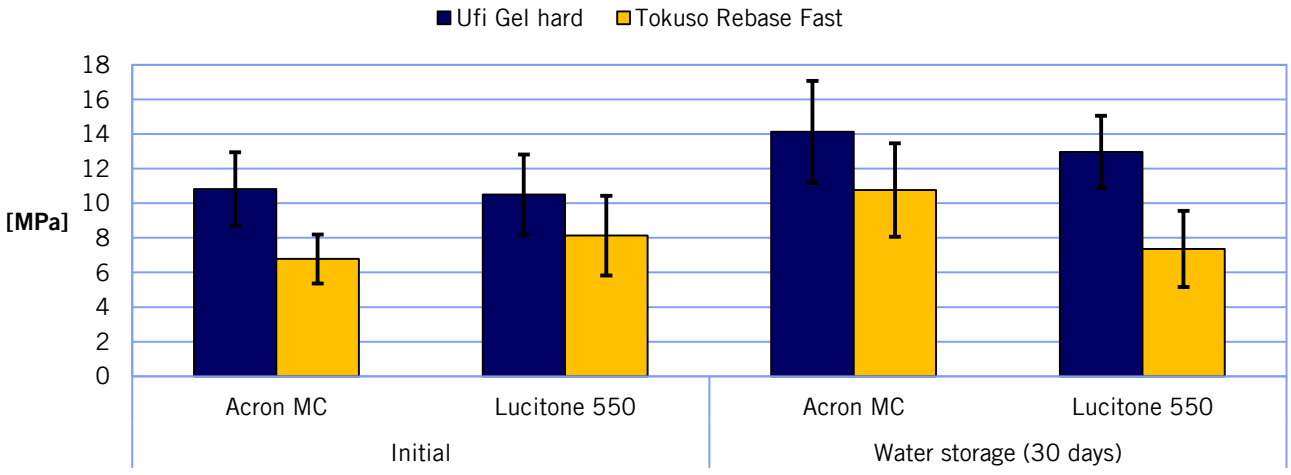

Figure 1: Measurement of shear adhesion [MPa]

Figure 2 shows the results of the fatigue fracture resistance measurements. The significantly better adhesion of Ufi Gel hard independent of the denture material used is shown in both Figures.

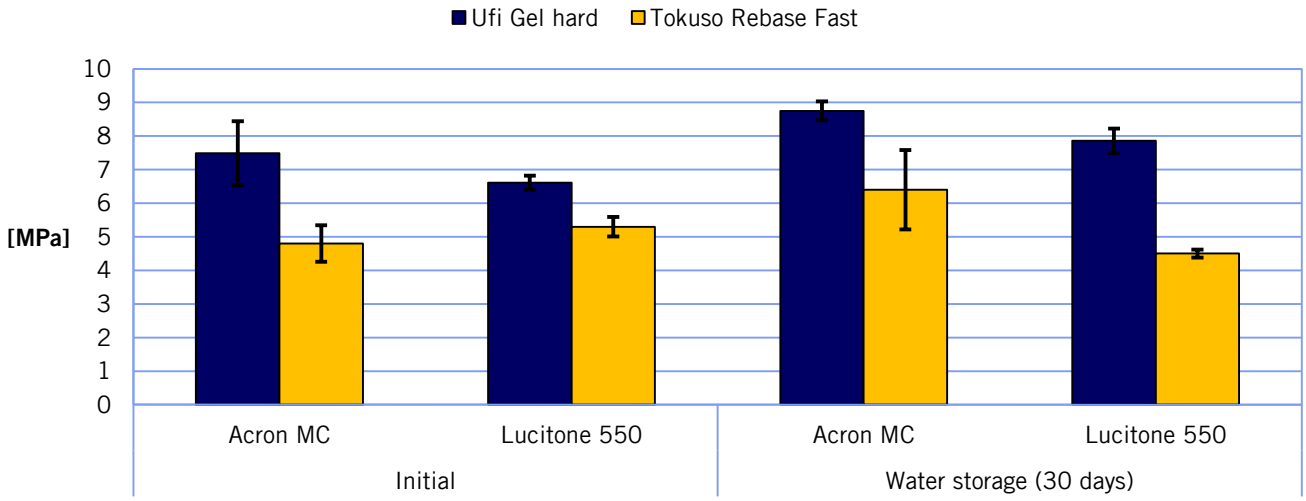

Figure 2: Measurement of fatigue fracture resistance [MPa]

The better adhesion of Ufi Gel hard is also reflected in the analysis of fracture types. While the majority of the fractures occurred as adhesive fractures with Tokuso Rebase Fast, mixed and purely cohesive fractures were dominant with Ufi Gel hard. The results of this analysis are displayed in Figure 3.

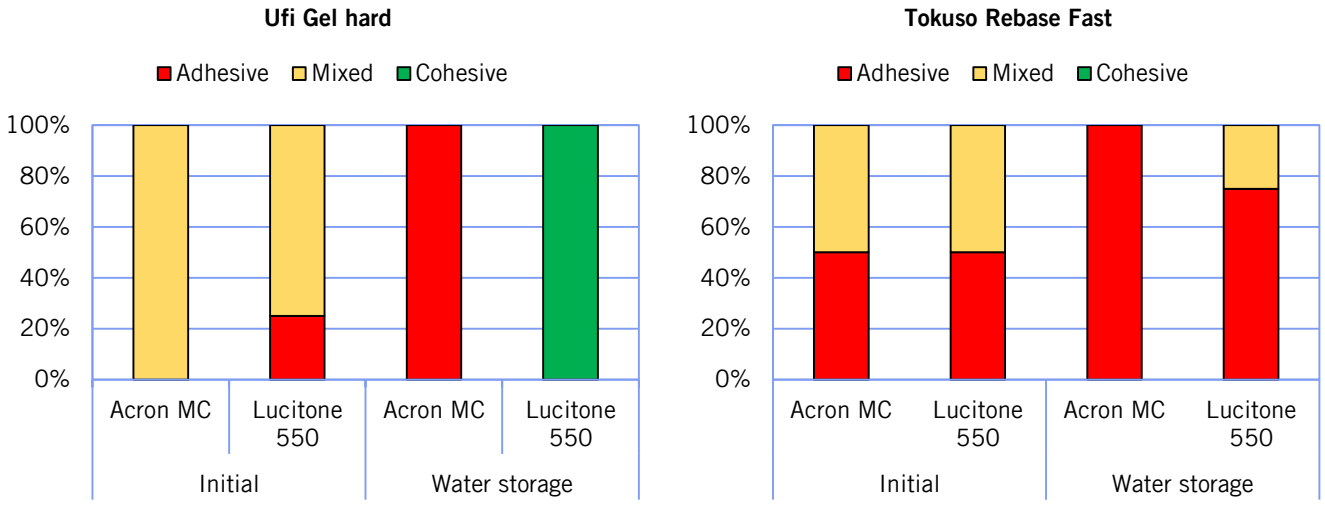

Figure 3: Analysis of fracture types, left: Ufi Gel hard; right: Tokuso Rebase Fast

Conclusion: The Ufi Gel adhesive system exhibited superior adhesive values on PMMA-based denture materials. The good adhesion is a prerequisite for long-term, intact relinings.

[1] C. E. Vergani, R. S. Seo, J. M. Santos Nunes Reis, E. T. Giampaolo, A. C. Pavarina, A. L. Machado, *J. Adhes. Dent.* **2010**, *12*, 319-327.