



## Effect of Crown Materials on Corono-radicular Restored Teeth – a Finite Element Study

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### **Purpose:**

The aim of the present study was to evaluate the influence of the root preparation taper and crown materials on dowel and core restored upper central incisor.

### **Materials and methods:**

The external shapes of the teeth were obtained by 3D modeling. The collected data were used to construct three-dimensional models. Round canal shapes with different tapers were modeled for the dowel, to allow the design of dowel-and- core 3D models. All the restorations were simulated to be covered by all-ceramic and metallo-ceramic crowns. The FEM model was obtained by importing the solid model into finite element analysis software. A three-dimensional finite element analysis was performed.

In the crown stress values were recorded on the palatal cervical margin both for the metal-ceramic and all-ceramic crowns.

### **Results and conclusion:**

More rigid crown materials induce higher stresses in the crowns and more elastic crown materials induce higher stresses in the dowel and core restorations.

### **Acknowledgment:**

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