

P&G Oral Presentations

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Effect of Bleaching on Bond Strength of Composite Resin Bonded to Dentin

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Objective: To test the hypothesis that bleaching agents will not affect shear bond strength of composite resin bonded to dentin. **Methods:** 60 extracted human molars were mounted in a self curing resin. To obtain fresh dentin, the occlusal enamel was removed using a water cooled microtome. After grinding (500 grit), etching (15s phosphoric acid) and rinsing with water (10s), composite cylinders (Filtek Z250, d = 3mm) were bonded on the dentin using Scotchbond 1 following the manufacturer's instructions. The specimens were randomly divided into 4 groups (n = 15 each) including a control group which was not bleached (1) and 3 different bleaching procedures either once daily with 20% carbamide peroxide gel for 8 h (2), 6% H₂O₂ gel for 30 minutes twice a day (3) and once a day 19% percarbonate gel for 8 h (4). The treatments were carried out at 37° C for 14 work days. Shear bond strengths were tested by a universal testing machine (Zwick 1120). A parallel knife edge shearing device was aligned 0.1 mm from the bonded surface. Using a cross head speed of 5 mm/min, force was applied until failure occurred. **Results:** Bond strengths were measured to be: (1) 17.3 ± 5.5MPa, (2) 15.0 ± 5.4MPa, (3) 12.4 ± 5.5MPa and (4) 12.6 ± 6.8MPa. These results indicate a decrease in bond strength due to bleaching, but the statistical evaluation (Kruskal-Wallis-test) showed no significant difference between the tested groups (p = 0.181). **Conclusion:** Bleaching with the materials tested has no statistical significant influence on shear bond strength of composite resin bonded to dentin.

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Vital Bleaching Clinical Trials: Methods, Models and Outcomes

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*Dr. Gerlach's presentation is part of the
[Vital Tooth Whitening - An Update on Safety and Efficacy](#)*

*Symposium to be held on Saturday, 28 June 2003 from 9:00 AM-11:00 AM
in Svenska Massan G3*

The randomized clinical trial (RCT) plays a significant role in the evidence-based assessment of effectiveness and safety. The vital bleaching literature is replete with over 10-years evidence from various RCTs. There are an ever-increasing number of reports following the recent advent of novel in-office and at-home delivery systems. Inherent differences between clinical studies with respect to methods, study models and outcome variables impact on interpretation. Just how strong is the evidence? This critical review of the vital bleaching RCT literature evaluates clinical methods for assessing tooth shade and color, study design pertaining to population selection, treatment duration and experimental controls (placebo, active or baseline), and outcome assessment with reference to tolerability (tooth sensitivity and oral irritation) and clinical safety. Particular attention is given to blinding and inference, which represent core elements in establishing the strength of the evidence in vital bleaching RCTs.