SP01 WNT10A MUTATION RESULTS IN SEVERE TOOTH AGENESIS IN A FAMILY OF THREE SISTERS **Mushriq Abid**, Paul Sharpe, Martyn Cobourne, King's College London, U.K.

SP02 EVALUATION OF ORTHODONTIC MINI-IMPLANT STABILITY USING RESONANCE FREQUENCY ANALYSIS: A HUMAN CLINICAL TRIAL

Ahmed Abo Habib, Amr Labib, Department of Orthodontics, Cairo University, Egypt

SP03 PREVALENCE OF DENTAL ANOMALIES IN PATIENTS WITH IMPACTED MAXILLARY AND MANDIBULAR CANINES

Joanna Abramczyk¹, Paweł Plakwicz², Nikolaos Pandis³, Małgorzata Zadurska¹, **Ewa Monika Czochrowska¹**, Departments of ¹Orthodotics and ²Periodontology, Medical University of Warsaw, Poland and ³Department of Orthodontics and Dentofacial Orthopedics, School of Dental Medicine, ²University of Bern, Switzerland

SP04 PATIENT REPORTED EXPERIENCE WITH ORTHODONTIC-ORTHOGNATHIC TREATMENT IN NORTH YORKSHIRE

Kulraj Achal, Jay Kindelan, Department of Orthodontics, York Hospital, U.K.

SP05 REGIONAL PROSPECTIVE AUDIT OF ORTHODONTIC MOLAR BOND AND MOLAR BAND FAILURE RATES IN NORTH YORKSHIRE, UK

Kulraj Achal¹, Samuel Anthony², Zararna Nelson-Moon¹, Departments of ¹Orthodontics and ²Oral and Maxillofacial Surgery, York Teaching Hospitals NHS Trust, U.K.

SP06 PREDICTION OF MAXILLARY INCISORS ROOT RESORPTION ASSOCIATED WITH PALATALLY DISPLACED MAXILLARY CANINES USING DISCRIMINANT FUNCTION ANALYSIS
Asma Al Emam, **Elham Abu Alhaija**, Jordan University of Science and Technology, Irbid, Jordan

SP07 USE OF PERSONAL PROTECTIVE EQUIPMENT IN AN ORTHODONTIC DEPARTMENT: AN AUDIT **Sama Al Junaid**, Ahmed Alsarraf, Rachael O'Brien, Samantha Hodges, Department of Orthodontics, Eastman Dental Hospital, London, U.K.

SP08 MICROGNATHIA IN CILIOPATHIC MODELS

IMPLANTS

Hadeel Adel Al-Lami, William Barrell, Basil Yannakoudakis, Martyn Cobourne, Karen Liu, Department of Craniofacial Development and Stem Cell Biology, King's College London, U.K.

SP09 CORRELATION BETWEEN OCCLUSION AND BODY POSTURE IN YOUNG MEN

Frederic Adjami¹, Daniela Ohlendorf², Benjamin Scharnweber³, Gabriele Schuster¹, Stefan Kopp¹, Poliklinik für Kieferorthopädie and ³Poliklinik für Prothetik,, Zentrum der Zahn-, Mund- und Kieferheilkunde (Carolinum) der Johann Wolfgang Goethe-Universität, Frankfurt am Main and ²Instituts für Arbeitsmedizin, Sozialmedizin und Umweltmedizin, Frankfurt am Main, Germany

SP10 EFFECTS OF THE FLASH-FREE BONDING TECHNIQUE ON PLAQUE RETENTION AND DEVELOPMENT OF WHITE SPOT LESIONS: A RANDOMIZED CLINICAL TRIAL

Payam Afousi, Thyagaseely Premaraj, **Sundaralingam Premaraj**, Department of Orthodontics, University of Nebraska Medical Center, Lincoln, USA

SP11 EVALUATION OF CRANIOFACIAL SYMMETRY AND GROWTH/TREATMENT CHANGES IN HEMIFACIAL MICROSOMIA PATIENTS BY CONE BEAM COMPUTED TOMOGRAPHY Akila Aiyar, Michel Dalstra, Tine Hjorth, Section of Orthodontics, Aarhus University, Denmark

SP12 EVALUATION OF MATERIAL RELATED-STRESS DISTRIBUTION OF ORTHODONTIC MINI-

Sevil Akkaya, Amir Mamusha, Department of Orthodontics, Gazi University, Ankara, Turkey

SP13 LINEAR AND TORQUE CHANGES OF TRANSVERSE DIMENSION IN A SAMPLE OF PATIENTS TREATED WITH PASSIVE SELF-LIGATING FIXED APPLIANCE

Paolo Albertini¹, Luis Tomas Huanca Ghislanzoni², Costanza Tagliatesta¹, Maurizio Manuelli¹, Alessandra Lucchese¹, Departments of Orthodontics, ¹Vita-Salute San Raffaele University, Milan, Italy and ²University of Geneva, Switzerland

SP14 A NOVEL ORTHODONTIC BRACKET BONDING ADHESIVE FOR PREVENTION OF ENAMEL DEMINERALISATION DURING ORTHODONTIC TREATMENT

Natheer Aleesa, Ferranti Wong, Robert Hill, Ama Johal, Queen Mary University/Dental Institute, London, U.K.

SP15 EFFECT OF ORTHODONTIC FORCE ON SALIVARY LEVELS OF LACTATE DEHYDROGENASE ENZYME

Akram Alhuwaizi¹, Suha Abdul Ameer², Departments of Orthodontics, ¹Baghdad Dental College, and ²Al-Rafidain Dental College, Baghdad, Iraq

SP16 ASSESSMENT OF THE DISCOLOURATION OF CLEAR ELASTOMERIC LIGATURES: AN *IN VITRO* COMPARATIVE STUDY

Akram Alhuwaizi¹, Shams Mohammed², Departments of Orthodontics, ¹Baghdad Dental College and ²Basrah Dental College, Iraq

SP17 BIOMIMETIC GRADED INTERPENETRATING NETWORK CERAMIC-RESIN COMPOSITE ORTHODONTIC BRACKET MATERIALS

Sara Al-Jawoosh, Bo Su, Anthony Ireland, Department of Oral and Dental Science, University of Bristol, U.K.

SP18 CORTICOTOMY-INDUCED TOOTH MOVEMENT, HOW FAST ARE WE MOVING? A REVIEW ARTICLE

Aslam Alkadhimi¹, Li-Ann Eow², Therese Garvey³, ¹Department of Orthodontics and Oral and Maxillofacial Surgery, Queen's Medical Centre, Nottingham, U.K., ²Ascension Dental Clinic, Singapore and ³Department of Public and Child Dental Health, Dublin Dental University Hospital, Ireland

SP19 WHAT IS THE IDEAL MATERIAL AND SEQUENCE OF INITIAL ALIGNING ARCHWIRES FOR ORTHODONTIC ALIGNMENT?

Aslam Alkadhimi¹, Mustafa Almohsen², Ebrahim Al-Awadhi³, ¹Department of Orthodontics and Oral and Maxillofacial Surgery, Queen's Medical Centre, Nottingham University Hospital, U.K., ²General Dental Practice, Primacare Dental Practice, Dublin, Ireland and ³Department of Public and Child Dental Health, Dublin Dental University Hospital, Ireland

SP20 LINGUAL FRAENULUM TEST IN INFANTS AT A MATERNITY HOSPITAL

Kleber Almeida¹, Hatsuo Kubo², Tais Leal², **Kurt Faltin Junior²**, Cristina Lucia Feijó Ortolani², ¹Unicastelo University, Sao Paulo and ²University Paulista, Sao Paulo, Brazil

SP21 LONG-TERM STABILITY OF TRANSVERSE CHANGES AND TOOTH ALIGNMENT IN THE LOWER DENTAL ARCH TREATED WITH SELF-LIGATING BRACKETS

Rita Bariani¹, Carlos Henrique Guimarães Júnior², Wilana Moura³, **Kurt Faltin Junior¹**, Cristina Lucia Feijó Ortolani¹, ¹University Paulista, Sao Paulo, ²Centro Universitário Euro-Americano, Brasilia and ³Sao Leopoldo Mandic, Campinas, Brazil

SP22 COMPARISON OF THE EFFICACY OF TOOTH ALIGNMENT AMONG LINGUAL AND LABIAL BRACKETS: AN *IN VITRO* STUDY

Ahmad Alobeid¹, Tarek El-Bialy², Cornelius Dirk¹, Andreas Jäger³, Christoph Bourauel¹, ¹Oral Medical Technology and Experimental Orthodontics Lab. and ³Department of Orthodontics University of Bonn, Germany and ²Department of Orthodontics, University of Alberta, Edmonton, Canada

SP23 EFFECT OF RAPID MAXILLARY EXPANSION AND PROTRACTION ON THE PHARYNGEAL AIRWAY IN INDIVIDUALS WITH NON-SYNDROMIC CLEFT LIP AND PALATE

Najla Alrejaye¹, Jonathan Gao², **Snehlata Oberoi**¹, ¹Orofacial Sciences/Orthodontics and ²General Dentistry, University of California, San Francisco, USA

SP24 A NOVEL APPROACH FOR THE ASSESSMENT OF FACIAL ASYMMETRY BEFORE AND AFTER PRIMARY LIP SURGERY OF UNILATERAL CLEFT LIP AND PALATE

Dhelal Al-Rudainy¹, Xiangyang Ju², Steve Stanton³, Felicity Mehendale³, Ashraf Ayoub⁴, ¹Department of Orthodontics, Glasgow Dental School, ²Medical Devices Unit, Department of Clinical Physics and Bioengineering, National Health Service of Greater Glasgow and Clyde, Glasgow, ³Royal Hospital for Sick Children, Edinburgh, ⁴Department of Oral and Maxillofacial Surgery, Glasgow Dental School, School of Medicine, College of Medical, Veterinary and Life Sciences, University of Glasgow, U.K.

SP25 THE EFFECT OF A UNILATERAL POSTERIOR CROSSBITE ON MAXILLOFACIAL AND DENTAL STRUCTURES: A CONE BEAM COMPUTED TOMOGRAPHIC EVALUATION

Hatem Alshaer¹, **Susan Al-Khateeb²**, ¹Private Centre, Jeddah, Saudi Arabia and ²Jordan University of Science and Technology, Irbid, Jordan

SP26 EVALUATION OF DISTRIBUTION OF MANDIBULAR ASYMMETRY

Bartu Altuğ¹, Orhan Özdiler¹, Erhan Özdiler¹, Zaur Novruzov², Emel Özgümüş Demir⁴, ¹Department of Orthodontics, Ankara University Faculty of Dentistry, Turkey, ²Azerbaijan Medical University, Baku, Azerbaijan and ³Ankara University Faculty of Agriculture, Biometry and Genetics, Turkey

SP27 RELATIONSHIP BETWEEN CONDYLAR VOLUME AND FACIAL MORPHOLOGY

Jung-Sub An¹, Min-Seok Chang¹, Jeong-Ho Choi², Min-Suk Heo³, Sug-Joon Ahn¹, Departments of ¹Orthodontics and ²Oral and Maxillofacial Radiology, Seoul National University, and ²Smile Future Orthodontic Clinic, Seoul, Korea, South

SP28 SLEEP, OCCLUSION, DENTAL ARCH AND PALATAL MORPHOLOGY IN CHILDREN WITH ATTENTION-DEFICIT/HYPERACTIVITY DISORDER COMPARED TO CONTROLS

Helle Andersson, Liselotte Sonnesen, Section for Orthodontics, Department of Odontology, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark

SP29 DENTAL ARCH FORM MODIFICATION AS A METHOD FOR PROVIDING SPACE FOR TOOTH MOVEMENT

Laura Andreeva, Medical University Sofia, Faculty of Dental Medicine, Bulgaria

SP30 COMPARATIVE ANALYSIS OF THE MECHANICAL PROPERTIES OF FIBRE AND STAINLESS STEEL MULTISTRAND WIRES USED FOR LINGUAL FIXED RETENTION

Olga Annousaki¹, Theodore Eliades¹, Spiros Zinelis², George Eliades², ¹Clinic of Orthodontics and Paediatric Medicine, University of Zurich, Center of Dental Medicine, Switzerland and ²Department of Dental Biomaterials, School of Dentistry, University of Athens, Greece

SP31 A PROSPECTIVE AUDIT EVALUATING PATIENT SATISFACTION THROUGH THE ORTHODONTIC AND ORTHOGNATHIC PATHWAY

lan Arad, Thushala Ubaya, Payal Sharma Birch, Orthodontic Department, Queens Hospital, Romford, U.K.

SP32 IN VITRO IMPACT OF INSERTION ANGLE ON PRIMARY STABILITY OF MINISCREWS

Mahdi Araghbidikashani¹, **Amin Golshah²**, Nafiseh Nikkerdar³, Majid Rezaei³, ¹Department of Orthodontics, Shahed University, Tehran and Departments of ²Orthodontics and ³Oral and Maxillofacial Radiology, Kermanshah University of Medical Sciences, Iran

SP33 ASSESSMENT OF THE NEED AND DEMAND FOR ORTHODONTIC TREATMENT IN 13- TO 14-YEAR-OLD STUDENTS IN KERMANSHAH, IRAN IN 2012

Farshad Rahimi^{1,2}, **Amin Golshah^{1,2}**, Elham Dadfar², ¹Department of Orthodontics, ²Kermanshah University of Medical Sciences, Iran

SP34 PERIODONTAL PROBLEMS WITH ORTHODONTIC FIXED RETAINERS IN THE LOWER ARCH

Ana Ardizone García, Lucía Divasson del Fraile, Ana Belén Macías Gago, Alejandra Herreros del Pozo, Laura Aneiros Fernández, Department of Dentistry, Nebrija University - San Rafael Hospital, Madrid, Spain

SP35 THE ASSOCIATION BETWEEN PALATAL RUGAE MORPHOLOGY AND TOOTH NUMBER Jessica Armstrong¹, Manoharan Andiappan², Martyn Cobourne¹, ¹Guy's Hospital, London and ²King's College, London, U.K.

SP36 THE EFFECTS OF FIXED ORTHODONTIC RETAINERS ON PERIODONTAL HEALTH. A SYSTEMATIC REVIEW

Marie-Laure Arn¹, Konstantinos Dritsas², Dimitrios Kloukos¹, Departments of Orthodontics and Dentofacial Orthopedics, ¹University of Bern, Switzerland and ²251 Hellenic Air Force General Hospital, Athens, Greece

SP37 THE EFFECTIVENESS OF PIEZOCORTICOTOMY AND MINISCREW ANCHORAGE IN CASES OF THIRD AND SECOND MOLAR MESIALIZATION WHEN THE FIRST MOLAR IS MISSING

Olga Arsenina¹, Natalia Popova¹, Valerya Kozachenko¹, Anna Popova¹, Mikhail Fomin², ¹Orthodontic Department and ²Department of Surgery, Central Research Institute of Dentistry and Maxillofacial Surgery, Moscow, Russia

SP38 AGREEMENT BETWEEN CHILDREN AND PARENTS/CAREGIVERS IN RATING ORAL HEALTH RELATED QUALITY OF LIFE USING CHILD PERCEPTIONS QUESTIONNAIRE ISF:16

Caroline Arvidsson¹, Lars Bondemark², Kristina Arnrup¹, Lillemor Dimberg¹, ¹Postgraduate Dental Education Center, Örebro and ²Faculty of Odontology, Malmö, Sweden

SP39 FORCE MAGNITUDES BETWEEN TWO LEVELS OF HOOK HEIGHT FOR MAXILLARY POSTERIOR SEGMENT DISTALIZATION WITH MINISCREW ANCHORAGE

Thannapat Aungkatawiwat, Virush Patanaporn, Orthodontic Department, Chiang Mai University, Thailand

SP40 ADAPTATION OF THE CHILD PERCEPTIONS QUESTIONNAIRE 11-14 FOR THE TURKISH LANGUAGE: VALIDATION IN AN ORTHODONTIC PATIENT SAMPLE

Cihan Aydoğan, Department of Orthodontics, University of Yuzuncu Yil, Van, Turkey

SP41 LOWER FACIAL CHARACTERISTICS CONTRIBUTING TO PERCEPTION OF FACIAL ASYMMETRY IN DENTISTS AND LAYPERSONS

Jaehee Bae, Kyeong-Tea Song, Kyung-Hwa Kang, College of Dentistry, Wonkwang University, Iksan, Korea, South

SP42 THE IMPACT OF RECONDITIONED ORTHODONTIC BRACKETS ON BOND STRENGTH *IN VIVO* Faisal Ismail Bahnasi¹, **Aida Nur Ashikin Abd Rahman¹**, Mohamed Ibrahim Abu Hassan², ¹Centre for Paediatric Dentistry & Orthodontic Studies and ²Centre for Restorative Dentistry Studies, Universiti Teknologi Mara, Sungai Buloh, Malaysia

SP43 EFFECTIVENESS OF TEMPORARY ANCHORAGE DEVICES DURING ANTERIOR MAXILLARY TOOTH RETRACTION: A RANDOMIZED CLINICAL TRIAL

Stéphane Barthelemi¹, Fatoumata Soumaré¹, Alban Dessouter¹, Jean Bapstiste Dagorne², Alain Decker², ¹Biosanté Nanosciences Laboratory EA 4203, Dental University, Montpellier and ²Department of Orthodontics, Dental University Paris Descartes, Montrouge, France

SP44 THE EFFECT OF SOFT TISSUE THICKNESS ON THE SOFT TISSUE RESPONSE TO MANDIBULAR SETBACK SURGERY

Hasibe Baser Keklikci, Zeynep Hacioglu, Nisa Gul Amuk, Department of Orthodontics, Erciyes University, Faculty of Dentistry, Kayseri, Turkey

SP45 A PATIENT'S EXPERIENCE OF A FIXED FUNCTIONAL APPLIANCE AND CLINICAL MANAGEMENT

Luca Bassani, Giulia Ghilardi, Alessandra Lucchese, IRCCS San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy

SP46 PATIENTS' ACCEPTANCE OF VIBRATIONAL FORCE VERSUS SURGICALLY-ASSISTED ORTHODONTIC TOOTH MOVEMENT

Luca Bassani, Giulia Ghilardi, Alessandra Lucchese, IRCCS San Raffaele Vita Salute University, Milan, Italy

SP47 THE EFFECT OF ENAMEL SANDBLASTING ON ENHANCING BOND STRENGTH OF ORTHODONTIC BRACKETS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Stefan Baumgartner¹, Despina Koletsi², Theodore Eliades¹, ¹Clinic of Orthodontics and Paediatric Dentistry, School of Dental Medicine, University of Zurich, Zurich, Switzerland and ²London School of Hygiene and Tropical Medicine, University of London, London, U.K.

SP48 COMPARISON OF NASAL AIRFLOW BETWEEN TOOTH- AND TOOTH-BONE-BORNE MAXILLARY EXPANSION APPLIANCES

Farhan Bazargani¹, Anders Magnuson², Björn Ludwig³, ¹Department of Orthodontics, Postgraduate Dental Education Center, Örebro, Sweden, ²Clinical Epidemiology and Biostatistics, School of Medical Sciences, Örebro University, Sweden and ³Private Orthodontic office, Traben-Trarbach, Germany

SP49 EXTRACTED TOOTH ROOTS USED FOR LATERAL RIDGE AUGMENTATION — A NEW BIOLOGICAL CONCEPT

Kathrin Becker¹, Manuel Nienkemper², Dieter Drescher¹, Frank Schwarz³, Departments of ¹Orthodontics and ³Oral Surgery, University Hospital Dusseldorf, and ²Private Practice, Düsseldorf, Germany

SP50 ACCURACY AND ELIGIBILITY OF CONE BEAM COMPUTED TOMOGRAPHY TO DIGITIZE DENTAL PLASTER CASTS

Kathrin Becker¹, Ulf Schmücker², Benedict Wilmes¹, Dieter Drescher³, Departments of ¹Orthodontics and ³Oral Surgery, University Hospital Dusseldorf and ²Steinbeis Hochschule, Berlin, Germany

SP51 FOUR DIMENSIONAL CONTROL OF ROOT MOVEMENT IN LINGUAL ORTHODONTICS BY PRE-TREATMENT CONE BEAM COMPUTED TOMOGRAPHY AND PROGRESSIVE INTRAORAL SCANS **Matteo Beretta**¹, Rosamaria Fastuca², Piero Antonio Zecca², ¹Private practice, Varese and ²Department of Surgical and Morphological Sciences, University of Insubria, Varese, Italy

SP52 USING ARTIFICIAL INTELLIGENCE TO EVALUATE THE IMPACT OF ORTHOGNATHIC THERAPY ON APPARENT AGE AND FACIAL ATTRACTIVENESS

Domino Bernini-Hodel¹, Eirikur Agustsson², Radu Timofte², Stefan Affolter¹, **Raphael Patcas¹**, ¹Clinic of Orthodontics and Pediatric Dentistry, Center of Dental Medicine, University of Zurich and ²Computer Vision Laboratory, D-ITET, ETH Zurich (Swiss Federal Institute of Technology), Switzerland

SP53 DOES SYSTEMIC MEDICATION IN JUVENILE IDIOPATHIC ARTHRITIS PATIENTS AFFECT CONDYLAR GROWTH DIFFERENTLY THAN ARTICULAR CORTICOSTEROID INJECTION?

Andrea Bollhalder¹, Christian Kellenberger², Martina Eichenberger¹, Nina Lochbühler², **Raphael Patcas¹**, ¹Clinic of Orthodontics and Pediatric Dentistry, Center of Dental Medicine, University of Zurich and ²Department of Diagnostic Imaging, University Children's Hospital, Zurich, Switzerland

SP54 THE ROLE OF SONIC HEDGEHOG IN EARLY DEVELOPMENT OF LINGUAL EPITHELIA **Anahid Birjandi**, Karen Liu, Martyn Cobourne, Department of Orthodontics and Craniofacial Development, Guy's Hospital, King's College London, London, U.K.

SP55 STRONTIUM ENHANCES PERIODONTAL LIGAMENT CELL GROWTH AND OSTEOGENIC BEHAVIOUR IN VITRO

Carolina Bizelli-Silveira, **Helen Pullisaar**, Morten Foss, Rubens Spin-Neto, David Christian Evar Kraft, Aarhus University, Aarhus, Denmark

SP56 OUTCOME QUALITY OF HERBST-MULTIBRACKET TREATMENT – A COMPARISON OF 708 CONSECUTIVE CLASS II DIVISION 1 AND CLASS II DIVISION 2 PATIENTS

Niko Bock, Sophia Baier, Julia Rühl, Sabine Ruf, Department of Orthodontics, University of Giessen, Germany

SP57 HERBST-MULTIBRACKET TREATMENT – HOW STABLE ARE THE RESULTS 15-25 YEARS LATER? **Niko Bock¹**, Mitra Saffar², Marjut Evälahti³, David P C Rice³, Sabine Ruf¹, ¹Department of Orthodontics, University of Giessen, Germany, ²Private Practice, Dieburg, Germany and ³University of Helsinki, Finland

SP58 A NOVEL STANDARDIZED THREE-DIMENSIONAL ANALYSIS TO ASSESS CLEFT SIZE BASED ON DIGITAL MODELS OF UNILATERAL CLEFT LIP AND PALATE PATIENTS

Susanna Botticelli^{1,2}, Thomas Klit Pedersen^{1,3}, Annelise Küseler^{1,2,3}, Sven Erik Nørholt^{1,3}, Paolo Maria Cattaneo¹, ¹Section of Orthodontics-Department of Dentistry and Oral Health,University of Aarhus, ²Cleft Lip and Palate Center-IKH-Aarhus and ³Department of Oral and Maxillofacial Surgery, Aarhus University Hospital, Denmark

SP59 MANDIBULAR INTERMOLAR WIDTH CHANGES DURING TREATMENT WITH AND WITHOUT EXTRACTIONS

Ole Bendik Bøen, Raman Bero, Keijo Aukusti Luukko, **Maria Mavragani**, University of Bergen, Norway

SP60 MAGNETIC CEPHALOMETRIC DIAGNOSTICS

Thorsten Brandt¹, Irina Brandt¹, Pascha Javadi², Stefan Kopp², Departments of Orthodontics, ¹OrthoClinic Meilen/University Frankfurt, Meilen, Switzerland and ²University Frankfurt, Frankfurt/M., Germany

SP61 DIFFERENCE OF NON-INVASIVE NOXRAYCEPH IN VIVO AND IN VITRO

Thorsten Brandt¹, Stefan Kopp², Departments of Orthodontics, ¹OrthoClinic Meilen/University Frankfurt, Meilen, Switzerland and ²University Frankfurt, Frankfurt/M., Germany

SP62 IS INTERCEPTIVE ORTHODONTIC TREATMENT EFFECTIVE AND DOES IT REDUCE THE NEED FOR FURTHER COMPREHENSIVE ORTHODONTIC TREATMENT?

