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Influence of Cyclic Loading on Fiber Post and Composite Resin Core

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Abstract:
From a selection of four kinds of post and core systems, including a fiber post and composite resin core, the purpose of this study was to determine the most effective system for the restoration of endodontically treated teeth with 0 mm of coronal tooth structure. For experimental abutment teeth, typical human maxillary central incisor teeth were modeled using bovine mandibular incisor teeth. By means of a static loading test, the four restoration systems were evaluated and compared in terms of failure load and failure mode. Further, by means of a cyclic loading test, these systems were assessed in terms of durability.
For fiber post and composite resin core, it excelled from the standpoints of failure load and failure mode, and fared favorably too in durability after cyclic loading test. For composite resin post-and-core, it also showed excellent results for both failure load and failure mode in static loading test, but durability significantly decreased with cyclic loading. Taken together, the fiber post and composite resin core was found to be most effective from the standpoints of failure load, failure mode, and durability.

Key words:
Fiber post and composite resin core, Failure load, Cyclic loading.

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