CED-IADR/NOF
Oral Health Research Congress

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Program Book

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Seq#: 25 **Thursday, September 19, 2019 from 12:00 hr - 13:00 hr Presenter at Poster**
(Free Poster Viewing from 8:30 - 17:30 hr)
Poster Session in Poster Hall Patio (Lobby Level)

MINERALIZED TISSUES AND AMELOBLAST FUNCTION

S0149 **Changes in the Composition of Radicular Dentin using Passive Ultrasonic Irrigation.**
M. BARÓN-PRIETO*, V. MORALES, M. LINARES, N. ESCRIBANO, L. CEBALLOS (Rey Juan Carlos University, Madrid, Spain)

0150 **Expression of microRNA-21 and PTEN Protein in the Alveolar Bone of Type 2 Diabetic Patients.**
J. ROGANOVIC*, M. VUCETIC, N. PETROVIC, I. BESU, B. BRKOVIC (Faculty of Stomatology, University of Belgrade, Belgrade, Serbia)

S0151 **Differential Basolateral and Apical AE and NKCC Activities Demonstrate Polarization of HAT-7 Ameloblasts.**
R. RÁCZ*, G. VARGA (Department of Oral Biology, Semmelweis University, Budapest, Hungary)

0152 **The Role of TRPM7 Channel in the Ca^{2+} and Mg^{2+} Homeostasis of Ameloblast Cells.**
K. KÁDÁR*, V. JUHÁSZ, H. LÖCHLI, A. FÖLDES, R. RÁCZ, M. STEWARD, P. DEN BESTEN, G. VARGA, Á. ZSEMBERY (Department of Oral Biology, Semmelweis University, Budapest, Hungary)

0152.1 **Optimizing Post-tooth Extracted Transport Time for Pulp Stem Cell Banking.**
A. SAMSUDIN*, S. A C (Oral and Craniofacial Health Sciences, University of Sharjah, Sharjah, United Arab Emirates)

Seq#: 26 **Thursday, September 19, 2019 from 12:00 hr - 13:00 hr Presenter at Poster**
(Free Poster Viewing from 8:30 - 17:30 hr)
Poster Session in Room Escudo (Lobby Level)

NUTRITION RESEARCH

0153 **Differences in Diet Intake Reflected in Stable Isotopes in Teeth.**
T. ALSTAD* (Prosthodontics and Dental Material Science, Institute of Odontology, Sahlgrenska Academy, University of Gothenburg, Vastra Frolunda, Sweden)

Seq#: 27 **Thursday, September 19, 2019 from 12:00 hr - 13:00 hr Presenter at Poster**
(Free Poster Viewing from 8:30 - 17:30 hr)
Poster Session in Poster Hall Patio (Lobby Level)

ORTHODONTICS RESEARCH & DENTAL ANATOMY

S0154 **Oral Screening of Children Living with Diabetes - Orthodontic Perspectives.**
D. BANYAI*, D. VÉGH, A. VEGH, P. HERMANN, M. UJPAL, N. ROZSA (Department of Pedodontics and Orthodontics, Semmelweis University, Budapest, Hungary)

S0155 **Electromyographic Response in Patients Treated with Aligners and Fixed Appliance.**
G. BEGNONI*, N. KHOMCHYNA, G. PELLEGRINI, F. MUSTO, C. DELLAVIA (Department of Biomedical Surgical and Dental Sciences, University of Milan, Milan, Lombardia, Italy)

0156 **The Effect of Mandibular Advancement Surgery in the Upper Airway in Skeletal Class II Patients.**
F. VALE*, M. RODRIGUES, S. ROSEIRO, A. GUIMARÃES, I. FRANCISCO (Orthodontics, Faculty of Medicine, University of Coimbra, Coimbra, Portugal)

