ESE 2017
BRUSSELS
14 TO 16 SEPTEMBER

ROOTED IN THE HEART OF EUROPE

PROGRAMME

WE KNOW ENDO.

Come learn with us

Join one of our free workshops

Dr Julian Webber

Dr Shanon Patel

Dr Francesco Mannocci

Visit us at Booth Number **1**

Save time and book your session (and more...) on MyCompanion app available for iOS

ProTaper Next®

WaveOne® Gold

3D Endo™
Software

Wednesday, Sept. 13 PRE-CONGRESS	Thursday, Sept. 14	Friday, Sept. 15	Saturday, Sept. 16
09:00 – 12:30 "Shaping canals with confidence" Dr. Julian Webber	**10:30 – 11:15** ProTaper Next® Dr. Francesco Mannocci	**10:30 – 11:15** WaveOne® Gold Dr. Julian Webber	**09:45 – 10:30** 3D Endo™ Software Dr. Shanon Patel
	11:45 – 12:30 ProTaper Next® Dr. Francesco Mannocci	**11:45 – 12:30** WaveOne® Gold Dr. Julian Webber	
14:00 – 17:30 "Mastering endodontic treatments of molars and difficult teeth using M-wire rotary files in continuous rotation: technical management and scientific evidences" Dr. Francesco Mannocci	**13:30 – 14:15** WaveOne® Gold Dr. Julian Webber	**13:30 – 14:15** ProTaper Next® Dr. Francesco Mannocci	**13:30 – 14:15** 3D Endo™ Software Dr. Shanon Patel
	14:45 – 15:30 WaveOne® Gold Dr. Julian Webber	**14:45 – 15:30** ProTaper Next® Dr. Francesco Mannocci	**14:30 – 15:15** 3D Endo™ Software Dr. Shanon Patel
	16:00 – 16:45 WaveOne® Gold Dr. Julian Webber	**16:00 – 16:45** ProTaper Next® Dr. Francesco Mannocci	

Dentsply Sirona Endodontics

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WELCOME LETTER

Dear congress delegate,

The ESE Executive Board, along with the Belgian Association for Endodontology and Traumatology (BAET) and Flemish Society of Endodontology (FSfE), are delighted to welcome you to Brussels for this world-leading conference on Endodontology. ESE congresses are well known as exceptional meetings that combine the clinical science and practice of Endodontics with the underpinning biological and materials sciences.

ESE Brussels 2017 is taking place at The Square, Brussels, Belgium. The venue is a modern, purpose-built congress centre that offers several large auditoria perfect for the scientific programme. It also has several smaller meeting rooms, as well as a large exhibition space for our dental/medical sponsors and exhibitors.

The ESE and local organizing committee have worked hard on the conference, the theme of which is – "Rooted in the heart of Europe". With the help of surveys conducted with previous congress participants, society members, and our industry partners we have planned an exciting programme that will offer the latest clinical updates as well as the latest research findings in the field of Endodontology. The focus of the scientific programme is "Endo for all ages".

The ESE wishes to thank the many sponsors and exhibitors who have agreed to attend and support the congress. Attendees should note that the programme includes dedicated time for participants to visit the Exhibition Hall and thus support our friends from the dental industry.

We are confident ESE Brussels 2017 will be a memorable meeting and we hope you have an enjoyable time both professionally and socially.

ESE Executive Board

COMMITEES

Congress Organiser
ESE Administrator: Sue Bryant

ESE Executive Board
President: Claus Löst
Secretary: Paul Dummer
Treasurer: Hakki Sunay
Chair of the Education and Scholarship Committee: John Whitworth
Chair of the Research Committee: Leo Tjäderhane

Host Societies
Belgian Association for Endodontology and Traumatology (BAET)
Flemish Society of Endodontology (FSfE)

Local Organising Committee
Congress President: Roeland De Moor
Congress Vice-President: Dominique Pee
Committee Members: Jan Berghmans, Mieke Bogaert, Stéphane Buquet, Luk Daneels, Bernard De Vooght, Maarten Meire, Gunter Slaus, Els Tijskens

Contacts
Congress Secretariat

AIM Group International
Lisbon Office
Avenida Conde de Valbom, 6 – 5th Floor, 1050-068 Lisbon, Portugal
Phone: +351 213245040
E-mail: esebrussels2017@aimgroup.eu

LOCAL INFORMATION

About Brussels
Apart from being the centre of European politics, Brussels has a fascinating and ancient history that dates back to the 11th century when it began as a small dukedom the size of the current downtown area. In 1830 Belgium became independent and Brussels became the capital of Belgium under a new king and parliament.
Since then, Belgium has created its own Constitution and proclaimed its own sovereign – King Leopold of Saxe-Coburg was the first king of the Kingdom of Belgium.
Belgium is separated into 3 regions mainly due to differences in language – French and Dutch speakers. The regions are Flanders in the north (Dutch), Wallonia in the south (French) and Brussels in the center (Bilingual). There is a small area called Ardennes that also speaks German but it is not an official region.
The region of Brussels is made up of 19 separate communes; the City of Brussels is one of these communes and has about 150,000 inhabitants and dates back to the original city built in the 13th century. Brussels is one of the most international cities in the world; 27% of the population is made up of foreigners, not including those who have taken Belgian citizenship. In keeping with its status as the Capital of Europe (the seat of the European Union), Brussels is the location for 40,000 EU employees, 4,000 NATO employees and hosts about 300 permanent representations: lobby groups, embassies and press corporations.

Language
The official language is French. English is widely spoken.

Local Time
Belgium is in the Central European Time Zone (CET): GMT + 1 hour.

Currency
The local currency is the Euro (EUR). ATM machines are found everywhere from where the local currency can be obtained.
Foreign currencies can be exchanged in banks and exchange offices.
There are several banks near the meeting venue, and there are exchange offices at the airport, train stations and many other locations.

Tipping
Tipping is not mandatory in Belgium and it is not expected in cafes, restaurants and hotels. However, it is always appreciated if the service has been particularly good. It is normal to round up taxi fares or provide a small tip.

Smoking
The Belgian law forbids smoking on public transportation and indoor public areas. Smoking is not permitted inside the conference building or at the social venues.

Taxi
In Belgium the taxis are usually black with yellow markings. Here are two taxi companies:
Taxi Verts: +32 (0)2 268 00 00 and Taxi Bleus: +32 (0)2 349 49 49.

Emergency Numbers
Emergency Number: 112
Ambulance and fire fighters: 100
Police: 101

Shopping and Business Hours
Shopping hours are Monday to Friday from 9.00 a.m. to 6:00 p.m. and Saturday from 9.00 a.m. to 5.00 p.m. The shops are closed on Sundays. Visitors from non-EU countries should ask for VAT refunds when purchasing goods.

VAT – Value Added Tax
Value Added Tax and similar taxes are charged on most goods and services in Belgium. VAT in Belgium is currently 21%. VAT is included in all Congress fees. As a participant in the ESE Brussels 2017 Congress you may have the possibility – under certain conditions – to recover the VAT paid on certain types of expenses incurred. This may apply to both non-European business travelers visiting Europe and to European business travelers to other EU countries. For further information, please contact Customs and Excise on departure at the airport.

CONGRESS GENERAL INFORMATION

Congress Venue
The 18th Biennial Congress of the European Society of Endodontology is being held at the Square – Brussels Meeting Centre, Rue Mont des Arts, 1000 Brussels, Belgium.

Bozar Theatre – Henry Le Boeuf Hall
One of the main sessions will take place in the Henry Le Boeuf Hall inside the Bozar Theatre which is located next to the Square – Brussels Meeting Centre.
The Bozar Theatre is connected to the Square through an internal passage that leads to a dedicated entrance to the Theatre.
Access to Henry Le Boeuf Hall must be made at all times via the Square internal passage and not at street level .

Language
The Congress official language is English. No simultaneous translation will be provided.

Congress Secretariat Opening Hours

Wednesday	13 September	08:00 – 20:00
Thursday	14 September	08:00 – 18:00
Friday	15 September	08:00 – 18:00
Saturday	16 September	08:00 – 16:00

Cloakroom
A cloakroom is available next to the Congress Secretariat area. Delegates must not leave their personal belongings at the venue after closing-time.

Cloakroom Opening Hours

Wednesday	13 September	08:00 – 20:00
Thursday	14 September	08:00 – 18:00
Friday	15 September	08:00 – 18:00
Saturday	16 September	08:00 – 16:00

Exhibition Opening Hours

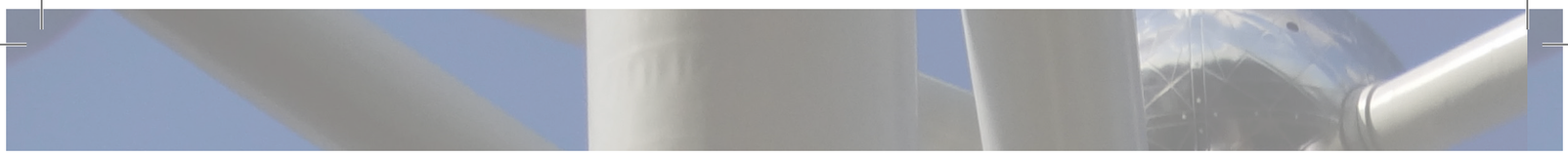
Wednesday	13 September	18:30 – 20:00
Thursday	14 September	08:30 – 18:30
Friday	15 September	08:30 – 18:30
Saturday	16 September	08:30 – 15:00

Congress Name Badge
Participants must wear their badge at all times when in the congress venue and at official social events.

ESE 2017 APP
Download the **ESE Meetings** app on your smartphone and portable devices to access all the congress information, available on the App Store and Google Play.

ESE Meetings app

WI-FI
Wi-fi is available for all congress participants through-out the congress venue.



No smoking
Smoking is strictly forbidden in the Congress Venue.

Mobile Phones
Delegates must keep their phone in the off or silent position in all the scientific presentation halls.

Photography and Video Recording
Delegates must not take photographs or make video recordings of lectures.

Refreshments
Complimentary coffees/refreshments will be available for participants in the breaks between the sessions (please check the congress timetable for coffee break times).

Meals
Lunch boxes will be available for all delegates in the Trade Exhibition area. A restaurant is available on site for those wishing to purchase alternate meals; other restaurants are within walking distance.

Insurance
The congress organizers cannot accept liability for personal injuries sustained or for loss or damage to property belonging to congress participants, either during or as a result of the congress. Please ensure you have valid personal insurance.

SOCIAL PROGRAMME

Opening Ceremony And Welcome Reception

The Welcome Reception will take place after the Opening Ceremony at the Congress Centre (The Square, Glass Entrance, Rue Mont des Arts, B-1000, Brussels) on Wednesday 13th September. The opening ceremony will take place in Gold hall at 18:00. The Welcome Reception will follow the Opening Ceremony at approx. 18:30 – 20:00 in the exhibition area of the congress centre. Entrance is subject to registration and display of the congress badge. The reception is free for participants. Accompanying persons can attend if they are registered and pay the appropriate fee but only when displaying the congress badge.

ESE Reception - Autoworld

Autoworld is located in one of the exclusive buildings of Parc du Cinquantenaire, one of the most beautiful locations in Belgian architectonic heritage. It is a most interesting and unique venue with 250 beautifully preserved and restored cars, which delegates can wander around. It is one of the most impressive collections of rare and vintage cars in Europe and probably the world.
Autoworld, Jubelpark / Parc du Cinquantenaire 11, 1000 Brussels, Belgium.
Date: Thursday 14th September 19:30 – 23:30 at AutoWorld. Food and drinks are included in the price until 22:30. A cash bar is available from 22:30 to 23:30.
Cost: 30 Euros (50 Euros onsite and subject to availability) for registered participants. Accompanying persons can attend if they are registered and pay the appropriate fee.

How to get to Autoworld:
Please note: participants will need to find their own way there and back as transport is not provided. There is a metro station close to the venue which closes at 24:00.
Nearest station: Merode Train station; Merode Metro station Line 1 & 5; Merode Bus Lines 22, 27, 61, 80.

Gala Dinner - Le Plaza Théâtre

Situated in the heart of historic and cultural Brussels, the Hotel Le Plaza is only a few minutes from the famous Grand Place, the Royal Palace and the congress centre. The elegant dining rooms and the magnificent Theatre Le Plaza, listed by Royal Decree, form its unique architectural value. Plaza Theatre, a former cinema, is designed for large events. In the kitchen, Olivier Bontemps, Belgian chef and Eurotoques member, creates tasteful dishes, preferring fresh ingredients and regional specialties. The theatre has a complete separate entrance from the Plaza Hotel which will be signposted with the ESE Brussels logo.
Cost: 110 Euros (125 Euros onsite)
Date: Friday 15th September at 20:00 at Le Plaza Théâtre, Hôtel Le Plaza
Bruxelles, Bld, Adolphe Max 118-126, 1000 Bruxelles, Belgium

Please note: tickets purchased for AutoWorld and the Gala dinner cannot be returned once purchased. Also, if tickets are not purchased during online registration they will only be available onsite from the registration desk (subject to availability).

Children (under 18 years old)

Delegates must be aware that the social events at ESE congress are likely to be very crowded and will involve the availability of alcoholic drinks. In addition, the Welcome Reception will be held in the Trade Exhibition area where a considerable amount of valuable equipment will be on display. Delegates with children should take account of these circumstances should they wish to bring children to the social events on the Wednesday and Thursday.
As a result the ESE has developed the following policy for children:
• Children between 12 and 18 years may attend the Welcome Reception on Wednesday, ESE Reception on Thursday and Gala Dinner BUT are required to be registered as accompanying persons and pay the appropriate fee.
• Children under the age of 12 years may attend the Welcome Reception on the Wednesday and the ESE Reception on Thursday on the understanding that the venues will be crowded.

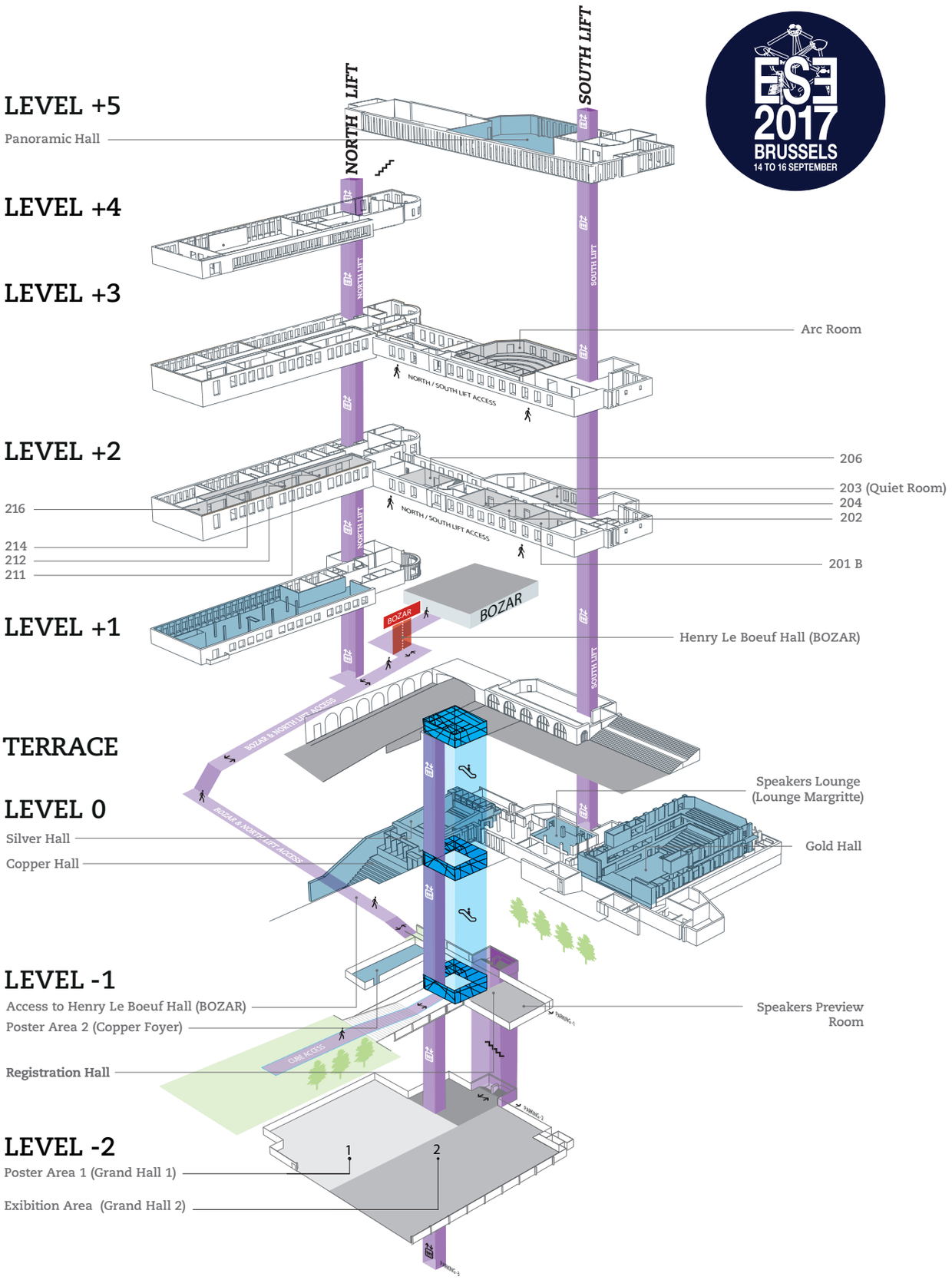
MEETINGS & FUNCTIONS (invitation only)

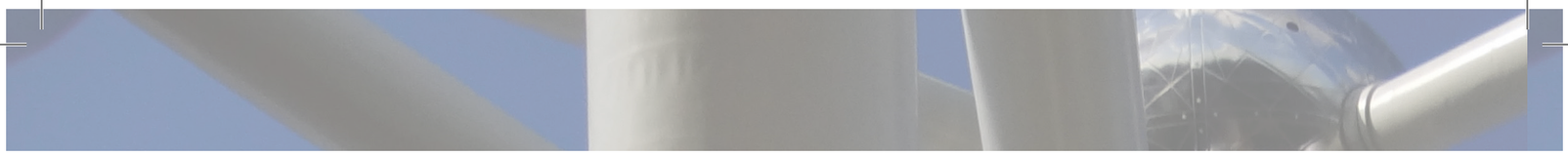
ESE General Assembly
Wednesday 13th September – from 10:00 to 17:30 - The Arc Room, Level 3

ESE Specialist and Certified Members Lunch
Thursday 14th September, from 12:30 to 13:30 – Panoramic Hall, Level 5

ESE Registered Postgraduate Student Members Lunch
Friday 15th September, from 12.30 to 13:30 – Panoramic Hall, Level 5

CONGRESS VENUE FLOORPLAN





PRE CONGRESS COURSES TIMETABLE

Wednesday, 13th September

Time	Meeting Studio 201 B	Meeting Studio 202	Meeting Studio 204	Meeting Studio 206
9:00 - 12:30	**Pre-Congress Course 1** **Dentsply Sirona:** **Shaping canals with confidence** Julian Webber			
14:00 - 17:30	**Pre-Congress Course 2** **Dentsply Sirona:** **Mastering endodontic treatments of molars and difficult teeth using M-wire rotary files in continuous rotation: technical management and scientific evidences.** Francesco Mannocci	**Pre-Congress Course Fotona:** **Newest horizons in root canal irrigation using revolutionary photoacoustic streaming method (PIPS™)** **Laser activated irrigation using pulsed erbium lasers: principles and physical basis** Maarten Meire **Value added benefits of lasers for root canal cleaning and disinfection, an overview Laser-activated irrigation and the PIPS approach** Roeland De Moor **Newest horizon in endodontic irrigation using PIPS: tips and tricks** Giovanni Olivi **Apical irrigant extrusion during Laser Activated Irrigation compared to conventional endodontic irrigation regimens** Damir Snjaric **Hands-on - demonstration on models and teeth**	**Pre-Congress Course Coltène/Whaledent:** **Hands On Course** **Making the endodontic management of complicated canal systems simple, safe and predictable.** **A new approach with Hyflex CM and EDM files.** Antonis Chaniotis	**Pre-Congress Course Ultradent:** **Simplifying endodontics using evidence-based decision making process a streamlined asymmetric reciprocation instrumentation technique** Carlos A Spironelli Ramos

Gold Hall

18:00 - 18:30 **Opening Ceremony**

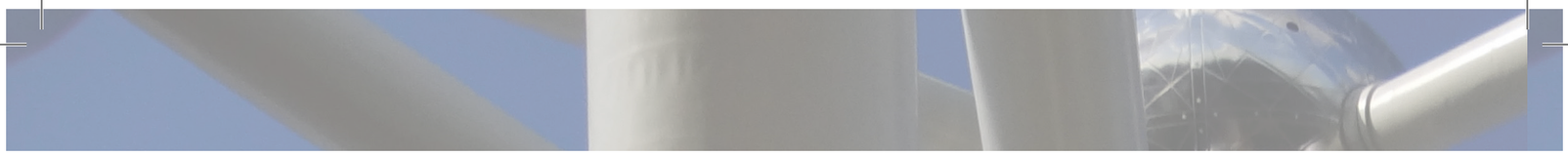
Exhibition Hall

18:30 - 20:00 **Welcome Reception**

PRE CONGRESS COURSES TIMETABLE

Wednesday, 13th September

Time	Meeting Studio 211	Meeting Studio 212	Meeting Studio 214
9:00 - 13:00	**Pre-Congress Course FKG:** **XP-endo® 3D revolutionary instrumentation** **Minimal invasive biologically oriented endodontics through 3-D expandable NiTi technology.** Andreas Krokidis		
14:00 - 18:00	**Pre-Congress Course FKG:** **XP-endo® 3D revolutionary instrumentation** **Minimal invasive biologically oriented endodontics through 3-D expandable NiTi technology.** Andreas Krokidis	**Pre-Congress Course Sendoline:** **Reciprocation – the easy practical way** **Modern instrumentation of the root canal, reciprocation or rotary – introduction of a new system - S1 Reciprocation makes it easy** Fredrik Erhardt	**Pre-Congress Course Kerr Endodontics:** **Ideal root canal treatment, from shaping to chemical preparation to 3D sealing of the system** Philippe Sleiman



