

## 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 US and obtained a PhD degree and an orthodontic certificate from the University of Connecticut Health Center (UCHC). I am currently an Assistant Professor in the Division of Orthodontics at the UCHC 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. My interest for temporomandibular joint biology started during my orthodontic residency at UCHC.



### **Project Synopsis**

Injection of Botulinum Neurotoxin (Botox) into the muscles of mastication have been used to alleviate the symptoms associated with temporomandibular joint disorders (TMDs). However, clinical and animal studies have suggested deleterious effects of Botox injections into the masseter in the mandibular ramus and condyle. Our preliminary data showed, in addition to previously reported decreased bone volume, dramatic effects on the mandibular condylar cartilage (MCC) 4 weeks after Botox injection into the masseter of growing transgenic mice. We observed reduced cartilage thickness, decreased cell proliferation, reduced matrix deposition and decreased expression of proteins important for chondrocyte differentiation and endochondral mineralization.

Since the muscle paralysis effect of Botox is temporary, injections are performed every 3-6 months. In addition, the clinical protocols for TMD treatment suggest injections of Botox into simultaneous muscles of mastication. The effects of this constant paralysis of the muscles of mastication in the MCC and subchondral bone are unknown.

The aim of this study is to evaluate the long-term effects of Botox injections into the masseter, and the effects of continuous injections and simultaneous administration in other muscles of mastication besides the masseter, such as the temporalis, in the MCC and subchondral bone of adult transgenic mice.

The results of this project will indicate whether Botox injection into the muscles of mastication is a safe therapeutic approach for patients suffering from TMDs.

### **Importance of AAOF Funding:**

My goal is to continue to grow as a clinical orthodontist and craniofacial scientist. As a junior faculty, the AAOF OFDFA Orhan C. Tuncay Teaching Fellowship Award will provide the necessary support I need to initiate my path in becoming an independent investigator.