0157 **Are Dentofacial Alterations in Childhood with Obstructive Sleep Apnea Different Among Age Groups?**
A. PUIGDOLLERS*, E. ESTELLER, A. AULADELL, B. RIPOLL, F. VERDUGO, C. PASCUAL, Q. MIRÓ (Orthodontics, Universitat Internacional de Catalunya, Barcelona, Spain)

S0158 **Negative Social Comparisons and Social Discomfort in Dentofacial Deformity.**
I. FRANCISCO*, M. SILVA, S. ROSEIRO, A. GUIMARÃES, F. VALE (Orthodontics, Faculty of Medicine, University of Coimbra, Coimbra, Portugal)

0159 **In Vitro Bond Strength Evaluation of Digital Custom Molar Bands.**
D. DALESSANDRI*, F. MASSETTI, R. ZOTTI, G. ISOLA, L. LAFFRANCHI, S. BONETTI, L. VISCONTI (Dental School, University of Brescia, Brescia, Italy)

S0160 **Bond-strength of a Single-component Ceramic Conditioner for Direct Bracket Bonding.** C. GONZÁLEZ SERRANO*, J.-H. PHARK, V. FUENTES, A. ALBALADEJO, S. DUARTE JR., L. CEBALLOS (Area of Stomatology, Rey Juan Carlos University, Alcorcón, Madrid, Spain)

S0161 **Effectiveness of 3D Virtual Brackets and Nickel Titanium Archwires in an Orthodontic Removable Appliance.**
C. MARTIN, J.T. ROMERO CRUZ, J. LEON VALENCIA* (Complutense University, Madrid, Spain)

0162 **Measurement of Insertion and Extraction Torque of a New Miniscrew**.
K. DUSKE*, C. OEHLSCHLÄGER, B. TURAN, F. STAHL, M. WARKENTIN (Department of Orthodontics, Rostock University Medical Centre, Rostock, Germany)

0163 **The Study of Facial Value and the Cuspid Position in a Group of Asian Face.**
P. SOONSAWAD*, ONICHA POOKTUANTONG, NATCHAREE SRIMANEEKARN, TAWEPONG ARAYAPISIT (Anatomy, Mahidol University, Bangkok, Thailand)

Seq#: 28 **Thursday, September 19, 2019 from 12:00 hr - 13:00 hr Presenter at Poster**
(Free Poster Viewing from 8:30 - 17:30 hr)
Poster Session in Room Escudo (Lobby Level)

PROSTHODONTICS RESEARCH/REMOVABLE PROSTHODONTICS

S0164 **Impact of the Prosthetic Design on the Quality of Life.**
E. ISASI-CASTILLÓN*, G. GARCÍA-MINGUILLÁN, P. GONZÁLEZ-MARTÍNEZ, P. CIDAD-PINTO, J. DEL RÍO-HIGHSMITH, R. OYAGÜE (Faculty of Dentistry, Complutense University of Madrid, UCM, Madrid, Spain)

S0165 **Quality of Life and Clinical Performance Associated to Implant Overdentures.**
P. CIDAD-PINTO*, G. GARCÍA-MINGUILLÁN, E. ISASI-CASTILLÓN, P. GONZÁLEZ-MARTÍNEZ, J. DEL RÍO-HIGHSMITH, R. OYAGÜE (Faculty of Dentistry, Complutense University of Madrid, UCM, Madrid, Spain)

0168 **Investigation of Hydration, Leaching and Cushioning Effects of Denture Adhesives**.
J. YANG*, M.-T. ADISON (GlaxoSmithKline Consumer Healthcare, Weybridge, United Kingdom)

0169 **Development of a Novel Denture Adhesive Performance Test Model.**
M. KRISHNAMOORTHY*, S. TUGULU (Oral Health Innovation R&D, GlaxoSmithKline Consumer Healthcare, Middlesex, United Kingdom)

S0170 **Incidence of Partial Edentulism at the Egas Moniz Dental Clinic.**
A. FORJAZ*, J. REIS, F. MARTINS, P. MAURÍCIO, J. PEREIRA, M. BARRETO, F. MANUEL ANTUNES (Prosthodontics, Egas Moniz - Cooperative of Higher Education, Crl, Lisboa, Portugal)