CONGRESS TIMETABLE

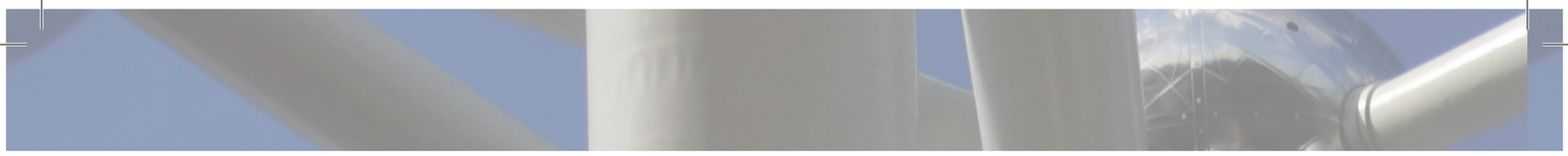
Thursday, 14th September

Time	Henry Le Boeuf Hall	Gold Hall	Copper Hall
9:00 - 10:30	**Evidence-based Endodontics** **What it is and what it isn't.** Thomas Kvist	9:00 **Endodontics in the young** Monty Duggal 9:45 **Endodontic pain: predisposing factors** **Are some patients predisposed to pain?** **The influence of genetics, gender, anxiety and ethnicity** Paul Rosenberg	**Symposium: Managing problems after dental trauma** **Led by Gabriel Krastl** Managing root resorption after dental trauma Johannes Mente Managing pulp canal calcification and related problems Gabriel Krastl
10:30 - 11:00	**Coffee Break**		
11:00 - 12:30	**The evidence base - hydraulic calcium silicate cements** Josette Camilleri	11:00 **Diagnosis and treatment planning** **Evidence - based diagnostic and therapeutic decision making** Jan Berghmans 11:45 **Conventional and molecular markers for endodontic diagnostics: Limits and possibilities** Dan-Krister Rechenberg	**Symposium: Managing problems after dental trauma (cont.)** **Led by Gabriel Krastl** Iatrogenic trauma to the endodontium Paul Lambrechts Managing anterior tooth loss in adolescence Nicola Zitzmann
12:30 - 13:30	**Lunch Break**		
13:30 - 14:30	**Poster Presentations/Trade Exhibition open**		
14:30 - 16:00	**The evidence base - vital pulp therapies** Lars Bjørndal	14:30 **Update on root canal anatomy in a 3D world** Marco Versiani 15:15 **Antibiotics in endodontic treatment** Ashraf Fouad	**Symposium: Tooth restoration** **Led by Francesco Mannocci** Restorability and treatment planning Francesco Mannocci Root canal posts - what evidence exists for indication and post type Kerstin Bitter
16:00 - 16:30	**Coffee Break**		
16:30 - 18:00	**The evidence base - biofilms and irrigants** Matthias Zehnder	16:30 **From caries to apical periodontitis - state of current knowledge** Anca Virtej 17:15 **Pulp healing** Stéphane Simon	**Symposium: Tooth restoration (cont.)** **Led by Francesco Mannocci** Tooth Restoration: crowns Serge Bouillaguet Restoration of severely broken down teeth and restoration of endodontically re-treated teeth Massimo Giovarruscio

CONGRESS TIMETABLE

Thursday, 14th September

Time	Silver Hall	Meeting Studio 211 & 212	Meeting Studio 214 & 216
9:00 - 10:30	**09:00** **FKG Lecture 1** **Application of XP-endo® Shaper and Finisher-R for retreatment cases** Isabelle Portenier **09:45** **MICRO-MEGA Lecture 1** **Effect of Asymmetric Geometry and Heat-Treatment on the Behavior of Rotary Root Canal Instruments** Franck Diemer	**Wladimir Adlivankine Research Prize** **Introduction by Leo Tjäderhane** **Efficacy of irrigant activation techniques in removing intracanal smear layer and debris from mature permanent teeth: a systematic review & meta-analysis** Satnam Singh Virdee **Education Prize** **Inroduction by John Whitworth** **Influence of method of teaching endodontology on undergraduate students' self-efficacy and self-perceived competence** Annemarie Baaij **Self-printed artificial teeth for endodontic education** Marcel Reymus	**Oral presentations on freely chosen subjects**
10:30 - 11:00	**Coffee Break**		
11:00 - 12:30	**11:00** **Dentsply Sirona Lecture 1** **New Innovations in Glide Path Management and shaping Canals with Gold Technology** Julian Webber **11:45** **Acteon Lecture** **The use of Cone Beam in surgical and non-surgical endo treatment** Jean-Yves Cochet	**Original Scientific Poster Oral Prize Presentations led by Leo Tjäderhane** **A 20-year clinical study: functionality and success of root canal treatments** Zamparini F. **Effectiveness of HICA and alpha-mangostin against endodontopathogenic microorganisms in a multi-species bacterial-fungal biofilm model** Leelapornpisid W. **Gene expression of adhesion factors and biofilm formation by Fusobacterium nucleatum strains isolated from root canals** Andrade F.B. **Assessment of the Intraosseous Tissue Response to Biodentine compared with that of Mineral Trioxide Aggregate (MTA)** Ewess E.H. **Dentinal microcracks formation and canal preparation: a longitudinal in situ micro-CT study using a cadaver model** Carvalhal J.C.A.	**Oral presentations on freely chosen subjects**
12:30 - 13:30	**Lunch Break**		
13:30 - 14:30	**Poster Presentations/Trade Exhibition open**		
13:45 - 16:00	**13:45** **Kerr Endodontics Lecture** **Apex in vacuo. Use of partial vacuum force in endodontics** Philippe Sleiman **14:30** **VDW Lecture 1** **Methods of activating endodontic irrigation** Klaus Neuhaus **15:15** **MICRO-MEGA Lecture 2** **Evaluation of the influence of heat-treatment on single files used in continuous rotation and reciprocation motion** Tara Mc Mahon	**Oral presentations on freely chosen subjects**	**Oral presentations on freely chosen subjects**
16:00 - 16:30	**Coffee Break**		
16:30 - 18:00	**16:30** **Coltène Lecture** **Nickel-Titanium instrumentation: clinical applications of endodontic files properties in the heat-treatments' era.** Eugenio Pedullà **17:15** **Ultradent Lecture** **What is the best kinematics to be applied during instrumentation? Reciprocation, rotary or both? Matching endodontic literacy with the clinical reality.** Carlos A Spironelli Ramos	**Oral presentations on freely chosen subjects**	**Oral presentations on freely chosen subjects**



CONGRESS TIMETABLE

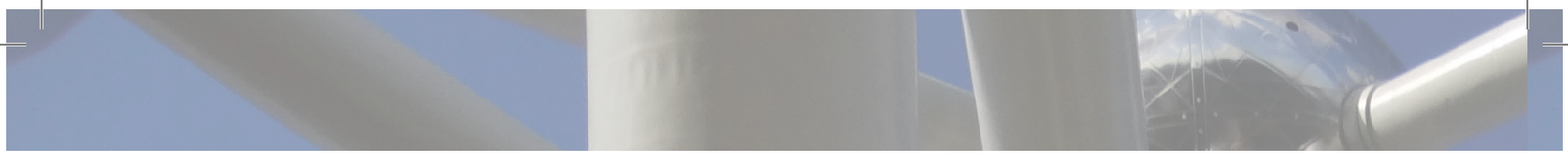
Friday, 15th September

Time	Henry Le Boeuf Hall	Gold Hall	Copper Hall
9:00 - 10:30	**The evidence base - canal shaping** Ove Peters	09:00 **The structure and roles of dentine** Leo Tjäderhane 09: 45 **Safe and predictable techniques to remove fractured instruments from root canals** Yoshitsugu Terauchi	**Symposium: Irrigation** **Led by Matt Zehnder** Irrigation – sense and sensibility Matthias Zehnder Fluid dynamics of irrigation V. Gopi Krishna
10:30 - 11:00	**Coffee Break**		
11:00 - 12:30	**The evidence base - canal filling** Dag Ørstavik	11:00 **How to prepare a glide path** Elio Berutti 11:45 **How to shape canals** Edgar Schäfer	**Symposium: Irrigation (cont.)** **Led by Matt Zehnder** Positive vs negative pressure irrigation Safety and Efficacy Considerations Gary Glassman Laser-aided irrigation Roeland De Moor
12:30 - 13:30	**Lunch Break**		
13:30 - 14:30	**Poster Presentations/Trade Exhibition open**		
14:30 - 16:00	**The evidence base - endodontic surgery** Thomas von Arx	14:30 **How to use Electronic Apex Locators** Mohammad Hossein Nekoofar 15:15 **A novel method for rapid detection of remnant live bacteria in the root canal space using fluorescence amplification** Federico Foschi	**Symposium: Education** **Led by John Whitworth** **Session 1: Undergraduate** **Update on the ADEE/ESE Collaboration** Update on case-based teaching resources and case-difficulty assessment John Whitworth, Stéphane Simon, Erik Giving Open Discussion: Experiences from schools, reflections on the direction of travel, helpful developments and collaborating to get the work done.
16:00 - 16:30	**Coffee Break**		
16:30 - 18:00	**The evidence base - systemic health and Endodontics** **The challenge of endodontic medicine** Juan José Segura-Egea	16:30 **Intentional replantation and autotransplantation** Monty Duggal 17:15 **Tooth discolouration and bleaching of non-vital teeth** Ilan Rotstein	**Symposium: Education (cont.)** **Led by John Whitworth** **Session 2: Postgraduate** Update on progress with pan-European recognition of periodontology: Implications and lessons for Periodontology and ESE Postgraduate Programme approval process Nairn Wilson, John Whitworth

CONGRESS TIMETABLE

Friday, 15th September

Time	Silver Hall	Meeting Studio 211 & 212	Meeting Studio 214 & 216
9:00 - 10:30	**09:00** **FKG Lecture 2** **3D NiTi technology with expandable feature and its application on Endodontics instrumentation** Gilberto Debelian **09:45** **Dentsply Sirona Lecture 2** **Continuous rotation M-wire rotary files: 5 years of experience and clinical research** Francesco Mannocci	**Clinical poster oral prize presentations** **Led by Gianluca Gambarini** **Successful endodontic and surgical treatment of dens invaginatus with infected invagination and vital pulp: a case report** Dembinskaite A. **Endodontic treatment of a cutaneous sinus tract with the aid of CBCT: report of a case with 6-year follow-up** Tsurumachi T. **Orthograde endodontic treatment of an immature Type III dens invaginatus: a case report** Lee J.K. **Guided Endodontics: A case report** Torres A. **Endodontic Treatment of an Immature Permanent Canine Following Infant Oral Mutilation (IOM)** Dinur N.	**Oral presentations on freely chosen subjects**
10:30 - 11:00	**Coffee Break**		
11:00 - 12:30	**11:00** **Dentsply Sirona Lecture 3** **3D Endo - what, why and when** Shanon Patel **11:45** **Sendoline Lecture** **Reciprocation – the easy practical way** Fredrik Erhardt	**Clinical video presentations** **Led by Gianluca Gambarini** **Combined treatment of a type III palatogingival groove with an accessory root in a maxillary lateral incisor: root canal therapy and intentional replantation** Ruiz X.F. **Invasive Cervical Resorption Class 4** Lozano A. **Surgical Management of Vertical Root Fracture** Meirinhos J. **A new software for endodontics** Ropini P.A. **New Innovation in Root Canal Obturation. An Idea to Share** AlShammaa M.N. **Management of perforating internal root resorption with biodentine** Fernandez J.F. **Volumetric 3D rendering: A clinical case (Use of CBCT data to enhance endodontic diagnosis and treatment)** Isufi A. **3D rendering for planning access in a calcified incisor** Piasecki L.	**Oral presentations on freely chosen subjects**
12:30 - 13:30	**Lunch Break**		
13:30 - 14:30	**Poster Presentations/Trade Exhibition open**		
13:45 - 16:00	**13:45** **Mani Lecture** **The MANI-Silk System - rotation and reciprocation for a safe and effective canal preparation in daily practice.** Peter Kiefner **14:30** **VDW Lecture 2** **Reciproc Blue: the next generation of reciprocation** Ghassan Yared **15:15** **MICRO - MEGA Lecture 3** **Shaping root canals Safely and Swiftly with a Simple sequence** Walid Nehme	**Oral presentations on freely chosen subjects**	**Oral presentations on freely chosen subjects**
16:00 - 16:30	**Coffee Break**		
16:30 - 18:00	**16:30** **Fotona Lecture** **PIPS – hovering laser activated irrigation. The future or already the present?** Ralf Schlichting **17:15** **Septodont Lecture** **Operative dentistry and Endodontology with biocompatible and bioactive materials - just a hype or more?** Till Dammaschke	**Oral presentations on freely chosen subjects**	**Oral presentations on freely chosen subjects**



CONGRESS TIMETABLE

Saturday, 16th September

Time	Henry Le Boeuf Hall	Gold Hall	Copper Hall
8:45 - 10:30		08:45 **Prize Presentations**	
9:00	**The evidence base - revitalization** **Basic principles of dental pulp regeneration** Kerstin Galler	09:00 **An overview of oral wound healing** Hannu Larjava 09:45 **The role of implant dentistry in the speciality of endodontics** Patrick Adriaens	**Symposium: Designing and running Randomised Control Trials and laboratory research projects** **Led by Hal Duncan** Designing research that matters (translation, funding, excellence and impact) Hal Duncan Laboratory studies (designing and running technical and biological studies) Yuan Ling (Paula) Ng
10:30 - 11:00	**Coffee Break**		
11:00 - 12:30	**The evidence base - CBCT** Shanon Patel	11:00 **Use of membranes and bone substitutes in microsurgical endodontics** Matthew Thomas 11:45 **Endodontic management of the endodontic-periodontic lesion** **Understanding proper diagnosis and clinical treatment to achieve periradicular healing** Jorge Vera	**Symposium: Designing and running Randomised Control Trials and laboratory research projects (cont.)** **Led by Hal Duncan** Clinical studies (designing and running randomised control trials and other clinical studies) Common difficulties and pitfalls in clinical research Thomas Kvist Scientific writing (publications and grant applications) Kishor Gulabivala
12:30 - 13:30	**Lunch Break**		
13:30 - 14:30	**Poster Presentations/Trade Exhibition open**		
14:30 - 16:00	**The evidence base - biomechanics of fractures in endodontically treated teeth** Anil Kishen	14:30 **The use of calcium silicate cements in non-vital immature teeth with pulp involvement** Marga Ree 15:15 **How to repair perforations** Arnaldo Castellucci	**Symposium: Modern technologies in Endodontics** **Led by Roeland De Moor** Modern technologies in Endodontics 1 Nanoparticles for antimicrobial purposes in endodontics Roeland De Moor Defeating endodontic biofilms with laser-induced cavitation Maarten Meire

CONGRESS TIMETABLE

Saturday, 16th September

Time	Silver Hall	Meeting Studio 211 & 212	Meeting Studio 214 & 216
9:00 - 10:30	**Symposium: Dentinal microcracks and root canal preparation & filling: Is there a causal relationship?** **Led by Gustavo De-Deus** Effect of endodontic procedures, age and dehydration on root dentine Hagay Shemesh The incidence of dentinal defects after mechanical preparation of the root canal Marcelo Coelho Critical appraisal of studies on dentinal radicular microcracks Gustavo De-Deus	**Oral presentations on freely chosen subjects**	**Oral presentations on freely chosen subjects**
10:30 - 11:00	**Coffee Break**		
11:00 - 12:30	**Symposium: Dentinal microcracks and root canal preparation & filling: Is there a causal relationship? (cont.)** **Led by Gustavo De-Deus** New trends in dentinal crack research: the Walking Dead Project Dentinal microcracks in endodontics Marco Versiani Discussion	**Oral presentations on freely chosen subjects**	
12:30 - 13:30	**Lunch Break**		
13:30 - 14:30	**Poster Presentations/Trade Exhibition open**		
14:30 - 15:42		**Oral presentations on freely chosen subjects**	

PRE-CONGRESS COURSES

MEETING STUDIO 201 B

09:00 – 12:30

Pre-Congress Course Dentsply Sirona 1

Shaping canals with confidence

Julian Webber

Abstract:
The Dentsply Sirona WaveOne® Gold file with its asymmetrical reciprocating movement advanced gold metallurgy, optimised tip diameters, tapers and an altered cross section has improved safety, efficiency and flexibility when shaping canals. In over 80% of cases only a single WaveOne® Gold file is needed to shape the canal, thus reducing the number of instruments in any given sequence to an absolute minimum. WaveOne® Gold takes simplicity and treatment success to another spectacular level. During the workshop participants will learn the importance of glide path management and pre enlargement with the new Dentsply Sirona reciprocating WaveOne® Gold Glider and then confidently shape the canal with a single WaveOne® Gold reciprocating file.

Objectives:
- Understand the biological and mechanical objectives of shaping canals;
- Appreciate the importance of Glide Path management and pre enlargement with the new reciprocating Dentsply Sirona WaveOne® Gold Glider;
- Use single file nickel titanium reciprocating WaveOne® Gold instruments to confidently shape ALL canals

14:00 – 17:30

Pre-Congress Course Dentsply Sirona 2

Mastering endodontic treatments of molars and difficult teeth using M-wire rotary files in continuous rotation: technical management and scientific evidences

Francesco Mannocci

Abstract:
Endodontic treatment of molars is associated with many challenges including access cavity preparation, removal of calcifications, management of severely curved canals, location and preparation of the second MB canal. This is an eminently practical course including lectures and live demonstrations, with participants working on plastic teeth and resin blocks. Delegates will perform endodontic treatments from start to finish, using rotary files in continuous rotation and the latest equipment, endodontic materials and techniques.

Objectives:
- The use of Cone Beam Computed tomography for the diagnosis and treatment planning of the root canal treatment of molars;
- Anatomy of the root canal system of Maxillary Molars;
- Access cavity design;
- Removal of pulpal calcifications and use of ultrasonic tips for gaining access to difficult root canals;
- Rotary Glide-path preparation;
- Location and negotiation of MB2 canals;
- Management of severely curved canals using M-wire rotary files in continuous rotation;
- Irrigation protocols;
- Presentation of the results of in-press clinical trials on the ability of rotary files and irrigation protocols to remove bacteria from root canals using a novel Chairside Rapid Bacterial Detection device;
- Obturation using warm Gutta-percha techniques;
- Use of MTA and bio-active sealers.

MEETING STUDIO 202

14:00 – 17:15

Pre-Congress Course Fotona: Newest horizons in root canal irrigation using revolutionary photo-acoustic streaming method (PIPS™)

This course is designed to provide evidence-based core knowledge in the use of lasers in endodontics. The revolutionary photoacoustic streaming method uses the power of the Er:YAG laser with a specially shaped fiber tip to create non-thermal photoacoustic shock waves within the irrigant. Investigations have demonstrated that the activation of endodontic irrigants inside the canal structure results in in-depth cleaning and disinfection. Further advantages, such as less time and less instrumentation needed for a more effective treatment, will be discussed.

Aims:

You will learn the innovative PIPSTM technique in Endodontics, a unique Laser Activated Irrigation procedure that will improve your results in root canal therapy. Emphasis is placed on the integration of YOUR commonly performed root canal therapy with laser technology, on the improvement of YOUR clinical results, and on performing step-by-step techniques in root canal therapy to ensure optimal benefits of laser use for dental patients.

14:00 - 14:20

Laser activated irrigation using pulsed erbium lasers: principles and physical basis.

Maarten Meire

Abstract:

In recent years, the use of pulsed erbium lasers to activate root canal irrigants within the root canal system has witnessed increased attention. Promising in vitro results in terms of disinfection and removal of intracanal debris and smear layer underlie this interest. Operating such pulsed erbium lasers however is not always straightforward, since the laser allows many parameters to be adjusted, all of which affect the interaction between the beam and the irradiated target. When pulsed erbium lasers are operating within aqueous liquids, different physical phenomena occur around the fibre tip. First, there is the formation of vapour bubbles (cavitation) due to superheating and boiling of the liquid surrounding the fibre tip upon absorption of the laser energy. These bubbles vary considerably in size, shape, location and life span, depending on the fibre tip geometry (flat versus conical fibre tips) and pulse parameters such as pulse length and energy. A second phenomenon is the occurrence of shock waves upon implosion of the vapour bubbles, where the potential energy of the bubble is converted into acoustic energy. Third, secondary cavitation bubbles can be seen long after the laser pulse has terminated. These phenomena are explained and related to physical laws in light of its endodontic application.

Aims:

To discuss the fundamentals and physical principles of laser-activated irrigation using pulsed erbium lasers.

Objectives:

- pulsed erbium lasers produce vapour bubbles, shock waves and secondary cavitation when emitting in aqueous liquids
- these explain the cleaning action within the root canal
- bubble shape and dynamics are influenced by fibre tip geometry and pulse parameters

14:20 - 14:50

Value added benefits of lasers for root canal cleaning and disinfection, an overview Laser-activated irrigation and the PIPS approach.

Roeland De Moor

Abstract:
Infection control is paramount in clinical endodontics. The main steps involved in root canal disinfection are chemomechanical procedures and intracanal medication. To optimize bacterial elimination during or following chemomechanical procedures, several strategies, devices and substances have been introduced. Among currently marketed systems lasers are also used for root canal disinfection and to activate and potentiate endodontic irrigants.
Aims:
The aim of the presentation is to provide a critical assessment of the attainments in the field of laser disinfection and root canal debridement with present-day marketed lasers. Specific attention is paid to laser activated irrigation (especially with Erbium lasers) with the induction of specific cavitation phenomena and acoustic streaming.
Objectives:
To discuss the present state-of-the-art of pulsed laser-activated irrigation and the PIPS approach.

