

**Intraoral repair of fiber-reinforced composite fixed partial dentures.**

**Rosentritt M, Behr M, Leibrock A, Handel G, Friedl KH.**

Department of Prosthetic Dentistry, University Clinics, Regensburg, Germany.

**STATEMENT OF THE PROBLEM:** Fractured composite facings may result in replacement of a fixed partial denture unless a reliable intraoral repair method can be provided. **PURPOSE:** This in vitro study tested the quality of an intraoral repair method for fractured facings of fixed partial dentures made of a fiber-reinforced composite system. **MATERIAL AND METHODS:** Shear bond strengths of a light-curing composite to a fiber-reinforced composite material were determined after different mechanical surface treatments. Aluminum oxide air abrading provided the most reliable bond strength values and therefore was used as a pretreatment for the facing repair of three-unit posterior fixed partial dentures. Facing repair was performed with the tested light-curing hybrid composite. Facing fracture strengths of repaired and original fixed partial dentures were determined after thermocycling and mechanical loading. **RESULTS:** Median facing fracture strength of the original fixed partial dentures was 1450 N after a simulated clinical service of 5 years. Facing fracture strengths of the repaired fixed partial dentures were significantly lower compared with the control group after an additional simulated 2-year interval. However, the median fracture force was still 1000 N. **CONCLUSIONS:** The facing repair of a fiber-reinforced fixed partial denture with a hybrid composite in combination with aluminum oxide air-abrading pretreatment and silanization provided sufficient fracture strength. Therefore the replacement of the complete restoration may be avoided.

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