



 $26^{th}$  International Conference on

## **Advanced Dental Care**

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Hyun Duck Kim et al., Dent Craniofac Res 2018, Volume 3 DOI: 10.21767/2576-392X-C4-012

#### Association of tooth brushing and proximal cleaning with periodontal health among Korean adults: Results from Korea National Health and Nutrition Examination Survey in the year 2010 and 2012

#### Hyun Duck Kim, Jung Hoo Lee, Yoo Jin Shin and Jongho Lee

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**Aim:** Tooth brushing (TB), dental flossing (DF) and inter-dental brushing (IDB) are regarded as fundamental self-care methods for periodontal health. Few evidences on its effectiveness on periodontal health are available. Hence, this study aimed to evaluate the association of TB, DF, IDB and interaction effect with periodontal health.

Materials & Methods: The nationally representative 4,766 Korean adults aged 19 years and older were cross-sectionally surveyed in 2010 and 2012 respectively. Periodontal health was defined as Community Periodontal Index 1-2 for gingivitis and 3-4 for periodontitis. The information about variables were from interview and blood analyses. Multivariable logistic regression analyses and the interaction effect between TB and proximal cleaning (PC: DF and/or IDB) were applied.

**Results:** TB thrice or more per day and DF were associated with a lower prevalence of periodontitis by both 44%, while the preventive fraction of DF on gingivitis was 30%. The preventive fraction of

interaction effects between TB thrice or more and PC were 78% for periodontitis and 68% for gingivitis among 40-59 year age group.

**Conclusions:** TB and PC are independently associated with periodontal health. Hence, periodontists should be recommended TB thrice or more per day and PC such as DF and IDB to promote periodontal health.

#### Biography

Hyun Duck Kim obtained Doctor of Dental Surgery specializing in Public Health Dentistry and PhD in Epidemiology from Seoul National University School of Dentistry (SNU SOD), Republic of South Korea. He worked as a Visiting Scientist at Harvard School of Dental Medicine in 1998-1999 and 2006-2007, and at University of North Carolina in 2000 respectively. He is currently a Tenure-Track Professor in the Department of Preventive and Social Dentistry, SNU SOD. He serviced as Vice-Dean during 2010-2011 and the Chairman of the Department of Preventive and Social Dentistry during 2012-2013. He has served the Korean Academy of Preventive Dentistry as the President during 2014-2016.

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### Preparation of a bioactive and degradable 70poly (40lactic-co-60glycoric acid)/30(75SiO<sub>2</sub>-25CaO) composite with dual pore structure

#### Sang Hoon Rhee<sup>1</sup>, Suk Young Kim<sup>2</sup> and In Hwan Song<sup>2</sup>

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he bone grafting materials must have porous structure because it induces the growth of blood vessels into the material. Mooney et al. reported the method to produce porous structure in PLGA scaffold by the expansion of CO, gas in high pressure chamber. The CO, has some solubility in the PLGA. Thus, when the high pressure of CO, is applied to the PLGA scaffold and then released quickly, it becomes to expand in the PLGA matrix. Resultantly, the pores are developed at the places where the gas existed. However, the disadvantage of this method is that it is also hard to connect between the pores. Thus, the salt leaching method is combined together to make porous structure. However, there has been no report to apply this method to make a porous bioactive composite material. In this study, we prepared the PLGA/ calcium silicate composite by the solvent casting method and then a gradient pore structure was introduced using the expansion of CO<sub>2</sub> gas in a high pressure chamber. The 70Poly(40Lactic-co-60Glycoric Acid)/30(75SiO,-25CaO) composite, which have a gradient pore structure, was newly prepared by the expansion of carbon dioxide gas in the PLGA matrix. The bioactive 75SiO,-

25CaO (in wt.%) particles were made by a sol-gel method from tetraethyl orthosilicate and calcium nitrate tetrahydrate under acidic condition followed by the heat treatment at 700°C for 1 h. The 70Poly (40Lactic-co-60Glycoric Acid)/30(75SiO<sub>2</sub>-25CaO) composite was then prepared by a solvent casting. The composite was loaded into the high pressure chamber and then  $CO_2$  gas was introduced achieving a final pressure of 15 MPa. After 3 days, the gas was released quickly and the gradient pre structure was developed. The samples were observed by FE-SEM and its bioactivity was tested in SBF.

