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Presentaciones Orales

Depth of cure comparasion of posterior composite 3M Espe Filtek P60® with halógen lamp Coltolux® and led lamp Fivo®

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Objectives: The study is based on comparing the depth of cure achieved at different times (10 and 20 seconds) by 2 types of lamps on the market, using a LED lamp brand Fivo and halogen lamp brand Coltolux.
Methods: We used 60 samples of 3M Espe Filtek P60 composite, which were divided into 4 groups. They were placed in a stainless steel mold according to ISO 4049: 2009. The first group was polymerized for 10 seconds with LED FIVO lamp, the second group at the same time with Coltolux halogen lamp, the third group was polymerized to 20 seconds again with LED Fivo lamp and the last group for 20 seconds with halogen lamp Coltolux. Then the depth of cure achieved by both lamps was measured with a micrometer at 0.001mm accuracy.
Results: The data were tabulated in MS Excel to perform the descriptive analysis and then were exported to the SPSS 15.0 program for the inferential statistical analysis using the two-factor ANOVA test. The maximum depth of cure was obtained Fivo LED lamp at 20 seconds with 5,512 mm of light-cured composite, while the minimum was Coltolux halogen lamp at 10 seconds with 3,465 mm. Significant results were obtained for the type of lamp used, as well as for the exposure time and also for the lamp-time interaction.
Conclusions: As there are differences between the lamps available in the market and also by the wide range of composites, it is necessary to extend the study so the dentist knows what type of lamp is best correlated with the composite of his choice.

LINOLEIC ACID INDUCES A GAP CLOSURE MIGRATION OF HUMAN ORAL KERATINOCYTES CELLS BY AN INCREASE OF ACTIVITY OF CONNEXIN-BASED HEMICHANNELS

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Objectives: We evaluated the effect of LA on gap closure migration mediated by Cx HCs in human oral keratinocytes
Methods: Human keratinocytes cell line (OKF6) was used. The cells were maintained in regular culture conditions (37°C, 5%CO_2) with Keratinocytes-SFM medium supplemented with $CaCl_2$. Mediated mechanical stress ("scratch"), a wound healing assay was evaluated in the absence or presence of LA (100 µM). OKF6 cells in presence (2 – 24 h) of LA were used for PCR assays. Also, in presence of LA the Cx HCs was evaluated by dye uptake assay.
Results: In control conditions after 24 h of wound healing assays OKF cells had 25% of gap closure, but 24 h after LA treatment these cells had 65% of gap closure. Then, this increase in gap closure migration by LA was not evidenced in the presence of lanthanum (La^{3+}, 200 µM), a Cx HCs inhibitor. At least, this cell type expresses Cx43 and Panx1. The expression of Cx43 (mRNA) increased after LA treatment (24 h). Panx1 expression did not change with LA treatment. Dye uptake assay showed activity of connexin-based hemichannels in the presence of LA. This activity was blocked in presence of La^{3+}.
Conclusions: LA increases the gap closure migration of human oral keratinocytes through an increase of connexin hemichannels activity.

Digital Histo-Anatomical Dental Analysis: Validation of a non-destructive technique

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Objectives: The present work aims to evaluate the accuracy and validate a novel digital dental histo-anatomical analysis method for the study of dental morphology, when compared to chemical enamel dissolution.
Methods: Extracted maxillary anterior teeth were scanned with micro-computed tomography (µCT 40; Scanco Medical AG), segmented and reconstructed three-dimensionally (Amira v5.5.2). Following digital data acquisition, all specimens were acid-treated with 5% formic acid for careful dissolution of the enamel layer.
Six measurements per specimen were performed, both digitally - following micro-computed tomography scan - and physically – prior and after enamel dissolution. The obtained measurements were subject to statistical analysis through concordance coefficient measurements and linear regression.
Results: A straight line correlation behavior with no statistically significant difference was found between both methods with a concordance correlation coefficient of 97%.
Conclusions: The non-destructive micro-computed tomography layered three-dimensional reconstruction method presented as a reliable non-destructive option for the histo-anatomical analysis of enamel and dentin morphologies.
This study can set a precedent on how dental histo-anatomical studies are performed. Digital three-dimensional data acquisition and rendering methods can provide numerous clinical advantages. Tooth replacement with a diminished sense of loss can be achieved by a rightful combination new technologies with currently available biomaterials.

Determination of the distance nasion-Axis orbital plane of a group patients from Santiago

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Objectives: Determine in a random population distance Nasion -Axis orbital plane.
Methods: A sample of 215 cephalometric profile of a radiology center of Santiago, 96 men and 119 women aged between 18 and 50 years was used. Patients were classified into dolicofacial, brachyfacial and mesofacial, according to the index Vert Ricketts, using Nemoceph software. In the cephalometric tracings, the distance between the nasion and the axis-orbital plane was measured.
Results: The average distance between nasion-axis orbital plane was 27 mm, with a standard deviation of 3.09. The group of men showed an average distance of 27.68 mm (SD = 3.07) and women of 26.44 mm (SD = 3.00). There were no statistically significant differences between groups according to the biotype.
Conclusions: The nasion- axis orbital plane distance varies between men and women and is not 23 mm as determined by the articulators facebow. This distance does not vary in the different facial types.

Local inflammatory response in symptomatic and asymptomatic chronic apical lesions

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Objectives: Apical periodontitis is characterized by inflammatory bone resorption with formation of an apical lesion, in which tumor necrosis factor (TNF) α, interleukin (IL) -1β, IL-8 and matrix metalloproteinase (MMP) -8 Play a central role. A difference between symptomatic apical periodontitis (SAP) and asymptomatic apical periodontitis (AAP) is described as the first active and the second inactive or chronic. The objective was to determine the levels and association of proinflammatory cytokines and MMP-8 in SAP, AAP and healthy periodontal ligament (HL).
Methods: Apical lesions of patients with indication of dental extraction and clinical diagnosis of asymptomatic apical periodontitis (n = 15), symptomatic apical periodontitis (n = 11) and healthy periodontal ligaments (n = 5) were included in the dental SAPU of CESFAM Dr Stegger, Cerro Navia. Patients with chronic immune or inflammatory diseases and antibiotic or anti-inflammatory treatment were excluded. The samples were homogenized and the levels of IL-1β, IL-8, TNF-α and MMP-8 were determined. In addition, we recorded age, sex, educational level, smoking habit and periodontal diseases. Data were analyzed using the STATA program and statistical significance was considered if $p < 0.05$.
Results: Significantly higher levels of IL-1β, IL-8 and MMP-8 were found in PAA and PAS compared to HL and positively correlated ($p < 0.05$); However, no statistically significant differences were found between AAP and SAP. TNF-α was found at low levels and there were no statistically significant differences between groups. In addition, the presence of marginal chronic periodontitis was significantly associated with the presence of periapical lesions.
Conclusions: Periapical lesions are associated with a local proinflammatory state, however, no differences were observed between their symptomatic and asymptomatic forms. Although it is proposed that symptomatic lesions represent an active state of the disease, this is not supported by the present results.

Oral Manifestations And Salivary Biomarkers In Patients With Cystic Fibrosis.

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Objectives: To determine the oral manifestations and salivary biomarkers alterations resulting from cystic fibrosis or chronic consumption of drugs for the treatment of this disease.
Methods: In this case report, we worked with a sample size of nine people, five with cystic fibrosis and four people without the disease, belonging to the 8th Chilean Region, Concepción. Different clinical manifestations of the oral cavity were observed in subjects suffering from the disease. Salivary pH, buffer capacity, total protein concentration and stimulated salivary flow rate were also measured and salivary enzymes were determined in all subjects.
Results: It was found evidence that salivary pH in subjects with cystic fibrosis tends to be slightly more alkaline, salivary flow rate is much lower and the same for the buffer capacity, the total protein concentration in saliva is equal to the reference values and the presence of salivary enzymes by molecular weight range was determined by electrophoresis technique. With regard to manifestations in the oral cavity, several lesions are seen in both soft tissues and hard tissues.
Conclusions: Cystic fibrosis affects in general the full health of these patients, therefore the dentist as part of the multidisciplinary team must have sufficient knowledge of this disease and be able to perform a treatment with the appropriate approach according to more prevalent oral diseases than these patients present.

Micro-computed tomography evaluation of polymerization shrinkage of bulk fill composites cured by different light curing modes

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Objectives: This study evaluated the volumetric polymerization shrinkage (VPS) of two bulk-fill resin composites, one packable and one flowable, at two different locations, light-cured by two different modes, using micro-computed tomography (uCT), a non-destructive analysis.

Methods: Standardized class-I preparations (4mm depth x 4mm length x 4mm wide) were performed in 24 human molars and randomly divided in 4 groups (n=6/group), according to the type of composite and light-curing mode used: Tetric EvoCeram Bulkfill + High mode (10sec - 1,200 mW/cm^2); Tetric EvoFlow Bulkfill + High; Tetric EvoCeram Bulkfill + Turbo mode (5sec - 2,000 mW/cm^2); Tetric EvoFlow Bulkfill + Turbo. All groups were light-cured by the same light-curing unit (Bluephase Style 20i). Each tooth was scanned 3 times by uCT: 1- after the cavity preparation, 2- after cavity filling (uncured), and 3- after composite curing. The uCT images were imported into a 3D rendering software; VPS percentages and their location (regarding top and bottom/sides of the restoration) were calculated for each sample. Data were submitted to one-way ANOVA and post-hoc comparisons.

Results: When High curing mode was evaluated, the packable bulk-fill material presented lower polymerization shrinkage than the flowable one (p=.032); however, when Turbo mode was evaluated, both materials presented no significant differences (p=.557). For both composites, High and Turbo modes did not present statistical significant differences (p>.05). For all materials and curing modes, higher VPS percentages were observed on the occlusal (88.81-98.74%) than in the pulpal surface of the cavities (p<.05).

Conclusions: Different curing modes did not influence VPS of class-I bulk-fill composite resin restorations, either conventional or flowable. The conventional bulk-fill composite presented lower VPS than its flowable counterpart when High mode was used. For both types of light-curing modes and composites, volumetric shrinkage was predominantly located on the occlusal surface of the restoration, while less shrinkage occurs at the pulpal surface.

Experiences navigating the health system of people living with HIV/AIDS

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Objectives: To identify experiences of people diagnosed and treated with HIV/AIDS in the Chilean health system.

Methods: Qualitative, phenomenological study with a descriptive design. In depth semi-structured interviews were conducted, evaluating topics of: diagnosis, treatment, AUGE, and oral health. Participants were people living with HIV/AIDS. Data was collected until saturation, and later analysed with the qualitative data analysis software Nvivo 10.

Results: 17 participants were interviewed. Most of the interviewed participants narrated a delay in their diagnosis, not receiving much information about their new health condition, nor being offered initial psychological support. Lack of perceived confidentiality about their condition by health professionals, associated risk behaviours, feelings of fear, and discrimination were main topics.

Conclusions: Perceived barriers for people living with HIV/AIDS may hinder early diagnosis and adhesion to treatment within the health system. Education of health professionals is key to develop supportive environments for diagnosed patients. Promotion of health services that these patients can access should be enhanced.

Prevalence of bad occlusion and orthodontic treatment need in 12-year-old adolescents from SSVQ.

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Objectives: To determine the prevalence of bad occlusion and analyze the index of orthodontic treatment need in definitive dentition in 12-year-old adolescents beneficiary of *Servicio de Salud Viña del Mar-Quillota (SSVQ).*
Methods: Observational - Transversal Study. We studied 12-year-old adolescents beneficiary of SSVQ. Inclusion criteria: To have complete definitive dentition and 12 years of age, exclusion criteria: They do not have to be beneficiary of SSVQ, previous or current orthodontic treatment and to present any type of syndrome. A stratified sampling was carried out with proportional allocation by districts studying with the Index of orthodontic treatment need (IOTN) a total of 176 adolescents belonging to 6 districts of the SSVQ (Olmué, Cabildo, La Calera, Nogales, Puchuncaví and Papudo).
Results: The prevalence of bad occlusion and orthodontic treatment need, according to IOTN is 90.34% and 50%, respectively.
- The clinical priority of adolescents who present a need for orthodontic treatment, according to IOTN is: High 86.36%, intermediate 7.95% and low 5.68%.
- The most common WMDs are: presence of gyroversions (86.93%), ectopic teeth (42.05%), deviation of the upper and lower line to the left (18.75% and 30.68%, respectively) decreasing bite (18.18%), Edge to edge bite uni or posterior bilateral 11.33%, overbite (7.95%) and posterior cross bite uni or bilateral 6.25%.
Conclusions: There is a high prevalence of bad occlusion and orthodontic treatment in 12-year-old adolescents belonging to the SSVQ beneficiary districts, the latter being 1: 1. In relation to bad occlusion, although not all need treatment of corrective orthodontics, may require an interceptive orthodontic treatment. The results obtained should serve as a concern to the SSVQ, being able to extend the coverage of orthodontists due to the large number of patients requiring priority treatment and, at the same time, to promote the interception of bad occlusion and preventive actions to reduce the need for treatment optimizing public resources.

Manifestaciones Bucales Y Biomarcadores Salivales En Pacientes Con Fibrosis Quística.

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Objectives: Determinar las manifestaciones bucales y alteraciones en biomarcadores salivales producto de la fibrosis quística o del consumo crónico de medicamentos para el tratamiento de esta enfermedad.
Methods: En este reporte de casos, se trabajó con un tamaño muestral de 9 personas, 5 con fibrosis quística y 4 sanas, pertenecientes a la 8va región de Chile, Concepción. Se observaron diversas manifestaciones clínicas de la cavidad bucal en sujetos que padecen la enfermedad y además se midió pH salival, capacidad buffer, concentración de proteínas totales, tasa de flujo salival estimulado y se determinó la presencia de enzimas salivales en todos los sujetos.
Results: Se encontró evidencia que el pH salival en sujetos con fibrosis quística tiende a ser levemente más alcalino, la tasa de flujo salival es mucho menor al igual que la capacidad buffer, la concentración de proteínas totales en saliva se encuentra igual a los valores de referencia y se determinó presencia de enzimas salivales por rango de peso molecular mediante técnica de electroforesis. Respecto a las manifestaciones en la cavidad bucal, se aprecian varias lesiones tanto en tejidos blandos como en los tejidos duros.
Conclusions: La salud de los pacientes con fibrosis quística, se ve afectada de forma general, por lo tanto el odontólogo como parte del equipo multidisciplinario, debe tener el conocimiento suficiente de esta enfermedad y estar capacitado para realizar un tratamiento con el enfoque adecuado según las enfermedades bucales más prevalentes que estos pacientes presentan.

Relationship between reward and comfort in preschoolers and caries experience

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Objectives: To evaluate the relationship between the use of food or treats as a reward and comfort of a tantrum, and experience of caries in preschoolers in Lo Prado, Chile.
Methods: A cross-sectional study was carried out with 118 children between 2 and 3 years of age, in the municipality of Lo Prado, in 2015, whose parents agreed to participate by signing an informed consent. The project was approved by the Ethics Committee of the Universidad de los Andes. An oral examination was performed using the caries lesion detection criteria, ICDAS. The parents completed a self-administered questionnaire regarding socio-demographic characteristics, hygiene, and food habits, among others. A description of the measured variables was made. Association between food use as a comfort mechanism against a tantrum or as a reward; and the experience of caries was evaluated through a logistic regression model with the software Stata 14.1.
Results: Seventy-one (60.2%) children had at least one dental surface with caries experience (ICDAS 2 or higher or presence of restauration), and 46 (39%) of their parents reported using food as a reward or to calm a tantrum. The odds ratio (OR) between the use of treats or food versus presence of caries experience was 3.18 (p-value = 0.007) with a 95% confidence interval (95% CI) between 1.38 and 8.06. When adjusting for age, educational level and consumption of the bottle the OR was 3.3 (p-value = 0.006, 95% CI: 1.38 and 8.02).
Conclusions: We found an association between treats as a reward and comfort of a tantrum, and experience of caries with different cutoff points of the ICDAS criteria in preschool children studied. Greater efforts must be made to change this type of habits and avoid the consumption of sugars in the population.

Evaluation of the Shear Bond Strength of Two Adhesive Systems in Enamel and Dentin of Temporary Teeth.

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Objectives: Demonstrate through in vitro shear tests, if there are statistically significant differences for the adhesive resistance between etch-and-rinse and self-etching adhesive systems in enamel and dentin of deciduous teeth.
Methods: 104 enamel and dentin samples obtained from the coronal portion of temporal teeth, cut in a distal-mesio direction, were divided into 4 groups, according to the adhesive treatment to be performed and according to the dental substrate: (1) Enamel treated with two-step etch-and-rinse adhesive system, fifth generation (Single Bond 2, 3M-ESPE), (2) Enamel treated with two-step self-etching adhesive system, sixth generation (Clearfil SE Bond, Kuraray), (3) Dentin treated with Single Bond 2, 3M-ESPE, (4) Dentin treated with Clearfil SE Bond, Kuraray. In each group the adhesive system was applied following the manufacturer's instructions. Then, using an "Ultradent Adhesion Guide", a composite resin cylinder (Herculite Précis, Kerr) was applied incrementally in 2 layers not larger than 2 mm each, polymerizing 40 seconds each increment. Finally shear strength tests are performed on the test machine (Shear Bond Tester, Bisco). The obtained data were processed with the statistic t student test (p <0.05).
Results: A significantly higher difference was obtained for the etch-and-rinse adhesive Single Bond 2 in enamel; while, in dentin, a significantly higher difference was obtained for the self-etching adhesive Clearfil SE Bond.
Conclusions: There is a statistically significant difference in the adhesive resistance between etch-and-rinse and self-etching adhesive systems in enamel and dentin of temporary teeth. After the tests, it is evident that Single Bond 2 has a significantly higher primary enamel adhesive strength than Clearfil SE Bond. Whereas, in primary dentin, the results indicate a significantly higher adhesive resistance for Clearfil SE Bond.

Disparities in caries experience in childhood to communal level, Metropolitan Region, Chile

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Objectives: To describe the disparities in caries experience in children from 1 to 6 years of age, between communes of the Metropolitan Region.
Methods: A multilevel cross-sectional study was conducted, considering three levels: administrative communities (commune), educational establishment (school and pre-school) and child. Children from 1 to 6 years of age were selected using a stratified probability sampling using the Community Human Development Index (HDIc) for stratification in 13 communes, and with educational institutions clustered within administrative dependence, considering the child as analysis unit. Information was collected through a clinical-examination and caregiver interview. Clinical exam was performed in each school by a dentist and an assistant. Dmft-index for caries experience and Significant Caries Index (SiC-index) for severity were calculated. Absolute and relative disparities were estimated. Additionally, Slope Index of Inequality (SII) was calculated.
Results: 2275 children were examined. Dmft-index global was 1.88 (IC95% 1.76, 2.01) for all ages combined. Absolute disparities between extreme communes was 2.23 (IC95% 1.56, 2.90), observing the highest dmft in Lampa (dmft=3.24). The lowest dmft was found in Recoleta (dmft=1.01). The relative disparity was 3.21, in the commune with the worst caries situation observed (Lampa) there are three times more caries experience in children of 1 to 6 than in the commune with the best situation of caries observed (Recoleta). Highest differences were observed for SiC for absolute disparities (4.85 IC95% 4.23, 5.47). SII for dmft was -1,16 and -2,64 for SiC.
Conclusions: Is possible to observe differences in caries experience between communes in Metropolitan Region for dmft-index and SiC-index. In addition, social disparities were observed between communes according to HDIc.

User Satisfaction Through Appropriate Treatment In A Family Health Center

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Objectives: To describe the degree of user satisfaction through appropriate treatment in a Family Health Center (FHC) in the City of Santiago de Chile.
Methods: A quantitative descriptive study was carried out using closed questionnaires to 167 users of the Family Health Center. The analysis of the information was carried out through bivariate descriptive statistical analysis, using descriptive and graphical indexes, the incidence of the main variables in the perception of the appropriate treatment by the users. It was used as a dependent variable the appropriate treatment and as independent variables the confidentiality, autonomy, dignified treat, prompt attention, communication, appropriate basic conditions. The tool that was used for the analysis of the data was the computer program SPSS.
Results: It was found that the degree of compliance of the six domains that make up the appropriate treatment and that were studied in FHC Dr. Juan Petrinovic reaches an average of 80.56%. The domains that obtained the highest degree of user satisfaction were confidentiality with 97.4% and dignified treat with 90%. On the other hand, the worst evaluated domains by users were the appropriate basic conditions with 68% and autonomy with 69%.
Conclusions: This study allows us to identify the weaknesses and strengths of FHC in the application of the appropriate treatment, this would help to generate strategies for future intervention for the benefit of the users, through the creation of periodic training sessions for health workers to implement the appropriate treatment. It is recommended to be able to simultaneously integrate a non-biomedical aspect of the care that would be relevant to increase the level of satisfaction of the users such as communication, autonomy, prompt attention and dignified treat, which do not require economic resources if not changes of attitudes by health workers towards and with users.

