Orthodontic Faculty Development Fellowship Award

Dr. Eliane Dutra, *University of Connecticut Health Center*

Biography

I received my DDS from the Federal University of Santa Maria and a MSD in Orthodontics from the Pontifical Catholic University of Parana, in Brazil. I moved to the United States and obtained a PhD degree and an orthodontic certificate from the University of Connecticut Health (UCH). I am currently a full-time Assistant Professor in the Division of Orthodontics at the UCH and the program director of the orthodontic predoctoral curriculum. I dedicate my time to undergraduate and graduate education, as well as to research and patient care.

Project Synopsis

My interest for temporomandibular joint biology started during my orthodontic residency at UCH when I studied factors that alter the homeostasis of the TMJ. Temporomandibular Joint Osteoarthritis (TMJ-OA) is a degenerative joint disease characterized by cartilage loss and sclerosis of the subchondral bone, causing pain and disability. Clinical management of TMJ-OA is largely palliative and there is an urgent need for effective disease modifying treatments. Therefore, it is critical to develop new therapeutic agents that are anabolic for the TMJ cartilage and subchondral bone. However, given the severity of this condition and the unique nature of the osteochondral tissues of the TMJ, it is not likely that a single therapeutic agent will be able, on its own, to promote or restore the anabolic responses in TMJ-OA. Accordingly, identifying signals that can synergize to produce additive anabolic functions in the cartilage and subchondral bone are essential for the development of clinically feasible treatments for TMJ-OA. In our preliminary data, we have observed that when mice are treated with the anabolic agent Parathyroid Hormone (PTH), along with the antiresorptive agent Alendronate, the cartilage thickness is significantly reduced and mineralization is increased more than with either drug alone. Given that this combination of drugs is commonly used for the treatment of osteoporosis in females and males, it is now crucial that the effects of this combination in the cartilage and subchondral bone of the TMJ and its underpinning molecular mechanisms are determined. This proposal aims to systematically address the central hypothesis that alternate treatment with PTH and bisphosphonate is better than the concurrent treatment with PTH + Bisphosphonates for the health of osteochondral tissues of the TMJ.

Importance of AAOF Funding

My journey as a junior faculty has been challenging but also very gratifying, and the funding from AAOF has been helping to establish myself as a successful academician in Orthodontics. My goal is to continue to grow as a clinician and craniofacial scientist. The support from AAOF through the Orthodontic Faculty Development Fellowship Award will provide the necessary support I need to initiate my path in becoming an independent investigator.