14:50 – 15:40

Newest horizon in endodontic irrigation using PIPS: tips and tricks.

Giovanni Olivi

Abstract:
PIPS is used to activate the commonly used irrigants in endodontics (NaOCl and EDTA) and does not replace any standard instrumentation; PIPS only reduces the need of mechanical instrumentation to a minimally invasive ISO 25-30 shaping of the root canal apex. PIPS was also demonstrated to be the more efficient tool for NaOCl activation and to produce active chlorine ions. Indeed, when used with NaOCl and EDTA, PIPS dissolves organic tissues and removes debris and smear layer along all the length of root canal including the apical one-third. The efficiency of this root canal irrigation is validated by several studies including scanning electron microscopy, confocal analysis and CT scan. Furthermore, PIPS ability to kill bacteria in both the planktonic and biofilm forms has been confirmed by several in vitro studies. All these advantages are easily achieved positioning the PIPS tip in the pulp chamber, submerged in liquid continuously delivered by an external syringe. This effective shockwave technique is possible because the extremely short pulse duration that produces a very high peak power also at very low energy, so avoiding any thermal irradiation and damage to dentine walls. Varying the energy also allows to control the apical pressure in narrower or lager canals, so avoiding any type of sodium hypochlorite accident.
Aims:
The aim of the lecture is to show the advantages of PIPS technique, in comparison to other irrigation techniques in endodontics.

15:40 – 16:15

Apical irrigant extrusion during Laser Activated Irrigation compared to conventional endodontic irrigation regimens.

Damir Snjaric

Abstract:
Background: Endo-irrigation is essential addition to mechanical shaping during root canal therapy. The complexity of endodontic system, as well as limited efficiency of endo-files, set demand for more efficient and secure chemical processing. Application of Er:YAG laser and cavitation phenomena during Laser Activated Irrigation (LAI) became a new standard in endodontics, but there is lack of studies regarding possible apical irrigant extrusion.
Methods: Human upper incisor root canals (N=20) were instrumented to ISO 40, taper 0.06. Four different endodontic irrigation needles, two notched open-end and two side-vented (each type at 27G and 30G diameter) were put 2 mm shorter of working length (WL) and constant NaOCl 3% flow rates (FR) of 0.05 and 0.1 ml/s were supplied by precision syringe pump. Special construction was used to provide fixed position of irrigation system elements. Three different fiber tips (PIPS, Xpulse and Preciso) were also used, with Er:YAG laser at 10 mJ/15 Hz setting, for LAI with 0.1 ml/s of irrigant supplied at the level of pulp chamber. Each irrigation regimen was performed (N=10) for 60 s and the weight of apically extruded irrigant was measured.
Results: Notched open-end 27G needle at FR 0.1 ml/s showed the highest mass of extruded irrigant (MV 2.18 g) while LAI with PIPS showed the lowest (MV 0.16 g). All LAI regimens showed lower apical extrusion compared to conventional irrigation methods.
Conclusion: Low apical extrusion potential during LAI, measured in this pilot study, provides evidence which strongly supports application of Er:YAG laser in endo-irrigation.

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16:15-17:15

Hands-on - demonstration on models and teeth.

MEETING STUDIO 204

14:00 – 17:00

Pre-Congress Course Coltène/Whaledent

Hands On Course

Making the endodontic management of complicated canal systems simple, safe and predictable.
A new approach with Hyflex CM and EDM files.

Antonis Chaniotis

Abstract:
The design and biological objectives of root canal treatments are well described in the contemporary art of Endodontics. Achieving these objectives in straight canals is considered a simple and straightforward procedure with all instrumentation systems available today. The problems of biomechanical instrumentation and obturation of the root canal systems arise when the internal anatomy of human teeth renders severely curved or even bifurcated and anastomotic structures. In such teeth, the accepted basic endodontic techniques and instrumentation protocols can be challenging to follow.

Aims:
The aim of this workshop is to describe and practice new instrumentation techniques with Hyflex controlled memory (CM) and electrical discharge machined (EDM) files for a safer and more predictable instrumentation of severely curved and challenging canals systems.

Objectives:
At the end of this workshop the participant will manage to
• Understand the biological objectives of root canal treatment manipulation in relation to each anatomical challenge
• Understand and appreciate the controlled memory thermomechanical processing and electrical discharge machining for the manufacturing of rotary files
• Understand the philosophy behind the new instrumentation technique
• Practice the novel technique in highly curved and doubled curved training blocks
• Achieve a three dimensional obturation of the prepared root canal system by using greater taper gutta-percha points in combination with Gutta-flow bioseal
• Take away tips and hints to use them in the everyday practice.

MEETING STUDIO 206

14:00 – 17:30
Pre-Congress Course Ultradent:
Simplifying endodontics using evidence-based decision making process. A streamlined asymmetric reciprocation instrumentation technique.

14:00 - 16:00

Lecture

Simplifying endodontics using evidence-based decision making process A streamlined asymmetric reciprocation instrumentation technique.
Carlos A Spironelli Ramos

Abstract:
The endodontic literature is replete with evidence of the earnest work of many investigators into the challenges of managing root canal infection and periapical disease. However, there is no optimal, standardized, universally accepted protocol for root canal treatment. Proper cleaning and shaping of the canal space is a prerequisite for achieving clinical success in Endodontics. Studies showed that the best movement to be applied in endodontic instruments is the Roane's Balanced Force technique. The engine-driven Balanced Force or also called asymmetric reciprocating motion has been recently applied to specifically designed nickel-titanium instruments, reducing the risk of fracture due to the accumulation of metal fatigue, which are the leading limitation of rotary nickel-titanium instruments. Even three times more secure than the rotary movement, reciprocation alone has a downside of debris accumulation inside the canal. The main goal of this comprehensive course is to take the attendee through all the aspects needed to take the practice to the next level by utilizing a simple and efficient endodontic technique, presenting a new instrumentation system based on the safety of reciprocation allied to the efficiency of rotatory movement.

Objectives:
After the course, the clinician will be able to:
• Determine the benefits and limitations of reciprocation and rotation;
• Comprehend the importance of the file design and how this aspect can improve instrumentation results;
• Determine electronically the working length;
• Master an intuitive 2-files instrumentation technique taking the advantages of the two different kinematics.

16:00 – 17:30

Hands-on

MEETING STUDIO 211

09:00 – 13:00

Pre-Congress Course FKG
XP-endo® 3D revolutionary instrumentation

The course is repeated in the afternoon.
Afternoon Course: 14:00 to 18:00

Minimal invasive biologically oriented endodontics through 3-D expandable NiTi technology.
Andreas Krokidis

Abstract:
The root canal system is highly complex making cleaning during root canal treatment challenging. Many adjunct techniques have been tried to compensate for these shortcomings including; high concentration of NaOCl, EDTA, ultrasonication or by lasers technologies.
In this lecture, it will be explored the knowledge of the root canal internal anatomy and the ability and limitations of the conventional NiTi rotary systems available to predictably clean the root canal system.
Following this part it will be presented and described the recent and novel technologies on NiTi instruments to clean and shape the root canal minimally invasive however efficient and safe. The single shaping file XP-endo® Shaper and the finishing file XP-endo® Finisher will be presented and discussed. Preliminary studies on XPe files have shown remarkable removal of soft tissues, less dentinal chips on isthmus and canal walls after instrumentation, low dentinal stress (less micro cracks) and conservative instrumentation with low amount of dentine removed coronally with efficient cleanness on the apical third area.
Live demonstration on 3D teeth conducted under an OP microscope, and hands-on course. The topics to present clinically: 1.Scouting complicated root canal anatomy with hands files and scouting NiTi files 2.Instrument the root canal with conventional rotary NiTi files and the new XPe-files 3.Irrigation protocol All participants will follow the same procedure and work on 3D teeth 3D teeth conducted under an OP microscope.
Objectives:
1. Understand the technological challenges and possibilities in endodontic instruments to predictably remove intra canal infection.
2. Present the physical and clinical characteristics of the new NiTi technologies
3. Demonstrate the clinical use of file lines

MEETING STUDIO 212

14:00 – 17:30

Pre-Congress Course Sendoline:
Reciprocation – the easy practical way

Modern instrumentation of the root canal, reciprocation or rotary – introduction of a new system - S1 Reciprocation makes it easy.
Fredrik Erhardt

Abstract:
Modern instrumentation of the root canal, reciprocation or rotary – introduction of a new system – S1 Reciprocation makes it easy. Dr. Fredrik Erhardt and Sendoline will present the new S1 reciprocating system. S1 is a single-file system that has simplified endodontics. The S1 contra-angle handpiece has an integrated gearbox creating the reciprocating motion – the instrument rotates 180° clockwise and 30° anti-clockwise alternately with a simple connection of the contra-angle handpiece straight to your dental unit with no need for an external motor. Sendoline is a Swedish company manufacturing endodontic instruments since 1940 and one of their most important product innovations is the Hedström-file (H-file). The company is experienced in producing rotary instruments for preparation of the root canal and has recently introduced a new single-file reciprocating system, S1, that will make the instrumentation of the root canal easier and more straightforward.

Aims:
Give the participants an opportunity to try and learn how to work with a single mechanical file in a reciprocating contra-angle handpiece.

Objectives:
To learn and understand about the benefits of the reciprocating system with a single file, single use system in comparison with a standard rotary system S5 consisting of 3-5 instruments and understand how to use the new system in a clinical situation and adopt the benefits and simplicity of the new system.

MEETING STUDIO 214

14:00 – 17:00

Pre-congress Course Kerr Endodontics: Ideal root canal treatment, from shaping to chemical preparation to 3D sealing of the system

Ideal root canal treatment, from shaping to chemical preparation to 3D sealing of the system.

Philippe Sleiman

Abstract:
Today, as requirements become stricter both for GPs and specialists, endodontic treatment has to be successful, fast, painless, and fuss-free for the patient as well as minimally invasive for the sake of the patient's health. In the lecture, attendees will find out which evidence-based principles of shaping for cleaning and 3D obturation will allow them to achieve higher RCT success rates by addressing the root canal system in its entirety and preserving healthy tooth structures and supporting tissues. A simple sequence with the best adaptive file movement, negative pressure irrigation, and warm vertical compaction will bring great results time and again, - and additional techniques, will further reduce post-operative inflammation and pain. Put these theoretical ideas into practice during hands-on and see for yourself that the tedious task of treating root canals can become simple, fast, and predictably successful.

Opening Ceremony

18:00 – 18:30

Gold Hall

Welcome Reception

18:30 – 20:00

Exhibition Hall

HENRY LE BOEUF HALL

09:00-10:30

Evidence-based Endodontics
What it is and what it isn't.

Thomas Kvist

Abstract:
More than 100 years of clinical experience and scientific research have generated a substantial base of knowledge in endodontics. Articles published in peer reviewed journals, further analysed in meetings and congresses, and summarized in textbooks and reviews have established the principles for endodontic therapy by outlining the biology of the dental pulp and periradicular tissues, the etiology and pathophysiology of the disease processes and the measures to diagnose, prevent and cure the different disorders.
In more recent years the development a new model for evaluating clinical procedures, namely that associated with evidence-based medicine/dentistry has emerged. Evidence based medicine/dentistry is thus concerned with the efficacy of the clinical procedures that we apply to treat our patients.
Yet, what the concept is all about has not always been generally agreed upon. In fact, some regard it to be a pretentious way to value research that is completely unrealistic and serves to suppress clinical experience.
Still, careful analyses of the scientific basis for the diagnostic and treatment procedures that we apply have demonstrated extensive shortcomings.
Aims:
A forecast of future challenges of endodontic practice and research will be presented.
Objectives:
In this presentation the concept of evidence based endodontics will be reviewed and critically discussed from a clinical as well as a scientific point of view.

I declare that I have NO proprietary, financial, or other personal interest of any nature or kind in any product, service, course, and/or company, or in any firm beneficially associated therewith, that will be discussed or considered during the proposed presentation.

10:30 - 11:00 COFFEE BREAK

11:00-12:30

The evidence base - hydraulic calcium silicate cements.

Josette Camilleri

Abstract:
Materials based on tricalcium silicate have been in clinical use since mid-1990s. Initially there was mineral trioxide aggregate which was indicated for root-end filling and repair of root perforations due to its hydraulic nature. Later the clinical uses of this material became wider and more materials were introduced on the market. The hydraulic calcium silicate cements are used for a wide range of clinical applications including root-end filling, perforation repair, for treatment of root resorptions, apexification procedures, pulp capping, pulpotomy, regenerative endodontics and root canal obturation. The newer generation materials claim improved properties and clinical success.
Aims:
This lecture overviews the hydaulic calcium silicates available on the market, their main features and strengths. Taking all the factors into consideration the evidence available for the claims will presented.
Objectives:
A clear distinction between the different materials and their specific uses and indications.

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12:30 - 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30 – 16:00

The evidence base - vital pulp therapies.

Lars Bjørndal

Abstract:
Traditionally, the indication for the treatment of deep caries without irreversible pulpitis has been the same, but either has the excavation procedures aiming to avoid pulp exposure been chosen or the performance of more pulp invasive treatments such as pulp capping or pulpotomy. Consequently, it is well-known that there is a treatment variation within the general practitioner environment for a patient having a deep caries lesion, which is not optimal. Should we choose less invasive carious removal procedures or should we select pulp capping or pulpectomy in adults? Following a short journey through the pathology of deep and extremely deep carious some guidelines are presented based on recent clinical evidence dealing with the treatment of deep caries, that includes both pulp invasive as well as non-invasive concepts, trying to solve the task of getting the best clinical outcome for the adult patient.

Aims:
Update of caries pathology and treatment guidelines on deep caries.

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16:00 – 16:30 COFFEE BREAK

16:30 – 18:00

The evidence base - biofilms and irrigants.

Matthias Zehnder

Abstract:
In the current age of evidence-based dentistry, it remains crucial to understand a disease to be able to treat it correctly. Much has been said about root canal infections, yet relatively little has changed in the concepts we apply in everyday clinics. Could it be that we understood biofilm-related inflammations such as apical periodontitis even before we knew the term biofilm? Is it coincidence that two of the oldest disinfectants used in endodontics, calcium hydroxide and sodium hypochlorite, are also the most effective antibiofilm agents we currently know?

Aims:
In this lecture, the nature of endodontic biofilms will be discussed. Furthermore, chemical means to destroy biofilms will be inspected, and some thoughts will be shared as to how clinical protocols could be simplified and/or improved.

Objectives:
Participants should be able to critically assess the implications of biofilms in endodontics and discuss what may or may not be clinically important to eradicate these infections.

I declare I have a past or present financial interest/arrangement, consulting position, or affiliation with the corporate organization(s) whose product(s) I will discuss in my presentation -smartodont llc

GOLD HALL

09:00 – 09:45

Endodontics in the young.

Monty Duggal

Abstract:

This talk will cover two aspects of endodontics in children and adolescents. First management of the pulp in carious primary molars and second, Regenerative Endodontics for non-vital young permanent incisors in children and adolescents.

Primary pulp responds very differently to permanent in response to caries, in particular proximal caries. The management therefore requires an understanding of the pulpal response. Non vital primary molars can also be treated effectively by root canal treatment which varies considerably to that in permanent molars.

The speaker has vast experience in Regenerative Endodontic Technique (RET) and has been involved in research in regeneration/revascularisation since the inception. In this talk a prospective for young permanent incisors that have become non-vital due to two reasons, trauma and developmental anomalies will be presented. There is a difference in the outcomes of RET for these two aetiologies, and the reasons will be discussed based on a knowledge of a difference in the cellular response for cases where there is trauma versus where the reason for loss of vitality is a developmental anomaly such as dens invaginatus. Research and clinical findings from the speaker's research will be shared and new and novel results will be presented which might enhance the outcome of this technique in the future. A range of cases will be presented to illustrate important differences in cellular responses and how they manifest clinically.

I declare that I have NO proprietary, financial, or other personal interest of any nature or kind in any product, service, course, and/or company, or in any firm beneficially associated therewith, that will be discussed or considered during the proposed presentation.

09:45 – 10:30

Endodontic pain: predisposing factors
Are some patients predisposed to pain? The influence of genetics, gender, anxiety and ethnicity.

Paul Rosenberg

Abstract:

Completion of the human genome in 2004 opened the door to the possibility of developing individualized therapies based on biological as well as clinical factors. There is increasing investigation into the role of genetics as a predictor of endodontic pain and outcome. Also of interest is the significance of a patient's gender, ethnicity and level of anxiety. The success or failure of some analgesics has been found to have a genetic basis. A patient's gender has been found to influence their susceptibility to specific chronic painful conditions. There is mounting evidence in medicine and dentistry that a patient's ethnicity is a factor in their compliance with doctor's post-operative directions. The level of anxiety is another variable that influences a patient's pain threshold. This presentation will review factors including genetics, gender, ethnicity and anxiety that may have a profound influence on the outcome of treatment. We will examine the hypothesis that these factors may predispose endodontic patients to pain and unsatisfactory outcomes.

Aims:

The aim of this lecture is to introduce the clinician to predisposing factors that can affect patient's responses to Endodontic procedures. This knowledge can be useful in developing evidence-based pain individualized preventive strategies.

Objectives:

The participant will be able to:

- recognize patients who are predisposed to post-operative pain
- describe the role of genetics, as a potential factor in post-operative pain
- recognize the significance of a patient's gender in post-operative pain
- recognize a patient's level of anxiety as a predictor of post-operative pain
- recognize a patient's ethnicity as a factor associated with post-operative pain
- develop evidence based pain preventive strategies

I declare I have a past or present financial interest/arrangement, consulting position, or affiliation with the corporate organization(s) whose product(s) I will discuss in my presentation.

10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

Diagnosis and treatment planning
Evidence - based diagnostic and therapeutic decision making.

Jan Berghmans

Abstract:
Diagnostics are not always perceived as being as exciting or glamorous as therapeutics. While procedure or treatment codes have long and universally been used in dentistry for keeping patient records and for billing purposes, as far as diagnostic aids are concerned most dental insurance plans only value dental radiographies at best. Which probably accounts for the profuse shooting of radiographies of which a well-documented amount doesn't meet the technical standards and/or doesn't add any value to the diagnostic process.
Bearing in mind that healthcare efficiency is the ratio of the output to the inputs of the system, technicalism/ technologization has brought in another threat to our therapeutic efficiency. In a diagnosis centered environment the systematic integration of elementary diagnostic steps will contribute to make fancy and expensive hi tech therapeutic interventions down the road obsolete.
The tissue responses mostly taking place in a hidden body compartment, the disease picture need to be made 'visible' by indirect methods and tests. The diagnostic quiz can sometimes be challenging but is most of the time a fascinating and rewarding game for those who know the rules.
The frequency of diagnostic errors is dependent not only on the accuracy of a diagnostic test but also on the prior chance of disease being present. If this chance is low and below a certain threshold, applying a diagnostic test can result in more decision errors and therefore inappropriate treatment than omitting to use the test.
In deciding on the usefulness of a diagnostic test an additional factor to take into account is the relative value of the possible health states resulting from diagnosis and subsequent therapy.
Aims:
This lecture aims at providing attendees with knowledge about the clinical diagnosis of pulpal and periapical disease.
Objectives:
Based on a series of emblematic clinical cases the lecture will expand on
- the different diagnostic tools and their clinical relevance/accuracy
- diagnostic strategy and the importance of methodological screening for clinical signs and symptoms
- how to determine whether a tooth is still savable or should better be sacrificed
- when 'to test or not to test'
- when 'to treat or not to treat'.

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11:45 – 12:30

Conventional and molecular markers for endodontic diagnostics: Limits and possibilities.

Dan-Krister Rechenberg

Abstract:
Dental caries represents an opportunistic infection of dental hard tissues by oral or transient microorganisms. With the spread of caries towards the dentin the pulp becomes inflamed, i.e. it develops a pulpitis. If the caries lesion progresses further, microorganisms will gain access to the pulp space eventually. This finally results in pulp necrosis and involvement of the periapical tissues.
Medical diagnostic tests are performed to identify the presence of a specific disease and to determine its treatment. Histologic processing represents the gold standard for detecting pulpal and periapical inflammation. This is not applicable for teeth that are to be preserved. Therefore, current endodontic diagnostic procedures assessing pulpal and periapical inflammation involve case history, and clinical and radiographic examination. The clinical examination includes inspection, pulp sensitivity testing, and assessment of pain on palpation or percussion. However, a poor correlation between those tests and the actual histopathological state of the pulp has been

revealed, especially in teeth that do not hurt.
Since the current clinical endodontic diagnostic procedures are not necessarily reliable, the thus-resulting pulpal and periapical diagnoses are not always accurate. Keeping in mind that the underlying cause for pulpal and periapical infections are microorganisms that cause inflammation by the host, endodontic diagnostics could also focus on either the extent of the microbial infection, or the inflammatory reaction of host tissues.

Aims:
This lecture aims to describe the weakness of current endodontic diagnostic regimes and envisages the use of molecular biomarkers as potential diagnostic alternatives.

Objectives:
The objectives of this lecture are to
- Analyse the limitations of current endodontic diagnostic tests
- Describe the interplay of pulpal and periapical biomarkers
- Evaluate the potential usefulness of such markers for more accurate and biologically based endodontic diagnostics

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12:30 - 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30 – 15:15

Update on root canal anatomy in a 3D world

Marco Versiani

Abstract:
Since the second half of the XIX century, the complexity of the root canal system has been demonstrated by several authors using different techniques; however, the destructive nature of these conventional methods produces irreversible changes in the specimens and many artifacts which, therefore, may not accurately reflect the canal morphology. Two decades ago, high-resolution X-ray micro-computed tomography (micro-CT) was suggested to be used as an advanced tool for detailed endodontic research. This is a non-destructive, precise, and reproducible technique that could be applied for two- and three-dimensional accurate assessment of the root canal system. Algorithms used in micro-CT analysis also allow a mathematical description of the root and root canal morphologies. Nowadays, despite the impossibility of employing micro-CT for in vivo human imaging, it has been considered the most important research tool for the study of root canal anatomy.

