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Effect of the etching time on enamel roughness and bond strength of sealant in the primary molars

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Resin sealants are accepted as one of effective materials to control fissure decay in primary and permanent teeth. Primary enamel has a thicker aprismatic layer and lower degree of mineralization, but very few studies have evaluated the bonding strength of sealant on the fissures of primary enamel. The objective of this study was to evaluate the effect of etching time on enamel roughness and bond strength of sealant in the fissures of primary molars. Forty non-cariou exfoliated human primary molars were included in the study. The teeth were randomly divided into 2 groups for measurement of enamel roughness and determination of bond strength. Each group was divided into 4 subgroups. For group 1, no acid etching treatment was used. For group 2, 3, and 4, acid etching gels were applied on the occlusal surface for 15, 30, and 60 seconds, respectively. The roughness was measured at fissure and other areas of the occlusal surface with 3D-SEM software program. A resin-based sealant was applied to the primary molars, and bond strength was evaluated using a universal test machine. Primary enamel on the fissures showed a statistically significant difference in mean surface roughness among all groups ($p < 0.05$). The surface roughness was increased with longer duration of etching time. There were no statistically significant differences in bond strength with varying duration among groups ($p > 0.05$). It could be concluded that etching time has an influence on the enamel roughness, but it does not significantly enhance the bond strength.

Biography

Seoyoun Shim has graduated in 2009 from Yonsei University. She completed her Master's degree in 2014 and is currently in Doctorate program at the School of Dentistry in Chonnam National University, South Korea. She enjoys spending working hours in the dental office with children in regards of the field of pediatric dentistry.

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