

AAO Foundation Award Final Report

Principal Investigator	Antonino G. Secchi, DMD, MS
Co-Investigator	
Secondary Investigators	Serban Nicolaescu, DMD
Award Type	Subtelny, Baker, Eastman Teaching Fellowship Award
Project Title	An Evaluation of the Effect of Head Position on Facial Soft Tissue Using Stereophotogrammetry
Project Year	2007
Institution	University of Pennsylvania, Department of Orthodontics
Summary/Abstract (250 word maximum)	<p>The 3dMD Face System is the third generation of stereophotogrammetric devices developed by 3dMD Co. Stereophotogrammetry is a technique that consists on the use of at least two cameras combined as a stereo pair in order to create a 3D image. The majority of the published literature on stereophotogrammetry has focused primarily on validating the accuracy and precision of such systems. Very little has been done to assess factors that can affect the imaging and changes that can occur in soft tissue. In this study we measured the effects of head position on facial surface using the 3dMD Face System. Our sample consisted of 10 subjects who had 21 anthropometric landmarks marked on their faces. Several 3D images of each of the subjects were captured in different predetermined head positions. In order to accurately analyze soft tissue differences between same subject's images, a series of superimpositions were performed to determine which part of the face could be used to obtain the best registrations. The best area for accurate registrations was demonstrated to be the <i>Forehead-Nose</i>. All the images for each subject were registered and the displacement of each anthropometric landmark was measured. The surface of the face was shown to change as a result of alterations in subject's head position. The greatest soft tissue displacement was observed for the landmarks in the lower part of the face. However, the changes are small enough that a 5 deviation, in any direction, from the natural head position would not create a clinically significant displacement of the soft tissues.</p>
Were the original, specific aims of the proposal realized?	Yes, the research was performed and the results we believe will help us to better understand the relationship between 3D imaging and facial soft tissue.

Were the results published? If not, are there plans to publish? If not, why not?	The manuscripts are in preparation at this time.
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?	Not yet. We have plans to present it at the AAO abstracts session 2009.