Idil Burt, Ilona De Basso, Cecilia Issa, Department of Orthodontics, Karolinska Institute, Stockholm, Sweden

SP63 FRONTAL SINUS MORPHOLOGY IN ANTERO-POSTERIOR CEPHALOMETRIC RADIOGRAPHS OF TURKISH ORTHODONTIC SUBJECTS: A FORENSIC GLANCE

S. Kutalmis Buyuk¹, **Ahmet Karaman**¹, Yasin Yasa², Departments of ¹Orthodontics and ²Oral and Maxillofacial Radiology, Ordu University Faculty of Dentistry, Turkey

SP64 EVALUATION OF THE EFFECTS OF RAPID MAXILLARY EXPANSION ON PAIN AND CYTOKINE LEVELS

Sila Caglayan Topal¹, Burcu Balos Tuncer², Serenay Elgün³, Berrin İmge Ergüder³, Nurdan Kurtuluş⁴, ¹Department of Orthodontics, Bayindir Hospital, Ankara, Departments of ²Orthodontics and ⁴Periodontology Gazi University Faculty of Dentistry, Ankara and ³Medical Biochemistry, Ankara University Faculty of Medicine, Turkey

SP65 EFFICACY AND STABILITY OF A FUNCTIONAL CLASS II APPLIANCE IN GROWING PATIENTS

Chiara Calzolari¹, Marco Migliorati¹, Sara Drago¹, Fabio Gallo², Armando Silvestrini Biavati¹, Departments of ¹Orthodontics and ²Biostatistics, Genoa University, Italy

SP66 ATTRACTIVE PERCEPTION OF CLASS II PATIENTS TREATED WITH EXTRACTIONS VERSUS INTERMAXILLARY OR OTHER MANDIBULAR ADVANCEMENT DEVICES

Paul Capdeville-Cazenave, Javier De La Cruz Pérez, Iván Nieto Sánchez, Inés Díaz Renovales, Carmen Mediero Perez, Department of Dentistry, University Alfonso X El Sabio, Madrid, Spain

SP67 SHORT-TERM EVALUATION OF SURGICALLY ASSISTED RAPID MAXILLARY EXPANSION WITH A BONE-BORNE APPLIANCE; MAXILLARY BENDING OR BODILY EXPANSION? – A PILOT STUDY

Pedro Carreiro¹, Michel Dalstra¹, Sven Erik Nørholt², Thomas Jensen³, Thomas Klit Pedersen², ¹Department of Orthodontics, Aarhus University, ²Department of Oral and Maxillofacial Surgery, Aarhus University and Aarhus University Hospital, ³Department of Oral and Maxillofacial Surgery, Aalborg Hospital, Denmark

SP68 EFFECTS OF DIFFERENT CONDITIONING TECHNIQUES PRIOR TO APPLICATION OF A SELF-ETCHING BOND SYSTEM ON AESTHETIC BRACKET BOND STRENGTH

Lara Cendán Serrano, Ascensión Vicente Hernández Vicente, Luis Alberto Bravo González Bravo, Universidad de Murcia, Spain

SP69 THE RELATIONSHIP BETWEEN THE IDIOPATHIC SCOLIOSIS AND DENTO–FACIAL ASYMMETRY **Eduard Radu Cernei**¹, Geogeta Zegan¹, Cristina Gena Dascalu², Departments of ¹Orthodontics and ²Medical Informatics and Biostatistics, UMF Iasi, Romania

SP70 TECHNIQUES OF IMAGE PROCESSING ON DIGITAL X-RAYS FOR THE ANATOMIC STRUCTURES AUTOMATED DETECTION

Eduard Radu Cernei¹, Cristina Gena Dascalu², Georgeta Zegan¹, Departments of ¹Orthodontics and ²Medical Informatics and Biostatistics, "Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania

SP71 THE ALVEOLAR ENVELOPE IN GROWING UNILATERAL COMPLETE CLEFT LIP AND PALATE PATIENTS

Marasri Chaiworawitkul, Siraseth Mongkolupatham, Titika Hunpinyo, Woraprach Cherdjoho, Chanachol Trirattanapradit, Department of Orthodontics and Pediatric Dentistry, Chiang Mai University, Thailand

SP72 DIGITAL DYNAMIC THREE-DIMENSIONAL MONITORING OF LOWER INCISOR INTRUSION IN LINGUAL ORTHODONTICS: A PILOT STUDY

Elia Kodjo Chardey, Rosamaria Fastuca, Matteo Beretta, Piero Antonio Zecca, Aldo Macchi, Department of Surgical and Morphological Sciences, University of Insubria, Varese, Italy

SP73 COMPARISON OF FRICTIONAL RESISTANCE BETWEEN LOW-FRICTION AND CONVENTIONAL ORTHODONTIC LIGATION METHODS

Jirawan Chartpitak¹, Janya Apisariyakul¹, Wikanda Khemaleelakul¹, Natawit Promma², Departments of ¹Orthodontics and Pediatric Dentistry and ²Mechanical Engineering, Chiangmai University, Thailand

SP74 THREE-DIMENSIONAL SHAPE VARIATION OF THE MAXILLA AND MANDIBLE USING GEOMETRIC MORPHOMETRICS

Athina Chatzigianni¹, Chrystalla Kyprianou², Anastasia Pouliaki², ¹Department of Orthodontics, School of Dentistry, Aristotle University of Thessaloniki and ²Private Practice, Thessaloniki, Greece

SP75 COMPARISON OF OCCLUSION IN PATIENTS WITH COMPLETE UNILATERAL CLEFT LIP AND PALATE BETWEEN ONE-STAGE AND TWO-STAGE SURGICAL REPAIRS USING A THREE-DIMENSIONAL SCANNER

Woraprach Cherdjoho, Marasri Chaiworawitkul, Department of Orthodontics, Chiang Mai University, Thailand

SP76 ACCURACY OF THREE-DIMENSIONAL FACIAL SIMULATION FOLLOWING ORTHOGNATHIC SURGERY IN SKELETAL III CHINESE PATIENTS

Ming Tak Chew¹, Suat Li Sally Tan¹, Hui Yin Ada Low¹, Lujie Chen², ¹National Dental Centre Singapore and ²Singapore University of Technology and Design, Singapore

SP77 AGE ESTIMATION USING THE MAXILLARY CANINE PULP/TOOTH RATIO BY CAMERIER'S METHOD: A CONE BEAM COMPUTED TOMOGRAPHIC BUCCOLINGUAL AND HORIZONTAL SECTION IMAGE ANALYSIS

Younkyung Choi, Yongil Kim, Department of Orthodontics, Pusan National University Hospital, Korea, South

SP78 INNOVATIVE EDUCATION METHODS IN ORTHODONTICS

Maciej Cićkiewicz¹, Liwia Minch², Bartosz Matejkowski³, Michał Wąsowicz ⁴, Beata Kawala², ¹Dental Movies, Warsaw, ²Department of Orthodontics, Wroclaw Medical University, ³Prywatna Praktyka Lekarsko-Dentystyczna Bartosz Matejkowski, Warsaw and ⁴Department of Morphological Sciences, Faculty of Veterinary Medicine, Warsaw University of Life Sciences, Poland

SP79 A COST MINIMIZATION ANALYSIS OF LARGE OVERJET REDUCTION WITH TWO REMOVABLE FUNCTIONAL APPLIANCES BASED ON A RANDOMIZED CONTROLLED TRAIL

Emina Čirgić¹, Heidrun Kjellberg¹, Max Petzold², Ken Hansen¹, ¹Department of Orthodontics and ²Health Metrics Unit, University of Gothenburg, Sweden

SP80 THE INCIDENCE, AETIOLOGY AND TREATMENT OF IMPACTED AND TRANSMIGRATED MANDIBULAR CANINES: A SYSTEMATIC REVIEW

Domenico Dalessandri¹, Simone Parrini², Rachele Rubiano², Diletta Gallone², Marco Migliorati³, ¹Department of Orthodontics, University of Brescia, ²Department of Orthodontics and Gnatology - Masticatory Function, University of Torino and ³Department of Orthodontics, University of Genova, Italy

SP81 ANALYSIS OF PERIODONTAL LIGAMENT CHANGES BY ORTHODONTIC FORCE USING MICRO-RAMAN SPECTROSCOPY

Fabrizia d'Apuzzo¹, Maria Lepore², Carlo Camerlingo³, Marianna Portaccio², Letizia Perillo¹,
¹Multidisciplinary Department of Medical-Surgical and Dental Specialties, Orthodontic Division and
²Department of Experimental Medicine, Second University of Naples and ³Superconductors, oxides and other innovative materials and devices (SPIN), CNR institute, Pozzuoli, Italy

SP82 THREE-DIMENSIONAL CEPHALOMETRIC NORMS OF ANKARA REGION ADULTS WITH BALANCED FACIAL PROFILES AND NORMAL OCCLUSION

Ozum Dasdemir Ozkan¹, Murat Caglaroglu², **Aysenur Unaydin¹**, Turkan Sezen Erhamza¹, ¹Department of Orthodontics, Kirikkale University, Faculty of Dentistry and ²Free Ortodontist, Ankara, Turkey

SP83 EFFICIENCY AND INFLUENCING FACTORS OF HEAD ORTHESIS THERAPY IN INFANTS WITH POSITIONAL PLAGIOCEPHALY

Caterina Degener¹, Christian Kirschneck², Matthias Kelker³, Gholamreza Danesh¹, Departments of Orthodontics, ¹University of Witten and ²University of Regensburg and ³Oral and maxillofacial surgery, Practice, Warendorf, Germany

SP84 CRANIAL BASE ANGLE IN PATIENTS WITH ACHONDROPLASIA — CEPHALOMETRIC OBSERVATIONS

Marcin de Mezer¹, Franciszek Rajewski², ¹Private Dental Practice, Poznań and ²Private Practice "Rajmed", Poznań, Poland

SP85 EVALUATION OF THE EFFECTS OF INTERMAXILLARY INTRAORAL MOLAR DISTALIZATION WITH MINISCREWS ON DENTOFACIAL STRUCTURES

Pınar Demir, **Tuğçe Tanir**, Dilek Erdem, Ayça Aksoy, Department of Orthodontics, Ankara University Faculty of Dentistry, Turkey

SP86 EVALUATION OF TRANSPORT MEDIUM FOR EXTRACTED PREMOLARS PRIOR TO CRYOPRESERVATION: AN *IN VITRO* STUDY

Noëmi De Roo, **Eline Deboosere**, Liesbeth Temmerman, Guy De Pauw, Department of Orthodontics, Ghent University, Belgium

SP87 THE INFLUENCE OF CRYOPRESERVATION ON THE SURFACE AND MECHANICAL CHARACTERISTICS OF DENTAL HARD TISSUES: AN *IN VITRO* STUDY

Eline Deboosere, Liesbeth Temmerman, Guy De Pauw, Department of Orthodontics, Ghent University, Belgium

SP88 THE QUADHELIX APPLIANCE: AN ACTIVATION PROTOCOL

Ana Jorge de Sá Ribeiro Ferreira, Nuno Gustavo d'Oliveira, Josep Maria Ustrell Torrent, Facultat d'Odontologia, Universitat de Barcelona, Hospitalet de Llobregat, Spain

SP89 EFFECT OF DIFFERENT MASTICATORY FUNCTIONAL DEMANDS ON THE THREE-DIMENSIONAL MANDIBULAR CONDYLE MORPHOLOGY OF GROWING RATS USING POSTERIOR BITE-BLOCKS

Balazs Denes¹, Benjamin Lazzarotto¹, Andrea Bresin², Stavros Kiliaridis¹, ¹Orthodontic Department, University of Geneva, Switzerland and ²Specialist Clinic of Orthodontics, University Clinics, Public Dental Service Region Västra Götaland, Göteborg, Sweden

SP90 A LONGITUDINAL STUDY ON TIMING AND VELOCITY OF RAT MOLAR ERUPTION
Balazs Denes, **Ekaterini Lagou**, Domna Dorotheou, Stavros Kiliaridis, Orthodontic Department,
University of Geneva, Switzerland

SP91 ARE WE COMPLIANT WITH CONE BEAM COMPUTED TOMOGRAPH GUIDELINES?

Rajveer Dhaliwal¹, Sameeruddin Patel², Oluwakemi Onabalu³, Leila Khamashta-Ledezma², Departments of Orthodontics, ¹King's College London Dental Institute and ²Guy's and St Thomas's Hospital, London, U.K.

SP92 ARE WE ASSESSING AND REPORTING RADIOGRAPHIC QUALITY AND FINDINGS? Oluwakemi Onabalu¹, Sameeruddin Patel¹, **Rajveer Dhaliwal¹**, Leila Khamashta-Ledezma², Departments of Orthodontics, ¹King's College London Dental Institute and ²Guy's and St Thomas' Hospital, London, U.K.

SP93 VALIDITY AND RELIABILITY OF THE SWEDISH VERSION OF THE CHILD PERCEPTIONS QUESTIONNAIRE IMPACT SHORT FORM (CPQ11–14–ISF:16)

Lillemor Dimberg¹, Bertil Lennartsson¹, Lars Bondemark², Kristina Arnrup¹, ¹Postgraduate Dental Education Center, Örebro and ²Faculty of Odontology, Malmö, Sweden

SP94 CHANGES IN INCISOR POSITION AFTER TREATMENT WITH MYOFUNCTIONAL APPLIANCES **Miroslava Dinkova**¹, Nikoleta Ivanova², ¹Department of Orthodontics, Faculty of Dental Medicine, Medical University of Sofia and ²MMD Dental Center of Orthodontics, Sofia, Bulgaria

SP95 THE NECESSITY OF AN INTERDISCIPLINARY TREATMENT APPROACH IN ADULT ORTHODONTIC PATIENTS

Miroslava Dinkova, Department of Orthodontics, Faculty of Dental Medicine, Medical University of Sofia, Bulgaria

SP96 PREDICTION OF THE LATERAL MESIODISTAL WIDTH IN THE SPANISH POPULATION: A SYSTEMATIC REVIEW

Fiona Duch España, Nuno Gustavo d'Oliveira, Josep Maria Ustrell Torrent, Facultat d'Odontologia, Universitat de Barcelona, Spain

SP97 ENAMEL MICROCRACKS IN TERMS OF ORTHODONTIC TREATMENT: A NOVEL METHOD FOR THEIR DETECTION AND EVALUATION

Irma Dumbryte¹, Laura Linkeviciene², Tomas Linkevicius², Mangirdas Malinauskas³, ¹Vilnius Research Group, Vilnius, ²Institute of Odontology, Faculty of Medicine, Vilnius University and ³Department of Quantum Electronics, Physics Faculty, Vilnius University, Vilnius, Lithuania

SP98 A STUDY OF SKULL PARAMETER DIFFERENCES IN NORMAL AND CLASS II DIVISION 2 SUBJECTS

Maria Dushenkova, Marina Pavlova, Tatiana Klimova, Nabi Nabiev, Irina Rubleva, Moscow State University of Medicine and Dentistry, Russia

SP99 THE NECESSITY FOR EARLY TREATMENT OF DISTAL OCCLUSION AND RETRUSION OF THE UPPER ANTERIOR TEETH

Maria Dushenkova, Marina Pavlova, Tatiana Klimova, Maria Markova, Irina Rubleva, Moscow State University of Medicine and Dentistry, Russia

SP100 COMPARISON OF SCANNING ACOUSTIC MICROSCOPY VERSUS LIGHT MICROSCOPY FOR DETERMINATION OF PERIODONTAL GAP SIZE – RESULTS OF A PILOT STUDY IN DOGS

Kathrin Duske¹, Mareike Warkentin², Andreas Seidel¹, Jan-Hendrik Lenz³, Franka Stahl¹, ¹Poliklinik für Kieferorthopädie, Rostock ²Werkstoffe für die Medizintechnik, Rostock and ³Klinik und Polikliniken für Zahn-, Mund- und Kieferheilkunde, Rostock, Germany

SP101 EFFECT OF SURFACE COATING OF ORTHODONTIC MINI-IMPLANTS ON MICROBIOLOGICAL COMPOSITION AND THEIR NUMBER INVESTIGATED IN DOGS – PROOF OF PRINCIPLE

Kathrin Duske¹, Katharina Wegner², Andreas Podbielski³, Jan-Hendrik Lenz⁴, Franka Stahl¹, ¹Poliklinik für Kieferorthopädie, Rostock, ²Fraunhofer IKTS, Dresden, ³Institut für Medizinische Mikrobiologie, Virologie und Hygiene, Rostock and ⁴Klinik und Polikliniken für Zahn-, Mund- und Kieferheilkunde Universitätsmedizin Rostock, Rostock, Germany

SP102 EFFECTS OF PREBIOTICS (XYLOOLIGOSACCHARIDE) ON THE JAW BONE OF OBESE INSULIN-RESISTANT RATS

Sathima Eaimworawuthikul¹, Panan Suntornsaratoon², Narattaphol Charoenphandhu², Nipon Chattipakorn³, Siriporn Chattipakorn⁴, ¹Department of Orthodontics and Pediatric Dentistry, Faculty of Dentistry, Chiang Mai University, ²Center of Calcium and Bone Research, Faculty of Science, Mahidol University, Bangkok, ³Cardiac Electrophysiology Unit, Department of Physiology, Faculty of Medicine, Chiang Mai University and ⁴Department of Oral Biology and Diagnostic Sciences, Faculty of Dentistry, Chiang Mai University, Thailand

SP103 MATERNAL SUPPLEMENTARY FOLATE INTAKE, METHYLENETETRAHYDROFOLATE REDUCTASE C677T AND A1298C POLYMORPHISMS AND THE RISK OF OROFACIAL CLEFT

Asghar Ebadifar¹, Nazila Aameli², **Shadi Mohebi³**, ¹Shahid Beheshti University of Medical Sciences, Tehran, ²Semnan University of Medical Sciences and ³Urmia University of Medical Sciences, Iran

SP104 ENAMEL SURFACE ROUGHNESS FOLLOWING ORTHODONTIC BRACKET DEBONDING AND COMPOSITE RESIN REMOVAL USING TUNGSTEN CARBIDE AND ARKANSAS BURS

Shadi Mohebi¹, Mohammadreza Badiee², ¹Orthodontic department, Urmia University of Medical Sciences and ²Shahid Beheshti University of Medical Sciences, Tehran, Iran

SP105 OBSTRUCTIVE SLEEP APNOEA IS ASSOCIATED WITH REDUCED MANDIBULAR CORTICAL THICKNESS IN CHILDREN

Hazem Eimar¹, Arthur Rodriguez Gonzalez Cortes², David Gozal³, Daniel Graf¹, **Carlos Flores-Mir¹**, ¹University of Alberta, Edmonton, Canada, ²University of São Paulo, Brazil and ³University of Chicago, USA

SP106 TREATMENT OUTCOMES OF MINIPLATE ANCHORED FIXED-FUNCTIONAL APPLIANCES **Osama Eissa**¹, Mustafa Khallaf², Ghada Elmeehy³, ¹Department of Orthodontics, University of Alberta, Edmonton, Canada, ²Department of Oral and Maxillofacial Surgery, Alazhar University, Cairo, Egypt and ³Department of Orthodontics, Tanta University, Egypt

SP107 DOES TREATMENT TIME AFFECT DEVELOPMENT OF WHITE SPOT LESIONS? **Emel Eker**, Ahmet Yalcin Güngör, Department of Orthodontics, Akdeniz Universty, Antalya, Turkey

SP108 ARE THERE ANY DIFFERENCES BETWEEN REGULAR AND SELF-LIGATION IN TERMS OF WHITE SPOT RISK?

Emel Eker, Ahmet Yalcin Güngör, Department of Orthodontics, Akdeniz Universty, Antalya, Turkey

SP109 EVALUATION OF PIEZOCISION IN RAPID CANINE RETRACTION **Ahmed Elkalza**, Department of Orthodontics, Alexandria University, Egypt

SP110 REDUCING OVERLOADING OF INDIVIDUAL INCISORS BY UTILIZING NOVEL THIN LEVELLING ALIGNERS

Fayez Elkholy, Bernd G. Lapatki, Department of Orthodontics, University of Ulm, Germany

SP111 DETERMINATION OF SPACE REQUIREMENT IN THE DENTAL ARCH USING THE ANATOMICAL CONTACT POINTS DURING THREE-DIMENSIONAL SIMULATION OF ARCH WIDTH CHANGES Fayez Elkholy, Catrin Bacher, Bernd G. Lapatki, Department of Orthodontics, University of Ulm, Germany

SP112 NON-FLUORIDE APPLICATIONS FOR DEMINERALIZATION PREVENTION DURING ORTHODONTIC TREATMENT: A SYSTEMATIC REVIEW

Ahmed El-Shanawany, Hashem Farouk, David Bearn, School of Dentistry University of Dundee, U.K.

