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IADR

INTERNATIONAL ASSOCIATION FOR DENTAL RESEARCH

REUNIÓN ANUAL

UNIVERSIDAD DE LOS ANDES,
SAN CARLOS DE APOQUINDO, SANTIAGO.

ORGANIZADO POR

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Universidad de los Andes

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12 EXPOSITORES **NACIONALES**

6 CONCURSOS **CIENTÍFICOS**

12 **PREMIOS**

LIBRO DE RESUMENES XXX REUNIÓN ANUAL IADR

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Presentaciones jueves 06 de septiembre

Analysis Of Bone Interface In-vivo Following Explantation Using Immersion Endoscopy

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Objectives: Quantify by immersion endoscopy the amount of titanium particles adhered to the bone surface at the time of explantation due to periimplantits
Methods: Explantation by periimplantits and aesthetic compromise in the anterior mandibular area of a bonefit TPS surface implant (Straumann) of a 67-year-old female patient was performed. For the analysis of the bone surface this was divided into a concave and convex portion in relation to the removed implant surface (Figure 1A).The image was processed in 4 steps: B converted in gray, C background inverted, D subtraction of black background with increase of gain and in E threshold appliance. The threshold is a tool that give us the particles without the background. These steps were performed always comparing the TI particles from original figure (A). The regions selected 1 (F and H) and 2 (G) were quantified by the tool Analysis Particles (I) and the amount of TI particles with respective area and perimeter can be analyzed (J). The software used was ImageJ 1.48v.
Results: Statistically significant differences were found in relation to the percentage of Ti particles adhered to the bone surface of explantation with an 18% invasion in the convex areas versus 1% in the concave areas ($p < 0.005$, Independent t test).
Conclusions: The immersion endoscopy technique is a useful clinical tool to identify Ti particles adhering to the bone surface at the time of explantation under high magnification (up to 40 microns). Probably the migration of Ti particles from the surface of the implant to the peri-implant tissues seems to be a little-studied phenomenon that could play an important role in a body-to-stranger reaction over time, depending on the type of treatment surface that the implant possesses.
Support Funding Agency/Grant Number: CONICYT, REDI170658

Approximal Caries Lesion Progression Rate In Young Adult Population

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Objectives:
To describe the approximal caries lesion progression rate in a Chilean young adult population, using retrospective data collected through bitewing radiographs. Survival analysis was performed globally and site-specific to obtain progression rate.
Methods:
Data was collected from clinical charts and bitewing radiographic exams between 2010 and 2016 from patients receiving treatment at Pontifical Pontifical Catholic University Student's Health Department. Kaplan-Meier Survival analysis for approximal caries was done for enamel and dentin in general, and by surface using at least two BW radiographs. (Fig 1)
Results: 372 individuals were included in the analysis, the mean age was 21,5 years and mean DMFT was 5,1. From them, 45,2% were in need of restorative treatment with at least one evident cavitated lesion at clinical exam. 70,4% had at least one restoration and 83.1% had caries experience (DMFT different than 0). Positive correlation was found between higher component F and older age. General survival analysis showed that by location, maxillary teeth survive less than mandibular ones; by type of teeth, premolars survive less than molars; and by gender, higher survival was found in men. A tendency of less progression rate at older age was found. For survival rates, only 50% of enamel lesions progressed to outer dentin after 8.4 years. When caries lesion was found in outer dentin, caries progression was found to be faster: 50% progressed in 3.5 years. Detailed progression rates can be found on fig 2.
Conclusions: Progression rate in chilean young adults was found to be similar as research published by scandinavian countries with lower prevalence of caries and stronger prevention policies. Based on the findings of slow progression rate reported, we suggest clinicians to enhance non operative treatments before making the decision of intervene invasively.

Autophagy induction by the periodontal pathogen Aggregatibacter actinomycetemcomitans

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Objectives: There is evidence indicating that, in periodontitis, autophagy is stimulated by adverse environmental conditions generated by the immunoinflammatory process. Herein, we investigate if the periodontal pathogen A. actinomycetemcomitans is able to induce host-cell autophagy, and evaluate the role of this homeostatic process during the onset of the periodontitis pathogenesis.
Methods: We have developed an in vitro infection model using A. actinomycetemcomitans serotype b, its purified LPS and junctional epithelium keratinocytes (OKF6/TERT-2 human cell line). Expression of host-cell autophagy markers was assessed by immunoblotting, qRT-PCR and high-resolution confocal microscopy. The effect of A. actinomycetemcomitans on host-cell viability was analyzed by flow cytometry.
Results: Immunofluorescence confocal analysis of OKF6/TERT2 cells infected with A. actinomycetemcomitans serotype b or treated with LPS revealed an extensive Transcription Factor EB (TFEB) nuclear translocation as compared with uninfected cells. Accordingly, proteins regulated by this transcription factor (LC3) and FOXO (Atg5, Atg12 and Becli1) exhibited an increased expression as determined by western blot. Anti-LC3B antibody detected an increase in autophagosome formation in OKF6/TERT2 infected cells as observed by confocal immunofluorescence analysis. 3D reconstruction of confocal images displayed a close association between intracellular bacteria and LC3-positives vesicles. Similarly, OKF6/TERT2 cells treated with LPS, showed an increase amount of LC3-reactive vesicles after 2 hours of incubation. In addition, palatal periodontal tissue from mice infected with A. actinomycetemcomitans serotype b showed Atg5 increased expression, 30 days after infection. In the same context, we evaluate the role of autophagy in cell survival. Treatment of OKF6/TERT2 cells with 3-methyladenine, a

recognized autophagy inhibitor, induced an increase in necrotic cell death as determined by flow cytometry.
Conclusions: A. actinomycetemcomitans and its purified LPS induce autophagy in the host-cell and this process has a protective effect on host-cell in early stages of infection.

BULK-FILL COMPOSITES WITH ADHESIVE UNIVERSAL ENAMEL SELF-ETCH MODE. PRELIMINARY STUDY.

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Objectives: Compare the immediate clinical performance in posterior restorations with two Bulk- Fill composites performed with universal adhesive in total self-etch strategy.
Methods: 60 restorations were performed in 20 patients with at least 3 occlusal or proximal caries lesions in posterior teeth. The depths of the lesions were between 2.5mm-4.0mm and with antagonist and proximal teeth. The groups were distributed randomly: Group T: 20 restorations Tetric N-Ceram Bulkfill (Ivoclar-Vivadent), Group F: 20 restorations Filtek Bulkfill (3M-Espe) and Group control Z350: 20 restorations Filtek Z350 (3M-Espe). The restorative procedure was done with anesthesia and absolute isolation. Z350 were conditioned in enamel for 20 seconds with 37% phosphoric acid and then rinsed, dried and applied adhesive Single Bond Universal (3M-Espe). Group T was applied adhesive AdheSE Bond Universal (Ivoclar-Vivadent) according to manufacturer's instructions without enamel etching and group F was applied adhesive Single Bond Universal according to manufacturer's instructions without enamel etching. The T and F restorations were done with an only layer (maximum deep of 4 mm) and Z350 were restored with 2 mm deep multilayer. Restorations were polymerized for 30 seconds with a Bluephase N light-curing unit (Ivoclar-Vivadent) with intensity of 1.100mW/cm2. Calibrated operator (Kappa>0.8) evaluated the restorations by FDI criteria: marginal staining (MS) and marginal adaptation (MA), fracture and retention (FR), surface luster (SL), anatomy (A), contact point (CP), color (C) and postoperative sensibility (PS) two weeks later. The Kruskal Wallis test was used for the statistical analysis of the information software SPSS 22.0 (95% level of significance).
Results: For follow-up 20 patients were evaluated (N=60). For the three groups all parameters were evaluated alpha. There were not significant differences between the groups ($p>0.05$).

Conclusions: For the two bulk-fill and group control composite-resin restorations there were not significant differences in the immediate performance according to FDI criteria.

Caries Prevention: Living Overview Of The Evidence (L-OVE)

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Objectives: Identify and organize all existing evidence in Epistemonikos about interventions for caries prevention, and keep it continuously updated.
Methods: A broad search of systematic reviews (SRs) was performed in Epistemonikos, about the topic "caries prevention", without restriction for language or publication year of the articles. Two people evaluated each of the potentially eligible SRs, using Epistemonikos Collaboratron tool, and in case of discrepancies, a third investigator was responsible for resolving them.
All SRs were organized according to 30 PICOt questions, considering dentition type (primary or permanent), related to measures for the prevention of caries (sealants, infiltrants, among others). For each question, with at least one SR available, a matrix of evidence or dynamic table that shows all the SRs and the primary studies included in each of them, was created.
The set of evidence for each question is currently being compiled with Living FRISBEES method or Epistemonikos summary, a structured summary that follows a pre-established format that includes key messages, synthesis of the evidence set, meta-analysis, GRADE tables, and other considerations for decision-making.
Results: We found 814 possible SRs with the search strategy implemented, but 330 SR were selected, which were grouped according to the type of preventive intervention for caries management, through the L-OVE platform. Finally, 21 matrices of evidence were prepared, with the primary studies found for each question, most of them randomized clinical trials.
In 9 of the 30 PICOt questions selected to study preventive interventions for caries management, we did not find published SRs, which suggests evaluating new evidence in the future.

To continue expanding this clinical evidence database, Epistemonikos summaries of the remaining questions will be developed and the resulting information will be considered for the elaboration of clinical guidelines.
Conclusions: We have managed to synthesize a large volume of evidence on different preventive measures for caries disease, through novel methods based on the Epistemonikos project. The new evidence about this important topic for dental research will be kept constantly updated. Currently, our findings are being shared with the Evidence Based Dentistry Department of the American Dental Association.

COMMUNICATION BETWEEN TWO CARIOGENIC MICROORGANISMS: BIFIDOBACTERIUM DENTIUM AND LACTOBACILLUS CASEI

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Objectives: To analyze the effect of Bifidobacterium dentium, by cellular communication mediated by the autoinducer-2 molecule, in the adhesion and biofilm formation of Lactobacillus casei.
Methods: Protocol approved by the Institutional Biosafety Committee and by the Scientific Ethics Committee of the Faculty of Dentistry, University of Chile. L. casei ATCC 4646 and B. dentium ATCC 27534 strains, obtained from caries sites, were used. For all the analyzes both strains were cultured in MRS medium in anaerobiosis at 37 °C. The presence and functionality of autoinducer-2 (AI-2) produced by B. dentium was detected by means of an assay with the Vibrio harveyi BAA-1117TM reporter strain, which produces luminescence in the presence of this molecule. The MTT (Sigma®) test was used for the adhesion test. For biofilm formation analysis, glass coverslips embedded in saliva were used, under static conditions, and the results were visualized using Scanning Electron Microscopy. In both assays, L. casei was analyzed in the presence and absence of AI-2 of the supernatant of B. dentium culture and AI-2 chemically synthesized as a control.
Results: Significant amounts of AI-2 were detected in the stationary phase culture of B. dentium. This molecule is capable of generating an increase in the adhesion and biofilm formation of L. casei ATCC 4646, which presents low adherence and biofilm formation in the absence of it.
Conclusions: B. dentium is able to enhance the adhesion and initial formation of L. generating biofilm, through the production and secretion of AI-2 to the external environment. These results indicate that cellular communication mediated by AI-2 can generate positive effects among cariogenic microorganisms. These findings are very useful to understand the nature of the interaction between these microorganisms, as well as the mechanisms of fundamental processes for pathogenicity, such as adhesion to surfaces and the biofilm formation.
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Dentifrice containing EGCG remineralizes root dentin in vitro

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Objectives: This in vitro study analyzed the effect of fluoride concentration, pH and presence of epigallocathechin-gallate (EGCG) remineralization of carious dentin.
Methods: Bovine root dentin specimens (n=144) were divided into 12 groups according to their surface hardness: 1- placebo dentifrice pH 7; 2 - placebo dentifrice pH 4.5; 3 - placebo dentifrice pH 7 with 0.61% EGCG; 4 - placebo dentifrice pH 4.5 with 0.61% EGCG; 5 - 1100 ppm F dentifrice pH 7 without EGCG; 6 - 1100 ppm F dentifrice pH 7 with 0.61% EGCG; 7 - 1100 ppm F dentifrice pH 4.5 without EGCG; 8 - 1100 ppm F dentifrice pH 4.5 with 0.61% EGCG; 9 - 5000 ppm F dentifrice pH 7 without EGCG;10 - 5000 ppm F dentifrice pH 7 with EGCG 0.61%; G 11 - 5000 ppm F dentifrice pH 4.5 with 0.61% EGCG; 12 - 5000 ppm F dentifrice pH 4.5 without EGCG. The specimens were subjected to a pH cycling model for 7 days (6 h demineralization, 18 h remineralization). Treatment with dentifrices was done before and after remineralization using a brushing machine, toothbrush (Curaprox) and dentifrices tested (2x15 s, 150 g load). Percentage of surface hardness recovery (%SHR) was calculated. Data were analyzed by ANOVA and Bonferroni post hoc test ($p<0.05$).
Results: ANOVA found a significant difference between the groups ($F = 34.396$ $p <0.0001$). The lowest % SHR% was observed for group 2, which differed from all others, except from groups 1 and 4. The highest %SHR was observed for group 11, which differed from the others, except from groups 6, 8, 9, 10 and 12.
Conclusions: The results indicate that for recovery of surface hardness in carious root dentin, the most appropriate treatment is the dentifrice with 1100 ppm F pH 7 containing EGCG.
Financial support: FAPESP (2017/08585-9).

Diaphragm Activity, Heart Rate And Oxygen Saturation During Tooth Grinding

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Objectives: To compare the effect of canine guidance or group function on diaphragm activity, heart rate and oxygen saturation during awake tooth grinding at different body positions.
Methods: Fifty healthy male participants, 25 with canine guidance and 25 with group function were included. They had complete natural dentition, canine Class I or II and no history of orofacial pain. Bilateral electromyographic (EMG) recordings of diaphragm (DIA) muscle were performed during clenching in the maximum intercuspation (MIC) and during continuous tooth grinding from MIC to right lateral edge-to-edge contact position and vice versa, at standing, seated upright and right lateral decubitus positions. Activity during tooth grinding was normalized based on that recorded during MIC. Simultaneously, heart rate and oxygen saturation was measured with a fingertip pulse oximeter (Choicemmed®). The mean value of the three curves obtained for each condition was used for the statistical comparisons. EMG activity during awake tooth grinding, heart rate and oxygen saturation presented a non-normal distribution ($p < 0.05$; Shapiro-Wilk test), therefore a Mann-Whitney U-test was used to compare these variables between both groups. A value of $p < 0.05$ was considered significant.
Results: EMG activity of DIA muscle was similar in the working side as well as in the non-working side between participants with canine guidance or group function in the different body positions studied. The heart rate and the oxygen saturation showed no significant differences between both groups.

Conclusions: EMG activity of the DIA muscle, the heart rate and the oxygen saturation during tooth grinding are not significantly influenced by the type of the laterotrusive occlusal scheme.

Dilution Of Saliva And Caries, Experimental Model With Biofilms.

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Objectives: Saliva has been described as a powerful modulator of the caries process, but it is not clear whether a minimum quantitative threshold is required to exert a protective effect.

Objective: To evaluate the effect of saliva dilutions on Streptococcus mutans (S. mutans) in vitro, considering demineralization and microbiological characteristics of the biofilm.
Methods: A caries model with S. mutans biofilms was used on enamel and root dentin slabs. Biofilms were exposed to treatments comprising a dilution of saliva in a soy trypticase culture medium: (1) 5% Saliva + 10% Sucrose, (2) 10% Saliva + 10% Sucrose, (3) 25% Saliva + 10% Sucrose, (4) 50% Saliva + 10% Sucrose, (5) 75% Saliva + 10% Sucrose, (6) 100% Saliva + 10% Sucrose. A positive → 0% Saliva + 10% Sucrose and a negative control → 0% Saliva + 0.9% NaCl were included. Each slab was exposed to 10% sucrose for five minutes, three times per day, four days for dentine and five days for enamel. Acidogenicity, demineralization, biomass, viable microorganisms and polysaccharides were analyzed. The experiment was carried out in triplicate in two phases (n=6).
Results: In enamel and dentin, there was a tendency to decrease acidogenicity and demineralization as the volume of saliva increased, in each dilution. In enamel, treatment 6 with 100% saliva had a potent inhibitory effect on pH drop. Treatment with only 5% saliva (Group 1) was highly effective in reducing demineralization. In both tissues a significant reduction of the biomass, viable microorganisms of S. mutans and polysaccharides was observed when saliva was present in high concentrations.
Conclusions: High concentrations of saliva can almost completely inhibit dental demineralization and some properties of cariogenic biofilms.

Does Chronic Periodontitis modify the Rheumatoid Arthritis's morbidity ? Clinical and molecular aspects.

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Objectives: The aim was to determine if Chronic Periodontitis (CP) modifies the Rheumatoid Arthritis (RA) morbidity, analyzing clinical and molecular aspects.
Methods: The Pubmed database was searched by two independent researchers, using "periodontitis" and "rheumatoid arthritis" as keywords and "AND" as Boolean term. Five hundred and fifty- two articles were found in the initial search.
Then, the inclusion criteria were applied: observational and clinical studies of the last 10 years, in humans and published in english. Titles and abstracts were evaluated applying inclusion criteria and the duplicates articles were deleted. Forty-three articles were obtained and finally sixteen were selected by analizing full text.
Results: A higher prevalence of CP was observed in RA patients in comparison to healthy controls, RA patients with CP have higher DAS28 scores, count of sensitive joints and greater radiographic damage than patients without CP. Furthermore, non-surgical periodontal treatment reduce RA activity and also the periodontal clinical parameters's values are higher in RA compared to healthy controls. In the molecular aspects, the antibody response against P. Gingivalis increases in patients with RA compared to healthy controls. It has been observed in CP patients, that antibodies against PPAD are elevated in RA compared to non-RA group. In relation to RA disease markers, higher values of Erythrocyte Sedimentation Rate (ESR), C-Reactive Protein (CRP), Rheumatoid Factor (RF) and antibody against Cyclic Citrullinated Peptide (CCP) were found in CP patients than controls without CP
Conclusions: Current evidence suggests an association between CP and RA, however more extensive and larger cohort studies would be necessary to better assess the common pathologic features and to define the complex etiopathogenic mechanism that would be involved

Effect of Faculty Development Programme on Multiple-Choice Item Writing Quality

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Objectives: The use of multiple choice questions (MCQs) is a well-accepted method to evaluate the professional competencies in medical science education. Nevertheless, assessment items written by faculty without training are lacking in quality. Their improvement might endorse with the validity of the examination, better achievement of the students, and discrimination in the competency level of the borderline students.
The aim of this study is to determine the effectiveness of a faculty development programme on MCQ item writing. This programme is a part of a dental school wider quality assurance protocol, and included workshops, a detailed item construction and a blueprint guide, in addition to a personalised guidance to improve items, before and after the tests.
Methods: Several workshops about assessment principles and how to write high quality MCQ items were dictated by the Education Directorate during 2015-2017. After that, there was an implementation of a MCQ quality assurance protocol.
Values for mean score, reliability (Cronbach Alfa), item-discrimination index and item-difficulty index were registered for 87 different MCQ tests done before (27 tests in 2014) and after (27 tests in 2016, 33 tests in 2017) the quality assurance protocol was introduced, analyzing a total of 5265 items.
Results: Mean students score during 2014 was 4.5 (scale1-7), during 2016 was 4.3 and in 2017 was 4.4. Cronbach alpha reliability increased 25% between 2014 and 2016 but decreased slightly (4%) between 2016 and 2017. The same behaviour was observed for item discrimination index. Difficulty index decreased from 0.67 to 0.58 between 2014-2016, but then increased 0.06 points in 2017.
Conclusions: The implementation of a faculty development programme on MCQ item writing improves their quality. However, in this study the most significant improvement was in 2016, after the first faculty development programme was implemented.

Epigenetic influence in IRE1a/XBP-1 pathway in Sjögren's syndrome patients.

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Objectives: The IRE1/XBP-1 signaling pathway of the unfolded protein response involved in the regulation of the secretory process is dysregulated in labial salivary gland (LSG) from Sjögren's syndrome patients (SS-patients). Previous results from our laboratory indicate a possible epigenetic influence, shown that this could be a consequence. To study the expression, promoter methylation status and localization of IRE1α/XBP-1 pathway components, and them in-vitro expression induced by inflammatory cytokines (IFN-g).
Methods: We studied LSGs belonging from 47 SS-patients and 37 control subjects. As experimental strategy, qPCR and western blot were used to evaluate the mRNA and protein levels of IRE1α, XBP1 and GRP78. The methylation status of promoters were analyzed by High resolution melting (HRM) 3D cultures of HSG cells were incubated with IFN-γ to evaluate the expression of the IRE1α/XBP-1 pathway components. Additionally, subcellular location of IRE1α, XBP1, and GRP78 were analyzed by immunofluorescence.
Results: A diminution of mRNA and protein levels of IRE1, XBP-1 and GRP78 were found in LSG from SS-patients.. These results are correlated with an increase in methylation levels of their promoters. Similar behavior was found in HSG cells incubated with IFN-γ
Conclusions: The decrease in mRNA levels of IRE1a, XBP-1, and GRP78 promoters could be a result of the hypermethylation of their respective promotors. Decreased expression of these components is consistent with chronic ER stress and could partly explain the glandular dysfunction observed in LSG of SS-patients. In HSG cells, local stress signals as pro-inflammatory cytokines modulate the expression of IRE1α/XBP-1 pathway components.

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Expression Levels Of IL17 And IL22 In Symptomatic Apical Periodontitis.

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Objectives: To determine mRNA expression levels of IL-17 and IL-22 in symptomatic apical periodontitis (SAP), asymptomatic apical periodontitis (AAP) and healthy controls.
Methods: Patients consulting at the dental clinic, Faculty of Dentistry Universidad Andrés Bello and Emergency Hospital Public Assistance, Santiago, Chile with clinical diagnosis of SAP (n= 9), AAP (n = 9), and controls corresponding to healthy periodontal ligament (n=3) and indication of tooth extraction were included. Patients with antibiotic or anti inflammatory medication during the last three months and/or having immunologic disease were excluded. mRNA was extracted and expression levels of IL-17 and 22 were determined by quantitative real-time PCR. Quality of mRNA was assessed by Bioanalyzer. Results were analyzed with K. Wallis and Bonferroni tests with the STATA program.
Results: IL-22 was significantly over expressed in AAP compared to SAP and controls ($p<0.05$). The expression of IL-17 mRNA did not show significant differences between AAP, SAP and controls ($p<0.05$).
Conclusions: IL-22 was over expressed in AAP versus SAP and controls, whereas IL-17 did not show differences. IL-22 might be involved in apical lesion inactivitys.
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FOXO1 regulates early cytoskeletal dynamics in human gingival fibroblasts

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Objectives: Gingival connective tissue healing involves changes in cell adhesion, migration and the differentiation of a transient population of collagen-producing cells known as myofibroblasts. FOXO1 is a transcription factor that actively participates in the wound healing process. However, its precise role in the regulation of gingival fibroblasts is still poorly understood. The aim of this study was to identify the role of FOXO1 on the adhesion, size and myofibroblastic differentiation in gingival fibroblasts.