Aims:
To provide an up-to-date perspective of the current knowledge of the complexity of root canal anatomy using micro-CT technology.

Objectives:
(1) Summarize the first studies on root canal anatomy;
(2) Report the computational methods used for the study of root canal anatomy;
(3) Explain micro-CT scanning and reconstruction processes;
(4) Describe the root canal anatomy of all groups of teeth using micro-CT images and videos.

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15:15 – 16:00

Antibiotics in endodontic treatment.

Ashraf Fouad

Abstract:
Topical and systemic antibiotics are frequently used in the management of endodontic infections. The use of these antibiotics is empirical, given the urgency of the cases where they may be indicated and the relative difficulty of identifying the sensitivity of the patient's own microflora. In addition, the use of chemo-mechanical debridement with the aid of common biocides and incision for drainage of abscesses are very effective in controlling endodontic infections. Prescribing antibiotics has a number of risks that ought to be considered by the practitioner and the patient. Accordingly, antibiotics must be used prudently and with proper justification.

Objectives:
This presentation intends to address the following objectives:
• Discuss the benefits of adjunctive systemic antibiotics in preventing or treating endodontic infections
• Discuss the benefits of adjunctive systemic antibiotics in endodontic surgery
• Discuss the overall risks of judicious or indiscriminate use of antibiotics
• Present the arguments for and against prophylactic use of antibiotics to prevent peri-operative bacteremia, in patients at risk of infective endocarditis or late prosthetic joint infection
• Discuss available recommendations on the topical use of antibiotics in regenerative endodontics

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16:00 – 16:30 COFFEE BREAK

16:30 – 17:15

From caries to apical periodontitis - state of current knowledge.

Anca Virtej

Abstract:
Dental caries and their complications are major global health burdens. Contemporary research in this field has contributed with intricate insights on the microbial etiology of caries and apical periodontitis. Elaborate studies have provided detailed analyses of the dentin-pulp complex reactions to the carious aggression and of the pathobiology of apical periodontitis. Questions arise whether our current means of evaluating the dental pulp and periapical status are sufficient for accurate diagnosis and treatment planning and whether new molecular diagnostic tools can be employed. Furthermore, systemic aspects involved in caries and apical periodontitis development need to be addressed.

Aims:
To review the current state of knowledge regarding etiology, pathobiology and diagnosis of caries, dental pulp and periapical inflammation.

Objectives:
To provide attendants with information on development and diagnosis of caries, pulpal and periapical diseases; to raise awareness on the need of systemic considerations in caries and periapical pathology.

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17:15 – 18:00

Pulp healing.
Stéphane Simon

Abstract:
With the current tissue engineering concepts, vital pulp regeneration in vitro is already feasible with stem cell-based techniques or with cell homing concepts. With these approaches expected to develop and evolve, the orientation is likely to be more pharmacological and biological, and the procedures less invasive. Thus, in the endodontics of the future, these approaches are expected to complement the current treatment techniques. A true translational approach bridging basic science and clinic is essential to understanding why and how endodontics needs to evolve.
Aims:
The aim of this lecture is to describe perspectives in modern endodontics and clinical applications in the near future in terms of pulp healing stimulation and clinical expectations. We will also discussed how to improve the interests of using innovative biomaterial to regenerate dentine-pulp complex in another way than only.
Objectives:
• Describe the important steps of pulp healing and dental soft tissue regeneration processes
• Describe the role of biological molecules in the healing process
• To discuss the innovation made and needing to be done in the field of biomaterials to make them more inductive rather than restorative.

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COPPER HALL

09:00 – 12:30

Symposium: Managing problems after dental trauma
Led by Gabriel Krastl

09:00 – 09:45

Managing root resorption after dental trauma.
Johannes Mente

Abstract:
Rapidly progressing inflammatory root resorption as well as slow replacement resorption or invasive cervical resorption, pose a challenge to the dentist caring for patients after dental trauma, especially in the case of teeth in children who are still growing. The lecture will give an overview of different types of root resorption which frequently occur after dental trauma, and demonstrate how these different kinds of root resorption/ in different stages of root destruction can be managed by the dentist to achieve tooth preservation and the best possible long term success.
The lecture will also consider therapeutic measures immediately after dental trauma to prevent root resorption.
Aims:
The presentation aims to help the clinician become confident in differential diagnosis of the different kinds of root resorption, and will point out treatment strategies to prevent and manage root resorption in different stages of root destruction.
Objectives:
At the end of this lecture, participants should be able to differentiate between the different kinds of root resorption, and will be informed as to how they can best manage this frequent complication following traumatic injuries.

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09:45 – 10:30

Managing pulp canal calcification and related problems.

Gabriel Krastl

Abstract:
Pulp canal calcification (PCC) after luxation injuries is considered as a sign of pulpal healing and does not require endodontic intervention. Crown discoloration, which is frequently associated with PCC can be successfully treated with external bleaching or placement of a veneer. However, the development of pulp necrosis and periapical lesions may occur as a late complication after several uneventful years. Root canal treatment is a challenging task in these cases even if a microscope is used to determine the correct location of the root canal. Excessive loss of tooth structure and a high risk of perforation may considerably impair the prognosis of the affected tooth particularly when narrow roots, such as mandibular incisors are affected. (Micro)guided endodontics is new and predictable approach for locating root canals and preventing root perforation in teeth with PCC that can't be predictably accessed via traditional endodontic therapy.

Aims:
The aim of this presentation will be to review the current strategies to the treatment of teeth with pulp canal calcification with and without apical pathology.

Objectives:
At the end of this lecture, participants should understand the clinical problems associated with pulp canal calcifications and be able to make decisions about the most appropriate treatment option in different clinical situations.

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10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

Iatrogenic trauma to the endodontium.

Paul Lambrechts

Abstract:
Sometimes the biggest threat to the endodontium comes from the practitioner. Several dental treatment procedures can lead to iatrogenic trauma of the endodontium. All disciplines can be guilty. Poor diagnosis and a lack of respect for biological vital structures are often at the basis of endodontium damage. Restorative interventions can challenge the endodontium by weakening the tooth structure. Cracks can be induced by invasive restorative or endodontic treatment. Uncontrolled caries excavation may lead to pulp irritation and necrosis. Endodontic mishaps can occurs such as: instrument fracture, instrument inhalation or ingestion, plastination of the apical vascular structure with sealer, coronal or root perforation during access preparation, zipping, ledges, straightening, penetration of irrigants or sealer in the canalis mandibularis with vascular or nerve damage. NaOCl accident can happen with eye irritation, sinus mucosa reaction, emphysema of the soft tissue. Dental tissues can suffer from temperature impacts induced by thermoplastic obturation techniques, ultrasonics, sensitivity testing. Sinus pathology can be induced by implants, orthognatic screws, extrusion of irrigants and overextension of root canal filling materials inside the sinus, External cervical resorption (ECR) can be iatrogenically initiated by internal bleaching, cementum damage during periodontal surgery or root planing, traumatic intra-ligamentary injection, uncontrolled placement of subgingival rubber dam clamps. Cementum damage of the neighbouring tooth during elevator extraction of teeth. Cementum damage during subgingival finishing of veneer restorations. Orthodontics can induce vascular strangling and ischaemic necrosis, apical root resorption, cementum resorption and external cervical resorption. Orthognatic surgery can cause vascular damage or root damage due to incorrect placement of orthognatic screws. Incorrect implant placement can inflict apical damage or root damage of the neighbouring tooth. A more biologic awareness by the dentist can prevent most of the endodontium threats.

Aims:
The aim is to increase the biologic awareness of the dentist to prevent most of the threats to the endodontium.

Objectives:
Through a clinical scale of iatrogenic mishaps the whole spectrum of potential trauma to the endodontium is given. A mixture of confronting cases should hold a mirror towards the profession without accusing the dental practitioner.

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11:45 – 12:30

Managing anterior tooth loss in adolescence.
Nicola Zitzmann

Abstract:
In children or adolescents congenitally missing teeth, tooth loss or ankylosis after trauma require early dental treatment. Space closure with the patient's own teeth should be considered as the first choice to avoid life-long restorative needs. Thorough diagnostics and treatment planning are required when autotransplantation or orthodontic space closure is considered. If these options are not indicated and a single tooth implant restoration is considered, implant placement should be postponed until adulthood, particularly in young women and in patients with hyperdivergent skeletal growth pattern. A ceramic resin bonded fixed dental prosthesis (FDP) with 1 retainer is an excellent treatment solution for the interim period, and may also serve as a long-term restoration providing that sound enamel structure is present, sufficient framework dimensions have been provided, adhesive cementation techniques have been meticulously applied, and functional contacts of the cantilever pontic avoided. In contrast, a resin-bonded FDP with a metal framework and retentive preparation is indicated if the palatal enamel structure is compromised, interocclusal clearance limited, splinting (such as after orthodontic treatment) required, or more than 1 tooth has to be replaced.
Objectives:
1. Identify indications for autotransplantation or orthodontic space closure after tooth loss
2. Apply variations of fixed dental restorations including adhesive fixed dental prosthesis or cantilevered crown
3. Know how to apply adhesive cementation techniques for ceramic or metal resin-bonded fixed dental prosthesis

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12:30 - 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30 – 18:00
Symposium: Tooth restoration
Led by Francesco Mannocci

14:30 – 15:15

Restorability and treatment planning.
Francesco Mannocci

Abstract:
A number of considerations affect the restorability of endodontically treated teeth including clinical and patient--related factors such as amount of residual tooth structure, periodontal support, position of tooth in the arch, patient motivation, anxiety, pain management, time and cost.

Aims:
The aim of this presentation will be to cover important aspects of the management of the restoration of endodontically treated teeth which have not been studied in-depth so far. We will present the results of three "in press" prospective clinical trials including a study on endodontic treatment outcome and tooth.

Objectives:
At the end of this lecture the delegates will have a deeper understanding of intricacies of the decision making processes associated with the restoration of endodontically treated teeth and a deeper knowledge of the relationship between root canal infection, coronal leakage, tooth cracks, endodontic treatment outcome and survival of endodontically treated teeth.

15:15 – 16:00

Root canal posts - what evidence exists for indication and post type.

Kerstin Bitter

Abstract:
Adhesion inside the root canal is still hampered due to several factors that may influence the final outcome and consequently the establishment of a secondary monoblock inside the root canal for adhesively luting posts is questioned. In this context different adhesive strategies for luting posts inside the root canal will be presented from a scientific and a practical point of view.

Aims:
The aim of this lecture is to present an overview about indications of root canal posts with respect to tooth type, defect dimensions, post type and luting procedures.

Objectives:
Clinical and laboratory studies on post indications regarding the necessity of post insertion will be summarized with respect to evidence levels of available studies.
Recommendations on selection of post type with respect to post rigidity and luting procedure will be given based on the current literature with a focus on biomechanical aspects.

16:00 – 16:30 COFFEE BREAK

16:30 – 17:15

Tooth Restoration: crowns.
Serge Bouillaguet

Abstract:
During the last twenty years, several new options have been developed for the restoration of endodontically treated teeth. The rationale that supports these new restorative approaches is based on the preservation of tooth structure, the performance of modern adhesive resins and the development of CAD CAM technology. The use of partial crowns is becoming increasingly popular because it helps to prevent tooth structure loss and allows create an immediate coronal seal that prevents endodontic re-infection. The placement of full crowns remains possible despite full crowns requires extensive and destructive mechanical retentions. Restoring the esthetics and maintaining the function of endodontically-treated teeth over the long term remains therefore a challenge. This lecture will discuss the most recent literature and present several clinical cases that will help the clinician to make decisions about the best restorative option to be used in such situations.

17:15 – 18:00

Restoration of severely broken down teeth and restoration of endodontically re-treated teeth.
Massimo Giovarruscio

Abstract:
Many techniques are available for the reconstruction and restoration of pulpless decayed teeth. Is a root canal post absolutely necessary? Which core materials should be used? Should a crown be placed after root canal therapy? With modern adhesive dentistry there are two treatment possibilities for anterior and posterior teeth: placement of a direct restoration or placement of an indirect restoration.
Adhesive techniques can be used in either approach to achieve coronal restoration which will seal properly. To obtain favourable long-term results, the restoration must protect the tooth against excessive load. The cervical region of the restored tooth is subject to the most stress. We should restore an endodontically treated tooth in the most conservative way possibly minimizing any further tooth structure loss; adhesive techniques offer potential advantages.
Aims:
To give indications in this presentation why we will choose either direct or indirect restorations in different clinical situations and the type of corono-radicular restoration procedure that should be adopted.
Objectives:
The Author will show the techniques used to preserve and maintain the very broken down teeth. Diagnosis and treatment plan will be discussed to be able to perform the correct procedures for anterior and posterior teeth.

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SILVER HALL

09:00 – 09:45

FKG Lecture 1

Application of XP-endo® Shaper and Finisher-R for retreatment cases.
Isabelle Portenier

Abstract:
Root canal retreatment is in most cases challenging. The practitioner may be confronted to obstacles and/or complications such as posts, perforation, ledges etc. and the removal of the gutta-percha may prove to be difficult. The main goal of the retreatment is to remove any material and debris blocking the canal walls from being disinfected. Conventional rotary instrumentation creates round spaces within the root canal system and the filling pressing the non-removed gutta-percha into the irregularities of the root canal system. This will make proper removal of the whole root canal material more difficult and time-consuming. Recently, the instruments XP-endo® Shaper and Finisher-R have been introduced into the market. The material features of these instruments allow them to expand and adapt to the root canal anatomy during instrumentation. The XP endo Shaper is used to more efficiently remove gutta-percha and the subsequent application of the XP endo Finisher-R will additionally improve root canal surface disinfection. The lecture will take on the clinical protocol in the use of the XP endo instruments and present relevant research results of the current topic.

This Lecture and speaker is sponsored by FKG

09:45 – 10:30

Micro-Mega Lecture 1

Effect of Asymmetric Geometry and Heat-Treatment on the Behavior of Rotary Root Canal Instruments.
Franck Diemer

Abstract:
Current concepts in root canal system preparation still largely rely on mechanical instrumentation. Two major factors affect the choice of instruments for root canal preparation: its ability to achieve the root canal shaping and its safety. The file accuracy is linked to its resistance to fracture, its lack of threading in dentinal walls when used in continuous rotary motion and its ability to respect the initial canal path in curved canals. The original canal anatomy must be maintained. Most of these factors depend on the profile of the instrument and so, on the design of its active part. When used in a continuous rotating motion, even at low speed, Ni-Ti shaping instruments may absorb lots of constraints: torsional stresses, cyclic fatigue, and cutting fatigue. Decreasing those constraints increase the security of shaping. For this purpose, managing the initial constraints at the junction of crown and root with an opener to create sufficient space or glide path for file's tip is strongly recommended. In the last decade the geometry of the instruments evolved tremendously. In 2008, the emergence of an asymmetrical cross section with the Revo-S® has reduced the constraints and improved the cleaning ability of endodontic instruments. In their quest to increase flexibility of NiTi alloy without compromising its super elastic properties, Micro-Mega introduced an innovative cross section and a post machining thermomechanical treatment called T wire. These improvements were used to produce a new opener One Flare® and a new file sequence. This short sequence, 2Shape®, will allow clinicians to shape almost all canal anatomies with only two files. The new asymmetric section will be described and its mechanical behavior will be extensively explained.

Objectives:
At the end of the presentation, the participants will be able to describe the different advantages of asymmetric files and will be able to use OneFlare® and 2Shape®, safely and easily in the widest range of canal anatomy.

This Lecture and speaker is sponsored by MICRO MEGA.

10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

Dentsply Sirona Lecture 1
New Innovations in Glide Path Management and Shaping Canals with Gold Technology.

Julian Webber

Abstract:
The endodontic Glide Path is the natural space occupied by the once healthy dental pulp. It does not need to be fabricated. It needs to be explored, followed, enlarged and reproduced from canal orifice to apical terminus. A reproducible Glide Path will facilitate the use of all mechanical nickel titanium instruments to shape the canal fully to length and minimise the risk of instrument breakage, preventing ledges, blockages and perforations. The Glide Path can be enlarged with dedicated mechanical glide path files that expand the original anatomy, improve shaping results, reduce chair time and help to remove debris coronally out of the canal. With so much emphasis placed on final instrumentation, it is important to remember that final shape is irrelevant without a Glide Path that follows the natural canal anatomy to its terminus. The Glide Path is the secret to both rotary and reciprocating shaping procedures. The exciting development of WaveOne® Gold in 2015 has introduced many colleagues into a new world of mechanical shaping techniques. An asymmetrical reciprocating movement and unique design is valued for its simplicity where only one file is needed in 80% of cases. Optimised tip diameters, tapers and an altered cross section produces a file that really improves safety, efficiency and flexibility when shaping canals. Altering the metallurgical properties of NiTi files by heat treatment to improve flexibility and more importantly the fatigue life of the instrument has led to a significant reduction in the incidence and fear of breakage. With little "shape memory", WaveOne® Gold has the ability to treat some of the more complex challenges seen in everyday endodontic practice such as those with long, curved and narrow canals. These cases are now within the comfort zone of many colleagues. The WaveOne® Gold system takes simplicity and treatment success to another level.
Objectives:
As a co-developer of the entire WaveOne® Gold system Julian Webber will review those design features that have enhanced performance and offer clinical hints and solutions to achieve exceptional endodontic outcomes.

This Lecture and speaker is sponsored by DENTSPLY SIRONA

11:45 – 12:30

Acteon Lecture

The use of Cone Beam in surgical and non-surgical endo treatment.

Jean-Yves Cochet

Abstract:
This presentation will discuss the uses of 3-D imaging CBCT technology for diagnosis and treatment planning in endodontics. It will describe how to effectively utilize CBCT for endodontic diagnosis, case selection, and prognosis assessment of endodontic treatment, large endodontic lesions, and complex cases involving root perforations, root resorptions. In addition, diagnosis of sinus pathology and the decision process for orthograde and surgical endodontic treatment will be detailed.
Objectives:
Read a CT Scan or CBCT, and evaluate these possibilities
Understand clinical evaluation and specific investigation for determining the precise diagnosis, a rational treatment and modulate the clinical approach depending of the endodontic disease and the anatomic structures for endodontic surgery.
Describe the indications for endondontic lesions, root resorptionendo-perio lesions, sinus pathology and to determine the choice of conservation or extraction and implants.

This Lecture and speaker is sponsored by ACTEON

12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

13:45 – 14:30

Kerr Endodontics Lecture

Apex in vacuo. Use of partial vacuum force in endodontics.
Philippe Sleiman

Abstract:
In the partial vacuum of scientific consensus and clinical guidelines as to optimal irrigation, we could use the partial vacuum of negative pressure irrigation systems to achieve multiple beneficial goals to enhance root canal cleaning:
- increase overall volume of irrigant(s);
- enhance replacement of solution in the canal space;
- deliver irrigant(s) into the apical third with no vapour lock;
- clean the apical third safely with zero irrigant extrusion beyond apex.

Combining the partial vacuum created by the appropriate equipment with the proper, evidence-based irrigation sequence can make root canal therapy more efficient, predictable, successful, safe as well as speedy.

This Lecture and speaker is sponsored by Kerr Endodontics

14:30 – 15:15

VDW Lecture 1

Methods of activating endodontic irrigation.
Klaus Neuhaus

Abstract:
In endodontic disinfection protocols the activation of endodontic irrigation solutions is widely recommended. In this lecture the scientific evidence for activation of irrigants with ultrasonics, sonics and Er:YAG laser is evaluated. Clinical aspects and pitfalls using these methods will be discussed. It will be demonstrated that wrong handling with either method of activation may lead to unwanted effects on dental hard tissues or surrounding soft tissues. Special emphasis is given to a new sonic activation device operating at 6'000 Hz.

This Lecture and speaker is sponsored by VDW

15:15 – 16:00

MICRO-MEGA Lecture 2

Evaluation of the influence of heat-treatment on single files used in continuous rotation and reciprocation motion.
Tara Mc Mahon

Abstract:
Many in-vitro endodontics studies use resin blocks, to standardize their samples. However over the last few years several companies developed 3D models. These models are the exact replicas of real teeth, thanks to 3D printing. Three models, MM-Tooth® (Micro-Mega), True Tooth® (VDW) and Dentalike® (Dentsply), are compared to resin blocks by microCT analysis. This study showed that following the model used to achieve an root canal preparation the results are very different and that resin blocks should not be the gold standard for a microCT study. Single NiTi shaping files with and without heat-treatment, used in continuous rotation (One Shape®, Micro-Mega) or in reciprocating motion (Reciproc 25®, VDW) are then compared using the proper model for a 3D microCT analysis. These two files were selected as the only change they underwent was NiTi heat-treatment.

Aims:
The lecture will address the following interrogations: Does the heat-treatment of the NiTi alloy have the same impact following the motion used? Does it allow better centering? A faster preparation? A safer preparation?

This Lecture and speaker is sponsored by MICRO MEGA

16:00 – 16:30 COFFEE BREAK

16:30 – 17:15

Coltène Lecture

Nickel-Titanium instrumentation: clinical applications of endodontic files properties in the heat-treatment era.