Seq#: 29 **Thursday, September 19, 2019 from 12:00 hr - 13:00 hr Presenter at Poster**
(Free Poster Viewing from 8:30 - 17:30 hr)
Poster Session in Poster Hall Patio (Lobby Level)

SALIVARY RESEARCH - SALIVA AND ITS CONSTITUENTS IN OROFACIAL & SYSTEMIC DISEASES

S0171 **Salivary Interleukin Levels in Patients with Sjogren's Syndrome.**
J. GONZÁLEZ-SERRANO*, L.A. MORENO, J. SERRANO, L. VIRTO, L. RAMÍREZ MARTÍNEZ ACITORES, M. FERNÁNDEZ-CASTRO, M. SANZ, G. HERNANDEZ-VALLEJO, R.M. LÓPEZ-PINTOR (Department of Dental Clinical Specialties, School of Dentistry, Complutense University, Madrid, Spain)

0172 **Salivary Opiorphin is Dependent of Pain Intensity in Chronic TMD Patients.**
I. ALAJBEG*, E. VRBANOVIĆ, L. BRKLJACIC, I. ALAJBEG (Department of Prosthodontics, School of Dental Medicine, Zagreb, Croatia)

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A B S T R A C T B O O K

0001

Regression and Stabilization of Proximal Caries Using Separation and Sealing.

Birgitta Lindquist
Institution of Odontology, Gothenburg, Sweden

Objectives The aim of this split-mouth, randomized controlled clinical trial was to evaluate the efficacy of proximal sealing for arresting incipient caries lesions in adults in a one-visit session.

Methods A total number of 48 patients were selected, who had at least one pair of proximal initial carious lesions. At baseline the patient caries risk was analysed using the Cariogram analysis and both test and control surfaces were examined for *mutans streptococci* (ms) counts. A metal separator was inserted into the approximal space, which was slowly and gently screwed in intervals until the space between the proximal surfaces was at least 1 mm. This made it possible to diagnose the test surfaces, if a micro-cavity was present or not, before the sealing procedure. After the treatment the participants were asked to describe their pain perception during the separation procedure.

Results After 2 years, 212 surfaces in 45 subjects were examined by two external clinical observers independently, using standardized digital follow-up radiographs. The sealed test surfaces had regressed or were unchanged in 88% compared to baseline, while for the unsealed control surfaces the corresponding value was 60% ($p<0.0001$). Of these, regression was found in 67% in the test surfaces and 13% in the untreated surfaces ($p<0.0001$). There was a 5.6 higher chance for the sealed surfaces to show regression compared to the control surfaces. Neither the caries risk, the surface diagnoses, the ms counts nor the occurrence of a cavitated lesion seemed to influence the caries development. The separation treatment was well accepted by the patients.

Conclusions The method of separation for diagnose and sealing treatment in a single session seems to be a clinically applicable preventive method for proximal caries lesions.

0002

Predicting Caries Using Social and Familial Factors: A Nationwide Classification-and-Regression-Tree Analysis

Kaushik Sengupta[1, 2], Annette K. Ersbøll[3], Lisa Christensen[4], Laust H. Mortensen[2, 5], Ingelise Andersen[2]
[1]Department of Dentistry, University of Copenhagen, Copenhagen, Denmark, [2]Public Health, University of Copenhagen, Copenhagen, Denmark, [3]National Institute of Public Health, Copenhagen, Denmark, [4]Institute of Odontology, University of Copenhagen, Copenhagen, Denmark, [5]Methods and Analysis, Statistics Denmark, Copenhagen, Denmark

Objectives The family and social environment are likely of great importance to children's dental health. However, social and familial factors have never been evaluated as isolated caries predictors at the individual level. This nationwide study examined the discriminant ability of sibling caries and various other social and family-level factors in predicting caries risk.