SP113 EFFECTS OF BRACKET TYPE ON ROOT RESORPTION AND TREATMENT DURATION Mustafa Murat Eruz, **Ahmet Yagci**, Department of Orthodontics, Erciyes University, Faculty of Dentistry, Kayseri, Turkey

SP114 EFFECT OF CASEIN PHOSPHOPEPTIDE PASTE WITH AND WITHOUT CO₂ LASER IRRADIATION ON DEMINERALIZED ENAMEL MICROHARDNESS AND BRACKET SHEAR BOND STRENGTH

Nasrin Farhadian¹, Bahareh Javanshir², Shahrzad Tamasoki¹, Maryam Farhadian³, Departments of ¹Orthodontic and ³Biostatistics, Hamadan University of Medical Sciences and ²Orthodontic Department, Rasht University of Medical Sciences, Iran

SP115 PREDICTION OF CLASS II IMPROVEMENT AFTER RAPID MAXILLARY EXPANSION IN THE EARLY MIXED DENTITION

Rosamaria Fastuca¹, Chiara Bergamini², Piero Antonio Zecca³, Nicolò Vercellini³, Alberto Caprioglio³, ¹University of Messina, ²Private Practice, Verona and ³University of Insubria, Varese, Italy

SP116 RADIOGRAPHIC EVALUATION OF MANDIBULAR MORPHOLOGICAL CHANGES ACCORDING TO AGE

Anita Fekonja, Department of Orthodontic, Healthcare Centre Maribor, Maribor, Slovenia

SP117 CORRELATION BETWEEN RAPID MAXILLARY EXPANSION AND NOCTURNAL ENURESIS IN CHILDREN

Maria del Pilar Fernández Prada, Nuno Gustavo d'Oliveira, Josep Maria Ustrell Torrent, Facultat d'Odontologia, Universitat de Barcelona, Hospitalet de Llobregat, Spain

SP118 CHANGES IN SOFT TISSUE PROFILE RELATED TO TREATMENT WITH A TWIN BLOCK APPLIANCE: PERCEPTIONS OF ORTHODONTISTS AND LAY PEOPLE

Merve Fidanboy, Elif Ergin, Burcu Kilinc, Zeliha Muge Baka, Zehra Ileri, Department of Orthodontics, Selcuk University Faculty of Dentistry, Konya, Turkey

SP119 HOW EFFICIENT ARE LINGUAL ORTHODONTICS? AN ASSESSMENT OF TREATMENT OUTCOME BY COMPARING SET-UPS AND POST-TREATMENT CASTS

Clara Fontinha^{1,2}, Paolo M Cattaneo², Marie A Cornelis², Departments of Orthodontics, ¹University of Geneva, Switzerland and ²Aarhus University, Denmark

SP120 CHILDREN'S SUBJECTIVE EXPERIENCE OF EARLY TREATMENT OF PRENORMAL OCCLUSION WITH A RAPID MAXILLARY EXPANDER IN COMBINATION WITH A FACEMASK

Yvonne Forsman¹, Lars Inge Norevall¹, Mats Bågesund², ¹Department of Orthodontics, Centre for Orthodontics and Paediatrics, Linköping and ²Centre for Orthodontics and Paediatric, Norrköping, Sweden

SP121 RELATIONSHIP BETWEEN THE GUBERNACULAR CORD AND IMPACTED CANINES **Atsushi Fujishiro,** Ryuzo Kanomi, Practice, Himeji, Japan

SP122 ORTHODONTIC TOOTH MOVEMENT THROUGH ALVEOLAR GRAFTED SITES: A SYSTEMATIC REVIEW

Anabel Galan-Ortiz, Nuno Gustavo d'Oliveira, Josep Maria Ustrell-Torrent, Ortodoncia, Universitat de Barcelona, L'Hospitalet del Llobregat, Spain

SP123 ASSESSING TEMPOROMANDIBULAR JOINT PAIN AND FUNCTION BEFORE AND AFTER THE USE OF POLARIZED LIGHT

Umberto Garagiola, Paolo Cressoni, Rossano Soldo, Ettore del Rosso, Giampietro Farronato, University of Milan, Italy

SP124 THREE-DIMENSIONAL VERSUS TWO-DIMENSIONAL CEPHALOMETRIC ANALYSIS: A MORE SIMPLIFIED AND ACCURATE PROTOCOL

Umberto Garagiola, Giampietro Farronato, University of Milan, Italy

SP125 DENTAL ENAMEL COMPOSITION AFTER INTERPROXIMAL REDUCTION AND DEMINERALIZATION CYCLES

Miriam García López, Ascensión Vicente Hernández, Belen Manuela Gónzalez Paz, Jose García López, Luis-Alberto Bravo-Gónzalez, Universidad de Murcia, Spain

SP126 APICAL RESORPTION OF UPPER INCISORS DURING ORTHODONTIC TREATMENT IN CLASS III ORTHOGNATHIC SURGERY PATIENTS – CONE BEAM COMPUTER TOMOGRAPHY STUDY

Leva Gavare¹, Ilga Urtāne¹, Gundega Jākobsone¹, Laura Neimane², Departments of ¹Orthodontics and ²Radiology, Rigas Stradins University Institute of Stomatolagy, Riga, Latvia

SP127 A SYSTEMATIC APPROACH FOR INTERPROXIMAL ENAMEL REDUCTION: *IN VITRO* AND *IN VIVO* EVALUATION OF DIAMOND COATED STRIPS

Francesca Gazzani, Valeria Paoloni, Giuseppina Laganà, Paola Cozza, Department of Orthodontics, University of Rome Tor Vergata, Italy

SP128 EXPERIMENTAL DETERMINATION OF CREEP BEHAVIOUR OF ALVEOLAR BONE

Logan Gbadegbenon¹, Geert Bekaert², Dimitris Mavreas¹, Bart Vande Vannet¹, ¹Department of Orthodontics, Vrije Universiteit Brussel and ²Propolis, KULeuven, Oostende, Belgium

SP129 THREE-DIMENSIONAL EVALUATION OF THE UPPER ARCH AND PALATE IN UNILATERAL CLEFT LIP AND PALATE SUBJECTS USING DIGITAL DENTAL CASTS

Chiari Generali¹, Jasmina Primozic², Carlos Flores-Mir³, Maja Ovsenik², Letizia Perillo¹,
¹Multidisciplinary Department of Medical-Surgical and Dental Specialties, Orthodontic Division,
University Of Campania "Luigi Vanvitelli", Naples, Italy, ²Department of Orthodontics and Jaw
Orthopaedics, Medical Faculty, University of Ljubljana, Slovenia and ³Postgraduate Orthodontic
Program, Department of Dentistry, University of Alberta, Edmonton, Canada.,

SP130 EFFICACY OF DENTAL CARE IN IMPROVING THE ORAL HEALTH OF PATIENTS WITH SJÖGREN'S SYNDROME

Giulia Ghilardi, Luca Bassani, Paolo Albertini, Maurizio Manuelli, Alessandra Lucchese, Department of Orthodontics, IRCCS San Raffaele Scientific Institute, Vita-Salute San Raffaele University, Milan, Italy

SP131 THREE-DIMENSIONAL EVALUATION OF ALVEOLAR BONE CHANGES IN RESPONSE TO DIFFERENT RAPID PALATAL EXPANSION ACTIVATION RATES

Ahmed Ghoneima¹, Brian LaBlonde¹, Manuel Lagravere Vich², Katherine Kula¹, ¹Indiana University School of Dentistry, Indianapolis, USA and ²University of Alberta, Canada

SP132 OVERALL AND ANTERIOR TOOTH SIZE RATIOS IN A GROUP OF EMIRATIS

Moaza Ghuloom Mohammad, Shazia Naser-ud-Din, Athanasios Athanasiou, Department of Orthodontics, Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

SP133 SPONTANEOUS EFFECT IN MANDIBULAR DIMENSIONS CAUSED BY A RAPID MAXILLARY EXPANSION: A SYSTEMATIC REVIEW

Irene Giménez-Ruiz, Nuno Gustavo d'Oliveira, Josep Maria Ustrell Torrent, Facultat d'Odontologia, Universitat de Barcelona, Spain

SP134 ASSESSMENT OF PERIODONTAL BIOMARKERS IN GINGIVAL CREVICULAR FLUID DURING ORTHODONTIC TOOTH MOVEMENT. A SYSTEMATIC REVIEW

Ilias Giantikidis¹, **Dimitris Kloukos^{2,3}**, Lydia Kakali³, Moschos Papadopoulos¹, ¹Department of Orthodontics, Aristotle University of Thessaloniki/School of Dentistry, Greece, ²Department of Orthodontics and Dentofacial Orthopedics, University of Bern, Switzerland and ³Department of Orthodontics and Dentofacial Orthopedics, 251 Hellenic Air Force General Hospital, Athens, Greece

SP135 PERCEIVED FACIAL CHANGES OF A CONVEX PROFILE IN CLASS II DIVISION 1 PATIENTS AFTER FUNCTIONAL ORTHOPAEDIC TREATMENT FOLLOWED BY FIXED ORTHODONTIC APPLIANCES **Nikolaos Gkantidis**¹, Kleopatra Tsiouli², Moschos Papadopoulos², Nikolaos Topouzelis², ¹Department of Orthodontics and Dentofacial Orthopedics, University of Bern, Switzerland and ²Department of Orthodontics, Aristotle University of Thessaloniki, Greece

SP136 ASSESSMENT OF DIFFERENT TECHNIQUES FOR THREE-DIMENSIONAL SUPERIMPOSITION OF SERIAL DIGITAL MAXILLARY DENTAL CASTS ON PALATAL STRUCTURES

Nikolaos Gkantidis¹, Georgios Vasilakos², Roman Schilling³, Demetrios Halazonetis³, ¹Department of Orthodontics and Dentofacial Orthopedics, University of Bern, Switzerland, ²Department of Orthodontics, Friedrich Schiller University of Jena, Germany and ³Department of Orthodontics, National and Kapodistrian University of Athens, Greece

SP137 ASSESSMENT OF CONDYLE AND GLENOID FOSSA POSITION AFTER CHIN CUP THERAPY **Hatice Gokalp**¹, Ozge Uslu Akcam², Asli Senol¹, Departments of Orthodontics, ¹Ankara University Faculty of Dentistry and ²Tepebasi Oral and Dental Health Center, Ankara, Turkey

SP138 BONE ACTIVITY ON CIRCUMMAXILLARY SUTURES WITH CONSECUTIVE MAXILLARY EXPANSION AND CONSTRICTION BY SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY Hatice Gökalp, **Ecem Efe**, Department of Orthodontics, Ankara University, Turkey

SP139 ASSESSMENT OF BONE ACTIVITY CHANGES OF THE TEMPOROMANDIBULAR JOINT WITH FUNCTIONAL ORTHOPAEDIC TREATMENT BY RADIONUCLIDE BONE SCANNING Hatice Gökalp, **İlayda Çalı**, Department of Orthodontics, Ankara University Faculty of Dentistry, Turkey

SP140 ALVEOLAR BONE GRAFT, OSTEOGENESIS DISTRACTION AND ORTHOGNATIC SURGERY IN PATIENTS WITH CLEFT LIP-ALVEOLAR AND CLEFT PALATE

Víctor Gómez Clemente, Javier López-Gasco Torres, Ana Belén Macías Gago, Iván Nieto Sánchez, Laura Aneiros Fernández, Department of Dentistry, Nebrija University-San Rafael Hospital, Madrid, Spain

SP141 CEPHALOMETRIC EFFECTS OF COMBINED RAPID PALATAL EXPANSION AND FACEMASK THERAPY

Vicente Gonzalez-Costa, Orthocenter Middelburg, Middelburg, Netherlands

SP142 OUTCOME OF ORTHODONTIC CARE IN THE SWEDISH PUBLIC DENTAL SERVICE **Emma Göranson**, Fredrik Lundström, Mats Bågesund, Folktandvården Östergötland, Centrum för Ortodonti/Pedodonti, Linköping, Sweden

SP143 LOCAL INJECTION OF REVEROMYCIN A PREVENTS ALVEOLAR BONE LOSS IN OSTEOPROTEGERIN KNOCKOUT MICE WITH PERIODONTAL DISEASE

Shigemi Goto, Yuichiro Asano, Syunsuke Kako, Masako Tabuchi, Ken Miyazawa, Department of Orthodontics, Aichi Gakuin University, Nagoya, Japan

SP144 HOW WELL DO CLEAR ALIGNERS WORK? OCCLUSAL AND PSYCHOMETRIC PARAMETERS OF TREATED ADULT PATIENTS

Isabelle Graf¹, Carolin Keller¹, Jörg Schwarze², Bert Braumann¹, ¹Department of Orthodontics and Dentofacial Orthopedics, University Hospital of Cologne and ²Private Practice, Cologne, Germany

SP145 SOCIAL MEDIA USE OF ORTHODONTIC PATIENTS - A QUALITATIVE AND QUANTITATIVE APPROACH OF EVALUATING POSTS ON TWITTER® AND INSTAGRAM®

Isabelle Graf, Hanna Gerwing, Bert Braumann, Department of Orthodontics and Dentofacial Orthopedics, University Hospital of Cologne, Germany

SP146 PREVALENCE OF TEMPOROMANDIBULAR DISORDERS IN PATIENTS WITH HASHIMOTO'S THYROIDITIS – A PILOT STUDY

Alina Grozdinska¹, Elisabeth Hofmann², Ursula Hirschfelder¹, ¹Zahnklinik - 3, Kieferorthopädie, UK Erlangen and ²Zahnklinik, Kieferorthopädie, Universität Regensburg, Germany

SP147 MAXILLARY EXPANSION WITH LEAF EXPANDER: A PRELIMINARY LONGITUDINAL STUDY ON CONE-BEAM COMPUTED TOMOGRAPHY IN GROWING PATIENTS

Giulio Gualandi¹, Matteo Beretta², ¹Department of Orthodontics, Insubria, Varese and ²Private Practice, San Michele (AL), Italy

SP148 CONE-BEAM COMPUTED TOMOGRAPHY TO EVALUATE CONDYLAR POSITION BEFORE AND AFTER ORTHOGNATHIC SURGERY

Adriana Guimarães, Jessica Scherzberg, Margarida Bastos Lopes, Luísa Maló, Francisco do Vale, Faculty of Medicine, University of Coimbra, Portugal

SP149 RELATIONSHIP BETWEEN FACIAL MORPHOLOGY AND TONGUE THICKNESS MEASURED BY ULTRASONOGRAPHY

Nisa Gul Amuk¹, Mehmet Amuk², Departments of ¹Orthodontics and ²Oral and Maxillofacial Radiology, Erciyes University, Faculty of Dentistry, Kayseri, Turkey

SP150 EFFECT OF HETEROLOGOUS BONE MARROW MONONUCLEAR CELL TRANSPLANTATION ON MIDPALATAL EXPANSION IN RATS

Jie Guo¹, Haihua Xu², **Xiaoxia Che²**, Departments of Orthodontics, Schools of Stomatology, ¹Shandong University, JiNan and ²Capital Medical University, Beijing, China

SP151 CRANIOFACIAL CHARACTERISTICS OF ADULTS WITH TEMPOROMANDIBULAR JOINT DISORDERS

Hyejung Ha¹, Hoe Jung Lim², **Eon Hwa Lee¹**, ¹Department of Orthodontics, Korea Anam, Seoul and ²Chunnam, Kwang Ju, Korea, South

SP152 THE RELATIONSHIP BETWEEN SOFT TISSUE THICKNESS AND SOFT TISSUE CHANGES RESULTING FROM LE FORT I MAXILLARY SURGERY

Zeynep Hacioglu, Hasibe Baser Keklikci, Nisa Gul Amuk, Department of Orthodontics, Erciyes University, Faculty of Dentistry, Kayseri, Turkey

SP153 ORTHODONTIC TREATMENT NEED, OUTCOME AND RESIDUAL TREATMENT NEED IN 15- AND 20-YEAR-OLDS IN JÖNKÖPING COUNTY, SWEDEN

Stefan Håkansson, Rune Lindsten, Krister Bjerklin, Department of Orthodontics, Institute for Postgraduate Dental Education, Jönköping, Sweden

SP154 SLEEPINESS, QUALITY OF LIFE, HEAD POSTURE AND AIRWAY DIMENSIONS IN OBSTRUCTIVE SLEEP APNOEA PATIENTS

Signe Halfeld, Liselotte Sonnesen, Section for Orthodontics, Department of Odontology, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark

SP155 THE APPLICABILITY OF CAMERIERE'S EUROPEAN FORMULA OF OPEN APICES FOR DENTAL AGE ESTIMATION IN 5-17 YEAR OLD NORTH GERMAN CHILDREN

Talal Halilah, Nadiajda Khdairi, Paul-Georg Jost-Brinkmann, Theodosia Bartzela, Center for Dental and Craniofacial Sciences Department of Orthodontics, Dentofacial Orthopedics and Pedodontics, Charité - Universitätsmedizin Berlin, Germany

SP156 EFFECT OF LIGATION FORCE ON ANTERIOR TORQUE CONTROL DURING SPACE CLOSURE – SIMULATION OF LONG-TERM TOOTH MOVEMENT USING THE FINITE ELEMENT METHOD-

Ryo Hamanaka, Tuan Nguyen Anh, Jun-ya Tominaga, Yoshiyuki Koga, Noriyuki Yoshida, Department of Orthodontics and Dentofacial Orthopedics, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki University, Japan

SP157 STABILITY OF MOLAR DISTALIZATION USING ORTHODONTIC MINISCREWS

Seo-Yeon Han, Kyu-Nam Kim, Kyung-Ho Kim, Yoon Jeong Choi, Department of Orthodontics, College of Dentistry, Yonsei University, Seoul, Korea, South

SP158 COMPARISONS OF SKELETAL CLASS III CORRECTION BY TWO-JAW SURGERY VERSUS A MODIFIED C-PALATAL PLATE COMBINED WITH BILATERAL SAGITTAL SPLIT RAMUS OSTEOTOMY

Seong H. Han¹, Hyun Ahn², Su Hun Rye¹, Mohamed Bayome³, Yoon-Ah Kook³, ¹Division of Orthodontics, Department of Dentistry, The Catholic University of Korea, St. Vincent's Hospital, Suwon and Departments of Orthodontics, ²The Catholic University of Korea, Graduate School of Clinical Dentistry, Seoul and ³The Catholic University of Korea, Seoul St. Mary's Hospital, Korea, South

SP159 ROMSE- A DATABASE FOR OROFACIAL MANIFESTATIONS IN PATIENTS WITH RARE DISEASES AND A SET-UP OF A UNIFIED CLASSIFICATION FORM OF DYSGNATHIA

Lale Hanisch¹, Marcel Hanisch², Johannes Kleinheinz², Jochen Jackowski³, Gholamreza Danesh¹, Departments of ¹Orthodontics and ³Oral Surgery and Dental Emergency Care, Witten/Herdecke University, Witten and ²Department of Cranio-Maxillofacial Surgery, University Hospital Muenster, Germany

SP160 REPORTED SLEEPING DISORDERS DURING EARLY OR LATE CERVICAL HEADGEAR TREATMENT – A RANDOMIZED CLINICAL TRIAL

Matti Hannula¹, Johanna Julku², Kirsi Pirilä-Parkkinen², Pertti Pirttiniemi¹, ¹University of Oulu and ²Oulu University Hospital, Finland

SP161 EFFECTS OF RAPID MAXILLARY EXPANSION ON IMPACTED MAXILLARY CANINES **Momoko Harada**, Ryuzo Kanomi, Kanomi Orthodontic Office, Hemeji, Hyogo, Japan

SP162 FOUR-YEAR EXPERIENCE OF THE USE OF CONE BEAM COMPUTED TOMOGRAPHY IN ORTHODONTICS: A SERVICE EVALUATION AND AUDIT

Paras Jiteshkumar Haria¹, Sheena Kotecha¹, Jaspal Panesar², ¹Birmingham Dental Hospital and ²Good Hope Hospital, Birmingham, U.K.

SP163 CONE BEAM COMPUTED TOMOGRAPHY REFERRAL PATHWAY AND TIMELINE: ARE WE COMPLIANT WITH CURRENT GUIDELINES?

Lydia Harris, Rupal Shah, Alice Dyke, Samantha Hodges, Orthodontic Department, Eastman Dental Hospital, London, U.K.

SP164 GENETIC RESPONSE OF THE MASSETER MUSCLE AFTER ORTHOGNATHIC SURGERY IN COMPARISON WITH HEALTHY CONTROLS – A MICROARRAY STUDY

Winfried Harzer¹, Maja Marewski¹, Petto Carola², Tomasz Gedrange¹, Departments of ¹Orthodontics and ²Maxillo Facial Surgery, Technical University Dresden, Germany

SP165 PATIENTS' PERCEPTION OF RECOVERY AFTER SURGICAL EXPOSURE OF IMPACTED MAXILLARY CANINES WITH OPEN AND CLOSED TECHNIQUE

Lynn Hauspy, Liesbeth Temmerman, Guy De Pauw, Department of Orthodontics, Ghent University, Belgium

SP166 EVALUATION OF THE MODE OF FAILURE AND SHEAR BOND STRENGTH AFTER APPLICATION OF DIFFERENT PRIMERS OVER METAL BRACKET BASE

Zohre Hedaiati¹, Mohammad Mehdi Firuzbakht², Maziar Hedayati², Farhad Kashi², ¹Orthodontic Department, Faculty of Dentistry, Shiraz University of Medical Sciences and ²Private practice, Tehran, Iran

SP167 ASSESSMENT OF HARD AND SOFT TISSUE CHANGES AFTER BIMAXILLARY ORTHOGNATHTIC-SURGERY TREATMENT IN SKELETAL CLASS III PATIENTS IN SHIRAZ

Zohre Hedaiati¹, Fateme Tahery², **Narges Hedayati³**, Farhad Kashi², Maziar Hedayati², ¹Orthodontic Department, Faculty of Dentistry, Shiraz University of Medical Sciences and Private Practices, ²Shiraz and ³Tehran, Iran

SP168 PSYCHOLOGICAL IMPACT OF ORTHOGNATHIC SURGERY IN ORAL HEALTH-RELATED QUALITY OF LIFE

Zohre Hedaiati¹, **Farhad Kashi²**, Maziar Hedayati², Narges Hedayati³, ¹Orthodontic Department, Faculty of Dentistry, Shiraz University of Medical Sciences and Private Practices, ²Shiraz and ³Tehran, Iran

SP169 CANINE IMPACTION IN PATIENTS WITH UNILATERAL CLEFT LIP AND PALATE AFTER SECONDARY ALVEOLAR BONE GRAFTING: A RETROSPECTIVE STUDY

Valérie Hereman¹, Maria Cadenas de Llano Perula¹, Guy Willems¹, Wim Coucke², An Verdonck¹, ¹Department of Oral Health Sciences - Orthodontics, KU Leuven and ²Scientific Institute of Public Health, Brussels, Belgium

SP170 PERIODONTAL OUTCOMES OF TREATED IMPACTED PALATAL MAXILLARY CANINES: A SYSTEMATIC REVIEW

Judit Herranz-Aparicio, Nuno Gustavo d'Oliveira, Josep Maria Ustrell-Torrent, Màster d'Ortodòncia, Facultat de Medicina i Ciències de la Salut (Odontologia), Universitat de Barcelona., Spain

SP171 CLASS II: EARLY VERSUS LATE TREATMENT

Alejandra Herreros Del Pozo, Ana Belén Macías Gago, Iván Nieto Sánchez, Laura Aneiros Fernández, Department of Dentistry, Nebrija University-San Rafael Hospital, Madrid, Spain

SP172 CAN WE EFFECTIVELY TREAT ORTHODONTICALLY-INDUCED WHITE SPOT LESIONS IN AN EVIDENCE-BASED MANNER? A SYSTEMATIC REVIEW AND META-ANALYSIS

Damian Höchli, Monika Hersberger-Zurfluh, Spyridon N. Papageorgiou, Theodore Eliades, University of Zurich, Switzerland

SP173 OUTCOMES OF PRE-SURGICAL ORTHOPAEDICS IN NON-SYNDROMIC CLEFT LIP AND/OR PALATE PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED TRIALS

Hamid Reza Hosseini, Eleftherios G. Kaklamanos, Athanasios E. Athanasiou, Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

SP174 TYPES OF TOOTH MOVEMENT DO NOT AFFECT DISPLACEMENT OF THE CENTRE OF RESISTANCE BUT DO ALVEOLAR BONE RESORPTION IN A RAT MODEL

Hitoshi Hotokezaka¹, Takanobu Kondo¹, Megumi Hashimoto¹, Yuka Hotokezaka², Noriaki Yoshida¹, Departments of ¹Orthodontics and Dentofacial Orthopedics and ²Radiology and Cancer Biology, Nagasaki University, Japan