#### Biography

SangHoon Rhee has completed his PhD at the age of 34 years from Seoul National University and postdoctoral studies from National Institute of Materials Science. He is the professor of School of Dentistry, Seoul National University. He has published more than 70 papers in reputed journals and has been serving as an editorial board member of International Journal of Biomaterials and Journal of Biotechnology and Biomaterials.

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## Case report of impacted bilateral mandibular fourth molar

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Supernumerary teeth are a rare dental anomaly in maxilla and mandible can be classified by shape and by position in the jaw. It might cause complication such as caries, perio dental disease, and delay or impaction of permanent teeth. Supernumerary tooth or hyperdontia is not as common as hypodontia. The prevalence in primary dentition .2% to .8% and in the permanent dentition .5% to 5.3% with geographic variation. The fourth molar is a kind of supernumerary tooth that have been classified as a type of paramolar or distomolars tooth. This is a case report of a 20 years old female patient (medically fit) who came to the dental clinic complaining of pain in the lower right quadrant upon clinical examination and routine radiographic examination revealed impacted third molar and unerupted bilateral mandibular fourth molar orthopantogram (OPG). X-ray showed this rare case of

unerupted bilateral distomolar in mandible without any associated syndrome. This case report discusses the diagnosis and treatment of this rare case of impacted bilateral mandibular distomolar and in what condition shall we keep the fourth molar or extracted.

#### Biography

Badria Al Matrafi pursued her BDS (1991) at King Saud University, Riyadh, KSA and Academy of General Dentistry Certificate (2000) from University of Southem California, USA. She is a Consultant in Restorative dentistry at Riyadh Military Hospital, Riyadh, KSA. She was a Director of officer dental clinic and has several years of teaching and clinical supervision experience. She is a member of infection control team.

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Al Quzweeni Ahmed et al., Dent Craniofac Res 2018, Volume 3 DOI: 10.21767/2576-392X-C4-012

# *In vitro* comparative assessment of the effect of gutta-fusion obturation on the push out bond strength of three types of sealers

#### Al Quzweeni Ahmed<sup>1</sup> and Al Hashimi Raghad<sup>2</sup>

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**Background:** The bond strength of the root canal sealers to dentin is very important property for maintaining the integrity and the seal of root canal filling.

Aim: The aim of this study is to evaluate and compare the pushout bond strength of root filled with total fill bioceramic (BC), AH Plus and Gutta-flow®2 sealers using GuttaFusion® obturation system versus single cone obturation technique.

Materials & Methods: Sixty of mandibular premolars teeth with straight roots were used in this study, these roots were instrumented using RECIPROC® system, instrumentation were done with copious irrigation of 3 mL 5.25% sodium hypochlorite solution (NaOCI) during all the steps of preparation, and smear layer will be removed with 1 ml of 17% EDTA kept in the canal for 1 min, roots were randomly divided into two groups according to the obturation technique (thirty teeth for each group): Group I: Single RECIPROC® Gutta percha cone obturation technique, Group II: Gutta fusion obturation technique, then each group divided into three subgroup according to the type of sealer, AH subgroup: AH Plus sealer, BC subgroup: bioceramic sealer and GF subgroup: Gutta flow 2 sealer. The roots then stored in moist environment at 37°C for one week, the roots were embedded in clear acrylic resin and each root sectioned into three levels apical, middle and cervical. The bond strength was measured using computerized universal testing machine each section fixed in the machine so that the load applied from apical to cervical direction at 0.5mm/ min. speed and the computer show the higher bond force before

dislodgment of the filling material. These forces were divided by the surface area to obtain the bond strength in MPa.

**Results:** Statistical analysis was performed and the result showed a highly significant differences between the three types of sealers when the same obturation technique were used, also there is highly significant differences between two groups with two different obturation technique.

