

2010 EHASO North Atlantic Meeting

<http://www.anglenorthatlantic.org/>

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Future Meetings

- 2011 Sunday, September 18th to Wednesday, September 22nd Biennial Meeting (North Atlantic component is hosting) Charleston Place Hotel, <http://www.charlestonplace.com> 205 Meeting Street, Charleston, SC 29401.
- 2012 Wednesday, March 28th to Saturday, March 31st, Barcelona, Spain
- 2013 April, dates TBA, Miami, Florida

Meeting News

The Angle North Atlantic Component had a very successful and well-attended meeting at the Intercontinental Harbor Court Hotel, overlooking the vibrant Baltimore harbor. (Did you know that the hand-painted mural in the Explorers Lounge of the hotel is rumored to be the inspiration of the 1995 sci-fi film 12 Monkeys, which was shot in Baltimore and Philadelphia and starred Brad Pitt and Bruce Willis? And yes, there were 12 monkeys painted on the wall.)

Three affiliates that presented research and clinical cases were accepted into membership:

- Howard M. Tichler, DDS, of West Islip, N.Y., presented a paper entitled **Panoramic Study of the Anatomic Acceptability of the Maxillary Third Molar Replacement of the Maxillary Second Molar.**
- Sunil Wadhwa, DDS, PhD, a new faculty member at the University of Connecticut, presented **Effects of Externally Applied Low Magnitude-High Frequency Forces on the Rate of Orthodontic Tooth Movement.**
- Carlos Flores-Mir, DDS, DSc, of Alberta, Canada. **Proclination of Lower Incisor in Orthodontic Cases Treated with the Crossbow Appliance According to Facial Growth Types.** See <http://www.crossboworthodontic.com/PIIS0889540609008749.pdf> for a recent reference.

Regular member presentations included the following:

- Dr. Bruce Haskell presented **The Golden Proportions in Facial Growth and Skeletal/Dental Aesthetics.** He talked about the golden ratio (1.618) and its relationship to art, esthetics, and mathematics. He related his experiences with Dr. Ricketts and Fibonacci numbers and compared these to the Japanese and Chinese Silver ratio (1.414, sashigane, which was used for traditional temple construction). These derivations are an attempt to answer the question: How mathematical is the concept of beauty? References: Kiekens RM, Kuijpers-Jagtman AM, van 't Hof MA, van 't Hof BE, Maltha JC. Putative golden proportions as predictors of facial esthetics in adolescents. Am J Orthod Dentofacial Orthop. 2008 Oct;134(4):480-3 (Go to [http://www.ajodo.org/article/S0889-5406\(08\)00610-0/pdf](http://www.ajodo.org/article/S0889-5406(08)00610-0/pdf) then log in). Ali Fayyad M, Jamani KD, Agrabawi J. Geometric and mathematical proportions and their relations to maxillary anterior teeth. J Contemp Dent Pract. 2006 Nov 1;7(5):62-70.
- Dr. Cristina Teixeira talked about translational research in **Basic Science and Clinical Orthodontics.** All orthodontic residents spend a day in the research labs at NYU as a part of their Consortium for Translational Orthodontic Research (CTOR, <http://www.orthodonticscientist.org/>). She touched on numerous topics, including: the role of Foxo1 in skeletogenesis; the relationship between cartilage and oxygen; the use of chitin (a long-chain polymer of glucose, that is naturally found in the exoskeleton of arthropods) in grafting, as a bone scaffold; and the role of force in bone health. They found that vibrating rat maxillary teeth for 5 minutes per day for 28 days resulted in a 15-20 percent increase of bone thickness,

particularly trabecular bone. References: Costa-Pinto AR, Salgado AJ, Correlo VM, Sol P, Bhattacharya M, Charbord P, Reis RL, Neves NM. Adhesion, proliferation, and osteogenic differentiation of a mouse mesenchymal stem cell line (BMC9) seeded on novel melt-based chitosan/polyester 3D porous scaffolds. *Tissue Eng Part A*. 2008 Jun;14(6):1049-57. Klokkevold PR, Vandemark L, Kenney EB, Bernard GW. Osteogenesis enhanced by chitosan (poly-N-acetyl glucosaminoglycan) in vitro. *J Periodontol*. 1996 Nov;67(11):1170-5 (UID 8959566). Judex S, Gupta S, Rubin C. Regulation of mechanical signals in bone. *Orthod Craniofac Res*. 2009 May;12(2):94-104.