Methods: Primary cultures of human gingival fibroblasts were obtained from healthy young donors.
Myofibroblastic differentiation and cell size were analyzed in the presence or absence of a pharmacological FOXO1 inhibitor and/or Transforming Growth Factor-beta 1. Changes in cell size and actin distribution were studied at different times by staining cells with phalloidin and DAPI. FOXO1 and Alpha Smooth Muscle Actin protein levels and distribution were analyzed through immunofluorescence and Western-blot. Cell adhesion over a collagen substrate was assessed through anti-vinculin and anti-integrin beta 1 staining. Images were analyzed using ImageJ.

Results: Myofibroblastic differentiation was characterized by an increase in cell size and in the protein levels of Alpha Smooth Muscle Actin. Interestingly, the FOXO1 inhibitor significantly reduced these two responses. Moreover, FOXO1 inhibitor diminished the adhesion and spreading of fibroblasts at 24h and 48h.

Conclusions: The present study reveals an important role for the transcription factor FOXO1 through the modulation of cytoskeletal changes in gingival fibroblasts. These responses may have an impact in connective tissue wound healing in oral tissues.
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Health Students As Research Subjects.

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Objectives: The objective of this study was to know the implications involved in the use of health students as research subjects (RS) an investigation.
Methods: A review of the literature was made in the databases PUBMED, EMBASE, SCOPUS, EBSCOhost and SciELO, without limits of years and with eligibility criteria.
Results: We found 215 articles in the five databases consulted and 35 were selected after a review by title and abstract for a complete reading. After applying the inclusion criteria, 21 articles contributed information in relation to the considerations that should be known when using students as RS. Of the selected articles thirteen are narrative reviews, three letters to the editor, three survey applications, one study of creation and validation of a survey and one qualitative study. Three themes were the ones most represented by the authors: Scientific ethics when involving students as RS in research; benefits that your participation brings as RS; responsibility of review institutions or scientific ethical committees.
Conclusions: The participation of students as RS an investigation can become an academically enriching instance, but there is little evidence that reports the true student benefits of participation. The use of students as study subjects has increased over the years, requiring researchers to know the ethical implications involved in their participation. Recognizing the measures for their protection is important and the scientists call for an international unification of these criteria in order to solve the frequent discrepancies see when requesting the evaluation of this type of projects by different review institutions, which will also benefit the researchers and editors of scientific journals.

Histological Analysis Of Different Dentin Removal Methods

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Objectives: To compare the efficacy of removal of dentin caries in previously extracted human teeth using the rotational carbide, polymer and papain-based mechanical chemistry method, based on histological analysis of remaining caries thickness observed under optical microscopy.
Methods: Twenty seven extracted human molars and premolars with dentinal caries lesion clinically cavitated were randomly divided into 3 groups (n=9) which were handled according to the caries removal method: (1) Conventional mechanical rotary method with carbide burs (Tungsten Carbide H1, Komet Dental), (2) Mechanical rotary method with polymer burs (Polybur P1, Komet Dental) and; (3) Chemo-mechanical method with enzymatic gel based on papain (Brix 3000, Brix Medical Science). The teeth of all groups were sectioned with a microtome into 5 µm thick cuts. The samples were processed histologically with Arteta staining to evaluate the presence and thickness of remaining caries under the optical microscope. Finally, the Micrometrics® SE Premium program is used to project and measure each sample via a computer screen. Differences between groups were analyzed with ANOVA at $p<0.05$.
Results: A statistically significant difference ($p<0.05$) in the values of remaining dentine caries thickness was observed between group 2 (chemo-mechanical method, average 47.43um) with respect to group 1 (Polymer bur, average 100.06um) and group 3 (carbide bur, average 102.27um)
Conclusions: The results collected in this study, within its limitations, suggest that both new methods of caries removal (ie. polymer bur and chemo-mechanical) are suitable for clinical use because they have a capacity to eliminate dentinal caries similar to the conventional method.

Histological validation of fibrocartilage MRI detection in TMJ

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Objectives: The Objective of this study was to validate SPGR MRI (WATS T1) technique to detect the fibrocartilaginous layer of the porcine mandible condyle ex vivo and to compare the SPGR MRI technique with conventional MRI protocol to detect the fibrocartilage layer in TMJ.

Methods: Methods: Two young Yorkshire pig heads, nine months old, obtained from a local slaughterhouse were studied. In both heads, the right condyle fibrocartilages layer was surgically removed, while the left TMJ remains untouched. The two heads were examined using bilateral MRI (Phillips Intera 1,5T, Sense Flex S Dual Coil, Eindhoven, Nederland) in the following sequences; sagittal DP weighted (TR1500; TE20), T2 weighted (TR2000; TE100) and WATS T1 (TR30; TE4.4) all in oblique axis of the mandible condyle at closed mouth. Subsequently, the TMJs were extracted, submerged in buffered 10% formalin solution at room temperature and sent to the pathological anatomy service for the histological report of the condyles. All 4 samples were decalcified by Osteosoft (EDTHA pH 7.0) until suitable for inclusion (Poth Hille Paraffin Wax Plus) and staining (Hematoxilin-Eosin, and Toluidin Blue Cancer Diagnostic).

Results:
Results: The porcine study showed that WATS T1 images clearly detect the presence or absence of fibrocartilaginous layer in the mandibular condyle. WATS T1 sequence allowed the largest display of fibrocartilage, compared with the other sequences. Mean fibrocartilage ROI signal intensity was 74.07(±14.7)IU.

Conclusions: Conclusions: The ex vivo porcine model proved that WATS T1 sequence can clearly detect fibrocartilage layers of the TMJ, confirmed by histological analysis. The WATS T1 is a reliable sequence to detect the TMJ fibrocartilage layer in the mandibular condyle.

Host-lysosomal pH role in the Aggregatibacter actinomycetemcomitans infection

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Objectives: The intracellular bacteria Aggregatibacter actinomycetemcomitans (serotype b) is the most prevalent pathogen associated with aggressive periodontitis. Host-lysosomes are crucial for control and degradation of intracellular pathogens. Herein, we decided to investigate the role of host-cell lysosomal pH in the infection and dissemination of the periodontal pathogen A. actinomycetemcomitans in gingival epithelium and its correlation with the pathogenesis of aggressive periodontitis.
Methods: We generate an in vitro infection model, using human keratinocytes from the gingival junctional epithelium (OKF6/TERT-2 cells) to recreate the initial stages of periodontitis pathogenesis. The role of lysosomal degradative enzymes was addressed by treatment with alkalinizing drugs such bafilomycin A1, chloroquine and NH4Cl. The effects of host-lysosomes alkalinization on A. actinomycetemcomitans infection were analyzed by high-resolution confocal microscopy, gentamicin protection assay and flow cytometry.
Results: Alkalinization of lysosomes before bacterial invasion did not alter the cell structure nor subcellular localization or lysosomal number on the host-cell as determined by the confocal microscopy. Accordingly, host-cell invasion by A. actinomycetemcomitans was not affected upon lysosome alkalinization. Additionally, lysosome alkalinization post-invasion increased the number of intracellular bacteria, suggesting that alkalinization enhanced bacterial survival, and intracellular multiplication. Consequently, the increase in bacterial survival enhanced the intercellular dissemination raising the percentage of infected cells, a major step to induce bacterial persistence in periodontal tissues.
Conclusions: Taken together our results, strongly suggest that lysosomes play a critical role in the periodontitis pathogenesis following the cell invasion. Although the lysosome alkalinization did not alter the bacterial invasion rate we cannot rule out involvement of this cellular organelle in the initial steps leading to bacterial invasion. Our data reinforces that maintenance of acidic lysosomal pH is crucial for host-cell clearance of

pathogenic intracellular bacteria. Further investigation are ongoing to determine the lysosomal pH role during bacterial persistence

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Immediate Clinical Performance Dual-Cure Bulk-Fill Posterior Composite

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Objectives: Evaluate clinical performance in proximal or occlusal restorations with dual-cure Bulk- Fill and nanofilled composite by Ryge criteria.
Methods: 30 voluntary patients with 2 proximal or occlusal caries lesions in posterior teeth. The depths of the lesions were ≥ 4.0mm with antagonist teeth. They were distributed randomly: Group FU: 30 Fill-Up resins Bulk-fill-Brilliant Everglow (Coltene-Whaladent) and Group Z350: 30 restorations Filtek Z350 (3M-Espe). The restorative procedure was performed with anesthesia and absolute isolation. All cavities were conditioned in enamel for 20 seconds with 37% phosphoric acid and then rinsed and dried. Single Bond Universal adhesive (3M-Espe) was applied for Z350, One Coat 7 Universal in the cavities of the FU (Ivoclar-Vivadent), according to manufacturer's instructions. The FU restorations were done with an only layer (≥4mm) and a final layer with Brilliant Everglow. Z350 were restored with 2 mm deep multilayer. Restorations were polymerized for 30 seconds with a Bluephase light-curing unit (Ivoclar-Vivadent) with an intensity of 1.100mW/cm2. Calibrated operator (Kappa>0.8) evaluated the restorations by Ryge criteria; marginal staining (MS) and adaptation (AM), anatomy (A), postoperative sensibility (S) and caries (C) two weeks later. The Kruskal Wallis test was used for the statistical analysis of the information software SPSS 22.0 (95 %of significance).
Results: For follow-up 30 patients were evaluated (N(total)=60). Were evaluated alpha for AM: 100% Z350 and 97,8 % for FU; MS, A,S and C there were 100% for both groups. There were not significant differences between the groups (p >0.05).
Conclusions: For the two occlusal-proximal composites there were not significant differences in the immediate clinical performance evaluated by Ryge criteria.

Impact Of Caries On Quality of Life In Adolescents: Meta-analysis

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Objectives: The aim of this study was to assess the impact of dental caries on Oral Health Related Quality of Life (OHRQoL) in adolescents.
Methods: An electronic search was conducted in MEDLINE, EMBASE, Cochrane, ScieLo and Lilacs databases. The study eligibility criteria were primary studies published in English, Spanish and Portuguese that assessed OHRQoL in adolescents with dental caries using validated instruments. The selection process and data extraction were carried out by two researchers independently. The Effective Public Health Practice Project's Quality Assessment Tool was used for the quality assessment. Random effects models were used to estimate pooled effect for continuous and categorical data.
Results: Of 1,152 identified articles, 29 studies (34 articles) met the inclusion criteria and fifteen were meta-analyzed. Twenty-eight studies were cross-sectional designs and one was a cohort study. Risk of bias was judged mainly as weak. Caries was significantly more likely to report any impact on OHRQoL than controls (OR=2.50, 95% IC: 1.47-4.26). The psychological (MD=0.75, 95%IC:0.24-1.27) and social (MD=0.71, 95%IC:0.23-1.19) domain were the most affected.
Conclusions: This review provides evidence that dental caries has a negative impact on OHRQoL in adolescents.

Legibility Of Informed Consent Forms Used In A University Dental Clinic

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Objectives: To assess the legibility of Informed Consent forms used during 2018 in the Dentistry Clinic of the Universidad de La Frontera (UFRO)
Methods: A descriptive observational cross-sectional study was design. All the six Informed Consent forms used during 2018 in the Dentistry Clinic of UFRO ("Dental Surgery", "Endodontics", "Dental Radiology", "Implants and Bone Regeneration Procedures", "General Dentistry" and "Orthodontics") were collected for this study. The text from the forms was prepared by removing the parts that needed to be filled manually like name, RUT, age, signature, date, among others. This so the main text could be run through the software INFLESZ v1.0®, one of the most popular tools for legibility assessment of Spanish texts. This software analyzes the text and calculate different parameters of interests for the legibility analysis, such as: number of words, syllables, phrases, average of syllables per word, average of words per phrase, Flesch-Szigriszt Index, and degree on the Inflesz Scale, categorizing the text between 5 difficulty levels.
Results: The Informed Consent form with the highest number of syllables and words was "Dental Radiology" (1983 and 875 respectively), while the one with the fewer amount, was "Dental Surgery" (933 and 375). This form had the highest average of syllables per word (2.49), which means that it used longer words throughout the text. The degree on the Inflesz Scale categorized the majority of the forms as "Somewhat difficult" ("Endodontics", "Dental Radiology", "Implants and Bone Regeneration Procedures" and "Orthodontics"). "Dental Surgery" was categorized as "Very Difficult", and "General Dentistry" was categorized as "Normal".
Conclusions: The legibility assessment of Informed Consent forms is a useful and fast tool to establish the difficulty level of the text, which can be of great use to make timely corrections that could enhance our patients understanding, therefore streamlining and improving the Informed Consent process before dental interventions.

Mandibular Movements Analysis and Self-report of symptoms of Temporomandibular Disorders

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Objectives: To analyze quantitative characteristics of Mandibular Movements (MM) and self-report of symptoms of Temporomandibular Disorders (TMD) in a sample of young and healthy participants.
Methods: 40 participants, 21 women (W) and 19 men (M), aged between 18 – 25 years old, were evaluated after signing the respective informed consent (protocol number 038/2016). Each participant were asked to respond a self-report questionnaire for screening of TMD, which consist of 10 questions (Q1 – Q10) with dichotomous answers (yes/no). Then, they were asked to perform a series of MM in order to obtain range (OR) and trajectory (OT) of opening, and the area of envelope of Posselt, in frontal (EP-F) and sagittal (EP-S) plane. The MM were recorded using an electromagnetic articulograph 3D and processed with a specific software. The MM were compared between groups formed according to sex and answers of participants (W/yes or W/no and M/yes o M/no).
Results: The mean age of participants was 19.78 ± 2.21 years. The distribution of the self-reported answers by sex is described in Table 1. No statistical differences were found for any questions. The mean and standard deviation of quantitative data of MM by sex are presented in Table 2. For OR, no statistical differences were found for any question between the groups. For OT, statistical differences were found for Q1 and Q2 between W/no and M/no ($p<0.05$, $p<0.05$), for Q5 between W/no and M/no ($p<0.05$) and between M/yes and M/no ($p<0.05$), and for Q7 between W/no and M/no ($p<0.05$) and W/yes o W/no ($p<0.05$). For EP-F statistical differences were found for Q1 between M/yes o M/no ($p<0.05$) and for Q4 between all groups ($p<0.05$). Finally, for EP-S no statistical differences were found between the groups.
Conclusions: According to our finding, the self-report of TMD symptoms could affect the OT and EM-F in young and healthy participants.

Marginal adaptation of bulk-fill composite under different pH conditions

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Objectives: to evaluate marginal adaptation of bulk-fill composite restoration with self-etch all-in-one adhesive through scanning electron microscope (SEM).
Methods: Sixteen recently extracted molars from patients attended at University Dental Clinic were evaluated after signing the respective informed consent. Two class I cavities were prepared in each tooth using rotating instrument (4 mm of diameter and depth). All cavities were restored using a self-etch all-in-one adhesive (Scotchbond Universal Adhesive, 3M, USA) and bulk-fill composite (Filtek One Bulk-Fill Restorative, 3M, USA). The teeth were randomly divided in four groups and all of them incubated at 37 °C with physiological serum (NaCl 0.9%) at different pH values (control group: no serum; group I: pH 7.0; group II: pH 6.5; group III: pH 5.5). In each group, two teeth were randomly selected to evaluate the marginal adaptation of their restorations after 24 and 36 hours of incubation. Using a SEM (SU-3500, Hitachi, Japan) the length of margins without gaps of each restorations in enamel were measured and expressed as a percentage.
Results: After 24 hours, the percentage of margins without gaps in enamel for control group was 98.7%, for group I was 98.7%, for group II was 93.4% and for group III was 90.2%. After 36 hours, the percentage of margins without gaps in enamel for control group was 99.1%, for group I was 97.6%, for group II was 90.6% and for group III was 70.9%.
Conclusions: In restorations with bulk-fill composite and self-etch all-in-one adhesive, pH condition could modify marginal adaptation. Acidic conditions may represent a risk for marginal filtration in these restorations

Masseter muscles as an IL-1b/IL-6 source for masticatory system remodelling.

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Objectives: Masticatory apparatus is highly susceptible to environmental demands. A local increase in interleukin-1β (IL-1β) and interleukin-6 (IL-6) has been reported in pathological conditions. In trunk-limb muscles, biochemically different than masticatory muscles, myokines such as IL-1b/ IL-6 are secreted by muscle activity, through an extracellular ATP (eATP) signalling pathway, leading to local and systemic effects. The aim of this study was to address the activity-dependent production of myokines in mice masseter muscles, through an eATP pathway, for allowing system remodelling.
Methods: Masseter muscles from adult mice were isolated, and challenged to either electrical stimulation (ES, to resemble motoneuron activation) or eATP. For in vivo masseter remodelling, changes in diet hardness were addressed by 2 weeks (control diet-CD/Extra-Hard diet-EHD/Soft diet-SD). ATP release was quantitated by luciferin-luciferase assays. IL-1β/IL-6 expression and secretion were determined (qPCR/immunoblot/ELISA). Pharmacological blockers of eATP signalling were used.
Results: ES evoked an increase of IL-1β/IL-6 expression and release in masseter muscles, dependent on the eATP signalling pathway. Changes in diet hardness remodelled masseter muscles, leading to atrophy (SD) or hypertrophy (EHD). Both diets increased basal levels of IL-1β/IL-6 in masseter muscles, with no changes in basal eATP levels, but an overexpression of the P2Y2 receptor for eATP. An overexpression of Pannexin-1, the ATP releaser conduit, was also observed in SD-derived masseters. A reduced response to ES for evoking IL-1β/IL-6 expression was observed in muscles derived from both diets, probably because the basal levels of both myokines was already augmented.
Conclusions: We demonstrated that masseter muscle activity promotes IL-1β/IL-6 expression and release through an eATP signalling. Masseter activity modulation by over- or under-use, strongly increases basal levels of eATP pathway components, as well as IL-1β/IL-6. These results open the possibility that masseter muscles be an important source of IL-1β/IL-6, widely involved in temporomandibular joint remodelling in health and disease.

Oral health beliefs and behaviors in Chilean low income families

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Objectives: To describe the main aspects of self-care of oral health and believes within families which have children between 2 and 5 years old, and have been attended at Family Medical Center in Puente Alto neighborhood.
Methods:
Quantitative analysis carried out in the two primary care centers linked to the medical school of the Pontificia Universidad Católica de Chile in Puente Alto district . A structured survey, designed and validated in previous study(1), was applied to 65 parents or caregivers who had children between 2 to 5 years old, considering an interval of confidence at 95%. The poll was applied from October until December, by 4 dental students, which were previous capacitated and calibrated. SPSS software was used to obtain descriptive statisticians.
(1)Martignon, Stefania et al. Instrumentos para Evaluar Conocimientos, Actitudes y Prácticas en Salud Oral para Padres/Cuidadores de Niños Menores . Rev. salud pública [online]. 2008, vol.10, n.2, pp.308-314. ISSN 0124-0064
Results: Families are composed of 4 to 5 people (43%), where the head of the household is the mother (92%). 67.7% believe that tooth decay is prevented by brushing and visiting the dentist and 80% that tooth decay is caused by poor brushing. 35% believe that the mouth should be cleaned from birth. 48% of children drink water between meals versus 33% who consume sugary drinks, and the tendency in snacks is toward the fruit. The child's hygiene habits are twice a day, mostly carried out with the caregiver. (figs:1, 2, 3, 4, 5, 6, 7, 8, 9)
Conclusions: The care of children's oral health is a function assumed mostly by the mothers. The belief that teeth are key to presentation holds importance and influence a greater care for the children, especially in terms of dental hygiene. This is opposed to the persistent use of bottles, usually

using flavor rich in sucrose, despite the widespread knowledge these habits cause cavities. For future interventions, the lack of presence of parents in children’s education, should be taken into consideration.

Organizational Study of the Teaching Assistant Dental Clinic (CODA-UFRO)

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Objectives: Analyze the internal processes of the Dental Clinic Teaching Assistance of La Frontera University (CODA-UFRO) in relation to the characteristic aspects from the intern processes of an intelligent organization and how these aspects from the power relationships affect the organizational learning processes, as in the case of the CODA-UFRO.
Methods: The investigation was a non-experimental type, with a descriptive level of deepness (Image 1), and with a qualitative focus. The criteria for inclusion in the study were: administrative, teachers, professional and undergraduate students. The collection techniques used were two: individual interviews and triangular groups. For guidelines these two techniques, a variable operationalization table was made, and the analysis technique was the one from the content test.
Results: The organization is able to realize that they need to generate changes, at the domestic level, to extrapolate to improve their health-care services. Nevertheless, some communicational and power features are still strongly attached into a bureaucratic and formal model, aspect that prevents the generation of team work, which it is a fundamental characteristic from intelligent organizations (Image 2). The analysis presented reveal that the CODA-UFRO has some aspects that needs to be changed to become an intelligent organization.
Conclusions: Finally, this research has made, from the concept of "intelligence", a patch to continue deepening the study for the intern management procedures from the CODA-UFRO, as an organizational entity for the learning-teaching formation for odontologists, discovering new ways of managing the organizations from the knowledge society.

pH and Color of Two Different Concentrations of Dental Bleaching

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Objectives:
The objective was to compare the pH and color, over human teeth surface during in vitro in-office bleaching, of two different hydrogen peroxide concentrations at 15% (HP15) and at 35% (HP15), containing both titanium dioxide nanoparticles and photocatalyzed with a LED/laser light source.
Methods: 10 male and female volunteers, between 13-23 years old, donated 40 healthy premolars, randomized into two groups: Group A: HP15 (n= 20) (LasePeroxide Flex 15%, DMC) and Group B: HP35 (n = 20) (LasePeroxide Flex 35%, DMC) both were treated in 3 sessions. The pH of the tooth surface in contact with bleaching agents was determined by pHmeter with a flat membrane surface electrode. The color of the teeth was recorded in vivo before extraction, and after each in vitro session, expressed as CIELAB ΔE value. Data distribution was determined by Shapiro Wilk test and the equality of variances by Levene Test. Data was compared by unpaired T test and correlation between variables by Pearson test. In all tests the significance was set at α ≤0.05.
Results: The pH values (±SD) at baseline, at the end of the first, second and third sessions were; Group A: 6.94±0.47; 5.39±0.42; 4.86±0.27 and 4.92±0.16, and Group B: 6.83±0.52; 4.20±0.27; 3.05±0.26 and 3.3±0.19. There was significant differences in pH between groups during and after the three treatment sessions (p=0.000). Significant ΔE* difference was observed before and after treatment for both concentrations (p=0.000).
Conclusions: Bleaching agents, based on hydrogen peroxide at 15% and 35% concentration with TiO2-N nanoparticles and LED/laser light source activation, showed significant and critical acid pH over the tooth surface when compared to baseline. The lowest pH was observed in the group with the highest hydrogen peroxide concentration. Teeth color was significantly modified by the two agents.

Prevalence Of Dental Caries And Other Oral Diseases In Preschool Children From Temuco.

