

10. A comparative evaluation of shear bond strength of feldspathic porcelain to nickel chromium alloy when subjected to various surface treatments - an in vitro study

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Purpose of the study: to evaluate the effect of surface treatments and sandblasting with different particle size on the bond strength of feldspathic porcelain with predominantly base metal alloys, using a universal testing machine.. Materials and methods: twenty specimen of ni-cr alloy were prepared in an induction casting machine. The groups divided were as follows: group i-sand blasted with 250μ al₂o₃ and group ii- sand blasted with 250μ al₂o₃ followed by oxidation and again sand blasted with 250μ al₂o₃. The dimensions of each specimen were adjusted so as to maintain the thickness of ceramic at 1 mm. The specimen were loaded on the assembly of the universal testing machine and a cross head speed of 0.5mm/min was

used to apply a compressive force at the junction of metal and feldspathic porcelain. The force application continued until adhesive fracture occurred and the readings of the load applied to that particular specimen were recorded. . Results: the means for shear bond strength for group i and ii were found to be (337.81 ± 16.97) & (237.08 ± 4.33) respectively. Means of shear bond strength among the groups were compared using one way anova test. Comparision between individual groups were made with post hoc tukey test. . Conclusion: different particle size and surface treatment have an important role on the bond strength of ceramic-metal interface. Sandblasting of casting alloys, followed by oxidation and again sandblasting resulted in reduced bond strength as compared to conventional methods.

DOI: 10.4103/0972-4052.246718