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[\[PDF \(488K\)\]](#) [\[References\]](#)**Finite Element Stress Analysis of Indirect Restorations Prepared in Cavity Bases**[Takatsugu YAMAMOTO<sup>1\)</sup>](#), [Shinichi TAKEISHI<sup>2\)</sup>](#) and [Yasuko MOMOI<sup>1\)</sup>](#)

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**Abstract:**

The objective of this study was to analyze the distribution of tensile stresses in indirect restorations prepared in several composite cavity bases. Elastic moduli of 20 materials were measured by nanoindentation technique for finite element analysis. Axisymmetric models of posterior onlays were constructed using combinations of two onlay materials and three cavity base materials. Thickness of resin cement was 50  $\mu\text{m}$ . A vertical load of 95.5 N was applied on the cusp tip. Maximum stress of 18.1 MPa was found in the model consisting of a ceramic onlay and a flowable resin composite base. It was also found that tensile stress increased as the area of the base having a lower elastic modulus became wider. Base materials having higher elastic moduli were determined to be suitable as cavity base materials for posterior restorations.

**Key words:**[Finite element analysis](#), [Indirect restoration](#), [Cavity base](#)[\[PDF \(488K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

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