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Objectives: To determine the prevalence of caries, dentomaxilary anomalies, dental trauma and gingivitis in preschool children from Temuco
Methods: An observational, cross-sectional, descriptive study was conducted from November 2017 to August 2018 in preschool children, with a sample of 276between 36 and 48 months of age, who attend kindergartens from INTEGRA foundation. Prior to beginning the study, the investigators were trained in clinical diagnosis of tooth decay to increase the degree of interexaminer agreement. The incidence of caries was determined based on the criteria proposed by the World Health Organization in the Oral Health Survey Basic Methods for epidemiological studies; therefore, only cavitated carious lesions were recorded.
Results: Caries prevalence was 31.52%. Gingivitis was found in 57.97% of preschoolers. The prevalence of dentomaxilary anomalies was 36.59% and the prevalence of dentoalveolar trauma was 10.87%.
Conclusions: The prevalence of oral diseases coincide with the national reports. In this study only cavitated carious lesions were evaluated,therefore, it’s necessary to perform studies in which carious lesions are recorded in earlier stages, so the prevalence of caries could be higher.

These results suggest that public policies related to oral health problems, especially with dental caries have not been effective. It`s necessary to emphasize on education to parents and children about the importance of oral hygiene, the role of sugars and fermentable carbohydrates, the role of the fluor, as well as the promotion of these.

Prevalence of self-reported bruxism manifestations and related factors

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Objectives: To describe the prevalence of self-reported bruxism manifestations and to explore related factors.
Methods: A cross-sectional study was carried out in adult population who attended diagnosis at San Bernardo's Health Center (Universidad de los Andes). A questionnaire was applied by trained interviewers. The questions were previously checked in a similar population focus group to verify their understanding. Several sociodemographic characteristics were evaluated, as well as habits report, medicines consumption, general diseases among others. They were asked about if any health professional has told them they had bruxism and if they clenched or ground their teeth. It was recorded in Epidata and analysed with Stata 14.2. It was estimated a logistic regression model for assessment the relationship adjustment for age and was reported Odds Ratio (OR) and confidence interval (CI 95%). Scientific-Ethic Committee from the Faculty of Medicine approved the protocol and informed consent document.
Results: A total of 570 volunteers accepted to complete the questionnaire. 523 answered all the questions. 95 of them (18.2%) reported that they had been diagnosed with bruxism, 283 (54.1%) indicated that they clenched their teeth, 109 (20.8%) said that they ground their teeth; and 305 (58.3%) reported one of the three previous conditions. When evaluating the association with age it was obtained an OR of 1.04 (95% CI 1.01-1.06, p-value=0.002); with depression , an OR of 2.17 was obtained (95% CI 1.38-3.40, p value = 0.001); with poor sleep, the OR was 2.38 (95% CI 1.62-3.48, p-value < 0.01); with medicine consumption, the OR was 1.55 (95% CI 1.06-2.23, p-value = 0.022); and with some reflux symptoms like reflux sensation, the OR was 1.77 (95% CI 1.21-2.59, p-value = 0.003).
Conclusions: We observed a prevalence of self-reported manifestations of bruxism greater than 50% of the participants, finding a positive association between this result and age, depression, poor sleep, medicine consumption, and some reflux symptoms.

Progression of chronic periodontitis and TRAP-5 levels in diabetics

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Objectives: To evaluate TRAP-5 levels in gingival crevicular fluid (GCF) and glycemic control in type 2 diabetic patients with progressive chronic periodontitis treated with conservative periodontal treatment.
Methods: Prospective cohort study. 29 patients with moderate to severe chronic periodontitis and poorly controlled type 2 diabetes mellitus [glycosylated hemoglobin (HbA1c ≥7%)], who were older than 30 years were included. Exclusion criteria were concurrent systemic diseases, pregnancy and antibiotic treatment in the previous 3 months. The patients received non-surgical periodontal treatment and periodontal clinical parameters, glycemia and HbA1c were registered in baseline and 6 months after treatment. Progression was defined as CAL ≥2 mm within the 6 month follow-up period. TRAP was determined by a Luminex-based assay. The data were analyzed with the Stata 11 software. All p values <0.05 were considered statistically significant.
Results: 9/29 (31%) patients showed periodontitis progression. Periodontal clinical parameters and TRAP-5 levels significantly decreased with periodontal treatment ($p<0.05$), but no significant differences were seen when comparing progressive and non-progressive patients. A positive correlation was identified between TRAP-5 and probing depth ($p <0.05$). No statistically significant association was found between glycemic control, periodontal clinical parameters or TRAP-5.
Conclusions: TRAP-5 levels and periodontal parameters were significantly reduced in type 2 diabetic patients with progressive periodontitis, though glycemic control did not improve. TRAP-5 correlate with PD.

RANKL Levels in FCG After Non-Vital Whitening. One Year Follow-Up

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Objectives: Evaluate and compare level of RANKL in gingival crevicular fluid (FGC) in teeth treated endodontically up to 1 year after intracoronary bleaching with 35% hydrogen peroxide and 37% carbamide peroxide.
Methods: For this clinical trial a sample of 46 endodontically treated teeth with change in coloration was included, divided into two groups at random according to the bleach whitening agent. G1= 35% hydrogen peroxide (n=23) and G2= 37% peroxide of carbamide (n=23). Intracoronary whitening was performed in a protocol of 4 sessions of walking bleach technique. Samples were obtained of FGC in 6 sites per tooth; 3 vestibular and 3 palatine (mesial, medial and distal). The control times to evaluate the levels of RANKL were: Before whitening (baseline), and control to one, six and twelve months after treatment. The total protein levels were quantified using the Bradford® system and from 100 µL of eluted sample the RANKL levels were measured by ELISA (Quantikine®, R&D Systems Inc.) and expressed in pg/µL.
Results: The levels of RANKL in Median (min;max) corresponding to G1: baseline= 12.26 (3,39:30,35), 1 month after bleaching= 25.33 (8.47:60.31), 6 months= 29.32 (10.36:70.18) and 12 months after bleaching= 29.07 (10.38:70.33). G2: baseline= 14.04 (4.42 : 27.84), 1 month after bleaching= 27.75 (10.34:52.17), 6 months= 31.15 (11.33:65.37) and 12 months after bleaching= 30.71 (11.38:65.02).According to the Wilcoxon test when comparing the different evaluation times in each group, all the obtained data are statistically significant ($p<0.05$), except in the G2 group when comparing the 6 months and the year after the treatment ($p>0.05$).No statistically significant differences between both bleaching agents ($p>0.05$) with Mann-Whitney test.
Conclusions: Walking bleach techniqueinduces an increase in the IL-1β and RANK-L production in periodontal tissues, which persists for one year.

Relationship between bony and soft tissue landmarks: Cephalometric analysis

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Objectives: Even though cephalometric analysis of bone structures helps reveal skeletal discrepancies, not always provides enough information about the shape and proportions of the facial soft tissues, and it can lead to a misinterpretation.
The objective of this study was to verify the relationship between soft tissue and bony structures underneath. Furthermore, the distribution of soft tissue in relation with hard tissue of each patient was analysed, and subsequently compared.
Methods: This study took samples of 500 patients with lateral teleradiography previously taken and who fit the inclusion and exclusion criteria. Dolphin® software was utilized to evaluate two parameters; the skeletal class by ANB angle in Stainer's analysis and facial convexity angle in Legan's analysis. Then, both parameters were compared in each patient, to analyze its consistency. For the statistical analysis, $p<0,05$ meant that a significant difference did exist. The results were analyzed by McNemar test for all the groups, unpaired T-test for class III, and ANOVA test for classes I and II.
Results: The studied sample showed a greater prevalence of class II individuals (52,6%). The proportion for class I in both genders were the same (37,6%). Slightly more prevalent in women for skeletal class II (48,8% men, 57% women) and notorious prevalence for men in Class III (73,5%). About soft tissue measurement, skeletal class II tendency turned out to be the most prevalent (46%), followed by class I tendency (42%) and the last group was the class III tendency (12%). According to gender, both groups class I and II tendency and equal in gender, unlike class III tendency where there were more men. Significant differences were observed between the skeletal class and the facial convexity angle for all groups with a $p = 0,027$.
Conclusions: A 29,2% of the patients don't show consistency between skeletal class and its appearance in soft tissue.

sFlt1/PlGF ratio As New Biomarker of Periodontal Inflammation During Pregnancy

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Objectives: To explore the association between soluble fms-like tyrosine kinase 1 (sFlt-1), placental growth factor (PlGF) and their ratio (sFlt1/PlGF) in gingival crevicular fluid (GCF) with periodontal inflammation in pregnant women.
Methods: An observational study was conducted. From an ongoing cohort, 167 patients with completed pregnancy were selected. The study was approved by Universidad de los Andes IRB and all participants signed an informed consent. A complete periodontal evaluation was performed during weeks 11-14 of gestation including: periodontal probing depth (PPD), clinical attachment loss (CAL), bleeding on probing (BOP) and periodontal inflamed surface area (PISA). All women were classified according to their periodontal status and GCF samples were taken. PlGF and sFlt1 levels in GCF were analyzed by Luminex assay. Data was assessed by descriptive statistics, Mann-Whitney test and correlations with clinical variables were determined using Spearman's correlation coefficient. Statistical significance defined as $p \leq 0.05$.
Results: Sociodemographic variables showed no statistical differences between groups. Periodontal diagnosis was: periodontally healthy (4,79%), gingivitis (7,19%) mild periodontitis (27,54%), moderate periodontitis (50,90%) and severe periodontitis (9,58%). Levels of sFlt1 (pg/ml), PlGF (pg/ml) and the sFlt1/PlGF ratio were higher in patients with moderate/ severe periodontitis when compared with those with gingivitis and mild periodontitis ($p<0,0001$ for all comparisons). Significant correlations were found for both biomarkers and sFlt1/PlGF ratio with: mean PPD, mean CAL, sites >3mm (%), BOP and PISA ($p<0,05$).
Conclusions: Both sFlt1 and PlGF concentrations in GCF and their ratio are associated with periodontitis severity and clinical inflammatory periodontal parameters during pregnancy.

SIX-MONTHS FOLLOW-UP CLINICAL PERFORMANCE TO REPAIR PROXIMAL COMPOSITE WITH BULK-FILL

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Objectives: Evaluate the clinical performance of proximal restorations repaired with Bulk-Fill composite according to the Ryge criteria at a 6 months follow-up.
Methods: 36 voluntary patients, each one with 2 proximal restorations which have a repair indication only in the proximal box, depths ≥ 3.0 mm and antagonist-proximal contact teeth. Restorations were randomly distributed: group BK has 36 Bulkfill Tetric EvoCeram resins (Ivoclar-Vivadent) and Group Z350 has 36 Filtek Z350 resins (3M-Espe). The restorative procedure was done with anesthesia and absolute isolation. Only the restoration sector or damaged tooth was removed. All cavities were conditioned in enamel for 20 seconds with 37% orthophosphoric acid, then rinsed and dried. Sectional matrix system and adhesive Optidond FL (Kerr) was used for both materials according to manufacturer's instructions. The BK restorations were done with only one layer (4mm maximum deep) and Z350 were restored with 2 mm deep multilayer. Restorations were polymerized for 30 seconds with a Bluephase light-curing unit (Ivoclar-Vivadent) with 1100 mW/cm2 of intensity. Calibrated operator (Kappa > 0.8) evaluated the restorations using the Ryge criteria at two weeks (Baseline) and at 6 months for: marginal staining (MS) and adaptation (AM), anatomic (A), proximal contact (CP), postoperative sensibility (S) and caries (C). For the statistical analysis using 95% confidence were used Wilcoxon and Mann Whitney and SPSS 22.0 software.
Results: 30 patients were evaluated in the 6 month follow-up (N= 60). Were evaluated alpha for: "AM" and "MS"; 96.7% in Z350 and 93.3% in BK. "A" showed 96.7% in Z350 and BK. For "CP", "S" and "C" both groups were evaluated with 100%. There was no significant difference between groups ($p > 0.05$).
Conclusions: The 6-months follow-up had no significant difference between restorations repair with BK and nanofilled control restorations evaluated by the Ryge criteria.

Three-dimensional chewing analysis in subjects with different skeletal classes

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Objectives: To assess the masticatory function through kinematic characteristics of chewing in the three directions of space, using Electromagnetic Articulography, in participants skeletal class I, II and III.
Methods: We selected 3 participants from each skeletal class, total dentate, between 16 and 26 years, without orthodontic appliances, oral lesions or peanut allergy were excluded. The records were made with EMA AG501, through 4 sensors fixed on: cutaneous point of the right and left mastoid, glabella and mandibular inter-incisive midline. The participants were asked to chew 3,7g of peanuts, without indicating the preferred side, until an optimum crushing of the food and subsequent swallowing were achieved. The area of each masticatory cycle was evaluated in the three planes of space (frontal, sagittal, horizontal), in addition to the frequency of mastication, the speed and acceleratoin of mandibular upward and downward movement. Data were processed with MATLAB software.
Results: The area of masticatory cycles in: Frontal plane, for skeletal class I: 48.74 ± 22.59 mm2, class II: 34.37 ± 18.47 mm2 and class III: 58.59 ± 24.67 mm2. Sagittal plane, for skeletal class I: 10.29 ± 3.84 mm2, class II: 6.58 ± 3.35 mm2 and class III: 17.33 ± 7.78 mm2. Horizontal plane, for skelatal class I: 8.23 ± 4.94 mm2, class II: 7.3 ± 5.05 mm2 and class III: 17.91 ± 11.92 mm2. The chewing frequency for skeletal class I: 1.62 cycles/s; skeletal class II: 1.48 cycles/s and for class III: 1.18 cycles/s.
Conclusions: The area of masticatory cycles in the three planes was greater in skeletal class III, while the skeletal class II showed the smaller areas. As for the masticatory frequency, this was similar in the three classes, however class I showed the highest frequency. Morphological analysis of the cycles demonstrates variability in functional mandibular movement.

TRAP-5 in periapical exudates of apical periodontitis.

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Objectives: To determine the protein levels of tartrate-resistant acid phosphatase (TRAP)-5 in asymptomatic apical periodontitis (AAP) and Symptomatic apical periodontitis (SAP).
Methods: Patients consulting at the clinic of endodontics in the Faculty of Dentistry, Universidad de Chile, Santiago, Chile, with clinical diagnosis of AAP (n = 14) and SAP (n = 4), were included if they were otherwise healthy. The endodontic access was performed, and exudate canal samples were obtained and eluted. The protein levels of TRAP-5 were quantified by a MULTIPLEX® platform. the results were analyzed by the Shapiro-Wilk and the Mann-Whitney tests with STATA® program.
Results: TRAP-5 protein levels were significantly higher in SAP versus AAP ($p<0.05$). Moreover TRAP-5 levels were low, close to the sensitivity limit of the assay in AAP.
Conclusions: TRAP-5 is elevated in SAP. These results support that TRAP-5 is a progressive form of apical periodontitis and TRAP might be a biomarker of progression.

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TUDCA: a possible theraphy for Sjögren's syndrome?

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Objectives: Tauroursodeoxycholic acid (TUDCA) is a water-soluble bile acid that act as mitochondrial membrane stabilizer avoiding the cell death blocking the apoptotic-Bax-pathway. Its therapeutic properties has been reported in some autoimmune and neurodegenerative disorders. In Sjögren's syndrome, salivary gland cells have endoplasmic reticulum (ER) stress and produce high levels of pro-inflammatory cytokines leading to glandular dysfunction. We studied the TUDCA effects on the expression of MUC1 and endoplasmic-reticulum-associated protein degradation (ERAD) markers (SEL1L and EDEM1) in HSG cells treated with pro-inflammatory cytokines.
Methods: Human salivary gland (HSG) cells were incubated with TNF-α or IFN-g for 6 h, and then with TUDCA up to 24 h. qPCR and western blot analysis were used to determine the mRNA and protein levels of MUC1 and ERAD markers (SEL1L and EDEM1). The MUC1, SEL1L, EDEM1, and RelA/p65 subcellular localization were determined by confocal immunofluorescence. Additionally, mRNA levels of IL-1b, IL-6, and TNF-a were determined by (RT)-qPCR.
Results: HSG cells stimulated with IFN-γ or TNF-α boosted their protein and mRNA levels of MUC1, SEL1L and EDEM1., while co-incubation with TUDCA prevented this effect. Similar results were obtained for RelA/p65, IL-1b, IL-6, and TNF-a mRNA levels. TUDCA also decreased RelA/p65 nuclear translocation induced by pro-inflammatory cytokines.
Conclusions: TUDCA showed anti-inflammatory properties by diminishing the NFkB activation and alleviating ER stress evident by decreased levels of ERAD markers and MUC1, making it an attractive potential therapy for Sjögren's syndrome patients.

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3 Month Follow-up Clinical Performance Occlusal Bulk-fill Composites According Ryge

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Objectives: Compare a 3-month follow-up of clinical performance in occlusal restorations with two Bulk- Fill composite and nanofilled composite according to Ryge criteria.

Methods: 48 voluntary patients, with 3 occlusal caries lesions in posterior teeth. The depths of the lesions were between 2.5mm-4.0mm with antagonist teeth. Were distributed randomly: Group TB: 48 Resins Bulkfill Tetric N-Ceram (Ivoclar Vivadent), Group FB: 48 restorations Filtek Bulkfill (3M-Espe) and Group control Z350: 48 restorations Filtek Z350 (3M-Espe). The restorative procedure was performed with anesthesia and absolute isolation. All cavities were conditioned in enamel for 20 seconds with 37% phosphoric acid and then rinsed, dried and applied Single Bond Universal adhesive (3M-Espe) in cavities of groups FB and Z350, while in the cavities of the TB group was applied AdheSE Bond Universal adhesive (Ivoclar-Vivadent) according to manufacturer's instructions. The TB and FB restorations were done with an only layer (maximum deep 4mm) and Z350 were restored with 2 mm deep multilayer. Restorations were polymerized for 30 seconds with a Bluephase light-curing unit (Ivoclar-Vivadent) with an intensity of 1.100mW/cm2. Calibrated operator (Kappa>0.8) evaluated the restorations by Ryge criteria (marginal staining and adaptation, postoperative sensibility and caries) two weeks and 3 months later. The Kruskal Wallis test was used for the statistical analysis of the information software SPSS 21.0 (95 %level of significance).
Results: For follow-up, 41 patients were evaluated (N=123). At 3 months 97,5 % of the group FB and Z350 were evaluated alpha in all parameters; while in the group TB it was 100 %. One case was bravo in marginal staining. There were no significant differences between the groups (p >0.05).

Conclusions: The two bulk-filled composite-resin occlusal restorations had no significant difference in a 3-month follow-up performance compared with the nanofilled control restorations evaluated by Ryge.

ANALYSIS OF GENETIC VARIANTS IN TRICHO-DENTO-OSSEOUS SYNDROME WITH AMELOGENESIS IMPERFECTA

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Objectives: The objective of this study was to characterize genetically members of a family diagnosed with tricho-dento-osseous syndrome (TDO) and Amelogenesis Imperfecta (AI).
Methods: After signing the informed consent, five individuals from the family under study were clinically examined. They underwent anamnesis and clinical photograph, panoramic and retroalveolar radiograph examinations. Peripheral blood was extracted for DNA analysis. With the data obtained, the genealogy was constructed and analyzed. The DNA of three of the members of the family was analyzed by Whole Exome Sequencing (WES), a service that was obtained from Sistemas Genómicos Company in Spain. The sequencing data were analyzed by using the Genesystem software.
Results: The family under study was composed of 5 members, both parents and three daughters born in wedlock. The genealogy revealed that the inheritance of the syndromic condition was compatible with an autosomal dominant pattern. At the clinical and radiographic examination, the three patients presented phenotypic variability such as: alteration of color and thickness of the dental enamel, with loss of enamel on the occlusal and incisal face of almost all the teeth. Radiographically, a decreased enamel thickness was observed in general, together with a lack of contrast between enamel and dentine. In addition, taurodontism in temporary and permanent molars was observed. In the results of WES the existence of variants in the genes ACPT, DLX3, FAM20C, FAM83H, LTBP3, ITGB6, LAMA3, MMP20, SLC24A4 and TRPM7 was observed. According to the analysis carried out, it was determined that a new variant found in the DLX3 gene would be causative of TDO with AI in this family.
Conclusions: The variant detected in the DLX3 gene would explain the clinical phenotype of TDO syndrome associated with hypoplastic / hypomaturation AI and taurodontism, found in this family.
Division: Chilean Division Meeting

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Anatomical relationship between mandibular third molars and the inferior alveolar nerve

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Objectives: To determine the anatomical relation of mandibular third molars in relation to the IAC, in Cone Beam Computed Tomography of the Imaging Service of the Viña del Mar Dental Polyclinic of the Chilean Navy.
Methods: An observational, descriptive cross-sectional study was conducted, where 65 CBCTs were evaluated, in which 105 third molars from patients who attended in 2017 to the Imaging Service of the Dental Polylinic of Viña Del Mar, Dental Center, First Naval Zone, Chilean navy. The non-individualized analyzes of the CBCT were classified according to age, sex, number of roots and position of the IAC with respect to the apex closest to the third molar, with the classification described by Wang, finally measuring the distance in millimeters between these structures.
Results: The most frequent relation was an apical position of the IAC with 74%, followed by an 18% in its lingual relation and an 8% in its vestibular relation. As for its route, 100% of the analyzed conducts did it in a periradicular way. 53 cases (50.5%) were in contact with the CDI, while 52 cases (49.5%) were not in contact. In both vestibular and lingual positions, 77.7% of cases are in contact with the IAC. Non-contacting cases presented a distance of 3.06mm on average.
Conclusions: The study does not present significant differences regarding the relationship between third molars comparing the available literature. However, emphasis must be placed on correct imaging diagnosis by the clinician and the use of pre-surgical CBCT to evaluate cases in which a panoramic (two-dimensional) radiograph can provide less support in the planning since an overprojected IAC at the roots would indicate high percentage of contact, according to CBCT.

Association between parental stress and early childhood caries

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Objectives: Stress in the family unit during early childhood is considered a risk factor in early childhood caries. The aim of this study was to assess the association between parental stress and early childhood caries.
Methods: A cross-sectional study was performed in children between 3 and 5 years-of-age from eleven public preschools of Temuco, Chile. The Spanish version of Parenting Stress Index-Short Form (PSI-sf) previously adapted for the Chilean Spanish language was administered to their parents (Cronbach's alpha 0.93). Parents report their level of agreement with 36 items that fall into three subscales: Parental Distress (PD); Parent-Child Dysfunctional Interaction (P-CDI); Difficult Child (DC). Parental stress was categorized as stress-free, indulgent and high level of stress. Clinical evaluation of dental caries was performed by calibrated dentists based on criteria proposed by the WHO. Statistics analysis included a descriptive analysis on the socio-demographic characteristics of the population and ANOVA test to evaluate the association between PSI-sf and dmft index.
Results: One hundred seventy-seven preschoolers were included. The mean age was 3.28 (SD 0.55). Sixty-eight percent of the parents were single female with a mean age of 29.9 (SD 6.37). The mean of dmft index of the children was 1.19 (SD 2.28). The PSI-sf showed no association between parental stress and ECC (p= 0.765). Children of indulgent parents showed a higher mean of dmft index in the P-CDI sub-scale, but it was not significant (p= 0.571)
Conclusions: Parental stress was not associated with a higher prevalence of ECC.