- Dr. Peter Bronsky presented **Lateral Nasal Placode Morphogenesis in Mice: Normal Development and Alterations Leading to Hypoxia-Induced Cleft Lip**. He talked about a study involving CL/Fr mice and how they have less curling forward of the lateral nasal prominences during a critical period between the 31 to 36 somite stage. They spontaneously develop a cleft lip 22% of the time in normoxia conditions. Material respiratory oxygen levels and cleft incidence shows an inverse relationship, with implications for fetal development in smoking mothers. Peter showed scanning electron micrographic evidence of how a contraction of the demosomal plaque in the terminal web reduces the diameter of the cells on the side of the nasal placode, resulting in the curvature seen around the nasal pit (similar to the process in neural tube curvature and closure). Terminal web breakdown in the deepest portion of the nasal groove of hypoxic embryos results in autolysis debris that is believed to mechanically inhibit movement of the lateral nasal prominences. References: Bronsky PT, Johnston MC, Sulik KK. Morphogenesis of hypoxia-induced cleft lip in CL/Fr mice. *J Craniofac Genet Dev Biol Suppl*. 1986;2:113-28. Young NM, Wat S, Diewert VM, Browder LW, Hallgrímsson B. Comparative morphometrics of embryonic facial morphogenesis: implications for cleft-lip etiology. *Anat Rec (Hoboken)*. 2007 Jan;290(1):123-39. Gritli-Linde A. The etiopathogenesis of cleft lip and cleft palate: usefulness and caveats of mouse models. *Curr Top Dev Biol*. 2008;84:37-138.
- Dr. Kenji Takada presented **The Faces—Their Perceivers and Posers**. He talked about facial recognition and how the fusiform gyrus (FFA, fusiform face area) is the area of the brain specific for this function. This dedicated area explains how first impressions are formed in only 0.5 seconds. Beauty is defined as something that is admired, but attractiveness arouses interest. It's been shown that women who don't smile are less likely to be seen as attractive. After a 3D surface scanning study and because collagenous fibrous tissue becomes thinner and muscles weaken with age, soft tissue paradigms of the young may not be able to be applicable to the middle aged. References: Golarai G, Ghahremani DG, Whitfield-Gabrieli S, Reiss A, Eberhardt JL, Gabrieli JD, Grill-Spector K. Differential development of high-level visual cortex correlates with category-specific recognition memory. *Nat Neurosci*. 2007 Apr;10(4):512-22. Epub 2007 Mar 11. Tarr MJ, Gauthier I. FFA: a flexible fusiform area for subordinate-level visual processing automatized by expertise. *Nat Neurosci*. 2000 Aug;3(8):764-9. Leopold DA, Bondar IV, Giese MA. Norm-based face encoding by single neurons in the monkey inferotemporal cortex. *Nature*. 2006 Aug 3;442(7102):572-5. Epub 2006 Jul 5. Penna V, Stark GB, Eisenhardt SU, Bannasch H, Iblher N. The aging lip: a comparative histological analysis of age-related changes in the upper lip complex. *Plast Reconstr Surg*. 2009 Aug;124(2):624-8.
- Dr. Andrej Zentner presented research on the **Assessment of Dental Anomalies on Panoramic Radiographs: Inter- and Intra-examiner Agreement** to test dental morphological predictors. A problem with diagnostic description is that the literature is filled with terms that are often not well defined. This study defined and checked for tooth agenesis (including third molars), blunted roots, pipette shaped roots, pointed roots, dilacerations of at least 45 degrees, and short roots. Only agenesis was reliably repeatable across examiners. References: Levander E, Bajka R, Malmgren O. Early radiographic diagnosis of apical root resorption during orthodontic treatment: a study of maxillary incisors. Mirabella AD, Artun J. Risk factors for apical root resorption of maxillary anterior teeth in adult orthodontic patients. *Am J Orthod Dentofacial Orthop*. 1995 Jul;108(1):48-55.
- Dr. Kazunori Yamaguchi's presentation was **The Effect of Breathing Through the Mouth on Chewing Activity**. Occlusal force is strong but works only 1-2 hours per day. Eruptive force is weak but works for a long time. This study measured Masseter EMG activity during gum chewing for 3 minutes with (a) nasal breathing and (b) with the nose blocked. References: Masseter muscle EMG activity used to detect tooth contact. *Orthodontic Waves* 64(2):29 [Official publication of the Japanese Orthodontic Society, Vol. 64 (2005) is not available online.] Ono T, Ishiwata Y, Kuroda T. Inhibition of masseteric electromyographic activity during oral respiration. *Am J Orthod Dentofacial Orthop*. 1998 May;113(5):518-25. Ferla A, Silva AM, Corrêa EC. Electrical activity of the anterior temporal and masseter muscles in mouth and nasal breathing children. *Braz J Otorhinolaryngol*. 2008 Jul-Aug;74(4):588-95.

