

**Influence of cement type on the marginal adaptation of all-ceramic MOD inlays.**

[Rosentritt M](#), [Behr M](#), [Lang R](#), [Handel G](#).

Department of Prosthetic Dentistry, University Clinics, Regensburg D-93042, Germany.  
martin.rosentritt@klinik.uni-regensburg.de

**OBJECTIVE:** The aim of this study was to investigate the in-vitro marginal adaptation of all-ceramic class II inlays which were luted with conventional multi-stage pre-treatment cements and one new type of cement, which requires no conditioning. **METHODS:** The marginal adaptation of 56 all-ceramic inlays was determined with scanning electron microscopy and microleakage tests. The marginal integrity of each tooth was evaluated at cement-dentin and cement-enamel junctions, with regard to the transitions between tooth-cement and cement-inlay. The inlays were luted on human molars with two resin cements, one compomer, one resin modified glass-ionomer and one new resin cement in accordance with the manufacture's recommended pre-treatment. Light- and chemical-curing modifications were investigated. All tests were performed after thermal cycling and mechanical loading (TCML). **RESULTS:** For the resin cements and the new material the marginal integrity was higher than 90% before and after TCML. The marginal adaptation was between 55-80% for the resin modified glass-ionomer and lower than 20% for the compomer. The microleakage was lower than 20% for all cements, only the compomer showed values up to 100% penetration. **SIGNIFICANCE:** The difference in marginal integrity between the new universal resin cement without any tooth pre-treatment and conventional resin cements after total-etching, priming and bonding was not significant. Resin GIC may be used with restrictions and compomer cement should not be used with all-ceramic class II inlay restorations.

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