65.

The Effects of Investment Expansions on Soldering

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The investments used in the soldering procedure should provide a good soldering connection without causing any dimensional changes. In this research, the influence of investments with different expansions on the investment soldering procedures was investigated. For this purpose, following the preparation of the experimental models which represented the abutment teeth, standard bridge restorations were fabricated. After placing bridge restorations onto the abutment teeth, 10 kilograms of standard force was applied for setting the restorations and marginal openings were measured from six fixed points. The bridge restorations, which were subjected to standard separations, were divided into three groups and embedded in the investment block by using investments with different thermal expansions. The samples were then soldered by preheating + torch technique and marginal openings of each bridge prosthesis at the six predetermined measuring points were evaluated and recorded.

The marginal opening values before and after the soldering and the differences between them were statistically analyzed. In pre-ceramic soldering of base metal alloys, the usage of special soldering investments with low thermal expansion cannot compensate for the expansion of metal during the soldering process and therefore causes the soldering space to shorten and leads to dimensional changes in the prosthesis.

66.

Comparisons of Precision of Fit Between Cast and Computer Numeric Controlled Milled Titanium Implant Frameworks for the Edentulous Mandible

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INTRODUCTION: Titanium frameworks have for the last decade been discussed as an option to conventional gold alloy castings in implant dentistry. So far no reports have been made to show milled titanium frameworks and their difference in precision compared to conventional castings, and how laboratory handling andfusing of veneers to the titanium frames affect the precision of fit.

PURPOSE: To investigate and compare the precision of fabrication in repeatedly produced Computer Numeric Controlled milled frameworks with conventional castings, and to analyze the distortion from application of different veneering materials (porcelain and acrylic resin veneers).

MATERIAL AND METHODS: Twenty identical titanium frameworks were fabricated by means of a Computer Numeric Controlled milling technique for one and the same master model. Five conventional frameworks were cast as a control group to the same model. The frames were measured with regard to fit in a coordinate measuring machine linked to a computer. Measurements were made during different stages of handling of the titanium framework, and after veneering materials had been applied.

RESULTS: The Computer Numeric Controlled frameworks showed a statistically ($p<0.05$) better fit and precision of fabrication compared to conventional castings. The application of veneering material did not statistically ($p>0.05$) affect the fit of the titanium frameworks.

CONCLUSION: It is possible to fabricate implant supported titanium frameworks by means of the present Computer Numeric Controlled technique with very high precision and repeatability.