

**In vitro study of the effect of thermo- and load-cycling on the bond strength of porcelain repair systems.**

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Fracture of porcelain fused to metal veneering may cause premature failure of fixed partial prosthodontics. Through the use of intra-oral composite bonded porcelain repair systems, the replacement of the prosthetic reconstruction can be avoided. The aim of this study was to evaluate the shear bond strength of porcelain repair systems currently in use and the effect of thermocycling and mechanical loading (TCML) on the adhesion of composite to ceramic surfaces in comparison with the composite to metal bonding system Rocatec. Specimens were fabricated by fusing the veneering ceramic VMK-68 (Vita) to Co-Cr-Mo-alloy base plates. Twenty cylindrically shaped composite samples in each series were bonded to the porcelain surface using porcelain repair systems currently in use. The shear bond strength of 10 samples was evaluated after 24 h (baseline) and after loading in an artificial oral environment. The repair systems Z 100 Kit, Monobond S/Tetric and Porcelain Etch were not impaired by TCML and exhibited a shear bond strength of greater than 12 MPa, which was comparable to the control group Rocatec. The shear strength of the repair systems Silistor and All-Bond 2 decreased significantly after TCML. Using the appropriate repair system, the repair of ceramic-veneered fixed partial prosthodontics can be recommended as a medium term alternative to a new reconstruction.

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