**Conclusions:** This study showed that the push out bond strength of AH plus sealer was higher than bioceramic sealer and Gutta flow 2 sealer respectively when the same obturation technique was used. The push out bond strength was affected by the obturation technique and Gutta fusion obturation technique showed higher bond strength than single cone obturation technique when the same type of sealer was used.

#### Biography

Ahmed pursued his BDS in Conservative dentistry from College of Dentistry at Kufa University; MSC from University of Baghdad, Iraq respectively. He is currently the Assistant of the Head of Conservative Department, College of Dentistry, Kufa University. He has organized many international dental conferences in Iraq. He is the head of resident dentists at the specialized dental center in Najaf 2011-2012, He is the head of the Information Division, College of Dentistry, University of Kufa, 2013, He is a Member of the Organizing Committee and participant in Najaf International Dental Conference, 2016.

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# The effect of finishing line designs and occlusal surface reduction schemes on vertical marginal fit of full contour CAD/CAM zirconia crown restorations (a comparative *in vitro* study)

#### Lena S Abdulla and Adel F Ibraheem

University of Baghdad, Iraq

**Purpose:** The purpose of this study is to evaluate and compare the effect of using different finishing line designs (deep chamfer and shoulder) with different occlusal surface reduction schemes (planar and flat) on the vertical marginal fit of full contour CAD/ CAM zirconia crown restorations.

Materials & Methodology: Thirty-two sound maxillary first premolar teeth of comparable size and shape freshly extracted for orthodontic purposes were collected to be used in this in vitro study. To minimize confounding variables, one-way ANOVA test was performed for each dimension and no statistically significant difference was found among the four subgroups. Teeth were divided into two main groups according to the design of finishing line used (n=16): Group A: Deep chamfer; Group B: Shoulder. Each group was then subdivided into two subgroups according to the scheme of occlusal reduction used (n=8): (A1, B1) Planar; (A2, B2) Flat. Standardized preparation for full contour zirconia crown restorations was carried out with finishing lines depth 1.0 mm, total convergence angle of 6 degrees and axial height 4 mm (buccally and palatally). The teeth were then scanned directly using digital intra-oral scanner technique (Sirona AC Omnicam camera). Full contour zirconia crowns were then fabricated using Sirona In-Lab MC X5 milling device. Vertical marginal gaps were measured at four points on each tooth surface using a digital microscope with a magnification of (280X).

**Results:** The results of this study showed that there were statistically highly significant differences (p<0.01) using one- way ANOVA analysis and Student's t-test.

**Conclusions:** Deep chamfer with planar occlusal reduction scheme provided better marginal fit compared to that obtained with shoulder. On the other hand, shoulder with flat occlusal reduction scheme provided better marginal fit compared to that obtained with deep chamfer.

#### Biography

Dr. Lena studied B.D.S in dentistry at Al Yarmouk University College, Lena S Abdullah pursued her Master' Degree in the Department of Restorative and Aesthetic Dentistry from the College of Dentistry at the University of Baghdad, Iraq & she is a specialist dentist (M.Sc.) in conservative and esthetic department, she has a specialized dental health center in Morocco Street. Baghdad Health Department Rusafa Municipalities Sector & Specialty Dental Center in Alawiya from 2012 to 2013 in Baghdad, Iraq.

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## Oral and maxillofacial manifestations of autoimmune diseases

#### **Jimmy Kayastha**

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Since the beginning of modern healthcare, medicine and dentistry have existed as separate healthcare domains. The systemic separation began a century ago, and health care policy has historically reinforced it. While this separation appeared to serve well for many years, significant changes in healthcare have occurred and this separation is now obsolete and may be harmful. This artificial division of care into organizational silos ignores the fact that the mouth is part of the body. The emergent understanding of how oral health affects overall health, and vice versa, suggests that continuation of this separation leads

to incomplete, inaccurate, inefficient and inadequate treatment of both medical and dental disease. We are entering the era of accountability and need to focus on oral and craniofacial health as well as its connection to systemic health, research and education. Even though technology and the market are constantly changing, there is one thing which always remains the same – the human concern for health. The strength of overall healthcare in a community relies on an interdisciplinary approach. Its integration.

