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Dentistry yesterday, today and tomorrow - a personal journey
Masiga J.J.¹
¹Private Practitioner : Nairobi, Kenya

From the Medical and Dental Ordinance of 1901 to today, professional dentistry in Kenya is only 113 years old. Our first Dental School was started a mere 40 years ago and some of its first graduates are still in active teaching. In the latter period, training of dental technologists and para-professionals has been taking place in tandem. In recent times, local training of Post graduate Specialist Dentists has also begun to bear fruit. Dr Joe Masiga, HSC is both a product and worker of and in the Kenyan dental health service delivery system, a highly respected UK trained Restorative Dentist and, in his youth, a colorful football and rugby player. He was awarded the Head of State Commendation, continues to teach clinical students at the University of Nairobi and has been a Past Chairman of the Kenya Dental Association. He discussed, anecdotally, aspects of his life in Dentistry, yesterday, today and tomorrow. Every Dentist walks her/his own journey through Dentistry and could speak about it. That privilege is given to few - mainly Professors giving their inaugural lectures at Universities. Dr Masiga will share, through his eyes, his journey through dentistry - a rich experience replete with changing trends and values.

Recent advances in facial aesthetics: Botox and dermofiller treatment.
Akama M.¹
¹Senior Lecturer; Dept of Oral & Maxillofacial surgery, SDS, University of Nairobi

Noninvasive or minimally invasive facial aesthetic techniques are gaining popularity over traditional face lifts. The introduction of botox and dermofiller treatment has revolutionized the facial aesthetic industry. This presentation will explore the indications and techniques of botox and dermofiller treatment.

Image is everything: The role of cone beam computed tomography in current dental practice
Ochola T.J.¹
¹Consultant Dental & Maxillofacial Radiologist, Dental & Maxillofacial Imaging Centre (DAMIC)
²Senior Lecturer and Head of Oral Radiology, University of Nairobi, School of Dental Sciences

Cone Beam Computed Tomography (CBCT) first came to commercial use in 2006. Its discovery created a myriad of possibilities never before imagined in the practice of dentistry. Although computerized tomography (CT) has been available for a long time, its use in dentistry has always been limited largely because of the relatively reduced resolution for small structures, high radiation doses, high costs and unavailability. In comparison, CBCT on the other hand has introduced improved resolution for dental-oral structures, much lower radiation doses and comparatively lower costs. The understanding and interpretation of CBCT volumes is now considered a fundamental skill requirement for practicing dental practitioners. Numerous indications have been reported using three dimensional (3D) imaging in practically all fields of dentistry ranging from orthodontics to endodontics and more specifically in pre-surgical planning before implant placement. Since 2010, Dental and Maxillofacial Imaging Centre, (DAMIC) has been offering 3D imaging to dental practitioners in and around Nairobi using Kodak 9000D CBCT machine for image acquisition.
his presentation aims to share experiences arising from the introduction of this technology in Kenya. The general principles involved in the acquisition of CBCT volumes as well as critical anatomical landmarks will be outlined. Specific cases covering different pathologies will be reviewed in order to put in perspective the evolving role of 3D imaging in diagnosis and treatment planning in oral surgery, periodontics, endodontics, orthodontics and implantology.

**Management of Curved root Canal Systems: irrigation and preparation techniques**

Dienya T.M.¹

¹Specialist in Endodontist

²Lecturer at the University of Nairobi

³Implant practitioner, Department of Conservative and Prosthetic Dentistry

It is not in dispute that the presence of curved root canal systems poses the greatest challenge even to the most experienced Endodontist. Despite a plethora of new armamentarium and techniques, errors amounting from management of curved canals such as zipping, perforations, apical transportation instrument formation and ledge separation are yet to become a rare occurrence. This has led to a high occurrence of post-treatment disease with subsequent re treatment or loss of such teeth. Even though the management of curved root remains, a daunting task, it behooves the clinician to provide the best management so as to salvage the diseased tooth. The purpose of this lecture will be to provide dentist with the available to successful manage and provide optimal endodontic therapy in such dilecerated roots. It will also discuss and highlight current irrigation techniques to completely eliminate micro-organisms from such canals thereby curmaventing flabberasting procedures such as retreatment or tooth extraction.