Presentaciones poster

3-month follow-up on the effectiveness of intracoronary bleaching, by spectrophotometer

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Objectives: The aim of this randomized, double-blind clinical study was to compare the effectiveness and color stability of walking bleach technique using 35% hydrogen peroxide and 37% carbamide peroxide, measured with spectrophotometer Vita EasyShade.
Methods: Volunteer patients (n = 44) with root canal treatment made in good conditions with discolouration, were whitened with the Walking Bleaching technique. Two groups were randomly assigned: G1= 35% hydrogen peroxide (n=21) and G2= 37% carbamide peroxide (n=23). The non-vital bleaching was performed in four sessions using Walking Bleach technique. The color was evaluated at the beginning of treatment (baseline), immediately after the bleaching sessions, one week after treatment post-restoration, one and three months post-bleaching. Vita Easy Shade spectrophotometer was used with the CIE $L * a * b$ system to measure the total variation in color (ΔE), between the baseline and the different evaluation times. To ensure that the color register was in the same place as the instrument, a silicone matrix was previously settled. For comparison between groups, the Mann-Whitney test was used ($\alpha = 0.05$).
Results: The difference in mean color change (ΔE), recorded in different evaluation times, was higher in the group of hydrogen peroxide, but there was no significant difference at any time point ($p > 0.05$) except at sessions 3 and 4 ($p < 0.05$). These two groups showed a high effectiveness, with at least an average of change of color of 14 units.
Conclusions: Both 35% hydrogen peroxide and 37% carbamide peroxide are highly effective for the walking bleach technique in non-vital teeth.

ADVANTAGES AND DISADVANTAGES OF PHYSICAL AND SURGICAL THERAPIES MINIMALLY INVASIVE TO ACCELERATE ORTHODONTIC MOVEMENTS: NARRATIVE REVISION.

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Objectives: Describe, with a narrative review, modern physical and surgical minimally invasive techniques to accelerate orthodontic tooth movements.
Methods: The following keywords were used: Vibratory forces, Pulsed electromagnetic field, Laser, Piezocision, Corticision, Microosteoperforations, Accelerating orthodontic and Tooth movement with the Boolean operators " AND "and" OR ". These words were entered into different electronic databases: PubMed, Google Academics, TripData Base, Epistemonikos, Cochrane VHL and "American Journal of Orthodontics" (AJODO) from 2004 to 2015.
Results: A total of 486 articles were obtained, 36 articles were selected based on the title and abstract, 31 items were subsequently deleted according to exclusion and inclusion criteria. In addition, 8 articles were incorporated by manual search, reducing to a total of 11 articles included in this review.
Conclusions: Within the evaluated techniques all are able to accelerate orthodontic movements, but still lack more scientific evidence.

ADHESIVE RESISTANCE BETWEEN A UNIVERSAL ADHESIVE TO DIFFERENT BULK-FILL RESINS

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Objectives: Compare the values of adhesive strength by microtracting of a universal adhesive using two brands of composite resins Bulk Fill (RC).

Methods: Three RC blocks were fabricated according to the study groups: Control, Filtek z250 (S-z250), Filtek Bulk Fill (S-Filtek) and Tetric N Ceram Bulk Fill (S-Tetric) on a standard silicone key. The polymerization process was performed high intensity Led lamp of 1100Mw/cm2 (Bluephase, Ivoclar Vivadent) for 40 seconds. Subsequent to the preparation of the first blocks, the Single Bond Universal Adhesive (3M-Espe, USA) was applied in a layer with microapplicator, after which a second block with the same RC groups was applied. All blocks were made in the same session. After 48 hours each block was trimmed using the universal trimming machine (Isomet 1000, Buehler, USA) under constant cooling, checking the thickness with a Caliper. 30 bars of 1x1x10 mm were obtained for each group of the 30 samples (n= total 90) by a cutting machine. All the samples were microtracted with an Instron equipment (Instron, Norwood, MA, USA). The data expressed in Newton were analyzed by the Shapiro Wilk, Kruskal Wallis and Mann-Whitney test with a confiability level of 95%.

Results: The median and standard deviation (±) measured in newton was for S-Z250 57.05 (±13.81), S-Filtek 34.20 (±8.79), S-Tetric 42.15 (±10,31), there was only significant difference between the S-Z250 / S-Filtek groups (p<0.05).

Conclusions: There was no significant difference in microtraction resistance between of RC Bulk Fill of different brands with a universal adhesive. The comparison between the S-Z250 / S-Filtek groups presented a significant difference with a higher value of microtraction of the S-Z250 control group.

Bulk Fill resins, Systematic review

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Objectives: To perform a systematic review of the current literature regarding RBF, detailing its characteristics, forms of uses and results obtained in previous research.

Methods: Material and methods: Medline and Scielo databases were searched using the keywords "bulk fill", "composites", "clinical" and "resin". We included articles from 2016 to the date whose content was in accordance with the objectives of this work. We selected 23 articles. Characteristics and results reported statistically significant were tabulated.

Results: RBFs include low and high viscosity materials, which have in common that they can be cured in layers up to 4 mm. These present different compositions which leads to dissimilar results when evaluating the characteristics. In vitro studies have compared this group to conventional resins in parameters such as: fracture strength, microhardness, water absorption, color changes, wear resistance, polymerization contraction and curing depth. Its degree of conversion, radiopacity and influence of photopolymerization have also been studied. Clinical evaluations have been carried out for up to 5 years. In most studies they offer results similar to conventional resins.

Conclusions: RBF is a heterogeneous group that requires an individual study. The in vitro and clinical experience supports the use of some of these as they offer potential advantages without significantly altering their properties. It is necessary for the dentist to report on each one to choose the correct alternative according to the clinical case.

Appropriateness in orthodontics' referral: Evidence from the waiting list of the San José Hospital in Santiago

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Objectives: To evaluate the appropriateness in orthodontics' referral of patients on the waiting list in Orthodontics at the Hospital San José de Santiago, applying the "Reference Guide to Orthodontics for Public Health Services" (GRCO), a standardized instrument created and validated with the FONIS Project SA06I20029.
Methods: A calibrated orthodontist applied the GRCO to the total number of patients (350) who had appointment with her, for Orthodontic treatment at San José Hospital at Santiago from June 2016 to May 2017. These patients were on the waiting list in the orthodontic specialty after being referred from the primary health care centers of the Metropolitan Health Service (SSMN). Once evaluated with the GRCO, the patient was given the corresponding order for radiographies for orthodontic treatment and was attended to according to the usual protocols.
Results: A total of 350 patients with an average age of 8 years and an average waiting time of 481 days were analyzed. 282 patients (82.7%) met the inclusion criteria and 59 (17.3%) did not meet one or more of the criteria: 23 (6.7%) had caries, 15 (4.4%) had periodontal disease and 25 (7.3%) were older than 12 years. When evaluating the need for treatment, 40 patients (11.7%) had a slight need for treatment, 301 (83.3%) had a clear need for treatment, of which 29 patients (9.6%) did not comply with the Guideline for Age and Dentition. In addition, 3 had no malocclusion and 6 were undergoing treatment in the same service. Considering all GRCO referral criteria, 237 patients (67.7%) did meet and 113 (32.3%) did not meet the criteria for referral.
Conclusions: It is advisable to standardize referrals to orthodontics for a better use of available resources in Public Health Services.

Bond strength between a bulkfill Resin and different adhesives

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Objectives: To compare the values of microtensile bond strenght by a RC Bulkfill using three differents brands of adhesives.
Methods: A total of 3 RC bulkfill blocks were made in silicone standard model. The process was made in three stages, consisted of a block of RC, adhesive application and placement of another block of RC. The whole polymerization process was realized with a high intensity lamp for 40 sec per block. Depending on the brand of adhesive were divided into 3 groups randomly, Single Bond Universal, 3M ESPE (BK-SBU), Tetric N-Bond Universal, Ivoclar Vivadent (BK-AdSE) y Optibond All in One, Kerr Co. (BK-ALLOne). All blocks were made in the same session. After 48 hr blocks were cut through a universal trimmer (Isomet 1000) under constant cooling, and the slice thickness was checked with a caliper gauge. There were obtained 30 bars of each group that were the samples (n = total 90), 30 samples per group of 1x1x10m, wich were subjected to microtensile test (Instron). The data were expressed by newton and analyzed with Shapiro Wilck, Kruskal Wallis and Mann-Whitney test, with a confidence of 95%.
Results: Median and standard deviation (±) was for BK-SBU 34,95 (±10,46), BK-AdSE 40,85 (±10,97), ALLOne 29,85 (±9,89), there significant difference for groups BK-AdSE/BK-ALLOne (p<0.05), not like groups BK-SBU/BK-AdSE y BK-SBU/BK-ALLOne.
Conclusions: There was no significant difference in microtensile strength between the RC Bulkfill together with different adhesives except among the BK-ADSE / BK-ALLONE groups with lower values for the BK-ALLONE group.

Aesthetics self-perception after intracoronary bleaching at 6-month follow-up.

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Objectives: Evaluate the changes in self-perception of dental aesthetics in patients with intracoronary bleaching at 3-months follow-up.
Methods: 38 patients older than 18, of both genders, who were subjected to intracoronary bleaching with walking bleach technique were evaluated. OHIP- aesthetic questionnaire was applied to measure the self-perception of dental aesthetics in 4 times, before bleaching (baseline), in the week after bleaching, one month and six months after treatment. The questionnaire consists of 14 questions related to cosmetic dentistry divided into seven domains: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. The patient should respond how often a particular problem has occurred on a scale with 5 options (and their scores): very often (4), quite often (3) sometimes (2) rarely (1) never or can not (0). The scores of the 14 responses are summed, yielding values between 0 and 56 points. For comparisons between groups, the Wilcoxon test ($\alpha = 0.05$) was used.
Results: The sum values (median (min:max)) were : baseline= 19 (5:38); week after bleaching= 13 (3:35); one month after treatment= 13 (2:41) and six month after bleaching= 11 (3:36). The results show that there is statistically significant difference between measuring the perception of aesthetics prior to bleaching versus the post-evaluation in all times ($p<0.005$).
Conclusions: Intracoronary bleaching has a positive effect on the self-perception of dental aesthetics, which is stable up to 6 months after treatment.

Electrophoretic And Endotoxic Characterization Of Serotypes From Aggregatibacter actinomycetemcomitans.

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Objectives: *Aggregatibacter actinomycetemcomitans (Aa)* is a gram-negative bacteria, classified into a to serotypes according to the lipopolysaccharides (LPS) structure. Among them, the serotypes A, B and C are the most prevalent in oral infections, B associating to aggressive periodontitis and C with health. There are five serotypes A, B, C, D and E classified according to their antigenic properties, in other words, they have different qualities according to their surface (Serotype A has a smooth surface while B and C have a rough surface). We aimed to characterize the LPS bioactivity of Aa serotypes A, B, and C their electrophoretic profiles.
Methods: Purified LPS from strains of Aa, serotypes A, B and C (ATCC_43717, _43718 and _43719T, respectively) were obtained, by the modified version of the Tri-reagent protocol and visualized on silver stained polyacrylamide gels. 0.1 mg/dl of samples were loaded, fixed and silver stained. Their bioactivity was measured in sample duplicates by limulus amebocyte lysate assay. Quantifications were obtained by extrapolation from a standard curve and expressed as EU/ml.
Results: With respect to the electrophoretic profile, serotype A present the most marked lipid A, Core and O antigen, in contrast to serotypes B y C. Serotype A LPS bioactivity was significantly higher compared to B and C serotypes ($p<0.05$), while these showed no difference whatsoever.
Conclusions: Aa serotype A presents a smooth LPS with the highest bioactivity in comparison to B and C serotypes, which in turn present a rough LPS.

Cephalometric comparison of soft tissues between two different head positions in incompetent labial children.

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Objectives: To determine soft tissue differences in cephalometric analyses in different head positions.
Methods: Were selected 46 healthy children with lips incompetence (age range: 7-12 years) of both genders, who attended the dentistry faculty of the University of Chile between 2015 and 2016. Lips incompetence was defined by a clinical criterion, such as those children who in the mandibular rest position had their lips apart. Two lateral cephalograms were performed, one in the head assisted position (HAP) and the other in the natural head position (NHP). For both, the child was positioned, with the legs slightly apart, arms at the side of the body and lips at rest. In the HAP the Frankfurt plane and bipupilar line were positioned parallel to the floor, with nasofrontal support and with olives. For the NHP the children was asked to keep his head in the usual position, facing the horizon, with soft support in Nasion and without olives. Cephalometry was performed considering some landmarks of Rickets and Bjork cephalometric analysis. Data were analyzed using adequate statistical analysis ($\alpha = 0.05$).
Results: In NHP the aesthetic line of the lip was lower in relation to the HAP. No significant differences for the labial protrusion and the length of the lower lip.
Conclusions: The position of the head as well as the position of the mandible depends on muscular and proprioceptive factors. Changes in the mandible position and rotation have been described in the NHP when compares to the HAP. These switch, modify the mandibular references of soft tissues in cephalometric analyses and, consequently, lower values could be associated with measurements involving mandibular references.

EVALUACIÓN DEL ESCÁNER 3D INTRAORAL PARA LA OBTENCIÓN DE DIMENSIONES DENTALES

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Objectives: Evaluar la precisión del escáner intraoral 3D Condor Scan en la obtención de modelos virtuales a partir de dientes y modelos de yeso para su posterior aplicación en estudios odontométricos.
Methods: Se tomarán dimensiones dentales a 40 individuos de la población de estudiantes de La Universidad de La Frontera (Chile) y 40 cráneos procedentes del Cementerio de San José (Granada, España). Los diámetros bucolinguales y mesiodistales adquiridos a nivel coronario y cervical (de modelos virtuales, modelos de yeso y dientes), serán analizados mediante el coeficiente de correlación intraclase para la cuantificación de repetibilidad y reproducibilidad de las observaciones; mediante el test Bland-Altman y prueba t de Student para comprobar evaluación de la herramienta.
Results: Resultados esperados. Condor Scan podrá ser utilizado para obtención de modelos 3D virtuales tanto de individuos vivos, como de restos esqueletizados o modelos de yeso. Esto permitirá lograr reconstrucciones tridimensionales que podrán ser utilizadas para realizar mediciones y comparar estructuras.
Conclusions: La Aplicacion de Condor Scan quedará validada en el contexto forense, pero de igual modo, los resultados del estudio podrán extrapolarse a la práctica clínica. Se podran abrir nuevas líneas de investigación en el contexto antropológico forense.

Characterization of chronic apical periodontitis on the basis of demographic and clinical parameters in patients consulting at the Steeger family health center in Cerro Navia, Santiago, Chile.

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Objectives: To characterize the distribution of chronic apical periodontitis (CAP) based on clinical and demographic parameters in patients consulting at the emergency department of the Steeger family health center.

Methods: Patients who consulted for dental urgency and clinical diagnosis of chronic apical periodontitis at Steeger health center in Cerro Navia were included. Age, gender, habits, educational level, periodontal diseases, affected tooth and clinical diagnosis of chronic apical periodontitis (symptomatic or asymptomatic) were recorded. The inclusion criterion was the negative response to the pulp vitality test using Endo-Ice® Hygenic®. Patients with inflammatory systemic pathology were excluded from the study. The data were analyzed using the statistical package Stata V12.

Results: A total of 16 patients with chronic apical periodontitis with a mean age of 39.8 years were obtained from 13 men (81.25%) and 3 women (18.75%), 62.5% smokers, 43.75% completed elementary school level, 8 presented gingivitis and 2 chronic periodontitis, with a 18.75% prevalence of extraction of the right upper first molar. Of the total of the evaluated patients, 11 were diagnosed with symptomatic apical periodontitis (SAP) and 5 with asymptomatic apical periodontitis (AAP).

Conclusions: The CAP affected mainly men, with a mean age of 39.8 years, complete elementary school level, smokers, with concomitant periodontal diseases. The most affected tooth was the first right upper molar and the most prevalent diagnosis was SAP.

Factores de ausentismo en controles odontológicos de niños de 6 y 12 años, Paillaco 2016.

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Objectives: Determinar factores involucrados en el ausentismo de pacientes de 6 y 12 años a sus controles odontológicos en la unidad dental del CESFAM Lautaro Caro Ríos en la Comuna de Paillaco.

Methods: Se realizó un diseño de estudio cualitativo fenomenológico interpretativista mediante entrevistas abiertas semiestructuradas a tutores de niños de 6 y 12 años dados de alta odontológica en el CESFAM Lautaro Caro Ríos de Paillaco, que se hayan ausentado a uno o más controles y que accedan a contestar la entrevista validada por Comisión de expertos en Servicio Público. Se seleccionaron a los pacientes mediante una muestra no probabilística. La recogida de datos estuvo a cargo de ambos investigadores (C.O. y B.M.), a través de registro electrónico. Luego se procedió a codificar e integrar los datos, analizándolos cualitativamente a través del método de interpretación de textos y comparación continua. Finalmente, se codificó de manera sistemática la interpretación de la información.

Results: Se realizaron un total de 14 entrevistas, siendo un 78% contestadas por mujeres y un 22% por hombres. Según lo respondido en las entrevistas, la justificación más frecuente otorgada por los tutores de pacientes pediátricos ausentes a sus citas de control odontológico fue el olvido. Seguido a este motivo, se presentó el desinterés y, el fallo en la comunicación entre el personal administrativo y los tutores al otorgar las citas.

Conclusions: Los datos obtenidos en este estudio ponen en manifiesto que los principales motivos de ausentismo son evitables y controlables por medio de mejoras en la comunicación, incorporación de un sistema recordatorio de citas y creando conciencia sociocultural sobre salud bucal.

Caries experience in Chilean preschoolers using ICDAS criteria

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Objectives: To determine prevalence and caries experience in preschoolers attending nursery schools of Lo Prado-Chile during 2015.

Methods: A cross sectional study, with a total of 227 preschoolers enrolled in the midlevel nursery school of the Junta Nacional de Jardines Infantiles(JUNJI), was performed in Lo Prado municipality. This study and informed consent was approved by Ethic Committee, Universidad de los Andes.Clinical exams were performed at nursery school in field study conditions (June- October 2015). The exams were made by two calibrated examiners in ICDAS criteria. All ICDAS codes were recorded by dental surface and then merged according to three cutt-off points: with caries from code 1 (initial, moderate and severe lesions and restaurations), with caries from code 3 (moderate and severe lesions and restaurations) and with caries from code 5 (severe lesions and restaurations), respectively. A descriptive analysis of the data was developed using Stata 14.

Results: Of the 227 preschoolers, 90 did not participate in obtaining a sample of 137, 49.6% were female and 25.4%, men and age mean was 2.8 years.The prevalence of caries for the first cut-off point was 42.2% (n: 93), with second cut-off was 41.6% (n: 57) and third cut-off point was 29.2% (n:40). The most affected teeth group was lower molar group (n:67 (48.9%)) and the least affected was lower incisor group (n:135 (98.5%)). For third cut-off point, the most affected was the lower molar group (n:28 (25.00%)) and the least affected the lower canine group (0%).

Conclusions: The prevalence of caries varies depending on the cut-off point used. The lower molar group is the most affected, independent of the cut-off point. This information is useful for public policies in order to reinforce the focus of preventing lesions in this teeth group first.

Clinical effectiveness of self-etch adhesives in non-carious cervical lesions. A systematic review and meta-analisys.

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Objectives: To compare the survival rates of one-step self-etch adhesives (1SE) and conventional three-step adhesives (3ER) in non-carious cervical lesions. Also, other secondary outcomes (marginal discoloration and marginal adaptation) were evaluated in a systematic review and meta-analysis.

Methods: A comprehensive search was performed in PubMed, Scopus, Web of Science, LILACS, BBO, Cochrane Library and Grey literature, only randomized clinical trials were included. Quality assessment followed the guidelines from the risk of bias tool from the Cochrane Collaboration. Meta-analysis was performed on studies considered at low and unclear risk of bias.

Results: From 3304 articles identified, 7 remained in the qualitative synthesis. The one-step self-etch adhesives (1SE) and conventional three-step adhesives (3ER) showed no difference for retention rate in all follow- ups. At 12 to 18 month follow-up was 0.88 (95% confidence interval [CI] = 0.24 to 3.22; p = 0.85), at 24 to 36 month follow-up was 2.21 (95% CI = 0.23 to 21.24; p = 0.49), and at 48 to 60 month follow-up was 3.14 (95% CI = 0.37 to 26.82; p = 0.30). No difference was observed for marginal discoloration in all follow-ups (12 to 18 m: p= 0.53; 24 to 36 m: p= 0.10; 48 to 60 m: p=0.41) and the same was observed for marginal adaptation in all follow-ups (12 to 18 m: p= 0.65; 24 to 36 m: p= 0.65; 48 to 60 m: p=0.39).

Conclusions: One may conclude that there is no difference in the clinical performance of self-etch and etch-and-rinse adhesives in non-carious cervical lesions.

Assessment of hygiene measures after the simple extraction. A preliminary study

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Objectives: To compare the post operative condition of the perialveolar gingival tissue posterior to the simple extraction in two groups, with and without indication of local higiene

Methods: Prospective experimental blind study on ASA I and II adult patients subjected to single or multiple dental extraction managed with silk suture. The exclusion criteria were intraoperative complications, previous inflammation or other local conditions that prevented the objective evaluation. A patients randomized distribution was made to perform two groups: group A formed by patients whitout the indication of local brushing, and group B by patients with soft local brushing. At seven days a blind evaluator observed and responded a control table, which considers: the inflammatory degree of the surrounding gingiva from 0 to 3 (see table 1). The incidence of postoperative complications: describing the presence or absence with dichotomic variables (yes/no) and the clinical diagnosis. Statistical analysis of Fisher exact test was made to correlate the incidence of inflammation of the surrounding tissue and complications with the use or non-use of this type of higienic mesures.