SP175 CONTINUOUS ERUPTION OF MAXILLARY TEETH DURING A TEN YEAR PERIOD IN A FEMALE ADULT SAMPLE

Luis Huanca Ghislanzoni¹, Grethe Jonasson², Stavros Kiliaridis¹, ¹Department of Orthodontics, University of Geneva, Lausanne, Switzerland and ²University of Goteborg, Sweden

SP176 CHANGES OF SELF-FACIAL RECOGNITION AND EYE-GAZE PATTERN ASSOCIATED WITH INDIVIDUAL PSYCHOLOGICAL CONDITION AFTER ORTHODONTIC TREATMENT

Soonshin Hwang, Jong Hee Kim, Seokjin Jeong, Woowon Jang, Chooryung J. Chung, Department of Orthodontics, Yonsei University College of Dentistry, Gangnam Severance Dental Hospital, Seoul, Korea, South

SP177 OSTEOPONTIN GENE MEDIATES EXTERNAL APICAL ROOT RESORPTION IN ORTHODONTIC PATIENTS

Alejandro Iglesias-Linares¹, Adriana Orce-Romero², Elena Sanchez-Borrego², Enrique Solano-Reina², Rosa Yañez-Vico², ¹Department of Orthodontics, Complutense Unversity of Madrid and ²University of Seville, Spain

SP178 MECHANICAL PROPERTIES OF A SCREW EXPANDER WITH BUILT-IN SUPERELASTIC NICKEL TITANIUM COIL SPRINGS

Masahiro lijima, Rina Ishikawa, Naohiko Kawamura, Yoshitaka Yasuda, Itaru Mizoguchi, Department of Health Sciences University of Hokkaido, Ishikari-Tobetsu, Japan

SP179 EFFECT OF TEMPERATURE ON THE DYNAMIC MECHANICAL PROPERTIES OF COMPOSITES USED FOR LINGUAL RETAINER BONDING

Anna Iliadi¹, Dimitrios Papadogiannis², Theodore Eliades³, George Eliades², Departments of ¹Orthodontics and ²Biomaterials, National and Kapodistrian University of Athens, Greece and ³Department of Orthodontics and Pediatric Dentistry, University of Zurich, Switzerland

SP180 GALVANIC COUPLING OF LINGUAL BRACKETS MADE OF STAINLESS STEEL AND GOLD ALLOYS WITH ARCHWIRES

Spiros Zinelis¹, George Polychronis¹, **Anna Iliadi**², George Eliades¹, Theodore Eliades³, Departments of ¹Biomaterials and ²Orthodontics, National and Kapodistrian University of Athens, Greece and ³Department of Orthodontics and Pediatric Dentistry, University of Zurich, Switzerland

SP181 EVALUATION OF ORAL HEALTH KNOWLEDGE OF TEACHERS FROM TWO PRIVATE KINDERGARTEN SCHOOLS IN SÃO PAULO

Roberta Ilinsky, **Livia Pompéia**, Kurt Faltin Junior, Cristina Lucia Feijó Ortolani, University Pulista, Sao Paulo, Brazil

SP182 PREDICTION OF DENTOFACIAL CHANGES INDUCED BY ARTICULATOR INTENDED FOR ORTHOGNATHIC SURGERY

Kaoru Inami, Yuji Nakayama, Naoyuki Matsumoto, Department of Orthodontics, Osaka Dental University, Japan

SP183 ALTERATION OF SURFACE HARDNESS OF HUMAN ENAMEL AFTER ETCHING AND DEBONDING OF ORTHODONTIC BRACKETS. AN *EX VIVO* STUDY

Alexis Ioannidis¹, Spyros Zinelis², **Iosif Sifakakis³**, George Eliades¹, Theodore Eliades¹, ¹Clinic of Orthodontics and Paediatric Dentistry, University of Zurich, Switzerland and Departments of ²Biomaterials and ³Orthodontics, National and Kapodostrian University of Athens, Greece

SP184 COMPARATIVE ASSESSMENT OF AS RECEIVED AND INTRAORAL AGED MULITISTRANED ORTHODONTIC WIRE USED IN FIXED RETENTION

Spyros Zinelis¹, Nick Pandis², **losif Sifakakis**³, George Eliades¹, Theodore Eliades⁴, Departments of ¹Biomaterials and ³Orthodontics, National and Kapodistrian University of Athens, Greece, ²Department of Orthodontics, University of Bern, Switzerland and ⁴Clinic of Orthodontics and Paediatric Dentistry, University of Zurich, Switzerland

SP185 COMPARISON BETWEEN THE CARRIÈRE DISTALIZER AND EXTRAORAL TRACTION CONCERNING MOLAR DISTALIZATION, APICAL ROOT RESORPTION AND PATIENT PERCEPTION

Kiriaki loannidou, Lars-Inge Norevall, Centrum för Ortodonti/Pedodonti, Linköping, Folktandvården Östergötland, Linköping, Sweden

SP186 THE INCREASE OF MAXILLARY LATERAL EXPANSION LIMIT BY TOPICAL APPLICATION OF FLUVASTATIN

Takenobu Ishii, Munetada Ishikawa, Dephan Choi, Teruo Sakamoto, Kenji Sueishi, Department of Orthodontics, Tokyo Dental College, Japan

SP187 ELUCIDATION OF CARTILAGE DIFFERENTIATION CONTROL MECHANISM BY FLUVASTATIN APPLICATION

Munetada Ishikawa¹, Takenobu Ishii², Dehwan Choi¹, Teruo Sakamoto¹, Kenji Sueishi², Tokyo Dental College, ¹Chiba and ²Tokyo, Japan

SP188 THE EFFICACY AND EFFECTIVENESS INDUCED BY DIODE LASER BIOSTIMULATION ON THE RATE OF ORTHODONTIC TOOTH MOVEMENT

Gaetano Isola¹, Luca Ramaglia², Letizia Perillo³, Giancarlo Cordasco¹, Giovanni Matarese¹, Schools of Dentistry, ¹University of Messina, ²University of Naples "Federico II" and ³Department of Orthodontics, Second University of Naples, Italy

SP189 FACIAL ASYMMETRY IN SKELETAL CLASS III PATIENTS TREATED WITH ORTHODONTIC-ORTHOGNATHIC SURGERY

Irina Isufi¹, Algen Isufi², Ramazan Isufi², Renato Isufi², ¹Private Practice, Tirana and ²Department of Oro Maxillo Facial Surgery, "Mother Theresa" University Hospital Centre, Tirane, Albania

SP190 REPORTED CHANGES IN ORAL HEALTH-RELATED QUALITY OF LIFE IN CHILDREN DURING AND AFTER ORTHODONTIC TREATMENT: A LONGITUDINAL STUDY

Katrien Jaeken¹, Jurgen Lemiere^{1,2}, Anna Verdonck¹, Maria Cadenas de Llano Pérula ¹, Guy Willems¹, ¹Katholieke universiteit Leuven and ²Universitair ziekenhuis Leuven, Belgium

SP191 SURGICALLY ASSISTED MAXILLARY PROTRACTION VERSUS LE FORT 1 OSTEOTOMY IN CLEFT LIP AND PALATE PATIENTS

Abdolreza Jamilian, Sara Eslami, Department of Orthodontics, Tehran Dental Branch, Cranio Maxillofacial Center, Islamic Azad University, Tehran, Iran

SP192 SYSTEMATIC REVIEW OF ORTHOPAEDIC TREATMENT FOR CLASS III MALOCCLUSION: OVERVIEW OF SYSTEMATIC REVIEWS

Abdolreza Jamilian¹, Rosangela Cannavale², MariaGrazia Piancino³, Sara Eslami⁴, Letizia Perillo², ¹Department of Orthodontics, Tehran Dental Branch, ¹Implant research center and ⁴Craniomaxillofacial research center, Islamic Azad University, Tehran, Iran, ²Multidisciplinary Department of Medical-Surgical and Dental Specialties, Second University of Naples and ³Department of Surgical Sciences, University of Turin, Italy

SP193 CHANGES OF THE OCCLUSAL PLANES FOLLOWING ORTHODONTIC TREATMENT AND THEIR RELATIONSHIP TO THE CHANGE OF MANDIBULAR POSITION

Hong-Ik Jang¹, Jin-Woo Cho², **Jin Hyoung Choi**¹, Department of Orthodontics, Wonkwang University, ¹Iksan-Si and ²Daejeon, Korea, South

SP194 ACTIVITY OF MASSETER AND TEMPORAL MUSCLE DURING DAYTIME CLENCHING IN ADOLESCENT AND ADULT SLEEP BRUXERS

Insan Jang, Yeowool Kim, Donghyun Lee, Dong-Soon Choi, Bong-Kuen Cha, Department of Orthodontics, Gangneung-Wonju National University, Gangneung, Korea, South

SP195 EXPRESSION OF TFGβ, CD34, NESTIN AND KI67 IN CLEFT-AFFECTED TISSUE

Iveta Jankovska¹, Mara Pilmane², Ilga Urtane¹, Ilze Akota³, Departments of ¹Orthodontics, ²Anatomy and Anthropology and ³Oral and Maxillofacial Surgery, Rigas Stradins University, Riga, Latvia

SP196 COST ANALYSIS OF ORTHOGNATHIC SURGERY IN CLEFT LIP AND CLEFT PALATE PATIENTS

Siwakorn Jearanai, Sukanya Tianviwat, Department of Preventive Dentistry, Prince of Songkla University, Hat yai, Songkla, Thailand

SP197 THE EFFECT OF PHOTODYNAMIC THERAPY ON GINGIVAL HYPERPLASIA DURING TREATMENT WITH FIXED APPLIANCES

Paul-Georg Jost-Brinkmann¹, Rana Manjah¹, Elena Hölzl¹, Henrik Dommisch², Departments of ¹Orthodontics, Dentofacial Orthopedics and Pedodontics and ²Periodontology, Charité - Universitätsmedizin Berlin, Germany

SP198 COMPARISON OF MEDIAL ASPECT OF THE RAMUS FOR SAGITTAL SPLIT RAMUS OSTEOTOMY IN PATIENTS WITH DIFFERENT SKELETAL PATTERNS

Merve Nur Kadıoğlu¹, **Can Arslan²**, Nihal Yetimoğlu Özdil³, Ayşe Tuba Altuğ Demiralp², Ayşegül Mine Tüzüner Öncül⁴, ¹Private Practice, Denizli and Departments of ²Orthodontics, ³Oral and Maxillofacial Radiology and ⁴Oral and Maxillofacial Surgery, Ankara University Faculty of Dentistry, Turkey

SP199 PALATAL IMPLANTS VERSUS PALATAL MINISCREWS FOR REINFORCEMENT OF ANCHORAGE DURING ORTHODONTIC TREATMENT. A SYSTEMATIC REVIEW

Lydia Kakali¹, Dimitrios Kloukos², Nikolaos Pandis², Departments of Orthodontics and Dentofacial Orthopedics, ¹251 Hellenic Air Force General Hospital, Athens, Greece and ²University of Bern, Switzerland

SP200 ASSESSMENT OF THERAPY CHARACTERISTICS OF CLASS I MALOCCLUSIONS TREATED WITH THE CONVENTIONAL STRAIGHTWIRE METHOD OR THE DAMON TECHNIQUE: A RANDOMIZED TRIAL **Eleftherios G. Kaklamanos**¹, Dimitrios Mavreas², Lazaros Tsalikis³, Vassilis Karagiannis⁴, Athanasios E. Athanasiou¹, ¹Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates, ²Department of Orthodontics, Faculty of Medicine and Pharmacy, CHIR - Unit Dentistry – ORHE, Vrije University, Brussels, Belgium and ³Department of Preventive Dentistry, Periodontology and Implant Biology, Faculty of Dentistry, School of Health Sciences and ⁴School of Mathematics, Aristotle University of Thessaloniki, Greece

SP201 CHANGES IN MANDIBULAR EXTRACTION SPACES FOLLOWING PREMATURE LOSS OF FIRST PRIMARY MOLARS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Eleftherios G. Kaklamanos¹, Dimitra Lazaridou², Dimitra Tsiantou², Nikolaos Kotsanos³, Athanasios E. Athanasiou¹, ¹Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates, ²Private practice, Thessaloniki, Greece and ³Department of Pediatric Dentistry, School of Dentistry, Aristotle University of Thessaloniki, Greece

SP202 ARE ERUPTION GUIDANCE APPLIANCES CLINICALLY EFFECTIVE? A SYSTEMATIC REVIEW Eleftherios G. Kaklamanos¹, Ioannis Tsolianos², **Vasileios F. Zymperdikas³**, Moschos A. Papadopoulos³, ¹Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates, ²Faculty of Dentistry, Aristotle University of Thessaloniki and ³Department of Orthodontics, School of Health Sciences, Faculty of Dentistry, Aristotle University of Thessaloniki, Greece

SP203 ORTHODONTIC TREATMENT IN BISPHOSPHONATE PATIENTS: A SYSTEMATIC REVIEW

Vasileios F. Zymperdikas¹, Maria Yavropoulou², Eleftherios G. Kaklamanos³, Moschos A. Papadopoulos¹, ¹Department of Orthodontics, School of Health Sciences, Faculty of Dentistry, and ²Laboratory of Clinical and Molecular Endocrinology, 1st Department of Internal Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece and ³Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

SP204 OCCLUSAL TRAITS OF A SAMPLE OF 153 DENTAL STUDENTS WITH A PAST ORTHODONTIC HISTORY

Quentin Kamm¹, Mickaël Schaeffer², ¹Department of Dento-Facial Orthopedics, Faculty of Dental Surgery, Strasbourg and ²Group Method in Clinical Research, Public Health Unit, Strasbourg University Hospitals, France

SP205 FACIAL PROFILE AS RELATED TO SEVERITY OF OVERJET AND OVERBITE

Georgios Kanavakis¹, Laura Krooks², Raija Lähdesmäki², **Pertti Pirttiniemi²**, ¹Department of Orthodontics and Dentofacial Orthopedics, Tufts University School of Dental Medicine, Boston, MA, USA and ²Department of Oral Development and Orthodontics, University of Oulu, Finland

SP206 MECHANICAL PROPERTIES AND ION RELEASE FROM NICKEL-TITANIUM WIRES WITH VARIOUS SURFACE COMPOSITIONS IN ARTIFICIAL SALIVA

Visnja Katic¹, Branka Blagovic², Zlatko Ciganj³, Kristina Markovic⁴, Ervin Kamenar⁴, Departments of ¹Orthodontics, ²Chemistry and Biochemistry and ⁴Centre for Micro and Nano Sciences and Technologies, University of Rijeka and ³Quality Control, INA Refinery Rijeka, Croatia

SP207 QUANTIFYING DIFFERENCES IN FACIAL MORPHOLOGY IN CROATIAN, ENGLISH AND WELSH CAUCASIAN POPULATIONS

Visnja Katic¹, Alexei Zhurov², Maja Ovsenik³, Stjepan Spalj¹, Stephen Richmond², ¹Department of Orthodontics, University of Rijeka, Croatia, ²Department of Applied Clinical Research and Public Health, Cardiff University, U.K. and ³Department of Orthodontics and Dentofacial Orthopedics, University of Ljubljana, Slovenia

SP208 RELATIONSHIP OF CHRONOLOGICAL AGE WITH REFERENCE TO CRANIOFACIAL MORPHOLOGY IN CHILDREN WITH OBSTRUCTIVE SLEEP APNOEA

Shigeto Kawashima¹, Mitsuyuki Suzuki², Naoko Niikuni³, ¹Isdorly Orthodontic Office, Tokyo, Japan, ²Department of Molecular Medicine and Gene Therapy, Lund Stem Cell Center, Lund University, Sweden and ³Niikuni Pedodontic & Orthodontic Office, Tokyo, Japan

SP209 BIOCHEMICAL EXPRESSION OF VASCULAR ENDOTHELIAL GROWTH FACTOR WITH NEOVASCULARIZATION DURING OCCLUSAL HYPOFUNCTION: A MOUSE EXPERIMENTAL STUDY **Toshitsugu Kawata**, Kanagawa Dental University, Yokosuka, Japan

SP210 ASSESSMENT THE RELIABILITY OF THREE DIFFERENT MIXED DENTITION ANALYSIS METHODS IN A TURKISH POPULATION

Yesim Kaya¹, Ozer Alkan¹, Sabahattin Bor¹, Sıddık Keskin², ¹Department of Orthodontics, Faculty of Dentistry and ²Department of Biostatistics, Faculty of Medicine, Yüzüncü Yıl University, Van, Turkey

SP211 CLINICAL COMPARISON OF THE EFFICACY OF SPACE CLOSURE IN FIRST PREMOLAR EXTRACTION CASES BY ELASTOMERIC CHAIN AND ELASTIC MODULE

Navid Kerayehchian¹, Elham Nik², ¹Department of Orthodontics, Hormozgan University of Medical Sciences, Bandarabbas, Iran and ²UCLA School of Dentistry, Los Angeles, USA

SP212 NASOLABIAL SYMMETRY IN CLEFT PATIENTS BEFORE AND AFTER BONE GRAFT PLACEMENT: TWO-DIMENSIONAL PHOTOGRAPHY

Eveline Kerckhof, Liesbet Temmerman, Guy De Pauw, University of Ghent, Belgium

SP213 A COMPARISON OF DIFFERENT RADIOGRAPHIC METHODS FOR DENTAL AGE ESTIMATION IN 5-17 YEAR OLD NORTH GERMAN CHILDREN

Nadiajda Khdairi, Talal Halilah, Paul-Georg Jost-Brinkmann, Theodosia Bartzela, Center for Dental and Craniofacial Sciences, Department of Orthodontics, Dentofacial Orthopedics and Pedodontics, Charité - Universitätsmedizin Berlin, Germany

SP214 EFFECT OF THE CONGENITALLY MISSING MAXILLARY LATERAL INCISOR ON SAGITTAL MAXILLOMANDIBULAR JAW DIMENSIONS

Burcu Kilinc¹, Elif Ergin¹, Merve Fidanboy¹, Zeliha Muge Baka¹, Ali Kilinc², ¹Department of Orthodontics, Selcuk University Faculty of Dentistry, Konya and ²Department of Oral and Maxillofacial Surgery, Necmettin Erbakan University Faculty of Dentistry, Konya, Turkey

SP215 SYMPHYSIS MORPHOLOGY AND DIMENSIONS IN HYPERDIVERGENT PATIENTS WITH DIFFERENT ANTEROPOSTERIOR SKELETAL RELATIONSHIPS

Tae-Hoon Kim¹, Suh-Young Han¹, Myung-hyun Park², Yae-Jin Kim¹, **Dong-Yul Lee¹**, Departments of Orthodontics, ¹Korea University Guro Hospital, Seoul and ²Graduate School of Clinical Dentistry Korea University, Seoul, Korea, South

SP216 A STUDY OF THE HORIZONTAL REFERENCE PLANES ON LATERAL CEPHALOGRAM IN KOREAN CHILDREN

Kyung-Ho Kim, Yoonjeong Noh, Ju-Eon Song, Woowon Jang, Soonshin Hwang, Department of Orthodontics, Yonsei University College of Dentistry, Gangnam Severance Dental Hospital, Seoul, Korea, South

SP217 NASAL CHANGES AFTER SURGICAL CORRECTION OF SKELETAL CLASS III MALOCCLUSION IN KOREANS

Kyung-Ho Kim, Seokjin Jeong, Woowon Jang, Soonshin Hwang, Chooryung J. Chung, Department of Orthodontics, Yonsei University College of Dentistry, Gangnam Severance Dental Hospital, Seoul, Korea, South

SP218 FLUORIDE VARNISH EFFICACY IN PREVENTING WHITE SPOTS AND GINGIVITIS DURING FIXED ORTHODONTIC TREATMENT – A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL

Christian Kirschneck, Jan-Joachim Christl, Claudia Reicheneder, Peter Proff, Department of Orthodontics, University Medical Centre Regensburg, Germany

SP219 FOLLOW-UP STUDY OF BONE ANCHORED MAXILLARY PROTRACTION TREATMENT OF THE HYPOPLASTIC MAXILLA WITH DIFFERENT TYPES OF CLEFT LIP AND PALATE PATIENTS

Anu Kiukkonen, Sirpa Railavo, Kirsti Hurmerinta, Cleft Palate and Craniofacial Center, Helsinki University Hospital, Finland

SP220 ADVANCED TREATMENT OPTIONS WITH THE C-PLATE — SKELETAL ANCHORAGE IN THE MANDIBLE

Raphael Kläger¹, Seung-Woo Yoo², Andreas Bemsch³, Alexander Hohensee¹, Hendrike Hartung⁴, ¹Smile & function, Bingen, ²Department of Orthodontics, Universitätsklinik Halle (Saale), Halle, ³Oral and maxillofacial surgery, Ingelheim and ⁴Smile & function, Wiesbaden, Germany

SP221 QUANTIFICATION OF DENTAL PLAQUE IN MULTIBRACKET APPLIANCE PATIENTS: IS THERE A RELIABLE METHOD?