Eugenio Pedullà

Abstract:
Mechanical instrumentation represents a crucial step in the control of intracanal microbial infection for successful root canal treatment. However, the complexity and variability of root canal anatomy required different instruments and techniques to use NiTi files in order to respect the original anatomy as much as possible. For these reasons, heat-treated NiTi instruments were introduced in the market allowing always more efficient, safer and easier root canal treatments. Traditional or thermally treated NiTi files have different mechanical properties that should guide the clinician in their choice and way to use them depending on clinical conditions and/or different phases of endodontic treatment, from early coronal enlargement to apical finishing. Moreover, the root canal anatomy is often oval and therefore different instruments and techniques should be introduced in order to work efficiently also in no-circular channels. Flexibility, fracture resistance and lack of super elasticity of heat-treated controlled memory Hyflex CM and EDM files will be discussed in comparison with other traditional or differently heat-treated files suggesting a specific clinical use of these instruments to obtain adequate and safe anatomically driven preparations even for highly curved canals.

Objectives:
To evaluate the advantages and disadvantages of conventional and heat-treated NiTi files in relation with the different phases of root canal treatment and/or clinical situations;
To understand mechanical properties of rotary controlled memory and electrical discharge machining files;
To suggest clinical uses and applications of heat-treated HyFlex EDM & CM rotary files properties.

This Lecture and speaker is sponsored by Coltène.

17:15 – 18:00

Ultradent Lecture

What is the best kinematics to be applied during instrumentation? Reciprocation, rotary or both? Matching endodontic literacy with the clinical reality.

Carlos A Spironelli Ramos

Abstract:
The endodontic literature is replete with evidence of the earnest work of many investigators into the challenges of managing root canal infection and periapical disease. However, there is no optimal, standardized, universally accepted protocol for root canal disinfection. In this discussion, Dr. Carlos Spironelli Ramos will review, discuss, and identify requirements for clinically successful instrumentation/irrigation as well as ways to avoid the potentially adverse effects of some "contemporary" techniques.

Objectives:
Working length revised. Apical limits and working width
The approach for selecting the right engine-driven system for successful instrumentation.

This Lecture and speaker is sponsored by ULTRADENT

MEETING STUDIO 211 & 212

09:00 - 09:30

Wladimir Adlivankine Research Prize
Introduction by Leo Tjäderhane

09:05 – 09:30

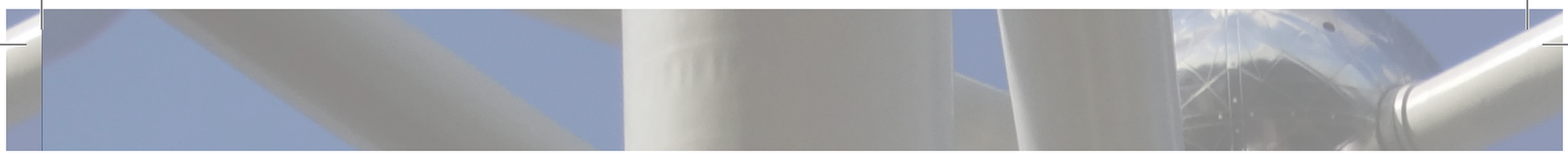
Efficacy of irrigant activation techniques in removing intracanal smear layer and debris from mature permanent teeth: a systematic review & meta-analysis
Satnam Singh Virdee

09:30-10:15

Education Prize
Introduction by John Whitworth

09:35 – 09:55

Influence of method of teaching Endodontology on undergraduate students' self--efficacy and self-perceived competence.
Annemarie Baaij



09:55 – 10:15

Self-printed artificial teeth for endodontic education
Marcel Reymus

10:30 - 11:00 COFFEE BREAK

11:00 – 12:30

Original Scientific Poster Oral Prize
Presentations led by Leo Tjaderhane

11:00 – 11:15

A 20-year clinical study: functionality and success of root canal treatments
Zamparini F.

11:15 – 11:30

Effectiveness of HICA and alpha-mangostin against endodontopathogenic microorganisms in a multi-species bacterial-fungal biofilm model
Leelapornpisid W.

11:30 – 11:45

Gene expression of adhesion factors and biofilm formation by Fusobacterium nucleatum strains isolated from root canals
Andrade F.B.

11:45 – 12:00

Assessment of the Intraosseous Tissue Response to Biodentine compared with that of Mineral Trioxide Aggregate (MTA)
Ewess E.H.

12:00 – 12:15

Dentinal microcracks formation and canal preparation: a longitudinal in situ micro-CT study using a cadaver model
Carvalhal J.C.A.

12:30 - 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30 – 16:00

Oral presentations on freely chosen subjects

14:30 – 14:48

Successful emergency treatment of irreversible pulpitis with local anesthesia and single-day high dose oral corticosteroid, without a pulpotomy or pulpectomy: preliminary observations
Yared G.

14:48 – 15:06

Minimizing postoperative pain by preventive administration of analgesic drugs
Panopoulos P.

15:06 – 15:24

Post-operative quality of life following single-visit root canal treatment performed with WaveOne Gold technique: a randomized clinical trial
Multari S.

15:24 – 15:42

Postoperative pain intensity using different Ni-Ti instrumentation systems in single visit non-surgical Endodontic retreatment: A randomized clinical trial
Eyuboglu T.F.

15:42 – 16:00

Evaluation of Postoperative Pain in Single Visit Root Canal Treatment Using Three Different Instrumentation Techniques: a Randomised Clinical Trial
Yılmaz F.

16:00 – 16:30 COFFEE BREAK

16:30 – 18:00

Oral presentations on freely chosen subjects

16:30 – 16:48

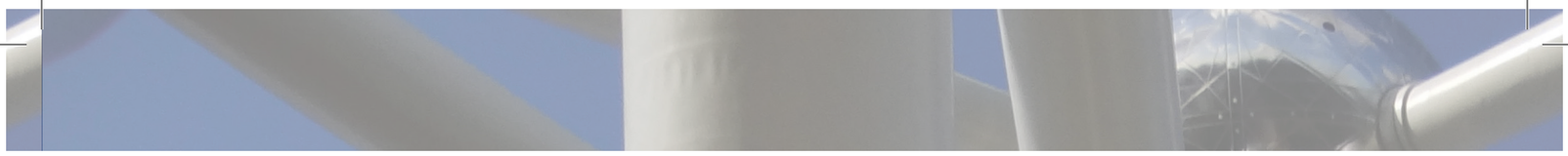
A rare case of mucormycosis mimicking periapical pathology
Dechouniotis G.

16:48 – 17:06

Invasive Cervical Root Resorption (ICRR): a pluridisciplinar treatment approach in Orthodontic cases.
Steinbock N.

17:06 – 17:24

Guided tissue regeneration in Endo-Perio lesions – Management of molar furcation defect.
Ali S.



17:24 – 17:42

Is there a relationship between endodontics and early dental implant failure? A retrospective study
Sisli S.N.

17:42 – 18:00

Anti-Inflammatory and Antiresorptive Functions of Melatonin on Experimentally Induced Periapical Lesions
Ureyen Kaya B.

MEETING STUDIO 214 & 216

09:00 - 10:30

Oral presentations on freely chosen subjects

09:00 – 09:18

Shaping for cleaning: Reciprocation and Adaptive motion
Gergi R.

09:18 – 09:36

A review of methods for quantitative evaluation of root canal transportation
Fidler A.

09:36 – 09:54

Micro-computed tomography evaluation of WaveOne gold primary and WaveOne primary classic shaping outcomes in mandibular first molars
Roggia A.

09:54 – 10:12

Centering ability of five glidepath systems on s-shape resin simulators
Georgelin-Gurgel M.

10:12 – 10:30

MicroCT Evaluation of the original root canal anatomy preservation in middle and coronal third after shaping with WaveOne Gold: comparison between no brushing and accentuated brushing technique
Bobbio E.

10:30 - 11:00 COFFEE BREAK

11:00 – 12:30

Oral presentations on freely chosen subjects

11:00 – 11:18

Kinematic analysis of new and used reciprocating endodontic motors in two different modes
Orhan E.O.

11:18 – 11:36

Shaping ability of various thermomechanically processed nickel-titanium rotary instruments
Işık V.

11:36 – 11:54

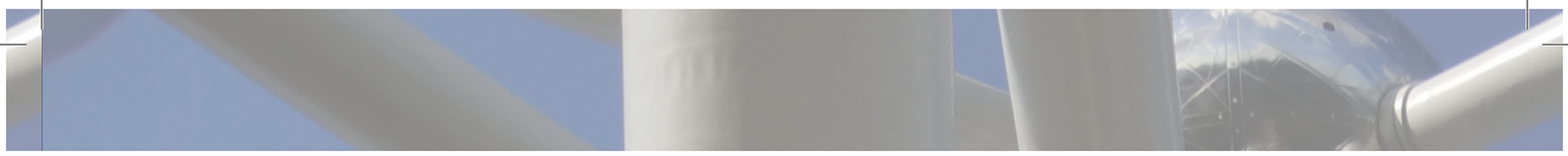
Impact of a modified kinematic on the fatigue life of reciprocating instruments
Iacono F.

11:54 – 12:12

Metallurgical effect on the mechanical behavior of rotary endodontic files using Finite Element Analysis
Galal M.

12:12 – 12:30

The use of Cryotherapy in Endodontics
Al-Nahlawi T.F.



12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

14:30 – 16:00

Oral presentations on freely chosen subjects

14:30 – 14:48

The Effects of Autoclave Sterilization on the Cyclic Fatigue Resistance of ProTaper Universal, ProTaper Next and ProTaper Gold Nickel Titanium Instruments: A Laboratory Study
Uslu G.

14:48 – 15:06

Preflaring: The golden Key to success in Endodontics
Mallet J.P.

15:06 – 15:24

Evaluation of the efficacy of Hyflex CM rotary instruments used by undergraduate students
Tzima Z.D.

15:24 – 15:42

Apical extrusion of debris during root canal preparation: Is it clinically relevant?
Munoz H.R.

15:42 – 16:00

Canal transportation and centering ability of six single file systems in severely curved canals using CBCT
Del Valle Aleixandre B.

16:00 - 16:30 COFFEE BREAK

16:30 - 18:00

Oral presentations on freely chosen subjects

16:30 – 16:48

Evaluation of the dentinal defects after various root canal preparation techniques using a novel study design
Kaval M.E.

16:48 – 17:06

Effect of number of usage on dentinal defect incidence of WaveOne Gold and Reciproc nickel-titanium instruments
Özyürek T.

17:06 – 17:24

Evaluation of NiTi endodontic instruments pressures in resin blocks by finite element analysis (FEA)
Gibello U.

17:24 – 17:42

Vertical load generated with new file systems during canal preparation
Alfadley A.

17:42 – 18:00

Influence of contracted endodontic cavities on root canal geometry: an in vitro study.
Giuliano C.

HENRY LE BOEUF HALL

09:00 – 10:30

The evidence base - canal shaping.

Ove Peters

Abstract:
The clinical practice of endodontics has dramatically changed over the last two decades, to a large extent driven by technological advances in canal shaping. This session will examine the evidence-base that practitioners may use in selecting products and strategies needed when performing root canal preparation. The vast majority of publications describe in vitro data, looking into shaping quality, physical properties and debridement effects of various systems. Other studies highlight actual and possible negative outcomes such as instrument fracture and development of dentinal microcracks. In contrast, only limited information is available to demonstrate clinical outcomes as related to canal shaping. Open questions are overall preparation sizes and the connection to antimicrobial efficacy and long-term retention. In summary, this session will present researchers and clinicians with a comprehensive review of present technology and perhaps an outlook towards future developments in this area.

Aims:
The aim of this lecture is to provide evidence for contemporary clinical procedures and devices for root canal shaping.

Objectives:
At the end of this lecture participants will be able to:
1.List in detail design features and testing results of current canal preparation instruments and technique
2.Describe evidence for possible and actual negative outcomes in root canal shaping
3.Differentiate and critically evaluate evidence for clinical selection of canal shaping modalities.

I declare I have a past or present financial interest/arrangement, consulting position, or affiliation with the corporate organization(s) whose product(s) I will discuss in my presentation - Dentsply Sirona, Denstply Maillefer, Coltene

10:30 - 11:00 COFFEE BREAK

11:00 – 12:30

The evidence base – canal filling.

Dag Ørstavik

Abstract:
The aim of the root filling is to prevent invasion of bacteria and infection of the root canal system after completed endodontic treatment. Three properties are important for the aim to be served: sealing ability, antibacterial properties, and biocompatibility. There is a wide variety of materials and techniques for root canal filling. This overview is focusing on the endodontic sealers, which are generally considered most important for the root filling to serve its purpose. The knowledge base for the many different chemical compositions varies greatly among products. While the ultimate yardstick for performance is clinical success verified radiographically and histologically, we mostly apply an often indiscriminate mix of clinical, animal and laboratory tests in the process of selecting materials for use. Recent events have taught us to be more judicious in the evaluation of sealers, and a better system of long term follow-ups for new and established products is obviously needed. Different clinical situations may also dictate greater emphasis on one or another of the three critical properties.

Aims:
To analyze the current situation regarding clinical, animal and laboratory testing of endodontic sealers in the context of principles for evidence-based practice

Objectives:
1) to present the relevant data from testing of the endodontic sealers
2) to relate the data to the evidence ladder and clinical relevance
3) to point out the relevance, or lack thereof, of clinical testing of particular sealer properties
3) to discuss how future clinical testing of sealer materials should be performed and integrated with laboratory data

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12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

14:30 – 16:00

The evidence base - endodontic surgery.

Thomas von Arx

Abstract:
Apical surgery is a continuation of care in endodontics to maintain endodontically treated teeth with post-treatment apical periodontitis in which conventional endodontic retreatment is not possible, is associated with risks, or is denied by the patient. The main goal of apical surgery is preventing bacterial leakage from the root-canal system into the periradicular tissues by placing a tight root-end filling following root-end resection. Modern apical microsurgery includes the use of a surgical microscope (and/or endoscope) to perform apical surgery to benefit from magnification and illumination. In addition, the application of microsurgical techniques in apical surgery, i.e. adequate incision and flap elevation, production of a small osteotomy, and the use of sonic- or ultrasonic driven microtips, will result in less trauma to the patient and faster postsurgical healing. An important step in apical surgery is to identify possible leakage areas at the cut root face and subsequently to ensure adequate root-end filling. Only a tight and persistent apical obturation will allow periapical healing with good long-term prognosis.
Aims:
To provide clinical and radiographic data with regard to preoperative, surgical and postoperative steps and outcome of modern endodontic surgery using the microsurgical approach.

Objectives:
1) to discuss the clinical and radiographic (3D where appropriate) assessment of cases scheduled for endodontic surgery
2) to demonstrate the critical surgical steps of endodontic surgery
3) to point out anatomical risk areas with regard to endodontic surgery
4) to show the importance of root-end management including intraoperative diagnostics for successful outcome of endodontic surgery
5) to highlight new advances in postsurgical 3D imaging techniques for case evaluation (2D versus 3D radiography; assessment of resection length/angle of bevel/dimension of root-end filling; quality of new hard tissue formation; etc)
6) to present outcome data of modern endodontic surgery

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16:00 - 16:30 COFFEE BREAK

16:30 – 18:00

The evidence base - systemic health and Endodontics. The challenge of endodontic medicine.

Juan José Segura-Egea

Abstract:
Apical periodontitis (AP) is an acute or chronic inflammatory lesion around the apex of a tooth caused by bacterial infection of the pulp canal system. In the last years, several studies have highlighted the high prevalence of AP, which rises 60% of individuals and 10% of teeth, increasing with age. Root canal treatment (RCT), the elective treatment for teeth with AP that must be preserved, is also great, estimated around 30 - 50% of individuals and 2% - 9% of teeth, showing radiographic evidence of chronic persistent AP 30% - 65% of root filled teeth. AP may not be just a local phenomenon. It is well known that in its non-balanced acute stage, spreading of the infection and the inflammatory process to nearby tissue compartments is possible and may bring about severe, but fortunately rare, fatal inflammatory conditions. The possible connection between oral inflammatory processes and systemic health is an exciting aspect faced nowadays by the scientific community. In the last years, endodontic medicine has developed and numerous epidemiological studies have analysed the relationship between AP and RCT and some prevalent systemic status such as diabetes mellitus, smoking habits and cardiovascular disease. The results of these studies have suggested the association between endodontic variables, i.e. AP and RCT, and diabetes, smoking, coronary heart disease, low bone mineral density in postmenopausal women, chronic liver disease, and inherited coagulation disorders. Furthermore, several data suggest a relationship between systemic diseases and RCT outcome. This lecture reviews the scientific evidence regarding the connection between endodontic disease and systemic health. AIM. This lecture reviews the scientific evidence regarding the connection between endodontic disease and systemic health. The possible association between diabetes, coronary heart disease, smoking, and others systemic states are reviewed.

Aims:
This lecture reviews the scientific evidence regarding the connection between endodontic disease and systemic health. The possible association between diabetes, coronary heart disease, smoking, and others systemic states are reviewed.

Objectives:
To analyze the scientific evidence regarding the association of endodontic variables with diabetes, smoking habits and cardiovascular disease. Published systematic reviews and meta-analysis will be reviewed.

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GOLD HALL

09:00 – 09:45

The structure and roles of dentine

Leo Tjäderhane

Abstract:
Dentine is the largest structural component of human tooth. It provides support to enamel, preventing enamel fractures during occlusal loading, and protects the pulp from microbial and other irritation. As vital tissue, dentine is not only a passive mechanical barrier between the oral environment and the pulp tissue, but in many ways participates in the overall protection of the continuum of the hard and soft tissue often referred as the dentine-pulp complex. Although dentine is often thought to be similar in all parts of the tooth, different parts of a particular tooth may have significant differences between each other regarding the normal structure and the changes caused or induced by pathological conditions. Also aging affects the structure and composition of dentine in a way that may affect its physiological and pathological properties. In essence, young dentine is porous (tubular) nanocrystalline reinforced biocomposite, which gives it its flexibility. With age, however, tubular occlusion by peritubular dentine changes the mechanical behavior of dentine.
Aims:
This lecture aims to review the current knowledge of the dentine structure and composition, the age- or disease-related changes in them, and how it may affect the treatment.
Objectives:
The objectives of the lecture are:
- to review dentine basic structure and composition in different parts of the tooth
- to discuss the potential roles the structural differences of different parts of dentine may have on tooth physiology, disease progression and treatment procedures
- to describe the effect of caries on dentine structure and composition beyond demineralization
- to describe the effect of aging on dentine mechanical properties
- to discuss how dentine pathology and aging may affect the choice of the restorative treatment.

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09:45 – 10:30

Safe and predictable techniques to remove fractured instruments from root canals

Yoshitsugu Terauchi

Abstract:
One of the iatrogenic accidents in endodontic treatment is an instrument fracture within the root canal system. More than 80% of instruments fractured in root canals are reported to be NiTi. A NiTi instrument fractures mostly in the apical one-third or beyond a curve in the canal because of the superelastic property. An instrument fracture is very frustrating and instrument retrieval is considered to be even more challenging in endodontics than any other part of endodontic procedure. Moreover, the instrument fracture immediately hinders the clinician from performing further treatment, and thus the outcome of the treatment will be compromised. Although the success rates of instrument retrieval with ultrasonics are very high in the range of 80 to 90 %, ultrasonic retrieval has never been 100 % successful and the procedure is considered unpredictable. Ultrasonic removal attempts especially from the apical one third of a curved canal often result in a significant amount of dentin sacrifice. On top of that, aggressive use of ultrasonics could lead to perforation and secondary fracture especially around a curve. To date no standardized technique for successful instrument removal has been established. It is very crucial to safely remove a fractured instrument. Now a novel instrument retrieval kit (TFRK) has been developed to both minimize dentin sacrifice and the time required to remove a fractured instrument and maximize the success without causing iatrogenic events. The recent literature has shown that the instrument retrieval with TFRK was predictable and the time to retrieve a fractured instrument was significantly less with TFRK than that with ultrasonics alone. The unique procedures in combination with CBCT for instrument retrieval will be shown and discussed using contemporary concepts.
Aims:
To show safe and predictable techniques to remove broken instruments.

Objectives:
The objectives are to help the attendants to:
1. describe how an endodontic instrument fractures
2. make a treatment plan for broken instrument removal
3. understand the concept of broken file removal

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10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

How to prepare a glide path.
Elio Berutti

Abstract:
Rotary NiTi instruments have revolutionised endodontics, allowing even the less experienced dentist to create perfectly truncated-conical shaping in harmony with the original anatomy, and improving the prognosis even of the most complex cases. However, the use of NiTi has one serious drawback, in that it carries a higher risk of the instrument's breaking than does stainless steel. The influence of various factors on breakage of rotary NiTi instruments has been extensively studied and it has been found that breakage usually depends on torsion and on bending stress. Bending stress essentially depends on the original canal anatomy. The endodontist can do very little to reduce this type of stress. Torsion depends on numerous factors however breakage occurs if the canal section is smaller than the tip of the instrument that cannot cut the dentine, and what is known as "taper lock" occurs. This is followed by plastic deformation and instrument breakage. Numerous studies have evaluated the causes of breakage of NiTi instruments and have concluded that a marked reduction in the breakage rate of rotary instruments can be achieved when their use is preceded by preliminary manual enlargement and the creation of a "glide path", that is a pathway with smooth canal walls along which the NiTi instruments can easily glide to reach the working length. Thus the canal must be enlarged at the foramen to a diameter greater than or at least equal to that of the tip of the first rotary NiTi instrument that will be used at that depth. It is also important to remember that all rotary NiTi instruments available on today's market have non-active tips that are therefore not capable of cutting the dentine effectively.
Aims:
- to stress about the importance of the glide path
- to explain the advantages of a rotary glide path
- to show the impact that can have the manual glide path vs the rotary glide path on the final shaping
- to understand when it is possible to create

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11:45 – 12:30

How to shape canals.
Edgar Schäfer

Abstract:
Clinical studies indicated that better maintenance of the original canal shape resulted in increased success rates and alterations of canal shape, such as ledging, was associated with reduced success rates. Therefore, techniques and instruments should be selected that are best suited to maintaining the original canal shape.
This lecture will focus on evidence-based comparison between hand instruments and modern engine-driven nickel-titanium systems with regard to different parameters such as shaping of even severely curved root canals, root canal cleanliness, and the tendency of the instruments to extrude debris into the periapical tissues.
Aims:
To provide an overview of current concepts of manual and engine-driven root canal preparation techniques.