Results: In 11 patients, 25 post extraction alveolar sites were evaluated, of which 10 belonged to group A and 15 to Group B. 12 sites of the sample showed an inflammatory degree 0, in 11 sites an inflammatory degree was observed 1 and in 2 sites an inflammatory degree 2.
Group A: 6 sites with level 0; 8 sites with level 1 and 1 site with level 2 (9/15)
Group B: 6 sites with level 0; 3 sites with level 1; and 1 site with level 2 (4/15)
When compare both groups (considering a total value of sites with inflamatory signs) did not obtain significant differences (0.428308 on value p = 0.05) No complications was reported.
(see table 2)

Conclusions: Conclusions: Our results indicate that the local hygiene indication with dental brush on the post extraction site does not improve the local conditions at seven days from the dental extraction. However, under our vision is advisable to maintain local hygiene measures to reduce potential risks associated with the sepsis of de local site. It is necessary to increase the number of the sample to obtain significant results.

Evaluation of different extraction methods of Malva sylvestris

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Objectives: The objective of this study was to evaluate different extraction methods of Malva sylvestris leaves and its pharmacological anti-inflammatory activity.

Methods: A dry and grounded vegetable leaves were extracted by first method as maceration technique one week long and the second by rapid extraction using ultrasound for 45 minutes. The proportions of ethanol (100% v/v) and 1:6 (w/v) dried M. sylvestris were maintained for both groups. The thin layer chromatographic was used to chemical control de extractions. Data was analyzed using ANOVA, followed by Tukey multiple comparison test Mice SPF, BALB/c (CEUA/UNICAMP # 2790-1) were studied.

Results: Pharmacological analysis showed that maceration technique was more efficient to reduce (64.8%) ear edema in mice than ultrasound technique (52%).

Conclusions: Malva sylvestris has strong property to reduce inflammation and exhaustive maceration demonstrated to be the most efficient extraction method.

Characterization of Porphyromonas endodontalis Clinical Isolates in Patients with Chronic Apical Periodontitis

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Objectives: To characterize *Porphyromonas endodontalis (Pe)*`s endodontic clinical isolates and ATCC strain in patients with chronic apical periodontitis based on their morphology, antimicrobial susceptibility, lipopolysaccharide (LPS) profile and its endotoxic activity.

Methods: Samples of endodontic exudates from patients with chronic apical periodontitis were obtained (N=30) in the Dental Clinic, Faculty of Dentistry, Universidad de Chile. Samples were grown in blood agar supplemented with hemin-menadione in anaerobiosis and black-pigmented colonies were selected for subcultures and DNA extraction. *Pe* identification was confirmed through PCR with specific primers and 16S ribosomal RNA sequencing (V3-V6 regions). Clinical isolates and *Pe* reference strain (ATCC 35406) were characterized by scanning electron microscopy and their susceptibility to amoxicillin, polymyxin B and chlorhexidine. To characterize LPS profiles, LPS was purified by phenol extraction and visualized on silver stained polyacriylamide gels. The endotoxic activity of the extracted LPS was quantified by Limulus Amebocyte Lysate test. The results were analyzed with Stata V 12, with $\alpha= 0.05$.

Results: One type of *Pe* clinical isolate with two distinct colonies (4E col 4 and 4E col 7) was identified by PCR and 16S rRNA gene sequencing. Morphologically, ATCC 35406 strain presented a smooth surface, while 4E showed regular protrusions of the surface. Clinical Isolates showed lower susceptibility to amoxicillin (6.26-2.0 mg/mL), polymyxin B ($\geq$0.5 mg/mL) and chlorhexidine (2%) than the reference strain. Both, clinical isolate and ATCC LPS showed antigen O molecules compatible with high molecular weight chains. There were no significant differences in the endotoxic activity between 35406 and 4E LPS (p>0.05).

Conclusions: *P. endodontalis* clinical isolates showed different morphology and antimicrobial susceptibility compared to the reference strain.

Creation and validation of an instrument to evaluate knowledge, attitudes and access to evidence about local anesthetics

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Objectives: To construct and validate an instrument to evaluate knowledge, attitudes, and access to evidence about local anesthetics in dental surgeons.

Methods: We created a questionnaire with 3 dimensions; knowledge, attitudes and access, where the knowledge dimension was evaluated using multiple selection questions and the other two dimensions using a Likert scale. A cualitative validation was performed with 10 faculty dental surgeons. Then, these 10 experts selected the final questions for the knowledge item in a focus group. To carry out the validation, the survey was applied to fourth and fifth-year students and faculties of the UACh School of Dentistry. The internal consistency of the instrument was evaluated with Cronbach's Alpha Coefficient. The discriminative validity between the three groups by ANOVA test (post hoc Tukey). The test-retest reliability was assessed by applying the survey with a two-week interval between the first and second applications and using the Wilcoxon test.

Results: 110 questionnaires were completed. A Cronbach alpha of 0.73 was found. The test-retest reliability resulted in p = 0.954. Discriminant validity among the groups was statistically different (p <0.005).

Conclusions: The instrument has a good internal consistency, good discriminant validity for different groups and good test-retest reliability. Therefore, the measuring instrument is valid.

Comparación de la Resistencia Comprensiva y Módulo Elástico en Vidrio Ionómero Equia Fil (GC), Ketac Molar (3M) Y Fuji IX (GC)

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Objectives: Comparar in vitro la resistencia compresiva y módulo elástico de 3 tipos de vidrio ionómero (VI).
Methods: El ensayo de materiales se realizó en base a la norma ISO 9917-1. Se fabricaron 56 probetas cilíndricas de 6,0 ± 0,1 mm de altura y 4,0 ± 0,1 mm de diámetro. 14 muestras por cada grupo (G1 Ketac Molar; G2 Equia Fil; G3 Fuji IX; G4 Equia + Coat). Una hora después de terminado el mezclado, se rectificaron los extremos de la probeta con respecto a su eje longitudinal. Se utilizó papel húmedo de carburo de silicio de grado 400. Se retiraron las muestras de la matriz y se comprobó visualmente que no existiesen oquedades de aire o bordes rotos. Posterior a esto, se aplicó barniz protector de fotopolimerizado (EQUIA Coat, GC) al grupo de muestras EQUIA FIL, según indicaciones del fabricante. Finalmente, se procedió a realizar la evaluación de la resistencia compresiva y módulo elástico (MPa) en la máquina de ensayos universales Instron. La recolección de datos se realizó a través del software Bluehill Lite asociado a la maquina de ensayos, los datos fueron tabulados en el software Microsoft Excel y posteriormente se realizó el ingreso de la base de datos al software SPSS.
Results: El VI que presentó mejor resistencia compresiva fue FUJI IX, en comparación a las demás marcas estudiadas (Tabla 1). El VI que obtuvo mejor modulo elástico fue EQUIA FIL, en comparación a las demás marcas (Tabla 2). Todas las muestras a las que se les aplicó barniz protector (EQUIA + Coat), presentaron una resistencia compresiva menor. La resistencia comprensiva se estudió a través del modelo no paramétrico de Kruskal-Wallis, obteniendo resultados no significativos (valor-p<0,05). El módulo elástico, se estudió a través del modelo paramétrico de varianza ANOVA de 3 factores, obteniendo que las interacciones resultaron no significativas (valor-p<0,05).
Conclusions: Tras el ensayo de materiales, EQUIA se presenta como el material de elección para realizar restauraciones definitivas en el sector posterior. A pesar de que los valores de resistencia compresiva fueron similares en todos los VI, EQUIA presentó un mayor módulo elástico. Esta biocompatibilidad permitiría al material comportarse de forma adecuada en oclusión, y poder ser usado en zonas de mayor demanda mecánica como es el sector posterior.

Dental color measurement, a photographic-computational method

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Objectives: The aim of this study was to develop a protocol to objectively measure dental color using information obtained from digital photographs
Methods: Using a standardized protocol, digital photographs were taken from 11 VITA shade guides from different batches and manufacturing date. At the moment of taking the photograph, the shade tabs were positioned on an 18% neutral gray card, which allowed for further photo processing. Concurrently, fifty-six teeth from twelve patients were photographed following the same protocol. This time a small disk of 18% neutral gray was positioned on one of the anterior teeth.
Results: The dental color of fifty-six teeth was measured using the current method. It was observed that the protocol allowed to obtain the CIELab values of each tooth and the algorithm was able to calculate their VITA shade along with its DeltaE.
Conclusions: The current protocol, strictly applied in a standardized way, from the photographic register through the application of the algorithm, enables to obtain comparable and reliable values of dental color expressed either in CIELab or VITA values.

Children with or without lip competence. How is EMG pattern?

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Objectives: To compare the electromyographic (EMG) activity of superior orbicularis oris (SOO), inferior orbicularis oris (IOO) and anterior temporal (AT) muscles between children with and without lip competence during different tasks.
Methods: Were included two groups of healthy children (range age=7-12 years) of both genders and mixed dentition, one with lip competence (n=21) and other without lip competence (n=45), classified according to a clinical criteria. Were excluded children suffering environmental allergies, with previous orthopedic or orthodontic treatment, and on medication that could affect muscular activity. Surface electrodes were placed on the left SOO, IOO and AT muscles. A ground electrode was attached to the forehead. EMG activity was amplified, rectified and integrated and then recorded online in a computer exclusively for the acquisition and processing of EMG signals. EMG activity was recorded in seated upright body position with the back supported and the head unsupported; looking straight ahead and his/her head in the postural position, during the following tasks: 1) normal quiet breathing; 2) speaking the word "Mississippi"; 3) swallowing of saliva and 4) puffing out of the cheeks. The data were submitted to appropriate statistical analysis (α = 0.05).
Results: Children without competent lips show a lower activity in SOO and IOO muscles in task 1, and a higher activity in SOO, IOO and AT muscles in task 4, and in AT muscle during task 3.
Conclusions: In children without lip competence, the lower EMG activity at rest in SOO and IOO muscles suggest a less labial basal tonic activity because the lips are apart, and to achieve a correct lips closure in a forced activity like puffing out of the cheeks is necessary a higher labial EMG activity. The higher AT activity at rest, during swallowing of saliva and puffing out of the cheeks suggest a mandibular stabilizing function.

Effect of Conditioning with Ethylenediaminetetraacetic Acid (EDTA) on Sclerotic Dentin

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Objectives: To evaluate the mediate and immediate (MPa) adhesive bond strength (μTBS) in EDTA conditioned dentin.
Methods: 40 bovine incisors with physiologically exposed sclerotic dentin were randomly distributed in 8 groups (n = 5) according to variables: EDTA concentration (17% and 35%) and application time (15, 30 and 120 seconds), and control groups: p.ositive (35% orthophosphoric acid) and negative (universal adhesive). The teeth were restored with composite resin and 24 hours later they were sectioned with a diamond disk, under irrigation, at 300 revolutions per minute. Half of the test bodies, stored in distilled water, were subjected to a traction test at 24 hours and the other half at 12 months.
Results: The EDTA 35% groups presented greater micromechanical and immediate micromechanical resistance (μTBS) compared to 17% EDTA (p <0.001). Two-way ANOVA test and Tukey's post-test with a significance level of 5% were used.
Conclusions: Conditioning of sclerotic dentine with EDTA 35% for 120 seconds presented better results compared to the current protocols.

Clinical Status Of Sealed Composite Restorations: 12-Month Evaluation

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Objectives: To observe the clinical quality of composite restorations sealed with pit and fissure resin-based sealant versus a control group according to FDI criteria for marginal adaptation and secondary caries, in an evaluation after 12 months of the treatments.

Methods: In this study were used 70 composite restorations with marginal defects 3 or 4 according FDI criteria and analized by calibrated operators (kappa=0.85), from 35 patients with 2 restorations for each one, which were randomized into 2 groups: A (n=35): Sealed with resin-based sealant (Clinpro Sealant, 3M ESPE) more adhesive (Universal scotchbond, 3M ESPE); B (n=35): no treatment. The treatments were performed under absolute isolation with the protocols specified by the manufacturer. FDI Clinical evaluation was performed with two explorers: 150EX (Ø 0.15mm, Depppeler) and 250EX (Ø 0.25mm, Deppeler).

Results: In the 12-month evaluation were examined 32 patients, 91.4% (64 restorations) FDI results Marginal Adaptation: Group A FDI= 1, 50%, 2, 6.3%, 3, 15.6% and 4, 28.1%. Group: B, FDI3, 81.3% and 4, 18.8% (p=0.007). Secondary caries 100% of restorations had FDI 1 value.

Conclusions: The sealed of composite restorations with resin-based sealant more adhesive shows better clinical marginal adaptation over 12 months. No secondary caries lesions adjacent to marginal defects in 12 months were observed.

Commercial presentation effect on adhesive properties of a universal adhesive

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Objectives: The effect of the commercial presentation of a universal adhesive system (Tetric N-Bond Universal [TNU]) on bond strength (SBU) and nanoleakage (NL) on dentin was evaluated.

Methods: The occlusal enamel of 30 molars was removed and the adhesives were applied to the surface of the dentin according to the following: commercial presentation - bottle [B] or pen [P]; and mode of application - with phosphoric acid (TE) or without phosphoric acid (self-etch SE). These teeth were then restored with composite resin and sectioned to obtain specimens (sticks), which were tested for bond strength (SBU) and nanoleakage (NL). The data were analyzed by one-way ANOVA and Tukey's test ($\alpha = 0.05$).

Results: For SBU, the following results were obtained (MPa): P-SE = 56.5 ± 4.5; B-SE = 47.01 ± 3.7; P-TE = 60.8 ± 3.4; And B-TE = 55 ± 5.2. For NL (%) the following results were obtained: P-SE = 4.40 ± 2.25; B-SE = 7.8. 3.21; P-TE = 6.53 ± 1.85; and B-TE = 9.12 ± 2.66. It was observed a higher SBU for the pen adhesive, in both strategies (p <0.05). For NL, there was no statistical difference between groups (p> 0.05).

Conclusions: In the adhesive properties of the adhesives tested, the pen presentation showed better performance when compared to bottle at the bond strength.

Clinical Performance Of Lithium Disilicate Restorations In The Last 10 Years. Narrative Review.

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Objectives: Among the aesthetic ceramic materials, Lithium Disilicate has shown on the last decade an exponential growth, due to its excellent mechanic and aesthetic properties. The aim of this review is to describe the clinical performance and the fulfilment of aesthetic, mechanic and biological properties together with the survival rate of the material on the last 10 years.

Methods: The information research was made on four databases; Pubmed, Ebsco, Trip Database and Scopus. The last guideline for clinical performance evaluation developed by the FDI was used as the analysis and comparison base model. A critical review of the literature has been made which incorporated: quality report, level of evidence, grade of recommendation, bias risk and ethical aspect of each study included.

Results: A total of 24 studies fulfilled the selection criteria, within which only one systematic review stands out till the date. Nevertheless most of the articles were observational. Between the relevant results this study exhibit 100% caries free restorations, decrease marginal adaptation and a rise in retention loss on the first 2 years for the partial restorations. Single crowns had a superior performance in anatomical shape, pulpal sensitivity, caries lesions, periodontal response and marginal adaptation than metal porcelain restorations. Three unit bridges present better aesthetic parameters than conventional restorations, however they display more biological complications and on the first two years up to 50% fracture. The minimum survival rate obtained was 95.46% for crowns, 97% in partial restoration and 62.7% in three unit bridges.

Conclusions: Despite the extensive analysis, to this date, new studies with better methodology and design are required for a properly clinical performance evaluation of the Lithium Disilicate as restorative material.

Compare push -out in the cementing fiber post with resin BulkFill and posts previously adapted in ducts of different diameters

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Objectives: To Compare the value of adhesive strength measured in megapascals (Mpa) in the cementing fiber post (PF) in ducts of different diameters cemented resin BulkFill SureFil (BK) and posts previously adapted with conventional resin bonded with cement RelyX Ultimated (RU).

Methods: 20 human teeth were endodontically treated and remove the crown. The endodontic filling was partially removed and divided in four groups according to the cementation material and diameter of the root canal. The groups BD4, BD6, AD4, AD6 were formed. The used fiber postes were N°2 and they were cemented using universal adhesive No., the BD4 and BD6 groups with BK resin and AD4 and AD6 groups were cemented with RU. The teeth went under 500 thermocycling cycles, then were sectioned transversely with a Isomet 1000 cutter into 3 sections of 2 mm height in the apical, medium and apical third, finally they were subjected to push-out test with a speed of 0.5mm / min. force eviction Mpa extent was assessed and observed the failure with 4x optical microscopy. Statistical analysis based on ANOVA two way and post-hoc Tukey with a significance level of 95%. Results: The mean and standard deviation (DS) for BD4 was 27.74(±6.93), to BD6 of 23.21(±8.11) to AD4 of 23.53(±5.87) and AD6 19.21 (±5.99)

Results:The mean and standard deviation (DS) for BD4 was 27.74(±6.93), to BD6 of 23.21(±8.11) to AD4 of 23.53(±5.87) and AD6 19.21 (±5.99)

Conclusions: There is only statistically significant difference between groups BD4 and AD6 with a lower value of adhesive strength for the AD6 group cementing adapted and fiber posts cemented with resin cement (UK).

Comparative analysis of severe dental fluorosis by two diagnostic methods.

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Objectives: To compare two indexes used for dental fluorosis determination in a population characterized by an endemic form of fluorosis.
Methods: The work was analysed and authorised by the ethics committee of the University of Barcelona. For the classification of dental fluorosis, the Dean index (DI) and the Thylstrup and Fejerskov Index (TFI) were used. Patients from the rural population of Anantapur (Andra-Pradesh, India) were considered in this study. Four dentists were calibrated in each method for fluorosis determination.
Results: A total of 1144 patients were examined, of which 58.7% were women and 41.3% were men. A prevalence of fluorosis signs was 92.9% in the patients examined by DI and 92.7% in the examined by TFI. The statistics for DI and TFI showed a predominance of the most severe type of lesion. Considering the correspondence between the indices applied, the moderate to severe forms were observed in 74.4% by TFI and 62.6% by DI.
Conclusions: DI is a frequently used index because of the uniformity and facility of application. TFI its a more complex index based on histological aspects of fluorosis. In our results, TFI seems to give a more detailed distribution of severe fluorosis cases. However, no statistical difference was found between both indexes. The TFI gives more accurate results in relation to severe fluorosis form, in change DI just show the severe form in a big group. Therefore, TFI is a better index, when the objective of the study is to describe a more detailed distribution of the severe form of dental fluorosis in the population.

Effectiveness 6%HP for tooth bleaching at 24 months, by CIELAB parameters separated

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Objectives: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at 24 months of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent by VITA Easyshade Compact Spectrophotometer.
Methods: 19 patients were treated with: one upper hemiarcade with a 35% hydrogen peroxide bleaching agent and the other hemiarcade with a 6% hydrogen peroxide. Two applications were completed each treatment session and three sessions were appointed, with one week interval between them. Tooth colour was registered each session and at 24 months after completing the treatment by spectrophotometer, registering parameters L^*, a^* and b^*. Tooth colour variation and sensitivity were compared between both bleaching agents.
Results: Both treatment showed a change between baseline colour and two years follow-up with a ΔL = 4.44 for 6%, Δa = 4.77 , Δb =-3.46 and of ΔL = 6.60 for 6%, Δa = 6.91 , Δb = -5.33 for the 35% 2 years after completing the period with a statistical difference in L and a (p <0.02) parameters at 2 years, the parameters shows a maintained the effectiveness along the period assessed.
Conclusions: A 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated agent is effective for tooth bleaching, reaching a Luminosity without rebound and maintain of axis a and b values two years after completing the treatment, however the traditional concentration is more effectiveness

Comparison of levels of RANKL in gingival crevicular fluid after intracoronal bleaching of non-vital teeth with 35% hydrogen peroxide and 37% carbamide peroxide

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Objectives: Evaluate and compare the existence of mediators of inflammation by detecting RANKL in gingival crevicular fluid before and until three months after of intracoronal bleaching, using 35% hydrogen peroxide and 37% carbamide peroxide in endodontically treated teeth.

Methods: 50 endodontically treated discolored teeth were included. Two study groups were randomly formed according to bleaching agent, G1: 35% hydrogen peroxide (n=25) and G2: 37% carbamide peroxide (n=25). The intracoronal bleaching was performed using the walking bleach technique in 4 bleaching sessions. Gingival crevicular fluid samples to determine levels of RANKL were taken with absorbent paper (Periopaper®) from six sites per tooth: 3 vestibular and 3 palatine (mesial, middle and distal), in 3 opportunities: baseline, one month after treatment and three months after treatment. Total proteins were quantified by Bradford® system and from 100 µl of eluted sample RANKL levels were measured by ELISA (Quantikine®; R&D Systems Inc.) and expressed in pg/µL. The Mann-Whitney and Wilcoxon test were used to compare differences.

Results: The levels of RANKL corresponding to G1: baseline= 10.42, 1 month after bleaching= 23.22 and 3 months after bleaching= 26.05. The levels of RANKL corresponding to G2: baseline= 11.58, 1 month after bleaching= 24.95 and 3 months after bleaching= 28.06. There were significantly differences between baseline and two times evaluated in both groups (p<0.05). No statistically significant differences between both bleaching agents (p>0.05).

Conclusions: In gingival crevicular fluid levels of RANKL increase by one month and three months after treatment, with no differences between the bleaching agents used. The levels of rankl in this study don't reach levels compatible with disease.