**More than just crooked teeth – Myofunctional appliances for better health**

Purvi Shah¹

¹Consultant for Afridynamics

¹²Consultant Dental Surgeon at Humming Healthcare

**Introduction:**

Modern research has shown that crowded teeth, incorrect jaw development and other orthodontic problems are not caused by big teeth in small jaws or hereditary factors. Mouth breathing, tongue thrusting, reverse swallowing and thumb sucking (known as incorrect myofunctional habits) are the real causes. More than 75% of children have a developing malocclusion which is evident from as early as 5 years of age. Early myofunctional orthodontic treatment using the right appliances can address the causes of the malocclusion while the child is still growing - often without the need for braces or extractions.

**Methods:**

MRC have designed appliances to correct the poor oral habits that cause malocclusion and has had over twenty years of experience in myofunctional orthodontics using the Trainer and Myobrace® systems. With myofunctional orthodontics, the patients learn breathing through their nose day and night,
particularly at night time. When they’re breathing through their nose the tongue is in the right spot. Finally, this combined with the correct swallowing technique leads to correction of occlusion.

**Results:**
Patients in over 100 countries throughout the world have discovered the benefits of myofunctional orthodontics using the *Trainer and Myobrace*® systems. Dental research over the past 20 years has proven that these appliances by MRC are an effective way to straighten the teeth and jaws.

**Conclusions:**
It is important to understand myofunctional orthodontics. With the understanding, you can improve the care you provide for your patients, and at the same time increase your revenues.

---

**Esthetic Crowns in Pediatric Dentistry: A contemporary view**

**Ahmed Elkhadem**

1 University of Cairo

For many years, Pediatric Dentistry relied on stainless steel crowns to restore primary teeth following pulp therapy or to treat primary teeth with gross decay where restorative materials are expected to fail. Although stainless steel crowns are clinically effective with long survival times, its color remains an obstacle to parents who seek esthetic treatment. Further, pediatric dentist would always face a restorative challenge in case of badly decayed anterior primary teeth as a result of nursing caries. Esthetic crowns would provide an efficient solution for such situations. This lecture will discuss different types of esthetic pediatric crowns showing step by step clinical procedures of tooth preparation and cementation. By the end of this lecture, the audience would be acquainted with indications of esthetic crowns and the difference in tooth preparation and cementation procedures between stainless steel and esthetic crowns for primary teeth.

---

**Early Orthodontic Treatment**

**Sunil Sachdeva**

1 Private practice limited to Orthodontics and Dento-facial Orthopaedics - Nairobi Kenya & Gaborone Botswana.
2 Honorary visiting lecturer Faculty of Dental Sciences University of Nairobi.
3 Co-Author:- Dr. Suveer Sachdeva BChD Dental Surgeon. In transition between Govt. service & private practice Nairobi Kenya

**Introduction:**
Traditional orthodontic treatment begins after eruption of 2nd molars. This is a one prescription to fit all malocclusions. This presentation shows cases treated with early orthodontic treatment (Phase I). For the right case early treatment is beneficial.

**Methods:**
Philosophies behind early treatments. Series of cases treated with different approaches to correct problems identified early.
Results:
These early orthodontic treated cases show that there is a place in for these procedures in our daily practices.

Conclusions:
How many patients are told to come back at 12 -13 years for orthodontic treatment? It is time we accept that concepts have changed. newer treatments are available which are applicable to our patients. Take home message - you can use most of these procedures straightaway if you do orthodontics in your office. If you do not then inform patients and encourage them to seek treatment early......

