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[\[Image PDF \(441K\)\]](#) [\[References\]](#)**Stress Distribution in Roots Restored with Different Types of Post Systems with Composite Resin**[Daizo OKADA](#)¹⁾, [Hiroyuki MIURA](#)¹⁾, [Chikako SUZUKI](#)¹⁾, [Wataru KOMADA](#)¹⁾, [Chiharu SHIN](#)¹⁾, [Masahiro YAMAMOTO](#)¹⁾ and [David MASUOKA](#)¹⁾

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Abstract:

Although composite resin core is used with various types of prefabricated posts, it remains unclear which kind of material is most suitable for the post. The aim of this study was to evaluate the influence of prefabricated posts on the stress distribution within the root by finite element analysis. Posts and cores were built up with composite resin and four types of prefabricated posts: two types of glass fiber posts (GFP1, GFP2) with low and high Young's moduli, a titanium post (TIP), and a stainless steel post (SSP). In all models, stress distribution during function was calculated. There were differences in stress concentration at the root around the end of posts. The magnitudes of stress for GFP1, GFP2, TIP, and STP were 8.7, 9.3, 11.7, and 13.9 MPa respectively. Given the results obtained, GFP1 was the most suitable material for post fabrication since this model showed a lower stress value. It would therefore mean a lower possibility of root fracture.

Key words:[Nonlinear finite element analysis](#), [Young's modulus](#), [Von Mises stress](#)

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