Objectives:
1. to discuss the impact of maintenance of the original canal shape, during root canal preparation, on treatment outcome 2. to point out advantages and disadvantages of root canal hand instruments 3. to demonstrate the general rules when using engine-driven nickel-titanium root canal instruments 4. to highlight different concepts of engine-driven root canal preparation using nickel-titanium instruments including the benefits and controversies associated with the use of single-file systems

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12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

14:30 – 15:15

How to use Electronic Apex Locators.
Mohammad Hossein Nekoofar

Abstract:
To ensure a favorable and predictable outcome following root canal treatment all phases of the treatment procedure should be confined inside the root canal system. To achieve this generally accepted objective the apical terminus of the root canal system must be detected precisely. Several methods for the determination of the apical terminus including electrical technique have been suggested. The basic assumption for the electronic technique is that the unique anatomy of the apical constriction produces certain electrical characteristic that can be modeled by a combination of the electrical components. This model was initially suggested by Custer (1918) who reported that the electrical conductivity of the tissues surrounding the apex of the root is greater than the conductivity inside the root canal system. Then in 1942 Suzuki indicated that the electrical resistance between a root canal instrument inserted into a canal and an electrode applied to the oral mucous membrane registered consistent values. Based on these findings, Sunada (1962) reported that when the tip of an endodontic instrument had reached the periodontal membrane through the 'apical foramen', the electrical resistance between the instrument and the oral mucous membrane was a constant value. Based on this fundamental principle, these resistance-based devices were thought to detect the periodontal tissue at the 'apical foramen' as well as resistive properties, the structure of the tooth root has capacitive characteristics. Therefore, various electronic methods have been developed that use a variety of other electronic principles to detect the canal terminus. Whilst the simplest devices measure resistance, other devices measure impedance using either high frequency, two frequencies, or multiple frequencies. In addition, some systems use low frequency oscillation and/or a voltage gradient method to detect the canal terminus.
Aims:
To clarify the fundamental operating principles of the different types of electronic systems that claim to measure canal length and classify them accordingly.

15:15 – 16:00

A novel method for rapid detection of remnant live bacteria in the root canal space using fluorescence amplification.
Federico Foschi

Abstract:
The main goal of endodontic treatment is to eradicate bacteria from the infected root canal space prior to a hermetic obturation that prevents bacterial recolonization. Persistence of bacteria post treatment or secondary infections can lead to treatment failure. The persistence of a residual endodontic biofilm, at the time of obturation has been shown to lead to reduced chances of success. Currently there is no surrogate endpoint to determine the completion of the chemo-debridement. The level of decontamination achieved within the root canal space at the time of obturation is still unknown. The use of paper points to sample the root canal lumen, associated with

fluorescent staining is a rapid method to determine infection levels before and after chemo-debridement. Calcein Acetoxy Methyl (CAM) is a vital dye that is activated by live cells, including endodontic biofilms. Following 5 min incubation with the CAM, microspectroscopy of the paper point with a software-based spectral analysis (SafeRoot system) allows the detection of sampled live bacteria chairside. This method has been validated by comparing it with the traditional gold standard represented by culturing approach. A clinical trial is in progress to determine the effect of the residual amount of viable bacteria detected with the SafeRoot system on the outcome of endodontic treatments assessed using Cone-Beam Computed tomography (ClinicalTrials.gov NCT03055975).
Preliminary results of this clinical trial will be presented together with preliminary comparisons of the effectiveness of different instrumentation and irrigation techniques in removing bacteria from infected root canals in patients.

Aims:

Understanding the principles of real time fluorescence-based bacterial detection applied to endodontic treatment

Objectives:

In this presentation the clinical use of the SafeRoot system will be described step by step.
The findings of an ongoing clinical trial will be reported.
Describe the importance of developing a surrogate endpoint applicable to endodontics

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16:00 – 16:30 COFFEE BREAK

16:30 – 17:15

Intentional replantation and autotransplantation.

Monty Duggal

Abstract:

Both Orthodontists and Paediatric Dentists are in a privileged position of treating young patients who are in a period of growth and development. Interdisciplinary and multidisciplinary team efforts for the treatment of young children and adolescents with developmental defects and who are unfortunate to suffer severe dento-alveolar trauma, will ensure good long term outcomes for the patients. In particular teeth that become ankylosed after trauma pose a serious management issues for clinicians with a very serious implications for the child. What are the management options for such teeth? What should clinicians do for teeth that are ankylosed and are getting infra-occluded? Infra-occluding teeth can have disastrous consequences for the patient in the long term due to lack of alveolar bone growth in that region. Bone management requires complex treatment planning but is crucial for a good prognosis for the child in the long term. The speaker will present the methods for conserving bone in region of ankylosis, and the role of the interdisciplinary team working to secure the best outcome for the child into adulthood. We have developed a true interdisciplinary approach for the management of anterior teeth with poor prognosis as a result of dental trauma. This involves bone management at the affected site followed by autotransplantation. Since the inception of this programme we have placed over 230 transplants using the multidisciplinary team comprising of both Paediatric Dentistry and orthodontic expertise. This talk will aim to provide an overview of the relationship between dental trauma and orthodontic practice and discuss the technique of transplantation, where teeth are lost as a result of trauma and the requirements for pre-transplant and post-transplant orthodontics. The versatility of autotransplantation will be discussed as it can be used for numerous indications, including trauma, replacement of dilacerated teeth, developmental anomalies, replacing developmentally missing teeth etc.

Aims:

To present a biological, sustainable, long-term approach for the management of anterior teeth with poor prognosis following trauma in Adolescents. Auto-transplantation and management of the bone

Objectives:

To understand - the impact of previous trauma - the role of the multidisciplinary team in treatment of traumatized teeth of poor prognosis - management of bone when loss of tooth is inevitable - rationale and outcomes for tooth transplantation in children.

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17:15 – 18:00

Tooth discolouration and bleaching of non-vital teeth.

Ilan Rotstein

Abstract:
Tooth discolouration is a clinical aesthetic problem. It can be induced by intrinsic stains incorporated in tooth structures and extrinsic stains deposited on tooth surfaces. This can be due to patient- or dentist-related causes. Correct diagnosis of the etiology of discolouration is essential for treatment decision-making and outcome assessment.
Bleaching is a treatment modality involving oxidative chemicals that alter the light-absorbing and/or light-reflecting nature of a material structure, thereby increasing its perception of whiteness. A variety of bleaching materials are available. Intracoronal bleaching of endodontically treated teeth may be carried out successfully with satisfying long-term esthetic results.
This presentation describes the etiology of non-vital tooth discolouration, and discusses bleaching treatment modalities that are safe and effective.

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COPPER HALL

09:00 – 12:30

Symposium: Irrigation
Led by Matt Zehnder

09:00 – 09:45

Irrigation – sense and sensibility.
Matthias Zehnder

Abstract:
Based on the case of three important clinical trials on root canal irrigation, this lecture will try to put results from such studies in perspective. As important and necessary as these investigations are: What do their results tell us? Why is it that usually no differences can be found between two treatment modalities in endodontic trials, whilst there is a clear impact of treatment quality on the presence of apical periodontitis in cross-sectional studies? Should we strive for more sensitive outcome measures in clinical trials and if yes, how?
Aims:
This lecture is an attempt to discuss causality and redundancy in research.
Objectives:
At the end of this lecture, participants should be a bit more confused, yet a little happier and more critically minded than before. They will also appreciate the lectures in this seminar that are about to follow, in which different ways to improve endodontic irrigation will be presented.

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09:45 – 10:30

Fluid dynamics of irrigation.
V. Gopi Krishna

Abstract:
Disinfection of the root canal space is one of the most critical components to enhance treatment outcomes of root canal therapy. The chemical irrigant is usually syringe delivered with the aid of a needle placed inside the canal. Traditional methods to assess the dynamics of fluid irrigation do not replicate the intricate root canal anatomy of the apical third nor do they factor in the effect of the periapical interstitial pressure. This presentation is based on a novel Computational Fluid Dynamics model that evaluates the irrigation dynamics on micro CT scans of shaped molar root canals. The effect of flow rates, needle designs, temperature and concentration of root canal irrigants as well as effect of MAF sizes on the shear wall stresses being generated during positive pressure needle irrigation will be critically overviewed during this presentation.

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10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

Positive vs negative pressure irrigation. Safety and Efficacy Considerations.
Gary Glassman

Abstract:
Perhaps the greatest international attention in recent years has focused on methods to improve endodontic disinfection in the root canal system. The desired attributes of a root canal irrigant include the ability to dissolve necrotic and pulpal tissue, bacterial decontamination with a broad antimicrobial spectrum, the ability to enter deep

into the dentinal tubules, biocompatibility and lack of toxicity, the ability to dissolve inorganic material and remove the smear layer, biofilm, ease of use, and moderate cost.
This presentation will focus on evidence based research with respect to the latest most suitable and safe irrigant delivery systems that are essential for efficient irrigation and the success of endodontic treatment. Focus will be on apical negative pressure and its comparison with positive pressure irrigation.
Aims:
To show the efficacy and safety of apical negative pressure endodontic irrigation.
Objectives:
1) Evidence showing the safety of apical negative pressure irrigation
2) Evidence showing the efficacy for tissue removal in the the apical one third and isthmus cleaning apical negative pressure irrigation
3) Evidence showing the antimicrobial effect of apical negative pressure irrigation

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11:45 – 12:30

Laser-aided irrigation.
Roeland De Moor

Abstract:
Infection control is paramount in clinical endodontics. The main steps involved in root canal disinfection are chemomechanical procedures and intracanal medication. To optimize bacterial elimination during or following chemomechanical procedures, several strategies, devices and substances have been introduced. Among currently marketed systems, ultrasonic activation has been widely used to activate and potentiate endodontic irrigants. An alternative for ultrasonic activation of irrigants is laser-activated irrigation (LAI) or photon-initiated acoustic streaming (PIPS). Both are different approaches. LAI (especially with Erbium lasers) and the PIPS-approach can be more efficient for debris removal out of root canals and interaction with the endodontic biofilms, thanks to the induction of specific cavitation phenomena and acoustic streaming. Other wavelengths are also used for endodontic applications and some are now explored to be used for LAI. Care, however, has to be taken, with the interpretation of the bubble generation. Cavitation and boiling are names for phenomena that both involve sudden appearance of bubbles of vapour within a liquid. In both cases they happen when the local hydrostatic pressure is lower than the vapour pressure of the fluid. But that does not necessarily mean they are the same thing. Hence, it is clear that they will not induce the same effects. In addition to the state-of-the-art discussion on LAI and PIPS-approach, future perspectives for improvement will be presented. The safety of LAI will also be addressed.
Aims:
To understand the principles of pulsed laser-activated irrigation and its specific interaction with debris, smear layer and endodontic biofilms.
Objectives:
To explain the action of pulsed erbium lasers in root canal irrigants To explain pulsed laser generated cavitation and the difference between cavitation and boiling To discuss the present state-of-the-art of pulsed laser induced cleaning and disinfection with laser-activated irrigation and the PIPS approach To report on the safety of laser-activated irrigation and the PIPS-approach To present perspectives for improvement.

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12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

14:30 - 18:00
Symposium: Education
Led by John Whitworth

Session 1: Undergraduate
Update on the ADEE/ESE Collaboration

14:30 – 15:30

Update on case-based teaching resources and case-difficulty assessment.
John Whitworth; Stéphane Simon; Erik Giving

Abstract:
John Whitworth will introduce the session with a brief update on our 3-year ESE/ADEE collaboration, the progress made and opportunities for future work. Top priority is the development of case-based educational resources, freely available to ESE approved users. Before the serious work begins, we must first define a standard format for case-submissions. The bank of resources must also be searchable by clinical theme and relevance to competencies within the ESE Undergraduate Curriculum Guidelines. To help our discussions, Erik Giving from Oslo and Stephane Simon from Paris will present information on their own systems and the potential for future development. We are delighted to welcome representatives of the European Dental Students Association and look forward to their collaboration in this important project. We look forward to an animated, interactive session as we seek consensus from educators and students on the best way forward.

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15:30 – 16:00

Open discussion: Experiences from schools, reflections on the direction of travel, helpful developments and collaborating to get the work done.

16:00 – 16:30 COFFEE BREAK

Session 2: Postgraduate

16:30 – 18:00

Update on progress with pan-European recognition of Periodontology: Implications and lessons for Periodontology and ESE Postgraduate Programme approval process.
Nairn Wilson; John Whitworth

Abstract:
The ESE Executive Board has long seen the recognition of Endodontology as a specialist discipline throughout Europe as one of its key strategic goals. Other specialties share similar aspirations, and we are fortunate to welcome Professor Nairn Wilson, a pre-eminent dental academic who has supported the mission of the European Federation of Periodontology over several years in its interactions with Brussels. Professor Wilson will share his experiences of the Periodontal journey and offer invaluable insights for Endodontology. This session will be of special interest to those with an interest in specialist recognition and the presidents and officers of national societies are particularly welcome. Please bring your questions and please bring your observations on the barriers to specialist recognition in your own countries. The session will conclude with a review of progress on Postgraduate Specialist Programme accreditation by John Whitworth.

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SILVER HALL

09:00 – 09:45

FKG Lecture 2

3D NiTi technology with expandable feature and its application on Endodontics instrumentation.

Gilberto Debelian

Abstract:
Recently a new NiTi wire (MaxWire™) and instrument system (XP-endo®) have been introduced. Using the principles of shape memory of NiTi alloy the MaxWire was developed to be malleable at room temperature (Martensite phase) and transform to a specific shape at body temperature inside the root canal (Austenite phase). XP-endo instruments are designed for 3 uses: 1-XP-endo Shaper - one file for the 3D shaping of the canal;
2-XP-endo Finisher – used after the Shaper (or traditional round files) in order to reach tissues or debris not reached in the shaping phase and
3-XP-endo Retreatment - to efficiently remove obturation materials from the root canal walls left behind after shaping instruments have been used.
Preliminary studies on XP-endo files have shown remarkable efficiency for maintaining the original shape of the canal while producing less dentinal debris blocking the irregular areas or isthmus areas. In addition, even though minimal number of instruments is used, almost no stress is produced on the canal walls. This presentation will explore the technical, biological and clinical aspects of this new 3D instrument system.

Objectives:
At conclusion, participants should be able to:
1. Understand the technological challenges of traditional endodontic instruments to predictably clean the root canal.
2. Present the physical and clinical characteristics of the new XP-endo files
3. Demonstrate the clinical use of XP-endo files
4. Present the latest on-going and published studies on these instruments.

This Lecture and speaker is sponsored by FKG

09:45 – 10:30

Dentsply Sirona Lecture 2

Continuous rotation M-wire rotary files: 5 years of experience and clinical research.

Francesco Mannocci

Abstract:
M-wire rotary files have become extremely popular in recent years. This lecture will illustrate the properties and the clinical results obtained using continuous rotation MWire rotary files. This will be achieved presenting a number clinical cases and going through the data provided by the literature on post-operative pain, cyclic fatigue, centering ability, glide-path development, debris extrusion, and use in re-treatment cases. In-press data from clinical trials on the ability of rotary files to remove bacteria from root canals using a novel Chairside Rapid Bacterial Detection device will be also presented.

This Lecture and speaker is sponsored by DENTSPLY SIRONA

10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

Dentsply Sirona Lecture 3

3D Endo - What, why & when

Shanon Patel

Abstract:
3D Endo™ Software has been designed for novice Endodontists to appreciate root canal anatomy. The results of exciting clinical research will also be highlighted.

Aims:
The aim of this presentation is to explain the benefits of 3D Endo™ Software for assessing root canal anatomy.

This Lecture and speaker is sponsored by DENTSPLY SIRONA

11:45 – 12:30

Sendoline Lecture

Reciprocation – the easy practical way

Fredrik Erhardt

Abstract:
Modern instrumentation of the root canal, reciprocation or rotary – introduction of a new system – S1 reciprocation makes it easy. Rotary instrumentation of the root canal with rotary instruments has dominated the market for 20 years. The drawbacks have been many instruments and instrument fractures. The last years, reciprocating instrumentation has been introduced. It has promised fewer instruments, used once and simpler instrumentation sequence and technique. Sendoline is a Swedish company manufacturing endodontic instruments since 1940 and one of their most important product innovations is the Hedström-file (H-file). The company is experienced in producing rotary instruments for preparation of the root canal and has recently introduced a new single-file reciprocating system, S1, that will make the instrumentation of the root canal easier and more straight-forward. Instead of advanced special electric motors with foot-pedals controlling the reciprocation movement, Sendoline has developed a mechanic handpiece with integrated gearbox which creates the reciprocating motion 180° clockwise and 30° anti-clockwise which will make the handling easier. The lecture will address the benefits and drawbacks of rotary and reciprocation instrumentation and how Sendoline has addressed the issues and how the company developed the new S1 reciprocation system.

This Lecture and speaker is sponsored by SENDOLINE

12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

13:45 – 14:00

MANI Lecture

The MANI-Silk System - rotation and reciprocation for a safe and effective canal preparation in daily practice.

Peter Kiefner

Abstract:
In daily practice the root canal preparation is carried out mainly with mechanical instruments used in a rotary or reciprocating motion. Major risks such as instrument separation or the alteration of the root canal anatomy can occur and increase the likelihood of treatment failure. By choosing an instrument used in a specific motion type practicians try to minimize the risks mentioned above. Wouldn't it be convenient to choose an instrument that can be used either in rotation or reciprocation to combine the advantages of these motion types during root canal preparation? What are the advantages and disadvantages of rotary or reciprocating motion? What impact has the instrument geometry on the fracture risk or the instrument flexibility? Can a special thermic treatment increase the flexibility and reduce the fracture risk of the instrument?

Aims:
This presentation will discuss the advantages and disadvantages of rotary and reciprocating NiTi instruments and highlight the concept using the MANI-Silk instruments in both motion types in order to achieve a good preparation result in an efficient and safe manner in daily practice.

This Lecture and speaker is sponsored by MANI

14:30 – 15:15

VDW Lecture 2

Reciproc Blue: the next generation of reciprocation.

Ghassan Yared

Abstract:
The concept of canal preparation with only one mechanical instrument used in reciprocation was introduced several years ago. Studies and clinical research have shown the efficiency and the safety of the Reciproc® instrument in the preparation of the majority of canals without creating a glide path, and in the retreatment procedure. Reciproc® blue, a thermally treated instrument is an improved version of the original Reciproc® instrument; it has an increased resistance to cyclic fatigue and a greater flexibility enabling a safer and smoother canal preparation procedure, and a wider range of clinical applications. Reciproc® blue will be introduced in this presentation. The physical properties of this instrument will be discussed with emphasis on their impact on the clinical applications. Preparation of the majority of the canals including 2nd mesio-buccal canals in maxillary molars, and narrow and curved canals with only one Reciproc® blue instrument without an initial canal negotiation and without a glide path will be described. The need to create a glide path in some canals with a reciprocating glide path instrument, R-Pilot®, will also be discussed.

This Lecture and speaker is sponsored by VDW

15:15 – 16:00

MICRO-MEGA Lecture 3

Shaping root canals Safely and Swiftly with a Simple sequence.

Walid Nehme

Abstract:
Major changes in the field of instrumentation and shaping techniques have set a new course for endodontics in the last decade. Newer instruments are generating predefined canal shapes with respect to canal anatomy and minimal invasive principles. In the first part of the presentation, an overview of Modern advancements in shaping instruments designs as well as thermomecanical treatments and its implementations on mechanical properties of the files will be explained. The concepts behind modern endodontics will be revisited and discussed from a clinical point of view. Does coronal flaring comply with the minimal invasive requirements? Do we still apply the shaping techniques principles? In the second part the new Orifice opener, One flare®, and shaping sequence, 2 Shape ® from Micro-Mega will be described. The innovative file designs with different geometrical characteristics for each instrument will be revealed. The implementation of these designs and their capabilities to meet the requirements for each clinical scenario will be explained and endorsed with an extensive literature review, experimental studies and clinical cases.

Objectives:
At the end of this presentation, attendees will be familiar with the new files and their advantages. This will enhance their capabilities to safely and swiftly shape the widest range of canal anatomies; from curved and restricted to straight and large canals with a simple sequence of two rotary file per challenge.

This Lecture and speaker is sponsored by MICRO-MEGA

16:00 - 16:30 COFFEE BREAK

16:30 – 17:15

Fotona Lecture

PIPS – hovering laser activated irrigation.The future or already the present?

Ralf Schlichting

Abstract:
The most important objective of endodontic treatment is the eradication of microorganisms from the root canal system. Numerous species of bacteria in the root canal system and the organisation of biofilm with its strong adhesion to the root canal wall and into dentinal tubules make thorough cleaning of the root canal system very challenging.
Besides the mechanical preparation of the main root canal, irrigation with solutions such as NaOCl and EDTA is crucial in terms of the reduction of microorganisms. The activation of irrigants by sonic or ultrasonic devices leads to a further reduction of bacterial counts, but these techniques have drawbacks: sonic activation is not able to produce cavitation effects and thus is not able to remove biofilm or debris sufficiently. The use of ultrasound leads to better results, but recent studies suggest that the effects have been overestimated. Furthermore, the use of ultrasonic files in curved canals can cause grooves or even ledges in the root canal.
Recently, the activation of endodontic irrigants by laser devices has come into the focus of science. The PIPS technique was introduced in 2010 by DiVito et al. A specially designed laser tip is placed just over the entrance to the root canal. Using an Er:YAG laser and special parameters, the activation of the irrigants leads to profound cleaning effects in the whole root canal system. A number of studies show that the cleaning effect, especially in terms of biofilm, smear layer and debris removal, is by far superior to every other known technique, even in areas as difficult to reach as ramifications, lateral canals and dentinal tubules.