Knowledge and attitudes towards dental materials wastage by undergraduate students.
Minai D.A\(^1\), Macigo F.G\(^2\) and Kisumbi B.K\(^3\)
\(^1\)BDS IV student, School of Dental Sciences, University of Nairobi.
\(^2\)Ass. Professor and Public health specialist, Department of Periodontology, community and Preventive dentistry, School of Dental Sciences, University of Nairobi.
\(^3\)Senior Lecturer, and Biomaterials specialist, Department of Conservative and Prosthetic Dentistry, School of Dental Sciences, University of Nairobi

Introduction:
Use of the myriad dental materials applied in dental practice can result in wastage which has economical, personal safety and environment consequences that call for its’ minimisation. The aim of the study was to evaluate the knowledge and attitudes towards dental materials wastage among students at the University of Nairobi (UON) Dental Hospital Prosthetics and Conservation clinics. It was a descriptive cross-sectional study.

Methodology:
A self-administered questionnaire was administered to the undergraduate dental students in second, third and fourth year of study n=86 and collected upon completion. Data was analysed using SPSS 16.0 software and the information presented as descriptive statistics using charts, frequency tables, average values and percentages.

Results:
Seventy nine (79) students responded, 38 (48%) female and 41 (52%) male. Fifty (63.3%) students reported that they had not undergone training on consequences of wastage of dental materials. And a similar number (63.3%) of the students indicated the best excuse of dental material wastage to be lack of more accurate methods of proportioning the amount of materials required for a procedure. Majority, 74 (93.7%) of the students felt that wastage of dental materials should be discouraged. Seventy one (89.9%) of the students thought that the concern with dental materials wastage was justified. A sizeable number 57 (72.2%) would advice someone to specialize in dental biomaterials. Overall Zinc oxide eugenol cement was found to be most wasted material as reported by 41 (51.9%) of students.
Conclusions:
Based on the findings of this study, it is concluded that; awareness and training of the consequences of dental materials wastage is low among the students. However, majority of the students felt that wastage of dental materials should be discouraged. The most wasted dental material was zinc oxide eugenol cement. Dental material wastage is the use of dental materials in a way that results in losses. This wastage has consequences such as: material shortage and therefore delays in the deliveries of oral health services to patients. Secondly, increased amount of disposed waste creates difficulty in managing the waste therefore, more pollution to the environment that negates the efforts put in infection control and if this is to be well managed, then more cost and effort will have to be put in.

Choice of tooth resin bonding agents: is Novel better?
Munene D.M¹, Mutave R.J² and Kisumbi B.K³

¹BDS III student, School of Dental Sciences, University of Nairobi.
²Senior Lecturer, School of Dental Sciences, University of Nairobi.
³Senior Lecturer, School of Dental Sciences, University of Nairobi

The Objectives of this presentation is to discuss types and performance of existing dentine bonding agents and highlight the factors to consider while selecting a dentine bonding agent. Bonding agents are invaluable biomaterials in achieving a marginal seal and without them, it would be impossible to execute a successful adhesive restoration. Concerted research and development has generated a wide range of novel products, from which the clinician has to make an informed selection. Moreover, although the efficacy of a bonding agent depends mainly on the bonding agent properties, however improper handling of the best BA can adversely affect the final bond. A BA should demonstrate immediate bond strength greater than polymerization stresses that develops during polymerisation of restoratives of approximately 15 to 17 MPa. Currently the available bonding agents in the market range from 4th generation to the 8th generation. There have been advances yielding improved DBA’s with among others enhanced handling profiles, non-solvent technologies and long-term durable bonds. With the newest bonding agents being dual-cured self-etch, and designed to be applied direct and indirect restorations (self, dual and light-cured resin materials), the question remains are novel DBA’s superior?

Pricing private dental services - as part of the quality and margin improvement cycle
Melvin D’lima¹

¹Business mentor to Doctors and Healthcare Professionals

Introduction:
Sustainability of individual dental practices requires improved strategy, quality and profit. Many Dentists levy professional fees, based on fee guidelines, set by the Medical Practitioners and Dentists Board, Insurance companies and other fee regulators. These regulators seek to set fees and protect the consumer. Managed Health Care is an external
fee fixing system and internal systems comprise a chosen college of Dentists who set fees in their specialities. What is the role of the individual Dentist in this whole process?

Methods:
This oral presentation will describe the elements of a service quality and margin improvement matrix. The relationship between pricing beyond a break-even price analysis will be explored.