Katharina Klaus¹, Tabea Glanz¹, Alexander Glanz², Carolina Ganss⁴, Sabine Ruf¹, Departments of ¹Orthodontics and ³Conservative and Preventive Dentistry, Justus-Liebig-University Giessen and ²Private practice, Giessen, Germany

SP222 THE EFFECT OF CERVICAL HEADGEAR ON DENTAL ARCH AREA

Heta Kokko, Toni Heino, Ville Vuollo, Pertti Pirttiniemi, Faculty of Medicine, University of Oulu, Finland

SP223 WEAR-TIME REGISTRATION DURING ORTHOPAEDIC TREATMENT WITH THE MODIFIED FRÄNKEL 3 APPLIANCE – A 24 MONTH MICROELECTRONIC EVALUATION

Tomaž Košorok, Franc Marjan Farčnik, Orthos, Ljubljana, Slovenia

SP224 EVALUATION OF PATIENT DISCOMFORT AND PAIN AFTER PIEZOELECTROC CORTICOTOMY **Sema Koyuncu**, Mehmet Akın, Orthodontic Department, Selcuk University, Konya, Turkey

SP225 PREVALENCE OF MALOCCLUSION TRAITS AND ORTHODONTIC TREATMENT IN A FINNISH ADULT POPULATION

Laura Krooks¹, Pertti Pirttiniemi^{1,2}, Georgios Kanavakis³, Raija Lähdesmäki^{1,2}, Department of Oral Development and Orthodontics, ¹University of Oulu and ²Oulu University Hospital, Finland and ³School of Dental Medicine, Tufts University, Boston, USA

SP226 SUBJECTIVE JUDGMENT AND OBJECTIVE MEASUREMENT OF PROFILE CHANGES DURING SURGICAL OR NON-SURGICAL TREATMENT OF ADULT CLASS II DIVISION 1 FEMALES

Reinder Kuitert, Ikram Tabaouni, Andrej Zentner, Department of Orthodontics, ACTA Amsterdam, Netherlands

SP227 SOFTWARE DIAGNOSTIC FEATURES AND ALIGNER CONSTRUCTION **Denis Kuznetsov**, Nikolai Lipin, Orthodontics, SimplyCeph, Moscow, Russia

SP228 INFLUENCE OF ORTHODONTIC TREATMENT ON THE FUNCTIONAL STATE OF THE DENTAL JAW SYSTEM IN THE DEVELOPING DENTITION

Galina Kuznetsova, Monika Batler, Lena Markaryan, Denis Kuznetsov, Anastasia Novitskaya, Department of Orthodontics, MSMSU, Moscow, Russia

SP229 ANALYSIS OF BIOPOTENTIALS OF MUSCLES IN SUBJECTS WITH MESIOCLUSION

Galina Kuznetsova, Monika Batler, Lena Markaryan, Denis Kuznetsov, Tatiana Repina, Department of Orthodontics, MSMSU, Moscow, Russia

SP230 ASSESSMENT OF HEAD ASYMMETRY IN PREMATURELY BORN CHILDREN DURING EARLY CHILDHOOD USING THREE-DIMENSIONAL PHOTOGRAPHY

Panagiotis Kyteas¹, Virpi Harila², Marita Valkama³, Ville Vuollo², ¹Department of Orthodontics, University of Alabama at Birmingham, School of Dentistry, MRC, Birmingahm, USA and Departments of ²Oral Development and Orthodontics and ³Children and Adolescence, PEDEGO Research Group, Oulu University Hospital, MRC, Finland

SP231 COMPARISON OF THREE-DIMENSIONAL SKELETAL AND DENTAL CHANGES IN MAXILLARY EXPANSION TREATMENT WITH THE HYRAX OR DAMON SYSTEM

Manuel Lagravere, Paul Major, University of Alberta, Edmonton, Canada

SP232 EFFECT OF A FLUORIDE-RELEASING VARNISH ON SHEAR BOND STRENGTH OF BRACKETS BONDED ON DEMINERALIZED ENAMEL

Irene Laguna Chamizo, Ascensión Vicente Hernández, Antonio J Ortiz Ruiz, Luis Alberto Bravo González, University of Murcia, Spain

SP233 SPEECH DISORDERS, EAR, NOSE AND THROAT CONDITIONS AND TONGUE POSTURE IN ANTERIOR OPEN BITE PRESCHOOL CHILDREN

Sanda Lah Kravanja¹, Maja Marolt Mušič², Irena Hočevar Boltežar³, Maja Ovsenik⁴, ¹Orthodontics, Dentalni center Dr. Lah Kravanja, Bovec, ²Institute of Oncology, University Medical Centre, Ljubljana, ³Clinic of Otorihnolaryngology and Cervicofacial Chirurgy, University Medical Centre, Ljubljana and ⁴Department of Orthodontics and Maxillofacial Orthopaedics, University of Ljubljana, Medical Faculty and University Medical Centre, Slovenia

SP234 REDUCTION OF GINGIVAL RECESSIONS BY ORTHODONTIC TREATMENT

Morten Godtfredsen Laursen¹, Mette Rylev², Birte Melsen³, ¹Section of Orthodontics, Department of Dentistry, Aarhus University and ²Aarhus University, Denmark and ³Medizinische Hochschule, Hannover, Germany

SP235 ACCURACY OF THE COMPOSITE TOOTH MODEL FROM INTRA-ORAL SCANNED CROWN AND CONE-BEAM COMPUTED TOMOGRAPHY ROOT: AN *IN VIVO* STUDY

Gyu Hyeng Lee, Hyun Hee Choo, Jun Bo Jeon, Ji Kwon Kim, Jin Hyoung Cho, Chonnam National University hospital, Gwangju, Korea, South

SP236 REPORTING EXPERT PANELS METHODOLOGY IN ORTHODONTIC RESEARCH: A PROPOSED CHECKLIST FOR IMPROVEMENT

Evangelia Lempesi¹, **Electra Toulia²**, Nikolaos Pandis³, Departments of Orthodontics and Dentofacial Orthopedics, ¹251 General VA Greek Airforce Hospital, Athens, ²Aristotle University of Thessaloniki, Greece and ³University of Bern, Switzerland/Private Practice in Corfu, Greece

SP237 RECONSTRUCTION OF THE ALVEOLAR RIDGE BY TOOTH TRANSPLANTATION

Manfred Leunisse, Edwin Eggink, Marcel Linssen, Dick Barendregt, ProClin, Rotterdam, Netherlands

SP238 A COMPREHENSIVE ORTHODONTIC DIAGNOSIS IN CHILDREN WITH 22Q11.2 DELETION SYNDROME

Arianne Lewyllie¹, Jasmien Roosenboom², Ine Saey³, Greet Hens⁴, An Verdonck¹, ¹Oral Health Sciences, Orthodontics, KU Leuven, ²Neurosciences, Experimental Otorhinolaryngology, University Hospitals Leuven, ³ESAT, Department of Electrical Engineering, KU Leuven and ⁴Department of Otorhinolaryngology, Head and Neck Surgery, University Hospitals Leuven, Belgium

SP239 THREE-DIMENSIONAL VOLUMETRIC ANALYSIS OF PHARYNGEAL AIRWAY VOLUME IN SKELETAL I, II AND III PATIENTS

Mei Yian Lim¹, Mini Yow¹, Kok Weng Lye², Hung Chew Wong³, ¹Department of Orthodontics, ²Department of Oral and Maxillofacial Surgery and ³Biostatistics Unit, National University of Singapore, Singapore

SP240 RELIABILITY OF AN INTRAORAL SCANNER: A COMPARISON BETWEEN *IN VIVO* AND *EX VIVO* SCANS

Seung Weon Lim, **Hussein Aljawad**, Gyu Hyeng Lee, Youn Ju Kee, Hoi Jeong Lim, Chonnam National University, Gwangju, Korea, South

SP241 CONDYLAR DISPLACEMENT IN SAGITTAL SPLIT RAMUS OSTEOTOMY PATIENTS WITH FACIAL ASYMMETRY: COMPARISON BETWEEN CONVENTIONAL AND THE SURGERY-FIRST APPROACH **Seung Weon Lim**, Min Hee Oh, Jun Bo Jeon, Youn Ju Kee, Ji Kwon Kim, Chonnam National University

Hospital, Gwangju, Korea, South

SP242 PREDICTION OF COMBINED MESIODISTAL CROWN WIDTHS OF UNERUPTED PERMANENT CANINE AND PREMOLARS IN A SINGAPORE CHINESE POPULATION

Shy Min Lim, Kelvin, Wen Chiong Foong, Hung Chew Wong, Kenji Takada, National University Hospital Singapore, Singapore

SP243 LOWER INCISOR INCLINATION AFTER TWIN BLOCK TREATMENT: A CLINICAL COMPARISON OF TWO ALTERNATIVE DESIGNS

Christos Livas¹, Mark Cornelis van der Plas², Krista Ingeborg Janssen², Nikolaos Pandis¹, ¹Dental Clinics Zwolle, Zwolle, Netherlands, ²University of Groningen, University Medical Center Groningen, Netherlands and ³School of Dental Medicine, University of Bern, Switzerland

SP244 AN AUDIT OF ORTHOGNATHIC SURGERY WAITING TIME IN A UNITED KINGDOM NATIONAL HEALTH SERVICE HOSPITAL

Hayley Llandro, Department of Oral Surgery and Orthodontics, Stoke Mandeville Hospital, Aylesbury, U.K.

SP245 AUDIT TO ASSESS ORTHODONTIC REFERRAL PATTERNS AT STOKE MANDEVILLE HOSPITAL, UNITED KINGDOM

Hayley Llandro, Helen Travess, Department of Oral Surgery and Orthodontics, Stoke Mandeville Hospital, Aylesbury, U.K.

SP246 THE INFLUENCE OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS ON ORTHODONTIC TOOTH MOVEMENT— REVIEW OF THE LITERATURE

Magdalena Łoboda¹, Magdalena Mazurkiewicz-Janik¹, Maria Mituś-Kenig², Beata Milewska¹, Elżbieta Pawłowska³, ¹Department of Orthodontics, Specialist District Outpatient Clinic Zbigniew Zak Memorial, Krakow, ²Department of Experimental Dentistry and Prophylaxis, Jagiellonian University Medical Collage, Krakow and ³Department of Orthodontics, Medical University, Lodz, Poland

SP247 EFFICACY OF LASER IN PAIN CONTROL AND TOOTH MOVEMENT DURING ORTHODONTIC TREATMENT. A LITERATURE REVIEW

Javier López-Gasco Torres, Víctor Gómez Clemente, Iván Nieto Sánchez, Ana Belén Macías Gago, Laura Aneiros Fernández, Department of Dentistry, Nebrija University-San Rafael Hospital, Madrid, Spain

SP248 PERCEPTION BY ORTHODONTISTS, GENERAL DENTISTS AND LAYPERSONS OF SMILE AESTHETICS WITH MANDIBULAR INCISOR EXPOSURE

María Lourdes González Fernández Lourdes¹, Ascensión Vicente Hernández², Luis Alberto Bravo González², Universidad de Murcia, ¹Torre del Mar and ²Murcia, Spain

SP249 PREDICTION OF THE MESIODISTAL CROWN WIDTHS OF UNERUPTED CANINES AND PREMOLARS IN THE SINGAPORE MALAY POPULATION

Wilson Lu, Kenji Takada, Kelvin Foong, Hung Chew Wong, National University of Singapore, Singapore

SP250 ORAL FUNCTIONS AND ORTHODONTIC TREATMENT NEED: AN EPIDEMIOLOGICAL STUDY IN FRANCE

Laurence Lupi^{1,2}, Deborah Esteve², Armelle Maniere², David Danan³, Jean-Baptiste Kerbrat⁴,
¹MICORALIS, ²University of Cote d'Azur - Chun, Nice, ³Hopital Pitié-Salpetrière and ⁴SMODMF,
Hopital Pitié Salpétrière, Paris, France

SP251 PROGRESSION OF VOLUMETRIC AND SURFACE TOOTH WEAR IN PATIENTS HAVING UNDERGONE ORTHODONTIC TREATMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS

Miltiadis Makrygiannakis, Eleftherios G. Kaklamanos, Alexander Milosevic, Athanasios E. Athanasiou, Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates

SP252 MYOFIBROBLAST EXPRESSION DURING ORTHODONTIC TOOTH MOVEMENT Luísa Maló, **Francisco do Vale**, Ana Rafael, João Brochado, Department of Orthodontics, Faculty of Medicine of University of Coimbra, Portugal

SP253 CAN WE GET ALL THE ANSWERS WITH ONLY ONE QUESTION?

Iva Manevska, Vesna Jankulovska, Elena Petrova, Irena Gavrilovikj, Gabriela Kjurchieva Chuchkova, Department of Orthodontics, University Ss.Cyril and Methodius, Skopje, Former Yugoslav Republic of Macedonia

SP254 COMPARISON OF CLINICAL OUTCOMES USING APPLIANCES FOR DISTALIZATION OF MOLARS WITH AND WITHOUT SKELETAL ANCHORAGE

Martin Mariyanov, Medical University Sofia, Bulgaria

SP255 EVALUATION OF THE CHANGES IN VERTICAL SKELETAL RELATIONSHIPS WITH THE USE OF THE SKELETAL FROG APPLIANCE

Martin Mariyanov, Vladimir Petrunov, Medical University Sofia, Bulgaria

SP256 EFFECTIVENESS OF ANTERIOR OPEN BITE TREATMENT FOR PATIENTS IN THE MIXED DENTITION WITH NON-NUTRITIVE HABITS: A LITERATURE REVIEW

Jorge Marquez Perez, Javier De La Cruz Perez, Iván Nieto Sánchez, Inés Díaz Renovales, Carmen Mediero Pérez, Department of Dentistry, University Alfonso X el Sabio, Madrid, Spain

SP257 SHORT- AND LONG-TERM EVALUATION OF MANDIBULAR DENTAL ARCH DIMENSIONAL CHANGES IN PATIENTS TREATED WITH A LIP BUMPER FOLLOWED BY FIXED APPLIANCES

Paola Martina Marra¹, Luigi Femiano¹, Camila Pachêco-Pereira², Carlos Flores-Mir¹, Letizia Perillo¹, ¹University of Campania "Luigi Vanvitelli", Multidisciplinary Department of Medical-Surgical and Dental Specialties, Orthodontic Division, Naples, Italy and ²Department of Dentistry, University of Alberta, Edmonton, Canada

SP258 DENTAL ARCH DIMENSIONS ON THREE-DIMENSIONAL DIGITAL AND PLASTER STUDY MODELS IN INDIVIDUALS WITH A UNILATERAL CLEFT LIP AND PALATE

Elif Merve Mavi, Mehmet Okan Akçam, Department of Orthodontics, Ankara University Faculty of Dentistry, Turkey

SP259 IS OBESITY A RISK FACTOR FOR PERSISTENT POST-SURGICAL INFECTION IN ORTHOGNATHIC SURGERY?

Adrian Mawhinney¹, Fleur Stoops², **Grant McIntyre²**, Sean Laverick¹, ¹Department of Oral & Maxillofacial Surgery, Ninewells Hospital, Dundee and ²Department of Orthodontics, University of Dundee, U.K.

SP260 OBESITY IN ORTHOGNATHIC PATIENTS IN THE UNITED KINGDOM — IS A PROTOCOL REQUIRED?

Fleur Stoops¹, Adrian Mawhinney², **Grant McIntyre¹**, Sean Laverick², ¹Department of Orthodontics, University of Dundee and ²Department of Oral & Maxillofacial Surgery, Ninewells Hospital, Dundee, U.K.

SP270 ROLE OF CATHEPSIN S AND AUTOPHAGY IN ORAL INFLAMMATION AND INFECTION

Svenja Memmert^{1,2}, Anna Damanaki¹, Andreas Jäger², Marjan Nokhbehsaim¹, James Deschner², ¹Section of Experimental Dento-Maxillo-Facial Medicine and ²Department of Orthodontics, Center of Dento-Maxillo-Facial Medicine, University of Bonn, Germany

SP271 INFLUENCE OF LONG-TERM *IN VIVO* EXPOSURE ON BRACKET SLOT CHARACTERISTICS – A MICROCOMPUTER TOMOGRAPHY ANALYSIS

Uros Mezeg¹, Alexei Zhurov², Andraz Legat³, Maja Ovsenik⁴, **Jasmina Primozic⁴**, ¹Beli medved doo, Radovljica, Slovenia, ²University of Cardiff, U.K., ³Slovenian National Building and Civil Engineering Institute, Ljubljana and ⁴University of Ljubljana, Slovenia

SP272 EFFECTS OF THE MODIFIED FRÄNKEL REGULATOR 3 ON MAXILLARY AND MANDIBULAR MORPHOLOGY AND TONGUE POSTURE – A CLINICAL CONTROLLED STUDY

Jasmina Primozic¹, Alexei Zhurov², Maja Ovsenik¹, Franc Farcnik¹, University of Ljubljana, Slovenia and ²University of Cardiff, U.K.

SP273 THE EFFECT OF ORTHODONTIC TREATMENT ON THE POSITION AND SPACE AVAILABLE FOR UPPER AND LOWER THIRD MOLARS

Annelie Miclotte¹, Bieke Grommen², Maria Cadenas de Llano-Pérula¹, Reinhilde Jacobs², Guy Willems¹, ¹Department of Oral Health Sciences-Orthodontics, and ²OMFS IMPATH, Department of Imaging & Pathology, KULeuven, Belgium

SP274 TORQUE RECORDINGS OF ORTHODONTIC MINISCREWS AT THREE DIFFERENT TIMEPOINTS: PRELIMINARY RESULTS FROM A RANDOMIZED CLINICAL TRIAL

Marco Migliorati, Sara Drago, Benedetta Robotti, Armando Silvestrini Biavati, Department of Orthodontics, Genoa University, Italy

SP275 ANALYSIS OF TORQUE EFFICACY IN FIXED VESTIBULAR ORTHODONTIC BRACKET-WIRE SYSTEM

Marco Migliorati, Daniela Poggio, Sara Drago, Armando Silvestrini Biavati, Department of Orthodontics, Genoa University, Italy

SP276 SKELETAL AND DENTOALVEOLAR CHANGES COMPARING EXTRACTION AND NON-EXTRACTION TREATMENT OF CLASS II MALOCCLUSION

Jovana Milutinovic¹, **Nenad Nedeljkovic¹**, Zorana Stamenkovic¹, Vojislav Milosavljevic², Ana Beronja³, ¹Department of Orthodontics, University of Belgrade, ²Department of Orthodontics, Primary Health Center, Pozarevac and ³Department of Oral Surgery, Primary Health Center, Smederevo, Serbia

SP277 EXPECTATIONS OF PERIODONTALLY COMPROMISED PATIENTS REGARDING ORTHODONTIC TREATMENT AND ITS EFFECTS

Liwia Minch, **Anna Biala**, Beata Kawala, Department of Maxillofacial Orthopaedics and Orthodontics, Wroclaw Medical University, Poland

SP278 LONG-TERM STABILITY ASSESSMENT OF DIFFERENT SIZES OF MINI-IMPLANTS PLACED IN THE POSTERIOR PART OF THE MANDIBULAR BODY

Michal Sarul, **Anna Biala**, Joanna Antoszewska-Smith, Department of Maxillofacial Orthopaedics and Orthodontics, Wroclaw Medical University, Poland

SP279 EVALUATION OF DIODE LASER AND PHOTODYNAMIC THERAPY ON REDUCTION OF GINGIVAL INFLAMMATION IN FIXED ORTHODONTIC PATIENTS

Amirfarhang Miresmaeili¹, Maryam Dinparvar², Loghman Rezaei Sofi³, Departments of ¹Orthodontics and ³Operative Dentistry, Hamadan University of Medical Sciences and ²Department of Orthodontics, Ilam University of Medical Sciences, Iran

SP280 SKELETAL AND DENTAL PATTERNS IN PATIENTS WITH OLIGODONTIA

Haruyo Miyazaki, Mihoko Hirai, Yuka Yasumura, Takenori Ishii, Teruo Sakamoto, Department of Orthodontics, Tokyo Dental College, Japan

SP281 EFFECTS OF B1 ADRENALINE RECEPTOR BLOCKER ON EXPERIMENTAL TOOTH MOVEMENT IN SPONTANEOUSLY HYPERTENSIVE RATS

Ken Miyazawa, Atsushi Takeguchi, Shigemi Goto, Department of Orthodontics, Aichi Gakuin University, Nagoya, Japan

SP282 THE CENTRE OF RESISTANCE OF THE MANDIBULAR DENTITION WITHOUT THE FIRST PREMOLAR

Sung-Seo Mo, Ji Min Oh, Department of Dentistry, The Catholic University of Korea, Seoul, Korea, South

SP283 A COMPARISON OF THE EFFECT OF CASEIN PHOSPHOPEPTIDE-AMORPHOUS CALCIUM PHOSPHATE, FLUORIDE AND A COMBINATION ON INITIAL CARIES LESION: FINAL OUTCOME

Sophie Moerman, Charlotte Van Elst, Petra Maes, Liesbeth Temmerman, Guy De Pauw, Department of Orthodontics, Ghent University, Belgium

SP284 OROFACIAL FUNCTION AND OCCLUSION IN A GROUP OF CHILDREN WITH SPEECH SOUND DISORDERS

Åsa Mogren¹, Anna Ödman², Christina Havner², Lotta Sjögreen², Anita McAllister¹, ¹Department of Clinical Science, Intervention and Technology, Division of Speech and Language Pathology, Karolinska Institutet, Stockholm and ²Mun-H-Center Orofacial Resource Centre for Rare Diseases, Public Dental Service, Gothenburg, Sweden

SP285 EVALUATION OF ENAMEL SURFACE ROUGHNESS FOLLOWING ORTHODONTIC TREATMENT Shadi Mohebi¹, Hassan-Ali Shafiee², Mehdi Salehi Zeinabadi³, **Nazila Ameli³**, Departments of Orthodontics, Schools of Dentistry, ¹Urmia University of Medical Sciences and ²Shahid Beheshti University of Medical Sciences, Tehran and ³Semnan University of Medical Sciences, Iran

SP286 MATURATIONAL CHANGES OF THE CERVICAL VERTEBRAE IN RELATION TO CRANIOFACIAL GROWTH SPURT IN ORTHODONTIC CLASS I

Mona Montasser, Department of Orthodontics, Mansoura University, Egypt

SP287 NON-SURGICAL MANAGEMENT OF DEVELOPING AND BORDERLINE CLASS III CASES **Shams Moopen**, Orthodontics, Moopen Dental Care, Northampton, U.K.

SP288 RAPID PALATAL EXPANSION WITH A HYRAX BANDED COMPARED IN THE PRIMARY AND PERMANENT DENTITION

Beatriz Morandeira Lázaro¹, Juan Sánchez Holgado¹, Manuel Morandeira Saavedra², Iván Nieto Sánchez¹, Javier De la Cruz Pérez¹, ¹Department of Dentistry, University Alfonso X el Sabio, Madrid and ²Orthodontic clinic, Morandeira, Spain

SP289 VALIDATION OF AN INSTRUCTION METHOD TO IMPROVE ORTHODONTIC DIAGNOSIS BY UNDERGRADUATES

Cristina Moreno, Marta Olmos, Lidia Sotelo, Ana López, Martín Romero, Rey Juan Carlos, Alcorcón, Spain

SP290 COMPARISON OF THE SUPERELASTICITY OF DIFFERENT NICKEL-TITANIUM ORTHODONTIC ARCHWIRES AND THE LOSS OF THEIR PROPERTIES BY HEAT TREATMENT

Javier Moyano¹, Humberto Bellini¹, Javier Gil, Javier Fernández-Bozal², Andreu Puigdollers¹, ¹Department of Orthodontics, Universitat Internacional de Catalunya, Sant Cugat del Vallès, Barcelona and ²Universitat Internacional de Catalunya, Barcelona, Spain

SP291 COMPARISON OF THE THICKNESS OF THE ALVEOLAR WALL IN A MULTI-PLATFORM IMAGING STUDY

Kim Mueller, Carlaberta Verna, Michel Dalstra, Department of Orthodontics, University of Basel, Switzerland

SP292 AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN THE MANDIBULAR FOSSA AND MANDIBULAR MORPHOLOGY IN MANDIBULAR PROGNATHISM WITH FACIAL ASYMMETRY

Tomoko Murakami¹, Tadao Fukui¹, Hideyoshi Nishiyama², Isao Saito¹, Divisions of ¹Orthodontics and ²Oral and Maxillofacial Radiology, Niigata University Graduate School of Medical and Dental Sciences, Japan

SP293 EFFECTS OF LOADING, GENDER AND AGE ON RAT CONDYLAR CARTILAGE MORPHOLOGY **Eerika Mursu**, Marko Orajärvi, Sakari Laaksonen, Aune Raustia, Pertti Pirttiniemi, University of Oulu, Finland

SP294 COMPENSATORY RESPONSES TO ADDED NASAL AIRWAY RESISTANCE WITH AGE **Siiri Murtolahti¹**, Ulla Crouse², Riitta Myllykangas¹, Donald Warren³, Maija Laine-Alava¹, ¹University of Eastern Finland, Kuopio, Finland, ²University of Michigan, Ann Arbor, USA and ³University of North Carolina, Chapel Hill, USA

SP295 EFFECTIVENESS OF DENTAL RETENTION AND ITS RELATIONSHIP WITH RELAPSE

Sara Musa Herranz, Vanesa García Catalán, Víctor Gómez Clemente, Javier López-Gasco Torres, Iván
Nieto Sánchez, Department of Dentistry, Nebrija University-San Rafael Hospital, Madrid, Spain

SP296 A RANDOMIZED CLINICAL TRIAL PROTOCOL FOR EVALUATING THE EFFECTIVENESS OF ELECTRIC TOOTHBRUSHES IN ORTHODONTIC PATIENTS. THE SPIRIT STATEMENT

Ioulia Maria Mylonopoulou¹, Eudoxia Pepelasi², Phoebus Madianos², Demetrios Halazonetis¹, Departments of ¹Orthodontics and ²Periodontics, School of Dentistry, National and Kapodistrian University of Athens, Greece

SP297 EFFECT OF ELECTRIC AND MANUAL TOOTHBRUSHES ON PLAQUE REMOVAL AND PERIODONTAL STATUS DURING ORTHODONTIC TREATMENT. A SYSTEMATIC LITERATURE REVIEW **Ioulia Maria Mylonopoulou**, Demetrios Halazonetis, Department of Orthodontics, National and Kapodistrian University of Athens, Greece

SP298 COMPARISON OF ACCURACY OF MAXILLARY REPOSITIONING IN SINGLE PROCEDURE SURGERY (LE FORT 1) WITH CONVENTIONAL VERSUS VIRTUAL MODEL SURGERY

Aleksandra Myrda¹, Michel Dalstra¹, Thomas Klit Pedersen¹, Birte Melsen², ¹Department of Dentistry and Oral Health - Department of Orthodontics, Aarhus University, Denmark and ²Department of Orthodontics, Hannover Medical School, Germany

SP299 DIFFERENTIATION OF MESENCHYMAL STEM CELLS DERIVED FROM iPS CELLS INTO OSTEOBLAST-LIKE CELLS

Yuji Nakayama¹, Yoshiya Hashimoto², Naoyuki Matsumoto¹, Departments of ¹Orthodontics and ²Biomaterials, Osaka Dental University, Japan

SP300 STABILITY OF ANTERIOR MAXILLARY ADVANCEMENT USING TOOTH SUPPORTED DISTRACTION OSTEOGENESIS

Prasad Nalabothu¹, Althaf Hussain Syed², Carlalberta Verna¹, ¹Department of Orthodontics and Pediatric Dentistry, University Center for Dental Medicine, University of Basel, Switzerland and ²Department of Plastic Surgery, Cleft and Craniofacial center, Sri Ramachandra University, Chennai, India

SP301 EXTRACTION OF THE PRIMARY CANINE IN CHILDREN WITH PALATALLY DISPLACED CANINES: PREDICTIVE VARIABLES ON PANORAMIC RADIOGRAPHS

Julia Naoumova, Jüri Kurol, Heidrun Kjellberg, Specialist Clinic of Orthodontics, University Clinics of Odontology, Public Dental Service, Västra Götaland Region, Gothenburg, Sweden

SP302 MECHANICAL STABILITY PROPERTIES OF ORTHODONTIC MINI-IMPLANTS. AN *IN VITRO* STUDY

Konstantinos Naziris, Falko Schmidt, Bernd G. Lapatki, Department of Orthodontics, University Ulm, Germany

SP303 EXPERIMENTAL FRICTIONAL FORCES PRODUCED BY DIFFERENT TYPES OF LIGATURES DURING SIMULATED INTRUSION-EXTRUSION IN A THREE-BRACKET MODEL

Konstantinos Naziris, Falko Schmidt, Bernd G. Lapatki, Department of Orthodontics, University Ulm, Germany

SP304 THE INFLUENCE OF CORTICAL BONE THICKNESS ON MINISCREW MICRODAMAGE

Melissa Nguyen¹, John Codrington¹, Lloyd Fletcher², Craig Dreyer¹, Wayne Sampson¹, ¹The University of Adelaide, Australia and ²University of Southampton, Hampshire, U.K.