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## Monolithic prosthesis, strength, asthetics and functionality

#### **Belal Saleh**

New York University, USA

Monolithic prosthesis are a breakthrough technology in the dental field. The author believes that there is a lack of understanding among dental professionals specifically dental technicians regarding the advantages and disadvantages of layered versus monolithic crowns and bridges. As a result, there is an increase in the percentage of unsuccessful cases. With that said, the author found it imperative to acquire effective knowledge

of the wide range monolithic prostheses, their clinical indications, strength, and proper usage, in comparison to conventional layered technique. This vision will be met by providing many thesis, experiences, and researches on the matter supporting and insuring the effectiveness of using monolithic prosthesis in the dental field.

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## To improve access and experience of those with dementia accessing high street dentistry

#### Samantha Glover

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To improve access and experience of those with dementia accessing high street dentistry.

Method A suite of resources were created to help support those living with dementia access dental services.

- · Flash cards for aided conversations
- Making a best interest decision flowchart for dental professionals
- Top Tips for dentists to support a patient with dementia

**Result:** Some of these resources are now also being used by the learning disabilities network and the local dental community are sharing these resources electronically

**Conclusion:** These resources could be adapted slightly to suit the needs of all vulnerable adults are shared more widely with dental care professionals and those who support others to access dentistry.

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## Endodontic glide path, why is it important?

#### Fayeq Migdadi

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The purpose of endodontics is to prevent or heal lesions of endodontic origin. In order to achieve this purpose, the root canal system must be successfully obturated. In order to be obturated, the root canal system has to be successfully 3-dimensionally (3D) cleaned and rotary shaped. In order to be 3D cleaned and rotary shaped, a Glide path has to be successfully prepared and so the Glide path is the answer. It is the starting point of radicular preparations. Without it, cleaning and shaping become unpredictable or impossible because there is no guide for endodontic mechanics. The amazing fact is that the subject of Glide path has no formal training in the endodontic curricula of most dental schools. In fact, a PubMed Central search of Glide path and endodontics reveals 300 references. However, none of them actually describe how to prepare a Glide path. Most of the references say something like, "Of course you must first make a Glide path. That's all. This presentation will try to answer the following questions: 1. What is a glidepath? 2 Why is the endodontic glidepath important? 3. How does the dentist predictably prepare the glidepath? 4. Glidepath techniques.

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## Early treatment in orthodontics: Between practice and evidence

#### Ahmed Hennawy

Suez Canal University, Egypt

The early treatment in orthodontics is one of the important challenging topics in practicing orthodontics since it lies in a foggy zone between the practices in different specialties, general dentist, pedodontist and the orthodontist, early treatment aims primarily to prevent and correct "bite" irregularities. Several factors may contribute to such irregularities, including genetic factors, the early loss of primary (baby) teeth, and damaging oral habits (such as thumb sucking and developmental problems), many researches have been done on the interventions used such as timing, most effective methods of doing this since the evidence is dynamic, author has done his best to update the lecture with the most recent, strong evidence, so the audience is provided with updated knowledge patient centered answers for daily clinical situations. Teaching points of this presentation will include the following: in general he will use the paradigm of why, when, how, and what is next for any intervention will be used and this according to the recent evidence; crowding management in mixed dentition, serial extraction procedure, indications and steps; space management (regaining and maintaining); treatment of skeletal problems, best practices and recent evidences; habits management, step by step, habits breaking appliances; correction of cross bites, steps and appliances will be discussed.

