

## AAO Foundation Award Final Report

Principal Investigator	Dr. Manuel Oscar Lagravere Vich
Co-Investigator	Dr. Paul Major
Secondary Investigators	Dr. Giseon Heo
Award Type	Orthodontic Faculty Development Fellowship Award
Project Title	Skeletal and Dental Changes with a Tooth-Borne Hyrax Maxillary Expansion Appliance compared with Damon system of archwire/bracket expansion assessed through Digital Volumetric Imaging
Project Year	2011-2012
Institution	University of Alberta, Orthodontic Graduate Program
Summary/Abstract (250 word maximum)	<p><b>Introduction:</b> Traditional treatment of narrow maxillary arches with posterior crossbite involves Rapid Maxillary Expansion (RME) with separation of the midpalatal suture. The most common approach uses a Hyrax appliance attached to the first premolar and first permanent molar teeth. In recent years, a new generation of “passive” self-ligation orthodontic brackets (Damon) have been introduced. These brackets are reported to produce less friction than traditional orthodontic brackets, which theoretically allows tooth movement to occur with lower forces. The Damon system is advertised on the manufactures (Ormco Corporation) webpage as being capable of delivering light, biologically-sensible forces thus in most cases eliminating the need of RME expanders and its negative effects such as dental tipping and extrusion and root resorption. <b>Objective:</b> The purpose of this study is to determine transverse, vertical and antero-posterior skeletal and dental changes in adolescents receiving expansion treatment using tooth-borne expanders followed by non self-ligating brackets or only the Damon system (self-ligating brackets) measured using CBCT images. <b>Methods:</b> 72 patients needing maxillary expansion will be randomly allocated to one of two groups (traditional Hyrax tooth-borne expander followed by non self-ligating brackets and Damon system self-ligating brackets). Records (CBCT) will be taken at the different stages of treatment for each group as well as airway with an acoustic rhinometer. <b>Results:</b> 20 patients have been recruited for study from which all are in treatment with expanders and full fixed appliances. Recruitment is still in process.</p>

Were the original, specific aims of the proposal realized?	<p>Aims are being accomplished; we are still in the patient recruitment phase where we just have 20 patients all in current treatment.</p> <p>The principal investigator has assisted courses on learning the treatment technique and on image analysis. Principal investigator has also presented some work on 3D image analysis and have assisted specialized courses on improving CBCT 3D analysis.</p> <p>Economic load was relieved with this award giving the principal investigator more focus on research and teaching matters.</p>
Were the results published? If not, are there plans to publish? If not, why not?	Results have not been published since we are still recruiting sample
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?	<p>The results have not yet been presented since the recruitment is still being done. Till date, 20 patients have been randomly allocated into treatment groups and treatment started on them. Recruitment is still being held till we get the sample desired.</p> <p>There are plans to present the results but this would be done once treatment has been completed on the sample size predetermined.</p>
To what extent have you used, or how do you intend to use, AAOF funding to further your career?	<p>The AAOF has been helpful in opening opportunities to assist specialized courses on 3D imaging and Damon system technique.</p> <p>Once recruitment and treatment is done to all the proposed sample, analysis of the data will be able to be done in a more efficient and accurate way.</p>