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Abstract of the Scientific Literature

Effect on Dentin Bond Strength by Varying Etch Time Using One-Step Bonding Systems

It has been suggested that a "weak zone" could exist between intact dentin and the hybrid layer of a composite resin as well as within the hybrid layer itself. Acid etching of dentin demineralizes dentin to different depths, depending on acid type, concentration, and etch time. The purpose of this study was to evaluate whether reducing the etch time to 5 seconds from the recommended 15 seconds or increasing up to 30 seconds has any effect on dentin bonding.

In this study, 3 one-step bonding agents (Single Bond, One Step, and Syntac) were tested on 108 extracted human molar teeth. Three evenly divided groups were assigned each bonding agent, and then each group was subdivided into 3 subgroups based on etching time (5, 15, or 30 seconds.) All groups were bonded with Z-100 composite resin, as per the manufacturer's instructions. After thermocycling, all specimens were tested in the shear mode until failure. Significant differences only exist for the different etch times with the Syntac bonding agent, and not the others tested. In all cases, however, etch times of less than 15 seconds do not seem to adversely affect bonding to dentin.

Comments: The dentin-to-composite bond interface is a very complex structure, and this study was narrow in scope by not taking into account other factors which could affect the fracture site. Etch time is one variable under the clinician's direct control. In a pediatric setting, dentists do not always enjoy the advantage of an "ideal clinical condition." Hence, the results published here can give some consolation if dentists are not able to maintain prescribed etch times. **GM**

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36 references