Methods This study included all 15-year-olds in 2003 (index-siblings) and their biological siblings (co-siblings) born within ±3 years. For each individual, data on the outcome and risk predictors were compiled after linking the national dental, social, and population registers. The outcome was caries experience in co-siblings, measured by the DMFS index. The predictors included index-sibling caries, socioeconomic position (parental education, occupation, and income), gender, co-sibling birth order, ethnicity, and household type. The discriminant ability of the predictors was assessed using classification and regression tree (CART) analyses. Using CART, both fully-saturated and the simplest clinically-relevant decision trees that retained useful predictive power were generated. The predictive power of the models was evaluated using the Area under the Receiver Operating Characteristic curve (AUROC) statistic (AUROC: ≥0.8, excellent; 0.7–0.79, useful).

Results There were 23,847 sibling pairs (n=47,694) in the study. The prevalence of caries experience (DMFS>0) in the study population was 73.6%. The overall predictive power of the CART models ranged from useful to excellent (AUROC: fully-saturated trees, 0.8–0.82; clinically-relevant trees, 0.7). Index-sibling caries yielded the greatest influence in predicting co-sibling caries (~67% higher than parental education, the next best surrogate predictor). The simplest clinically-relevant tree contained only index-sibling caries and a socioeconomic position indicator as predictors. This model demonstrated perfect sensitivity (but poor specificity). Per this model, caries could be expected in ≥84% of co-siblings of adolescents with ≥3 caries-affected tooth surfaces (DMFS ≥2.94).

Conclusions Caries in a sibling might suggest preventive family-based approaches targeting co-siblings.

Conclusions Mandibular advancement surgery is a viable option to increase the upper airway dimension, at the immediate postoperative period, in patients with Class II skeletal morphology.

0157

Are Dentofacial Alterations in Childhood with Obstructive Sleep Apnea Different Among Age Groups?

Andreu Puigdollers[1], Eduard Esteller[2], Anna Auladell[1], Beatriz Ripoll[1], Francisca Verdugo[3], cristina pascual[1], queralt miró[4]
[1]orthodontics, universitat internacional de catalunya, Barcelona, Spain, [2]ENT, Hospital General de Catalunya, Barcelona, Spain, [3]Odontología, Universidad del Desarrollo, Santiago, Chile, [4]statistics, universitat internacional de catalunya, Barcelona, Spain

Objectives To compare dentofacial features in Obstructive Sleep Apnea (OSA) children with matched control children, and to compare the development of these variables prospectively 1 year after adeno-tonsillectomy in two different age groups.

Methods 121 children age 2 to 12 years were diagnosed with OSA syndrome. The treatment for the OSA group was adeno-tonsillectomy (AT). The control group comprised 90, age and gender matched, children without breathing problems. Both groups were divided into group 1, from 2 to 5 years, and group 2, from 5 to 12 years old. Lateral cephalograms and model casts were taken for both groups at baseline (T0) and then 1 year after(T1). To compare differences between the experimental and control group at T0 and between T0 and T1, "t"-test for quantitative variables was used($p < 0.05$).

Results For group 1,neitherat T0 nor at T1 statistical differences were found comparing OSA and control children regarding: mandibular plane, ANB angle, intermolar and intercanine width, in both arches.

On the other hand, for group 2 at T0 the OSA children showed narrower maxilla and mandible (upper intermolar width p-value:0.038; upper intercanine width p-value:0.034; lower intermolar width p 0.006) than control children. At T1, no significant differences were found between OSA and control children.

Conclusions From 2 to 5 years old (group 1) the obstructive apnea does not seem to affect dentofacial structures yet, neither at T0 nor after adeno-tonsillectomy. But for group 2 (5 to 12 years old) OSA has an unfavourable effect on the development of dentofacial components, children show narrow maxilla and mandible that seems to be normalized (although still narrow) after adeno-tonsillectomy.

