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KEY WORD: SHEAR/PEEL BOND STRENGTH, METAL BRACKET, PORCELAIN, SILANE PRIMER

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OF METAL BRACKET BONDED TO PORCELAIN. THESIS ADVISOR : PROF.
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This research was purposed to compare the shear/peel bond strengths of metal bracket bonded to porcelain. The bracket loading guage which had been invented for this research can limit force to bond bracket and can be widely used in both research and clinical work. The knowledge from this study would be beneficial to the selection of an appropriate surface preparation method which would be safe and most efficient.

By specific sampling, 126 samples of bicuspid-contoured porcelain specimens had been selected and divided into 4 groups, 30 specimens each. The surfaces of each group were prepared with 4 types of porcelain surface preparation (phosphoric acid + silane primer, grinding, grinding + silane primer, grinding + phosphoric acid + silane primer) before attaching a bicuspid metal bracket on the porcelain. Greenstone was used for grinding andOrmco porcelain bonding primer was used as silane primer. Then the metal bracket was bonded onto the prepared porcelain with System 1+. The Universal testing machine was used to measure shear/peel force (N) of the samples. The shear/peel force values were calculated and converted to N/mm^2 units. A comparison between the means of shear/peel bond strengths was statistically analyzed using One way ANOVA ($p < 0.05$) and Scheffe's multiple range test. The standard value of shear/peel bond strengths of System 1+ was measured by bonding metal brackets on the upper bicuspid teeth and calculated for its mean.

A scanning electron microscope was used to reveal the morphological difference of specimen surfaces between glazed and grinding porcelain. The junction between adhesive and porcelain was studied by using 4 methods of surface preparation and attaching System 1+ on the specimens.

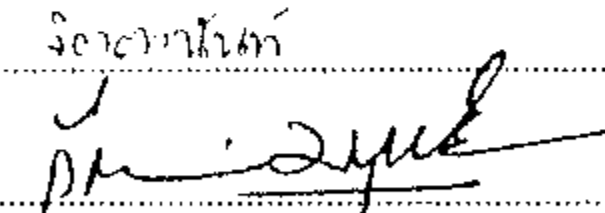
There was a significant statistical difference ($p < 0.05$) in the shear/ peel bond strengths of each surface preparation method. In this case, the use of phosphoric acid and silane primer displays a significantly greater bond strength than other methods.

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