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Bond strength of younger and older permanent teeth with various etching times

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ABSTRACT

The purpose of this study was to analyze the tensile bond strength and debonding failure mode in younger and older permanent teeth after etching for 15 and 60 seconds. Bond strength did not change significantly when etching time was increased from 15 to 60 seconds in younger or older permanent teeth. However, regardless of etching time, the bond strength of the older permanent teeth was greater than that of the younger teeth with statistically significant differences. Four types of debonding interface were found; bracket base-resin, within the resin, resin-enamel and enamel detachment. There were no statistically significant differences noted among younger and older permanent teeth with 15 or 60 second etching fracture mode incidence at debondings. Enamel detachment was found only at etching times of 60 seconds. To reduce enamel destruction and save chair time, 15 second etching on either younger or older permanent teeth is suggested.

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