0158

Negative Social Comparisons and Social Discomfort in Dentofacial Deformity

Inês Francisco[1], Maria Silva[2], Sofia Roseiro[1], Adriana Guimarães[1], Francisco Vale[1]
[1]Orthodontics, Faculty of Medicine, University of Coimbra, Coimbra, Portugal, [2]Faculty of Medicine, University of Coimbra, Coimbra, Portugal

Objectives To perform a randomised trial to explore the relationship between dentofacial deformity, social comparisons and anxiety and discomfort in social situations, as well as the differences between the two samples and different skeletal patterns.

Methods This study includes two independent samples, one of 90 university students and another of 46 patients with dentofacial dysmorfosis that require orthognathic surgery. All participants completed two scales: The Scale of Social Comparison through the appearance of the Face and The Scale of Anxiety and discomfort in Social Situations due to the appearance of the Face. Person correlations were performed to analyse the relationship between age, years of education, skeletal pattern and the differences in the items of the two scales. In order to evaluate differences in the study's variables, in different skeletal classes, univariate analyses of the variance (One Way ANOVA) were performed. Post-Hoc analyses were performed with the Least Significant Difference method for multiple comparisons to explore differences between pairs of different skeletal classes. Multiple linear regressions (stepwise method), were performed separately for the two samples, to examine whether the skeletal class and social comparison are predictors of anxiety and discomfort in social situations due to the appearance of the face.

Results Clinical sample showed higher levels of anxiety and discomfort than the general population sample ($p = .004$). Furthermore, individuals with dentofacial dysmorphosis presented a greater degree of anxiety and discomfort than individuals without dentofacial dysmorphosis ($p = 0.002$). Skeletal pattern and social comparison predicted anxiety and discomfort in the general population [$F(1,88) = 7.270$; $p<.05$], but only social comparison emerged as a significant predictor of anxiety and discomfort in the clinical population[$F(2, 42) = 4.463$; $p<.05$].

Conclusions Orthodontic-surgical-orthognathic treatment can promote improvements in social and interpersonal well-being.

0159

In Vitro Bond Strength Evaluation of Digital Custom Molar Bands

Domenico Dalessandri[1], francesca massetti[1], Rinaldo Zotti[1], Gaetano Isola[2], Laura Laffranchi[1], Stefano Bonetti[1], Luca Visconti[1]
[1]Dental School, University of Brescia, Brescia, Italy, [2]Department of General Surgery and Surgical-Medical Specialties, University of Catania, Catania, CT, Italy

Objectives The aim of this in vitro pilot study was to test the effect of three different bonding protocols on tensile strength of digitally manufactured orthodontic molar bands.

Methods Twenty extracted human third molars were mounted through a special designed support into an Instron machine and randomly assigned to three groups, according to three different bonding protocols. Gr1: cleaning with pumice and rotating brush; Gr2: as Gr1 plus 36% phosphoric acid etching for 30 seconds; Gr3: as Gr2 plus adhesive application. The same band cement, RelyX Unicem 2 Automix (3M Espe), the same cementation pressure (measured through an orthodontic dynamometer), and the same light-curing protocol were used for all groups.

Tensile loads were applied until tooth-band separation or breakage. One-way ANOVA and post-hoc Tukey test were applied in

order to identify possible differences in tensile strength.
Results Gr1 (346.90±32.75 N) exhibited significantly (P<0.05) lower tensile strength than Gr2 (614.77±52.67 N) and Gr3 (550±61.22 N); Gr2 and Gr3 exhibited similar tensile strength (P>0.05).
Gr1 and Gr3 showed adhesive fracture patterns, between enamel and resin and between resin and inner bands surface respectively, whilst Gr2 showed a mixed pattern of adhesive fracture between the resin and the inner bands surface or between enamel and resin, with some transitional areas of cohesive fracture through the resin cement.
No band breakages were recorded.
Conclusions The bond strength of customized bands to enamel is higher when the dental surface is etched. The application of an adhesive do not increase significantly the overall bond strength, but it change the fracture pattern leading to a complete retention of the resin cement onto the dental surfaces.