Outcomes:
Participants will have a deeper understanding of the quality and margin improvement matrix and how their peculiar circumstances and vision for their lifestyle affects the calculation of fees. Many, who take this presentation seriously will understand the value of fee adjustments and have to go back to the drawing board and revise their fees for profit and sustainability.

Trip To The Apex
Mohammed M

The canal morphology is often complex and unpredictable. This sometimes severely limits the practitioner’s capabilities and causes challenges in optimal use of instruments, medicaments and materials. Thus, knowing canal morphology and science of equipment and materials would enable dentists practice safer and more efficient endodontic. Understanding the principles and problems of shaping and cleaning allows us to determine the apical limits and dimensions of preparation and also be able to perform microsurgical procedures successfully. Access is the key for successful endodontic treatment and plays an important role in regard to success and failure. To overcome many endodontic mishaps, more care and knowledge has to be placed in access to the canal. Rotary Ni-Ti files have added value in shaping variable and difficult canals. To get all its benefits we have to know its limits and the influence of each part and design on the outcome of their use.

Growth modification in treatment of class II malocclusion: An evidence based approach.
Ahmed Elkhadem1

1University of Cairo

Class II division 1 malocclusion is a common finding in the dental practice. The most common clinical feature associated with class II division 1 malocclusion is a retruded mandible. Two treatment strategies have been advocated to correct the increased overjet associated with this type of malocclusion; one phase and two phase protocols. The choice of treatment timing is dependent on the clinician’s belief whether he/ she is able to influence the mandibular growth or not. This lecture will discuss the notion of “Growth modification” built on recent evidence derived from systematic reviews and randomized controlled trials. By the end of the lecture, the clinician would be able to answer the following question: “Can we really grow mandibles?”
Minimally invasive yet most efficient implant system
Miltiadis M

This is an entry level course designed to get you started. This one day MDI course was
designed to help dentists master the basics of minimally invasive implantology for denture
stabilization. It is held in a classroom-style setting with limited numbers to enable one-on-one
time with the course instructor. MDI Surgical and Restorative protocols are demonstrated
through case slide presentations and hands-on practice.

What participants will learn:
• Indications for MDI Mini Dental Implants
• Clinical evidence / rationale for the use of MDIs
• Successful case selection, surgical considerations and planning strategies
• Theoretical overview of MDI Diagnostic and Surgical protocols for lower denture
  stabilization
• Demonstration of Surgical and Restorative Protocols
• Hands-on practice – Practice the MDI surgical protocol.
• Clinical Tips for Success
• Practice-building demonstration tools

Management of an extraction site in the aesthetic zone: significance to
future implant therapy
Gakonyo M.J1, Mungure E.K2, Kassim B.A3, Mulli T.K4,

1 Presenting Author, Tutorial fellow, department of conservative prosthetic dentistry University of Nairobi
2 Lead Dentist, Kijabe Mission Hospital
3 Lecturer, Department of conservative and prosthetic dentistry, University of Nairobi
4 Senior Lecturer, Department of periodontology/community dentistry and preventive dentistry, University
  of Nairobi

Introduction:
Achieving aesthetics in the anterior region with implant restoration is significantly more
challenging than with conventional restorations. One of the challenges is that the alveolar
process is a tooth dependent tissue that undergoes loss in height and width after extraction of
the tooth, which may complicate ideal implant positioning. Hard and soft tissue therapy during
and following extraction of a tooth can facilitate the achievement of optimal esthetic results.

Methods:
A 23-years-old healthy man presented with a subosseous transverse fracture of a root-
treated, heavily restored upper right central incisor (11). Low trauma extraction of the 11 was
done without elevation followed by thorough debridement of the extraction socket. Primary
soft tissue closure of the socket was done after slightly packing particulate bovine bone. A
temporary ovate pontic was splinted on the adjacent teeth using the patient’s own tooth.
Conventional implant placement, restoration and loading protocols were followed in this case.
Results:
Healing of the grafted extraction socket occurred uneventfully. There was minimal minimal-to-moderated vertical and horizontal ridge reduction as observed during implant placement necessitating additional simultaneous particulate bone grafting. Utilization of a patient’s own tooth as an ovate pontic resulted in maintaining the papillae height. At one year follow up, the implant was found to be free of biologic or prosthetic complications and thus the treatment was considered successful.