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### Intra-oral welding

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Oral implantology has established itself over the last few decades as the best treatment line chosen to replace missing teeth. A load free healing period has been advocated in the past, as a pre-request to achieving osseointegration. However, in recent years immediate loading protocol has become more acceptable as a standard protocol for the treatment of fully and partially edentulous patients. The disadvantages of patients wearing removable dentures as a provisional or staying edentulous during the healing phase will not be necessary; if simple guidelines of immediately loaded implants are followed, the implants should achieve primary stability upon insertion, they should be rigidly splinted around the curvature of the arch and the temporary prosthesis should not be disturbed during the healing phase. If these simple procedures are followed, immediate loading can be a predictable treatment modality. Forthwith the question shifts from whether to immediately to immediately load or not? to which technique will be utilized to immediately load dental implants with great prognosis? Intra-oral welding has established itself as one of the most predictable manners that can be utilized for immediate loading. Intra-oral welding provides a stable and passively fitting framework for temporary or durable prosthesis for immediate restorations on the same day of surgery. It is a fast and economical solution to deliver partial and full arch restorations suitable for immediate or late loading.

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## Bioceramics as an innovative savior for perforation repair

#### Mahmoud Badr

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**Purpose:** The purpose of this study is to compare the effect of two bioactive bioceramic materials on the repair of furcation perforation.

Materials & Methods: Ninety-six teeth in 6 dogs were divided into two main groups according to the time of repair; immediate and delayed (one month). Each group was divided into three subgroups according to the evaluation period; one, two and three months. Each subgroup was further divided into two subgroups according to the material used; Biodentine and MTA (mineral trioxide aggregate). Each subgroup was evaluated radiographically to assess bone change percentage, histologically to assess the inflammatory cell count and immunohistochemically to assess the hard tissue formation. Data were analyzed using ANOVA and Tukey's test. **Results:** The evidence of new hard tissue was noticed with no significant difference between Biodentine and MTA (P=0.523), both found with highest deposition of hard tissue. Time of repair and the evaluation period showed statistical significant effect on the bone change percentage, the inflammatory cell count and the hard tissue formation.

**Conclusions:** Furcation perforation has poorer prognosis if the perforation site is not immediately repaired. New hard tissue prevalence increased throughout the evaluation periods. Both tested materials; Biodentine and MTA promote hard tissue formation.

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# *In vitro* migration dynamics of gingival mesenchymal stem cells through micro perforated membranes

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**Background:** Migration through micro-perforated membranes might help in managing the periodontal defect isolation from surrounding regenerative elements problem caused by guided tissue regeneration occlusive membrane. Macro-perforated membrane affect the membrane mechanical properties and abolish its barrier effect against gingival epithelium and extracellular matrix components.

Materials & Methods: Gingival mesenchymal stem cells were seeded on the upper chambers of collagen-coated polytetrafluoroethylene trans-wells with readymade pore diameters of 0.4, 3 and poly carbonic acid trans-wells with readymade pore diameters of 8 microns. Bovine serum was added to culturing media in the lower chambers versus plain media in control groups. Migrated cells were counted, proliferation evaluated using MTT assay. Scanning electron microscopic images of the lower surface of perforated trans-well membranes were obtained.

**Results:** Gingival mesenchymal stem cells migrated more significantly in FBS chemotaxis groups compared to the control groups. 8 microns perforated membrane groups showed statistically significant more cell migration compared to 3 and 0.4 microns groups, scanning electron microscope images confirmed cells migration through the perforations.

**Conclusions:** This study results demonstrated that micro membrane perforations of 0.4, 3 and 8 microns are suitable pore diameters for gingival mesenchymal stem cells migration to chemotactic media, and are occlusive for cell migration in negative control, without affecting membrane mechanical or occlusive properties, which can be used to develop GTR membrane with selective cell migration ability.

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### Mandibular ramus as dimorphic tool in age and sex determination: A cross sectional radio-anthropometric study on digital panoramic radiograph

#### **Akhilanand Chaurasia**

King George's Medical University, India

**Objectives:** This research article focuses on prediction of age on the basis of maximum ramus breadth, minimum ramus breadth, condylar height, projective height of ramus and coronoid height. (Linear regression analysis). However, it also determines sex of individual on the basis of discriminant function analysis using Fischer exact test using maximum ramus breadth, minimum ramus breadth, condylar height, projective height of ramus and coronoid height.

