



2024 RAA  
Dr. Alexandra Brown, University of Florida

1) a short biography

I am a third-year orthodontic resident at the University of Florida. My journey in dentistry began at the University of Central Florida, where I earned my bachelor's degree in health sciences. It was during my time at Howard University, pursuing my DDS, that my interest in research was sparked. One of my proudest moments was presenting my research at the National Dental Association Research Competition and winning first place in the clinical research category. Additionally, during my time in dental school, I held leadership roles in numerous organizations and was inducted into the Omicron Kappa Upsilon National Dental Honor Society. Beyond my professional pursuits, I enjoy exploring new destinations through traveling, maintaining a healthy lifestyle through nutrition and exercise, and spending quality time with my family.

2) a brief description of the project

The current focus of Align Technology is to improve the predictability and accuracy of tooth movement for the Invisalign® system. However, due to limitation with the thermoplastic aligner material, a decline in force delivery often results from the added activation to the 3D simulated treatment plan (ClinCheck) on the Invisalign Doctor Platform. Hence, integrating less tooth/aligner movement in the design of the appliance the digital treatment set up will help create a more consistent and continuous force and facilitate treatment. This means fabrication of a greater number of aligners for treating the same malocclusion with less amount of activation engineered per aligner, therefore, the duration of wear for each aligner can be reduced to achieve desired outcomes within the same range of treatment duration.

This randomized clinical trial aims to assess the influence of reducing the wear scheduled for Invisalign clear aligners, from 7-day change per aligner to 3-day change per aligner, on the predictability and accuracy of different orthodontic tooth movements by comparing the simulated predicted final outcomes to those achieved at the end of treatment between the two change protocols.

3) a statement of how orthodontic education will benefit from your award

This award's recognition and assistance will encourage the investigation into and application of innovative orthodontic treatment strategies, like reducing Invisalign clear aligner wear schedules and the movement prescribed in each tray. By introducing students and practitioners to techniques targeted at improving treatment accuracy and predictability, this experimentation could enhance the curriculum in educational settings. Furthermore, the results of this study will provide important new information to orthodontic literature, laying the groundwork for evidence-based treatment. This award will support an environment in orthodontic education that values research and development, enabling us to provide the best possible treatment for patients while staying at the forefront of advancements in the field.

4) why the Foundation is important to your project

As a foundation dedicated to advancing the field of orthodontics through research and education, its support is instrumental in facilitating the execution of my study. The funding provided by the foundation allows me to utilize state of the art digital tools to conduct a randomized clinical trial to assess the influence of reducing the

wear schedule for Invisalign clear aligners on orthodontic tooth movements. Through this collaboration with the American Association of Orthodontics Foundation, my research is given more legitimacy and recognition in the orthodontic community, which increases its potential to advance the field's understanding and, ultimately, lead to better patient outcomes.

5) how Foundation funding is expected to or has benefitted your career

I believe my career in orthodontics will be advanced by the funding and support from this award. It has made it possible for me to properly carry out my research project which will greatly aid my academic and professional development.

With this award's help, I can conduct research that advances my knowledge and experience with clear aligner therapy. Additionally, the advancement of treatment planning in orthodontic clear aligner therapy may be greatly impacted by the findings of this study.

In addition, the acknowledgement that comes with being awarded funds by the American Association of Orthodontics Foundation will improve my credibility in the orthodontic community. As a researcher and future orthodontist, this validation has given me more confidence and established me as a leader among my peers.