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# Effectiveness of 3d printed dental models in enhancing endodontic training: A pilot study from South Korea

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**Introduction**: Modern dental education is rapidly integrating digital technologies to improve training outcomes. One such innovation is the use of 3D printed dental models for preclinical endodontic practice. This study investigates the effectiveness of 3D printed teeth compared to conventional resin blocks in enhancing the endodontic skills of dental students.

**Methodology**: A total of 40 third-year dental students from a university in Seoul participated in this pilot study. They were randomly assigned to two groups: Group A trained using standard resin blocks; Group B used anatomically accurate 3D printed teeth created using CBCT scans and CAD software. Over a 3-week training period, both groups performed root canal procedures under the supervision of experienced endodontists. Skill assessments included preparation accuracy, time efficiency, radiographic evaluation, and post-training confidence levels using a Likert-scale questionnaire.

**Results**: Group B (3D printed models) demonstrated significantly higher accuracy in canal shaping and obturation, with an average preparation time reduction of 18%. Radiographic evaluations revealed better length control and fewer procedural errors in Group B. Additionally, 85% of students in the 3D group reported increased confidence and a more realistic understanding of root canal morphology.

**Conclusion**: The use of 3D printed dental models offers a more realistic and effective platform for endodontic training compared to conventional resin blocks. Incorporating such models into preclinical curricula can improve student performance and better prepare them for clinical practice.