Caries Prevalence in childrens of Río Puelo, southern Chile. 2016-2018

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Objectives: Dental caries is a process that starts due to a break between tooth and plaque fluid balance, resulting in a loss of minerals from tooth surface. Its clinical sign is the localized destruction of hard tissues. In Chile, there has been a high prevalence of 2-year-old children with cavitated lesions. This is the reason why various prevention programs have been implemented. The objective of this study is to determine the prevalence of active caries lesions in 2 to 5-year-old childrens in the period between the years 2016 to 2018.
Methods: The prevalence of dental caries was identified according to age and gender in 2 to 5-year-old childrens institutionalized between the years 2016 to 2018 in “Mis Primeros Pasitos” kinder garden and “Río Puelo” rural school, examined in the “Sembrando Sonrisas” dental health program. The data were recorded according to the DMFT (Decayed, Missing, Filled Teeth) index.
Results: In the period between the years 2016 to 2018 it was observed:
Table 1. Mean DMFT by age and year.
Table 2. Prevalence of carious lesions by age, gender and year.
Conclusions: A fluctuation in the prevalence of caries lesions was observed during these 3 years. In 2-year-old childrens, the highest rates were in the years 2016 and 2018 with a 60% prevalence. In 4-year-old children, highest rates were in 2016 with a 76.47% prevalence. These results are higher than the national mean values, which may be due to rurality, geographical isolation, small sample size and low fluoride exposure

Changes in Lingual Movement When Modifying Body Posture

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Objectives: To analyze lingual movement in healthy participants during swallowing of saliva for different positions of the body and head
Methods: Six participants, healthy, older than 18 years were evaluated (Scientific Ethics Committee approval n° 001/2017). Lingual movement was recorded during spontaneous swallowing of saliva for one minute (3 repetitions) with 3D Electromagnetic Articulography (3D EMA). Two body positions were evaluated, siting and supine. For both body positions the lingual movement was recorded in three positions of the head, upright, chin down and chin up. Eight sensors were placed in different anatomical points of head and neck and an additional sensor was used to delimit the sagittal profile of the palate. Three of the sensors were placed in the anterior, middle and posterior part of the tongue. The data obtained with 3D EMA (space coordinates, Z superior -inferior axis, X anterior - posterior axis, Y medial – lateral axis) were processed with Matlab.
Results: In Z axis, there was a statistical difference for the displacement of the tongue between the upright position of the head and chin down ($p = 0.047$) and between sitting and supine body position ($p = 0.034$).
In X axis there was a statistical difference for tongue displacement between the upright position of the head and chin down ($p = 0.057$) and between sitting and supine body posture ($p = 0.016$).
Statistical differences were found among the possible combinations of the head and body positions for the X axis ($p = 0.006$) and for the Y axis ($p = 0.005$), with a greater displacement of the tongue sitting with an upright head position.
Conclusions: The displacement of the tongue during swallowing of saliva is significantly affected by posture and its effect is different on each direction of space (X, Y, Z)

Clinical Assesment Of Sealed Composite Restorations At 18 Months: A Clinical Trial

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Objectives: The aim of this study is to observe clinical quality of sealed restorations with flowable composite and resin based sealant versus a control group according FDI criteria for secondary caries, after 18 months of the treatment.
Methods: In this study 105 composite restorations were analyzed with marginal defects 3 or 4 according FDI criteria. 35 patients with 3 treatments each. Which were: Group A: Flowable resin based nanoparticle composite (Single bond universal adhesive + Fitek flow Z350XT (3M ESPE)), Group B: Resin based sealant (Single bond universal adhesive + Clinpro sealant (3M ESPE)) and Group C: control, no treatment. These were performed under absolute isolation with the protocols specified by the manufacturer. FDI Clinical evaluation was executed with two explorers: 150EX (Ø 0.15mm, Deppeler, Switzerland) and 250EX (Ø 0.25mm, Deppeler, Switzerland).
These were assessed by calibrated operators (kappa above 0.8).
Results: In the 18-month evaluation 26 patients were examined 72,6% (77 restorations) FDI results Secondary caries: Group A FDI= 1: 33.77%, 2: 00%. Group B FDI= 1: 31.17%, 2: 2.60%. Group: C, FDI 1: 37.14%, 2: 32.35%, 3: 25%. Group C: FDI 1: 31.17%, 2: 1.30% (p=0.317). Secondary caries was present on 3.9% of restorations.
Conclusions: The sealed restorations showed similar behavior at 18 months' evaluation, whether resin based sealant or flowable composite. In spite of the percentages, secondary caries was present in 2 restorations sealed with resin based sealant.

COMORBIDITIES & TOBACCO-USE AMONG PATIENTS ATTENDING A TEACHING PERIODONTOLOGY CLINIC.

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Objectives: To estimate the frequency of non-communicable disorders and tobacco-use among adult-patients attending the undergraduate clinic of periodontology at Universidad Andres-Bello (UNAB), Santiago-Chile.
Methods: The present study was approved by the Ethics-committee of UNAB. A descriptive cross-sectional analysis of the electronic medical/dental records of 300 patients attending the undergraduate clinic of periodontology (March 2017 - May 2018) was made. Only adult-patients with complete electronic-records & X-rays were included. Periodontal-status and tooth-loss was assessed according to initial periodontal-charts/radiographs. Periodontal diagnosis was defined according to the "Centers for Disease Control and Prevention" case-definition for periodontitis. Information regarding reported comorbidities was collected in the following categories: Diabetes, Cardiovascular-Disease (including Hypertension), Pregnancy&pregnancy-related complications, Respiratory-Disease, Renal-Disease, Rheumatoid Arthritis, Cognitive impairment, Obesity, Cancer, Psoriasis and "other". Tobacco-use was assessed according to the "packs-per-year" index. All data was extracted in predefined tables and analyzed using PRISMA software.

Results: In total 152/300 patients (age: 39,8+14,8 years, 43,4% males) were included. Severe, Moderate and Mild/non-forms of periodontitis were present in 59,86%, 21,71% and 18% of individuals. Mean values for probing-depth and clinical-attachment loss were: 3,40+1,66mm and 3,39+2,25mm. Fifty patients (32,9%) presented comorbidities whereas fifty-five (36,2%) were smokers (average: 45,93+101,61 packs-per-year). Fifteen patients (9,86%) presented both. Main documented diseases by decreasing frequency were: Diabetes (11,84%), Cardiovascular-Diseases (9,87%), Obesity (4,61%), Renal-Diseases (2,63%), Rheumatoid-Arthritis (RA) (1,32%), Psoriasis (1,32%), Respiratory-Diseases (0,66%) and Cancer (0,66%).

Conclusions: This sample presented high prevalence of severe periodontal-disease in spite a young age. Main co-morbidities were Diabetes and Cardiovascular-diseases followed by Obesity and Renal-diseases. Almost 1/3

of the sample was smoker. Results reflect the medical complexity of the periodontal patient.

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Comparative analysis of the immunomodulatory properties of human gingival mesenchymal stem cells from healthy subjects, and subjects with clinical diagnosis of chronic periodontitis

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Objectives: Compare the immunomodulatory properties of mesenchymal stem cells derived from gingival tissue (GMSC) of healthy subjects and subjects with chronic periodontitis.
Methods: Gingival tissue explants were obtained from subjects with surgical indication. All donors voluntarily signed an informed consent. The cells were isolated and cultured for 3-4 weeks, characterized and induced to differentiate into osteogenic, chondrogenic and adipogenic lineage, according to the criteria of the International Society of Cell Therapy (ISCT). The immunosuppressive capacity was determined by comparing the effect of GMSC on the proliferation of CD4 and CD8 lymphocytes, the generation of regulatory T cells (Treg), the production of molecules associated with immunosuppression as intercellular adhesion molecule (ICAM) and programmed death-ligand 1 (PDL-1) by activated GMSC, by flow cytometry. The synthesis and release of interleukins 10, 6 and 8 (IL10, IL6, IL8) were measured through an enzyme-linked immunosorbent assay (ELISA).
Results: All GMSC isolated and characterized from healthy and with periodontitis donors fulfilled the minimum criteria to be considered mesenchymal stem cells according to the ISCT. GMSC derived from an inflamed tissue showed greater inhibition of CD4 lymphocytes (31.2 ± 9.4%, $p < 0.0001$) compared to healthy tissue cells (48.9 ± 20%; p 0.0290) and inhibition of CD8 lymphocytes was only significant in GMSC derived from tissue with periodontal disease (63.6 ± 17%; p 0.0335) when they were co-cultured at a peripheral blood mononuclear cell (PBMC) : GMSC 1:10 ratio. Additionally, the proliferation of Treg cells and the synthesis of IL-10, IL6, IL8 and immunosuppressive molecules such as ICAM and PDL-1, increased similarly in both types of GMSC.
Conclusions: Periodontitis does not seem to change the phenotypic and functional characteristics of the GMSC, however, GMSC isolated from tissue with periodontitis have a greater immunosuppressive potential on T lymphocytes.

Compare Six Month Follow-Up Clinical Performance Class V Bulk-Fill Composites

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Objectives: Compare to 6-month follow-up of clinical performance in non-carious cervical lesion (LCNC) restorations with two Bulk- Fill composite and nanofilled composite by Ryge criteria.
Methods: 46 voluntary patients, with 3 caries lesions in posterior teeth. The depths of the lesions were ≥ 1.5mm with antagonist teeth. Were distributed randomly: Group TB: 51 Resins Bulkfill Tetric N-Ceram (Ivoclar Vivadent), Group FB: 51 restorations Filtek Bulkfill (3M-Espe) and Group control Z350: 51 restorations Filtek Z350 (3M-Espe). 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) in cavities of groups FB and Z350, while in the cavities of the TB group was applied adhesive AdheSE Bond Universal (Ivoclar-Vivadent), according manufactures instructions The TB and FB restorations were done with an only layer and Z350 was restored with multilayer. Restorations were polymerized for 30 seconds with a Bluephase light-curing unit (Ivoclar-Vivadent) with an intensity of 1.100mW/cm2. Calibrated operator (Kappa>0.8) evaluated the restorations by Ryge criteria marginal staining (MS) and adaptation (AM), anatomy (A), postoperative sensibility (S) and caries (C) two weeks and 3 month later. The Kruskal Wallis and Mann-Whitney tests were used for the statistical analysis of the information software SPSS 21.0 (95 %of significance).
Results: For six-month follow-up 46 patients were evaluated (N=138). Were evaluated alpha for: AM, 97,8 % for three groups; MT, Z350 was 97,8 % TB and FB 100%, SP, 95,6 for three groups; A and C there were 100% for three groups. There were not significant differences between the groups and baseline-6 month (p >0.05).
Conclusions: Two bulk-fill composites had not significant difference in 6-month follow-up compared with nanofilled control restorations evaluated by Ryge.

Support Funding Agency/Grant Number: This project was funded for "concurso de Ciencias Biomédicas de la Universidad Andres Bello" (DI-1301-16/CB)

Difference of UltraViolet induced fluorescence (UVIF) in anterior teeth according to age.

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Objectives: To determine the visible fluorescence induced by UV light (UVIF) in anterior teeth of patients from different age groups.
Methods: 35 participants were recruited and divided according to age into 5 groups of 7 individuals each, a sample of 70 teeth (upper central incisors) was obtained. Teeth were photographed under a UV light source to generate the fluorescence phenomenon. Each tooth was evaluated as a whole and in thirds. Image J software was used to obtain the color coordinates in the CIELab space. The data obtained were analyzed through the statistical tests of Shapiro Wilk and Kruskal-Wallis.
Results: In the complete crown and cervical third, statistically significant differences were found in L, a *, and b * UVIF between the different age groups. In the middle and incisal third, no significant differences were found in the b * coordinate between the 5 age groups. In addition, in all the areas evaluated it was observed that there were variations of the 3 coordinates with age, but that they did not change in a continuous linear manner.
Conclusions: There were statistically significant differences in UVIF measured in CIELab color coordinates when comparing the different age groups.

Effectiveness Of Two Sealants In Marginal Defects Of Composites

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Objectives: To compare secondary caries and marginal adaptation of flowable resin nanofilled (FR) composite and pit and fissure resin-based sealant (CS) after 24 months on marginal defects of composite restorations.
Methods: Prospective, controlled, randomized study where 35 patients with 105 restorations were examine. Inclusion criteria: High risk patient with at least two posterior teeth restorations with marginal adaptation 3 or 4 according with the FDI criteria. Exclusion criteria: contraindication for dental treatment. Defective restorations on each volunteer were assigned into one of three groups: A. sealed with nanoparticle FR (Filtek Flow Z350XT, 3M ESPE) and adhesive system (AS) (Single Bond Universal, 3M ESPE) (n = 35); B. sealed with fissure sealant (Clinpro Sealant, 3M ESPE) and AS (n = 35) and C. no treatment (n= 35). The treatments were performed under absolute isolation, applying split etch technique, washed off and dried. Two blind calibrated evaluators (kappa=0.65) examined by visual and tactile inspection at baseline and 24 months later. Clinical evaluation was performed with two explorers: 150EX (Ø 0.15mm, Deppeler) and 250EX (Ø 0.25mm, Deppeler). Wilcoxon and Mann-Whitney Test were performed.
Results: At the 24-month evaluation, 26 subjects were inspected, 73,3% (78 [SDI1] restorations). FDI results for Marginal Adaptation, Group A, FDI 1= 5,13%; 2=19,23%; 3 =7,69%; 4=7,69%. Group B: FDI 1 = 12,82%; 2= 8,97%; 3= 5,13%; 4= 6,41%. Group C: FDI C 1= 10,26%; 2= 7,69%; 3= 7,69%; 4=7,69%. (p=0.00), FDI results for Caries, Group A: 1= 32,05%; 2= 1,28%. Group B: 1= 33.33%. Group C= 1=32,05%; 4= 1,28%. (p=0.31).
Conclusions: Sealing composite restorations with FR and adhesive shows better clinical marginal adaptation than sealing with CS and adhesive after 24 months. Two secondary caries were found, in control and FR group. However there were no significant differences.

Etiology of Maxillary Palatal Canine Impaction. A Systematic Review.

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Objectives: The aim of this study was to assess, with an evidence-based medicine approach, the etiology for Maxillary Palatal Canine Impaction (MPCI).
Methods: The electronic databases PubMed, Cochrane Library, Embase, EBSCOhost, ScienceDirect, Bireme and Scielo between 1960 and 2018, were searched including all languages. Observational analytical studies were identified. The data were collected and extracted by two independent authors. The selection process was based on the PRISMA guidelines. The Newcastle-Ottawa Scale (NOS) and the Grading of Recommendations Assessment Tool, Development and Evaluation (GRADE) were used to verify the quality of the evidence.
Results: Among 4588 records were screened, only 26 were included in this systematic review. According to the design, 1 cohort and 25 case-control studies were identified. None of the reviewed articles obtained the highest score based on Newcastle-Ottawa Scale. The quality of evidence was low to moderate, with an average score of 4.46 and a median of 4.0. Most studies were exposed to a high risk of bias analyzed by GRADE. Maxillary Palatal Canine Impaction could be associated mainly with shape anomalies or absence of lateral incisor, secondly with altered calcification of Sella Bridge, and finally with Angle`s class II div 2 malocclusion, upper incisor retroinclination, reduced tooth widths and greater maxillary transverse dimensions.
Conclusions: Based on the results of this study, the evidence available is insufficient to establish definitive conclusions among dentoalveolar, skeletal and dental anomalies with MPCI. To establish the etiology of MPCI requires cohort and high-quality studies. However, shape anomalies or absence of the lateral incisors seems to be an important etiologic factor.

Functional Tongue Posture Variations between Norm-Occlusion and Angle Class II and III Malocclusion Subjects

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Objectives: To assess the relationship of tongue posture and malocclusion by comparing intraoral pressures at the subpalatal compartment and vestibular space in subjects with either norm-occlusion, or Angle Class II and III malocclusion.

Methods: Intra-oral pressures of sixty consecutive undergraduate students (mean age: 21.6 ± 1.6 years; min/max: 18/25 years; groups size: n=20 Norm-Occlusion, n=20 Angle Class II and n=20 Angle Class III) were measured by a digital pressure gauge connected to the subpalatal space and vestibular space by a canula. Five biofunctional phases with different tongue positions were performed by each subject. Descriptive statistics and Mann-Whitney U-Test for independent samples were applied to assess malocclusion-related variations in intraoral pressures, adopting a significance level of $p<0.05$.

Results: During Swallowing, norm-occlusion subjects reached peaks of up to -99.1mbar negative pressure (median -53.1 ± 23.57) for, compared to -102.9mbar (median -50.89 ± 20.9) in Angle Class II subjects, or -78mbar (median -53.49 ± 17.26) in Angle Class III subjects. During inspiration, variation in sub-palatal pressure ranged from -20.20mbar in Angle-Class II to -40.40mbar in Angle-Class III subjects. During phases of tongue-palate contact, no significant variation in subpalatal pressures were detected between the normocclusion and malocclusion groups. No group-specific variations were recorded for intraoral pressures under open and semi-open mouth conditions.

Conclusions: Generation of negative sub-palatal pressure seems to be an essential part of the initiation of the act of deglutition, regardless of the quality of occlusion.

Hyaluronan-fragments modify the transcriptional program of periodonto-pathogen-stimulated dendritic cells.

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Objectives: Dendritic cells (DCs) are antigen-presenting cells involved in the initiation and regulation of the adaptive immune response. During periodontitis, immuno-inflammatory response and bone resorption are associated with the up-regulation of pro-inflammatory cytokines in stimulated DCs. In this context, periodontal bacteria, such as Porphyromonas gingivalis and Aggregatibacter actinomycetemcomitans, as well as damage-associated molecular patterns (DAMPs) released during periodontal tissue breakdown, such as low molecular weight hyaluronan (LMW-HA), have been proposed as potent inductors of host immune response by activating DCs. In this context, distinct DCs subsets with specific transcriptional programs have been described. Among them, IRF8/BATF3 cDC1 and IRF4/NOTCH2 cDC2 subsets have been associated with the etiopathogenesis of several inflammatory diseases. We hypothesized that LMW-HA up-regulates the expression of cDC1/cDC2-associated transcription factors in P. gingivalis or A. actinomycetemcomitans-stimulated DCs.

This study aimed to quantify and compare the expression levels of IRF8, BATF3, IRF4 and NOTCH2 in dendritic cells stimulated with P. gingivalis or A. actinomycetemcomitans, pulsed or not with LMW-HA.
Methods: Monocyte-derived DCs were obtained from healthy donors, pulsed at days 3 and 5 with 20 KDa-LMW-HA (100 µg/mL), and at day 7 stimulated with P. gingivalis or A. actinomycetemcomitans. Non-pulsed infected-DCs were used as control. Non-pulsed non-infected-DCs were used for comparison. The mRNA expression levels for BATF3, IRF4, IRF8 and NOTCH2 were quantified using qPCR.
Results: Higher expression levels of BATF3, IRF4 and NOTCH2 were detected in LMW-HA-pulsed A. actinomycetemcomitans-infected DCs as compared with non-pulsed infected-DCs. Higher expression levels of IRF4 and NOTCH2 were detected in LMW-HA-pulsed P. gingivalis-infected DCs as compared with non-pulsed infected-DCs.
Conclusions: LMW-HA induces an increment in the expression of transcription factors related with inflammatory DC subsets on infected-DCs.

Imaging Predictors of Maxillary Canine Impaction. A Systematic Review

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Objectives: To assess the validity of imaging predictors to determine maxillary canine impaction (MCI).
Methods: Literature search were carried out electronically in PubMed, Cochrane Library, Embase, EBSCOhost, ScienceDirect, Bireme and Scielo between 1960 and 2018, including all languages. Observational analytical studies were identified. The data were collected and extracted by two independent authors. The methodology of selected studies was assessed using the Quality Assessment Tool for Diagnostic Accuracy Studies (QUADAS-2). The quality of evidence and strength of recommendation was assessed by The Grading of Recommendations Assessment Tool, Development and Evaluation (GRADE).
Results: 4998 potentially eligible articles were identified in the first approach and finally 10 studies were included according to inclusion criteria. The quality of evidence was low due to high risk of bias. None of the studies fulfilled all of the QUADAS-2 methodological quality criteria to evaluate validity of predictor. According to the evidence available, Principal Component Analysis (PCA) from panoramic and cephalometric data (SN-GoMe angle, interincisal angle, angle α, distance d in panoramic and cephalometric), would be the studies with the best methodological quality. Only one study based on PCA analysis have reliable accuracy in predicting MCI (predicting canine eruption of 88.3%).
Conclusions: The quality of evidence available is insufficient to establish definitive conclusions. However, it is suggested that some radiographic measures from cephalometric data such as: SN-GoMe Angle, Distance d, Angle α and Interincisal angle could be used as predictive values to determine MCI.

Knowledge of School Teachers of Santiago Centro against Dentoalveolar accidents.

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Objectives: Determine school teachers' knowledge about dentoalveolar trauma accidents, in a community of Santiago, Chile.
Methods: This is a quantitative, cross-sectional study. Schools of Santiago Centro, a community in Santiago Chile, were randomly selected. Teachers of all educational levels in every selected school were invited to participate, and were asked to signed an informed consent document. A 17 question survey was applied to teachers to evaluate their knowledge about handling of dentoalveolar trauma accidents. Statistical were perfomed with IBM SPSS v2, and the analysis included Kruskal-Wallis test to assess the knowledge level.
Results: 336 teachers of 13 schools participated in the study. An 85,7% of the teachers indicated that they didn't know if there was any dental emergencies protocols in their schools; 89% affirmed that they had not received any training even though 39,3% had witnessed a dental accident in one of their students. Regarding knowledge, there were no significant differences by gender ($p > 0,05$), conversely, there were differences by years of teacher experience ($p < 0,05$) and by type of school dependencies ($p < 0,05$). Teachers scored averaged 8.4 points of 14 possible points.
Conclusions: The lack of information and insufficient knowledge of the teachers surveyed, reflects the need to implement educational programs in schools for the management of dentoalveolar trauma accidents.