0160

Bond-strength of a Single-component Ceramic Conditioner for Direct Bracket Bonding.
CARLOS GONZÁLEZ SERRANO[1], Jin-Ho Phark[2], VICTORIA F. FUENTES[1], Alberto Albaladejo[3], Sillas Duarte Jr.[2], Laura Ceballos[1]
[1]Area of Stomatology, Rey Juan Carlos University, Alcorcón, Madrid, Spain, [2]Herman Ostrow School of Dentistry - Divison of Restorative Sciences, University of Southern California, Los Angeles, California, United States, [3]School of Medicine, University of Salamanca, Salamanca, Spain
Objectives To compare the shear-bond-strength (SBS) of brackets bonded to different ceramics treated with three conditioning methods, after 24h water storage and 10,000 cycles thermocycling.
Methods A crown with four identical buccal surfaces and its respective abutment were digitally designed. According to the type of ceramic evaluated, 7 groups were established: CEREC Blocs unglazed (CBU), CEREC Blocs glazed (CBG), IPS Empress CAD (EMP), IPS e.max CAD (EMA), VITA SUPRINITY PC (SUP), inCoris TZI (TZI) and VITA ENAMIC (ENA). 126 crowns were milled (18 per ceramic), sintered when required, and treated with three different conditioning protocols: (1) According to the manufacturer's instructions (MI); (2) Monobond Etch & Prime (MEP) and (3) 9.6% hydrofluoric acid + silane (9.6%HA). Then, 504 metallic brackets were bonded (4 per crown) and half of the specimens were stored in distilled water for 24h (24h) and the rest submitted to 10,000 cycles thermocycling (TC). SBS was performed in a universal testing machine and the type of failure was assessed using ARI index. Results were analyzed using Kruskall-Wallis and Mann-Whitney U tests (p<0.05).
Results The conditioning protocol applied significantly influenced immediate SBS for CBG, EMP and EMA; when TC was applied, differences in CBG, EMP, EMA, TZI and ENA were found (p<0.05). MEP conditioning of CBG and EMA showed lower SBS scores compared to MI and 9.6%HA (24h and TC). EMP conditioning with MEP after 24h obtained lower SBS values compared to MI; however, with TC, SBS was similar and higher than with 9.6%HA. After TC for TZI ceramic, MI conditioning (sandblasting) obtained higher SBS values than MEP and 9.6%HA. Treatment of ENA with MI and MEP produced similar and higher than with 9.6%HA after TC.
Conclusions SBS obtained with the three conditioning methods tested depends on the ceramic used. All conditioners showed enough and acceptable adhesive results for orthodontic bonding purposes.

0161

Effectiveness of 3D virtual brackets and Nickel Titanium Archwires in an Orthodontic Removable Appliance
Conchita Martin[1], Jose Tomás Romero Cruz[2], Jhonny Leon Valencia[1]
[1]Complutense University , Madrid , Spain, [2]Private Practive, Madrid, Spain
Objectives The objective of this study is to evaluate the effectiveness of movements on the transversal plane, evaluate changes of intercanine distance and interpremolar distance in adult subjects with posterior dental compression using a hybrid aligner appliance that incorporates archwires of nickel titanium.
Methods It has been selected a sample of 15 subjects where the initial intercanine distance and interpremolar distance of upper and lower arches. Then they were evaluated after 4 + 1 months of therapy with the hybrid aligner. A 3D superimposition method has been made using Orthoanalyzer Software for the evaluation of movements.
Results In posterior sectors, the hybrid aligner shows efficacy and the effectiveness of transversal movements was 86% average according the planification.
Conclusions The hybrid aligner shows the capacity to achieve expansion with efficacy. But it also shows more effectiveness according the time of treatment and number of appliances if it is compared with conventional aligners during the first phases of treatment.