SP305 AGREEMENT BETWEEN PATIENTS WITH A CLEFT, THEIR PARENTS AND DOCTOR ON THE CLEFT HEARING, APPEARANCE AND SPEECH QUESTIONNAIRE IN TWO POPULATIONS

Van Thai Nguyen¹, Martin Persson², Triin Jagomägi¹, ¹Institute of Dentistry, University of Tartu, Estonia and ²Centre for Appearance Research, University of the West of England, Bristol, U.K.

SP306 SNORING AND DEVELOPMENT OF THE PRIMARY DENTITION AND SOFT TISSUE PROFILE

Pekka Niemi¹, Saara Markkanen², Mika Helminen³, Markus Rautiainen², Timo Peltomäki², ¹Department of Maxillofacial Surgery and Oral Diseases, Satakunta Central Hospital, Pori, ²Department of Ear and Oral Diseases, Tampere University Hospital and ³Science Center, Pirkanmaa Hospital District and School of Health Sciences, University of Tampere, Finland

SP307 APPLICATION OF ORTHODONTIC FUNCTIONAL APPLIANCES IN FEMALE PATIENTS WITH OBSTRUCTIVE SLEEP APNOEA

Naoko Niikuni¹, Shigeto Kawashima², Masasuke Shimatsu², ¹Niikuni Pedodontic & Orthodontic Office, Tokyo and ²Isdorly Orthodontic Office, Tokyo, Japan

SP308 STABILITY OF A MINISCREW-SUPPORTED TOOTH AS INDIRECT ANCHORAGE

Yoonjeong Noh, Joon Goo Lee, Woowon Jang, Soonshin Hwang, Kyung-Ho Kim, Department of Orthodontics, Yonsei University College of Dentistry, Gangnam Severance Dental Hospital, Seoul, Korea, South

SP309 THE LEVEL OF SATISFACTION AFTER ORTHODONTIC TREATMENT AND ITS INFLUENCING FACTORS ON ADULT PATIENTS

Yoonjeong Noh¹, Rami Lee², Ju-Eon Song¹, Joon Goo Lee¹, Chooryung J. Chung¹, Department of Orthodontics, ¹Yonsei University College of Dentistry, Gangnam Severance Dental Hospital, Seoul, and ²Yonsei University College of Dentistry, Seoul, Korea, South

SP310 IMPLICATIONS OF DESIGNATING MAXILLARY EXPANSION ACTIVATION TO PARENTS ON THE ACTIVATION PROTOCOL

Alessandro Nota¹, Simona Tecco², Alberto Baldini², ¹University Tor Vergata, Roma and ²Vita-Salute San Raffaele University, Milano, Italy

SP311 THE MHC-APP GIVES YOU THE OPPORTUNITY TO EASILY FIND INFORMATION ABOUT ORAL HEALTH, OROFACIAL FUNCTION AND CRANIOFACIAL MORPHOLOGY IN RARE DISEASES

Anna Ödman^{1,2}, Marianne Bergius¹, Lena Gustafsson¹, Lotta Sjögreen¹, ¹Mun-H-Center National Orofacial Resource Center for Rare Diseases, Public Dental Service in Västra Götaland, Gothenberg and ²Department of Orthodontics, Institution of Odontology, The Sahlgrenska Academy at the University of Gothenburg, Sweden

SP312 NASAL OBSTRUCTION INDUCES MEMORY AND LEARNING IMPAIRMENT AND DECREASES THE NUMBER OF HIPPOCAMPAL NEURONS IN GROWING MICE

Takuya Ogawa¹, Hidemasa Okihara¹, Satoshi Kokai¹, Makoto Michikawa², Takashi Ono¹, ¹Department of Orthodontic Science, Tokyo Medical and Dental University and ²Department of Biochemistry, Nagoya City University, Japan

SP313 VISUAL EVALUATION OF DIGITAL PANORAMIC RADIOGRAPHIC IMAGES VARIED BY EXPOSURE CONDITIONS

Yasuhiko Okumura, Keisuke Saitou, Yoshihiro Saitou, Maki Izawa, Ysuo Harata, Department of Diagnostic & Therapeutic Sciences, Meikai University, School of Dentistry, Sakado, Japan

SP314 PREVALENCE OF MALOCCLUSION AND ORTHODONTIC TREATMENT NEED IN INDIGENOUS SOUTH AMERICAN ADOLESCENTS

Maria Fernanda Orellana Valvekens, **Alain Balon-Perin**, Victoire Delfour, Regine Glineur, Erasme, ULB, Bruxelles, Belgium

SP315 A NEW EXPANSION APPLIANCE COMPARED WITH THE ROUTINE THREE-AXIS EXPANSION APPLIANCE IN TERMS OF DENTAL ARCH CHANGES AND PATIENT PROBLEMS DURING TREATMENT Morteza Oshagh, Shahla Momeni, Zahra Shekoohi, **Amir Manouchehri**, Khadije Hajian, Shiraz Dental University, Iran

SP316 CEPHALOMETRIC ANALYSIS IN THE DIAGNOSIS OF TONGUE DYSFUNCTION Sandra Osiewacz, Elżbieta Pawłowska, Medical University of Lodz, Poland

SP317 EVALUATION OF ORAL HYGIENE PRACTICES IN ORTHODONTICALLY TREATED CHILDREN WITH ASPERGER SYNDROME

Agnieszka Osmólska-Bogucka¹, Ewa Czochrowska², ¹Practice, Warsaw and ²Department of Orthodontics, Medical University of Warsaw, Poland

SP318 EFFECTS OF MANDIBULAR RETRUSIVE DEVIATION ON PREFRONTAL CORTEX ACTIVATION: A FUNCTIONAL NEAR-INFRARED SPECTROSCOPY STUDY

Takero Otsuka, Tateshi Shimazaki, Toshitsugu Kawata, Kanagawa Dental University, Yokosuka, Japan

SP319 THE EFFECT OF TONGUE POSTURE ON JAW MORPHOLOGY IN PRE-PUBERTAL CLASS III CHILDREN: A THREE-DIMENSIONAL EVALUATION

Maja Ovsenik¹, Alexei Zhurov², Stephen Richmond², Jasmina Primozic¹, Franc Farcnik¹, ¹University of Ljubljana, Slovenia and ²University of Cardiff, U.K.

SP320 EFFECTS OF SKELETALLY ANCHORED CLASS II ELASTICS: A PILOT STUDY AND A NEW APPROACH FOR THE TREATMENT OF CLASS II MALOCCLUSION

Selin Ozbilek¹, Ahmet Yalcin Gungor¹, Salih Celik², Departments of ¹Orthodontics and ²Maxillofacial Surgery, Akdeniz University, Antalya, Turkey

SP321 IS THE TREADLOK BRACKET BASE MORE DURABLE THAN THE MESH BRACKET BASE?

Meltem Özsaygılı, Ahmet Yağcı, Eren Gürses, Department of Orthodontics, Erciyes University Faculty of Dentistry, Kayseri, Turkey

SP322 INVESTIGATION OF INSULIN GROWTH FACTOR-1 GENE MUTATIONS AND POLYMORPHISMS IN NON-SYNDROMIC SUBJECTS WITH RETROGNATHIC MANDIBLES

Duygu Ozturk¹, Selin Kale Varlık¹, Serdar Ceylaner², ¹Department of Orthodontics, Gazi University, Faculty of Dentistry, Ankara and ²Department of Medical Genetics, Intergen Genetic Centre, Ankara, Turkey

SP323 ENAMEL SURFACE QUALITY AFTER ADHESIVE REMNANT REMOVAL: A COMPARATIVE CONFOCAL MICROSCOPY STUDY

Barbara Paal¹, Seraphin Hubert Unterberger², Martina Nahler¹, Sabrina Neururer³, Adriano Giacomo Crismani¹, ¹Division of Orthodontics, Medical University of Innsbruck, ²Department of Material Technology, University of Innsbruck and ³Department for Medical Statistics, Informatics and Health Economics (MSIG), Medical University of Innsbruck, Austria

SP324 MODERN METHODS OF IMAGING EVALUATION OF ALVEOLAR BONE MODIFICATIONS DURING ORTHODONTIC TREATMENT IN ADULTS

Mariana Pacurar¹, Ecaterina Ionescu², Elina Teodorescu², Manuela Chibelean¹, Silvia Pop¹, Departments of Orthodontics, Universities of Medicine and Pharmacy, ¹Tirgu Mures and ²Bucharest, Romania

SP325 EVALUATION OF SURFACE ROUGHNESS OF ORTHODONTIC METALLIC WIRES

Raluca-Maria Vieriu¹, **Mariana Pacurar**², Florentina Mocanu³, Liviu Andrusca³, Irina Nioleta Zetu¹, ¹University of Medicine and Pharmacy "Grigore T. Popa", Iasi, ²University of Medicine and Pharmacy, Targu Mures and ³Technical University "Gh. Asachi", Iasi, Romania

AIM: To compare the surface roughness of five different types of orthodontic archwires.

SP326 A QUESTIONNAIRE CONCERNING ORTHODONTIC RETENTION PROCEDURES IN THE NETHERLANDS AND NEW ZEALAND: A COMPARISON

Jens Padmos¹, Anne Marie Renkema², Pjotr Fudalej³, ¹ACTA, Amsterdam, Netherlands, ²Radboud University, Nijmegen, Netherlands and ³University of Bern, Switzerland

SP327 QUALITY OF LIFE OF ADOLESCENT ORTHODONTIC PATIENTS

Susie Paes da Silva¹, Vinay Pitchika², Uwe Baumert¹, Jan Kühnisch², Andrea Wichelhaus¹, Departments of ¹Orthodontics and ²Conservative Dentistry, Ludwig-Maximilian-University Munich Medical Center, Germany

SP328 ASSOCIATIONS BETWEEN SINGLE NUCLEOTIDE POLYMORPHISMS IN MICRORNA PROCESSING GENES AND RISK OF NON-SYNDROMIC OROFACIAL CLEFTS

Yongchu Pan, Weibing Zhang, Lin Wang, Nanjing Medical University, China

SP329 THE ROLE OF THE DENTAL HYGIENIST ON THE GINGIVAL HEALTH OF PATIENTS UNDERGOING ORTHODONTIC TREATMENT WITH MULTIBRACKET FIXED APPLIANCE AND CLEAR ALIGNERS

Ada Pango, Rosaria Bucci, Vincenzo D'Antò, Ambra Michelotti, Rosa Valletta, Department of Orthodontics and Temporomandibular Disorders, University of Naples Federico II, Italy

SP330 ELECTROMYOGRAPHIC ACTIVITY OF THE MASSETER MUSCLE IN PATIENTS WITH A CLASS III SKELETAL RELATIONSHIP

Nilnade Panichsiti¹, Tanapan Wattanachai², Boonsiva Suzuki², Departments of Orthodontics, ¹Chiang Mai University and ²Bangkokthonburi University, Chiang Mai, Thailand

SP331 CLINICAL OUTCOMES OF CLEAR ALIGNER THERAPY. A SYSTEMATIC REVIEW

Aikaterini Papadimitriou¹, Sofia Mousoulea¹, Nikolaos Gkantidis², Dimitrios Kloukos², Departments of Orthodontics and Dentofacial Orthopedics, ¹251 Hellenic Air Force General Hospital, Athens, Greece and ²University of Bern, Switzerland

SP332 IMPLANT SITE DEVELOPMENT IN THE ANTERIOR MAXILLA AFTER TOOTH EXTRACTION WITH ORTHODONTIC FORCED ERUPTION. A CONE BEAM COMPUTED TOMOGRAPHY CLINICAL PILOT STUDY

Alexandra Papadopoulou¹, Anastasios Tsirlis², Nikolaos Parisis², Athanasios Athanasiou³, ¹Department of Orthodontic, University of Sydney, Surry Hills, Australia, ²Department of Oral

Surgery, Implantology and Dental Radiology, Aristotle University of Thessaloniki, Greece and ³Department of Orthodontics, Hamdan Bin Mohammed College of Dental Medicine, Dubai, United Arab Emirates

SP333 CORTICOTOMIES AND ORTHODONTIC TOOTH MOVEMENT. A SYSTEMATIC REVIEW Braydon Patterson, Oyku Dalci, M. Ali Darendeliler, **Alexandra Papadopoulou**, ¹Department of Orthodontics, University of Sydney, Surry, Australia

SP334 DOES ORTHODONTIC TREATMENT INFLUENCE PERMANENTLY THE SUBGINGIVAL MICROFLORA: A SYSTEMATIC REVIEW AND META-ANALYSIS

Spyridon Papageorgiou¹, Guilherme Xavier², Martyn Cobourne², Theodore Eliades¹, ¹Clinic of Orthodontics and Pediatric Dentistry, Center of Dental Medicine, University of Zurich, Switzerland and ²Department of Orthodontics, King's College London Dental Institute, Guy's Hospital, U.K.

SP335 CLINICAL OUTCOME OF ORTHODONTIC TREATMENT WITH FIXED APPLIANCES: AN EVIDENCE-BASED ASSESSMENT WITH THE AMERICAN BOARD OF ORTHODONTISTS GRADING SYSTEM

Spyridon N. Papageorgiou, Damian Höchli, Theodore Eliades, Clinic of Orthodontics and Pediatric Dentistry, Center of Dental Medicine, University of Zurich, Switzerland

SP336 SHAPE COVARIATION BETWEEN THE DENTAL ARCHES AND THE CRANIOFACIAL COMPLEX **Alexandros Papagiannis** Demetrios Halazonetis, Department of Orthodontics, National and Kapodistrian University of Athens, Greece

SP337 ASTHMA AND ORTHODONTIC TREATMENT: LIMITATIONS AND CONSIDERATIONS **Panagiota Pardalidou**¹, Vasileios Tsiplakis², Simona Dianiskova¹, ¹Department of Orthodontics, Slovak Medical University, Bratislava, Slovakia and ²Department of General Dentistry, 424 General Military Hospital, Thessaloniki, Greece

SP338 EARLY TREATMENT OF CLASS III DENTOSKELETAL DISHARMONY: COMPARISON OF TWO PROTOCOLS

Giorgia Parente¹, Maddalena Vitale¹, Elisabetta Cretella Lombardo², Lorenzo Franchi³, Letizia Perillo¹,
¹Multidisciplinary Department of Medical-Surgical and Dental Specialties, Orthodontic Division,
University of Campania "Luigi Vanvitelli", Naples, and ²Department of Clinical Sciences and
Translational Medicine, University of Rome "Tor Vergata" and ³Department of Surgery and
Translational Medicine, University of Florence, Italy

SP339 EFFECTS OF TEMPOROMANDIBULAR JOINT DISK DISPLACEMENTS ON CHANGES IN MANDIBULAR CONDYLE DENSITY

Jiwon Park, Min-Seok Chang, Sug-Joon Ahn, Department of Orthodontics, Seoul National University, Korea, South

SP340 EVALUATION OF SOFT TISSUE CHANGES BEFORE AND AFTER ORTHOGNATHIC SURGERY IN CLASS III FACIAL ASYMMETRY ON FRONTAL FACIAL PHOTOGRAPHS

So Hyun Park, Department of Orthodontics, Seoul National University, Korea, South

SP341 WHAT ARE THE CONTRIBUTING FACTORS FOR POST-SURGICAL RELAPSE AFTER TWO-JAW SURGERY IN CLEFT PATIENTS?

Yoonhee Park, Ji-Hee Seo, Il-Hyung Yang, Seung-Hak Baek, Seoul National University, Korea, South

SP342 COMPARATIVE EVALUATION OF REMINERALIZATION AGENTS AND ARTIFICIAL SALIVA ON TOOTH ENAMEL AFTER INTERPROXIMAL ENAMEL REDUCTION: *IN VITRO* STUDY

Eunhak Park, Kye-Myung Kwak, **Ye-Seul Lee**, Jung-Yul Cha, Chung-Ju Hwang, Department of Orthodontics, Institute of Craniofacial Deformity, Yonsei University College of Dentistry, Seoul, Korea, South

SP343 MANDIBULAR THIRD MOLARS TEETH AND THEIR INFLUENCE ON LATE MANDIBULAR INCISOR CROWDING: LONGITUDINAL STUDY

Andrej Pavlic¹, Luka Morelato², Stjepan Spalj², Vaska Vandevska-Radunovic³, Departments of ¹Orthodontics and ²Oral Surgery, School of Medicine, University of Rijeka, Croatia and ³Department of Orthodontics, Faculty of Dentistry, University of Oslo, Norway

SP344 GEOMETRIC MORPHOMETRIC ANALYSIS OF MAXILLARY MORPHOLOGY IN CHILDREN WITH IMPACTED INCISORS – A THREE-DIMENSIONAL EVALUATION

Chiara Pavoni¹, **Valerio Brunelli¹**, Luis Huanca Ghislanzoni², Roberta Lione¹, Departments of Orthodontics, ¹University of Rome Tor Vergata, Italy and ²University of Geneva, Switzerland

SP345 EFFECTS OF PREMOLAR EXTRACTIONS ON OVERALL BOLTON RATIO

Lucía Peña Azorit, Esther Peinado González, Ana Isabel López de Andres, Isabel Jiménez Trujillo, Martín Romero Maroto, Rey Juan Carlos University, Madrid, Spain

SP346 PREVALENCE OF MALOCCLUSION AND TEMPOROMANDIBULAR DISORDERS IN ITALIAN SCHOOL CHILDREN

Stefania Perrotta¹, Rosaria Bucci¹, Paolo Chiodini², Vincenzo D'Antò¹, Ambrosina Michelotti¹, ¹University of Naples Federico II, Naples and ²Second University of Naples, Italy

SP347 SPECIALIZED PREVENTION OF ORAL DISEASES FOR ORTHODONTIC PATIENTS WITH DIABETES MELLITUS

Leonid Persin, Maria Bardova, Elena Karton, MSMSU, Moscow, Russia

SP348 DETERMINATION OF MECHANICAL PROPERTIES OF NICKEL-FREE ORTHODONTIC ARCHWIRES BY MEANS OF NANOINDENTATION

Vladimir Petrunov¹, Sabina Cherneva², Roumen Iankov², ¹Department of Orthodontics, Faculty of Dental Medicine, Medical University Sofia and ²Institute of Mechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria

SP349 INVESTIGATION OF THE CHANGES OF TITANIUM-NIOBIUM ARCHWIRES AFTER INTRAORAL APPLICATION

Vladimir Petrunov¹, Ivana Ilievska², Angelina Stoyanova-Ivanova², Valdek Mikli³, ¹Department of Orthodontics, Faculty of Dental Medicine, Medical University Sofia, Bulgaria, ²Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria and ³Centre for Materials Research, Tallinn University of Technology, Tallinn, Estonia

SP350 ASSESSMENT OF THE MAGNITUDES OF FORCE FOR INTRUSION OF MAXILLARY FIRST MOLAR TEETH: A FINITE ELEMENT ANALYSIS

Phanisa Pheerawanitchakun¹, Virush Patanaporn¹, Chaiy Rungsiyakull², Departments of ¹Orthodontics and Pediatric Dentistry and ²Mechanical Engineering, Chiang Mai University, Thailand

SP351 ASSOCIATIONS BETWEEN PATIENTS' SELF-REPORTED SYMPTOMS, ORTHOGNATHIC QUALITY OF LIFE AND SATISFACTION WITH OCCLUSAL FUNCTION

Riikka Pietilä¹, Mimmi Tolvanen², Timo Peltomäki³, Anna-Liisa Svedström-Oristo⁴, ¹Department of Medicine, Institute of Dentistry and ²Department of Community Dentistry, University of Turku, ³Oral and Maxillofacial Unit of Tampere and School of Medicine, Tampere University Hospital and Tampere University and ⁴Department of Oral and Maxillofacial Diseases and Department of Oral Development and Orthodontics, Turku University Hospital and University of Turku, Finland

SP352 INDICATIONS, APPLICATION AND ARMAMENTARIUM FOR INTERPROXIMAL ENAMEL REDUCTION IN CONTEMPORARY ORTHODONTICS

Jaya Pindoria¹, Pratik K Sharma², Departments of ¹Restorative Dentistry and ²Orthodontics, The Royal London Dental Hospital, U.K.

