

- **Durability of resin-dentin bond of self etch adhesives related to water storage. *Egypt. Dent. J. April 2007.***

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Abstract:

Purpose: To evaluate effect of water storage on the microtensile dentin bond strength of one total -etch and four self-etching adhesives.

Methods: The adhesive materials were: one total-etch adhesive; 'Admira bond' and four self-etch adhesives; Clearfil S tri bond, Hybrid bond, Futura Bond NR and Adhe SE. Freshly extracted human third molar teeth were used. For each tooth, dentin was exposed on the occlusal surface by cutting with an Isomet saw and the remaining part was mounted in a plastic ring using dental stone. After adhesive application, a composite resin 'Grandio' was placed in 5-6 mm height to form a crown segment. For each tested adhesive two test procedures (n=10) were carried out. Procedure A: the teeth were stored in water for 24 h, and then sectioned longitudinally, buccolingually and mesiodistally to get rectangular slabs of 1 – 1.2 mm thickness on which a micro-tensile test was carried out. Procedure B: The specimens were stored in water at 37°C for one year before sectioning and microtensile testing. During microtensile testing the slabs were placed in a universal testing machine and load was applied at cross-head speed of 0.5mm/min.

Results: For the 24 h water storage groups there was no significant difference in the bond strength between the different adhesives. After one year of water storage, the bond strength of Clearfil S tri bond, Adhe SE was significantly reduced compared to the control groups (24h). In contrast, the bond strength of Admira bond, Hybrid bond and Futura Bond NR were not significantly reduced.

Clinical Significance: Water storage for one year could significantly reduce the bond strength of some adhesives to dentin.

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