Aims:
This lecture aims both to present the scientific background of PIPS and to focus on practical working experience of an endodontist who uses PIPS every-day.

This Lecture and speaker is sponsored by Fotona

17:15 – 18:00

Septodont Lecture

Operative dentistry and Endodontology with biocompatible and bioactive materials - just a hype or more?

Till Dammaschke

Abstract:
Cements based on calcium silicate include materials such as ProRoot MTA, MTA Angelus and Biodentine are distinguished by biocompatibility as well as bioactivity and have sealing characteristics. Biodentine, in addition, has dentine-like mechanical properties. Because of the better material properties of calcium silicate cements, these materials are an interesting alternative to conventional, calcium hydroxide-based materials or other cements. Biodentine can be used on dentine defects in the area of the crown and root, and have a positive effect on vital cells of the pulp and the periodontium because of the biocompatibility and bioactivity. The aim of a root canal obturation is a sealing of the entire root canal system without any voids in order to minimize the risk of bacterial reinfection. Further requirements for the root canal sealers are - beside biocompatibility - antibacterial properties, ability to adhere to the dentine walls, radiopacity, dimensional stability and insolubility in tissue fluid. Especially because of biocompatible and bioactive properties of calcium silicate sealers, these materials are an interesting alternative to conventional, e.g. epoxy resin-based sealers. Hence, sealers based on calcium silicate are an innovative material for root canal obturation which may offer new perspectives in the treatment strategy. For this reason, a number of companies have also recently offered root canal sealer on a calcium silicate basis like BioRoot RCS. This lecture is intended to provide an overview of the calcium silicate cements and sealers available on the market as well as the possibilities and limitations of these new materials.

This Lecture and speaker is sponsored by Septodont

MEETING STUDIO 211 & 212

09:00 – 10:30

Clinical poster oral prize presentations
Led by Gianluca Gambarini

09:00 – 09:15

Successful endodontic and surgical treatment of dens invaginatus with infected invagination and vital pulp: a case report
Dembinskaite A.

09:15 – 09:30

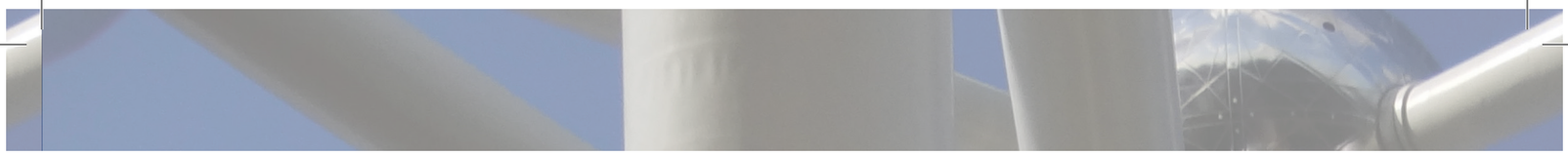
Endodontic treatment of a cutaneous sinus tract with the aid of CBCT: report of a case with 6-year follow-up
Tsurumachi T.

09:30 – 09:45

Orthograde endodontic treatment of an immature Type III dens invaginatus: a case report
Lee J.K.

09:45 – 10:00

Guided Endodontics: A case report
Torres A.



10:00 – 10:15

Endodontic Treatment of an Immature Permanent Canine Following Infant Oral Mutilation (IOM)
Dinur N.

10:30 - 11:00 COFFEE BREAK

11:00 – 12:30

Clinical video presentations
Led by Gianluca Gambarini

11:00 – 11:10

Combined treatment of a type III palatogingival groove with an accessory root in a maxillary lateral incisor: root canal therapy and intentional replantation
Ruiz X.F.

11:10 – 11:20

Invasive Cervical Resorption Class 4
Lozano A.

11:20 – 11:30

Surgical Management of Vertical Root Fracture
Meirinhos J.

11:30 – 11:40

A new software for endodontics
Ropini P.A.

11:40 – 11:50

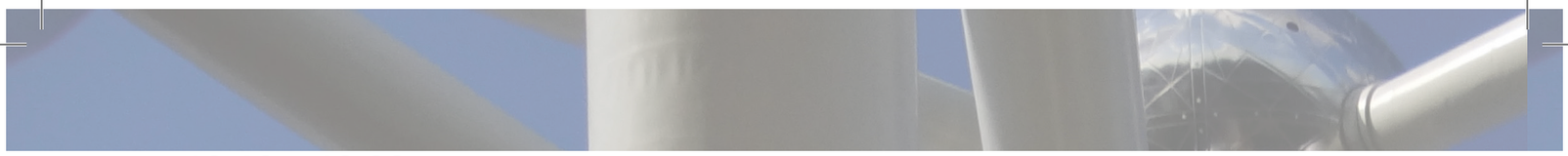
New Innovation in Root Canal Obturation. An Idea to Share
AlShammaa M.N.

11:50 – 12:00

Management of perforating internal root resorption with biodentine
Fernandez J.F.

12:00 – 12:10

Volumetric 3D Rendering: A clinical case (Use of CBCT data to enhance endodontic diagnosis and treatment)
Isufi A.



12:10 – 12:20

3D rendering for planning access in a calcified incisor
Piasecki L.

12:30 - 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30 – 16:00

Oral presentations on freely chosen subjects

14:30 – 14:48

A simple method for isolation and proliferation of dental pulp stem cells derived from human molar teeth
Turk T.

14:48 – 15:06

Formation of odontoblast-like cells from cultured human dental pulp stem cells on dentin in vitro
Ozisik B.

15:06 – 15:24

Mineralization capacity of human dental pulp stem cells is impaired via the TLR signaling pathway after long-term exposure to biofilm extracellular products.
Petridis X.

15:24 – 15:42

Development of spheroids by dental pulp-derived cells under the influence of hypoxia and prolyl hydroxylase inhibitors
Agis H.

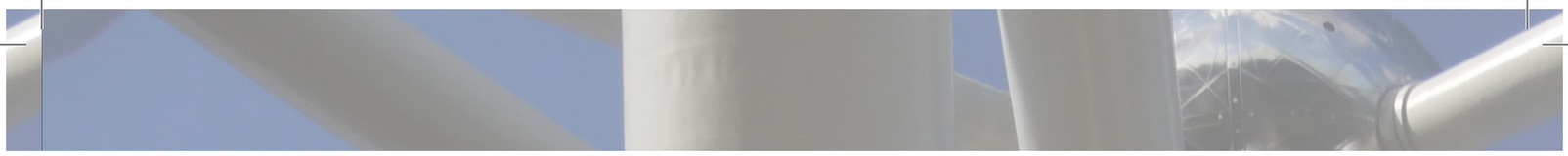
15:42 – 16:00

Does the apical papilla survive and develop after regenerative procedures in immature teeth with pulp necrosis?
Santos J.M.

16:00 - 16:30 COFFEE BREAK

16:30 – 17:42

Oral presentations on freely chosen subjects



16:30 – 16:48

Modified chlorophyll versus Fotosan-agent antimicrobial assessment in root dentin blocks infected with endodontic mix biofilms.
Diogo P.

16:48 – 17:06

Evidence-based Laser-Assisted Endodontics for bacterial reduction: Where are we now?
Farmakis E.T.R.

17:06 – 17:24

Does photon-induced photoacoustic streaming (PIPS) activation of irrigation solutions alter the dentine microhardness?
Akbulut M.B.

17:24 – 17:42

The role of recent technology in the management of biofilm and the decrease in bacteria inside the root canal system
Alsofi L.

MEETING STUDIO 214 & 216

09:00 – 10:30

Oral presentations on freely chosen subjects

09:00 – 09:18

Composition and microstructure of MTA and Aureoseal Plus: XRF, EDS, XRD and FESEM evaluation.
Palopoli P.

09:18 – 09:36

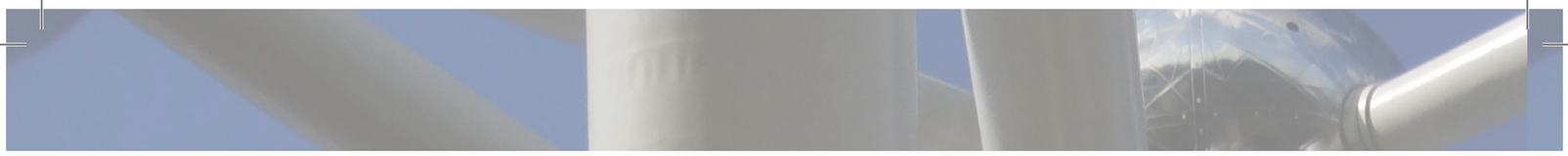
Novel MTA-based cements: advances in physical, chemical and biological properties
Marciano M.A.

09:36 – 09:54

Factors effecting a standardised MTA preparation
Basturk F.

09:54 – 10:12

Evaluation of The Effect of Mixing White MTA With Resin On Setting Time and Cytotoxicity
Körklü S.



10:12 – 10:30

Antimicrobial testing of Mineral Trioxide Aggregate (MTA). Are we doing it right?
Farrugia C.

10:30 - 11:00 COFFEE BREAK

11:00 – 12:30

Oral Presentations on freely chosen subjects

11:00 – 11:18

Management of furcal perforation of mandibular molars with Biodentine
Villarroel G.

11:18 – 11:36

Open, randomized clinical trial evaluating the efficacy of a tricalcium silicate-based endodontic filling material (BioRootRCS)
Riera B.

11:36 – 11:54

Indirect pulp treatment vs. Biodentine pulpotomy in deciduous molars with extensive proximal carious lesions
Hrynyshyn O.B.

11:54 – 12:12

Prognostic factors in direct pulp capping of permanent mature teeth using mineral trioxide aggregate: A clinical study
Köseler İ.

12:12 – 12:30

Effect of different gutta-percha solvents on push-out bond strength of tricalcium silicate based cements
Arıker İ.

12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

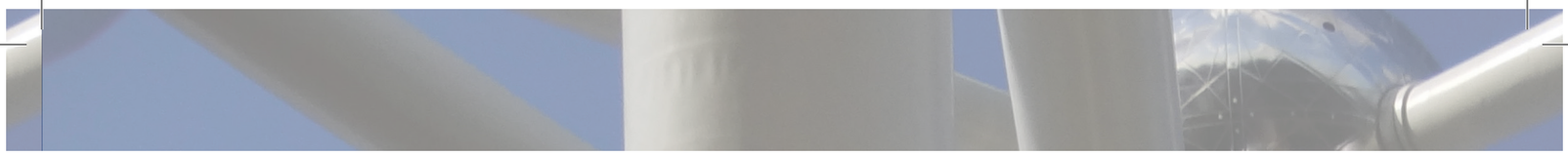
Poster Presentations / Trade Exhibition open

14:30 – 16:00

Oral presentations on freely chosen subjects

14:30 – 14:48

Evaluation of micro-hardness and flexural strength values of young and old crown dentine after different concentrated EDTA solutions
Pedersen N.D.



14:48 – 15:06

Effect of Calcium Hypochlorite Irrigation on the Fracture Resistance of RootCanal--treated Teeth
Askerbeyli Ors S.

15:06 – 15:24

Chlorhexidine in Endodontics: When the safety ends and the risky begins?
Palacios S.E.

15:24 – 15:42

The XP-Endo Finisher: survey of the literature and evaluation of the experimental removal of calcium hydroxide paste out of the apical third
Hamdan R.

15:42 – 16:00

Determination of Effective Concentration of Etidronic Acid (HEBP) and Investigation of its Antimicrobial Activity
Erik C.E.

16:00 - 16:30 COFFEE BREAK

16:30 – 18:00
Oral presentations on freely chosen subjects

16:30 – 16:48

Evaluation of the Effects of Different Chelation Agents on Adhesion of Two Root Canal Sealers
Kaki G.D.

16:48 – 17:06

Influence of gutta-percha backfilling on the fracture resistance of simulated immature teeth performed apical plug with Biodentine and ProRoot MTA
Candaner Y.

17:06 – 17:24

The effect of various back-filling techniques on the fracture resistance of simulated perforating internal resorption cavities repaired with MTA
Aktemur Türker S.

17:24 – 17:42

Bioceramics: new prospective and clinical uses.
Carpegna G.

17:42 – 18:00

Effect of ultrasonic activation on the penetration of calcium silicate-based cements using an open apex model
Ayhan E.

HENRY LE BOEUF HALL

09:00 – 10:30

The evidence base – revitalization. Basic principles of dental pulp regeneration.

Kerstin Galler

Abstract:
Pulp necrosis and the loss of dental pulp tissue function can inflict serious problems in the special case of young patients in teeth with incomplete root formation. Bacterial colonization of the root canal system, arrested root development with wide open apices and thin, funnel-shaped root canal walls can result in complications such as impeded obturation, root fractures, periapical bony lesions, external inflammatory root resorption and even tooth loss. Preservation of tooth vitality or regeneration of the dentin-pulp complex is especially desirable in those cases. Revitalization is an alternative procedure to apexification in teeth with incomplete root formation and necrotic pulp. After thorough disinfection, provocation of bleeding into the canal can flush in stem cells from the apical papilla and thus initiate regeneration of the dental pulp, accompanied with the healing of periapical lesions and an increase of root length and thickness. A considerable body of evidence from case reports and case series but also from in vitro - experiments and animal studies exists to date. Treatment recommendations are available from the European Society of Endodontology and the American Association of Endodontists.
This lecture will provide information regarding biological bases for pulp regeneration and review the procedural details of the clinical protocol for revitalization. Benefits and limitations will be pointed out, outcome will be discussed as scientist-based, clinician-based and patient-based, and future perspectives will be given, where application of the principles of tissue engineering with the use of scaffolds and growth factors might optimize our approach to dental pulp regeneration.

Aims:
To get familiar with the procedural details for revitalization and learn about benefits and limitations.

Objectives:
To present data from clinical, in vitro-experiments and animal studies. To go - step-by-step - over the treatment recommendations. To provide background information on the biological bases of pulp regeneration.

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10:30 - 11:00 COFFEE BREAK

11:00 – 12:30

The evidence base – CBCT.

Shanon Patel

Abstract:
The importance of Cone Beam Computed Tomography (CBCT) in the management of Endodontic problems is now widely accepted in our specialty.
This session will give an overview of the evidence base for the indications, and also the limitations of CBCT for the diagnosing and managing Endodontic problems.
This presentation will also highlight the recent findings of our research group's CBCT outcome studies on primary, re-root canal treatment and indirect pulp capping.

Aims:
Aim The aim of this presentation is to provide evidence for the use of CBCT in Endodontics, as well as discuss newly identified prognostic factors.

Objectives:
1. To review the limitations of conventional radiographs. 2. To reinforce the evidence base for CBCT. 3. Highlight, new prognostic factors that have an impact on Endodontic treatment. 4. Describe simple measures to improve treatment success rates.

12:30 – 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30 – 16:00

The evidence base - biomechanics of fractures in endodontically treated teeth.

Anil Kishen

Abstract:
Fractures in endodontically treated teeth are not an uncommon occurrence in clinical practice. Many iatrogenic and non-iatrogenic factors have been cited to be responsible for the increased risk of fractures in in restored endodontically treated teeth. Iatrogenic procedures resulting in removal of dentin structure, aggressive instrumentation / obturation techniques, indiscriminate use of chemical irrigants / medicament, restorative steps, while non-iatrogenic factors such as age / disease mediated alterations in dentin have all been cited to alter the mechanical characteristics of remaining dentin, increasing their predisposition to fracture. Unfortunately, a scientific understanding on the causes of such fracture is lacking.

Aims:
This lecture will provide a biomechanical foundation to understand the causes and risk factors that increases the propensity of fractures in root-filled teeth.

Objectives:
Will learn the biomechanical response of intact and endodontically treated teeth to forces
Will understand the role of risk factors for fractures in endodontically treated teeth
Will be able to understand the clinical steps that could be considered to minimize the risk of fractures in endodontically treated teeth

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08:45 – 09:00
Prize Presentations

09:00 – 09:45

An overview of oral wound healing.
Hannu Larjava

Abstract:
Wounding of oral mucosa after trauma or surgical interventions initiates a cascade of overlapping events that are traditionally divided into hemostasis, inflammation, re-epithelialization, granulation tissue formation and remodeling. Inflammatory stage is important for clearance of bacteria and tissue debris from the wounds. However, inflammation should be short-lived. Resolution of inflammation plays a crucial role dictating the healing outcome as delayed resolution is associated with scar-formation. During the re-epithelialization phase, mucosal keratinocytes migrate through the fibrin clot using cell membrane bound receptors, called integrins, and lay down primitive extracellular matrices (ECM) that serves as the scaffold for basement membrane formation. Delay in re-epithelialization can lead to wound infections and chronic wounds. After epithelial closure, granulation tissue produced by concerted action of macrophages and myofibroblasts forms. Myofibroblasts produce unique extracellular matrix (ECM) rich in EDA-fibronectin, tenascin-C and collagen. In remodeling, this matrix returns to its original composition and form or transitions into a scar rich is disorganized type III and I collagen bundles. Gingival palatal mucosa heals without scars while skin wounds typically heal variable scarring depending on the size and depth of the wounds. Gingival healing is associated with lesser and shorter inflammatory stage compared to skin. Elevated expression of certain matrix metalloproteinases in the gingiva could relate to reduced inflammatory phase. The phenotypes of the fibroblasts in the gingiva and skin also differ significantly. Skin fibroblasts strongly express CD26 throughout wound healing, a regulator of a profibrotic fibroblast phenotype while the expression of CD26 in gingival fibroblasts is transient. Thus, wound healing outcomes may be inbuilt to the resident cells of the tissue. Grafting of gingival fibroblasts could, therefore, be utilized in prevention or treatment of fibrotic conditions outside of oral cavity. Wound healing at the tooth-gingiva interphase and healing of extraction sockets have unique characteristics that will be discussed.

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09:45 – 10:30

The role of implant dentistry in the specialty of endodontics.
Patrick Adriaens

Abstract:
When endodontic treatment can no longer save a natural root, e.g. in cases of longitudinal root fracture, implant-supported prosthetic structures can be considered for restoring masticatory function and oral esthetics.
The success of these cases is already determined during the removal of the unsalvageable root. This includes precautions aiming at maximizing the maintenance of the bone volume at the extraction site, as well as the complete elimination of the inflammatory tissues surrounding this root and the protection of the coagulum in the extraction site.
Different parameters linked to the patient (general health, oral and periodontal health, tobacco consumption) and to the site (bone volume, bone density, proximity of mandibular canal or maxillary sinus) have to be considered at the time of implant installation. Implant installation is usually more complex in the molar and premolar region. In the anterior region, the esthetics of implant-supported prosthetic restorations might offer severe challenges.
A 12-year follow-up study in 931 consecutive patients receiving 2712 Straumann dental implants, will be presented. The implant survival rate was 98.7%. The mean follow-up time was 10.6 years (SD = 5.2 years; range = 1 – 22 years). Risk factors for early and late failure of implants will be analyzed and discussed. The importance of a strict supportive maintenance therapy will be discussed.
In this presentation a conservative approach will be recommended aiming at the maintenance of natural roots

Aims:
The aim of this presentation is to review the use of implant-supported prosthetic restorations as replacement for teeth that cannot be salvaged by endodontic therapy.
Objectives:
The objectives of this presentation are:
1. to review the precautions to be observed during the removal of unsalvageable teeth and discuss the healing of the extraction site,
2. to review the precautions to be taken during the installation of oral implants, including augmentation of the osseous structures,
3. to review the long-term results for implant-supported prosthetic restorations.

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10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

Use of membranes and bone substitutes in microsurgical endodontics.
Matthew Thomas

Abstract:
Routine microsurgical endodontics is predictable. However, endodontic disease can result in significant bone loss within the periradicular tissues. Occasionally, perio-endo lesions of either periodontal or endodontic origin can result in bony dehiscences and fenestrations. During conventional microsurgical endodontics these teeth may be more at risk of recession or healing with fibrous tissue. Many of these teeth can be treated with endodontic surgery although prognosis may be reduced and unsatisfactory healing outcomes can occur. The use of bone mineral substitutes and membranes, such as xenograft, may facilitate bony and soft tissue healing that could improve long term functional and aesthetic outcome especially in the aesthetic zone. Where extraction is planned but implant replacement needs to be delayed, then grafts may also be indicated. The similarities and differences between routine and complex cases with be outlined. A review of treatment planning and several case examples will be used to illustrate the use of membranes and bone substitutes in endodontic surgery.
Aims:
The aim of this presentation is to outline the clinical use of xenografts in specific cases planned for microsurgical endodontics
Objectives:
The objectives are to help the attendants to: Expand their knowledge of bony healing following contemporary microsurgical endodontics Understand the rationale for biomaterial use during surgery Identify cases where grafts may be useful during microsurgical endodontics

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11:45 – 12:30

Endodontic management of the endodontic- periodontic lesion. Understanding proper diagnosis and clinical treatment to achieve periradicular healing.
Jorge Vera

Abstract:
In some situations, periradicular lesions of endodontic origin may be difficult to distinguish from lesions caused by periodontal disease. When a sinus tract originating from an endodontic lesion drains alongside the periodontal ligament, the lesion may give the radiographic and clinical appearance of a periodontal pocket. Cone beam

computed tomography (CBCT) may also show extensive destruction of the periradicular tissues, but lacks information regarding remaining areas with soft tissue attachment. Using all diagnostic means to obtain an accurate diagnosis of these lesions is crucial to the delivery of suitable treatment in order to achieve periradicular healing.

Aims:

The aim of this lecture is to review the mechanisms of bone lesion formation caused by pulpal disease with a potential extension into the oral cavity, as well as the diagnosis involved and clinical treatment of such endodontic–periodontal lesions.