Leucocytes-platelet Rich Fibrin As Adjuvant in Periodontal Treatment: Pilot Study

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Objectives: To evaluate the effect of the use of Leucocytes-platelet rich fibrin (L-PRF) as an adjuvant to scaling and root planing in the periodontal clinical parameters and in the post-therapy hypersensitivity
Methods: A randomized, blind, pilot clinical trial was carried out, in which 11 patients were recruited with periodontal pockets depths ≥6 mm, who received in a hemiarcade scaling and root planing + exudate irrigation + L-PRF (test) and in the contralateral scaling and root planing + irrigation with physiological saline (control). Periodontal clinical parameters were evaluated, at the beginning and at 6 weeks, in addition to post-therapy hypersensitivity using a visual analogue scale. The results were analyzed by descriptive statistics with measures of central tendency and dispersion

Results: The clinical variables analyzed presented differences in the group that received the L-PRF, however, the results were not statistically significant. The dentine hypersensitivity showed a statistically significant relevance, which obtained a p-value of 0.003 and 0.002, a week and 6 weeks, respectively
Conclusions: The use of L-PRF reduce the post-therapy hypersensitivity compared to the group that did not receive L-PRF. Although there were improvements in most of the clinical parameters analyzed when the L-PRF was used, these did not present a statistical significance. More clinical trials and a larger sample size are required to confirm these observations

Mandibular Canal Course Of Dentate Subjects Using Cone-beam Computed Tomography

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Objectives: To describe morphometric relationships of mandibular canal (MC) course of dentate subjects using cone-beam computed tomography (CBCT).
Methods: We carried out a descriptive, retrospective and cross-sectional study in which CBCTs of patients attended at University Dental Clinic were evaluated (after signing the respective informed consent). The sample included 55 CBCT of patients (22 men and 33 women), fully dentate until the first molar, with a mean age of 27 ± 10.43 years (25.64 ± 10.46 years for men and 27.91 ± 10.47 years for women). Multiplanar reconstructions were used and different slices at frontal view were obtained in order to measure the distances between MC and alveolar ridge (m1), MC and buccal cortical bone of jaw (m2), MC and lingual cortical bone of jaw (m3), and MC and basal cortical bone of jaw (m4). These measurements were carried out at the second premolar level (A), inter-radicular area between second premolar and first molar (B), mesial root of first molar (C), furcation level of first molar (D) and distal surface of first molar (E).
Results: The mean and standard deviations of every measurements at different levels in the MC course are presented in Table 1.
Conclusions: The MC course was observed very sinuous at different planes. For m1, the maximum distance is observed at first molar level. The MC course goes from a more buccal position at the premolar level in the bone to a lingual position behind the first molar. In addition, the MC course goes from a more superior position at the premolar level in the bone to an inferior position behind the first molar.

Metalloproteinases 8 and 9 and periodontal condition during pregnancy

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Objectives: To explore the association between metalloproteinases (MMP) 8 and 9 in gingival crevicular fluid (GCF), with periodontal disease severity and clinical parameters during pregnancy
Methods: A cohort study was done with enrollment of 458 pregnant women. Universidad de los Andes IRB approved the study. A complete periodontal examination was performed at 11-14 weeks of gestation by a single calibrated examiner, including: periodontal probing depth (PPD), clinical attachment loss (CAL), bleeding on probing (BOP), plaque index (PI) and periodontal inflamed surface area (PISA). Additionally, GCF samples were taken. All women were classified according to periodontal severity. The concentration of MMP8 and MMP9 were analyzed by Luminex assay. Data was assessed by descriptive statistics; Mann-Whitney test and correlations were determined using Spearman's correlation coefficient
Results: Levels of MMP-8 were higher in patients with periodontitis in comparison with healthy/gingivitis pregnancies (p=0,000). Also, MMP-8 (ng/ml) was associated with severe chronic periodontitis (OR: 1,000016, p-value=0,000; 95% CI 1.000007- 1.000025). Both MMPs increased in parallel with the severity of the periodontitis. In severe periodontitis, higher levels of both MMPs (MMP-8, p<0,0003 and MMP-9 p<0,001) were observed. Significant correlation was found between MMP-8 and: BOP (rho:0,34, p=0,000), PISA (rho:0,35, p=0,0000), PPD mean (rho: 0,36, p=0,0000), CAL mean (rho:0,33, p=0,0000) and PI (rho: 0,30, p=0,0000). MMP-9, had a significative difference (p=0,0000), but showed a weak correlation with clinical parameters(rho<0.3).
Conclusions: Levels of MMP-8 in GCF are associated with the severity of periodontitis and clinical inflammatory parameters during pregnancy.

“microRNAs from gingival crevicular fluid as biomarkers of perinatal diseases”

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Objectives: To identify microRNAs in gingival crevicular fluid (GCF) that could be used as predictors of gestational diabetes and preeclampsia in early pregnancy.
Methods: A nested case control within a prospective cohort was conducted. Samples of GCF were collected at 11-14 weeks of gestation and a complete maternal/obstetric and periodontal history was obtained. The study includes 4 women with singleton pregnancies who subsequently developed PE, 9 women who subsequently developed gestational diabetes and 10 pregnant controls, all aged between 18 and 34 years-old. The expression of miRNAs (miR-146a-5p, -155-5p, -181a-5p, -29a-3p and -210-3p) associated either with periodontal severity or with perinatal disorder were measured by RT-qPCR.
Results: The expression of miR-181a-5p in GCF was significantly higher in patients that developed gestational diabetes during their pregnancies, compared to normoglycemic controls ($p=0.043$). Moreover, the expression of miR-210-3p was significantly higher in patients that went on to develop preeclampsia during their pregnancies, compared to normal pregnant controls ($p=0.008$). Regarding the periodontal disease, none of the evaluated miRNAs was significantly different to allow us to distinguish among patients with mild, moderate and severe periodontitis.
Conclusions: Within the limitations of the present study, our results support that measuring miR-181-5p and miR-210-3p in GCF during the first trimester of pregnancy, could be used as a predictive tool to identify patients at risk of developing gestational diabetes and preeclampsia, respectively, later during their pregnancies.

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Occurrence Of C. dubliniensis In Patients With Subprosthetic Stomatitis

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Objectives: The objective of this study was to detect molecularly the presence of the C. dubliniensis species among isolates of yeasts presumptively identified as C. albicans, in patients with Subprosthetic Stomatitis.
Methods: Sixty elderly volunteers were recruited from the dental clinic of the Faculty of Denitstry of the University of Chile. The diagnosis of Subprosthetic Stomatitis was made by an expert dentist. Saliva samples were collected from all the patients, transferred to the laboratory and kept at 4 grados celcius until the moment it was used, on the same day of the collection. Aliquots of saliva were seeded in Chromoagar CandidaTM. They were incubated for 48 h to perform colony counts and presumptive identification.The molecular identification to differentiate between C. albicans and C. dubliniensis species was carried out by PCR, using specific primers for a gene that codes for a wall protein.Once the count was made, 2 to 6 green colonies were isolated from each patient, trying to include representatives of all the possible green tones.
Results: A total of 55 patients were analyzed, 94.5% of which were yeast carriers in saliva.Of these 53 carriers, 215 yeast isolates presumptively identified as C. albicans were obtained by the use of chromogenic agar. So far, we have analyzed 129 yeast isolates (60%) by PCR and we have detected C. dubliniensis in 4 patients (7.2%).
Conclusions: The use of the PCR technique with specific primers for a wall gene allows to differentiate between both species. This is important, because these yeasts usually have different antifungal resistance profiles.

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Odontogenic Myxoma: diagnosis and treatment. Systematic review and bias analysis

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Objectives: Odontogenic myxoma (OM) is a rare neoplasm, which originates from odontogenic ectomesenchyme. So far, present literature still lacks on the demonstration of best standards for OM diagnosis and how the treatment modalities may influence the recurrence rates. The aim of the study was to evaluate the best standards for OM diagnosis and treatment modality, and how these characteristics may influence the recurrence rates.
Methods: Two independent researchers performed a systematic review of studies indexed in Pubmed, SCOPUSs, Medline, Scielo, and Cochrane Library. Fifty-two eligible studies were included for qualitative analysis. Bias analysis was conducted according Oxford Centre for evidence-based Medicine. Evaluated factors included ethnicity, age range, gender, prevalence, number of investigated patients, localization, radiographic features, treatment, recurrence rate, follow-up and histopathological features.
Results: From the included studies, 1363 OM cases were reported on, and female gender with average age of 27 years was the most common patient profile. Asian and American were the most affected populations. Conventional microscopic findings were observed in 93.43% of the reported cases. The most used diagnostic imaging modality was panoramic radiography (22.67%), followed by periapical radiography (17.88%), and computed tomography (12.20%). In 57.49% of the cases, multilocular radiographic appearance was present, followed by unilocular appearance (32.87%). The posterior mandible was the site with the major prevalence, while surgical resection was the most common treatment modality, followed by enucleation. Recurrence rates for both treatment modalities were approximately close (13.04% and 25.0% respectively).
Conclusions: The correct diagnosis of OM relies in the association of clinical, radiographic, and microscopic findings. About imaging exams panoramic radiography and computed tomography are sufficient for evaluation of OM. Recurrence rates were closely among of the two most used surgery treatments. So according some clinical-radiological aspects conservative surgery may be preferred than aggressive surgery modalities.

Oral Use Of Topical Antimycotics In Warfarin Users. Review Article.

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Objectives: 1. Review available literature for evidence of clinically relevant drug interactions between oral topical antifungals and warfarin.
2. Review available literature for evidence of clinically relevant changes in International Normalised Ratio (INR) values after the application of oral topical antifungals in warfarin users.
Methods: A search was performed in MEDLINE and EBSCOHOST databases using the terms "Miconazole", "Nystatin", "Antimycotics", "Warfarin" with the Boolean operator "AND". Search filters were applied for articles published from the year 2015 to 2018. For the selection of articles, inclusion and exclusion criteria were determined.
Results: 12 articles were found. 6 met the inclusion and exclusion criteria. All the studies suggest a clinically relevant pharmacological interaction between warfarin and miconazole oral gel, contrary to the obtained results of nystatin oral solution. Among those exposed to miconazole oral gel, an increase in mean INR of 2.5 (95% CI: 2.1-2.8) to 3.8 (95% CI: 2.8-4.8) after exposure was reported. Among those exposed to nystatin oral solution, mean INR was 2.7 (95% CI: 2.3–3.1) before and 2.5 (95% CI: 2.2–2.9) after exposure.
Conclusions: We found evidence that supports a clinically relevant interaction between warfarin and miconazole oral gel. The mean INR values increased after miconazole oral gel exposure. In contrast, no interactions were found between warfarin and nystatin oral solution.

Orofacial Pain In Ernest's Syndrome: A Systematic Review

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Objectives: The aim was to determine the association between Ernest's síndrome (ES), the stylomandibular ligament and temporomandibular disorders.
Methods: The databases EBSCO HOST, EMBASE, JSTOR, LILACS, MEDLINE, SAGE, Science Direct, SCOPUS, SpringerLink, Willey Blackwell and WoS; the SciELO library and the Trip search engine were searched using "STYLOMANDIBULAR LIGAMENT" and "ERNEST SYNDROME" as keywords, "AND" and OR as Boolean term.
The inclusion criteria were: studies to evaluate the clinical and therapeutic ES's characteristics, without language filter or year of publication.
Results: Eight hundred and thirty articles were found in the initial search. Then, the titles were analized using the selection criteria: fifty five articles were obtained. Then, the duplicated filtres were applied, obtaining twenty two articles. Then, only ten articles were selectioned by analizing abtracts. Finally three articles were selected by analizing full text.

After analyzing the information, it could be suggested that there is a non-negligible number of patients underdiagnosed with ES as comorbidity to other TTM. It is very important when we examinate patients who have these clinical manifestations, to considerer that the anesthetic block in the mandibular angle with subsequent remission of the symptomatology is currently the diagnostic criteria by excellence.
Considering a pathophysiological base similar to tendinitis of the temporal muscle tendon, it would be interesting to evaluate the administration of systemic anti-inflammatory drugs as a therapeutic alternative. However, infiltration with peri-ligament corticosteroids seems to be a simple and uncomplicated procedure that can provide significant symptomatic relief.
Conclusions: The articles analized have allowed to better the understanding about Ernest's syndrome, however the current evidence is small, heterogeneous and poor in methodological quality, so it is necessary to get more information, specifically more extensive and larger studies and better methodological designs.

P2Y receptor subtypes for extracellular ATP in mice masseter muscle

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Objectives: Extracellular ATP (eATP) is an ancient and ubiquitous molecule that, in addition to its broadly described intracellular roles, is released by cells for acting as an autocrine and paracrine signalling molecule. Physiological conditions such as blood coagulation, vascular tone, pain-sensing and glial-neuron communication are mediated by eATP signalling. In limb skeletal muscles, it has been described that eATP is a relevant mediator for muscle plasticity, being released in response to muscle activity and controls gene expression. Several P2Y and P2X receptor subtypes for eATP has been described in limb muscles. Considering that masticatory muscles are embryologically and biochemically different from those of the trunk and limbs, the aim of the present study was characterizing the expression profile of P2Y receptor subtypes in mouse masseter muscle, to unveil in the future the role of the eATP in masticatory muscles physiology.
Methods:
Masseter muscles from adult male mice (8 weeks old) were dissected and homogenized for proper detection of P2Y receptor subtypes mRNA (qPCR) or protein (immunoblot). Immunofluorescence in muscle transverse cryosections was developed to evaluate P2Y receptor subtypes subcellular distribution. P2Y receptors type 1, 2, 4, 6, 12, 13 and 14 were analysed.
Results: Detectable mRNA levels of P2Y1, P2Y2, P2Y6, P2Y12 and P2Y14receptor subtypes were observed, in a rank order P2Y1> P2Y12> P2Y2 = P2Y6 = P2Y14. Protein levels of P2Y1, P2Y2, P2Y4, P2Y6, P2Y12 and P2Y14 receptor subtypes were detected by immunoblot. All the receptors were detected at the sarcolemma of skeletal fibres, with intracellular staining resembling to T-tubules distribution.
Conclusions: In this work, we demonstrate for the first time the expression pattern of P2Y purinergic receptors in mouse masseter muscle. The implications of these receptors and eATP signalling pathways on masticatory muscles plasticity in pathophysiology is currently being addressed.

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Prevalence of gingival recessions in a Chilean military population

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Objectives: To determine the prevalence of gingival recessions in a Chilean military population in 2014.
Methods: In this descriptive prevalence study, 99 fourth-year cadets, 88 men and 11 women between 21 and 24 years were examined. These were evaluated by means of a clinical record that was divided into general antecedents and a clinical examination. The variables of the descriptive study were analyzed through the use of Microsoft Excel 2010® and later described in terms of frequency.
Results: 35% of the population presented at least one recession. Regarding the distribution by sex, 37% of men and 18% of women presented at least one recession. 100% of the detected recessions corresponded to type I according to Miller, with an average of 1.31 mm of depth. The teeth that presented the most recessions were 1.4 (14%), 1.6 (13%) and 3.4 / 4.4 (11%). Regarding, the distribution between upper and lower jaw was relatively equitable, with 51.8% and 48.1% respectively.
Conclusions: The prevalence of gingival recessions of the studied military population is 35%, being more prevalent in men than in women. Although the available literature is limited, Röthlisberger et al, in 2007, found a prevalence of 15% in a Swiss military population and Wilkens et al, in 2003, found a prevalence of 46.25% in dental students in Chile. Within the limits of this study, it is concluded that gingival recessions are found in at least one third of the population studied.

Prevalence of oral mucosal lesions in children

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Objectives: To determine the prevalence of oral mucosal lesions in children from 3 to 13 years of age attended in the Faculty of Dentistry of the University of Chile.
Methods: An observational, descriptive and transversal study was carried out. We examined pediatric patients from 3 to 13, both sexes, healthy or with systemic diseases attended in the Faculty of Dentistry of the University of Chile with informed consent and / or consent. Those who manifested non-acceptability by the patient, parents, relatives and / or legal guardian were excluded.
Results: Of a total of 106 patients, 54 corresponded to women (50.94%) and 52 to men (49.06%). The prevalence of oral mucosal lesions in this study was 50%. Women presented a frequency of lesions of the oral mucosa of 23 (42.59%) while men 30 (57.69%). The most prevalent oral mucosal lesions corresponded to traumatic erosion (14.15%), chronic dentoalveolar abscess (12.26%), bacterial plaque-associated gingivitis (11.32%), minor aphthous (6, 6%), mucocele (4.72%), traumatic ulcer (4.72%), morsicatio buccarum (3.77%) and recurrent herpes labialis (2.83%).
Conclusions: Due to the high prevalence found and the scarcity of studies published in children, it is necessary to develop more evidence on the prevalence of oral mucosal lesions in this age group, originating a baseline to focus future research on more prevalent oral pathologies and / or avoidable and develop educational programs for the correct and early diagnosis of the dentist and other health professionals. The current context of public oral health policies in Chile, which develop various programs focused mainly on children, can benefit from this knowledge.

RCT's Baseline Data. Evaluating First-year Dental Students Motivation And Knowledge.

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Objectives: Measure and compare knowledge and motivational baseline data of first-year dental students that are participating in a study that evaluates the implementation of an added online module to the "Introduction to the clinic" course at the Universidad Andrés Bello, Santiago, Chile.
Methods: All first-year dental students were invited to participate stressing that their participation was voluntary and would not affect their final grade. Half of the participants were randomly assigned to the intervention (access to an interactive online module) and the other half continued with the traditional clinical rotations where they observe dental procedures supervised by a clinical professor. To evaluate the baseline data of both groups we conducted a survey to assess motivation (UWES test, scores from 0 to 6) that evaluates dedication, absorption, and vigor in their studies and a one that assessed knowledge in clinical topics.
Results: Of all first-year dental students 77 registered for the study in the intervention group and 86 (52.8%) in the control group. In motivation data did not distributed normal so the Mann-Whitney U test was used. Regarding motivation in none of the dimensions nor in the total scores, there were significant differences ($p<0.05$) between the intervention and the control group. Dedication was the dimension with highest scores for both groups with a medium of 5.6 for the control group and 5.49 for the intervention group. Regarding knowledge 9.8% (n=16) of students had all biosafety questions correct ($p>0.05$), 5.5% (n=9) had all questions about patient care correct ($p>0.05$); 7.4% (n=12) had all questions about oral postgraduate programs correct ($p>0.05$); and 1.8% (n=3) has all dental instrument questions correct ($p>0.05$).
Conclusions: There are no significant differences between groups in motivation and knowledge at baseline data of first-year dental students participating in the study.

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Salmon gelatin as periodontal regenerative matrix: an exploratory study.

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Objectives: Chemical and mechanical characterization of salmon gelatin based hydrogels, and discuss their possible use for reconstruction of bone morphology and volume loss in periodontal defects
Methods: 2 formulations were evaluated: 20% salmon gelatin with 2% alginate (G20A2) and 20% salmon gelatin, 2% alginate with 15% hydroxyapatite (G20A2H15). The Young's modulus of the hydrogels was determined in compression mode, crystallinity was obtained by X-ray diffraction and the spatial component distribution was assessed by Raman spectroscopy in mapping mode. Finally, a proof of concept of the formulated hydrogels were tested by filling a 3D printed periodontal defect (human dry bone) generated by computed micro tomography (CT).
Results: Young's modulus (Pa) of the formulated hydrogel G20A2 was 2024 (86) and when lyophilized and rehydrated it was 2460 (305). In the case of G20A2H15 hydrogel the modulus was 2386 (274) and for the lyophilized and rehydrated 3128 (478). This shows that the lyophilized and rehydrate process somehow improve the mechanical properties, especially for the hydrogel containing hydroxyapatite. Crystallinity of the lyophilized G20A2 was 16.1% and 32.1% for G20A2H15, which was mainly associated to the presence of hydroxyapatite. Diffraction peaks associated to gelatin triple helices formation was not detected. Surface mapping in G20A2 showed the components were well distributed. A different situation was observed in the G20A2H15 mapping, showing heterogeneous distribution of hydroxyapatite
Conclusions: Both formulas must be improved in term of mechanical performance, although hydroxyapatite significantly contributed to stiffen the matrix. We recommend to functionalized this component within polypeptide chains for a better distribution within the matrix. The work flow proposed and tested for clinical application of the salmon gelatin based formulations seems practical and feasible.

Spanish Oral Health Index Profile for Temporomandibular Disorders: Cross Cultural Adaptation & Validation

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Objectives: Standardized patient-centred assessment of treatment outcomes both in clinical and in research settings is crucial in Orofacial Pain and Temporomandibular disorders (TMD) care. A new outcome measure for TMDs, OHIP-TMDs, which assesses the known wide biopsychosocial impact of this heterogeneous group of disorders, has been validated and published in the English language. As with any such instrument, the underlying language used in the original questionaire is likely to vary due both to language and cultural differences in a new language, in this case Spanish. The aim of this study was, therefore, to cross-culturally adapt and validate OHIP-TMDs for use in Spanish-speaking patients with temporomandibular disorders (TMD).
Methods: Following international guidelines (IADR_INfORM), OHIP–TMDs was translated into Spanish (OHIP–TMDs–Sp) and cross- culturally adapted using a Hispanic population diagnosed with TMD (Research Diagnostic Criteria diagnosis n=154). OHIP-TMDs-Sp, the Graded Chronic Pain Scale (GCPS) and Jaw Functional Limitation Scale (JFLS-20) were completed by all patients. A sub-sample of 30 subjects completed the OHIP-TMDs-Sp a second time after a washout period of 3 weeks in order to assess test-retest reliability using an intra-class correlation coefficient (ICC 2,1). Internal reliability was evaluated using internal consistency and convergent validity was examined by examining the correlation between OHIP-TMDs-Sp, JFLS-20, and GCPS.
Results: The sample was predominantly female (85.7%) with a Group I diagnosis (77%) and a mean age of 29.51 (SD±9.01). OHIP-TMDs-Sp had a high internal reliability (Cronbach's Alpha=0.93; 95%CI:0.87-0.95) and good test- retest reliability (ICC= 0.82; 95%CI=0.57-0.93). As regards convergent validity, the OHIP–TMDs-Sp showed strong and very strong positive correlations with: total JLFS-20 score (r=0.72), Mastication (r=0.68), Mobility (r=0.61) and Communication domain scores (r=0.68); GCPS disability score (r=0.59) and characteristic pain intensity (r=0.69). All correlations significant at $p < 0.01$ level.
Conclusions: OHIP-TMDs-Sp is a reliable instrument for assessing quality-of-life in Spanish speaking patients with TMDs and will help with standardized, patient-centred, biopsychosocial, assessment of treatment outcomes both in clinic and in future trials of treatment.

TLR-2 gene expression and DNA methylation in chronic apical periodontitis

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Objectives: To determine DNA methylation profile and mRNA expression levels of Toll-like receptor 2 (TLR-2) in peripheral blood mononuclear cells (PBMC) of patients with chronic apical periodontitis (CAP)and healthy individuals.
Methods: Blood samples from patients with diagnosis of CAP (n=15) and healthy subjects (n=11) were obtained from individuals consulting at the Dental Clinic, Faculty of Dentistry, Universidad de Chile. The patients were otherwise healthy. Blood samples were obtained and PBMC were extracted with Ficoll gradient. TLR2 gene expression was determined by quantitative real time-PCR. The DNA was extracted with DNeasy Blood and Tissue kitR. DNA was quantified and 200 ng were subjected to bisulfite conversion and amplified with qPCR with specific primers for bisulfite-treated DNA. Bands were confirmed by agarose gel electrophoresis. The PCR products were sequenced and the results were analyzed with BiQanalyzer and Stata V 12, with α= 0.05.
Results: TLR-2 mRNA levels were significantly down regulated in PBMC from patients with CAP compared to controls ($p<0.05$). In addition, different methylation profiles were identified in the CpG sites from the TLR2 gene promoter with a tendency to be hypermethylated in CAP ($p>0.05$).
Conclusions: TLR2 gene expression is down regulated in PBMC from CAP, along with a tendency towards GpG hypermethylation in the gene promoter.