Gene expression of proinflammatory cytokines in differentiated peripheral blood macrophages

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Objectives: To determine gene expression levels of proinflammatory cytokines (IL-1β, IL-6 and TNFα) in response to stimulation with lipopolysaccharide (LPS) of Porphyromonas gingivalis (Pg) in differentiated macrophages from human peripheral blood monocytes.

Methods: Buffy Coat was obtained from a healthy adult donor (N=3). By means of Ficoll's gradient, mononuclear cells were obtained in RPMI 1640 10% FBS medium. 30×10^6/3ml cells per well were incubated in complete RPMI medium at 37 ° C, 5% CO2 for 2 hours, the supernatant was removed and the adherent cells were incubated in RPMI medium with 50 µg/ml cytokine M-CSF. On the sixth day, they were stimulated for 16 hours with LPS of Pg 33277 at concentrations of 0.1 µg/ml, 1 µg/ml, 10 µg/ml and 100 µg/ml. A positive control of LPS of E. coli 100 µg/ml and negative control without LPS were used. After RNA extraction with Trizol method, cDNA was obtained and analyzed with qPCR for IL-1β, IL-6 and TNFα.

Results: The stimulation of macrophages with Pg LPS induces generally dose-dependent gene expression of IL-1β, IL-6 and TNFα (p <0.05), comparable to the expression levels induced by E. coli.

Conclusions: Stimulation of macrophages with Pg LPS between concentrations of 0.1 µg/ml and 100 µg/ml activates the inflammatory response to levels comparable with those of E. coli.

Conective Tissue Fibrosis In Normal Oral Mucosa, Oral Epithelial Dysplasia And Oral Squamous Cell Carcinoma.

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Objectives: To analyze the connective tissue fibrosis extension (CTFE) in samples of normal oral mucosa (NOM), oral epithelial dysplasia (OED) and oral squamous cell carcinoma (OSCC) with Masson's trichrome staining technique (MTS).
Methods: Descriptive research, case series. We analyzed 17 samples of NOM, 15 of OED and 16 of OSCC. All samples were processed with Masson's trichrome staining technique. To determine the CTFE, the most extended fibrosis areas were identified under the normal, dysplastic and cancerous epithelium, and it was classified qualitatively and ordinally according to the proportion of CTFE in the whole picture of the sample with 0 in those with no fibrosis presence, with +1 (1-25%), +2 (26-50%), +3 (51-75%) and with +4 (76-100%) of CTFE. The variables were analyzed using the Kruskal-Wallis test, Dunn's Pairwise post hoc test, Wilcoxon signed-rank test and the Spearman's correlation coefficient through the Stata 12 ® program. A significance level of 0.05 will be used.
Results: There is statistically significant association between CTFE according with the diagnosis of NOM, and with the development of OED and OSCC ($p < 0.001$). There is statistically significant difference between the NOM and the OSCC samples ($p < 0.001$), and between the OED and OSCC samples in CTFE ($p < 0.001$). Finally, there is no statistically significant difference between the NOM and DEO samples ($P = 0.371$).
Conclusions: Connective tissue fibrosis is developed in NOM, OED, and in OSCC, however the degree of CTFE is higher when the degree of tissue differentiation is lower.

Effectiveness 6%HP for tooth bleaching at 24 months

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Objectives: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at 24 months of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent by VITA Easyshade Compact Spectrophotometer.
Methods: 19 patients were treated with: one upper hemiarcade with a 35% hydrogen peroxide bleaching agent and the other hemiarcade with a 6% hydrogen peroxide. Two applications were completed each treatment session and three sessions were appointed, with one week interval between them. Tooth colour was registered each session and at 24 months after completing the treatment by spectrophotometer, registering parameters L*, a* and b*. Tooth colour variation and sensitivity were compared between both bleaching agents.
Results: Both treatment showed a change between baseline colour and all check-points with a $\Delta E = 6.25$ for 6% and of $\Delta E = 9.33$ for the 35% 2 years after completing the period with a statistical difference in colour ($p < 0,000$), maintain the effectiveness along the period assessed.
Conclusions: A 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated agent is effective for tooth bleaching, reaching a ΔE of 6.25 two years after completing the treatment, however the traditional concentration is more effectiveness.

DETERMINATION OF PROTEIN CONCENTRATION IN DENTINAL FLUID SAMPLES IN TEETH WITH REVERSIBLE PULPITIS AND IRREVERSIBLE PULPITIS

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Objectives: To determine the concentration of proteins in samples of dentinal fluid in teeth with reversible pulpitis and irreversible pulpitis.

Methods: 16 patients who met inclusion and exclusion criteria were recruited. Patients signed informed consent. They were separated in 2 groups; Reversible pulpitis (n=6) and irreversible pulpitis (n=10). The samples were obtained after caries removal, using Durapore® a polyvinylidene fluoride membrane (PVDF) (Merck Millipore, Billerica, MA, USA). They were stored at -80^0 C until were processed. Samples were eluted with 350 uL 1:PBS1X Buffer plus 0.1% Tween 20 detergent and analyzed using Micro BCA Protein Assay Kit (Thermo Fisher Scientific Inc. Waltham, MA, USA). The results were analyzed estimating a logistic regression (Stata 14.2).

Results: Descriptively, proteins concentration level on reversible pulpitis group was 3.67 ug / mL (standard deviation [SD]: 2.96) and concentration on irreversible pulpitis group was 19.42 ug / mL (SD: 19.1). There were no association between concentration level and presence of irreversible pulpitis (OR=1.15; $p = 0.165$). The area under ROC curve was 0.73.

Conclusions: It is possible to find proteins in samples of dentinal fluid in teeth with reversible pulpitis and irreversible pulpitis diagnoses, using Durapore®. The level of proteins concentration was higher on irreversible group but not statistical significant. It is necessary to determine which proteins are present in the different diagnoses and explore with more sample size the relationship between level and diagnosis.

Level of confidentiality of information in the undergraduate dental clinic

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Objectives: To evaluate the level of protection and confidentiality of patients clinical records attended by 4th and 5th year dentistry students at Universidad Andrés Bello, Santiago.

Methods: Quantitative, cross-sectional study. A questionnaire was developed to measure attitude and knowledge domains related to protection and confidentiality of clinical information. The final survey contained thirteen questions, and was applied to 251 students. Statistical analysis was performed using SPSS release 21. Frequency of attitude questions were reported for protection and confidentiality of patient information. The data was stratified by gender, academic year and number of years of clinical practice. Central tendency measures were calculated for knowledge questions. Results were statistically analyzed with the likelihood ratio.

Results: 76.1% of the students correctly complied with the protection of clinical records and 39% respected confidentiality. There was an association between the academic year, number of years of clinical practice and protection level of clinical information. The protection level was lower as the years of clinical practice increased. A similar association was observed with the confidentiality of the information. There was no association with the gender.

Conclusions: There is a satisfactory level of clinical information protection by students. However, confidentiality is neglected and decreases as the university career progresses.

ECTOPIC ERUPTION OF THE FIRST PERMANENT MOLAR IN TALCA, CHILE

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Objectives: To determine the prevalence of different types of ectopic eruption of the first permanent molar, in patients aged 4-7 years, treated in University Dental Clinical Center in years 2012-2013.
Methods: Observational, analytic, cross-sectional study. 474 panoramic radiographs were studied. The frequency and distribution of root resorption of the second deciduous molar due to ectopic eruption of the first permanent molar were determined. The affected condition (reversible/irreversible) and not affected condition were registered for each quadrant. Differences of proportions between maxilla/mandible, single arch/both arches, unilateral/bilateral, were determined. The asymptotic Z-test was used in the R Commander software (v.2.14 for Windows). Significant differences were considered when $p<0.05$.
Results: Ectopic eruption of the first permanent molar was not found at the age of 4 years and was found to be present from 5 years, increasingly present until 42.1% at the age of 7 years. 34.6% (n=164) showed root resorption of the second deciduous molar due to ectopic eruption of the first permanent molar. From the total sample, the affected condition was found to be significantly more frequent in maxilla (31.2%) than in mandible (5.1%) ($p<0.001$). The affected condition was found to be significantly more frequent in single arch (96.3%) than in both arches (3.7%)($p<0.001$). Both in maxilla and mandible, the affected condition was mainly unilateral (maxilla 55%, mandible 60.9%) with no significant differences with the bilateral presentation ($p=0.002$). The affected condition was found to be reversible in 49%. In maxilla 50.3% of the affected cases were reversible, while in mandible only 5.6% were reversible.
Conclusions: Approximately one third of the studied population was found to have ectopic eruption of the first permanent molar. An adequate use of imaging resources in children from 5 years old onwards allows an early diagnosis of the studied condition and would facilitate a preventive and/or interceptive approach.

Laser therapy and natural latex applied on the nerve crushed: Morphometric and scanning electron microscopy study

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Objectives: This study evaluated the effects of low-level laser therapy (LLLT -15J/cm^2, 780nm) and F1 protein (natural latex – 0.1%) on the sciatic nerve crushed (15 kgf, axonotmesis).
Methods: Seventy two rats (♂, 200-250g) were divided into 6 groups (n = 12): C - control; E - exposed nerve; I - injured nerve; L - LLLT; P - F1; LP - LLLT and F1. After 4 or 8 weeks, the animals were euthanized, the sciatic nerve was processed for morphometric (nerve fibers minimum diameter, myelin thickness and G-ratio) and scanning electron microscope (SEM) analyzes.
Results: The morphometric data after 4 weeks showed improvements with the applied treatments, PG showed better results. After 8 weeks it was observed greater homogeneity among the groups. The G-ratio showed no tendency to change (4 or 8 weeks), the values were closer after 8 weeks.
The SEM data showed normal features in C and E, the I (4 weeks) revealed a huge loss of nerve fibers and endoneurial collagen synthesis, the L and P (4 weeks) showed small clusters of nerve fibers. P and LP (8 weeks) revealed larger and more juxtaposed fibers in comparison to the injured groups discussed at 4 weeks.
Conclusions: The treatment with the F1 and LLLT suggest an improvement in the recovery of crushed peripheral nerve (4 and 8 weeks). After 8 weeks, the treated groups were more similar to each other, revealing the time-dependency. The groups that received F1 associated or not to LLLT showed the better results.

Education and Evaluation Program for Police Officers and Firemen on Dental Trauma, Chiloé Archipelago, Chile 2017.

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Objectives: To educate volunteers of the 1st, 2nd and 3rd Firefighters Company of Achao and Police Officers of the Police Station of Achao about the most frequent Dental Trauma in children and adults, the ways of providing basic and timely assistance to those affected and the timing of referral to specialists, and then make an evaluation.
Methods: An education was made to 57 volunteers of the 1st, 2nd and 3rd Firefighters Company of Achao and 20 Police Officers of the Police Station of Achao. In each institution education performed with a PowerPoint presentation on generalities, types of dental trauma and mediums of preservation. A macromodel of a tooth was used, to teach the correct manipulation in case of trauma. A written evaluation was made using a questionnaire of True and False with 10 questions. Finally the questions of the test were discussed and doubts clarified, diptychs were given with a summary of the information. The data collection was carried out by an investigator (B.M.), through electronic register. Then, we proceeded to analyze them through descriptive statistics and present them by simple graphics analysis.
Results: A total of 77 evaluations of a 10 questions test were performed, with 25% answered by women and 75% by men. In the results 90% got the total score of correct answers, 8% obtained 9 correct answers and 2% obtained 8 correct answers.
Conclusions: The data obtained in this study show the interest of the participants to learn about an area of utility in case they come to face a dental trauma in their daily work. The results obtained in the evaluation show that the education was successful, since 90% of the individuals in charge of attending emergencies obtained the total test score.

Effectiveness of walking bleach technique measured with VITA classical guide.

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Objectives: The aim of this study was to compare the clinical effectiveness of 35% hydrogen peroxide versus 37% carbamide peroxide up on bleaching in discoloured non-vital teeth with Vita Classical Guide.
Methods: Bleaching of the 44 teeth was randomly divided into two groups according to the bleaching agent used: G1= hydrogen peroxide 35% (n=21) and G2= carbamide peroxide 37% (n=23). The non-vital bleaching was performed in four sessions using Walking Bleach technique. The colour was evaluated with the Vita Classical Guide, arranged from highest (B1) to lowest (C4) values, in 7 times: baseline, after four sessions of intracameral bleaching, one week after treatment, 1 month and 3 months after treatment. Colour changes were recorded as the difference between the baseline and the different evaluation times, expressed in the number of colour guide units (ΔSGU) The statistical analyses were performed using the Mann-Whitney test (α=0.05).
Results: The median (min: max) to the month after bleaching are G1= 9(2:13) and G2= 7(1:13). To the third are G1= 9(2:13) and G2= 7(1:12). There was a significant difference at any time point ($p<0.05$) until the month after treatment. In the 3 months after bleaching, there is no significant difference between the bleaching agents ($p=0.56$).
Conclusions: At three months, there is no difference in the effectiveness of both agents, both of which are highly effective, when measured with VITA classical guide.

EFFECT OF DIFFERENT TEETH WHITENING SYSTEMS ON AESTHETIC SELF-PERCEPTION

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Objectives: To evaluate the effect of different whitening systems on aesthetic self-perception measured by OHIP-14 and corresponding factors and whether there are differences between different bleaching systems.
Methods: 165 Chilean adult patients answered the 14 questions of the OHIP aesthetic survey prior to being submitted to 4 different types of teeth whitening. 34 were treated in office with 6% hydrogen peroxide without light, 31 with 6% Hydrogen peroxide with light, 58 with at home 10% Carbamide peroxide and 42 were bleached only in a non-vital piece. One week after the intervention, the same questionnaire was applied. We evaluated only 8 factors of the survey.
Results: In the total group of patients, there was a statistically significant difference comparing prior to and one week after bleaching in all factors evaluated. In the group of patients treated in non-vital pieces as in those treated with 10% carbamide the factors physical pain and social incapacity the difference was no statistically significant, as in the other groups that did not obtain significant differences in different factors in patients treated with 6% hydrogen peroxide with light in the factors physical pain, physical incapacity, psychological incapacity and in handicap and those treated with hydrogen peroxide at 6% without light in factors functional limitation, physical discomfort, handicap, and in the total score of the patients.
Conclusions: There was a positive effect on the quality of life of bleached patients of the different systems. There was heterogeneity in the influence on the factors of the different systems.

Effectiveness 6%HP for tooth bleaching at 24 months, by Spectrophotometer measurement

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Objectives: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at 24 months of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent by VITA Easyshade Compact Spectrophotometer.
Methods: 19 patients were treated with: one upper hemiarcade with a 35% hydrogen peroxide bleaching agent and the other hemiarcade with a 6% hydrogen peroxide. Two applications were completed each treatment session and three sessions were appointed, with one week interval between them. Tooth colour was registered each session and at 24 months after completing the treatment by spectrophotometer, registering parameters Delta E by spectrophotometer reference. Tooth colour variation were compared between both bleaching agents.
Results: Both treatment showed a change between baseline colour and all check-points with a ΔEs =10.54 for 6%, ΔEs=11.06 for the 35% 2 years after completing the period with a don't was statistical difference comparison at 2 years, the parameters shows a maintained the effectiveness along the period assessed.
Conclusions: A 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated agent is effective for tooth bleaching, with no difference of effectiveness with the traditional concentration by Delta Es assessed.

Effectiveness 6% H_2O_2 for tooth bleaching at 6-months, Vita Bleachguide

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Objectives: The aim of this prospective clinical randomized study was to assess the effectiveness at 6 months of a 6% hydrogen peroxide, compared with 37,5% hydrogen peroxide, using VITA bleachguide
Methods: 31 patients were treated with a "split-mouth" design: One upper hemiarcade with a 37,5% hydrogen peroxide bleaching agent (pola office+ 37.5%, SDI) and the other hemiarcade with a 6% hydrogen peroxide (Pola Office+ 6%, SDI) without light to catalyze the reaction. Two sessions were appointed, with one- week interval between them and three applications were completed in each treatment session. The color was taken by two calibrated examiners in the latelar incisive. Measurements were performed before bleaching (baseline) and 1 week, one and 6 months after completing the bleaching treatment, using a visual measurement with the VITA Bleachguide. A numerical value was assigned to the scale to calculate the color change between sessions (ΔSGU). The statistical analyses were performed using the Mann-Whitney test (α=0.05)
Results: Both treatments demostrated a change with the baseline color. ΔSGU values expressed in median (min;max) at different times: T1: 37.5%HP= 4 (2;6) and 6%HP= 3 (1;6); T2: 37.5%HP= 4 (1;6) and 6%HP= 3(0;6); T3= 37.5%HP= 3(0;5) and 6%HP= 6(1;9); T4= 37.5%HP= 3(2;5) and 6%HP= 2(0;4). There was no observed statistical differences when the subjective evaluation with VITA bleachguide were compared in T1 (p=0.095) and T2 (p=0.068). The difference between the two groups was statistically significant in T3 (p=0.036) and T4 (p=0.005).
Conclusions: Both concentrations are clinically effective, but 6% hydrogen peroxide shows a greater color regression, presenting significant difference with hydrogen peroxide 37.5% at one month and six months after bleaching, measured with VITA bleachguide.

Localization of interleukin-6 receptor in apical lesions of endodontic origin.

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Objectives: Interleukin (IL)- 6 is a pleiotropic pro-inflammatory cytokine expressed in high levels in periapical lesions with both local and systemic effects. IL-6 classically acts by binding to IL-6 receptor (IL-6R), which is restricted to the cell surface of hepatocytes and some leukocytes, but its presence in apical tissues is unknown. We aimed to determine whether human apical lesions of endodontic origin and healthy periodontal ligaments express IL-6R protein.
Methods: Healthy periodontal ligament samples (n=7) and apical lesions from patients with clinical diagnosis of asymptomatic apical periodontitis(n=14) were included and either homogenized for determination of IL-6 levels by ELISA or processed for anatomo pathological diagnosis and immunohistochemistry to localize IL-6R and IL-6.
Results: IL-6R was found in high levels in apical lesions, but not in healthy periodontal ligaments. The immunostaining pattern of granuloma samples determined the presence of IL-6 in endothelial cells and mononuclear leukocytes, while IL-6R also immunolocalized in neutrophils. IL-6R was also immunopositive in the epithelial lining of apical cysts.
Conclusions: IL-6 and its receptor are found in periapical lesions of endodontic origin, specifically in leukocytes, endothelial cells and cyst epithelial lining, contributing to explain IL-6 mediated effects during periapical inflammation.

Effect of two gels in intracoronary bleaching on the levels of IL-1ß, three-month follow-up.

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Objectives: Measure IL-1ß levels in the FGC after intracoronary bleaching with 35% Hydrogen Peroxide and 37% Carbamide Peroxide in endodontically treated teeth, up to three months after bleaching.
Methods: The study included 50 endodontically treated teeth with intracoronary bleaching. Two study groups were randomly formed according to bleaching agent, G1: 35% hydrogen peroxide (n = 25) and G2: 37% carbamide peroxide (n = 25). Intracoronary bleaching was performed by walking bleach technique with a protocol of 4 sessions of bleaching. Gingival Crevicular Fluid samples (FGC) were taken to determine levels of IL-1β using absorbent paper Periopaper® at 6 sites per tooth to treat, 3 vestibular and 3 palatine (mesial, middle and distal) at the following times: before the start of treatment (baseline), one month after treatment and three months after treatment. Total protein levels were quantitated using the Bradford® system and from 100 ul of eluted sample levels were measured IL-1β by ELISA (Quantikine®, R & D Systems Inc.). The results were expressed in median (min-max). Differences were analyzed by Wilcoxon and Mann Whitney test.
Results: Levels of IL-1ß had significantly increased relative to baseline in all evaluated times (p<0,05). G1: baseline:92.90 (20.67,206.01), one month:159.04 (51.51,436.76), three month:133.06 (18.75,405.82). G2: baseline:98.47 (30.65,279.54), one month:182.12 (61.12,391.12), three month:145.49 (16.13,435.21). There were no statistically significant differences between the study groups (p>0,05).
Conclusions: IL-1β levels increased up to one month after bleaching, but they began to decrease by the third month. The levels reached in the present study are consistent with those detected in inflammatory processes.

Effects of different dental whithening systems in psicosocial impact of dental aesthetics.

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Objectives: To assess the effects in psicosocial impact considering 4 factors: dental self confidence, social impact, psicosocial impact and aesthetic perception, immediately and a week after treatment, and if exists differences between different whitening systems.
Methods: Before and a week after dental whitening patients took a questionary (PIDAQ). with 23 questions, where 4 factors were evaluated, such as dental self confidence, social impact, psicosocial impact and aesthetic perception. The sample consists in 165 chilean adult patients submitted to 4 different dental whitening types, where 42 patients was treated with a non-vital tooth whitening system, 34 patients used 6% hydrogen peroxide without light, 31 patients were treated with 6% hydrogen peroxide with light and 58 patients used 10% carbamide peroxide.
Results: Considering all patients bleached (165 patients) there was a statistically difference in all factors. Comparing delta of all factors, each group results wasn't statistically significant, except in aesthetic perception factor between hydrogen peroxide at 6% in office group and non-vital dental whitening
Conclusions: Different teeth whithening systems generated a positive effect about psicosocial impact in all factors. The dental whitening in non-vital tooth generates a significant impact over aesthetics perception compared to teeth treated with in office 6% hydrogen peroxide with light.