**Materials & Methods:** The orthopantomograms of 200 subjects were taken from Planmeca Promax-dimax4 OPG machine at 66 Kvp, 8mA and exposure time 16 sec. All the measurements are done on digital orthopantomograms using Planmeca Romexis 3.2.0R software. The measurements of the mandibular ramus will be subjected to discriminant function analysis.

**Results:** The study sample consists of 200 subjects aged between 8 to 82 years with a mean age of 38.21±17.12 years. The

persons correlation coefficient (r) between age and minimum ramus breadth was not significant correlation however the maximum ramus breadth, condylar height, coronoid height and projective height were directly associated with age and demonstrate a significant positive relation in maximum ramus breadth, condylar height, coronoid height and significant positive relation in projective height. The maximum ramus breadth, min ramus breadth, condylar height, coronoid height and projective height values were greater in males than females. The difference in maximum ramus breadth, minimum ramus breadth, condylar height, coronoid height and projective height values in males and females were statistically significant (P<0.05).

**Conclusions:** Mandibular ramus can be a useful tool for age and sex determination in forensic science. Thus, medicolegal cases having age and sex issues can be resolved with measurements of mandibular ramus if panoramic radiograph is available.

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## Impact of periodontal disease on systemic health: An insight into the perplex

#### **Kalpak Peter**

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hronic diseases are a growing burden to people, health care Systems and to societies across the world. Over the years these diseases have inflicted and have been increasing in all parts of the globe. According to World Health Organization major chronic diseases currently account for about 40% and by the year 2020 it is expected to rise to 60% of the global burden of all the disease. The most prominent of these diseases are cardiovascular diseases, cancer, chronic obstructive pulmonary disease, and diabetes mellitus which are linked by common biological and behavioural risk factors. Periodontal disease is a ubiquitously prevalent oral disease and as well it contributes to the global burden of chronic diseases. This disease affects a large population and presents a major public health problem worldwide. Interestingly both periodontal disease and other prominent systemic chronic diseases share exchangeable risk factors with each other. This interplay of common and modifiable risk factors between periodontal disease and other systemic diseases can lead to distinct health profiles at country and community levels. Throughout the history of mankind there has been a belief

that oral diseases can have an effect on overall health. We are aware that, in many ways, certain aspects of this doctrine have been part of dentistry for a long time. The possible contribution of oral bacteria in periodontal pockets to bacterial endocarditis has been acknowledged for decades. Additionally in a converse relationship, the contribution of systemic diseases, such as diabetes, to the severity of periodontal disease has also been recognized for many years. However, the present paper confronts an altogether broader perspective wherein it focuses on recent research that increasingly substantiates a role for periodontitis in affecting systemic health. Agonistically, over the years oral health has been invariably neglected in health care system and therefore in this era of modern medicine, dentistry necessitates to be elevated to the forefront in delivering optimum healthcare to the population worldwide. This monograph is therefore intended to shed light on perplex of the relationship between periodontal disease and various systemic diseases and to understand the potential influence of periodontal disease on systemic health.

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### Effects of different bone allografts with and without growth factors on proliferation, osteogenic differentiation and mineralization of MG-63 osteoblast-like cells

#### Surena Vahabi, M Torshaby and A Esmailnejad

Shahid Beheshti Medical University, Iran

**Background:** Predictable regeneration of alveolar bone defects has always been an important therapeutic challenge in implant dentistry. Allografts including FDBA and DFDBA are some substitutes being widely used and reported as having osteoinductive activities with some degrees of controversy.

**Aim:** The aim of this study is to determine the effect of growth factors (GFs) on osteoinductive activities of different bone materials.

Materials & Methods: MG-63 cells were exposed to 60 mg amounts of four different commercially available freeze-dried bone allografts with or without 5 ng/mL of two growth factors (singular or in combination). After 24 and 72 hours of incubation, the effect of water-soluble allograft released materials and soluble growth factors on cell viability and proliferation was assessed using methyl thiazol tetrazolium (MTT) assay. Cell differentiation and mineralization was respectively assessed by real-time quantitative reverse transcription PCR (qRT-PCR) and alizarin red staining after 72 hours of exposure.