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TLR-4 polymorphism rs4986790 (Asp299Gly) protects form periodontitis

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Objectives: Associate the occurrence of TLR4 loss-of-function polymorphic variation rs4986790 with the risk to suffer from periodontitis.
To determine the differential response to LPS of the ancestral and polymorphic variants of TLR4 rs4986790.
Methods: We conducted a genetic association study with four sample populations recruited in in Ribeirão Preto (Brazil), Pittsburgh (USA), Houston (USA), and Sao Paulo (Brazil) (N=1410). Saliva was collected from all enrolled subjects using the DNA Oragene OG-500 collection kit (DNAGenotek) following the manufacturer's recommendations. DNA was extracted using the DNA Investigator extraction kit (QIAgen) following the manufacturer's recommendations. Allelic discrimination of SNPs rs4986790 was performed in 3μL reactions using Taqman chemistry (Applied Biosystems) in a qRT-PCR platform.
For transfection experiments HEK293T cells were cultured in DMEM supplemented with 10% FBS and 1% penicillin/streptomycin at 37 C 5% CO2 atmosphere. Cells were seeded at a density of 15.000 cells/well in 96-well plate (Corning) and cultured for 24 hours to reach 80% confluence. Then, the cells were transfected with 50 ng of either hu-TLR4299snp-flagpDEST40 or hu-TLR4cDNAwtpDEST40 (Addgene) construct (containing either the ancient or polymorphic version of TLR4 rs4986790 Asp299Gly) in a 3:1 ratio with FuGENE HD transfection reagent (Promega) with OptiMEM medium (Life Technologies). Cell cultures were stimulated with LPS EK12 10 μg/mL 12 hours after the transfection protocol and maintained in culture conditions for additional 24 hours. Supernatants and lysetes were obtained and IL-6 and IL-8 concentrations were mesured by ELISA.
Results: Genetic association analysis point to a significant protective effect of the polymormic variation of TLR4 rs4986790 (OR 0.577 CI 0.38-0.85, p=0.006). Transfection experiments in the HEK293T cell model demonstrated a functional effect of the polymorphic variation, producing an LPS hyperresponsive phenotype, significantly increasing the secretion of IL-8.

Conclusions: TLR4 rs4986790 polymorphism reduces the risk to suffer from periodontitis. The polymorphism produces a functional effect in TLR4, increasing the secretion of IL-8 upon its activation.

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Zygomatic body as a donor site for bone grafts.

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Objectives: The zygomatic body has turned out to be a potential bone donor site for bone grafts, provided that its thickness can be determined. The objective of this descriptive observational study was to determine radiographically the thickness of a zygomatic body graft.
Methods: 59 Cone Beams from the radiology service of the Universidad Complutense of Madrid were randomly selected. All the measurements were made with by 2 independent calibrated researchers. Radiographic grafts were obtained from the zygomatic bodies, delimiting it with upper limit: 5mm lower and lateral to the infraorbital rim. Lower limit: 3 mm superior to the lower edge of the zygomatic bone. Posterior limit: 3 mm anterior to the temporal zygomatic process. Medial limit: internal cortical. The thicknesses of both cortical and medullary were analyzed, which were measured in millimeters (mm), surface area measured in millimeters squared (mm2) and volume measured in milliliters (ml) of each zygomatic body, both right and left, measurements that were made with the computer program Horos Project. To analyze the existence of significant differences, the Anova test and the Scheffé test were used. The Altmann Normogram was used to determine the sample number. All the statistical analyzes were performed with the SPSS computer program (SPSS Inc, Chicago, USA).
Results: Based on the averages of the measurements obtained, the zygomatic body has a cortical thickness of 1.7mm, medullar thickness 7.1mm, surface area of 113.1mm2 and a volume of 0.7cm3 .
Conclusions: The results show a greater medullar thickness, surface area and volume when compared with measures described in other investigations, which gives the clinician a greater possibility of use. By determining an average thickness of the graft it is possible to know for what defects this can be used, thus ensuring success in regeneration and rehabilitation with implants.

Presentaciones 07 de septiembre pm

A novel experimental tridimensional model for simulation of deglutition biomechanics

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Objectives: Analyze through a finite element model the biomechanical behavior of the biofunctional model of the deglutition (BMD), considering the participation of functional units, valves and compartments, through the reconstruction of a tridimensional model using computational tomographies from historic patients data.
Methods: Reconstruct, clean and conditioning of computational CBTC tomographies, using a combination of three different software (Invesalius 3, Meshmixer and Meshlab), with the purpose of generate digital functional units, for a posterior assemble, according to BMD (Göttingen philosophy), of the reconstructed units and their exportation to a CAE software (ANSYS Inc.), for the semi-dynamic simulation of the Linguo-Palatal and Linguo-Velar valves in the condition of compartments closed with negative pressure.
Results: The Linguo-Palatal valve presents a maximum stress of 5,46 MPa, a minimum stress of -4,75 MPa, a combined stress of 5,9 MPa and displacements of 1,1 e-003 mm.
The Linguo-Velar valve presents a maximum stress of 1,85 MPa, a minimum stress of -0,21 MPa, a combined stress of 1,8 MPa and displacements of 23 mm.
Conclusions: The reconstruction of the model allowed to obtain the first results that allow to describe, in a first instance, the behavior of the functional valves of the BMD. However, in the future is going to be necessary to optimize the mechanical properties of the model and add a greater number of functional units. This experimental model allows a tridimensional biomechanical simulation of the BMD through finite elements.
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Aggregatibacter actinomycetemcomitans immune response affect rat's neurons and microglias.

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Objectives: Periodontitis and Alzheimer's disease (AD) are prevalent diseases in elderly population. Recently, it has been proposed that the inflammatory response caused by pathogenic bacteria in individuals affected by periodontitis could predispose to neuroinflammatory disease. Aggregatibacter actinomycetemcomitans has been associated with the most severe grades of periodontitis and, according to the antigenicity of lipopolysaccharide (LPS), different serotypes have been described with differential immunogenicity and virulence. Aim: to determine the response of cultures enriched in neurons, stimulated with purified LPS of serotypes a, b or c of A. actinomycemtcomitans.
Methods: From 3-4 days old newborn Sprague-Dawley rats were obtained neuron-enriched and microglia cultures that were stimulated with the different serotypes of A. actinomycetemcomitans. The expression or secretion levels of inflammatory cytokines were quantified by qPCR or ELISA. Subsequently, the neuronal morphology was evaluated by immunofluorescence and the Sholl analysis was performed to determine the extension of the neurites.
Results: Neuron-enriched and microglia cultures stimulated with purified LPS of serotype b of A. actinomycetecomitams produced the highest levels of cytokines and Amyloid β42, and showed changes in neuronal morphology compared with the same cells stimulated with serotypes a, c or non induced.
Conclusions: The LPS of A. actinomycetemcomitans triggers inflammatory responses that affect brain cells. These results suggest that brain infiltration of LPS could induce a microglial M1 response that affect neuronal morphology and could be associated with neuroinflammation.

Alveolar Vascularization, Relationship With Periodontal Commitment And Mobility: Pilot Study.

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Objectives: To describe the vascularization of alveolar bone immediately after dental extraction, by quantitative and area analysis of alveolar vascular channels and unmineralized spaces, and associate them with periodontal compromise and dental mobility, after minimally invasive exodontia and support immersion endoscopy of the alveolus.
Methods: Ten patients (4 men/6 women) with 10 uniradicular teeth with exodontia indication, were included. They were categorized into 2 groups according to their periodontal commitment and mobility; as periodontally compromised (CAL>7mm, PD>5mm) or periodontally healthy (CAL<7mm, PD<5mm), and mobility (>1mm horizontally or vertically) or non-mobility (<1mm horizontally or vertically). The minimally invasive extractions were performed with BenexII® extractor and immediately afterwards, an immersion endoscope was introduced, with which an alveoscopy video was recorded. The images obtained were later analyzed with the software ImageJ for quantification of channels and unmineralized spaces by field. The number of vascular channels, percentage of vascular channels area (Vc) and percentage of unmineralized spaces area (UnB), between periodontally compromised and periodontally healthy, and those with mobility and non-mobility, were quantified and compared. Statistical analysis was performed using independent t-test (p-value<0.05).
Results: Compared with the group of non-mobility, the group mobility did not show significant differences in UnB, nor in Vc. In the periodontally committed group, significantly greater values of UnB were observed (33.451%) than in the periodontally healthy (19.654%) (p<0.05), but there were no differences in the variable of Vc.
Conclusions: The clinical relevance of this study was the new and useful research protocol that allowed us to perform an in vivo morphogenetic exploration at a microscopic level of the alveolar bone. The same protocol could be applied in several in vivo studies at a microscopic level to observe and quantify the architecture of other surfaces. Periodontal involvement could be associated with a higher area of unmineralized spaces. Increasing the sample size for this study could lead to greater conclusions.

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Analysis of Masticatory Cycles using Electromagnetic 3D Articulography

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Objectives: Compare masticatory cycles in prostethic rehabilitation patients discharged from the Dental Clinic of Universidad de la Frontera using an innovative 3D method.
Methods: A convenience sample was performed, removable dental prosthesis discharged patients (mean 67,5 +- 5 years) 10 women and 2 men,were contact at the 6 months follow up appointment and presented prosthetic stability, masticatory and phonetics function were preserved.
3 Groups were created: full denture, overdenture and maxilar fulldenture and mandibular partial denture.
An Articulograph 3D AG501® record real-time measurement conected to sensors (spherical volume of 0.014 m3). MATLAB® software was used to run files and obtain data for statistical analysis.
Poselt poligone, frontal and sagital plane was recorded, each one received 3.5 grs. of peanut, verbally the investigator aked to star chewing.
The recording stop when the patient swallow spontaneously.
Results: Differences between groups were non significant in aperture on the frontal view, difference was observed between groups in border movements in the sagital view.
We found that extreme movements are disminished.
Subjects using full denture made 67 to 90 cycles, PPR subjects 30 to 104 and overdenture 42 to 114. Only one subject of group 2, was no able to complete chewing and it maid be related to lack of mechanoreceptors and lost of sensibility described in previous studies.
In the frontal view the smallest area registered was in PRP group 19,79 ± 17,20 mm2 and the biggest area belongs to full denture 30,26 ± 25,23mm2.
In the sagittal view, our results show an 9,8 ± 9,01 mm2 in PRP subjects and 9,7 ± 8,79 mm2 in full denture.
Conclusions: this study corroborated in an objetive analysis the alterations described in literature subject suffering edentulism and using dental prostheses.
Masticatory function and range of extreme movements were analyzed using high measurement technology, studies agree to an increased mandibular velocity in opening, besides of an increased masticatory cycles.
Is necessary to continuing investigating in the different forms of dental prostethic rehabilitation including a bigger number of subjects, sample and a control group.

Biomarkers of progression to oral cancer in patients with dysplasia: systematic review

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Objectives: Identify the biomarkers of progression to cancer in patients diagnosed with oral dysplasia.
Methods: We carried out a systematic review to carry out this investigation; the independent variables were biomarkers of progression to cancer; the dependent variables were malignant transformation to oral cancer.
Results: Studies of biomarkers of progression to cancer in premalignant lesions: Protein-type molecules. The search performed according to key words delivered 80 results, of which 67 after the title and summary review were excluded because they did not meet the eligibility criteria. Thirteen studies were obtained. Of these, 9 articles were excluded because they could not build interest groups. The articles that were selected were analyzed, recording the specific characteristics of these. The parameters are summarized in Table 1. Four studies were examined, 5 biomarkers, 4 of them are proteins that were determined using immunohistochemistry of tissues included in paraffin, the fifth biomarker refers to the degree of displeasure present in tissues with premalignant lesions and its potential for malignant transformation. Cohort sizes ranging from 34 to 141 patients were used. The most important results of the included articles are summarized in Table 2.
Conclusions: Recent research on potentially malignant lesions, such as dysplasia, leukoplakia and erythroleucoplasia, has identified potential cellular markers associated with malignant transformation and poor prognosis of patients, allowing us to use them as prognostic biomarkers. In this systematic review, we identified several potential biomarkers, such as S100A7, ALDH1A1, Prominin-1, PDPN and dysplasia, validated by quality analysis for prognostic studies of tumor markers (REMARK) (1). However, it is necessary to continue reaffirming the possible use of these cell markers, through the publication of new validated clinical studies.

BlueRemin and Silver Diamine Fluoride on artificial caries lesions

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Objectives: To compare the effect of BlueRemin (BR) and Silver Diamine Fluoride (SDF) as remineralizing agent in enamel and dentin on artificial dental caries lesion through microhardness assay and microCT tests.
Methods: Material and methods: In vitro experimental study, using a microbiological caries lesion model described by Cahuana-Vásquez and Cury, 2010, was used. Third molar enamel and dentin were including in a biofilm of S. mutans (ATCC 33668, 10% saccharose) and then exposed to silver diamine fluoride and BlueRemin according to manufactures protocols of applications. Measurement of Vickers microhardness and mineral density through microCT were evaluated.
Results: Differences in mineral density and surface microhardness measured in enamel and dentin discs does not have significant difference between the enamel and dentin disc treated with BR and SDF.
Conclusions: Discussion: Application of BF and SDF helps re-mineralization of enamel and dentin discs, which could be a treatment for teeth with caries lesions. Further research is need to best understand the potential use of BR in clinical setting

Class II and III Malocclusion Craniofacial Growth Predictors. A Systematic Review

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Objectives: In order to evaluate the validity of craniofacial growth predictors in class II and III malocclusion.
Methods: An electronic search was conducted between 1960 and 2018 in PubMed, Cochrane Library, Embase, EBSCOhost, ScienceDirect, Bireme and Scielo including all languages. The articles were selected and analyzed by two authors independently and the methodology of selected studies was assessed using the 14-item Quality Assessment Tool for Diagnostic Accuracy Studies (QUADAS-2). The quality of evidence and strength of recommendation was assessed by The Grading of Recommendations Assessment Tool, Development and Evaluation (GRADE).
Results: In a process selection of two phases, 19 studies were identified. The studies were grouped according to malocclusion growth predictor in (a) class II (n=6); (b) class III (n=7); (c) class II and III (n=3) and (d) others (n=3). The predictors were mainly based on data extracted from cephalometries and characterized by: equations, techniques and computer programs, structural analysis among others. Only 3 studies included predictors based on DNA isolation, IGF-1 levels and P561T polymorphism. The analyzed studies were methodologically heterogeneous and had low quality. None of the studies fulfilled all of the QUADAS-2. Three studies were graded as moderate value of evidence; For class II malocclusion, the predictors were based on multivariate analysis by logistic regression and mathematical model (orthogonal polynomial based on 15 cephalometric measurements). For class II and III malocclusion, the Fishman system of maturation assessment would provide the best means of predicting both short- and long-term growth using Cranial Centroid and cranial measures (CC-A; CC-Gn; CCNA; CCNGn).
Conclusions:
The evidence available based on cephalometric, molecular and genetic methods were not conclusive as growth predictor for class II and III malocclusion since the studies were heterogeneous and presented high risk

of bias. Develop methods to evaluate growth predictors requires further research with rigorous scientific methodologies.

Color stability of different resin composites after thermocycling with different beverages at real intake temperature.

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Objectives: The aim of this study was to evaluate the color stability of eight different conventional and bulk fill resin composites after inmersion in thermocycling with different beverages at real intake temperature compared to control temperature.
Methods: Eight different composites were compared: IPS Empress Direct, Filtek Z350, Filtek Bulk Fill, Beautifill II, Clearfil AP-X, Spectra Smart, Forma, Tetric N-Ceram Bulk Fill. For each composite, four different beverages (black tea, coke, wine and water) were evaluated at two different temperatures: control (ambient temperature) or thermocycling (real intake temperature of each beverage). Color differences were evaluated before and after cyclings (delta E) with a spectrophotometer (Vita Easyshade V). Data were evaluated with three-way ANOVA and post-hoc Tukey tests.
Results: Thermocycling promoted an effect on color stability mostly on bulk fill composites than resin composites $p<0.05$). Different composites behaved differently when exposed to different beverages ($p<0.05$).
Conclusions: Diffferent composites show different color stability when immersed to different beverages. Temperature of different drinks do affect the color stability of the conventional and bulk fill resin composites, making an impact in terms of esthetics, clinical acceptance, and thus long term success of dental restorations.

Color Stability of Intracoronary Bleaching. One Year of Follow-Up

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Objectives: The aim was evaluate visually the estability of the color change in non-vital teeth submitted an intracameral bleaching witth 35% hydrogen peroxide and 37% carbamide peroxide, after 1, 6 and 12 months post-treatment.
Methods: This Randomized Clinical Trial was performed in 46 non-vital teeth submitted a intracameral bleaching with 4 sessions of Walking Bleach technique. Were randomly divided in two groups according to the bleaching agent: G1= 35% hydrogen peroxide (n=23) and G2= 37% carbamide peroxide (n=23). 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 and the Wilcoxon test.
Results: The ΔSGU one month after bleaching G1= 5(0:9) G2= 4(2:7), six months after bleaching G1= 4,5(0:8) G2= 4(0:7) and twelve months after bleaching G1= 4(0:7) G2= 4(0:7). There were no significant differences ($p>0.05$) between these two groups at the one-year follow-up with Mann-Whitney test. Statistically significant difference ($p<0.05$) was noted at the one-month time point between group with Wilcoxon test.
Conclusions: The walking bleaching showed minimal color regression in nonvital teeth in one year after treatment.

Construction of a tridimensional model based on computational tomographies

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Objectives: Use tridimensional computational tomographies from historic patients and existent bibliographic models to reconstruct a unique model, using visualization, design and 3D modeling software, that allows future anatomic alterations, and homologues real conditions for a posterior analysis with computational aid.
Methods: Selections of computational CBTC tomographies, for the generation of tridimensional surfaces and sectioning of units of greater solid material density, that allows to homologue anatomic structures according to real and literary parameters, through the insertion of geometric dimensions from different patients in a normalized model, whose superficial mesh allows posterior biomechanical analysis. Also, an insertion of soft tissue units coming from bibliographic existing models is employed, reconditioned and resized for the assembly of the normalized model with the structures obtained from the tomographies.
Results: A tridimensional model that’s compose with anatomic units such as the jaw, the maxilla, soft palate, upper and lower teeth, hyoid bone and the tongue, that allows the integration of new structures and conditions.
Conclusions: A first model has been reconstructed, which assemblies a number of anatomic units on it. This model signifies the generation of the first biomechanical analyzes using it as a base geometry, or its incorporation in visualization software for tridimensional planning. This model also presents simplifications that are expected, in a future, to be diminished, like the inclusion of a greater number of bone structures and soft tissue.

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Creation of Virtual Planner for Prosthetic-implantological Treatment in Total Edentulous

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Objectives: To build a prototype of visualization and planning platform of interventions with dental implants using 3D technology, for prosthetic solutions in the total maxillary and mandibular edentulous.
Methods: Through computer software (Unity) an original tool was built, consisting of a 3D visualizer and specific planner, from a database of DICOM and STL files of 11 total edentulous patients (average age: 67 years, 7 women and 4 men), for our objective, which is the placement of dental implants based on a suitable prosthetic reference, by means of the construction of a strict surgical guide.
For this, this new software has the ability to visualize and merge OBJ and STL files. In addition, original tools for surgical-prosthetic planning were added through programming in C #, incorporating a library of surgical techniques for different cases of complexity.
Results: A prototype 3D viewer for OBJ and STL files was obtained.
In addition, a prototype 3D planner of prosthetic solutions with implants was created for: Overdentures of 2 jaw implants, "All in four" for mandible and edentulous maxilla.
Conclusions: This experimental model allows the generation of a new virtual planner for total maxillary and mandibular edentulous. The software allows us to visualize the images of the bony configuration and the mucosal border of the total edentulous patient. At the same time it allows us to incorporate virtually the implant placement of an original library created in this software. This is an initial design and planning tool for the placement of implants, in a prosthetic treatment, either with an overdenture with two implants or a fixed prosthesis screwed onto four implants. However, for the further development of the software, it is necessary to improve the fusion protocol, by using clinical markers incorporated in the CBCT and intraoral scanning.

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Elective Neck Dissection In Oral Cancer, T1-T2/N0 Stage. Systematic Review.

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Objectives: The cervical lymph node dissection corresponds to the surgical procedure that consists in removing the lymph nodes and surrounding tissues of the neck in order to treat cancer. In recent decades, various alternatives have been proposed in the management of ganglionic oral cancer, generating a debate between elective lymph node dissection in those patients with no lymph node metastasis or in taking a "wait and observe" attitude and perform a therapeutic dissection. when ganglionic disease is diagnosed.
Methods: Electronic search in the PubMed database of the term "Elective neck dissection and Therapeutic neck dissection", combined with "Node-negative" and "Oral cancer". The inclusion criteria were systematic reviews and meta-analyzes published in the last 10 years, in English, which analyze the elective and therapeutic neck dissection in oral cancer without clinical adenopathy.
Results: Initially, a total of 8 articles were found. After a summary reading, 3 is excluded because it did not meet the objective of this review. Finally, 5 were selected, which went on to read the entire article.
Conclusions: Current evidence, consisting of systematic studies and meta-analysis, indicates that elective cervical lymph node dissection constitutes the treatment with the lowest rate of metastasis and longer survival in patients compared to the therapeutic lymph node dissection.
Current evidence, consisting of systematic studies and meta-analysis, indicates that elective cervical lymph node dissection constitutes the treatment with the lowest rate of metastasis and longer survival in patients compared to the therapeutic lymph node dissection

Forced lip closure. A preliminary electromyographic evaluation

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Objectives: To compare the electromyographic (EMG) activity of buccinator (BUC), mentalis (MN) and suprahyoid (SH) muscles in participants with forced lip closure (FLC), with lip competence (LC) and with lip incompetence (LI).
Methods: This study included 18 healthy participants (range between 18 and 26 years). They were classified in clinical rest position according to their lip closure and clinical perioral activity in three groups (6 participants per group): FLC group: lips in contact with higher clinical activity of the MN muscle, verified by shrinkage of the chin skin; LC group: lips in light contact without clinical activity of the MN muscle; LI group: lips apart without clinical activity of the MN muscle. Surface electrodes were placed on the BUC, MN and SH muscles, on the chewing-side preference. A large surface ground electrode was attached to the forehead. Three EMG recordings were done seated upright, looking straight ahead and with his/her head in the postural position, during the following tasks: 1) normal quiet breathing; 2) speaking the word “Mississippi”; 3) swallowing of saliva; 4) maximal lips tightening; 5) chewing of gummy candy. The mean value of the three curves obtained for each task and for each participant in each group was used for the statistical comparison. The data were analyzed using a Kruskal-Wallis test. The level of significance was set at $P < 0.05$. The data were analyzed using SPSS software (IBM SPSS Statistic ® v 21).
Results: PRELIMINAR RESULT: EMG activity of BUC, MN and SH muscles did not show significant differences between groups at any of the tasks studied.
Conclusions: From electromyographic point of view, the studied groups present a similar muscular pattern of activity. It is necessary complete the sample to obtain the final result.