EFFECTIVENESS 6% HYDROGEN PEROXIDE FOR TOOTH BLEACHING V/S 37.5% HYDROGEN PEROXIDE MEASURED WITH SPECTROPHOTOMETER VITA EASYSHADE®.

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Objectives: Compare the clinical effectiveness of tooth bleaching using 6% hydrogen peroxide (PH37.5%) versus 37.5% hydrogen peroxide (PH6%), measured with spectrophotometer Vita EasyShade® at six-month follow-up.
Methods: Clinical randomized double-blind split-mouth study. 24 patients periodontally healthy, without tooth decay, tone A3 or higher in scale Vita Classical determined by the spectrophotometer Vita Easy Shade. Upper hemi arcade was divided in two, one hemi arcade was treated with 3 applications of 12 minutes with a PH37.5% (Pola Office+ SDI) and other one was treated with 3 applications of 12 minutes with a PH6% (Pola Office+ SDI). Two sessions were appointed with a time range of a week. Tooth color was registered 8 times: baseline (BS), after first session of bleaching (L1), before and after second session of bleaching (L2- L3) and a week (L4), one month (L5), three months (L6), and six months after treatment (L7). Vita Easy Shade spectrophotometer is used with the CIE L*a*b system to measure color variation (ΔE), between the baseline and different evaluation times. Every time, color was registered in the same place, with a silicone matrix previously settle.
Results: Both treatments demonstrated a change between baseline color and all check-points with a ΔE = 8.5 for 37.5% hydrogen peroxide and a ΔE = 4,2 for the 6% hydrogen peroxide at six-month follow-up. There are significant statistical differences between both treatments and this difference increased until the sixth month (p=0.001), measuring with Spectrophotometer.
Conclusions: A 6% hydrogen peroxide agent is effective for tooth bleaching, but 37.5% hydrogen peroxide is more effective, showing statistical differences in ΔE values.

Role Of The Dentist In The Anti-Tobacco Counseling

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Objectives: The aim of this study was to evaluate the role of the dentist in the anti-tobacco counseling in the primary health care attention at the Municipal Corporation of Valparaíso (MCV).
Methods: Cross-sectional study in which dentists (n=36) of the MCV were evaluated through a survey, previously submitted to a validation and estimated its reliability through the Cronbach's Alpha (0,7), which consisted of 20 questions about oral health and tobacco knowledge, attitudes and limitations regarding anti-tobacco counseling.
Results: 75% of the dentists reported to perform the anti-tobacco counseling, even when 100% of them reported that the lack of time, and 83% reported that the lack of training are the main limitations. Regarding the area of knowledge, 94,4% of the dentists correctly answered questions about oral diseases associated with tobacco use, however, only 16,7% correctly answered questions about anti-tobacco counseling guidelines proposed by Minsal.
Conclusions: When evaluating the role of the dentist in anti-tobacco counseling, a large majority of them performed counseling, however a small percentage have knowledge about the guidelines and protocols proposed by Minsal. The lack of time and training are the main limitations identified by dentists, which largely limits the implementation of counseling, bringing as a final result not to perform it in many cases or to do so with less efficiency than expected.

Effectiveness of Bleaching with 6% H_2O_2, 6-month follow-up with VITAclassical.

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Objectives: The aim of this study was to assess the clínical effectiveness of tooth bleaching using 6% Hydrogen Peroxide versus 37.5% Hydrogen Peroxide, at 6 months measured with VITAclassical guide.

Methods: A prospective and randomized clinical trial was carried out in 31 patients, with a "split-mouth" design. One side of each mouth was randomly treated with 37.5% hydrogen peroxide (37.5%HP) (Pola Office+, SDI), and the other side was bleached with 6% hydrogen peroxide (6%HP) (Pola Office+ 6%, SDI). Each group received 3 to 12 minutes of treatment with the respective gel applications. Two sessions of bleaching were carried out each week.
Two calibrated evaluators recorded the shade of both lateral incisors at 5 different times: baseline, immediately after second sessions of bleaching (T1) and 1 week (T2), 1 month (T3) and 6 month (T4) after bleaching, using VITAclassical guide, which was arranged from the lightest (B1) to darkest (C4) value. ΔSGU were calculated in each group. We compared ΔSGU for both agents using the Mann-Whitney test.

Results: Both treatments demostrated a change between baseline color. ΔSGU values expressed in median (min;max) at different times are T1: 37.5%HP= 7 (3;9) and 6%HP= 7(3;9); T2: 37.5%HP= 7 (2;9) and 6%HP= 6(2;9); T3= 37.5%HP= 7(1;9) and 6%HP= 6(1;9); T4= 37.5%HP= 7(2;9) and 6%HP= 6(1;8). No statistical differences were observed when subjective evaluation with VITA classical guide were compared in T1 and T2 (p>0.05). The difference between the two groups was statistically significant in T3 (p=0.034) and T4 (p=0.041).

Conclusions: Both concentrations are clinically effective, but 6% hydrogen peroxide shows a greater color regression, presenting significant difference with hydrogen peroxide 37.5% at month and 6 months after bleaching, measured with VITA classical guide.

Effectiveness of Walking Bleach technique measured with Vita-Bleachguide, 3-months follow-up

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Objectives: The aim was to evaluate the clinical effectiveness and the stability of the color change at 3 months bleaching of non-vital teeth with hydrogen peroxide 35% and carbamide peroxide 37% with Walking Bleach technique, measured with Vita 3D-Bleachguide.

Methods: 44 teeth were randomly divided into two groups: G1= hydrogen peroxide 35% (n=21) and G2= carbamide peroxide 37% (n=23). The intracameral bleaching was performed in 4 sessions with Walking Bleach technique. Two calibrated and independent examiners took the color with the Vita-Bleachguide before to treatment (baseline), immediately after each whitening session, one week, one month and three months after bleaching. Color evaluation was in the middle third of the tooth in the vestibular surface of the tooth bleaching according to the recommendations of the ADA. Color changes were recorded as the difference between baseline and different evaluation times, expressed in the number of color guide units (ΔSGU). The statistical analyses were performed using the Mann-Whitney test (α = 0.05).

Results: The ΔSGU values (median (min:max)) were : After 4 sessions bleaching G1= 3(0:5) G2= 4(2:8); one week after bleaching and restoration G1= 5(1:9) G2= 4(2:7), one month after bleaching G1= 5(1:9) G2= 4(2:7) and three months after bleaching G1= 5(0:7) G2= 4(2:7). Statistically significant difference (p<0.05) was found with the Mann Whitney test at all times evaluated.

Conclusions: Both agents are highly effective with Walking Bleach technique in non-vital teeth and the color remains stable up to 3 months.

Macrophages polarization (M1/M2) in patients with periodontal lesions.

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Objectives: Periodontal lesions associated with chronic marginal (CP) and apical periodontitis (AP) are characterized by alveolar bone destruction by infectious origin. It is accepted that the cause of periodontal destruction is the immune-inflammatory response where macrophages play a fundamental role. Macrophages may have a pro-inflammatory (M1) or anti-inflammatory (M2) phenotype that are regulated by a polarization process, which has been identified at different stages of disease.
The objective of this review is to analyze the role of macrophages polarization (M1 vs M2) in marginal and apical periodontal lesions in clinical studies.
Methods: An independent search was conducted by two authors in Medline and Embase databases on original research studies published during the last five years using the following MeSH terms: 'macrophage polarization', 'periodontitis' and 'alveolar bone resorption'. We found 14 articles, of which only four corresponded to clinical studies in humans.
Results: Clinically, the progression of marginal and apical periodontal lesions has been observed to be related to a predominance of M1 on M2 monocytes / macrophages in gingival tissue, peripheral blood and / or periapical lesions. A relevant methodological limitation is the lack of generic macrophage labeling to confirm that the profile identified corresponds specifically to this cell population.
Conclusions: There is a relationship between the macrophage polarization and the level of inflammation of the periodontal lesions. However, the characterization of macrophages profiles requires the realization of future clinical studies that use macrophage markers jointly.

Hyaluronic Acid for Treatment of Experimental Osteoarthritis: evaluation through microCT

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Objectives: To evaluate the morphological effects of treatment with hyaluronic acid (HA) for temporomandibular joint osteoarthritis (TMJOA) in rats, using micoCT
Methods: TMJOA was induced in 10 rats Sprague-Dawley (male, adults) through bilateral injection of monoiodoacetate 1% (50 ul). At 4 weeks, the TMJOA lesions were identified using Cone-Beam CT. The right TMJs of the rats were then treated by HA 1% injection (50 ul) (as the experimental group) and the left TMJs of the rats were injected with phosphate buffer solution (pH 7.4) (as the control group). Animals were sacrificed at 4 and 8 weeks post treatment and TMJs were evaluated using a high-resolution microCT. The following morphological parameters were evaluated: mandibular condyle (MC) size, condyle neck (CN) size and joint fossa (JF), and distance between the MC and JF. In addition, the density of bone in the MC was evaluated using different ROIs.
Results: A significant difference in the MC size found at 4 weeks for the experimental (p=0.014) and control (p=0.046) group. In the control group, the mean measures for MC and CN decrease over time (Table 1). The distance between MC and JF is greater in the experimental group than in the control group through time. Regarding to the density of bone in the MC, a significant difference was found only in the control group at 4 and 8 weeks after the treatment (p=0.003, p=0.001 and p=0.023 for the different ROIs).
Conclusions: Through Cone-Beam CT was possible identify TMJOA lesions at 4 week after injection of monoiodoacetate. When the TMJs are not treated, it follows that the condyle and fossa are flattened and distant, the condyle appears smaller, dense, cortical and porous, and with less trabecular volume. The treated TMJs appear to maintain their morphology.

IMMEDIATE CLINICAL PERFORMANCE OF CERVICAL BULK-FILL COMPOSITES ACCORDING FDI CRITERIA.

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Objectives: To compare immediate clinical performance in cervical restorations with two Bulk Fill composite and a conventional composite by FDI criteria.

Methods: There were recruited 42 voluntary patients, with at least 3 cervical lesions. Were distributed randomly in: Group TB: 42 Restorations with resins Bulkfill Tetric N-Ceram (Ivoclar Vivadent), Group FB: 42 restorations Filtek Bulkfill (3M-Espe) and Group Z350: 42 restorations Filtek Z350 (3M-Espe). The restorative procedure was done with absolute isolation and anesthesia. All cavities were conditioned in enamel for 20 seconds with 37% phosphoric acid and then rinsed, dried and applied adhesive Single Bond Universal (3M ESPE, St. Paul, MN, USA) in cavities of groups FB and Z350, while in the cavities of the TB group was applied adhesive Tetric N-Bond Universal (Ivoclar-Vivandent). The TB and FB restorations were done with only layer and Z350 were restored for multilayer. Adhesive and restorations were polymerized for 30 seconds with a Bluephase Style light-curing unit (Ivoclar-Vivandent) with intensity of the light 1.200mW/cm2. A calibrated operator (Cohen Kappa >0.8) evaluated the restorations by FDI criteria two weeks after. For the statistical analysis of the information was used the software SPSS 21.0 and the Kruskal Wallis, the Mann-Whitney test was used with a level of significance of 95 %.

Results: 95,3 % of the group FB and Z350 were evaluated with 1 in all parameters; while in the group TB it was 100 %. There was no significant difference between the groups (p >0.05).

Conclusions: The two bulk-filled composite-resin cervical restorations were no had significant difference in the immediate clinical performance compared with the nanofilled control restorations evaluated by FDI criteria.

Prevalence of cystic lesions in the jaws in pediatric patients.

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Objectives: To determine the prevalence of cystic lesions of hard tissue in jaws in pediatric patients from 0 to 12 years old attended at the Faculty of Dentistry of the University of Chile.

Methods: A descriptive observational study was carried out on a series of cases. The antecedents were obtained from the data records of the laboratory of pathological anatomy of the Faculty of Dentistry of the University of Chile. Records were selected between years 2000 and 2017. We included pediatric patients aged 0 to 12 whose diagnosis was within the classification of cystic lesions of hard tissue in the jaws and those of soft tissue were excluded.

Results: Of a total of 296 patients, 54.39% were male and 45.6% were female. Cystic lesions of hard tissue in the jaws with the highest prevalence according to the total age range were; Dentigerous cyst (53.04%), inflammatory follicular cyst (18.91%) and root cyst (13.17%). According to sex, in the male case they were; The dentigerous cyst (57.14%), inflammatory follicular cyst (18.01%) and root cyst (12.42%). In the female case they were; Dentigerous cyst (48.14%), inflammatory follicular cyst (20%) and root cyst (14.07%).

Conclusions: A timely indication of biopsy and its histological analysis, can determine a correct diagnosis of cystic lesions of hard tissue in the jaws, since there are other pathologies with similar clinical and radiographic characteristics, but with a different biological behavior. Because of this, it is possible to perform an adequate treatment and to obtain a satisfactory clinical evolution.

IMMEDIATE CLINICAL PERFORMANCE OF OCCLUSAL BULK-FILL COMPOSITES ACCORDING FDI CRITERIA

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Objectives: To compare immediate clinical performance in occlusal restorations with two Bulk- Fill composite and nanofilled composite by FDI criteria.

Methods: 48 voluntary patients, with 3 occlusal caries lesions in posterior teeth. The depth of the lesions were between 2.5mm-4.0mm with antagonist teeth. Were distributed randomly in: Group TB: 48 Restorations with resins Bulkfill Tetric N-Ceram (Ivoclar Vivadent. Liechtenstein), Group FB: 48 restorations Filtek Bulkfill (3M-Espe, USA) and Group control Z350: 48 restorations Filtek Z350 (3M-Espe, USA). The restorative procedure was done with anesthesia and absolute isolation. All cavities were conditioned in enamel for 20 seconds with 37% phosphoric acid and then rinsed, dried and applied adhesive Single Bond Universal (3M-Espe USA) in cavities of groups FB and Z350, while in the cavities of the TB group was applied adhesive Tetric N-Bond Universal (Ivoclar-Vivandent, Liechtenstein). The TB and FB restorations were done with an only layer (maximum deep 4mm) and Z350 was restored with 2 mm deep multilayer. Adhesive and restorations were polymerized for 30 seconds with a Bluephase Style light-curing unit (Ivoclar-Vivadent,Liechtenstein) with an intensity of light with 1.200mW/cm2. A calibrated operator (Cohen Kappa >0.8) evaluated the restorations by FDI criteria two weeks later. For the statistical analysis of the information a software SPSS 21.0 was used, Kruskal Wallis and Mann-Whitney tests were used with 95 %level of significance.

Results: 97,6 % of the group FB and Z350 were evaluated 1 in all parameters; while in the group TB it was 100 %. One postoperative sensibility case was reported in FB. There was not significant difference between the groups (p >0.05).

Conclusions: Both Bulk-fill composite-resin restorations oclusal had not significant difference in the immediate clinical performance compared with the nanofilled control restorations evaluated by FDI criteria.

IMMEDIATE CLINICAL PERFORMANCE OF PROXIMAL BULK-FILL COMPOSITES ACCORDING FDI CRITERIA.

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Objectives: To compare inmediate clinical performance in proximal restorations with two Bulk Fill composite and a nanofilled composite by FDI criteria.

Methods: 34 voluntary patients, with 3 lesions of proximal in posterior teeth. The depth of the lesions were between 2.5mm-4.0mm with antagonist teeth. Were distributed randomly in: Group TB: 34 Restorations with resins Bulkfill Tetric N-Ceram (Ivoclar Vivadent. Liechtenstein), Group FB: 34 restorations Filtek Bulkfill (3M-Espe, USA) and Group control Z350: 34 restorations Filtek Z350 (3M-Espe, USA). The restorative procedure was done with absolute isolation and anesthesia. All cavities were conditioned in enamel for 20 seconds with 37% phosphoric acid and then rinsed, dried and applied adhesive Single Bond Universal (3M ESPE, USA) in cavities of groups FB and Z350, while in the cavities of the TB group was applied adhesive Tetric N-Bond Universal (Ivoclar-Vivandent, Liechtenstein). The TB and FB restorations were done with only layer (maximum deep 4mm) and Z350 was restored for 2 mm. multilayer. Adhesive and restorations were polymerized for 30 seconds with a Bluephase Style light-curing unit (Ivoclar-Vivadent, Liechtenstein) with a intensity of the light with 1.200mW/cm2. A calibrated operator (Cohen Kappa >0.8) evaluated the restorations by FDI criteria two weeks after. For the statistical analysis of the information was used the software SPSS 21.0, Kruskal Wallis, Mann-Whitney test were used with 95% level of significance.

Results: 97,6 % of the group FB and Z350 were evaluated 1 in all parameters; while in the group TB it was 100 %. One case postoperative sensibility was reported in FB. There was no significant difference between the groups (p >0,05).

Conclusions: The two bulk-filled composite-resin restorations proximal were no had significant difference in the immediate clinical performance compared with the nanofilled control restorations evaluated by FDI criteria.

Instrument to evaluate local anesthetics in dental surgeons

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Objectives: To construct and validate an instrument to evaluate knowledge, attitudes, and access to evidence about local anesthetics in dental surgeons.

Methods: We created a questionnaire with 3 dimensions; knowledge, attitudes and access, where the knowledge dimension was evaluated using multiple selection questions and the other two dimensions using a Likert scale. A cualitative validation was performed with 10 faculty dental surgeons. Then, these 10 experts selected the final questions for the knowledge item in a focus group. To carry out the validation, the survey was applied to fourth and fifth-year students and faculties of the UACh School of Dentistry. The internal consistency of the instrument was evaluated with Cronbach's Alpha Coefficient. The discriminative validity between the three groups by ANOVA test (post hoc Tukey). The test-retest reliability was assessed by applying the survey with a two-week interval between the first and second applications and using the Wilcoxon test.

Results: 110 questionnaires were completed. A Cronbach alpha of 0.73 was found. The test-retest reliability resulted in p = 0.954. Discriminant validity among the groups was statistically different (p <0.005).

Conclusions: The instrument has a good internal consistency, good discriminant validity for different groups and good test-retest reliability. Therefore, the measuring instrument is valid.

Effects Pre-cementing Cleaning Treatments On Adhesive Bond Strength In Indirect Composite

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Objectives: Assess cleaning effects and pre-cementation surface treatments under different application times (seconds), in bond Strength (BS; MPa) of Indirect Composite Resin (ICR) restorations.

Methods: 135 samples of ICR In:Joy were distributed in 27 groups (n = 5) according to the following variables: cleaning treatments (Ultrasound [US] - Negative control; Orthophosphoric acid 37% [OA], Ethanol 96% [E], Treatments Of surface (Silan [S]; Monobond Plus [M]; Primer of MDP [MDP], Application times (5,15,30 seconds).
At the same time 45 samples of IRC VITA ENAMIC (VE) were distributed in 9 groups
(n=5) according to the following variables: cleaning treatments (96% Ethanol [E]), surface treatments (Silane [S], Monobond Plus [M]; MDP primer [MDP]), Application times (5, 15, 30 seconds).
The adhesive area was delimited with double tape made. Five cylinders (1 mm high x .38 in.) of cement (Variolink Esthetic Veneer) per sample were made on treated and photopolymerized surfaces (40s). After standing 24hrs/37 degrees in distilled water, they were subjected to BS testing (0.5 mm / min) until fracture in a universal test machine. Data analyzed with ANOVA and Tukey test ($\alpha = 0.05$).

Results: In the In: Joy samples the highest BS values (MPa) was observed in the US cleaning protocol for 15 seconds with MDP surface treatment (9.2 ± 2.1) p <0.05. The lowest BS was observed in the cleaning protocol with AO for 15 seconds with MDP surface treatment (2.3 ± 1.6). While in VE, with E cleansing protocol, the highest RU was reached at 30 seconds with MDP surface treatment (11.5 ± 3.5), the lowest being 30 seconds with S (4.09 ± 1 , 28). (78) 242

Conclusions: The higher BS was RCI VE, compared to In:joy, both had an improvement when aplicated phosphate monomers as a surface treatment protocol, except those incorporating OA. However, the use of E as cleaning treatment behaves differently between both resins, obtaining a better BS in In: joy at 5 seconds, and at 30 seconds at VE.

Evaluation of Short-Term Effectiveness of Manual Therapy for Myofascial Pain: A randomized controlled trial

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Objectives: To determine short-term efficacy of Orthopedic Manual Therapy (OMT) for management of myofascial pain (MFP) in young adults

Methods: A randomized controlled trial (RCT) was performed in young adults between 19 and 24 years. 40 patients with MFP according to Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD) were assigned randomly in two groups. Group A: Orthopedic Manual Therapy (n=20; 13 female, 7 male; 21.55 ± 1.60 years) and Group B: Control group (n=20; 13 female, 7 male; 21.3 ± 2.10 years). The OMT treatment was received in a period of 6 weeks and consisted of 7 therapeutic interventions. Degree of dysfunction (Helkimo index), pain level (VAS scale) and range of mandibular movements (opening and lateral movements) were taken at baseline and immediately post-treatment. The data were analyzed with Chi-square test and ANOVA; $p < 0.05$ was considered significant

Results: After OMT, there were no significant changes in diagnosis of MFP according to RDC/TMD (p=0.38); however, there was a statistically significant improvement in the Helkimo Index (p=0.001) and the level of pain conforming to the VAS scale (p=0.007). In relation to the mandibular movement, only a statistically significant difference was observed in the number of patients who increased jaw opening ($p < 0.05$) while there was no significant difference in lateral jaw movements (p=0.53)

Conclusions: This study suggested that a six weeks period of OMT treatment has a clinically significant effect in pain level, jaw opening and degree of dysfunction in patients with MFP. A longer follow-up study is required to better assess the effect of manual therapy.