Objectives:

To recognize the mechanisms involved in the formation of an endodontic–periodontic lesion
To recommend diagnostic tests that will allow the clinician to determine the nature of the disease
To evaluate treatment options and outcomes for the treatment of these lesions

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12:30 – 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30 – 15:15

The use of calcium silicate cements in non-vital immature teeth

Marga Ree

Abstract:

Treatment of young permanent teeth with pulp involvement is an endodontic and restorative challenge. The primary materials used in treatment have been calcium hydroxide, the original material of choice, and Mineral Trioxide Aggregate (MTA), the more recent material of choice. MTA is part of a class of materials known as calcium silicate cements or bioceramics, and has been used for pulp caps, pulpotomies and apical barriers. It has many favorable properties, but also some limitations, which include staining of dentine and a long setting time. New bioceramic materials have been developed to overcome these shortcomings. In this presentation, Marga Ree will present an overview of current calcium silicate materials, with an emphasis on their use in non-vital immature teeth. She will address the treatment options for non-vital teeth with open apices. Regenerative treatment approaches or revitalization is currently a "hot topic" in endodontics, and has been recommended as a promising alternative to the apical barrier technique, but there are still many limitations, not the least of which is an unpredictable outcome. In contrast, there is substantial evidence of a favorable outcome of immature teeth treated with the MTA barrier technique. Marga Ree will present numerous clinical cases with long-term follow-ups, which will illustrate her decision-making process and current treatment procedures, and make an argument as to why an apical barrier is often preferred over regenerative endodontics for teeth with open apices.

Aims:

To get a better insight into the clinical use of calcium silicate materials in teeth with incomplete root formation and pulp necrosis

Objectives:

- Understand the similarities and differences between the various calcium silicate cements
- Describe the criteria for the choice of a particular calcium silicate material in an apical barrier technique
- Describe the clinical procedure for an apical plug of calcium silicate cement
- Compare the benefits and limitations of an apical barrier technique versus a regenerative treatment

I declare I have a past or present financial interest/arrangement, consulting position, or affiliation with the corporate organization(s) whose product(s) I will discuss in my presentation - Henry Schein, Brasseler and FKG

15:15 – 16:00

How to repair perforations.

Arnaldo Castellucci

Abstract:
Perforations are pathologic or iatrogenic communications between the root canal system and the attachment apparatus. The clinician must be particularly concerned about avoiding perforations of the tooth during endodontic therapy, since a perforation will necessitate additional treatment. If a perforation occurs, the tooth does not necessarily require surgery, intentional replantation, or extraction; in fact, it can be treated successfully in a conservative manner and continue to function as it did before the perforation. Today, there is no reason to believe that the tooth will be lost prematurely because of this complication. An inflammatory reaction is established in the surrounding periodontium at the site of the perforation. This is due both to mechanical trauma and to introduction of microbial-derived substances that inevitably accompany the perforation. The perforation creates a portal of exit in the root canal system. Once identified, it must be sealed as quickly as possible, since periodontal involvement arising from the perforation can become irreversible with time. Treating a perforation may often require a multidisciplinary approach in order to establish an appropriate treatment plan, and the clinicians must decide whether to extract the tooth or treat the tooth with a nonsurgical and/or surgical approach. When evaluating a perforated tooth, 4 variables should be considered: level, location, size and shape, and time, since each one of them will influence the prognosis. The prognosis of perforated teeth is better today than it was in the past, and this is due to the improved vision provided by the operating microscope and to the use of biocompatible materials such as MTA. With this approach, perforations can be more predictably repaired without surgery, thus reducing the need for invasive and more costly procedures.

Aims:
The aim of the lecture will be to show the different situations and the different prognosis of the most common cases when a perforation can occur and illustrate the most modern instruments and materials to seal predictably the "new portal of exit" and to guarantee a long term successful result.

Objectives:
The objective of the lecture is to let the participants understand why the perforations can occur and how to avoid them. They will also understand the several factors influencing the prognosis so that in the future they will be able to perform predictable therapies and obtain long-term success. Several cases will be shown so that the participants will be able to appreciate and then perform the same treatments in different quadrants, from the front teeth to posterior multi-rooted teeth. They will understand how to have a good control of the bleeding tissue, of the granulation tissue that might be grown inside the perforation cavity, how to seal the perforation with the new biocompatible materials, both with a non-surgical and with a surgical approach.

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09:00 – 12:30
Symposium: Designing and running Randomised Control Trials and laboratory research projects
Led by Hal Duncan

09:00 - 09:45

Designing research that matters (translation, funding, excellence and impact).
Hal Duncan

Aims:
To engage participants wishing to design, experimentally plan, execute and publish a wide range of scientific studies.
Objectives:
- Introduce session and types of research study
- Highlight IEJ study categorisation and recent 'research that matters' editorials
- Introduce the importance of experimental design (the three research questions) and highlight common design problems in IEJ submissions
- Briefly discuss reporting guidelines aimed to improve quality (CONSORT, PRISMA, STROBE, Clinical trial registration)
- Explain funding sources (national, European, industry, ESE) and current shift in focus towards funding translational studies
- Reinforce relevance of excellence and impact with published examples

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09:45 – 10:30

Laboratory studies (designing and running technical and biological studies).
Yuan Ling (Paula) Ng

Abstract:
This lecture will present the features of well planned and executed technical and biological studies. This presentation will begin with a discussion of formulation of a good research question and setting of appropriate hypotheses. This will proceed to discuss the strategy for selecting appropriate measurements and models to test the hypothesis. The importance of appropriate controls; ensuring sufficient study size and power; and controlling potential confounding through strict sample inclusion criteria, randomization of test and control allocation, and use of appropriate data analysis approach and methods will also be highlighted. The importance of a well-thought-out and well-written comprehensive research protocol with sufficient informed by pilot and feasibility studies as well as documentation during experimentations will also be discussed. The legislation and codes of practice for use of human tissue, cells, and fluid will also be highlighted.
Aims:
To provide an overview of the important principles underlying well-designed technical and biological studies.
Objectives:
1) Discuss the choice of models and measurements to test the research hypothesis.
2) Discuss the different approaches to reduce bias including criteria for sample inclusion, use of appropriate controls, randomization for samples and experimentation order, and standardization of experimentation conditions.
3) Discuss the consideration of data analysis strategies and methods during study design stage.

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10:30 - 11:00 COFFEE BREAK

11:00 – 11:45

Clinical studies (designing and running randomised control trials and other clinical studies).
Common difficulties and pitfalls in clinical research.
Thomas Kvist

Abstract:
Randomized clinical trials (RCTs) are the standard of excellence for comparisons of treatment effects. A group of subjects receive two or more different interventions allocated by random and are followed forward in time until an endpoint at which groups are compared using a predetermined outcome measure. To be appropriate a RCT requires numbers requisites that may be more or less difficult to ascertain. On a careful consideration we must realize that RCTs may not be feasible for all clinical research needed to provide improved evidence for our procedures in endodontics. For many clinical questions prospective cohort studies may be more suitable.
Aims:
To have a dialogue about and inspire colleagues to improved research efforts on clinical procedures in endodontics.
Objectives:
This talk will consider some common difficulties and pitfalls when conducting RCTs and other clinical study designs. The presenter will give examples from his own experience.

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11:45 – 12:30

Scientific writing (publications and grant applications).
Kishor Gulabivala

Abstract:
Scientific writing demands an extraordinary level of precision and requires a clear tangible structure. Such precision is underpinned by precise and clear thoughts. Neophytic ideas springing from inductive, lateral, or imaginative thinking constitute the life-blood of innovation but are by their nature imprecise and nebulous. Writing helps to clarify, distil and crystalize ideas into discrete saleable concepts. Iterations and multiple drafts are the norm in scientific writing, helped wherever possible by expert perspective. The format for scientific writing, whether for publishing study outcomes or seeking funding, is normally predetermined, with varying degrees of freedom to express ideas. The format and rules for journal articles are prescribed in their guidelines, which must be followed unerringly; the classical structure is: (1) Justification for the research question; (2) Description of method(s) used (sufficient to allow precise replication of the experiment); (3) Key findings from the study coherently and clearly presented and summarised in palatable form; (4) Implications of findings and how they fit into existing knowledge; (5) concise statement of findings. The format for research grants is increasingly defined by filling an application form, containing required fields of information, each section with a word limit, and therefore requiring precision and conciseness in the writing. Scientific writing is about persuading others to adopt or buy into your ideas and thinking and therefore must be coherent, clear, compelling and focused. Scientists, often think in consistent and nuanced ways by virtue of personal characteristics, training or culture (that varies between different disciplines). It is important to tap into this culture and understand their mind-set, both for personal growth and insight about how to approach the writing for particular audiences. The presentation will explore the characteristics of good and bad writing styles. “The tragedy of science is the slaying of beautiful ideas by ugly facts” TH Huxley.
Objectives:
Introduction to written scientific communication
The structural elements of scientific papers and grants
The principles of succinctness, clarity, organisation, precision and fluidity
The importance of author guidelines
Examples of good and bad writing

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12:30 – 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

14:30-16:00

Symposium:
Modern technologies in Endodontics
Led by Roeland De Moor

14:30 – 15:15

Modern technologies in Endodontics 1.
Nanoparticles for antimicrobial purposes in endodontics.
Roeland De Moor

Abstract:
Nanotechnology is a rapid advancing interdisciplinary field, and the use of nanomaterials is becoming more and more common for different healthcare purposes. In fact, nanoparticles as one of the novel strategies have been the centre of attention the fast few decades owing to their innovative and functional properties.
Particles with dimensions of 1-1000 nm, made from any type of biocompatible substance can be defined as NPs. At the nanometre scale, the characteristics of materials are markedly different to those of the same material at the macroscale. With the decrease in dimensions a better penetration for therapeutic agents is possible. In this respect, a slow but controlled release of active ingredients at the target sites is also provided. In addition, there is a considerable increase of surface area of the agent: the contact with microorganisms is increased and a more profound interaction with the membrane of pathogens is warranted. High surface areas of NPs and consequently higher concentrations at the target site will make the difference with conventional antimicrobial approaches.
Aims:
To give an overview of NPs available for use in endodontics, and the way in which they interact and can be activated (e.g. with light)
To address the current state of NPs used for antimicrobial purposes in root canal infections, focusing on their efficiency.
Objectives:
To give a brief insight into the world of nanoparticles
To demonstrate the potential of antibacterial nanoparticle-based treatment for endodontic purposes
To understand the cellular effects of NPs but also their shortcomings, toxicity as well as environmental effects.

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15:15 – 16:00

Defeating endodontic biofilms with laser-induced cavitation.
Maarten Meire

Abstract:
Apical periodontitis is caused by micro-organisms that are mainly organised as intracanal biofilms. Predictable removal of biofilm from the intricacies of the root canal system remains one of the biggest challenges in endodontic therapy. New root canal disinfection strategies are constantly being investigated. Evaluating these new developments in clinical trials is however time-consuming, expensive and laborious. Therefore, model systems are being used. Many such in vitro endodontic biofilm model systems have been described, each with its benefits and drawbacks. These model systems will be critically appraised.
The use of laser light for disinfection has received increasing interest within endodontics and outside. Different approaches exist. Pulsed erbium lasers can emit within root canal irrigants, producing vapour bubbles, shock

waves and secondary cavitation; this is referred to as laser-activated irrigation. A totally novel approach to tackle biofilms is to impregnate the biofilm with gold nanoparticles (AuNPs) and then irradiate with very short (< 10 ns) laser pulses. This results in rapid heating of the AuNP to very high temperatures, creating a vapour nanobubble (VNB) around the AuNP. The VNB violently collapses and causes local damage by high-pressure shock waves. This results in physical disruption of the biofilm.

Aims:

To understand the principles of laser-activated irrigation and laser-induced vapour nanobubbles to defeat biofilms.

Objectives:

To identify in vitro endodontic biofilm model systems.
To explain the action of pulsed erbium lasers on endodontic irrigants.
To explain the principle of laser-induced vapour nanobubble treatment.
To comment on the role of technology in endodontics.

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SILVER HALL

09:00-12:30
Symposium:
Dentinal microcracks and root canal preparation & filling: Is there a causal relationship?
Led by Gustavo De-Deus

09:00 – 09:30

Effect of endodontic procedures, age and dehydration on root dentine.
Hagay Shemesh

Abstract:

Cracks and fractures is one of the major reasons for extraction of endodontically treated teeth. Although many attempted to relate cracks and fractures to various stages of the root canal treatment, like instrumentation, obturation or hypochlorite irrigation, little is known about the clinical significance of these studies and conflicting reports are confusing. The clinical situation is complex and multifactorial, while in-vitro studies often ignore occlusal forces, PDL functionality and aging processes. The reasons for cracking of teeth is however crucial if we want to learn how to minimize the risk of root fractures after root canal treatment. Recent clinical studies about cracked teeth after root canal treatment will be discussed as well as the influence of dehydration and experimental procedures on the appearance of cracks. Suggestions will be made on future research projects that will eventually give clinically relevant insight into this controversy.

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09:30 – 10:00

The incidence of dentinal defects after mechanical preparation of the root canal.
Marcelo Coelho

Abstract:

During root canal instrumentation several incidents have been shown to jeopardize the outcome of treatment. Recently, several in vitro studies, using different methodologies have shown an association between root canal treatment procedures including instrumentation, filling and retreatment with the creation of dentinal defects. Theoretically these defects may propagate and develop in a vertical root fracture, which often times results in extraction of the affected tooth. However, recent studies have questioned whether root canal instrumentation is

related to the development of such defects. This is a significant source of concern for the clinician. Is there any risk in current instrumentation systems? Is there any advantage in using rotary or reciprocating systems?

Aims:

This session aims to present the lack of connection between recent research and clinical findings.

Objectives:

Discuss whether the clinician should be concerned about the risk of development of dentinal defects after root canal instrumentation. Understand the drawback of methodological aspects in recent research.

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10:00 – 10:30

Critical appraisal of studies on dentinal radicular microcracks.

Gustavo De-Deus

Abstract:

Over the last years, tooth-sectioning in vitro studies reported that mechanical preparation with rotaries and reciprocation is prone to induce dentinal defects such as fractures, craze lines, incomplete cracks, and dentinal detachments. Although, at first glance, tooth-sectioning in vitro studies may seem experimentally sound — as control groups using non-prepared teeth worked fine — this destructive approach has major drawbacks which will be addressed and discussed. It will be shown that it is highly improbable that experimental models based on a single time-point post-operative direct microscopy observation are able to provide the required inputs able to create a comprehensive understanding about the complex and multifactorial phenomenon of microcrack initial formation and propagation, as well as their causality by ordinary day-to-day endodontic procedures. Finally, the micro-CT technology to assess and study the microcracks phenomenon will be addressed; the results from micro-CT studies, which goes against the mainstream settled by the tooth-sectioning studies, will be also presented.

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10:30 - 11:00 COFFEE BREAK

11:00 – 11:30

New trends in dentinal crack research: the Walking Dead Project. Dentinal microcracks in endodontics.

Marco Versiani

Abstract:

Dentinal microcrack is a difficult clinical problem to diagnose and treat, and has been considered one of the most common reasons for tooth extraction. In the last years, several laboratory studies using a plethora of methodological approaches have linked radicular crack formation to some routine endodontic procedures, such as root canal preparation and obturation; however, in most of these studies the use of destructive methods put to question the reliability of the results. Recent evidences using fresh human cadaver model suggested that the attachment apparatus might be able to prevent cracks in root dentin because of the cleaning and shaping of the canal system.

Aims:

To present the results of a research protocol on the development of dentinal microcracks after root canal preparation using a fresh human cadaver model and micro-CT technology.

Objectives:

(1) Summarize recent studies on dentinal microcrack development;
(2) Describe micro-CT scanning and reconstruction processes;
(3) Report the results of a research protocol in which the dentinal structure of teeth in a fresh human cadaver model were evaluated after root canal preparation micro-CT technology.

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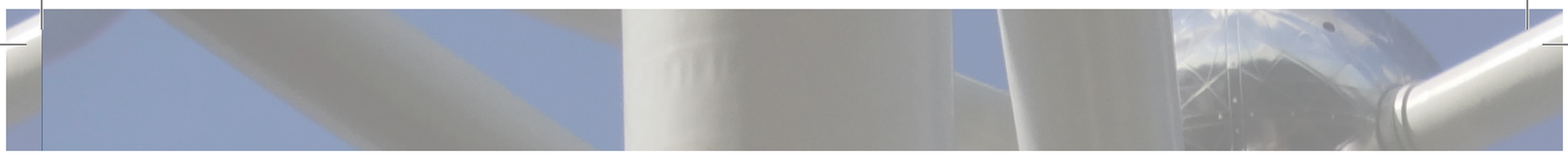


11:30 – 12:30

Discussion

12:30 – 13:30 LUNCH BREAK

13:30 – 14:30

Poster Presentations / Trade Exhibition open

MEETING STUDIO 211 & 212

09:00 – 10:30
Oral presentations on freely chosen subjects

09:00 – 09:18

Diagnostic validity of periapical radiography and CBCT for assessing persisting periapical lesions after apicectomy
Kruse C.

09:18 – 09:36

Comparative assessment of odontogenic maxillary sinus pathology using CBCT and intraoral radiographs
Tsompanides G.

09:36 – 09:54

3D Imaging of external cervical resorption patterns: possibilities and challenges
Mavridou A.M.

09:54 – 10:12

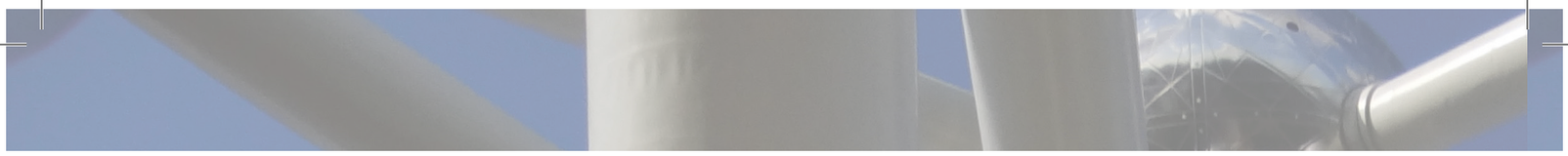
Assessment of endodontic complications by using intraoral radiography and a CBCT System with the application of three different artifact reduction modes: an ex vivo study
Cemre K.

10:12 – 10:30

Guided Endodontic Treatment Using a New Software Approach
Lang T.

10:30 - 11:00 COFFEE BREAK

11:00 – 12:30
Oral presentations on freely chosen subjects



11:00 – 11:18

Radiographic and clinical study of dens invaginatus prevalence in Israeli dental patients
Flaisher Salem N.

11:18 – 11:36

New classification of endodontic access cavities
Isufi A.

11:36 – 11:54

Investigation of the physiological foramen of maxillary and mandibular molars using micro-computed tomography
Wolf T.G.

11:54 – 12:12

Endodontic treatment of patients with taurodont : Case series
Alam S.

12:12 – 12:30

Using Pebble pad (eportfolios) in undergraduate dentistry for reflective learning
Sadr A.

12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

14:30 – 15:42
Oral presentations on freely chosen subjects

14:30 – 14:48

'Digital Dentist', an evidence based tool to appreciate and communicate the status and prognosis of teeth.
Daneels L.

14:48 – 15:06

Minimally invasive endodontics - A new diagnostic system for assessing pulpitis and subsequent treatment needs
Wolters W.J.

15:06 – 15:24

Treatment planning in cases with severly obliterated root canals - CBCT imaging and microscope visualization
Kiefner P.

15:24 – 15:42

Radiopacity of silicate-based cements and a comparison of 3 contemporary repair materials revised.
Tanalp J.

MEETING STUDIO 214 & 216

09:00 – 10:30
Oral presentations on freely chosen subjects

09:00 – 09:18

Cementation of a fiber post with a fast-setting calcium silicate-based cement.
Irmak Ö.

09:18 – 09:36

Adhesive post-endodontic treatment using FRC posts in Front teeth: A 5-9 years retrospective study.
Cerny D.

09:36 – 09:54

Push-out bond strength of adhesively bonded fiber posts on irradiated and nonirradiated root dentin
Başer Can E.D.

09:54 – 10:12

A safe and gentle technique to remove ThermafilCarrier or similar products in retreatment cases with a new device. A case and technique presentation.
Widera N.

10:12 – 10:30

The efficiency of XP-Endo Shaper and XP-Endo Finisher R in the removal of root filling material from oval root canals.
İriboz E.

10:30 - 11:00 COFFEE BREAK

11:00 – 12:30
Oral presentations on freely chosen subjects

11:00 – 11:18

Healing Capacity of Bone Surrounding Biofilm-Infected and Non-Infected Gutta Percha: A Study of Rat Calvarium.
Lin S.

11:18 – 11:36

The staining effects of different antibiotic based root canal medicaments
Özşahin A.

11:36 – 11:54

Prevention of biofilm formation by disinfecting macromolecules incorporating into sealer
Solomonov M.S.

11:54 – 12:12

The fate of 10-year root canal treatments filled with Thermafil system
Pirani C.

12:12 – 12:30

Root canal cleaning. SEM study of Revo-S® vs ProTaper Next® vs 2Shape ®
Diemer F.

12:30 - 13:30 LUNCH BREAK

13:30 - 14:30

Poster Presentations / Trade Exhibition open

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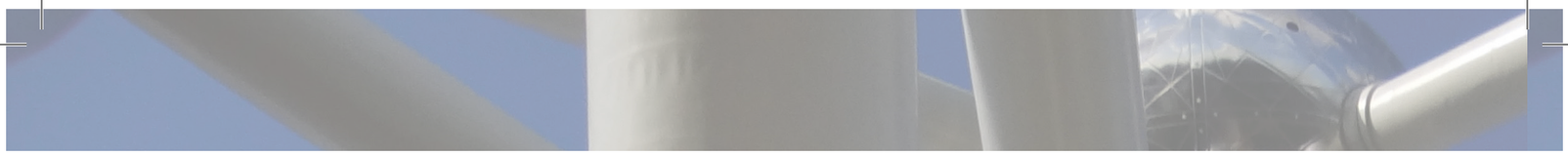

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DHM-Dental	60
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