

Research Aid Award

Dr. Niloufar Azami, *University of Connecticut Health Center*

Biography

Dr. Azami is a second-year orthodontic resident at University of Connecticut Health Center. She completed her dental school training and orthodontic training in Iran. Prior to her residency at University of Connecticut, she completed her orthodontic fellowship at University of Connecticut. She is passionate about translational research and wishes to pursue a career as a clinician-scientist in the future.



Project Synopsis

The long-term stability of orthodontic treatment has been one of the goals of successful treatment and relapse is one of the main challenges for orthodontists. The frequency of reported post orthodontic relapse varies from an average of 14% in 8 years follow up to 50% - 70% after 10 years. In addition to high incidence, orthodontic relapse is largely unpredictable and significantly variable on the individual bases. Various methods have been studied in animal models to decrease relapse and inhibit orthodontic tooth movement (OTM), including pharmacological approaches, low frequency mechanical vibration, gene therapy and low level laser therapy. Modulation of bone turn over through RANK/RANKL/OPG pathway showed promising results in inhibiting relapse however there are great variations in the outcome of these studies and also the effect of recently developed anti-resorptive drugs with different mechanisms of action on bone resorption have not been investigated. Accordingly, there is an unmet need for a novel method to increase stability effectively for long term. Our objective is to address this need by administering denosumab and raloxifen in retention phase and compare their effect on decreasing bone resorption and relapse. We hypothesized that injection of biologics (denosumab and raloxifen) will increase the mechanical properties via two different pathways during retention phase after OTM and will also decrease bone resorption. Our project will benefit orthodontic education by elucidating mechanisms for decreasing relapse and increasing stability.

Importance of AAOF Funding

The AAOF RAA is essential to this project by assisting in the funding and support, especially in conducting the costly animal studies. The AAOF is also instrumental in helping me embark on my career as a clinician-scientist in academia by providing the experience needed to become an independent investigator.