Maxillary canine impaction: frequency and characterization from patients UNAB Santiago, 2011-2014.

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Objectives: To determine the frequency of permanent maxillary canine impaction (MCI) from patients treated on Orthodontic Clinic, Faculty of Dentistry, Andrés Bello University, Santiago.

Methods: An observational and descriptive study was performed from patients between 2011 and 2014. The subjects were included according to the presence of at least one maxillary canine with reduced prognosis of eruption prognosis. Permanent maxillary canines impacted were diagnosed by the panoramic x-ray tracing using the Lindauer and Power & Short methods. Sagittal skeletal relationship were determined based on the analysis of Steiner and Ricketts by a previously calibrated investigator.

Results: From a 419 patients treated between 2011-2014, 46 subjects were included in this study. The sample consisted in 29 female (63%) and 17 male (37%). The age range was 11-42 years (SD: 7.03 years, mean: 17 years). 55 maxillary impacted canines were observed in 46 patients included. According to the impaction side, 26% were found on the right side, 54% on the left side and 20% bilaterally. The distribution of permanent MCI conforming to sagittal skeletal relationship were: Class I, n=15 (32.6%); Class II, n=24 (52.2%) and Class III, n=7 (15.2%).

Conclusions: The highest frequency of permanent maxillary canine impaction were observed in female patients, unilaterally and skeletal class II patients, which would be in agreement with previous studies.

Impact of the program "Sembrando sonrisas" on caries and fluorosis

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Objectives: Evaluate the impact of the program "Sembrando Sonrisas" on caries incidence, history of caries (ceo-d) and fluorosis of vulnerable pre-school children, aged 2 to 5 years, in the community of Yerbas Buenas, Chile 2014-2015.
Methods: A longitudinal observational descriptive study. In the framework of the implementation of preventive and promotional activities of the program "Sembrando Sonrisas" during the years 2014 and 2015 oral examinations was carried out by a single examiner, with prior informed consent. The data was recorded in a clinical form adapted from the WHO model (WHO. Oral health surveys. Basic methods. 1987), considering the situation of caries and fluorosis. A baseline measurement was performed before and after the intervention. For the statistical analysis and comparison of results, the Shapiro-wil, t-student and p-value tests were performed.
Results: 54 children from 2 to 5 years who were beneficiaries of the program were considered. The mean baseline ceo-d was 1.9 (SD=2.4), component c was 1.9 (SD=2.4) and fluorosis was 0.2 (SD=0.4). A prevalence of caries of 54% and fluorosis of 29% was identified. The results of the examination after the intervention was: ceo-d=2,8 (SD=3,8), component c=2,7 (SD=3,7) and dental fluorosis= 0,2 (SD=0,4), prevalence of caries =58% and prevalence of fluorosis = 20%. The statistical analysis showed no significant differences between the results of ceo-d before the intervention and after (p=0.1708), likewise, there were not significant differences detected in the result of c-component (p = 0.1836). Finally, there was not significant differences observed among average values of fluorosis before and after the application of the program (p = 0.4193).
Conclusions: The results showed that "Sembrando Sonrisas" program had an impact in containing the incidence of caries without increasing the incidence of fluorosis, however, it does not take charge of the previous burden of disease.

Influence of calories and protein intake in patient recovery after dental surgery. An analytical observational study

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Objectives: To determine the relationship between calories and proteins intake with the patient recovery after dental surgery
Methods: An analytical observational, cases and control study was performed on 30 patients (16 females, 14 males; mean age: 26.5 years; SD 12.99 years) from University of Valparaíso, Valparaiso City. The patients were included in this study according to the indications of at least one dental surgery. Calories (hypercaloric, normocaloric, hypocaloric) and protein (hyperproteic, normoproteic, hypoproteic) consumption diet were established using a Food Diary after surgery until the patient was checked (1 to 4 days register). Trismus presence, maintenance of swelling, bad smell, pain extension and pain perception were evaluated in the recovery of post dental surgery. Data were analyzed using Chi-square test with 95% C.I.
Results: Diagnosis for surgical procedures included impacted molar (40%), semi-impacted molar (33.3%), impacted canine (3.3%), and others (23.3%). Relating caloric consumption diet, significant differences were observed between among low calories intake, maintenance of swelling until the patient was checked (p=0.014) and trismus presence until third day post-surgery (p=0.005). Regarding protein consumption diet, only association found were among low protein intake with maintenance of swelling until fourth day post-surgery (p=0.018) and trismus presence (p=0.049).
Conclusions: A hypocaloric and low-protein consumption diet would have an influence on the development of some immediate symptoms after dentoalveolar surgery such as maintenance of inflammation, initiation and maintenance of trismus. Studies with better design and follow-up are needed to establish more consistent conclusions.

Modulation of Candida albicans biofilms by Coriandrum sativum L. An in vitro and in vivo infection model

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Objectives: To investigate the antifungical activity of *Coriandrum sativum* L essential oil (EO) biofilms both *in vitro* and *in vivo,* secreted proteolytic enzymes and bioluminescence quantification *in vivo*.
Methods: The Shapiro-Wilk test was used for the assessment of normality, significance level was set to 0.05, Data were analyzed using STATA™ (version 10.0) and GraphPad (version 5.0).
Results: EO (1 mg/mL; 20x MIC) significantly reduced *C. albicans* (MYA 2876) biofilms growth compared to the vehicle control group (1% etanol), as indicated by the reduction of colony formation unit (CFU/mL/g) of biofilm dry weight. Furtheremore, proteolytic enzymatic activities of proteinases and phospholipases, secreted by *C. albicans* were significantly decreased in the coriander treated biofilms (p<0.05). *In vivo* model utilized longitudinal imaging of oral andidiasis fungal load using a bioluminescent-engineered *C. albicans* (*SKCa23-ActgLUC)* and coelenterazine substrate. Mice treated with (1 mg/mL, 20x MIC) treatments significant reduction in total photon flux over 5 days post-infection (ROI= 1.18×10^6). Similarly, *ex vivo* analysis of tongue samples, showed a significant decrease in CFU/ml/mg (1.18×10^6) compared to the control group. Histopathological analyzis demonstrated a quialitaticve reduction in the number of inflammatory cells.
Conclusions: Results suggest the potential of EO as a novel antifungal agent for future clinical use in dentistry.

Men are more affected than women by differences in masticatory loads. A geometric morphometric approach

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Objectives: The large variation of the mandible shape among populations has been attributed to several factors. One of them has been proposed to be the intensity of masticatory loads, product of diets of different consistency and the different stresses they cause in bone. There is also sexual dimorphism in the shape of the skull. Beyond genetics, men and women differ in their metabolism and ontogenetic timing. This implies that men are exposed for longer to environmental factors. The aim of this study is to assess if the effect of masticatory loads on mandible shape differs between sexes.
Methods: To this end, we used computed tomography scans (CTs) of the mandibles of 70 individual from arqueological and modern collections (with known or assigned sex and different subsistence economies). After obtaining a 3D virtual model from their CTs, the shape of each individual was defined by a 32 landmarks configuration. These landmark configurations were analyzed with geometric morphometric tools to investigate the relationship between masticatory load, sex and mandible shape.
Results: The results show that there is a strong relationship between masticatory loads and shape, but this is expressed only in males, with a more robust anatomy of the mandibles of the individuals that were under a high masticatory stress.
Conclusions: These results suggest that the men and women are affected differently by masticatory loads. This effect is likely due to differences in developmental timing, and it can be an underlying factor determining variation in mandibular shape. This is relevant in clinical dentistry and also in anthropology and anatomy.

PREVALENCE AND INTENSITY OF POSTOPERATIVE SENSITIVITY DURING THE TREATMENT OF FIXED PROSTHESIS ON VITAL TOOTH CARRIED OUT BY STUDENTS OF THE 4TH AND 5TH YEARS AT THE HEALTH CENTER OF THE UNIVERSITY OF LOS ANDES. CLINICAL DESCRIPTIVE PILOT STUDY

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Objectives: To measure the prevalence and intensity of post-operative sensitivity in the treatment of fixed prosthesis on vital tooth.
Methods: A descriptive pilot clinical study was conducted. The sample consisted of patients attended by students of the Odontological Center of the University of Los Andes, who were treated on a fixed prosthesis on a vital tooth, from April to October of the year 2015, with informed consent. The sensitivity of the treatment was conduced by means of analogous visual scale during a journal completed by the patient, and the numerical verbal scale was applied by the researcher in different clinical stages. Statistical analysis was performed using the Stata software version 14.0.
Results: The sample consisted of 35 teeth of 20 patients. It was observed a prevalence of 32.4% and an intensity of 0.62 + 0.49 according to the visual analogue scale and of 0 according to the numerical verbal scale.
Conclusions: The prevalence of post-operative sensitivity was 32.4%, approaching the highest range registered in the literature. The sensitivity intensity observed was mild to clinically imperceptible. Further studies are recommended, as same as an increasing sample.

Gingival condition in schoolchildren of municipal schools: prevalence and severity

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Objectives: To determine the gingival health condition in schoolchildren aged 6 to 12 years according to age and gender.
Methods: Two calibrated examiners performed a gingival index of Löe and Silness (GI) and Community Periodontal Index (CPI), according to WHO recommendations on index teeth, to 192 schoolchildren between 6 and 12 years old, attending two municipal schools in two communes of the Metropolitan Region. The prevalence of gingivitis (PG) was estimated using three case definitions: PG1= average GI ≥0.5, PG2= ≥1 periodontal site with bleeding at examination (IG= 2), PG3= CPI> 0. The severity was categorized according to the average GI (mild: IG 0.5-1, moderate: IG 1.1-2, severe: IG 2.1-3), and percentage of periodontal sites with bleeding on examination.
Results: Of the students examined, 63.5% were boys and 36.5% were girls, with a mean age of 8.4 ± 1.9 years. 66.7% and 33.3% were between 6-9 and 10-12 years respectively. The prevalence of gingivitis was PG1= 98.9%, PG2= 88% PG3= 90.6%. We found a significant difference according to age ranging from 83.6% to 87.5% for age 6-9 years and from 96.9% to 96.8% at 10-12 years in definitions PG2 and PG3 respectively (p <0.5). The mean GI was 1.03 ± 0.19, 55.2% of the students had mild gingivitis and 43.7% had moderate gingivitis. 36.9% of the boys presented moderate severity, as opposed to 55.7% of the girls (p <0.5). 3.7% presented >25% of their periodontal sites examined with bleeding, with difference according to age group (2.3% versus 6.3%).
Conclusions: Presence of gingivitis is a highly prevalent condition in the study population compared to national reports. The definitions that consider the presence of bleeding detect more children in periodontal health condition. It reinforces the need to continuously implement preventive measures from an early age in more vulnerable schoolchildren.

Perception Of The Visual-Thinking Learning Strategy Applied in Periodontics

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Objectives: To determine the perception of students regarding the application of the Visual Thinking Learning Strategy in Periodontics I in Valparaíso University.
Methods: A voluntary questionnaire was carried out among all the students of the subject Periodontics I. Such questionnaire contained a five level Likert scale -Completely Disagree, Disagree, Neutral, Agree, Completely Agree- with 35 statements divided into four dimensions: Introduction to methodology, motivation, teaching-learning evaluation and performance. The results were obtained from the statistical software Stata 13 for descriptive statistics and for the purpose of internal consistency of the instrument.
Results: The questionnaire obtained a Cronbach's Alpha of 0,89. All the means of the dimensions are found between "Neutral" and "Agree", acquiring a score slightly lower in the Evaluation and Performance dimension. The standard deviations are close to 1, showing a small variability in the perception of the dimensions. The general perception of the students is in favor for all the instrument items, with a standard deviation of 1,03.
Conclusions: The students showed a favorable perception in relation to the implementation of the strategy assessed from "neutral" to "agree" regarding the four dimension statements of this questionnaire.

Long-term effect of MDP-containing silane/adhesive on bonding to zirconia

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Objectives: To evaluate the effect of use of MDP-containing silane coupling agent (SCA) and adhesive, used alone or combined in the same solution, in the microshear bond strength (μSBS) to zirconia ceramics immediately (24h) and after 10,000 thermal cycles, complemented with chemical interaction analysis.
Methods: 30 zirconia CAD / CAM blocks were cut into 4 rectangular sections (n=10 per group) and divided according to: silane coupling agent (no silane; SCA without MDP [MBS, Monobond S]; SCA with MDP [MB+, Monobond Plus]); Adhesive + resin cement (no adhesive + Enforce [ENF]; no adhesive + RelyX Ultimate [RU]; Prime & Bond Elect [PBE], a SCA- and MDP-free adhesive + EN; Scotchbond Universal Adhesive [SBU], a SCA- and MDP-containing adhesive + RU). After 24h or TC, the specimens were tested in μSBS and Raman spectroscopy.
Results: *24h-* The use of PBE alone resulted in lower mean μSBS than both groups with SCA (MSB and MB$^+$) without PBE ($p < 0.001$). The use of SBU alone or MB$^+$ alone, as well as MB+ associated with SBU, showed the highest mean μSBS ($p < 0.001$); *TC* - All groups showed a significant decrease in mean μSBS compared to those of 24h ($p < 0.001$). However, the application of MB$^+$ alone, or associated to SBU, resulted in higher TC mean μSBS ($p < 0.001$). In terms of chemical interaction, when silane (MSB or MB+) was applied, only a slightly decrease of Si-O peaks occurred. Otherwise, when PBE or SBU adhesives were applied, methacrylate peaks were only observed in the SBU groups.
Conclusions: Higher bond strengths after thermocycling were obtained when an MDP-containing SCA was associated with an MDP- and silane-containing universal adhesive. The use of a simplified bonding protocol that includes either a SCA or a universal adhesive is not recommended.

Morphometric Relations between Premolars and Maxillary Sinus using Cone-Beam CT

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Objectives: To determine some morphometric measures between the premolars and the maxillary sinus floor (MSF) using Cone-Beam (CBCT).
Methods: A descriptive study in which 18 CBCTs were analyzed. Inclusion criteria (12x9 CBCT, men and women, older than 11 years) and exclusion (partial edentulism, signs of orthognathic surgery, dental malposition) were applied. Using the CBCT software (EZ3D2009), the sagittal, axial and coronal planes of the examination were rectified according to the longitudinal axis of the tooth. The final image in the software was used to measure the following morphometric parameters: position of dental apex (DA) of the premolars (upper, lower, equal, unrelated) respect to the MSF, alveolar ridge (AR) width (MEASURE 1), distance between AR and MSF (MEASURE 2) and distance between DA and SMF (MEASURE 3).
Results: 63 premolars were analyzed (1.4=17; 1.5=16; 2.4=15; 2.5=15) in 18 patients (7 men; 11 women) with a mean age of 22.22±6.05 years. Regarding to DA position, 14.29% (n=9) premolars were classified as "unrelated", 17.46% (n=11) were "upper", 9.52% (n=6) were "equal" and 58.73% (n=37) were "lower" than the SMF, without significant differences by sex or age (Table 1). The mean of MEASURE 1 was 9.78±0.89 mm, the mean of MEASURE 2 for DA classified as "upper" and "lower" was 2.55±2.60 mm and 4.88±6.19 mm respectively, and the mean of MEASURE 3 was 12.64±7.93 mm, without significant differences by type of tooth and sex (Table 2). A significant difference was found between sex and MEASURE 1 for the teeth 2.4 and 2.5, with a negative Pearson Correlation coefficient.
Conclusions: These morphometric relationships between DA of premolar and MSF are important for clinicians especially in oral rehabilitation with dental implants

Musculoskeletal characterization of patients with Down syndrome and their orthodontic and interdisciplinary management

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Objectives: Characterize the orofacial dysfunctions of Down Syndrome (DS), evaluate their need of orthodontic treatment, and raise the previous considerations, during and before the treatment.
Methods: The data used in this narrative were extracted from PUBMED and EVSCO, during the period of March-June of the year 2017. All manuscripts collected belong to data published in the last 5 years. Terms included: Down syndrome, Mastication, Deglutition, Children, Adult. Terms excluded: Fragile X Syndrome, Cerebral Palsy, Autism.
Results: The characteristics of DS include dysfunction due to poor neuromotor control, dentomaxillary anomalies, and orofacial dysfunction. Skeletally presents brachycephaly, lax joints and underdeveloped middle third facial, amongst others. The jaw continues normal development, but a mandibular prognathism is observed which may be light or marked with regard to the maxillary, this discrepancy between maxillary and jaw generates relative macroglossia. Alterations in chewing, swallowing, speaking and breathing are due to generalized hypotonia in orofacial structures. To prevent a marked orofacial dysfunction the musculature is stimulated with diverse techniques from birth. Use of orthopedic appliances is possible, fixed orthodontics and orthognatic surgical treatment depending on the case.
Conclusions: Its important to treat the musculoskeletal and orofacial alterations typical of patients with DS at an early age, always with a comprehensive approach and interdisciplinary team.

Musculo-skeletal pain in dentists considering dental specialities and age range.

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Objectives: To assess the presence of musculo-skeletal pain in the different anatomical regions of the dentist considering aspects such as dental speciality and age range.
Methods: A validated survey was applied to dentists from differents age range: 25-34, 35-44, 45-54, 55- or more. Different specialities were considered in the study. The survey included an image with 33 anatomical regions where the dentist pointed out their pain areas. Statistical analysis was made by Fisher exact test and Chi-square test to assess the relation between pain symptomatology and gender, age range and specialities.
Results: 95 dentists from different cities of the north of Chile and different specialities were surveyed, 60 males and 35 females. 82% of surveyed dentists indicated to have (or have had) musculo-skeletal pain. The most prevalent region affected was the cervical area (57,4%) followed by lumbar area (55,3%) scapular area (39,4%), nuchal area (25,5%) and carpal area (21,3%). About specialities, General odontology showed 21/33 regions with pain, followed by Orthodontic with 18/33 and Oral rehabilitation with 16/33. About the musculo-skeletal pain symptomatology, no significant difference was observed between gender or among the age ranges studied. General dentists showed the higher prevalence of pain compared to other specialities significantly (p=0,038).
Conclusions: Dentist health is an urgent problem. Literature indicates that cervical and lumbar regions are mostly affected, which agrees partially with our results. Furthermore, the research shows that the periodontist and endodontist are the most affected specialists. However, with the inherent limitations, our study showed that the most affected were the general odontologists. The lack of difference among age ranges indicates a similar musculo-skeletal pain presence both in young as the older dentist. The number of hours of work, socio-cultural aspects, sports activities among other variables can variate the appreciation of this results, and its comparison with the information describe in the literature.

Neuroimmune and vascular component changes during dentin caries progression

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Objectives: The dentin-pulp interface (DPI) within the coronal dental pulp of mature teeth is a complex multicellular system to insure defense against pathogen invasion and repair during caries progression. A thorough comparative analysis of nerve terminal organization in association with the glial network, immune and vascular components during caries progression is required to develop adequate therapies. The aim of this study was to establish a comparative analysis of the main cellular DPI components and their changes in response to injury.
Methods: Twenty healthy (n=10) and carious (n=10) human permanent molar teeth were extracted under clinical indications from adult individuals, immediately fixed in 4% PFA and decalcified with EDTA. Coronal longitudinal cryosections of teeth were assayed with immunohistochemical procedures using markers for neural components (NF, TUBB3, GFAP, S100, p75NTR), immunocompetent cells (HLA-DR, CD45, CD15) and vascular components (CD34, vWF, CD105, αSMA). Images from immunolabeled samples were acquired with confocal microscopy and comparatively analyzed.
Results: In teeth with moderate dentin caries, we observe a conspicuous neuroimmune response at the DPI. The sprouting of nerve terminals related to carious domains shows a prominent increase of TUBB3, S100, p75NTR and CGRP. Double labeling with vWF and CD105 demonstrate early microvascular changes at the DPI. Infiltration of dendritic cells was prominent, while CD15+ cell infiltration was scarce. In severe chronic and acute dentin caries conditions, relevant vascular changes and acute inflammatory cell infiltration was detected.
Conclusions: This study revealed a coordinated progression of cellular DPI changes from moderate to severe dentin caries conditions. Moderate dentin caries creates a reparative condition, while severe dentin caries comprises a complex infiltration of acute inflammatory cell components. The present study validates the crucial role of cellular DPI components to coordinate dental pulp defense and repair capacities. (Supported by Fondecyt 1141281).

Oral Health Of Schoolchildren With Hearing Disability In Viña Del Mar

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Objectives: The aim of this study was to evaluate if the hearing disability (HD) corresponds to a risk factor for oral health.
Methods: An observational analytical study of cases (n=35) and controls (n=70) was carried out in the "Dr. Adolfo Tannenbaum special school of hearing and language" in Viña del Mar, where the oral health of healthy children and children with different degrees of hearing disability was assessed by oral examination.
Results: Worse oral health indexes were found in children with HD, specifically in the ceo-p index (p=.03), whose difference is significant in comparison to children without disability. Also worse indexes of behavior at the dentist were found in children with HD (p=.04), which in turn is related to worse indexes of ceo-d (p=.0036).
Conclusions: Based on the results, there is an association between the HD and worse indexes of oral health, mainly in the ceo-d index. However, this association is not exclusively due the condition itself, but also the presence of secondary factors.