SP353 MORPHOFUNCTIONAL CHANGES IN THE DENTOALVEOLAR COMPLEX, DUE TO THE EXISTENCE OF BITE PLATES ON THE LINGUAL BRACKETS SURFACE

Natalia Popova, Olga Arsenina, Oksana Afanasieva, Anna Popova, Department of Orthodontics, Central Research Institute for Dentistry and Maxillofacial Surgery, Moscow, Russia

SP354 EARLY ORTHODONTIC TREATMENT AND SPEECH PERFORMANCE IN PATIENTS WITH A CLEFT LIP AND PALATE

Davide Porcari¹, Diana Cassi¹, Anna Barbot², Alberto Di Blasio¹, Mauro Gandolfini¹, ¹Section of Orthodontics, Centro Universitario di Odontoiatria, Department of Biomedical, Biotechnological and Translational Sciences - S.Bi.Bi.T, Università degli Studi di Parma and ²UOC di Ororinolaringoiatria e Otoneurochirurgia, UOS di Audiologia e Otorinolaringoriatria Pediatrica, Servizio di Audiovestibologia, Dipartimento Chirurgico Generale e Specialistico, Azienda, Italy

SP355 THERMOGRAPHY OF THE FACE BEFORE AND AFTER ORTHODONTIC TREATMENT OF CLASS III MALOCCLUSIONS USING THE POSTNIKOV DEVICES

Mikhail Postnikov¹, Grigori Stepanov¹, Dmitri Trunin¹, Nataliya Pankratova², Maxim Kirilin¹, ¹SSMU, Samara and ²MSMU, Moscow, Russia

SP356 ADVANTAGES AND DISADVANTAGES OF ORTHODONTIC TREATMENT WITH CLEAR ALIGNERS VERSUS FIXED ORTHODONTIC MULTIBRACKETS: A LITERATURE REVIEW

Javier Prada Vales, Javier De La Cruz Pérez, Iván Nieto Sánchez, Carmen Mediero Pérez, Ines Diaz Renovales, Department of Dentistry, University Alfonso X el Sabio, Madrid, Spain

SP357 ANOMALIES IN TOOTH NUMBER OF THE PERMANENT DENTITION IN THREE ASIAN ETHNICITIES

Li Qian¹, Ming Tak Chew¹, Mimi Yow¹, Kelvin Weng Chiong Foong², ¹Department of Orthodontics and ²Faculty of Dentistry Orthodontics, National Dental Centre Singapore, Singapore

SP358 INDIVIDUAL AND SOCIAL MOTIVATION OF THE DECISION FOR ORTHODONTIC TREATMENT. COMPARISON BETWEEN POLISH AND CROATIAN PATIENTS

Joanna Rajewska de Mezer¹, Kristina Matuc Burić², Marcin de Mezer³, Jolanta Twardowska-Rajewska¹, ¹Faculty of Educational Studies, University of Adam Mickiewicz in Poznan, Poland, ²Private Practice, Rijeka, Croatia and ³Individual Dental Practice, Poznan, Poland

SP359 OCCLUSAL CHARACTERISTICS REFLECTING PREVENTIVE AND INTERCEPTIVE ORTHODONTIC TREATMENT NEED IN CHILDREN AGED 8-9 YEARS IN A RURAL AREA OF THAILAND

Sirate Rapeepattana, Angkana Theamontree, Supanee Suntornlohanakul, Department of Preventive Dentistry, Faculty of Dentistry, Prince of Songkla University, Songkhla, Thailand

SP360 CYTOTOXICITY AND OESTROGENICITY OF CLEAR RETAINERS

Shaima Rashid Al Naqbi¹, Harris Pratsinis², Dimitris Kletsas², Theodore Eliades³, Athanasios Athanasiou¹, ¹Department of Orthodontics, Hamdan Bin Mohammed College of Dental Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates, ²Laboratory of Cell Proliferation and Ageing, National Center for Scientific Research "Demokritos", Athens, Greece and ³Department of Orthodontics and Pediatric Dentistry, Center of Dental Medicine, University of Zurich, Switzerland

SP361 THE EFFECT OF SURGICAL EXPERIENCE ON MAXILLARY GROWTH AND OCCLUSION IN UNILATERAL CLEFT LIP AND PALATE PRIMARY SURGERY

Sirpa Railavo¹, Jorma Rautio¹, Anu Kiukkonen¹, Henna Rajakorpi², Kirsti Hurmerinta¹, ¹Cleft and Craniofacial Centre, Helsinki University Hospital and ²Helsinki University, Finland

SP362 GENETIC POLYMORPHISMS OF AXIN2 (SNP rs 7591 AND rs 7224837) GENE VARIANTS IN NON-SYNDROMIC CLEFT LIP/PALATE IN A LOCAL POPULATION

Dharma Rangasamudra, Dinesh Mysore Ramu, Department of Orthodontics, DAPM R.V Dental College & Hospital, Rajiv Gandhi University of Health Sciences, Bengaluru, India

SP363 BIOMECHANICAL ANALYSIS OF PERIODONTALLY REDUCED MOLARS IN ANCHORING UNITS USING CLINICAL DATA

Susanne Reimann¹, Martin Schoster¹, Christoph Reichert², Christoph Bourauel², Andreas Jäger¹, Departments of ¹Oral Technlogy and ²Orthodontics, University of Bonn, Germany

SP364 EVALUATION OF THE CHANGES OF PERIORAL SOFT TISSUE AND LIPS BEFORE AND AFTER BRACKET REMOVAL

Ajshe Rexhep¹, Sevdi Rexhep², Ferija Sali¹, Biljana Dzipunova¹, Arjeta Sllamniku³, ¹University Dental Clinical Centre St Pantelejmon, Skopje and ²Private Practice, Struga, Former Yugoslav Republic of Macedonia and ³Medical University of Prishtina, Kosovo

SP365 THE PREVALENCE OF IMPACTED TEETH IN THE SKOPJE REGION OF MACEDONIA – A RETROSPECTIVE STUDY

Ajshe Rexhep¹, Sevdi Rexhep², Natasha Toseska Spasova¹, Ferija Sali¹, Arjeta Sllamniku³, ¹University Dental Clinical Centre St Pantelejmon, Skopje and, ²Private Practice, Struga, Former Yugoslav Republic of Macedonia and ³Medical University of Prishtina, Kosovo

SP366 ORTHODONTIC BRACKETS AND ELASTICS AS A METHOD OF INTERMAXILLARY FIXATION IN SUITABLE MANDIBLE FRACTURES – A FINANCIAL CASE

Sama Ria¹, Roshanak Attwall¹, Basmal Ria², Michael Perry¹, Indran Balasundaram¹, ¹Northwick Park Hospital, London and ²St George's Hospital, London, U.K.

SP367 AUDIT OF PATIENT SATISFACTION WITH SPACE CLOSURE OR SPACE OPENING IN MANAGING BILATERAL MISSING UPPER LATERAL INCISORS

Libby Richardson, Thushala Ubaya, The Royal London Dental Hospital, U.K.

SP368 SELF-PERCEPTION AND NORMATIVE ASSESSMENT OF MALOCCLUSION IN AN INDIGENOUS POPULATION

Estela Ricse¹, Tania Padilla¹, Jorge Luis Castillo¹, Maria Fernanda Orellana Valvekens², ¹Cayetano Heredia, Lima, Peru and ²Erasme, ULB, Bruxelles, Belgium

SP369 ASSESSMENT OF READINESS TO CHANGE ORAL HYGIENE BEHAVIOUR IN ADOLESCENTS WEARING FIXED APPLIANCES

Maria Montserrat Rigau-Gay¹, Eduard Claver-Garrido², Marta Benet³, Pilar Lusilla-Palacios⁴, Josep Maria Ustrell-Torrent², ¹Universitat de Barcelona, L´Hospitalet de Llobregat, ²Bellvitge Biomedical Research Institute, L´Hospitalet de Llobregat, ³Center for Research in Environmental Epidemiology, Barcelona and ⁴Vall Hebron Research Institute, Barcelona, Spain

SP370 CORRELATION OF THE SINGLE NUCLEOTIDE POLYMORPHISMS OF FGFR1 AND FGFR10 WITH NON-SYNDROMIC CLEFT LIP WITH OR WITHOUT CLEFT PALATE

Roopak Mathew David, K. M. Pramod, Department of Orthodontics, DAPM R.V Dental College & Hospital, Rajiv Gandhi University of Health Sciences, Bengaluru, India

SP371 POPULATION ANALYSIS OF CLEFT LIP AND/OR PALATE PATIENTS TREATED IN THE POSTGRADUATE ORTHODONTIC DEPARTMENT

Ana Roseiro¹, Ines Francisco¹, Luisa Maló¹, Alfeu Baptista², Francisco Vale¹, ¹Orthodontic Department, University of Coimbra and ²Children's Hospital, Coimbra, Portugal

SP372 EFFECTS OF SURGICALLY ASSISTED RAPID PALATAL EXPANSION ON FACIAL SOFT TISSUES. A SYSTEMATIC REVIEW

Petros Roussos¹, Ioannis Doulis², Fotis Voyatzis¹, Iosif Sifakakis¹, Panagiotis Christopoulos¹, ¹National and Kapodestrian University of Athens and ²Aristotle University of Thessaloniki, Greece

SP373 A RETROSPECTIVE ANALYSIS OF TREATMENT DECISIONS RELATING TO THE MANAGEMENT OF UNERUPTED TEETH IN ADULTS

Arthur M. Rybczynski, Claire Harrington, Jadbinder Seehra, Department of Orthodontics, King's College Hospital, London, U.K.

SP374 EFFECTS OF FACEMASK AND SKELETAL ANCHORAGE THERAPY FOR THE TREATMENT OF SKELETAL CLASS III MALOCCLUSIONS

Sanaz Sadry, Department of Orthodontics, Istanbul Aydin University, Turkey

SP375 MAGNITUDE OF FORCE FOR THE INTRUSION OF SIX MAXILLARY ANTERIOR TEETH USING TWO MINISCREW ANCHORAGE: A FINITE ELEMENT METHOD

Suparat Sakdakornkul¹, Virush Patanaporn¹, Chaiy Rungsiyakull², Departments of ¹Orthodontics and Pediatric Dentistry and ²Mechanical Engineering, Chiangmai University, Thailand

SP376 TREATMENT OUTCOMES OF IMPACTED MAXILLARY CANINES AFTER DIFFERENT SURGICAL EXPOSURES. A SYSTEMATIC REVIEW

Dimitrios Sampaziotis, Ioannis Tsolakis, Elias Bitsanis, Georgios Damanakis, Apostolos Tsolakis, Department of Orthodontics, National and Kapodistrian University of Athens, Faculty of Dentistry, Greece

SP377 DENTAL ARCH DEVELOPMENT AFTER ADENOIDECTOMY AND TONSILLECTOMY IN PREPUBERAL CHILDREN: A SYSTEMATIC REVIEW

Víctor David Samper Sánchez, Nuno Gustavo d'Oliveira, Josep Maria Ustrell, Facultat d'Odontologia, Universitat de Barcelona, Spain

SP378 SKELETAL, DENTAL AND SOFT TISSUE DIFFERENCES BETWEEN CHINESE AND CAUCASIAN ORTHODONTIC PATIENTS: A SYSTEMATIC REVIEW

Xavier Saura Pla, Nuno Gustavo d'Oliveira, Josep Maria Ustrell Torrent, Facultat d'Odontologia, Universitat de Barcelona, Spain

SP379 PREDICTORS OF POST-RETENTION STABILITY OF MANDIBULAR DENTAL ARCH DIMENSIONS IN PATIENTS TREATED WITH A LIP BUMPER FOLLOWED BY FIXED APPLIANCES

Amedeo Scalzone¹, Maria Bizzarro¹, Ludovica Nucci¹, Maryam Elyasi², Letizia Perillo¹,
¹Multidisciplinary Department of Medical-Surgical and Dental Specialties, University of Campania
"Luigi Vanvitelli", Naples, Italy and ²Department of Dentistry, University of Alberta, Edmonton, Canada

SP380 COMBINED ORTHODONTIC AND SURGICAL TREATMENT OF MANDIBULAR PROGNATHISM. THE PATIENTS' EVALUATION 10-15 YEARS AFTER TREATMENT

Elisabeth Schilbred Eriksen¹, Per Johan Wisth¹, Sigbjørn Løes², Ketil Moen³, Kristin S. Klock³, ¹Section for Orthodontics and Facial Orthopedics, ³Section for Oral and Maxillofacial Surgery and ⁴Department of Clinical Dentistry, University of Bergen and ²Department of Maxillofacial Surgery, Haukeland University Hospital, Bergen, Norway

SP381 TRANSFER ACCURACY OF TWO INDIRECT BONDING TECHNIQUES – AN *IN VITRO* STUDY WITH THREE-DIMENSIONAL SCANNED MODELS

Johanna Schmid¹, Daniel Brenner¹, Wolfgang Recheis², Philipp Hofer³, Adriano Crismani¹, Departments of ¹Orthodontics, ²Radiology and ³Medical Statistics, Informatics and Health Economics, Medical University Innsbruck, Austria

SP382 ACCURACY OF CONE BEAM COMPUTED TOMOGRAPHY IN PERIODONTAL BONE MEASUREMENTS FOR ORTHODONTIC TREATMENT PLANNING

Anne Schubert¹, Stefanie Schattmann¹, Ralf J. Radlanski², Axel Bumann³, ¹Private Practice, Berlin, ²Department of Craniofacial Developmental Biology, Charité - Universitätsmedizin Berlin and ³Mesantis 3D Dental-Radiology, Berlin, Germany

SP383 CLOSING THE GAP FOR CHILDREN WITH PROMINENT ANTERIOR TEETH Ciara Scott, RCSI, Dublin, Ireland

SP384 ORTHODONTIC TREATMENT PROVIDED BY GENERAL DENTAL CLINICS AND ORTHODONTIC SPECIALIST CLINICS IN THE SWEDISH COUNTY OF JÖNKÖPING AND KALMAR

Sandina Sehic¹, Anna Kratochwil², Monica Müller³, Aleksandar Zoric⁴, Rune Lindsten¹, Orthodontic Clinics of ¹Jönköping, Odontologiska Institutionen Jönköping, ²Nässjö, ³Värnamo and ⁴Oskarshamn, Sweden

SP385 ANALYSIS OF THE INFLUENCE OF MEANS FOR HYGIENE OF THE ORAL CAVITY OF ONCOLOGICAL ORTHODONTIC PATIENTS

Andrey Seleznev, Elena Karton, Leonid Persin, Department of Orthodontics, MSMSU, Moscow, Russia

SP386 IS THE SANDBLASTING PROCEDURE WITH ALUMINIUM DIOXIDE IN LINGUAL ORTHODONTICS AT THE EXPENSE OF PREVENTION?

Sinan Sen¹, Diethard Kunert², Ege Ilicak³, Christopher J. Lux¹, Eleni Katsikogianni¹, ¹Department of Orthodontics and Dentofacial Orthopaedics, University of Heidelberg, ²Private practice, Altdorf bei Nürnberg and ³Research and Development, Heidelberg Engineering GmbH, Germany

SP387 COMPARISONS OF TWO PROTOCOLS FOR EARLY TREATMENT OF AN ANTERIOR OPEN BITE **Michele Severino**¹, Francesca Gazzani², Daniela Rinaldi¹, Lorenzo Franchi⁴, Letizia Perillo¹, ¹Multidisciplinary Department of Medical-Surgical and Dental Specialties, Orthodontic Division, University Of Campania "Luigi Vanvitelli", Naples, ²Department of Clinical Sciences and Translational Medicine, University of Rome "Tor Vergata" and ³Department of Surgery and Translational Medicine, University of Florence, Italy

SP388 ANALYSIS OF CHANGES IN HUMAN PERIODONTAL LIGAMENT STEAM CELLS AND DENTAL PULP STEM CELLS BY LOW LEVEL LASER THERAPY: A REVIEW AND NEW PERSPECTIVES

Michele Severino¹, Gianluca Del Vecchio¹, Carmelo Cimmino¹, Abdolreza Jamilian², Letizia Perillo¹,
¹Multidisciplinary Department of Medical-Surgical and Dental Specialties, Orthodontic Division,
University of Campania "Luigi Vanvitelli", Naples, Italy and ²Department of Orthodontics, Islamic
Azad University, Tehran, Iran

SP389 THREE-YEAR UNITED KINGDOM AND SWEDISH ORTHODONTIC TRAINING PROGRAMMES, WHOM DID WE TREAT?

Nahush Shah¹, Heidi Law¹, Madhura Vasanth¹, Ingrid Jönson Ring², Alison Murray¹, ¹Royal Derby Hospital, Derby, U.K. and ²Public Dental Health Uppsala, Uppsala County, Sweden

SP390 AN AUDIT TO ASSESS THE APPROPRIATENESS OF ORTHODONTIC SECONDARY CARE REFERRALS WITH RESPECT TO THE COMMISSIONING GUIDELINES COMPLEXITY LEVELS

Rupal Shah, Alice Dyke, Lydia Harris, Samantha Hodges, Orthodontic Department, Eastman Dental Hospital, London, U.K.

SP391 PREVALENCE OF TOOTH AGENESIS, SUPERNUMERARIES AND IMPACTION IN CHILDREN WITH VARIOUS TYPES OF CLEFTS

Massoud Shakib Pour¹, Abdolreza Jamilian², Mehri Jamilian³, Alireza Darnahal², Shabnam Toopchi², ¹Lyndhurst Dental Practice, Hastings, U.K., ²Department of Orthodontics, Dental Branch, Center of Craniofacial Research, Islamic Azad University, Tehran and ³Department of Gynecology, Arak University of Medical Sciences, Iran

SP392 THE EFFECT OF THE TWIN BLOCK AND R-APPLIANCE IN THE TREATMENT OF MANDIBULAR DEFICIENCY

Massoud Shakib Pour¹, Abdolreza Jamilian², Rahman Showkatbakhsh³, Shabnam Sheikholeslam Amiri², ¹Lyndhurst Dental Practice, Hastings, U.K., Departments of Orthodontics, ²Dental Branch, Center of Craniofacial Research, Islamic Azad University, Tehran and ³Shahid Beheshti University, Tehran, Iran

SP393 OPTIMAL TIMING OF EXTRACTION OF MANDIBULAR FIRST MOLARS

Payal Sharma Birch, Helen M Liversidge, Institute of Dentistry, Queen Mary University of London, London, U.K.

SP394 BRAIN ACTIVATION DURING A WORKING MEMORY TEST WITH MOUTH BREATHING OR NASAL BREATHING

Tateshi Shimazaki, Takero Otsuka, Takashi Usui, Toshitsugu Kawata, Orthodontic Division, Department of Oral Interdisciplinary Medicine, Kanagawa Dental University, Yokosuka, Japan

SP395 THE EFFECTS OF A TONGUE PLATE VERSUS FACEMASK ON THE NASOMAXILLARY COMPLEX OF PATIENTS WITH A UNILATERAL CLEFT LIP AND PALATE

Rahman Showkatbakhsh¹, **Sara Eslami**², Abdolreza Jamilian³, ¹Shahid Beheshti University, Tehran, Department of Orthodontics, Tehran Dental Branch, ²Craniomaxillofacial Research Center, Tehran and ³Implant Research Center, Iran

SP396 COMPARISON OF THE PERCEPTION OF METAL BRACKETS AND CLEAR ALIGNERS IN YOUNG ADULTS

Bhavna Shroff¹, David MacDonald¹, Caroline Carrico², Steven Lindauer¹, Departments of ¹Orthodontics and ²Biostatistics, Virginia Commonwealth University, Richmond, USA

SP397 ORTHOGNATHIC SURGERY AUDIT AND SERVICE EVALUATION

Paula Sinnott¹, James Spencer², Sunil Shah¹, Christopher Barker², Jonathon Reid¹, Departments of ¹Maxillofacial Surgery and ²Orthodontics, Pinderfields General Hospital, Wakefield, U.K.

SP398 SHEAR BOND STRENGTH OF METAL ORTHODONTIC BRACKETS TO DENTAL BASE ALLOY SURFACES: AN IN VITRO STUDY

Supassara Sirabanchongkran, Department of Orthodontics and Pediatric Dentistry, Faculty of Dentistry, Chiang Mai University, Thailand

SP399 EFFECT OF METAL PRIMERS AND SURFACE PREPARATION METHODS ON SHEAR BOND STRENGTH OF METAL ORTHODONTIC BRACKETS TO SILVER-PALLADIUM BASE ALLOY SURFACES **Thanyabhorn Sittajarnpong**, Supassara Sirabanchongkran, Department of Orthodontics and Pediatric Dentistry, Chiangmai University, Muang, Thailand

SP400 FEATURES OF ORTHODONTIC TREATMENT IN GIRLS WITH TEMPOROMANDIBULAR DYSFUNCTIION AND DELAYED SEXUAL DEVELOPMENT AT PUBERTAL AGE

Lyubov Smaglyuk, Anastasiia Liakhovska, Department of Orthodontics, Higher State Educational Establishment of Ukraine "Ukrainian Medical Stomatological Academy", Poltava, Ukraine

SP401 WILLINGNESS TO PAY FOR ORTHODONTIC TREATMENT. DOES AN INCREASED OVERJET OR DENTAL CROWDING HAVE A GREATER INFLUENCE ON THE WILLINGNESS TO PAY VALUE?

Gillian Smith, Christopher Vernazza, School of Dental Sciences, Newcastle University, Newcastle-upon-Tyne, U.K.

SP402 ALAR BASE WIDTH CHANGES FOLLOWING LE FORT 1 OSTEOTOMIES

Robert Smyth¹, Rodolfo Benech², Duncan Campbell², ¹Department of Orthodontics, Eastman Dental Hospital, London and ²Department of Oral & Maxillofacial Surgery, St. John's Hospital, Livingston, West Lothian U.K.

