Research Aid Award

Dr. Saro Atam, *Stony Book University, School of Dental Medicine*

Biography

Dr. Saro Atam is an orthodontic resident in the School of Dental Medicine at Stony Brook University. He obtained his first dental degree (D.D.S.) from the University of Kalamoon in Syria. He then completed the Advanced Standing program at the University of Pennsylvania, where he graduated with honors and obtained his Doctor of Medicine in Dentistry (D.M.D.) degree and developed his passion for orthodontics. Dr. Atam has an extensive research background and has been the recipient of several research awards including the AADR Bloc Travel Grant, the IADR Research award and most recently the Journal of Clinical Orthodontics (JCO) Eugene L. Gottlieb student of the Year 2020 Award. He has been upbeat in advancing his knowledge in clinical orthodontics along with pursuing his passion in digital orthodontics. Dr. Atam has an eager to pursue a career in academia as a clinician-scientist.

Project Synopsis

The medical profession is experiencing an exciting amount of technological growth with major advancements in 3-dimentional printing (3DP). In orthodontics, digital workflows and 3DP technologies are starting to allow practitioners to offer affordable, faster, and more efficient patient care than ever before. Besides diagnostic and treatment planning applications, 3DP plays an increasing role in facilitating in-house laboratory systems previously conducted by the manufacturing industry and rarely even attempted in the ordinary orthodontic office laboratory. Therefore, as this technology evolves, we expect to see a greater number of orthodontic practices equipped with 3DP capabilities. When selecting the appropriate 3DP workflow, account must be taken of the printing system, time required, and the desired resolution of the printed object. Therefore, the main purpose of our study titled "**Orthodontic Digital Workflow: From 3D Printing to Appliance Fabrication**" is to investigate the influence of build orientation and layer thickness on the manufacturing of 3D printed models and in the fit of thermoformed appliances (TAs). We also want to compare stereolithography (SLA) and digital light processing (DLP) 3DP processes for the manufacturing of orthodontic working casts. We hypothesize that accurate and clinically useful working casts and TAs can be manufactured in a timely fashion with 3DP. To test our central hypothesis, we propose two complimentary yet distinct aims. **Aim 1** will be performed to evaluate the 3D printer's accuracy, production time and failure rate using different settings and

technology. In **Aim 2**, we will evaluate the influence of 3D printing parameters in the fit of thermoformed appliances (TAs) over the dentition.

Importance of the AAOF Funding

The AAOF is an integral part of Dr. Atam's orthodontic educational success. Being the recipient of the prestigious Charles J. Burstone Research Aid Award has meant a great deal to Dr. Atam's career. Besides giving him the financial resources to pursue his master's project, he learned about grant writing and the steps required for a successful research submission. Certainly, this experience will broaden his vision of orthodontic research and will reinforce his goals in becoming a clinician-scientist in academia.