

PROSTHODONTICS

**BOND COMPATIBILITY OF LOW-FUSING PORCELAIN
TO RECAST TITANIUM**

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ABSTRACT

The purpose of this study was to investigate the bond compatibility of low-fusing porcelain to recast commercially pure titanium. A 3-point bending test was used to evaluate bonding strength. Three groups of specimens were prepared according to the percentage of new and recast commercially pure titanium. Group A-100% as-received metal, Group B-1:1 ratio of new to once recast metal, and Group C-100% once recast metal. Titanium casting unit was used to cast 24 specimens, eight for each group, with dimensions of 25.0 × 3.0 × 0.5 mm. Low fusing porcelain (Noritake) was fired onto the surface of the titanium specimen. A universal testing machine was used to perform the 3-point bending test. There was significant difference in the load at bond failure of titanium-ceramic system between group A (33.35±5.16 MPa) and group B (24.35±5.14 MPa) [P=0.004]. Similar results were found between group A and group C (23.63±4.17 MPa) [P=0.002]. No significant difference was found between group B and group C (P=0.954). It can be concluded that the bond strength of the as-received commercially pure titanium-Noritake ceramic combinations was significantly greater than that of the recast commercially pure titanium-Noritake ceramic combinations. Previously cast commercially pure titanium should not be used again to fabricate metal-ceramic restoration.

Keywords: *Bond strength, dental ceramics, commercially pure titanium, recasting.*