Heat Behavior of Printed QR Codes for Denture Marking

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Objectives: To evaluate the feasibility of printed QR codes after being subjected to extreme heat conditions to be implemented as Denture identification Marking Methods (MMPD).
Methods: The behavior of four different types of papers with printed QR codes were analyzed: I) Common cellulose, II) Fiberglass filter, III) Extralong hydroxyapatite Nanofiber, IV) Polyolefin / Silica. These papers were, exposed for 1 hour to 100°, 200°, 400°, 600°, 800° and 1000°C in a heat muffle. Each sample was analyzed morphologically and QR codes were scanned with 3 different mobile devices. Thermogravimetric analysis (ATG) was carried out.
Results: Physical alterations in the four types of paper were detected, the most noticeable in II, with greater curl and brittleness, and brown to gray discoloration; this paper had loss of stability at 600°C, going from papyraceous to amorphous crystalline; papers III and IV were stable at all temperatures. The readings of the QR codes were positive in 33.33% in the I, 50% in the II, 70.37% in the IV, being 100% in the III. The ATG revealed that the four papers presented continuous decomposition curves (average of 15'15 "at a temperature of 662.5 ° C). The high results obtained by paper III stood out (decomposition time from 18' to 900°C).
Conclusions: The composition of the paper, its stability over time and subjection temperatures, should be factors to be considered when MMPD are suggested. Although the use of labeled papers has been recommended as MMPD , the use of QR codes as reservoirs of information even after incineration represents anew paradigm in forensic identification. This line of research intends to continue with the analysis of the chemical relationship between papers and denturematerialswhile exposed to incineration situations, in order to be able to implement them as MMPD adjusted to all American Dental Association recommendations.

Impact of a Continuous Professional Development Programme on Student-Centered Teaching Methodologies on Faculty Members Teaching perceptions; 4-year results

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Objectives: To evaluate the impact of faculty development teaching skills focused on a learner-centered approach after 4-years.
Methods: At the beginning of the 2015, all dental faculty members were invited to anonymously and voluntarily complete the Approaches to Teaching Inventory (ATI) questionnaire (scale:1-50), aiming to assess whether their approach to teaching was student- or teacher-focused. Faculty members were classified as – Basic Science (BS) or Pre-clinical & Clinical (PC-C). Several workshops were delivered to increase the teaching and learning skills of the faculty members. Every academic year (2015 through 2018), the ATI questionnaire was applied. Differences between groups were statistically analysed using independent-samples t-test as well as staff student- or teacher-focused ratios.
Results: A yearly average of 72% faculty members completed the ATI-questionnaire between 2015 and 2018. The initial measurement (2015) showed a slightly higher student-focused mean teaching approach (37.6) as compare to teacher-focused approach (36.0). Among them, BS staff had a student vs. teacher – focused teaching ratio of 0.98, meanwhile PC-C staff had a higher 1.11 ratio. On the following years, the proportion of both groups increased on the student-centered teaching approach, from 1.04 (2015) to 1.27 (2016); 1.36 (2017); and 1.52 (2018). The highest difference was observed for the BS staff, with an increase from 0.98 (2015) to 1.55 ratio (2018).
Conclusions: A Continuous Professional Development Programme in teaching-skills have a positive impact on faculty members teaching approach. BS staff began the training one year earlier, which might explain their sooner results when compare to PC-C staff. In accordance to the obtained results, it took 4-years of hard training, as well as a considerable investment in time and effort to finally get to change the traditional teacher-centered paradigm into the Student-Focused Teaching approach.

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Implementation of a patient feedback questionnaire to visualize learning improvements of clinical care of undergraduate dental students.

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Objectives: To investigate non-clinical care aspects in our undergraduate dental students training program that need improvement using a modified patient feedback questionnaire (PFQ).
Methods: At the end of 2017 academic year, the PFQ was implemented as a pilot assessment for all 81 year-4 (Y4) and 63 year-5 (Y5) students working at the Child and Adult dental university clinics. Every patient attending these clinics was offered to voluntarily and anonymously answer three questions about the physical space/equipment of the clinic, explanation and overall clinical care of the student, plus a fourth free text answer about giving them advice on how to improve to be a better Dentist in the future. All feedbacks were counted and descriptively analyzed. Y4 and Y5 students were statistically compared. Further, all free text feedbacks were qualitatively grouped into themes and compared.
Results: A total of 153 questionnaires were collected (average of 1.1 feedback per student). The "Excellent" (74%) rank was the most recurrent answer followed for "Acceptable" (18%). Being the "physical space/ equipment of the clinic" the quality question which got the worst evaluation of the three (Table 1). Regarding the free text answers, the competencies which required to make the most progress were related to "Clinical practical skills", "Communication or explanation" and "Student nervousness or insecurity". The best assessed competencies were "Professional attitudes or behaviors", "Student personality", "Attendance of care" (Table 2).
Conclusions: The application of a patient pilot feedback questionnaire helped us to better focus and visualize learning improvements of our undergraduate clinical care training to seek Patient centered care. An unanticipated finding was the role of patients as mentors in the development of professionalism.

L-PRF Derived From Smokers/non-smokers Donors Induced Proliferation of Periodontal Cells

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Objectives: Cigarette smoking has been associated with delayed wound healing. As well, in vitro evidence has reported alterations of proliferation and differentiation of periodontal cells. Clinical approaches aimed to improve wound healing have incorporated the use of platelet-derived fractions, including the use of Leucocyte platelet-rich fibrin (L-PRF) in non-smokers (NS) individuals. However, characterization of L-PRF derived from smokers (S) and its biological effects on periodontal cells have not been reported.
Objective: to evaluate the effects of L-PRF-derived conditioned media (LPRF-CM), from S or NS donors on periodontal ligament cells (PDLC) proliferation.
Methods: Methods. L-PRF clots from 4 donors (2NS and 2 S) were obtained using venous blood samples centrifuged at 400 x G for 12 minutes. L-PRF clots were incubated in DMEM at 37°C and were collected after 1 or 24 hours and 10 Days, to obtain conditioned medium (LPRF-CM). As same, periodontal ligament cells from healthy donors were cultured and stimulated with LPRF-CM. Likewise, conventional media supplemented with fetal bovine (FBS) serum 10% was included as positive control. After 24 hours of treatment, cells were fixed and immunostained for Ki67 proliferation marker and counterstained with DAPI. Images of each condition were taken and analyzed as a percentage of total cells per field. Results were analyzed statistically using ANOVA and turkey's test for multiple comparisons.
Results: Results.
Our preliminary study showed that LPRF-CM derived from S or NS L-PRF-CM, taken at 1 or 24 hours were able to stimulate PDLC proliferation as the same level as conventional media, supplemented with FBS (80%, average). However, this proliferative effect was significantly reduced with LPRF-CM taken at 10D after the initial isolation (40%, average), from both, NS and S.
Conclusions: Conclusions
Preliminarily, our results suggested a similar proliferative effect of LPRF-CM derived from S or NS took at 1 or 24 hours after LPRF clot obtaining.

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Linoleic Acid and Competition between Streptococcus mutans-Streptococcus sanguinis. Experimental Caries-model.

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Objectives: We previously reported an anticaries effect of the polyunsaturated linoleic acid. In the context of the current ecological conception of caries, how this fatty acid may create environmental conditions for the development of healthy biofilms has not been reported. The aim was to study the consequences of linoleic acid exposure on the competition between a commensal and a cariogenic species of the dental biofilm, under a cariogenic environment.
Methods: A dual-species caries-biofilm model with Streptococcus mutans UA159 (Sm) and Streptococcus sanguinis SK36 (Ss) was used. Saliva-coated enamel slabs were inoculated with equal amounts (1:1) of cells (1x108 CFU/mL) for both bacteria and distributed in 4 groups by inoculation sequences: 1) Ss followed by Sm (Ss-Sm), 2) Sm and Ss inoculated at the same time (Sm=Ss) and the controls 3) Sm followed by Sm (Sm-Sm) and 4) Ss followed by Ss (Ss-Ss). Mature dual-species biofilms were exposed 3x/day to 10% sucrose followed by either 100 mM linoleic acid, 0.05% NaF or 0.9% NaCl (caries-positive control). Acidogenicity and demineralization by microhardness were assessed and biofilms analyzed for biomass and viable cells. Triplicates for each condition in two independent experiments were assayed (n=6) and analyzed by ANOVA followed by post-hoc at p-value<0.05.
Results: Linoleic acid exposure after sucrose resulted in the lowest acidogenicity and demineralization in all inoculation sequences. The polyunsaturated fatty acid significantly reduced demineralization from 49.9%, 33.9%, 33.6% and 46.3% to 3.2%, 2.2%, 2.2% and 3.6% for Sm-Sm, Ss-Ss, Ss-Sm and Ss=Sm, respectively ($p<0.05$). Sucrose-induced demineralization in the linoleic acid groups was lower than that exhibited by 0.5% NaF and only slightly higher than the caries-negative control ($p<0.05$). Although biomass and viable microorganisms were lower in all inoculation sequences when compared to Sm-Sm, no significant differences were detected across the treatment groups, suggesting a metabolic rather than an antibacterial effect.
Conclusions: Linoleic acid seems to greatly reduce the cariogenic potential of sucrose and appears to create favorable conditions for the onset of commensal biofilms.

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Measurin the Reflective Thinking of Dental Student: A Quantitative Instrument

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Objectives: Pedagogically, reflection allows the integration of new experiences with existing knowledge and skills, promoting self-regulated learning, which helps and encourages professional development. This is achieved by increasing students' self-awareness of their own instructional process, improving learning opportunities through a more in-depth approach to learning.
Aim: To analyse the utility of the self-reported Reflection Questionnaire (RQ) of Kember et al., translated into Spanish, as a method to measure the level of reflective thinking.
Methods: In 2017, 526 dental students of the of the University of the Andes, Chile, were invited to answer the 16 items of the RQ (scale 1-20) to later analyse the reliability and structural validity of the answers considering its four constructs: Habitual Action, Understanding, Reflection and Critical Reflection
Results: 484 students participated (92%). The average scores were Habitual Action 10.94, Understanding 18.28, Reflection 16.76 and Critical Reflection 14.32. Cronbach's alpha was 0.675. There was a positive correlation between academic performance and the levels of Understanding, Reflection and Critical Reflection, as well as a negative correlation with Habitual Action.
Conclusions: The Questionnaire presented an adequate internal consistency. The highest values achieved in Understanding and Reflection, are consistent with the conceptual design of the RQ indicating students use more frequently these levels of thinking. Further, the positive correlation between academic performance and the three higher levels of the RQ, are consistent with the original design of the instrument. In addition, this indicates that those students enthusiastic to understand topics also do it to reflect. In contrast, the significant difference between Understanding and Reflection, not reported in previous studies, could indicate a lower reflective practice of our students. There is also a tendency for an increase in critical reflection as students advance in the program ladder (table 1). Thus, the RQ is a useful tool to assess the level of reflective thinking of dental students.

Methods for age estimation in Chile: Review of the literature.

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Objectives:
To present a review of age estimation methods that have been used in the Chilean population.
Methods:
A systematic review of the literature was performed in the databases MEDLINE, SciELO, and LILACS, using as search strategy the terms "age estimation" AND ("chile" OR "chilean" OR chilean people OR Chilean population), limited to Spanish and English. Only articles about age estimation methods in Chilean populations were included. The year of publication, country of the authors, journal of publication, age range of the samples studied, size of the sample, and the methods used for age estimation were recorded.
Results:
704 articles were found as a result of the searches, of which 4 fulfilled all the inclusion criteria and were included for the analysis. Within the methods for the estimation of age were reported the use of dentinal root translucidity, Demirjian method, Cameriere index to estimate maturity and the Osborne method.
Conclusions:
Methods to estimate age in Chilean population have been little used. However, these methods could collaborate in identification processes for forensic and legal purposes.

Microshear Bond Strength of Different Bulk Fill Composites Cured by Different Light Curing Modes: An in vitro analysis

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Objectives: To evaluate the effect of different light curing modes on microshear bond strength of a packable, a flowable and a experimental bulk fill resin composite before and after thermocycling.
Methods: Sixty third molars were randomly divided in six groups. Teeth were prepared for shear Bon strength test with a single bulk increment restoration from three different composites (Tetric Evoceram Bulk Fill; Tetric Evoceram Bulk Fill Flowable; and an Experimental Bulk Fill composite with double of the photoinitiator used in its conventional version - Ivocerin) and light cured (Bluephase Style 20i) with either High light curing mode for 10s, or Turbo mode for 5s. The specimens were tested for microshear bond strength test in an universal testing machine (Shear Bond Tester, Bisco) until failure, immediately (24 hours) and after 5000 thermal cycles. Data were analyzed by three-way Anova and Tukey post-hoc tests.
Results: Before thermocycling, there were no statistical differences between resins within the same mode of light curing ($p>0.05$). Moreover, there were no statistical differences between the same resin and different modes of curing before and after cycling ($p>0.05$).
Significant differences were observed when before and after thermocycling were compared for the same composite and light-curing method.
Conclusions: Thermocycling promoted differences in all of the bulk fill resin composites evaluated but the experimental composite light cured in turbo mode. The lack of differences observed within groups shows that it is possible to light cure the studied resin composites in a decreased period of time, which is a benefit for dentists when it comes to saving time during restorative procedures without jeopardizing shear bond strength.

Music At 432 Hz Reduce Anxiety Level In Dental Care

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Objectives: Dental care generates stress and anxiety in patients. It has been shown that music is an coadjutant for to control it. The music at a frequency of 432 Hz is closest to natural human frequencies, favoring a state of calm and comfort.
The objective is to determine the effectiveness of the music at 432 Hz in the levels of anxiety and salivary cortisol in patients undergoing dental care for tooth extraction.
Methods: A randomized clinical trial was designed and approved by Ethics and Research Committee of the Valdivia Health Service (Ref No. 195/2018). Twenty-five patients (mean age: 21.8 ± 8.3 years, 17 women) with indication of simple tooth extraction and with moderate anxiety level were divided into three groups: Use of music (album "Dreamers" of Giorgio Costantini) with headphones for 15 minutes at a frequency of 432 Hz (n = 10), at 440 Hz (n = 10) and a control group without music (n = 5). All groups were applied before and after of the Corah-MDAS anxiety scale and a 5 ml sample of unstimulated saliva was compared with the anxiety levels according to the Corah-MDAS scale and salivary cortisol levels (salivary cortisol enzyme immunoassay kit. Salimetric®) (ANOVA Post Hoc test $p < 0.05$, STATA v14.0).
Results: A significantly lower values in Corah–MDAS anxiety scale at 432 Hz (mean 16.1± 8.7) and 440 Hz (mean 14.3 ± 4.5) music groups compared with the control group ($p<0.001$) were observed. Likewise a significantly lower values of salivary cortisol in the music group at 432 Hz (mean 0.74±0.4 µg/dL) compared with the control group (mean 1.44±0.5 µg/dL; $p=0.008$) were observed.
Conclusions: The use of music at 432 Hz significantly decreases anxiety and levels of salivary cortisol in patients undergoing dental care for tooth extraction.

Natural Extracts As Treatment In Wounds Of The Oral Mucosa.

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Objectives: OBJECTIVE: The objective of this research was to perform a systematic literature review to analyze the available evidence regarding the effect of plant extracts on healing wound in oral mucosa.

Methods: METHOD: A systematic literature review was performed using the metasearch engines Scopus, Embase, SciELO and Pubmed using the keywords wound healing AND plant AND mouth mucosa. 436 articles were found. Using the PRISMA criteria, 7 articles were finally selected. The quality of the research and bias level was evaluated using the ARRIVE criteria for animal studies.

Results: RESULTS: The articles analyzed under the ARRIVE criteria showed an average of 27.14% of bias. The study with the lowest percentage of bias was 20% and the highest was 40%. According with the analysis of the results, the healing process of the oral tissues was faster, and less inflammation was observed when plant extract was used as the main treatment or as an adjuvant of a pharmacological treatment compared with a control group.

Conclusions: CONCLUSIONS: Even though the results analyzed are inconclusive, the available evidence suggests that natural extracts could induce healing of oral mucosa wounds and increases the effectiveness of pharmacological treatment in this kind of lesions. However, the existence of few articles in the area, the level of bias of some studies and the wide variety of plants analyzed, demonstrates that is necessary to continue the research in this area, with the aim of developing new therapeutic tools on wound healing in oral mucosa.

Oral Expression of Metalloproteinases in Gestational Diabetes During Early Pregnancy

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Objectives: The objetive of this works was to evaluate the levels of MMP-8 and MMP-9 in GCF during early pregnancy, in women who subsequently developed GD.
Methods: A cohort study was done. 334 women between 11-14 weeks of gestation were enrolled. 55 of them developed GD at 24-28 weeks. The medical and obstetrical history was recorded and a periodontal evaluation was performed. GCF samples were taken and analyzed for MMP-8 and 9 by Luminex assay. The data was analyzed using descriptive statistics and logistic regression models
Results: Levels of MMP-8 and 9 in GCF were significantly higher in patients who developed GD (MMP-8: 118819.7 pg/ml versus 94310.71 pg/ml , p-value = 0.0331; MMP-9: 306952.7 pg/ml versus 246549.3 pg/ml, p-value = 0.0269). Also, MMP-9 levels in GCF were significantly lower in mild periodontitis (200110.2 pg/ml) compared with moderate (284016.6 pg/ml; p-value = 0.000599) and severe periodontitis (319579.4pg/ml; p-value = 0.001225). Logistic regression models determine significant association between MMP-8 and GD [OR = 1.000003; p-value = 0.043; CI = 1 - 1.000006], but not for MMP-9 [OR = 1.000001; p-value = 0.107; CI = 0.9999998 - 1.000002]
Conclusions: Women who developed GD had elevated level of MMP-8 and 9 in GCF during first trimester of pregnancy, and MMP-9 level increases with the severity of periodontitis.

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Oral health in preschool beneficiaries of the Sembrando Sonrisas Program in the communes of Casablanca and Cerro Navia in 2017.

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Muñoz, Andrea (universidad de chile, Santiago, Chile).
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Objectives: Compare the situation of oral health and associated variables in pre-school children aged 2 to 5 years beneficiaries of the Sembrando Sonrisas Program of the commune of Casablanca, with a percentage of rurality, and of the urban district of Cerro Navia.
Methods: Analytical cross-sectional study with application of a sociodemographic, nutricional and oral habits questionnaire, with a clinical examination using ICDASII and gingival index. Point estimates were made and by confidence intervals. A multivariate regression model describe associations.
Results: 411 children were analyzed. The prevalence of caries was 67.7% v/s 47.7%, gingivitis was 41.3% v/s 27.5% and cavitated caries 36.0% v/s 31.5%, in Casablanca and Cerro Navia respectively. Determinant variables were: age of the preschoolers, sugary liquids and the level of household income.
Conclusions: Children residing in a commune with a rural percentage had a higher prevalence of caries and gingivitis, which may reflect the inequalities associated with geographical context. The use of the ICDASII is recommended for future research to measuring the impact of the Sembrando Sonrisas Program.

Periapical lesions as a reservoir of cardiovascular risk factors

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Objectives: To determine local and systemic levels of soluble adhesion molecules and high sensitivity C-reactive protein (hsCRP) in patients with chronic apical periodontitis and healthy controls.
Methods: Patients consulting at the clinic of the Faculty of Dentistry, Universidad de Chile between 2012-2017 and had a diagnosis of chronic apical periodontitis (CAP) or healthy, with no previous endodontic treatment and history of current acute/chronic illness were included. In teeth with indication of extraction periapical lesions (PAL, n = 44) and healthy periodontal ligament (PL, n = 39) were obtained. The samples were homogenized and the concentration of total proteins (CPT) was determined. In patients with endodontic indication, patients with CAP (n = 27) and controls (n = 28) were included and blood samples were obtained. Levels of glycosylated hemoglobin and lipid profile were assessed, and classic cardiovascular risk factors were recorded. Soluble (s)E selectin, sICAM-1 and hsCRP levels were determined in tissue homogenates and serum samples using a Luminex platform. Statistical significance was considered if $p < 0.05$.
Results: sE selectin, sICAM-1 and hsCRP levels were significantly higher in PAL. Similarly, systemic levels of hsCRP and selectin sE were significantly higher in CAP versus controls. After adjusting for covariates, CAP was significantly associated with CRP levels> 3 mg / L, categorized as high cardiovascular risk.
Conclusions: CAP is associated with a local and systemic inflammatory response characterized by high levels of hsCRP and soluble adhesion molecules. Periapical lesions might act as a reservoir of inflammatory cardiovascular risk factors.

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Periodontal Disease in Chilean Patients with Psoriasis

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Objectives: To compare the periodontal status and oral hygiene habits in patients with psoriasis and healthy controls.
Methods: Study approval was obtained from the Ethics Committee of San-José Hospital. Acase-control study was conducted including eligible adult patients with psoriasis attending the Dermatology unit of Hospital San-José and randomized healthy controls from the Dental Clinic of Universidad Andrés Bello. Psoriasis was diagnosed by an independent/blinded dermatologist using the "Psoriasis Area/Severity Index" whereas periodontal status, tooth loss and oral hygiene habits were evaluated by a blinded Periodontist. Periodontal status was clinically assessed using full mouth periodontal charting (6 sites-per-tooth) with measurements of probing depth, clinical attachment loss and bleeding on probing. Oral hygiene habits were evaluated using a standardized questionnaire. Periodontitis was defined according to the "Centers for Disease Control and Prevention" case definition published in 2007. Data were analyzed using Fisher's exact-test, Mann-Whitney U-test and logistic regression (significance=0.05).

Results: In total, 42 patients with psoriasis (age: 46.1±13.8 years, 59% men, p=0.06) and 27 controls (age: 39.9±13.3 years, 37.04% men, p=0.09) were enrolled. Severe, moderate and mild periodontitis/healthy individuals were found in 38.1%, 28.6%, 33.3% of psoriatic-patients and 14.8%, 40.7%, 44,5% of controls, respectively. Differences were statistically significant only for "severe periodontitis", with a higher frequency of cases in psoriatic patients (p=0.044). Patients with psoriasis presented in average 22.6±4.6 teeth and a tooth brushing frequency of 2.15±1.05 times per day versus 25.6±2.9 teeth and 2.81±0.8 times per day of controls (p<0.01). Patients with psoriasis presented increased risk of presenting "severe periodontitis" (odds ratio: 3.53, CI: 95%, 1.03-12.11). No association was found between the severity of periodontitis and the severity of psoriasis.
Conclusions: An increased risk of severe periodontitis and higher frequency of tooth loss and poor oral hygiene habits were found in psoriatic patients compared to controls.

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Porphyromonas gingivalis capsular-defective mutant strains induce less alveolar bone resorption.