SP403 EVALUATION OF SHEAR BOND STRENGTH OF MOLAR TUBES BONDED TO AMALGAM WITH DIFFERENT SURFACE TREATMENT PROCEDURES AND DIFFERENT ADHESIVES

Ahmet Ertan Soğanci¹, Said Karabekiroğlu², Zeliha Bektaş¹, Merve Gürses², Nimet Ünlü³, Departments of ¹Orthodontics and ²Restorative Dentistry, Necmettin Erbakan University, Faculty of Dentistry, Konya and ³Department of Restorative Dentistry, Selçuk University, Faculty of Dentistry, Konya, Turkey

SP404 ASSESSMENT OF THE ROOT APEX POSITION OF IMPACTED MAXILLARY CANINES ON PANORAMIC FILMS

Woo Sung Son, Sung Hun Kim, Yun Jin Choi, Seul Gi Han, Yonl II Kim, Department of Orthodontics, Pusan National University Dental Hospital, Yangsan, Korea, South

SP405 COMPARISON OF THE ROOT APEX AND CROWN TIP ARCH-FORMS BETWEEN NON-CROWDED AND CROWDED CASES

Woo Sung Son, Sung Hun Kim, Jae Hyun Jung, Seong Sik Kim, Yong-Il Kim, Department of Orthodontics, Pusan National University Dental Hospital, Yangsan, Korea, South

SP406 FACIAL DIVERGENCE AND ANTERIOR TOOTH SIZE: A TRANSVERSAL STUDY

Olivier Sorel, Mohamed Naaim, Department of Odontologie, University Rennes 1, Rennes, France

SP407 EVALUATION OF A FLUORESCENCE-AIDED IDENTIFICATION TECHNIQUE TO AID BRACKET DEBONDING

Oliver Stadler¹, Christian Dettwiler², Christian Meller³, Carlalberta Verna², Thomas Connert², ¹Department of Orthodontics and Pediatric Dentistry, University Center for Dental Medicine Basel, Switzerland and ²Eberhard-Karls University, Tübingen, Germany

SP408 AESTHETIC PERCEPTION OF THE VERTICAL POSITION OF THE INCISAL EDGES OF THE MAXILLARY LATERAL INCISORS IN THE SMILE ARC

Sophie Stolz¹, Yves Bolender¹, François Lefebvre², Daniel Kanter¹, ¹Department of Dento-Facial Orthopedics, Strasbourg University and ²Division of Public Health, Methodology and Biostatistics, University Hospitals of Strasbourg, France

SP409 HARD AND SOFT TISSUE CHANGES AFTER MANDIBULAR ADVANCEMENT SURGERY IN CLASS II PATIENTS: A RETROSPECTIVE CEPHALOMETRIC STUDY

Ann-Sophie Storms¹, Annelie Miclotte¹, Maria Cadenas de Llano-Pérula¹, Constantinus Politis³, Guy Willems¹, Departments of ¹Oral Health Sciences - Orthodontics and ²Oral and Maxillofacial Surgery, KU Leuven, Belgium

SP410 ANALYSIS OF TREATMENT EFFECTS OF PRE-SURGICAL INFANT ORTHOPAEDICS IN COMPLETE NON-SYNDROMIC UNILATERAL CLEFT LIP, ALVEOLUS AND PALATE

Marlon Strosinski¹, Juliane Neubert¹, Bernd Koos¹, Jan-Hendrik Lenz², Franka Stahl¹, Departments of ¹Orthodontics and ²Oral and Maxillofacial Surgery, Rostock University Dental School, Germany

SP411 TEMPORARY ANCHORAGE DEVICES IN CONTEMPORARY ORTHODONTICS — A LITERATURE REVIEW

Raluca Suhani, Mihai Suhani, Alexandrina Muntean, Grigore Baciut, University of Dental Medicine Cluj Napoca, Romania

SP412 ARE THERE ANY ANTERIOR BOLTON TOOTH SIZE DISCREPANCIES IN CLASS III SURGICAL CASES?

Ezgi Suna, Özge Müftüoğlu, Ufuk Toygar Memikoğlu, Department of Orthodontics, Ankara University Faculty of Dentistry, Turkey

SP413 THE IMPACT OF THE ATTACHMENT BONDING PROTOCOL ON ALIGNER FITTING AND SUBSEQUENT TREATMENT ACCURACY

Julia Supke¹, Isabelle Graf¹, Jörg Schwarze², Christoph Bourauel³, Bert Braumann¹, ¹Department of Orthodontics and Dentofacial Orthopedics, University Hospital of Cologne, ²Private Practice, Cologne and ³Endowed Chair of Oral Technology, Dental School, University of Bonn, Germany

SP414 ASSESSMENT OF ROOT SURFACE AREAS OF MAXILLARY PERMANENT TEETH IN THAI PATIENTS EXHIBITING AN ANTERIOR OPEN BITE USING CONE-BEAM COMPUTED TOMOGRAPHY **Piyadanai Suteerapongpun**, Dhirawat Jotikasthira, Tanapan Wattanachai, Department of Orthodontics and Pediatric Dentistry, Chiang Mai University, Thailand

SP415 ASSESSMENT OF PALATAL BONE THICKNESS IN THAI PATIENTS WITH NORMAL SKELETAL RELATIONSHIP USING CONE-BEAM COMPUTED TOMOGRAPHY

Piyoros Suteerapongpun, Tanapan Wattanachai, Dhirawat Jotikasthira, Department of Orthodontics, Chiangmai University, Thailand

SP416 CURCUMIN INHIBITS TUMOUR NECROSIS FACTOR-A INDUCED CYCLOOXYGENASE-2 EXPRESSION AND PROSTAGLANDIN E2 SYNTHESIS IN BONE MARROW STROMAL CELLS

Supaporn Suttamanatwong¹, Varittha Thongtan², Departments of ¹Physiology and ²Pediatric Dentistry, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand

SP417 THE MAXILLARY POSTERIOR ANATOMICAL LIMIT FOR MOLAR DISTALIZATION

Boonsiva Suzuki, Eduardo Yugo Suzuki, Department of Orthodontics, Faculty of Dentistry, Bangkok Thonburi University, Chiang Mai, Thailand

SP418 EVALUATION OF THE LATERALITY OF MASTICATORY MUSCLE TISSUE OXYGEN SATURATION IN SUBJECTS WITH FACIAL ASYMMETRY

Katsuhiko Suzuki¹, Satoshi Kokai¹, Shunsuke Uesugi¹, Akira Nishiyama², Takashi Ono¹, Departments of ¹Orthodontic Science and ²Orofacial Pain Management, Tokyo Medical and Dental University, Japan

SP419 COMPARISON OF TWO INTRAORAL MOLAR DISTALIZATION APPLIANCES

Eduardo Yugo Suzuki, Boonsiva Suzuki, Department of Orthodontics, Faculty of Dentistry, Bangkok Thonburi University, Chiang Mai, Thailand

SP420 CORRELATION BETWEEN LOWER THIRD MOLARS AND MANDIBULAR INCISOR CROWDING **Barbara Szkarłat**¹, Anna Wojtaszek-Słomińska¹, Paula Fiwek², Departments of ¹Orthodontics and ²Paediatric Dentistry, Medical University of Gdańsk, Poland

SP421 GENDER DISCREPANCIES BETWEEN OLIGODONTIC PATIENTS

Barbara Szkarłat¹, Anna Wojtaszek-Słomińska¹, Aida Kusiak², Departments of ¹Orthodontics and ²Periodontology and Oral Mucosa Diseases, Medical University of Gdańsk, Poland

SP422 STATISTICAL EVALUATION OF CEPHALOMETRIC NORMS IN CLASS III PATIENTS FROM WESTERN ROMANIAN

Camelia Alexandrina Szuhanek, Semida Vida, Eleonora Schiller, Popa Adelina, Grigore Adelina, Department of Orthodontics, University of Medicine and Pharmacy Victor Babes Timisoara, Romania

SP423 TREATMENT EFFECT IN THE TRANSITIONAL DENTITION USING A PERSONAL ACTIVATOR FOR DISTAL OCCLUSION AND DEEP BITE

Anna-Marja Taipale, **Raija Lähdesmäki**, Unit of Oral Health Diseases, Medical Faculty, University of Oulu, Finland

SP424 ASSESSMENT OF CHONDROITIN SULPHATE LEVELS AROUND MAXILLARY FIRST MOLARS BETWEEN TWO TREATMENT MODALITIES DURING POSTERIOR TOOTH INTRUSION

Jintana Tasanapanont¹, Dhirawat Jotikasthira¹, Janya Apisariyakul¹, Tanapan Wattanachai¹, Marit Midtbø², ¹Department of Orthodontics and Pediatric Dentistry, Chiang Mai University, Thailand and ²Department of Clinical Dentistry - Orthodontics, University of Bergen, Norway

SP425 SIGNS AND SYMPTOMS OF TEMPOROMANDIBULAR DISORDERS IN ITALIAN ADOLESCENTS **Simona Tecco**¹, Alessandro Nota², Shideh Ehsani¹, Alberto Baldini¹, Silvia Caruso³, Department of Dentistry, Vita-Salute San Raffaele University, ¹Milan and ²L'Aquila and ³Department of Life, Health & Environmental Sciences, University of L'Aquila, Italy

SP426 THE MANDIBULAR CONDYLE DURING GROWTH: A THREE-DIMENSIONAL VOLUMETRIC ANALYSIS OF 11, 17, 24 YEAR OLD SUBJECTS

Simona Tecco¹, Alessandro Nota², Silvia Caruso³, **Shideh Ehsani**¹, Alberto Baldini¹, ¹Vita-Salute San Raffaele University, Milano, ²University of Tor Vergata, Roma and ³University of L'Aquila, Italy

SP427 THE PREVALENCE OF DENTOALVEOLAR BONE DEHISCENCES IN CORRELATION WITH MALOCCLUSIONS

Alexa Temming¹, Johannes Weigang², Anne Schubert¹, Katrin Springer³, Axel Bumann¹, ¹Fachpraxis für Kieferorthopädie und CMD-Zentrum Prof. Dr. Axel Bumann & Kollegen, Berlin, ²Meindentist, Berlin and ³Mesantis 3D Dental-Radiologie, Germany

SP428 BITE FORCE, OCCLUSAL CONTACTS, HEAD POSTURE, PAIN AND MUSCLE TENDERNESS IN ORTHODONTIC PATIENTS BEFORE, DURING AND AFTER FIXED APPLIANCE TREATMENT **Nicoline Therkildsen**, Liselotte Sonnesen, University of Copenhagen, Denmark

SP429 EFFECT OF ULTRASONIC IMMERSION ON FLEXURAL PROPERTIES OF A METHYL METHACRYLATE-BASED ORTHODONTIC BASE-PLATE MATERIAL

Wadjakorn Thummawanich¹, Chintana Sirichompun¹, Chairat Wiwatwarrapan², Departments of ¹Orthodontics and ²Prosthodontics, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand

SP430 THE COURSE OF THE NASOPALATINE CANAL: A STUDY USING CONE BEAM COMPUTED TOMOGRAPHY

Raphael Tilen¹, Marc Schätzle¹, Raphael Patcas¹, Michael M. Bornstein², Björn Ludwig³, ¹Clinic of Orthodontics and Pediatric Dentistry, University of Zurich and ²Department of Oral Surgery and Stomatology, University of Bern, Switzerland and ³Private Practice, Traben-Trarbach, Germany

SP431 ASSOCIATION BETWEEN INTERCLINOID LIGAMENT CALCIFICATION AND TOOTH AGENESIS IN BOSNIAN ORTHODONTIC PATIENTS

Alisa Tiro, Vildana Dzemidzic, Lejla Redzepagic-Vrazalica, Azra Jeleskovic, **Enita Nakas**, Department of Orthodontics, University of Sarajevo, School of Dental Medicine, Bosnia and Herzegovina

SP432 FACIAL ASYMMETRY IN ORTHOGNATHIC PATIENTS
Anzelika Titovica, **Andris Abeltins**, Ilga Urtane, Department of Orthodontics, RSU, Riga, Latvia

SP433 EVALUATION OF AN AESTHETIC SMILE

Marta Tobar Varela, Iván Nieto Sánchez, Ana Belén Macías Gago, Laura Aneiros Fernández, Department of Dentistry, Nebrija University-San Rafael Hospital, Madrid, Spain

SP434 COMPARISON OF QUALITY OF LIFE IN PATIENTS WITH AND WITHOUT A DENTOFACIAL DEFORMITY

Hui En Toh, Mimi Yow, Geraldine Lee, Kelvin Foong, Hung Chew Wong, National Dental Centre Singapore, Singapore

SP435 CONDYLAR ASYMMETRY IN PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS: COULD IT BE A SIGN OF POSSIBLE TEMPOROMANDIBULAR JOINT INVOLVEMENT?

Ingrid Tonni¹, Rosangela Cannavale², **Alessandro Tammaro**³, Maria Grazia Piancino², Letizia Perillo³, ¹Dental School, Orthodontic Division, University Of Brescia, ²Department of Surgical Sciences, Orthodontic Division, University of Turin and ³Multidisciplinary Department of Medical-Surgical and Dental Specialties, Orthodontic Division, University of Campania "Luigi Vanvitelli", Naples, Italy

SP436 THE ACCURACY OF SOFT TISSUE PREDICTION USING THREE-DIMENSIONAL SIMULATION SOFTWARE FOR PLANNING ORTHOGNATHIC SURGERY

Kiratiya Traisrisin¹, Tasanee Wangsrimongkol², Montian Manosudprasit², ¹Faculty of Dentistry, Khon Kaen University, Master of Science in Orthodontic Program and ²Department of Orthodontics, Faculty of Dentistry, Khon Kaen University, Thailand

SP437 THE INFLUENCE OF HERITABILITY ON THE FORMATION OF THE THIRD MOLARS

Giedrė Trakinienė, Antanas Šidlauskas, Vilma Švalkauskienė, Clinic of Orthodontics, Lithuanian University of Health Sciences, Kaunas, Lithuania

SP438 THE TENSILE BOND STRENGTH CHANGES WITH METAL BRACKETS AFTER TOOTH BLEACHING **Giedrė Trakinienė**, Dalia Smailienė, Vilma Švalkauskienė, Kristina Lopatienė, Clinic of Orthodontics, Lithuanian University of Health Sciences, Kaunas, Lithuania

SP439 CHANGES IN UPPER AIRWAY WIDTH IN PATIENTS WITH MILD OBSTRUCTIVE SLEEP APNOEA USING MAGNETIC MANDIBULAR ADVANCEMENT

Polbhat Tripuwabhrut, **Dhirawat Jotikasthira**, Department of Orthodontics and Pediatric Dentistry, Chiang Mai University, Thailand

SP440 BUCCAL CORTICAL BONE THICKNESS AT THE INFRAZYGOMATIC CREST SITE IN THAI GROWING UNILATERAL CLEFT LIP AND PALATE PATIENTS

Chanachol Trirattanapradit, Marasri Chaiworawitkul, Department of Orthodontics and Pediatric Dentistry, Chiangmai University, Thailand

SP441 PREVALENCE OF IMPACTED THIRD MOLARS IN ADULTS

Vesela Tsarik¹, Laura Andreeva², Tatyana Petukhova¹, ¹Premier Stomatologia, Moscow, Russia and ²Medical University Sofia, Bulgaria

SP442 PRE-TREATMENT STATE ANXIETY IN ORTHODONTIC PATIENTS: SAMPLE OF A UNIVERSITY HOSPITAL

Tülin Tunç¹, Orhan Özdiler², Bartu Altuğ², Bilgin Giray³, **Erhan Özdiler¹**, ¹Çankaya University, Ankara and Departments of Orthodontics, ²Ankara University Faculty of Dentistry, Ankara and ³Aydın University Faculty of Dentistry, İstanbul, Turkey

SP443 ACCELERATED TOOTH MOVEMENT: CORTICOMTOMIES VERSUS MICROOSTEOPERFORATIONS

Alejandro Turienzo Celada, Javier De la Cruz Pérez, Carmen Mediero Pérez, Iván Nieto Sánchez, Inés Díaz Renovales, Department of Dentistry, University Alfonso X el Sabio, Madrid, Spain

SP444 COMPARISON OF THE PATIENT PATHWAY BETWEEN SURGERY FIRST AND CONVENTIONAL ORTHOGNATHIC CASES

Thushala Ubaya-Narayanage, Ian Arad, Payal Sharma-Birch, Department of Orthodontics, Queen's Hospital, Romford, U.K.

SP445 EVALUATION OF AUTOROTATION OF MANDIBLE AFTER LE FORT 1 MAXILLARY IMPACTION **Dilshad Umar**¹, Bahija Basheer¹, Musthafa Khader², Akhter Husain³, ¹Department of Preventive Dental Sciences, Al Farabi College of Dentistry, Riyadh, Saudi Arabia, ²Department of Oral Surgery, Kanachur Medical College, Mangalore, India and ³Department of Orthodontics, Yenepoya University, Mangalore, India

SP446 EVALUATION OF MANDIBULAR DENTAL ARCH FORMS FOR DIFFERENT CLASSES OF MALOCCLUSION IN TURKISH SUBJECTS: A PILOT STUDY

Gokay Ustdal, Fundagul Bilgic, Department of Orthodontics, Mustafa Kemal University, School of Dentistry, Hatay, Turkey

SP447 WITHDRAWN

SP448 ASSOCIATION BETWEEN CARABELLI CUSP AND SHOVEL INCISORS: PREVALENCE IN ORTHODONTICS PATIENTS AT SAN RAFAEL HOSPITAL IN MADRID

Carlota Vázquez Aller, Beatriz Ruiz de Huidobro Lloret, Ana Belén Macías Gago, Iván Nieto Sánchez, Laura Aneiros Fernández, Department of Dentistry, Nebrija University-San Rafael Hospital, Madrid, Spain

SP449 UNIVERSITY ORTHODONTIC CARE – CHANGES OF PATIENT CHARACTERISTICS, TREATMENT QUALITY AND TREATMENT COSTS OVER A PERIOD OF 20 YEARS

Julia von Bremen¹, Eva Streckbein², Sabine Ruf¹, ¹Department of Orthodontics, University of Giessen, and ²Private Practice, Limburg, Germany

SP450 PRELIMINARY RESULTS OF THE SURVIVAL RATE OF MINIPLATES AND MINISCREWS USED AS ANCHORAGE IN ORTHODONTIC TREATMENTS

Jessi Vuorinen^{1,2}, Anna-Liisa Svedström-Oristo², Päivi Jääsaari¹, Departments of ¹Oral and Maxillofacial Diseases and ²Oral Development and Orthodontics, Turku University Hospital and University of Turku, Finland

SP451 EFFECTS OF RAPID MAXILLARY EXPANSION ON PALATALLY DISPLACED CANINES IN PATIENTS WITH A MAXILLARY TRANSVERSE DEFICIENCY

Delphine Wagner, Julien Wolff, Renaud Rinkenbach, **Bruno Grollemund**, Department of Orthodontics, University of Strasbourg, Dental Faculty, France

SP452 AN ASSESSMENT OF THE RESULTS IN EARLY/LATE THERAPY OF CLASS III MALOCCLUSION **Brigitte Wendl^{1,2}**, Alfred Muchitsch², Heinz Winsauer³, Andre Walter⁴, M. Thomas Wendl⁵, ¹Clinical Department of Oral Surgery and Orthodontics, ²Medical University Graz, Austria, ³Private Practice, Bregenz, Austria, ⁴Universitat Internacional de Catalunya, Barcelona, Spain, ⁵Institute of Software Development and Biomedical Engineering, Technical University Graz, Austria

SP453 THREE-DIMENSIONAL ANALYSIS OF THE EFFECTS OF SKELETALLY ANCHORED MESIALISATION IN THE MAXILLA

Benedict Wilmes, Kathrin Becker, Chantal Grandjean, Dieter Drescher, University of Duesseldorf, Germany

SP454 DENTOALVEOLAR CHANGES AFTER USING A NASOALVEOLAR MOULDING DEVICE IN UNILATERAL COMPLETE CLEFT LIP AND PALATE PATIENTS

Raweewan Wongpetch¹, Montian Manosudprasit¹, Waranuch Pitiphat², Departments of ¹Orthodontics and ²Community Dentistry, Khon Kaen University, Khon Kaen province, Thailand

SP455 TRANSFECTION OF NUCLEAR FACTOR-KAPPA B DECOY INTO THE RODENT PERIODONTIUM USING ULTRASOUND-MICROBUBBLE TECHNIQUE PREVENTS PROGRESSION OF PERIODONTITIS **Hiroyuki Yamaguchi¹**, Yuji Ishida¹, Jun Hosomichi¹, Jun-ichi Suzuki², Takashi Ono¹, ¹Department of Orthodontic Science, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University and ²Department of Advanced Clinical Science and Therapeutics, Graduate School of Medicine, University of Tokyo, Japan

SP456 BUCCALLY IMPACTED MAXILLARY CANINES INCREASE THE LIKELIHOOD OF ROOT SEPARATION IN ADJACENT FIRST PREMOLARS

Bin Yan¹, Dan Cao¹, Zongyang Sun², ¹ Nanjing Medical University, Nanjing, China and ²Ohio State University, USA

SP457 THE CORROSION BETWEEN METAL ORTHODONTIC BRACKETS AND DIFFERENT TYPES OF ARCHWIRES CAUSED BY FLUORIDE PRODUCTS

Tipanan Yanisarapan¹, Pintu-on Chantarawaratit¹, Pasutha Thunyakitpisal², Departments of ¹Orthodontics and ²Anatomy, Chulalongkorn, Bangkok, Thailand

SP458 COMPARISON OF ANCHORAGE LOSS BETWEEN THE 0.018- AND 0.022-INCH SLOT BRACKET SYSTEMS

Yassir Yassir, Grant McIntyre, Ahmed El-Angbawi, David Bearn, Department of Orthodontics, University of Dundee, U.K.

SP459 ASSESSMENT OF RELIABILITY OF AN ORTHODONTIC APPLICATION FOR CEPHALOMETRICS Hilal Yilanci, Sertac Aksakalli, **Erhan Gorukmez**, S. Ilhan Ramoglu, Department of Orthodontics, Bezmialem Vakif University, Istanbul, Turkey

SP460 CORRELATION BETWEEN IMPACTED UPPER SECOND PREMOLARS AND CANINES AND THEIR TREATMENT PROTOCOL

Greta Yordanova, Department of Orthodontics, Medical University, Faculty of Dental Medicine, Sofia, Bulgaria

SP461 FREQUENCY OF IMPACTION OF DIFFERENT TEETH GROUPS

Greta Yordanova, Department of Orthodontics, Medical University, Faculty of Dental Medicine, Sofia, Bulgaria

SP462 INCREASED FRICTION FOLLOWING THE PROGRESS OF SPACE CLOSURE IN SLIDING MECHANICS: A TIME-DEPENDENT FINITE ELEMENT ANALYSIS FOR LONG-TERM TOOTH MOVEMENT **Noriaki Yoshida**¹, Ryo Hamanaka¹, Jun-ya Tominaga¹, Satoshi Yamaoka¹, Yoshiyuki Koga², ¹Department of Orthodontics and Dentofacial Orthopedics, Nagasaki University Graduate School of Biomedical Sciences and ²Department of Orthodontics, Nagasaki University Hospital, Japan

SP463 EVALUATION OF OUTCOMES OF CONTINUING PROFESSIONAL EDUCATION IN ORTHODONTICS

Kyoungin Yun¹, Hyungkil Choi², ¹Yeouido St. Mary's Hospital, Seoul and ²Seoul National University, Korea, South

SP464 IN VIVO COLOUR EVALUATION OF CLEAR THERMOPLASTIC RETAINERS

Anastasios A. Zafeiriadis¹, Andreas Karamouzos¹, Athanasios E. Athanasiou², Theodore Eliades³, George Palaghias¹, ¹Aristotle University of Thessaloniki, Greece, ²Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates and ³University of Zurich, Switzerland

SP465 ORTHODONTIC TREATMENT OF CHILDREN WITH A BILATERAL CLEFT LIP AND PALATE USING MICRO-IMPLANTS

Olga Zangieva, Adil Mamedov, Janna Blinder, Lina Mazurina, Department of Childhood Dentistry and Orthodontics, First Moscow State Medical University, Russia

SP466 INFLUENCE OF REAL BUCCOLINGUAL INCLINATION OF FIRST AND SECOND PREMOLARS ON PANORAMIC MESIODISTAL ANGULATION MEASUREMENT

Piero Antonio Zecca, Marta Fontana, Rosamaria Fastuca, Nicolò Vercellini, Alberto Caprioglio, University of Insubria - Varese, Italy

SP467 BONE SAFE ORTHODONTIC SET-UP

Piero Antonio Zecca, Rosamaria Fastuca, Alberto Caprioglio, Matteo Beretta, Aldo Macchi, University of Insubria - Varese, Italy

SP468 CRANIAL-BASE AND MAXILLOMANDIBULAR MORPHOLOGY IN ADULTS WITH A SKELETAL CLASS II MALOCCLUSION

Weibing Zhang, Department of Orthodontics, Stomatology School, Nanjing Medical University, Nanjing, China