



**2024 RAA**  
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With both my passion for dentistry and technology, my AAOF-funded project, "**Long-term Stability of 3D Printed Orthodontic Models Under Various Storage Conditions**" stands out as a testament to my commitment to the professional advancement. As contemporary orthodontic practices are undergoing a transformation largely as a direct effect of technological advancements, I find that my eagerness to explore these technologies has drawn me to test their safe applications within orthodontic practice. One of these exciting advancements include the ability to design and manufacture orthodontic models and appliances using digital technologies and 3D printing, which have been extremely well received by the orthodontists around the world. As a part of my professional training and commitment towards evidence-based orthodontic practice I look forward to using my knowledge and experience to expand the scientific evidence that will guide the orthodontic profession to explore the limits of these technologies while maintaining their clinical safety.

The presented project goal is to evaluate the long-term dimensional stability of 3D-printed orthodontic models using two different resin materials (Draft Resin and Model Resin, FormLabs, Somerville, MA), subjected to various storage conditions such as dark and light, and at high, ambient, and low temperatures to mimic the real-world scenarios under which these models could be stored by the patients and orthodontists. Proposed study is highly relevant in orthodontics because it focuses on how 3D-printed resin models deform over time when used for the purpose of orthodontic retainer fabrication. By comparing how different storage conditions affect these models, the present study will lead to an evidence-based recommendation for optimal resin and its storage conditions for orthodontic models, thereby further improving the quality of retainers as well as long-term stability of successful orthodontic treatment and prevention of relapse. As 3D printing technologies are becoming increasingly common in a contemporary orthodontic practice, the completion of this first-of-its-kind study is essential to the establishment of an evidence-based practice guideline to ensure quality and safety of these technologies in order to ensure the maximum benefit for the patients and orthodontists who are using these technologies.

A recognition and financial support from the AAO Foundation is vital to the success of this project. Via research aid awards, the AAO Foundation is committed to advancing orthodontic knowledge, empowering orthodontists to promote evidence-based orthodontic practice, and improving quality of orthodontic care for the patients. My goal is to help enhance the clinical practice outcomes through evidence based research and to enhance usefulness of the digital technologies for the benefit of orthodontic patients. In order to accomplish this vision, I am grateful for the support of the AAOF foundation.

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