**Results:** The effect of different GFs on cell/allograft containing plates was affected by the allograft type. Early proliferative and late osteoinductive effects of GFs were more consistent in TGF- $\beta$  rather than PDGF. PDGF only showed limited osteoinductivity in terms of accelerating BSP and OC genes.

**Conclusions:** Based on the results of this study, TGF- $\beta$  can have additional osteoinductive effect on allografts/cells combination and its application may be beneficial in *in vitro* and clinical regenerative studies.

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### 3D cephalometric analysis based on phasebased volume stitching using two small field-ofview datasets of dental cone-beam CT

#### Hyosung Cho

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Conventional lateral cephalometric in a dental panoramic X-ray Unit has popularly been used for orthodontic assessment, treatment, and follow-up of patients. Dentists, however, hope for three-dimensional (3D) cephalometric images to achieve more accurate presurgical assessment and planning. In this study, we investigated a method to obtain 3D cephalometric images using two small field-of-view (FOV) datasets of cone-beam computed tomography (CBCT). The method involved two separate small-FOV (9-cm high × 16-cm wide) CBCT scans, first centered on the lower part of the head in natural upright position and then centered on the upper part in tilted position, and a phasebased volume stitching technique. We performed a systematic simulation and experiment to validate the proposed method and evaluated the image characteristics. In the experiment, we utilized a commercially-available dental CBCT system that consisted of an X-ray tube operated at 70 kVp and 5 mA and a flat-panel detector having a 198- m pixel resolution. The results indicated that the proposed method effectively achieved 3D extended-FOV cephalometric images covering all the necessary facial structures from the larynx to the forehead.

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## Financial management in dental practices in South Africa

#### Thembeka Buleni

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Dentists undergo six years of training in dentistry; however there is not one module in dental practice about financial management. A gap has been identified in the area of financial management in dental practices and how it is affecting practices in South Africa. Small dental surgeries are regarded as Small and Medium Enterprises (SMEs) in South Africa, which have developed strongly and contributed to creating employment. However, SMEs have encountered difficulties on the way to development due to a lack of management experience and financial resources (BANKSETA, 2012). As a result, SMEs, including dental practices, often face financial obstacles during their operations. The objectives are to explore and describe the phenomenon 'financial management' in the context of small dental practices, by identifying whether dentists and receptionists are adequately trained in financial management. Also examines the extent to which dentists are managing their practices or

SMEs and their full understanding of financial management and practice management. It also explores the dentists' perceptions and views on financial management. The findings provide an understanding of the current financial management practices by receptionists' and dentists. It was found that most dentists did not receive financial management training in undergraduate dental school and had not sought further learning in this field. The dental receptionists were qualified with certain certificates and they also had no relative training and experience. The results of the research can be further used as guidance for future actions to improve financial management in small dental surgeries in South Africa.

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## **Advanced Dental Care**

October 08-09, 2018 Moscow, Russia

Dent Craniofac Res 2018, Volume 3 DOI: 10.21767/2576-392X-C4-012

### The comprehensive and multidisciplinary dental treatment of special needs and high risk medically compromised children

#### Joseph Shapira

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The close relationship between dentistry and medicine that has been built up during the past 20 years - especially concerning the control of pain, anxiety and stress – has made significant advances in the dental care given to children with special needs, and to the millions of developmentally disabled and medically compromised patients to whom such treatment has not been available in the past. The presentation describes years of clinical experience and treatments given by author's colleagues and himself to these underserved children in the Department of Pediatric Dentistry of the Hebrew University-Hadassah School of Dental Medicine, Jerusalem, Israel. This presentation gives the theoretical background as well as shows - containing over 10 movies - samples of the various behavioral management techniques and sedative modalities that we use, and explains why and how we as a multidisciplinary team of dentists work together: Pediatric Dentists, Orthodontists and Oral Surgeons all dealing with the difficulties of managing patients with disabilities. Today, the trend among parents and caregivers of patients with special needs is to provide them with a comprehensive, efficient and well planned dental care. This can only be achieved by a team, capable of dealing with the complexity of the problems presented by these very special patients.

