

AAO Foundation Award Final Report

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Award Type	Orthodontic Faculty Development Fellowship
Project Title	3-D Assessment of Maxillary and Mandibular Changes Associated with Bone Anchored Maxillary Protraction
Project Year	July 2010 to June 2011
Institution	University of North Carolina at Chapel Hill
Summary/Abstract (250 word maximum)	<p>Introduction: Bone Anchored Maxillary Protraction (BAMP) has been shown to be an effective treatment modality for the correction in Class III malocclusions. The purpose of this study was to evaluate 3-D changes in the maxilla, surrounding hard/ soft tissues and circum-maxillary sutures following BAMP treatment.</p> <p>Methods: 25 consecutive skeletal Class III patients between the ages of 9 and 13 (mean age 11.10 +/- 1.1 years) were treated using Class III intermaxillary elastics and bilateral miniplates (2 in the infra-zygomatic crests of the maxilla and 2 in the anterior mandible). The patients had CBCTs taken before initial loading (T1), and one year out (T2). 3-D models were generated from the CBCTs, registered on the anterior cranial base, superimposed and analyzed using color-maps.</p> <p>Results: the maxilla showed a mean forward displacement of 3.7 mm, while the zygomas and maxillary incisors came forward 3.7 mm and 4.3 mm respectively.</p> <p>Conclusions: This treatment approach produces significant orthopedic changes in the maxilla and zygoma in growing Class III patients.</p>
Were the original, specific aims of the proposal realized?	We met the aims of the proposal. We collected and analyzed T1 and T2 CBCTs for over 30 patients treated with the BAMP protocol. The results, especially the sutural effects of BAMP treatment, were very encouraging and offers promise for the early treatment of Class III malocclusion. We will continue enroll more patients and are starting to collect long-term (T3) data. In addition, we were able to developed new software to superimpose 3-D images and measure skeletal changes.
Were the results published? If not, are there plans to publish? If not, why not?	Our paper (3D Assessment of Maxillary Changes Associated with Bone Anchored Maxillary Protraction) was accepted for publication this year in the American Journal of Orthodontics and Dentofacial Orthopedics. We will have a second paper ready for submission by early May.

Have the results of this proposal been presented? If so, when and where? If not, are there plans to do so? If not, why not?	The results from the AAOF Award have been presented at the 2010 American Association of Orthodontist meeting (Washington, DC), the 2010 European Orthodontic Society congress (Portoroz, Slovenia) and the 2011 International Association of Dental Research meeting (San Diego, CA).