Conclusion:
Although grafting of the extraction socket on its own does not preclude ridge resorption, it together with low trauma extraction and primary closure of the surgical site, as demonstrated in this case, is critical if ridge resorption is to be minimized. The patient’s own extracted crown, if modified, can serve as a suitable provisional restoration for soft tissue contouring, temporary function and aesthetics.

Comparison of aesthetic perceptions of single- tooth dental implant restorations as reported by lay people and dental professionals.
Manpreet Kaur Roopra1, Rob Adams2, David Thomas3
1Lecturer, Cardiff University
2Lecturer, Cardiff University
3Head of Department Implantology, Cardiff University

Background/ Objectives:
Benefits of implant restorations over conventional treatment are widely known however aesthetic satisfaction between lay people and dental professionals may vary. Therefore, the objective of the study was to evaluate the difference in the visual perception of single tooth implant restorations in these two distinct groups.

Materials and Methods:
Thirty one participants (15 lay people and 16 dental professionals) were invited to rate 20 clinical photographs of single tooth implants in the upper anterior zone using a survey conducted by the principal investigator. The questions were related to general appearance, tooth shape, gum appearance and tooth colour. The lay people used a visual analog scale (VAS) and the dentists/specialists used both VAS and Pink and White Aesthetic Scores. Non parametric statistical tests were used to compare the VAS scores of lay people and dental professionals, as well as indices scores between general dentists and specialists. Finally, Spearman’s correlation coefficient was used to assess correlations between VAS scores and indices scores of dental professionals.

Results:
Aesthetic ratings of lay people and dental professionals were significantly different in terms of general appearance (p=0.0001), tooth shape (p=0.0057) and gum appearance (p=0.0228), but not tooth colour (p=0.2471). General dentists were more critical than specialists in all assessed variables, except tooth colour (p= 0.1259). Spearman’s correlation coefficient showed high positive correlation between VAS and indices’ scores of dental professionals (0.73 to 0.80).

Conclusions:
Lay people perceive aesthetic outcomes of single tooth dental implants in the anterior aesthetic zone less
critically than dental professionals. Tooth colour does not seem to be judged significantly differently in the two groups. General dentists are more critical than specialists in the evaluation of aesthetics. There is a correlation between subjective assessment and indices suggested in the literature.

Management of orbital trauma
M.K. Akama¹, W. Manana¹, S.W. Guthua¹
¹Dept of Oral & Maxillofacial surgery, SDS, University of Nairobi

Orbital trauma may occur on its own or accompany midfacial trauma. When it occurs, the patient may sustain functional and aesthetic problems. In this article we present surgical approaches to the orbit, reconstruction materials, techniques and management of orbital surgical emergencies.

Occurrence of red complex and Aggregatibacter actinomycetemcomitans among patients with periodontal disease at the University of Nairobi Dental Hospital.
Wambugu J. C.¹, Matu N. K.¹, Mulli T. K.¹, Gathece L. W.¹
¹Department of periodontology/community dentistry and preventive dentistry, University of Nairobi

Introduction:
Periodontal diseases are common worldwide with chronic periodontitis affecting 80% of Kenyans. These diseases carry high morbidity if left untreated. Many microorganisms are involved in periodontal disease causation and progression including a combination of bacteria, which include gram negative bacteria such as the ‘red complex’ (Porphyromonas gingivalis, Treponema denticola and Tannerella forsythia) and Aggregatibacter actinomycetemcomitans. Studies that have described microorganisms in patients with periodontitis in Kenya are based on conventional culturing techniques. PCR was used in this study to better characterise microbial profiles of periodontal disease in patients with periodontal disease at the University of Nairobi Dental Hospital.