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## Dental and craniofacial manifestations in rare genetic thin bone disorders in SA

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**Introduction:** The prevalence of Osteogenesis imperfecta type III (OI III) as a category of the inherited connective tissue disorders in South Africa is of paramount importance. Although worldwide, autosomal recessive (AR) OI is rare, it had emerged that the frequency of OI III is relatively high in the indigenous Black African population of South Africa. A review of the literature revealed a paucity of information regarding the dental and craniofacial manifestations of the disorder in this ethnic group. For these reasons, the central theme of this project was the identification, documentation and analysis of these features in individuals with OI III in the Black African population of SA.

**Methodology:** Documentation of the dental and craniofacial phenotype and the correlation with the genotype in affected persons is a major objective of this study. A total of 64 Black African affected persons with OI III were assessed. In addition 5 persons of Cape Mixed Ancestry (CMA) and 3 Indian individuals were investigated. By reason of their similarity to OI, three very rare autonomous genetic thin bone disorders, Pyle Disease, Osteolysis (Torg-Winchester Syndrome) and Osteoporosis-pseudoglioma Syndrome were also investigated and documented in this project. The study had a clinical, imaging and genetic component in which dental and craniofacial abnormalities in affected persons were locumented. Although radiographic resources were limited, 15 CBCT images, 20 panorex and 20 cephalometric radiographs were obtained.

**Results:** Specific mutations in the *FKBP10* gene were detected in 27 Black African persons of the total 72 individuals with OI III. Autosomal recessive OI III in the Black African population of SA has been shown to be caused by mutations in the *FKBP10* gene. *FKBP10* is one of the newer members of an expanding list of AR OI genes with the gene map locus 17q21.2. This gene encodes an extracellular matrix protein FKBP65. In terms of genotypephenotype correlations in the Black African population group with OI III, 23 persons with the homozygous mutation, FKBP10\_HOM\_c. [831dupC][831dupC], 3 persons with the compound heterozygous mutation, FKBP10\_CHET\_c.[831dupC][831delC] and 1 person with the compound heterozygous mutation, FKBP10\_CHET\_c. [831dupC][1400-4C>G] were identified.

**Conclusion:** In South Africa, a developing country, the allocation of resources in terms of specialized dental facilities is limited. Socioeconomic barriers also exist with patient access to dental care. The previously neglected dental and craniofacial abnormalities documented in this study emphasizes the importance of a raised level of awareness in terms of dental management and the possible challenges that may be encountered.

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### An evaluation of two types of nickel-titanium wires in terms of micromorphology and nickel ions release following oral environment exposure

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**Aim:** This study aimed to compare superelastic and heatactivated nickel-titanium orthodontic wires surface morphology and potential release of nickel ions following exposure to oral environment conditions.

**Methodology:** Twenty four 20-mm- length distal cuts of superelastic (NiTi Force 1) and twenty four 20-mm- length distal cuts of heat activated (Therma – Ti lite) nickel titanium wires (American Orthodontics, Sheboygan, Wisconsin, USA) were divided into two equal groups:12 wire segments passively exposed to oral environment for 1 month. Scanning electron microscopy were used to analyze surface morphology of the wires which were immersed in artificial saliva for 1 month to determine potential nickel ions release by means of atomic absorption spectrophotometer.

**Results:** Heat-activated nickel-titanium (NiTi) were rougher than superelastic wires, and both types of wires released almost the same amount of Ni ions. After clinical exposure more surface roughness was recorded for superelastic NiTi wires and heatactivated NiTi wires. However, retrieved superelastic NiTi wires released less Ni ions in artificial saliva after clinical exposure, and the same result was recorded regarding heat-activated wires.

**Conclusions:** Both types of NiTi wires were obviously affected by oral environment conditions, their surface roughness significantly increased while the amount of the released Ni ions significantly declined.

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