New portable technique for the electromyographic analysis of the masseter muscle

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Objectives: The accurate electrophysiological analysis of craniomandibular muscles still constitutes a challenge in the dental field. The present study analyzed in healthy volunteers the muscular control during a voluntary contractile effort, using a new portable system for electromyography recording
Methods: Thirty-two healthy volunteers (18 males, 14 females, mean age: 23 years) were included. We used a new system developed jointly between our group, the Universidad Nacional Autónoma de México (UNAM) and the Center for Research and Advanced Studies (CINVESTAV) of that country.
EMG of masseter muscles were recorded using disposable self-adhesive electrodes and the mechanical stimulus was placed in position using the Jaw Tracker of the Biopak® System as a stabilizer holder.
Applying this new system, muscle force trajectory was controlled using real-time visual biofeedback in all volunteers. Fifteen setting repetitions were performed by each volunteer. The following variables were analyzed: 1- the time needed to trigger the stimulus under a standardized set of conditions and 2- number of attempts needed to trigger the stimulus. Statistical analyses included survival analysis and a mixed model with Poisson distribution. Ethical approval and informed consent from each volunteer was obtained.
Results: The median times for all volunteers were 11.7 seconds (9.9 and 15.1 minimum and maximum, respectively). The variable number of attempts had no significant differences considering gender (p-value = 0.505) or age (p-value = 0.856). However, a significant decrease in the number of attempts was observed considering the repetitions in the same experimental setting (p-value = 0.001).
Conclusions: All volunteers were able to control the force trajectory according to the set of standardized conditions. It was also found when studying the variable number of attempts, a learning effect, presumably associated to the phenomenon of repetition of same motor action during the experimental set.

Osseointegration analysis of four alloplastic biomaterials without physiological charges.

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Objectives: To describe the behaviour of four alloplastic biomaterials for bone regeneration used in oral surgery.
Methods: Micrographs obtained by backscatter electron microscopy from four different studies of vertical bone growth in rabbits calvaria using Pure Tricalcium Phosphate (B-TCP), Tricalcium Phosphate plus Hydroxyapatite (B-TCP+HA), Sintered Tricalcium Phosphate (B-TCPsin) and Tricalcium Phosphate plus modified Monetite (B-TCP+MA) were used. The inclusion criteria for micrograph selection were the follows: concerning studies whose duration had been 90 days; without general or local complications; biomaterial particles integrated with bone tissue; micrographs with a resolution of 150-300 dpi. The parameters analysed were: biomaterials-bone contact; reabsorption of the biomaterial; vascular and medullar space surround integrated particles; type of bone surrounding the particles and intraparticle bone growth. A qualitative-quantitative table was designed for results classification and comparative analysis.
Results: Four micrographs of B-TCP, six of B-TCP+HA, four of B-TCPsin and five of B-TCP+MA were selected. No difference was observed about the contact surface quantity between biomaterial and bone. B-TCPsin particles showed the highest reabsorption, followed by B-TCP+MA. The biomaterial with the lesser reabsorption was B-TCP+HA. Fibroreticular bone was the most observed, followed by lamellar bone, observed mainly about B-TCP+HA and B-TCP+MA. The biomaterial with the highest intraparticle bone growth was B-TCP+MA.
Conclusions: With the inherent limitations of our analysis, no difference about biomaterial integration (biomaterial-bone contact) was observed. However, the tissue quality around the particles was heterogeneous. The biomaterial reabsorption features determined bone growth both within and around the biomaterial particles. Objective interrelation among these characteristics and biomaterial behaviour below physiological condition are needed for the experimental and clinical application.

POSOPERATIVE SENSITIVITY DURING TREATMENT WITH INDIRECT RESTORATIONS MADE BY UNGRADUATED STUDENTS. PROSPECTIVE ANALYTICAL CLINICAL STUDY.

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Objectives: The preparation of an indirect restoration in vital teeth can generate pulp irritation, so it is essential to evaluate and quantify the postoperative sensitivity, which if presented and not reversed in time can cause irreversible damage to the pulpodentinary complex. Different prevalences have been described in the literature for sensitivity, ranging from 3% to 34%. The objective of this study was to measure the prevalence of postoperative sensitivity during treatment with indirect restorations performed by ungraduated students in the 2015 and 2016 periods, at the Universidad de los Andes Health Center.
Methods: Method: A prospective analytical clinical study was performed. The sample consisted of patients attended by ungraduated students at the Universidad de los Andes Health Center, who underwent indirect restorations on the vital tooth, during the periods 2015 and 2016. The sensitivity was recorded during the Treatment by means of an analogous visual scale and through a diary completed by the patient. Statistical analysis was performed using Stata software 14.0.
Results: Results: A total of 103 dental pieces belonging to 73 patients were studied. The prevalence of postoperative sensitivity was 49.32%. Among the many variables analyzed, the duration of treatment and the presence of cavities presented statistical significance lower than 0.05, corresponding to 0.002 and 0.000 respectively, so that these variables present a statistically significant association in relation to the possibility of presenting postoperative sensitivity.
Conclusions: Conclusions: The prevalence of postoperative sensitivity was 49.32%. The duration of treatment is a determinant variable in the appearance of postoperative sensitivity. The presence of cavities in the piece to be treated acts as a protective factor in relation to the sensitivity during treatment.

Sex determination by analysis of the Glabella

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Objectives: The aim of this study was to analyze the precision level of glabella as non-metric characteristic for sex determination in skulls of Brazilian individuals.
Methods: There were used 179 skulls of Brazilian individuals, both sexes, belonging to the Museum of Skulls, that belongs to the Department of Morphology of São Paulo Federal University, Brazil. The examiner made two observations in different occasions, without knowing the sex of the examined cranium, classifying the glabella as slightly delimited, delimited and marked. There were analyzed the specificity, sensitivity and positive predictive values (PPV) and negative (NPV). For analysis of the intra-observer consistency was used the Cohen's Kappa coefficient. For analysis of categorical variables was used the Pearson's chi-square, and was considered a threshold of significance of 5 %.
Results: There was found a considerable consistency Intra-observer (k=0,630). The female skulls were classified like being female in 58%, undetermined in 29% and male in 13% of the cases. The male skulls were classified like being male in 55%, undetermined in 28% and female in 17% of the cases. There was found a statistical significant difference between sexes for the glabella (p <0,001). There was found an accuracy of 78,1%, sensitivity of 81,6%, specificity of 75,9%, PPV of 67,8 % and NPV of 87%.
Conclusions: The glabella is a very useful morphologic characteristic in the process of sexual identification of human bony remains. It allows a good level of precision to determine the sex of skulls of Brazilian individuals.

Prevalence of Early Childhood Caries in MINEDUC daycare of Limache, Chile.

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Objectives: Determine the prevalence of ECC in the preschool population of MINEDUC daycare of Limache.
Methods: Descriptive study. Preschool children between 3 and 5 years old attending to MINEDUC daycare of Limache were examined, after their parents and their own consent, between May and June of 2016. The clinical examination was performed under strict biosecurity measures and previous calibration based on WHO criteria. The Ethic-Scientific Committee of Andrés Bello University approved the study. The data obtained was analyzed with STATA version 13.
Results: 405 children were examined (50,1% male and 49,9% female). The prevalence of ECC was 57%, with a mean dmft index of 2,56. The associated (p-value<0,05) variables were age of the child, parents oral health and educational level of the parents.
Conclusions: In the population studied, a high prevalence of ECC was found. It is important to know the prevalence of ECC to develop new strategies and programs that include health and education professionals in order to improve the oral health of preschool children.

Psychosocial impact of dental aesthetics Post-Intracoronary bleaching: 1 year follow-up.

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Objectives: The aim was to evaluate the psychosocial impact dental aesthetics have on patients one year after Non-vital tooth bleaching with the Walking Bleach technique.
Methods: 33 patients older than 18 years, of both genders, who were subjected to Non-vital tooth bleaching with Walking Bleach technique (using 35% hydrogen peroxide or 37% Carbamide Peroxide), were evaluated. The Psychosocial impact was evaluated before bleaching, and one week, one month, six months and one year post-treatment with PIDAQ questionnaires. This questionnaire consists of 23 questions divided into four domains (self-confidence, social impact, psychological impact and aesthetic perception). The patient had to answer each question on a scale, from 1 (no impact on dental aesthetics) to 5 (maximum impact on dental aesthetics). Results were compared between different times with the Wilcoxon test ($p < 0.05$).
Results: The domains values [median (min:max)] were: Self-confidence: Baseline=15(6:24) and 1 year=19(6:24), Social Impact: Baseline=24(8:40) and 1 year=17(8:36), Psychological Impact: Baseline=18(8:26) and 1 year=15(6:24) and Aesthetic Perception: Baseline=10(3:14) and 1 year=9(3:15). The data domains were statistically significant in Self-confidence: between baseline and all times $p < 0.004$, one week vs 1 month ($p = 0.02$) and one week vs 1 year ($p = 0.004$). Social Impact between baseline and all times ($p < 0.005$), Psychological Impact between baseline and all times ($p < 0.021$). Aesthetic Perception between baseline and all times ($p < 0.022$).
Conclusions: Dental aesthetics had a positive psychosocial impact on patients who underwent intracoronary whitening, which was stable for at least one year post-treatment.

Predictores del cierre espontáneo de espacio posterior a exodoncia de primeros molares permanentes.

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Objectives: Los primeros molares permanentes (PMP) son extraídos rutinariamente en niños cuando son afectados por caries y/o hipomineralización severa. Si se considerara el momento adecuado de esta intervención se podría asegurar que los segundos molares permanentes se posicionen favorablemente para sustituirlos, asegurando un desarrollo y posicionamiento adecuado de la dentición sin ninguna intervención ortodóncica. El objetivo de este trabajo es realizar una revisión de la literatura actual respecto a los factores predictores del cierre espontáneo de espacio posterior a exodoncia de PMPs.
Methods: Revisión bibliográfica en metabuscadores: PubMed, realizando revisión sistemática a partir de *"extraction, tooth" [MeSH Terms]* y descriptores *"permanent first molar"* y *"spontaneous space closure"*; Web of Science, Scopus y Wiley Online Library utilizando palabras claves *"permanent first molar extraction"* y *"spontaneous space closure"*. Criterios de inclusión: estudios longitudinales en humanos de los últimos 10 años en inglés y español. Criterios de exclusión: artículos de revisión. De un total de 6 artículos se seleccionaron 5 artículos de acuerdo a títulos y *abstracts*, en duplicado por pares para evitar sesgos.
Results: La extracción del PMP debería realizarse cuando radiográficamente se aprecie la calcificación inicial de la bifurcación del segundo molar permanente (8-10 años de edad), aprovechando así su potencial eruptivo, pero además es necesario que el segundo molar permanente esté mesialmente angulado y el tercer molar permanente presente. Con esto se puede esperar una reducción espacial espontánea favorable evitándose problemas como inclinaciones y rotaciones de dientes adyacentes al PMP, defectos periodontales, problemas de oclusión y espacio residual, los cuales requerirían tratamiento ortodóncico.
Conclusions: En niños de 8-10 años, sería prudente planificar la extracción de PMP con mal pronóstico hasta el momento en que puedan ser evaluados estos factores radiográficos.

Preliminary study of DNA Methylation for the TLR-2 promoter in mononuclear cells from peripheral bood of patients with chronic apical periodontitis.

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Objectives: To determine the methylation patterns of DNA for the TLR-2 promoter in mononuclear cells from peripheral bood of patients with chronic apical periodontitis (CAP) versus healthy.
Methods: We included 9 volunteers, 5 patients diagnosed with PAC and 4 healthy patients from the clinic of the Faculty of Dentistry of the University of Chile, peripheral blood samples were obtained and the mononuclear cells were separated by a Ficol gradient (1,073). The DNA was then extracted and the spectrophotometer quantified and the DNA converted with bisulfite was obtained.QPCR was then performed for an area of the CpG island of the TLR-2 promoter and then verified on agarose gel and by sequencing. The analysis was performed for each methylation site and as a relative methylation frequency per individual. The results were analyzed using Stata V12 software with $\alpha = 0.05$.
Results: Methylation was evidenced at different positions of the TLR-2 promoter, in both PAC and healthy subjects. In the amplified segment of the promoter 4 methylation sites were identified, but the sequence could not be identified in one of them. In healthy, we observed methylation of the TLR-2 amplified segment in 44.4%, while in patients with CAP it was 58.3%, $p = 0.18$.
Conclusions: Changes in the methylation patterns of the CpG island of the TLR-2 promoter were observed.

Radiopacity assessment using three dimensional printed devices

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Objectives: To develop a standardized protocol to assess radiopacity of dental materials.
Methods: A custom 3D printed device was designed that complies with the requisites of ISO:6876 norm. In addition, sample matrix of 1 mm thickness was also 3D printed. Five specimens of dental materials were placed directly on a PSP occlusal plate adjacent to an aluminum step wedge with step height ranging from 1-10 mm. Radiographs were taken with an X-ray appliance model Myray RXAC, at tube voltage of 70 Kv, current of 8 mA, exposure time of 0.4 s, and target-film distance of 40 cm. The radiographs were processed and analyzed with Adobe-Photoshop-CS6. The average grey value for each material sample and each step of the wedge were measured. A graph of aluminum thickness (in mm) vs. grey value of each aluminum step was plotted and the logarithmic trend line was drawn. The radiopacity of each specimen, expressed in mm of aluminum, was then determined using the equation of the trend line.
Results: The radiographic image presented adequate density and contrast, that allowed to discriminate the ten steps of the aluminum step-wedge. In addition, the image was formed exclusively by the incidence of the central x-ray beam against the major surface, demonstrating the perpendicular orientation of the central x-ray beam. Grey value vs. mm Al plot showed an ascending slope line. The image of the test samples was well defined enabling the digital analysis, and to calculate its relative radiopacity in mm of aluminum.
Conclusions: The use of custom 3D printed positioner device and sample matrix allows to standardized a protocol to assess radiopacity of dental materials, that complies with ISO norms.

Relationship of Sleep Disorders and Sleep Bruxism with Attention Deficit and Hyperactivity

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Objectives: To evaluate children with sleep bruxism and to analyze the relationship between sleep disorders with attention deficit hyperactivity disorder.

Methods: Observational cohort study of 40 children between 4 and 11 years, Andrés Bello University Pediatric Dentistry Clinic, 2016, parents reported sleep bruxism. Proponents completed the PSQ survey, allergic rhinitis, mouth breathing, and SNAP IV, this too completed by the teacher. Pharyngeal obstruction, tonsillar hyperplasia, BMI, caries, lip competence, tongue size, mouth breathing by a single calibrated evaluator were observed. For the statistical analysis the data were described, variables were related through a correlation analysis. A Multivariate Hayes Modeling of TS prediction and logistic regression was done. Cohen's d effect size was calculated and Sleep Disorders was compared with ADHD through Test T.

Results: The results indicated a positive correlation between sleep disorders and hyperactivity ($p \leq 0.020$) and sleep disorders with deficit ($p \leq 0.014$). With Hayes model the total variance explained was 0.20 for Sleep Disorders and BMI with 0.10. Through logistic regression the variables BMI, pharyngeal obstruction, and snoring presented a significant relationship with Deficit ($p \leq 0.023$). BMI had an effect on Attention Deficit (0.063) and snoring (0.32). There was a significant relationship between ADHD and Sleep Disorder ($p \leq 0.048$).

Conclusions: The results of this study indicate a relationship between BMI and sleep disorders in patients with sleep bruxism. In addition, increased BMI, snoring, tonsillar hyperplasia and pharyngeal obstruction have a significant relationship with attention deficit. There is a direct association between Sleep Disorders and ADHD. Dentists should know about this association for the purpose of dealing with children's sleep disorders.

Relationship among gender, age and facial morphology with maxillary canine impaction

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Objectives: To determine the association among gender, age and skeletal anomaly with the presence of permanent maxillary canine impaction (MCI)

Methods: An analytical observational and retrospective study was performed on 46 pre-treatment patients (29 female, 17 male; mean age: 17 years; age range: 11-42 years, SD 7.03 years) selected from a sample of 419 patients from Orthodontic Clinic, Andrés Bello University, Santiago. Patients were included according to the presence of at least one maxillary canine with poor prognosis of eruption using the method of Lindauer and Power & Short. Sagittal skeletal relationship was determined by Steiner and Ricketts analysis. Data were analyzed using the Chi-square test and correlation test of Pearson with 95% C.I.

Results: There was no relationship between gender ($p=0.405$) and sagittal skeletal relationship ($p=0.680$) with the presence of MCI. Only the age presented an association with the presence of maxillary canine impaction according to the Power & Short method ($p=0.038$) and with the impaction side ($p=0.012$). When age was analyzed by ranges (11-17 years) with permanent MCI (Method of Lindauer), a high trend was observed; Chi-square ($p=0.052$) and test of Pearson ($p=0.020$).

Conclusions: Only age would be associated with the presence of permanent MCI and the impaction side; however, gender and skeletal class would have no influence. Cohort studies are required with higher levels of evidence to establish a possible relationship among gender, age, facial morphology and MCI.

Teeth Whitening effect on orofacial esthetics by OES using in office versus at home system.

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Objectives: Immediately assess the effect of two dental whitening systems on orofacial aesthetics and the corresponding factors in face, mouth and teeth and verify if there are differences between systems.
Methods: 90 patients underwent teeth whitening. 31 patients were bleached In office using 6% hydrogen peroxide and 59 patients were bleached at home with 10% carbamide peroxide. They were given a survey before the procedure and one week after bleaching. Comparisons were made between the factors, related to the general score (90 patientes) and then for each group. Later the delta between groups was compared. Statistical analysis was performed by Wilcoxon and Mann-whitney.
Results: The total group of patients showed a statistically significant difference comparing all factors (total score) before and after bleaching, showing a positive effect. In the separate group analysis, a statistically significant difference was also obtained except for the face factor on 10% carbamide peroxide group. The difference between the summatory of delta between the two groups was not statistically significant and the analysis by mouth and face factor was statistically significant.
Conclusions: There was a positive effect in the bleached group of patients on the psychometric orofacial cosmetic properties of teeth whitening in both groups.

Teeth clenching/grinding and body position effect on diaphragm electromyographic activity.

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Objectives: To compare the electromyographic (EMG) activity of diaphragm muscle during teeth clenching or grinding at different body positions.
Methods: Were included nine male young healthy participants, with Angle Class I complete natural dentition, bilateral group function, without crossbite, no history of orthodontic treatment, no history of orofacial pain. Bipolar surface electrodes were used for recording the bilateral EMG activity of the diaphragm (DIA) muscle. Superior electrode was placed on the lower edge of the rib cage in a vertical line passing through the nipple center. The lower electrode was located 1.5 cm below the upper electrode. A large surface ground electrode (approximately 12 cm^2) was attached 3 cm above the inferior border of xiphoid process. EMG activity was amplified, rectified and integrated and then recorded online. EMG activity was recorded in the standing, seated upright and right lateral decubitus positions, during maximal voluntary clenching in the maximum intercuspation (MIC) and during continuous teeth grinding (CTG) from MIC to right lateral edge-to-edge contact position and vice versa. The data were analyzed using mixed model with unstructured covariance matrix. EMG activity was adjusted by age, body mass index (BMI) and waist/height ratio (WHR). A value of $p < 0.05$ was considered significant.
Results: Significant higher DIA EMG activity was observed in the right than in the left side during teeth clenching, teeth grinding and the body positions studied. DIA EMG activity during teeth clenching was not significantly different than during teeth grinding. DIA EMG activity was not significantly different among the body positions studied.
Conclusions: The results asymmetry in the EMG activity of the diaphragm under the conditions studied. Since the sample studied is very small, it is necessary to increase the number of the participant in order to support it is clinical implications.

Tensile strength and compression in restorations with Composite v / s Ionomer glass in temporary teeth

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Objectives: The objective of this in vitro experimental study was to test and compare the tensile strength and compression between two dental materials: composite and ionomer glass as restoration materials in temporary teeth. The study was carried out during 2015 at Universidad Andrés Bello, Santiago, Chile.
Methods: A total of 80 samples were obtained from healthy extracted temporary teeth, of which 40 were recovered with composite (Filtek Z250) and 40 with high density ionomer glass (Ketac Molar Easymix). Of the 40 samples recovered with each material, 20 of them were submitted to tensile tests and 20 to tests of compression. In compression a traction compresion machine.
Results: For traction tests, average forces of 65.8 Newton composite and 22.1 Newton high density ionomer glass were obtained. For compression tests, average strengths of 2,480.6 Newton composite and 595.8 Newton high density ionomer glass were obtained.
Conclusions: The composite (Filtek Z250) represented better mechanical behavior in terms of tensile and compression strength compared to high density ionomer glass (Ketac Molar Easymix). as a restorative material in standard in vitro cavity preparations in temporal teeth.