Methods:
A descriptive cross-sectional study was carried out between the months of July 2013 and March 2014 at the University of Nairobi Dental Hospital. Using convenience sampling, a total of 92 persons were recruited into the study. After collection of participants’ biodata, periodontal examination including plaque score and gingival index measurement as well as full mouth periodontal probing was done on patients with periodontal diseases and subgingival plaque collected. DNA extraction from collected plaque was done in the laboratory and presence of target bacteria including Aggregatibacter actinomycetemcomitans and Porphyromonas gingivalis was assessed in the laboratory using PCR by utilizing species-specific primers.

Results:
Using the AAP/CDC classification, 35 (38.0%) of participants were found to have mild or no periodontitis; 38 (41.3%) had moderate periodontitis with 19(20.7%) having severe periodontitis. Aggregatibacter actinomycetemcomitans was found in 14 (15.20%) of participants whereas Porphyromonas gingivalis was present in 16 (17.40%) of study participants. Positive associations were found between presence of periodontal pathogens and age, DNA concentration in samples, the gingival index, and increasing periodontal disease severity.
Conclusions:
Majority of participants in this study were found to have either moderate or severe periodontitis as defined by the AAP and CDC. Statistically significant differences were found between the severity of periodontitis in those participants who were found to have *Aggregatibacter actinomycetemcomitans* and *Porphyromonas gingivalis* and those in whom the bacteria were absent. Positive association was therefore drawn between occurrence of the bacteria and periodontitis.

**Long term use of Khat (cadha edulis) induces abnormal Kerasination of the buccal mucosa**

Lukandu O.M.¹, Koech L.S.¹

¹Moi University School of Dentistry, Eldore Kenya

**Introduction:**
Khat (cadha edulis) is a shrub of the Celastraceae family which is classified a drug of abuse in some countries because it contains cathinone, a compound that elicits a feeling of euphoria comparable to amphetamine. Various effects of Khat have been observed in various parts of the body including the oral cavity where Khat chewing has been suggested as a potential risk factor for oral cancer.

**Objective:**
To investigate the clinical and the histopathological effects if Khat on the buccal oral mucosa of chronic Khat chewers.

**Methods:**
44 chronic Khat chewers and 20 non khat chewers were recruited and clinical photographs as well as biopsy samples of their buccal mucosa collected. Comparisons from specimens of Khat chewers, Khat chewers who also smoke tobacco and not Khat chewers were done for colour variations, morphological features epithelial thickness as well as differentiation purposes.

**Results:**
Khat chewers showed varying degrees of mucosal white and brown discolouration when compared to non chewers, and the changes were more severe in Khat chewers who also smoked tobacco. Mean total epithelial thickness were reduced in Khat chewers when compared to non chewers, but this difference was not significant in Khat chewers who also smoked Khat. Tissues from Khat chewers showed abnormal epithelial differentiation with hyperkeratinisation and increased thickness of superficial cell layer when compared to tissues from non chewers. Abnormal morphology of rete pegs and intracellular edema was noted in Khat chewers and Khat chewers who also smoked tobacco.

**Conclusion:**
This study provides evidence of specific negative effects on oral mucosal tissues and raise concern about about potential harmful effects of long term Khat use on oral health.
Primary Intra-osseous squamous cell carcinoma arising from Keratocystic Odontogenic: a case report
Lukandu O.M.¹ and Micah C.S.¹
¹Moi University School of Dentistry, Eldoret, Kenya

Introduction:
Primary intra-osseous squamous cell carcinoma (PIOSCC) is a carcinoma arising within bone without any initial connection to the various epithelia in the body. It is a very rare condition that almost occurs exclusively in the jaws where it develops from intra-osseous remnants of odontogenic epithelium and various ontogenic and pathological conditions.

Case Report:
A 32 year old female patient presented with an asymptomatic right mandibular swelling in 2012, which on histology revealed empty spaces lined by stratified squamous parakeratinised odontogenic epithelium which palisaded basal cells, uniform in thickness highly folded and friable, and was diagnosed as KCOT. Segmental resection of the mandible was planned, but the patient disappeared only to show up in 2014 with a much larger swelling on the right mandible. On the basis of the previous histological diagnosis, a right hemi-mandibulectomy with disarticulation of the affected TMJ was done, and the specimen was sent for histopathological analysis. This revealed a pattern of dense highly folded squamous epithelium that was mainly non-keratinizing, but parakeratinized in a few areas. The intense folding of the epithelium obliterated cystic spaces leaving only small clefts in a few areas which contained small amounts of keratin and degenerating cells. In other sections, the tumor presented other invasive fronts of neoplastic squamous epithelium composed of small sheets in cells and islands with marked nuclear pleomorphism, hyperchromatism, atypia, and bizarre mitotic figures. A diagnosis of infiltrative squamous cell carcinoma was made. The patient is still undergoing follow up.