- Dr. Charlotte PrahI presented findings about the **Quality of Life in Cleft Lip and Palate Patients**. The impression of quality of life (QoL) determines health. Parental stress for 2-2.5 years effects psychosocial development of children. Studies should shift from looking at deficits of CL/P to looking at possible positive aspects of CL/P, such as sources of resilience and strategies of coping. This study used the Dutch-developed version of the Child Oral Health Impact Profile (COHIP) that includes a questionnaire for kids and their parents. Boys and girls shared the same QoL, but QoL went down as they aged—this was the factor with the biggest difference of concordance, so older kids should probably be given more help as they cope with peer pressures and the onset of puberty. As would be expected, CL kids do better than those with other manifestations, such as CL/P. Patient and parent perceptions were not concordant. References: Oosterkamp BC, Dijkstra PU, Remmelink HJ, van Oort RP, Goorhuis-Brouwer SM, Sandham A, de Bont LG. Satisfaction with treatment outcome in bilateral cleft lip and palate patients. *Int J Oral Maxillofac Surg*. 2007 Oct;36(10):890-5. Epub 2007 Sep 4. Broder HL, Wilson-Genderson M. Reliability and convergent and discriminant validity of the Child Oral Health Impact Profile (COHIP Child's version). *Community Dent Oral Epidemiol*. 2007 Aug;35 Suppl 1:20-31. Geels LM, Hoogstraten J, PrahI-Andersen B. Confirmative factor analysis of the dimensions of the Child Oral Health Impact Profile (Dutch version). *Eur J Oral Sci*. 2008 Apr;116(2):148-52.
- Dr. Junji Sugawara described a technique developed in Senei, Japan, in cooperation with Dr. Nanda at UConn, **Surgery First Orthognathics with Skeletal Anchorage System**. Orthognathic surgery and temporary anchorage combined comes first. This is followed by orthodontic decompensation. In Angle Class III cases the soft tissue deformity is immediately corrected and this leads to better tongue and upper lip pressure—which helps with natural decompensation. Decompensation in traditional treatment makes the patients look worse (temporarily). Total treatment duration is significantly shorter than with traditional orthognathic surgery treatment plans. Dr. Jenkins, quoting from the Profitt and White book, said that prior to 1960 surgeons preferred not to use orthodontic wires for post surgical stabilization. Dr. Legan thinks the RAP phenomenon is responsible for the decreased treatment time. Everyone agreed the surgery team must be good and everyone must have confidence in each other because you can't use initial model to predict the final result. References: Nagasaka H, Sugawara J, Kawamura H, Nanda R. "Surgery first" skeletal Class III correction using the Skeletal Anchorage System. *J Clin Orthod*. 2009 Feb;43(2):97-105.
- Dr. Flavio Uribe talked about **Early Effects of Orthodontic Forces on Osteoblast Differentiation in a Novel Mouse Organ Culture Model**. Regarding biomechanics, we've done a lot of research on the "mechanics" but we've not looked as much at the "bio" part of the word. A distinction was made between in vivo studies, in vitro cell culture, transgenic mice, and in vitro organ culture. Alastair J. Sloan first used an in vitro organ culture, consisting of 2 mm. thick transverse tooth sections that could be kept viable for up to two weeks, to study tissue injury and repair processes in the dentine/pulp complex over long periods of time. UConn has developed an organ culture system that allows them to maintain a hemisected mandible for up to 6 hours. References: Sloan AJ, Shelton RM, Hann AC, Moxham BJ, Smith AJ. An in vitro approach for the study of dentinogenesis by organ culture of the dentine-pulp complex from rat incisor teeth. *Arch Oral Biol*. 1998 Jun;43(6):421-30.
- Dr. Michael G. Woods reported on **Vertical Control with the Herbst Appliance**. Neither the mandibular plane nor the facial axis showed any change, beyond what would be expected with typical growth, following Herbst appliance therapy. The patient population included dolico-, brachy-, and meso-cephalic patients from a single practitioner (not the investigator). ANB for all subgroups still reflected a Class II relationship. References: Hägg U. Change in mandibular growth direction by means of a Herbst appliance? A case report. *Am J Orthod Dentofacial Orthop*. 1992 Nov;102(5):456-63.
- Remember you can request article reprints from the AAO Library at <http://www.aomembers.org/Resources/Library/index.cfm>.

Other Events

The entire group enjoyed a lunch and tour of the Baltimore Museum of Art.

At the dinner banquet, Dr. Zentner—who is the Honorary Treasurer of the European Orthodontic Society—announced that Dr. Ravindra Nanda will be giving the Sheldon Friel Memorial Lecture (<http://www.eos2011.com/shel.html>) at the 87th Congress of the EOS, which is being held in Istanbul, Turkey, June 19-23, 2011 (<http://www.eos2011.com/>). Urban Hägg, another component member, is presenting the

Sheldon Friel Memorial Lecture at the 86th Congress of the EOS, which is being held in Portoroz, Slovenia (see <http://www.eos2010.si/index.php/programme/lectures/51-memorial/126-sheldon-friel-memorial-lecture>).

Dr. Ernest Sheldon Friel (1888-1970) was an Irish dentist who studied under Dr. Angle. In 1909, he established the first orthodontic practice in the United Kingdom of Great Britain and Ireland. He later became the first Professor of Orthodontics in Europe. In 1960 he became the first orthodontist from outside North America to receive the ABO Ketcham Award. See http://www.eoseurope.org/eos/sheldon_friel_lectureship for more information.