Retrospective Study of Traumatic Dental Injuries of FOUCH Trauma Clinic

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Objectives: To carry out a retrospective study of the cases that attend the Child and Adult Dental Traumatology Clinic, Faculty of Dentistry, Universidad de Chile, Santiago, from 2012 to 2017
Methods: A retrospective study was carried out analyzing the records of patients seen at the Dental Traumatology Clinic, Faculty of Dentistry, University of Chile from January 2012 to March 2017. The inclusion criterion was that the patient complaint was due to dental trauma. Data were tabulated indicating sex and age of the patient, cause, day, tooth involved and initial diagnosis of the dental trauma. Chi-square, Shapiro Wilk normality test and Mann-Whitney test were used for frequency analyzes
Results: A total of 117 dental records were analyzed, where 90 met the inclusion criteria. The age range of the sample was 5 to 60 years, with an average of 14.3 years. Most of cases occurred in patients in the first and second decade of life. 59.3% of the patients were men and 40.7% were women. The most frequent dental traumas were complicated and uncomplicated coronary fractures, followed by root fractures. In the majority of the cases analyzed, only one tooth was affected (57.8% of the cases), and the most frequently traumatized tooth was the right upper central incisor, followed by the left upper central incisor.
Conclusions: Of the cases treated in the Child and Adult Dental Traumatology Clinic, Faculty of Dentistry, Universidad de Chile, Santiago, between 2012 and 2017 the most frequent trauma is the coronary fracture.

Remineralizing effect of BlueRemin® on demineralized dental enamel

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Objectives: To compare superficial hardness of specimen of enamel tooth previously demineralized and after remineralizing with new mineralizing agent BlueRemin®
Methods: Method: Each enamel sample was divided in three areas: A, B and C. The A area or control area was covered in order to avoid demineralization, leaving B and C areas uncovered.The biofilm model described by Ccahuana-Vasquez &Cury (2010) was used simulating a cariogenic environment through the exposition of enamel blocks in sucrose, previous formation of *S. mutans* biofilm allowed the obtention of demineralized areas (B and C) compatible with a non cavitated caries lesion that was mineralized (C area) after applying a novel experimental mineralizing agent BlueRemin®. As positive mineralization control, two demineralized random samples were used, mineralized with silver diamine fluoride (38% P/V) and fluorine varnish (0,1 %). The enamel block was evaluated for superficial hardness of Vickers (i) before exposition to sucrose, (ii) after demineralization and (iii) after application of the remineralizing agent. For the statistical analysis, Shapiro-wilk, t-student and Bonferroni tests were performed.
Results: Results: The statistical analysis showed significant differences between the means of superficial hardness at the beginning of the experiment and after exposition to the biofilm model with *S. mutans*. Likewise, statistical significance was found between superficial hardness at the demineralized areas (B) and mineralized areas (C) after application of the novel mineralizing agent. Finally, there were no statistical significant differences on superficial hardness between samples treated with BlueRemin®, silver diamine fluoride and fluorine varnish.
Conclusions: These results denote the remineralizing capacity of BlueRemin® on demineralized enamel.

Review: Orofacial Considerations in Dental Management of Fragile X Children

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Objectives: Fragile-X syndrome (FXS) is characterized by an intellectual disability associated with an X-linked dominant inheritance pattern. It is described as the second most prevalent syndrome in the world after Down syndrome. Even though it is relatively frequent, literature on dental and orthodontic management is scarce. This review is proposed to characterize patients with SXF from an orofacial and behavioral point of view and how it can influence the therapy.
Aim:To describe orofacial dysfunctions and musculoskeletal characteristics of SXF and therapeutic management at early ages.
Methods: Bibliographic review in PUBMED and SCIELO database. Information was sought from March-June 2017, including only manuscripts from the last 5 years. The terms used were: X-fragil syndrome, orthodontic treatment, orthopedic treatment, dental treatment and children.
Results: Orofacial characteristics exhibited by these patients are: elongated faces, hypoplasia of the middle third of the face, forehead and prominent brows, sunken eyes and large ears with low insertion. Dento-skeletally, these patients have been described as having deep palate, prominent mandible, increased mandibular angle, single or bilateral crossbites, enamel hypoplasias, dental anomalies of shape and number. Orofacial functions alterations like atypical swallowing, dysphagia, oral breathing, and obstructive sleep apnea are associated with reduced muscle tone. Regarding behavioral management, it is described that these patients present sensory integrative disorders, cognitive and attention deficits. These problems originate from orofacial alterations that impede the correct development of speech / language and learning. There is no documented cases of orthodontic or orthopedic treatment for the management of dento-skeletal disorders, however, a case of myofunctional therapy treatment for muscular re-education is presented.
Conclusions: SXF has multiple presentations and it is important to adapt dental treatment to each case. Considering the characteristics presented in this review focusing on the prevention of orofacial pathologies, reeducation of altered functions, prevention and interception of dentomaxillary anomalies, using appropriate strategies for the cognitive conditions and comorbidities in each case, considering an interdisciplinary approach.

Risk postures in dentistry students' clinical that could cause musculoskeletal disorder.

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Objectives: Musculoskeletal health of dentists has been object of several studies around the world, because nowadays one out of four dentists complains about muscle pain. The objective of this study was Identify risk postures that could favor musculoskeletal disorder installment, determining associated symptoms in dentistry students'.
Methods: A descriptive, quantitative and transversal study was made. The sample was 38 University Finis Terrae dentistry students' selected from 4th and 5th-year, excluding those who had previous musculoskeletal illness. To evaluate the pain level we used the Standardized Nordic Questionnaire. Physical posture and the potentiality of profession related musculoskeletal disorders in the whole body were determined through REBA (Rapid Entire Body Assessment) method. The different positions were measured by the use of a free online Ruler program in photographs and the students' position in videos recorded during clinical work.
Results: The results demonstrated a high prevalence of painful symptoms in the neck, dorsal and lumbar areas of the students. Job analysis by the use of REBA showed that 73,6% of limbs in group A had a score >6, nevertheless 57,6% of limbs in group B had a score < 4. Risk of the most subjects (73,6%) was at the medium level. 93,5% of the subjects were not aware of the correct ergonomic postures for dental procedures.
Conclusions: Is critical to identify incorrect work postures during dentistry studies.
It is very important to focus on the fact that there is an important need for dentists to adopt ergonomic postures during clinical work and also include preventive measures to avoid musculoskeletal disorders. In addition to education, work station design, resting periods during work and regular physical activities should be taken into account. The musculoskeletal disorders are probably prolonged in working hours due to static positions, incorrect work postures, which imply inadecuate force and vicious postures caused by clinical instruments. Students who have knowledge and adopt healthy ergonomic postures during working hours will be able to achieve a lifetime of clinical work experiencing less risk of musculoskeletal disorders.

The relationship between consistency of food and patient perception of recovery after dental surgery. An analytical observational study

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Objectives: To determine the relationship between consistency types of food and patient recovery after dental surgery
Methods: An analytical observational case and control study was performed on 30 patients (16 female, 14 males; mean age: 26.5 years; SD 12.99 years) from University of Valparaíso, Valparaiso City. Patients were included according to the indication of at least one dental extraction. The consistency of food (liquid, pureed, soft, normal) was determined by a Food Diary after surgery until the patient was checked (1 to 4 days register). The perception of recovery in five main areas post dental surgery were evaluated: Trismus presence, maintenance of swelling, bad smell, pain perception and pain extension. Data were analyzed using Chi-square test with 95% C.I.
Results: Diagnosis for surgical procedures included impacted molar (40%), semi-impacted molar (33.3%), impacted canine (3.3%), others (23.3%). 1 to 2 sites were intervened in most cases (33.3% and 40% respectively). About the consistency of food, there were significative differences related to the maintenance of swelling, it was still present four days after the surgery (p=0.017) without normal feeding consistency; Trismus presence at second day (p=0.035) were consistency type was mostly liquid; for pain extension in males at fourth day (p=0.026) with liquid and pureed regimen
Conclusions: Absence of normal diet and prevalence of a liquid or pureed regimen could have a relationship with the presence of post-surgery symptoms such as swelling, trismus and pain. Post dental surgical healing would be restricted for masticatory difficulties, which influence the capability of gaining the required nutrients

The structural ability of class II and III mandibles to withstand masticatory loads

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Objectives: There has been a long discussion on structural changes in the jaws of individuals with maxillomandibular discrepancies (namely class I and class III). It has been proposed that particularly class II individuals are not able to produce nor to withstand high loads because their mandibles are gracile. The geometry of the cross section of the mandible can be informative about the structural ability of an individual to resist the beam-like deformations caused in the mandible during chewing. The aim of this study is to compare the characteristics of the mandibular cross section in class II and III individuals at key-loaded points against individuals with harmonic occlusions that exert different magnitudes of masticatory loads.
Methods: We used computed tomography scans of the mandibles of 94 individuals that differ in the production of masticatory loads due to diet consistency, and in their maxillomandibular relationships. Using a standardized protocol, we obtained images of the cross sections at the symphysis, left and right first molars. Total bone area, cortical bone area, and the second moment of inertia were calculated. Data was compared using a descriptive and non-parametric statistical approach.
Results: There is a tendency of class II and III individuals and individuals with low masticatory loads to have a larger proportion of cortical bone compared to individuals that exert higher loads. They also tend to have more vertically extended cross sections, which gives them a good resistance to sagittal bending, but less so to torsion.
Conclusions: There is a tendency of class II and III individuals and individuals with low masticatory loads to have a larger proportion of cortical bone compared to individuals that exert higher loads. They also tend to have more vertically extended cross sections, which gives them a good resistance to sagittal bending, but less so to torsion.

Three-dimensional Analysis of Tongue Movement During Water Swallowing

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Objectives: To analyze in a three-dimensional way the tongue movement during the swallowing of different volumes of water in healthy adults with normocclusion.
Methods: 14 participants (7 men; 7 women), between 18 and 38 years old, healthy and with normocclusion were evaluated (Scientific Ethics Committee approval n°099/16). The tongue movement was recorded with 3D electromagnetic articulography (Figure 1). Eight sensors were attached to the participant at specific points (Figure 2) and an additional sensor was used to delimit the sagittal profile of the palate. The movement of anterior, middle and posterior portions of the tongue were recorded. For each participant an average volume of swallowing (AVS) was determined to perform the records. Each participant was positioned under the articulograph and they were asked to swallow 1AVS, ½AVS and ¼AVS (three replicates each). The data obtained with the articulograph were processed with software MATLAB to determine the range of motion of each tongue portion.
Results: The mean age of participants was 25.4±4.8 years. The mean AVS of participants was 20.6±9.3 ml. In the sagittal plane a significant difference between the range motion of the anterior and middle portion (p=0.016) and anterior and posterior portion (p<0.001) for 1AVS was found. For the rest volumes (½ and ¼AVS) a significant difference between the range motion of the anterior and posterior potions was found (p<0.029 and p<0.05, respectively). In the transverse plane, no significant differences were found. In the frontal plane a significant difference between the range motion of the middle and posterior portion (p<0.05) for ½AVS was found.
Conclusions: In swallowing of 1VAS, ½AVS and ¼AVS the range motion of the posterior portion was greater in the sagittal plane. The largest range motion of the middle portion was in frontal plane with ½AVS. The range motion of the anterior and posterior portions was directly proportional to the AVS in the sagittal and transverse planes.

TNF-alpha as candidate for aging during wound repair in gingiva

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Objectives: Evaluate TNF-alpha as biomarker for aging.

Methods: Human blood serum from 45 healthy male volunteers of different ages, were used to evaluate the levels of TNF-alpha by ELISA multiplex array (Quansys, biosciences). We coagulate 10 mL of blood then centrifuged. The supernatant corresponds to serum.

Five young (2 months old) and five old (18 months old) male Sprague-Dawley rats were used for wound healing studies. In addition, we used human gingival biopsies from different ages. Both types of tissues were fixed with paraformaldehyde 4% and processed to obtain histological sections of 3μm thickness this were used for chromogenic-immunodetection of TNF-alpha and g-H2A.X.

Blood samples and human gingival tissue were divided according their age in three groups: "young" (10-24 yo), "middle-aged" (30-48 yo) and "elderly" (50< yo).

All donors (tissue and blood samples) signed an informed consent in agreement to the Ethical Committee, Faculty of Medicine, Universidad de Chile and animal model was approved by Animal Care Committee.

Results: We observe an increase level of g-H2A.X and TNF-alpha expression in the wound area in old rats and in human gingiva from middle-aged and aged. In addition, we found an increase of TNF-alpha protein levels in blood serum, with values ranging from 5.92±1.78 pg/mL (young), 27.52±5.6 pg/mL (middle-aged) and 98.29±20.6 pg/mL (aged)

Conclusions: During aging, we found defect in wound repair suggesting a role increasing the inflammatory phase, and the number of senescent cells. In this context, a reliable quantitative indicator of senescence in fibroblast in dermis has been described and called g-H2A.X. Using this marker we found an increase of senescent cells from middle-aged tissue. In addition, we observe an increase of TNF-alpha in gingiva and blood serum in middle –aged samples and wound from old rats. Therefore, our data suggest that TNF-alpha could be used as a biomarker of gingival aged tissue and the middle-aged group should be a candidate to study the beginning of aging.

TNF-alpha as candidate for aging in gingiva.

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Objectives: Evaluate TNF-alpha as biomarker for aging.

Methods: Human gingival biopsies from different ages were used for chromogenic immunodetection of TNF and phosphorylation of histone g-H2A.X. The tissues were fixed with paraformaldehyde 4% and processed to obtain histological sections of 3μm thickness. Human blood serum from different ages, were used to evaluate the levels of TNF-alpha by ELISA multiplex array (Quansys, biosciences). Serum was acquired by coagulating 10 mL of blood then centrifuged. The supernatant corresponds to serum. We used from 45 healthy male volunteers 18 to 70 years old (yo). Gingival tissues and blood samples were divided according their age in three groups: "young"(10-24 yo), "middle-aged" (30-48 yo) and "elderly" (50< yo). All donors (tissue and blood samples) signed an informed consent in agreement to the Ethical Committee, Faculty of Medicine, Universidad de Chile.

Results: We observe an increase level of g-H2A.X foci-positive cells and TNF expression in gingiva from middle-aged and aged. In addition, we found an increase of TNF-alpha protein levels in blood serum, with values ranging from 5.92 ±1.78 pg/mL (young), 27.52±5.6 pg/mL (middle-aged) and 98.29 ± 20.6 pg/mL (aged).

Conclusions: These results suggest that effects of aging can be observed in gingival tissue begin from middle-aged. Moreover, the increased of a pro-inflammatory cytokine such as TNF-alpha can be observed in both gingiva and blood serum at middle –aged samples. Furthermore, phosphorylation of histone g H2A.X which has been described as a reliable quantitative indicator of senescence in fibroblast in dermis and our results shows an increase of senescent cells from middle-aged tissue. Therefore we suggest that TNF-alpha could be used as a biomarker of gingival aged tissue. In addition, our data suggest that the middle-aged group should be a candidate to study the begining of aging.

Use of a CAD/CAM material compared to traditional provisionalisation to evaluate shear bond strength of metallic brackets – an in vitro study

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Objectives: To evaluate the effect of thermocycling (TC) and surface treatment on shear bond strength (SBS) of metallic brackets to provisional prosthetic materials.

Methods: A total of 40 specimens were made from each material (Telio Lab; Telio CS C&B; and Telio CAD); cylindrical specimens (7mm diameter X 2mm high) were performed from Telio Lab and Telio CS C&B; and blocks of CAD/CAM material (Telio CAD) were cut into specimens of 8mm length X 9mm wide X 2mm high. Specimens were randomly subdivided according to surface treatment and TC (n=10/group), and were grounded with silica carbide papers. After that, they were either pumiced or sandblasted with 50-mm aluminum oxide particles. Stainless-steel maxillary central incisors brackets were bonded to the provisional materials with light-cured cement (Transbond XT), and half of the samples from each group were submitted to TC (1000 cycles, 5°C and 55°C water baths). SBS testing were performed and results analyzed by three-way ANOVA and LSD's post-hoc tests (α=0.05). Failure types were classified with adhesive remnant index (ARI) scores.

Results: SBS values ranged from 1.5 MPa (pumiced CAD/CAM with TC) to 14.9 MPa (sandblasted bis-acryl without TC). In general bis-acryl showed higher SBS values, while the CAD/CAM material the lowest. Sandblasted bis-acryl and acrylic groups presented statistically similar values (P>.05), both higher than CAD/CAM material (P<.05), with or without TC. When no TC was performed, pumiced bis-acryl and acrylic groups showed higher SBS values when compared to the CAD/CAM material (P<.05), however, when TC was performed, bis-acryl showed higher SBS values, different than the acrylic (P=.005) and the CAD/CAM material (P=.000), also different within each other (P=.009). TC showed a negative effect (P<.05) for the sandblasted bis-acryl and the pumiced acrylic groups. ARI predominance was observed =0 for the CAD/CAM groups, =1 and 2 for the Bisacrylic groups, and =1 for the acrylic groups.

Conclusions: In general, the bis-acryl material showed the highest SBS values, followed by the acrylic material and the CAD/CAM material, respectively. Only the CAD/CAM material showed SBS values below the acceptable for bonding of brackets. Material surface damage was mostly observed on the bis-acryl groups.

USE OF L-PRF AS A TREATMENT FOR THE HEALING OF CHRONIC ULCERS IN DIABETIC FOOT AND ALVEOLAR REGENERATION AFTER COMPLICATED TOOTH EXTRACTION IN PRIMARY CARE. CHILE

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Objectives: The main objective of this study was to determine the clinical efficacy of L-PRF in traumatic wounds with tissue exposure, diabetic foot and chronic venous insufficiency ulcers.

Methods: We conducted a prospective, observational, longitudinal, and randomized clinical study with control cases between May and October 2017, in 11 patients. We also evaluated radiographically the efficacy in the regeneration of alveolar bone defects after complicated tooth extractions. We studied lesions of three different etiologies, ulcers due to chronic venous insufficiency, diabetic foot injuries and trauma associated to complicated tooth extractions in the alveolar bone. All patients were given L-PRF. The evolution and advantages control of the technique was performed on lesions of similar size, depth and location, in 5 patients treated in a conventional way, without fibrin weekly. In the case of complicated exostoses, the comparison could be performed radiographically in 7 patients who came for two 3M extraction where only L-PRF was applied to one of the alveolus.

Results: We compared in both groups the skin quality, the type and time of evolution, observing that ulcers due to chronic venous insufficiency were the ones that most evolved with the appearance of characteristic signs of wound contraction at 7 days, showing granulation tissue evident at 14 days. In the 11 patients, recovery was achieved in an average of 3 weeks compared to the average 11 weeks that control cases required to achieve the same result

Conclusions: The hospital costs of these lesions, when evolution is difficult, make it necessary to implement effective treatments such as L-PRF that shorten the duration of treatment and minimize post-traumatic sequelae, both in wounds and after dental extraction complications in patients of primary care in Chile.

Variations in caries experience and severity in children between 2007-2015

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Objectives: To describe the variations in caries experience and severity in children from 1 to 6 years of age in Metropolitan Region, between 2007 and 2015.
Methods: This is a secondary analysis using two sources of information. The first is a cross-sectional study conducted in children 1 to 6 years in Metropolitan Region in 2015, considering three levels: administrative communities (commune), educational establishment (school and pre-school) and child (FONIS SA13I20130). Information was collected through a clinical-examination and caregiver survey. Clinical exam was performed in each school by a dentist and an assistant. Dmft index for caries experience and Significant Caries Index (SiC-index) for severity were calculated. The second is the results obtained in the study developed in 2007 by MINSAL-Chile for childrens of of 2, 4 and 6 years of age.
Results: 2275 children examined in 2015. In the 2 year old children, mean-dmft was 0,8 (95%CI 0,57; 1,05), and SiC-index 3,88 (95%CI 3,59; 4,16). In the 4 year old children mean-dmft was 2.08 (95%CI 1,83; 2,34), and SiC-index 5,14 (95%CI 4,92; 5,37). For the 6 year old children, mean-dmft was 2.89 (95%CI 2,52; 3,27) and SiC-index 6,08 (95%CI 5,84; 6,31). In 2007, the mean-dmft for 2 years old was 0,54 (SD 1.54), and SiC-index 1,63 (SD 2.3); for 4 years old, mean-dmft was 2.32 (SD 3,27) and SiC-index 6,38; for 6 years old, mean-dmft was 3,44 (SD3,56).
Conclusions: There is an increase both in caries experience and in severity in 2 years and a decrease in 4 and 6 years. Despite the Chilean public policies designed to address the problem of oral health in childhood, mainly from an individual risk approach, there has been little variations.

Síndrome de piernas inquietas y su asociación con bruxismo del sueño. Revisión sistemática.

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Objectives: Identificar la asociación entre el síndrome de piernas inquietas y el bruxismo del sueño.
Methods: Se realizó una búsqueda sistemática en la base de datos Pubmed y Scopus, utilizando como palabras clave: "restless leg syndrome", "Sleep Bruxism". Se seleccionaron 6 publicaciones con una antigüedad de 5 años. Las características y resultados reportados estadísticamente significativos fueron tabulados.
Results: La deficiencia de hierro cerebral y la regulación de la dopamina en el sistema nervioso central son factores en la fisiopatología del síndrome de piernas inquietas. El bruxismo responde al tratamiento con antagonista de la dopamina, proponiéndose así que los cambios periódicos en el nivel de activación cortical podrían modular la conducta motora anormal en el sueño, tales como la actividad rítmica del músculo masticatorio.
Conclusions: Existe asociación entre el síndrome de piernas inquietas y el bruxismo del sueño, debido a que ambos responden al tratamiento con antagonistas de dopamina. Sin embargo aún no está claro a qué nivel se produce esta unión. Se hace necesario realizar más estudios de tipo experimental en el cual se evidencie la asociación mediante polisomnografía y que se puedan seguir controlando en el tiempo.