Conclusion:
This case report highlights the importance of early diagnosis and management of benign odontogenic tumors, and the potential risk of malignant transformation where treatment is delayed.

Ion release profile of strontium substituted GICs
O.A. Osiro¹, R.G. Hill², A. Bushby³
¹Tutorial Fellow, Dep’t of Conservative and Prosthetic Dentistry, University of Nairobi Dental Hospital; ²Professor of Physical Sciences in Relation to Dentistry, Dental Physical Sciences Unit, Queen Mary, University of London; ³Reader in Materials, School of Engineering and Materials Science, Queen Mary, University of London.

Introduction:
The aim of this study was to investigate the effects of substituting strontium for calcium on the ion release profile of high viscosity glass ionomer cements. This was motivated by the recent evidence showing that strontium has remunerating ability that is synergistic with fluoride, is antibacterial and radiopaque; therefore the need to investigate how its incorporation in varying amounts would affect glass structure and cement properties.
Methods:
A series of glasses in which strontium substitutes for calcium and based on the general formula: \(4.5\text{SiO}_2 - 3\text{Al}_2\text{O}_3 - 1.25\text{P}_2\text{O}_5 - x\text{SrO} - y\text{SrF}_2 - z\text{CaO} - y\text{CaF}_2\), where \(x = 0, 0.5, \) or 3; \(y = 0, 1\) or 2; and, \(z = 0, 1.5, \) or 3, corresponding to 0, 50 and 100% substitution were synthesized; the powders were characterized by X-ray diffraction (XRD), particle size analysis and thermal analysis. The powders were mixed with PAA and aqueous tartaric acid to form cements whose ion release profiles were studied by fluoride ion selective electrode and Inductively coupled plasma/Optical emission spectroscopy at specific time points of 3, 7, 10, 14, 21 and 28 days.

Results:
XRD confirmed the amorphous nature of the glasses, while the thermal analysis showed a mixed alkaline/entropic effect on the glass transition temperature. The particle sizes were found to be within the range acceptable for restorative cements. The fluoride release profile of these cements appeared to be diffusion-controlled rather than dissolution-controlled, while strontium release was directly proportional to the amount of strontium in the glasses.

Conclusions:
The results of the study suggest that substitution of strontium for calcium enables the controlled release of strontium which may have an important cariogenic role particularly in combination with fluoride.

Stem Cells Harvesting
Lubna Khawaja
Clear Path Orthodontics (K) Ltd.

In this presentation Dr Lubna Khawaja will take you through familiarization with stem cell harvesting from deciduous teeth.
Learning objectives
- Stem cells, a future in regenerative medicine
- Unique properties and types of stem cells
- How stem cell therapy works
- Current stem cell therapy

Adult Orthodontic Treatment
Dipak Chudasama

In this presentation, Dr. Chudasama will take you on a tour of the ‘Nuts and Bolts’ of Adult Orthodontic Treatment and will demonstrate strategies for efficient treatment planning. He will discuss the use of treatment simulations for occlusal design and smile analysis, focusing on clinical decision making by presenting alternative treatment scenarios for surgical and non-surgical approaches. Communication tools for multi-disciplinary case presentations utilizing 3D also will be discussed.

Learning Objectives:
- Employ a systematic and efficient treatment planning workflow
- Plan and communicate treatment strategies
- Utilize 3D planning as a tool to achieve more consistent treatment outcomes
INFORMATION FOR CONTRIBUTORS

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2. World Health Organization. World Health Report (Online) 2005. URL: http://www.who.int/whr/2005/r; accessed on 05.06.05.

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