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Objectives: Periodontitis is a chronic immuno-inflammatory disease elicited by a dysbiotic subgingival biofilm and characterized by the progressive destruction of tooth-supporting tissues. Porphyromonas gingivalis is a Gram-negative anaerobic bacterium considered keystone in the etiology of periodontitis. Currently, seven P. gingivalis serotypes (K1-K7) are recognized based on the capsule antigenicity, and among them, the capsule of K1 serotype induces a higher Th1 and Th17-pattern of immune response and increased levels of osteoclast differentiation and bone-resorptive activity in-vitro. Thus, this study aimed to analyze the differential pattern of adaptive immune response and alveolar bone resorption, as well as osteoclast activity, induced by P. gingivalis wild-type (W50) or its isogenic non-capsulated mutants (GPA and GPC) in order to elucidate the contribution of the capsule to the virulence of P. gingivalis serotype K1.
Methods: Periodontal lesions were induced in BALBc mice through palatal injection of P. gingivalis W50 (K1), or the isogenic non-encapsulated knockout mutants GPA (ΔPG0116-PG0120) or GPC (ΔPG0109-PG0118). Mice injected with the encapsulated strain P. gingivalis HG184 or non-encapsulated P. gingivalis ATCC 33277, PBS (Sham infected) or non-induced were used as controls. The mRNA expression levels for IL-1β, IL-6, IL-12, IL-17, IL-23, IFN-γ, and RANKL were quantified by qPCR. Osteoclast activity in periodontal lesions was determined by TRAP assay. Alveolar bone resorption was quantified using micro-computed tomography (uCT) and scanning-electron-microscopy (SEM).
Results: In periodontal lesions, both capsular-defective knockout mutant strains of P. gingivalis induced less alveolar bone resorption than the encapsulated W50 wild-type strain. This decreased bone loss was associated with a down-regulation of RANKL and Th1 and Th17-associated cytokine expression, decreased Th1 and Th17 lymphocyte detection, and low osteoclast activity.
Conclusions: These results demonstrate that P. gingivalis K1 capsule plays a key role in the induction of Th1 and Th17-pattern of immune response,

subsequently causing alveolar bone resorption during experimental periodontitis.

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Porphyromonas gingivalis immune response affect rat’s neurons and microglias.

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Objectives: Periodontitis and Alzheimer's (AD) are diseases characterized by a high local and systemic inflammatory component. Some periodontal bacteria can spread into peripheral circulation and exert undesirable effects on other organs or tissues. In addition, a different immunogenicity and virulence has been described in P. gingivalis depending on the infecting serotype. The study aims to determine the response of neuron-enriched cultures stimulated with the different serotypes of P. gingivalis.
Methods: From 3-4 days old newborn Sprague-Dawley rats, neuron-enriched and microglia cultures were obtained and stimulated with the different serotypes of P. gingivalis. Also, to determine the immunogenicity, microglial culture were stimulated with P. gingivalis capsular polysaccharides mutants. The expression or secretion levels of inflammatory molecules were quantified by qPCR or ELISA. Subsequently, the neuronal morphology was evaluated by immunofluorescence and the Sholl analysis was performed to determine the extension of the neurites.
Results: Neuron-enriched and microglia cultures stimulated with purified LPS serotype K1 or K2 of P. gingivalis produced the highest levels of cytokines, MMP2 and MMP9 and showed changes in neuronal morphology, when compared with cells stimulated with the other serotypes or non induced. In addition, it was determined that the mutant lacking the capsule is capable of inducing a protective response, in comparison to serotype K1.
Conclusions: Serotypes K1 and K2 induce the higher levels of inflammatory mediators in neurons-enriched and microglia cultures. These results suggest that the brain infiltration of these bacteria or their virulence factors could induce a microglial inflammatory response, with secretion of inflammatory

cytokines, that affect the neuronal morphology and could be associated with neuroinflammation.

Prevalence of third molar agenesis in a sample from Santiago

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Objectives: The aim of this work was to assess the prevalence of agenesis of the third molar (M3) and characterize its presentation in the Chilean population, using a sample from the Metropolitan Region, the largest-to date in an M3 agenesis prevalence study in Chile.
Methods: 535 panoramic X-Rays from patients of the Dental Clinic Universidad de Chile were used, 224 men and 311 women. The inclusion criteria were: individuals of both sexes, over 14 years of age, without congenital craniofacial malformations or a history of trauma or bone pathology. The prevalence of third molar's agenesis was calculated, and the Chi square test was used to determine the statistical significance of differences in the distribution of agenesis according to sex, and topological location of the agenesis (maxilla or mandible, left or right sides). This work was approved by the Scientific Ethical Committee of Facultad de Odontología Universidad de Chile and funded by FIOUCh Grant N°10/2017.

Results: A general M3 agenesis prevalence of 12.89% was obtained. 23/224 men and 46/311 women had M3 agenesis, without a statistically significant difference between sexes. Also, statistically non-significant differences were observed in the distribution of agenesis between maxilla and mandible, or between sides (statistical power >0.8 in all the tests). The agenesis of one third molar was more frequent, then two, three and finally of four M3s.

Conclusions: the prevalence in a sample of the population of Santiago de Chile is 12.89%, which is lower to what has been previously reported for Chileans and other populations. M3 agenesis presents a random manner among the individuals studied.

Radiopacity Of Resin Luting Cements Using A Digital Radiographic Technique

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Objectives: The aim of this in vitro study was to determine and compare the radiopacity of four resin luting cements using a digital technique and verify if they comply with the minimum value required by ISO 4049 and ISO 6876 standards.
Methods: Five disk samples with 10 mm diameter and 1 ± 0.1 mm thick were prepared for each group resin cements (RelyX U200, Calibra, Calibra Universal and Bifix SE). Goldsmith Zinc Phosphate and Fuji GC Gold Label 1 were used as control group. They were digitally radiographed next to an aluminum step-wedge of 1 to 10 mm. Images were analyzed with computer software, to determine their gray scale value and respective mm of Aluminum value. Data were statiscally-analyzed using one-way ANOVA and HSD Tukey's test.
Results: ANOVA revealed significant difference in mm de Al values among cements. Four groups were established with statistical difference: RelyX U200 (1,67 ± 0,07 mm de Al), with the lowest radiopacity; Calibra Universal (2,26 ± 0,14 mm de Al), Bifix SE (2,37 ± 0,15) and Fuji GC Gold Label 1 (2,12 ± 0,16 mm de Al), with intermediate radiopacity; Calibra (2,84 ± 0,18 mm de Al), with greater radiopacity than the previous ones, and Goldsmith Zinc Phosphate (4,80 ± 0,22 mm de Al), with the highest radiopacity.
Conclusions: It was determined that there are differences in the radiopacity values between the resin luting cements in this study. These values are according with ISO 4049 recomendation, but not with ISO 6876.

Saliva Extracellular Vesicles During Pregnancy And Its Relation With Periodontitis

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Objectives: To isolate, characterize and quantify the levels of extracellular vesicles (EV) present in saliva during the first trimester of pregnancy and its association with the severity of chronic periodontitis at 11-14 weeks of gestation.
Methods: Of a cohort of pregnant women recruited by the FONDEF project ID16110452, 58 pregnant women were randomly selected. The women were examined between their 11-14 weeks of gestation, recording sociodemographic, medical-obstetric, biochemical and periodontal variables. In addition, saliva samples were collected, centrifuged and analyzed by differentiating subpopulations such as microvesicles and exosomes; for this, techniques such as Western Blot and Nanoparticle Tracking Analysis were used.The Shapiro-Wilks test was used to evaluate if the variables had a normal distribution. In addition, statistical tests were performed that included the Mann-Whitney test, Kruskal-Wallis and the Spearman correlation.
Results: The median age of pregnant women was 25 and the median body mass index (BMI) was 28,6. 95% of the women were diagnosed with chronic periodontitis; 19% of pregnant women were diagnosed with severe chronic periodontitis, 62% moderate and 14% mild periodontitis. There was an association between the mean probing depth and saliva exosome concentration/ml (p-value=0.009). Periodontal Inflamed surface area (PISA) and percentage of bleeding on probing were significantly associated with the percentage of exosomes/ml in saliva (p-value=0.005 p-value=0.02, respectively). Furthermore, significant associations were established between the total amount of extracellular vesicles, micro-vesicles concentration/ml and exosomes concentration/ml in the saliva of patients with moderate/severe periodontitis (p-value=0.01, p-value=0.02 and p-value=0.005 respectively).
Conclusions: In the present study, an association between the amount of extracellular vesicles and severity of periodontitis was observed; however, more longitudinal studies investigating the role of VE in the pathophysiology of periodontitis are needed.

Support Funding Agency/Grant Number: FONDEF project ID16110452

Study of cervical lordosis in relation to the maxillary and mandibular skeletal bases.

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Objectives: Evaluate the angle of the axis odontoid process with respect to the true vertical in the different craniofacial architectures according to Miralles.
Methods: Lateral radiographs of 101 individuals were studied, all students of the Universidad of Concepción. In an age range of 18 to 22 years (54M, 47 F) From the lateral teleradiography, the SNA, SNB, ANB angles, Clivus, Cervical lordosis, and axis odontoid process with true vertical and molar relation were measured. The skeletal structure (Normo, n= 54, Mesio n= 17, Disto n= 30) was determined according to Miralles and the molar relation according to Angle.
All individuals were informed of the Helsinki protocol.
Statistical analysis was performed with ANOVA
Results: Angles, molar relation and Craniofacial Architecture (mean +/- standart error)
Lordosis Normo: 30,07 +/- 1,55 grados
Lordosis Mesio : 28,58 +/- 2,82 grados
Lordosis Disto : 26,13 +/- 2,07 grados

Angle axis odontoid process and True Vertical
Normo: 17,14 +/- 1,11
Mesio : 12,23* +/- 1,49
Disto : 18,43 +/- 1,53

Molar relation
Normo: 6,58 +/- 0,24
Mesio : 8,29 +/- 0,79
Disto : 2,15* +/- 0,39

* $p < 0,05$

Conclusions: The cervical lordosis does not present significant differences with respect to the different types of facial architecture. However, we should point out that the inclination of the axis odontoid process respect to the true vertical presents a significant difference in the Mesio group, which indicates that this may have a compensatory function favoring the conservation of the cervical lordosis

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Surgical Treatment of Maxillofacial Fractures: a 10 years Retrospective Study

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Objectives: Maxillofacial fractures (MFF) are common pathologic entities, which generate orofacial dysfunction, aesthetic sequelae and negative impact in the quality of life (QoL) of patients. Importantly, MFF represents a high economic burden for healthcare systems worldwide. In this line, surgical therapy of MFF provides faster recovery, reduce indirect costs and improve QoL. These benefits are critical for public healthcare systems of developing countries, such as Chile. Since the distribution of surgically treated MFF in Chile remains unknown, we aim to describe the prevalence of surgically treated MFF in a representative public hospital in Santiago, Chile.
Methods: We conducted a ten-years retrospective study (2007-2017) at the San José Hospital (SJH); which provides healthcare for an estimated population of 1M inhabitants. Clinical data were collected from electronic medical records of the Operating Room. We included data from patients operated by the Maxillofacial Surgery Team of SJH with a diagnosis of MFF with surgical indication; whereas incomplete records were excluded. The outcomes examined were epidemiological data (sex); diagnosis of MFF and, the frequency of surgically treated MFF per time unit.
Results: A total of 614 MFF were surgically treated (2007-2017), with an average of 56 surgically treated MFF per year. A total of 525 (85%) males and 89 (15%) females with the diagnosis of MFF, were surgically treated. The most prevalent MFF was the mandibular fracture with a total of 305 (50%). The year 2011 presented the highest frequency of surgically treated MFF, with a total of 81 MFF (13.19%).
Conclusions: From 2007 to 2017, male patients were the primary population requiring surgical treatment for MFF at the SJH. In the same way, mandibular fractures were the main MFF requiring surgical treatment. Finally, we observed a marked tendency of MFF with surgical indication per year at the SJH.

Systematic review of survival and response to treatment with monoclonal antibodies against EGFR in patients with recuerrent or metastasic squamous cell carcinoma of the head and neck

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Objectives: Introduction
Head and neck cancer (HNC) is the eighth most common cancer in the world, with a high incidence throughout the world, however, it is diagnosed in advanced stages, therefore, survival is poor presenting an average survival of less than one year and limited therapeutic options.
Objective
The objective of this review is to answer the question: In patients with recurrent or metastatic HNC, the use of anti-EGFR antibodies plus standard therapy results in improvements in overall survival (OS), progression-free survival (PFS) and in the response ratio compared to standard therapy alone.

Methods: A search was made in the databases: Medline, Elsevier and CENTRAL with different descriptors. There were 1406 articles obtained, of these, 248 were duplicates. We included studies that were randomized clinical trials with patients with metastatic or recurrent HNC and with a treatment group that included anti-EGFR antibodies. A meta-analysis model was used to compare survival and response rate between EGFR therapy plus standard treatment and standard treatment alone.

Results: Five studies were included, which included a total of 1585 patients. According to the results of the meta-analysis, treatment with EGFR inhibitors plus chemotherapy was associated with a significant increase in OS (HR = 0.85, 95% CI 0.75-0.96) and SSP (HR = 0.67, 95% CI 0.56-0.79) compared to chemotherapy alone.

Conclusions: Discussion

Despite the favorable results obtained, the survival is still poor. In this aspect, within the prognostic factors we can find the age of the patient, the

location of the primary tumor, use of previous therapy with platinum and weight loss greater than 5% during treatment.

Conclusion

The addition of anti-EGFR antibodies to chemotherapy generates significant increases in survival in patients with recurrent or metastatic HNC.

Trichomonas tenax in periodontal patients treated at the University Odontology Clinic in Antofagasta, Chile.

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Objectives: To determine the prevalence of T. tenax in patients with periodontal disease treated in the dental clinic of the University of Antofagasta, through the PCR amplification of the beta tubulin gene.
Methods: A prospective observational study was conducted in 50 patients diagnosed with gingivitis (n = 20) and generalized severe chronic periodontitis (n = 30). The detection of T. tenax was carried out by PCR for amplification of the beta tubulin gene. The association between the protozoan with the development of periodontal disease and the presence of risk factors for the establishing of the parasite were evaluated by the chi-square test and binary logistic regression analysis
Results: 56% of the patients with periodontal diseases presented oral Trichomoniasis, 35% with a diagnosis of gingivitis and 70% with a diagnosis of generalized severe chronic periodontitis. A statistically significant association was observed between the presence of T. tenax and the periodontal diagnosis, as well as with the periodontal screening and recording (PSR).
Conclusions: The research of T. tenax is recommended in patients with periodontitis and that present PSR index greater than 3

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Uncoupled Inflammatory, Cytoskeletal and Proliferative Responses in Senescent Gingival Fibroblasts.

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Objectives: Cellular senescence has been proposed as a critical mechanism to explain the development of age-associated diseases. In the present study we have evaluated whether extensive cell proliferation in vitro may stimulate a senescent phenotype that includes the secretion of inflammatory mediators, changes in the actin cytoskeleton and cessation of cell proliferation.
Methods: Primary cultures of human gingival fibroblasts from 3 young donors were cultured until cellular senescence was achieved. Cells were characterized at early (5-8) and late (35-50) passages to identify changes in cell size (actin staining), proliferation (Ki67/DAPI), p16 protein levels (Western-blot), mitochondrial metabolism (MTS assay) and staining for SA beta-Gal. The secretion of inflammatory mediators was evaluated through an antibody array and ELISA. Matrix remodeling was assessed by a collagen gel contraction assay. Data analysis was performed to identify changes between cultures of the same donor at early and late passages through the Wilcoxon matched-pairs signed-ranks test.
Results: At late passages cells showed an increased cell size, reduced cell proliferation, increased staining for SA-beta Gal, increased p16 protein levels and a decreased collagen remodeling capacity. However, late passage cells did not show significant differences in the secretion of a panel of inflammatory mediators. No changes in mitochondrial metabolism were observed between proliferative and senescent cell cultures.
Conclusions: Continuous cell passage in vitro induces changes in cell proliferation and collagen remodeling that may affect tissue homeostasis. However, this response was not able to develop an inflammatory phenotype

that may explain the development of age-associated diseases in periodontal tissues. These results suggest that proliferative senescence is not associated with the development of an inflammatory phenotype in human gingival fibroblast.

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Virtual Planning of Total Articular Replacement-Orthognathic Surgery: The Last Frontier

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Objectives: Patients with temporomandibular joint pathology and co-existing dentofacial dysmorphosis can be corrected by total joint replacement and orthognathic surgery in 1 operative time, however this requires careful and accurate planning. The aim of this study is to show the results of a virtual planning protocol applied in the preparation of concomitant orthognathic surgery with total joint replacement in order to minimize the preparation and intraoperative times in addition to obtaining predictable results in terms of occlusal and vertical dimensión stabilty.
Methods: Application of the virtual planning protocol in a patient with diagnosis of clase II dentofacial deformitie and advanced bilateral articular osteoarthrois. First, a CT scan of the maxillomandibular region (0.6 mm sections) is acquired and digitalization of the maxillary and mandibular definitive models. The DICOM data are processed to perform the simulated surgery by computer, including the final positioning of the maxilla and mandible. A stereolithic model with the final position is constructed. The model is sent for the design of the prosthesis once is being approved by the surgeon through the internet. Finally, costumed joint prostheses, maxillary surgical cutting guides, intermediate and final splints are manufactured and sent to the surgeon.
Results: The surgical sequence performed was mentoplasty, condylectomy, articular replacement and finally the maxillary Le fort I . Fixation and stability of the glenoid and mandibular component were achieved according to the virtual planning. Occlusion and planned posterior vertical dimension were obtained without any change to the post operative control month
Conclusions: The use of surgical virtual planning decreases significant time in the preparation and surgical time of concomitant temporomandibular and orthognathic prosthesis cases and also increases the accuracy of the combined cases obtaining predictable results in occlusal stability and posterior vertical dimension.

ORAL PRESENTATIONS

Biological, mechanical and adhesive properties of universal adhesives containing zinc/copper-nanoparticles.

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Objectives: To evaluate the effect of addition of zinc-oxide and copper-nanoparticles (ZnO/CuNp) at different concentrations into two universal adhesives, on antimicrobial activity(AMA), cytotoxicity(CTx), ultimate tensile strength(UTS), microhardness(MH), water-sorption(WS) and solubility(SO), in-vitro degree of conversion(DC-v), as well as, microtensile bond strength(μTBS), nanoleakage(NL) and in-situ degree of conversion(DC-s) on sound and caries-affected dentin.
Methods: Six universal adhesives were formulated according to the addition of ZnO/CuNp (0% [control]; 5/0.1 and 5/0.2wt%) in Ambar Universal(AMU) and Prime&Bond Active(PBA). The AMA was evaluated against Streptococcus mutans using agar diffusion assay. For CTx analysis, osteoblast-like cell line SaOS-2 was used. For UTS and MH, specimens were tested after 24h and 28-days. For WS and SO specimens were tested for 28-days. For DC-v, specimens were tested after 24h for micro-Raman spectroscopy. The occlusal enamel of 144 caries-free third molars was removed. After enamel removal, a microbiological caries induction model was applied in 72 of them. Then, the experimental adhesives were applied to sound and caries-affected dentin in etch-and-rinse or self-etch mode. After composite resin build-ups, specimens were longitudinally sectioned to obtain resin–dentine bonded sticks. For μTBS, NL and DC-s, bonded sticks from each tooth were prepared and analyzed after 24h of water storage. Statistical significance was defined in $\alpha = 0.05$.

Results: For AMA and CTx, difference between ZnO/CuNp groups and control were detected. For UTS, MH and DC-v, ZnO/CuNp addition not negatively influenced these properties. For the 28-day WS and SO, significant differences of ZnO/CuNp groups when compared with control were observed. After 24h, ZnO/CuNp did not influence negatively the μTBS and DC-s and decrease the NL, in both adhesives and adhesive strategies, in sound and caries-affected dentin.
Conclusions: The addition of ZnO/Cu Np in the tested concentrations in universal adhesive systems may be an alternative to provide antimicrobial activity and improves the integrity of the hybrid layer, without jeopardizing mechanical properties.

C-Reactive Protein From Gingival Crevicular Fluid: Cardiovascular Risk In Periodontitis

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Objectives: To associate the levels of C reactive protein (CRP) in gingival crevicular fluid (GCF) with the periodontal state and cardiovascular risk in adult chilean women under 45 years of age.
Methods: Quantitative, analytical and cross-sectional study. Forty chilean women who attended the dental clinic of the Faculty of Dentistry, University of Chile, were included between years 2017 and 2018. Volunteers between 18 and 44 years old who presented periodontal health (n = 23) and periodontitis (n = 17) participated in the study. Clinical history and periodontal clinical parameters were registered. Body mass index, blood pressure, glycosylated hemoglobin, lipid profile and serum CRP levels were recorded. GCF samples were obtained to determine CRP levels, which were associated with the periodontal status and cardiovascular risk level. The statistical analysis was carried out with the STATA®12.0 program ($p < 0.05$).
Results: CRP levels from GCF of periodontitis women were statistically higher than CRP levels from GCF of healthy women ($p=0.00$). In addition, a significant association was observed between high levels of CRP in GCF, and having periodontitis ($p=0.03$, CI:1.19-36.31). Patients with crevicular fluid CRP levels ≥ 3 mg / L were 6.48 times more likely to have a high cardiovascular risk ($p=0.04$, CI:1.05-39.66), according to serum CRP levels and adjusted to classic cardiovascular risk factors.
Conclusions: Adult Chilean women under 45 years old who presented periodontitis had higher levels of CRP in GCF, in comparison to healthy controls. There is a significant association between high levels of CRP in the GCF and high cardiovascular risk.

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Challenges for Analysis Of Head And Neck Cancer Mortality Data

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Objectives: To analyze mortality data from head and neck cancer (HNC) in Chilean regions, presenting the challenges for it.
Methods: Secondary analysis of mortality records. Ecological study considering 15 regions as the unit of analysis. Crude and age-standardized mortality rates were calculated for every region and every year with available data. Quality of the data was assessed through cause of death codification analysis. Standardization was done by direct method with the Chilean population of 2014 as a standard (census projections). The annual change rate of the standardized rates was calculated to evaluate change over time. For every step of the analysis, challenges were recorded and discussed
Results: Four main challenges were detected in the process. First, quality of the data was assessed when calculating mortality rates by region and year. In three regions over 15% of data was considered garbage code according to the cause of death. Also, many regions had zero cases which can be corrected by grouping regional data by triennia. Second, for standardization a minimum of 20 cases by strata for stability is required, leaving four regions out. Third, when stratifying by sex, only 9 regions for males and 3 for women were comparable. Finally, joinpoint regression for trend analysis is not possible due to the number of years and minimum breaking points required in time.
Conclusions: Despite availability of mortality data for HCN, analysis need to be planned considering the unit of analysis. The differences in the regional contexts of the country, highlight the need of evaluation for this outcome in each of them. However, many challenges arise so strategies to face these issues are required.

Extracellular nucleotides in muscle-bone crosstalk at the masticatory system

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Objectives: Molecular basis of muscle-bone crosstalk is totally unknown at the masticatory system. We have previously demonstrated that the extracellular ATP (eATP) is a relevant signalling molecule that releases after limb muscles contraction and controls muscle plasticity. Moreover, eATP has been widely related to bone cells activation and differentiation. The aim of this work is to determine if extracellular ATP signalling pathway components are expressed at the masticatory system and if they control muscle plasticity and bone remodelling in pathophysiological conditions.

Methods: In male adult mice, expression of P2Y/P2X nucleotide receptors was assessed in masticatory system. ATP release from masseter muscles evoked by electrical stimulation (ES) was performed. IL-1β/IL-6 expression and release, and its dependence on eATP was addressed. Changes in masseter muscle phenotype and gene expression after soft-diet feeding or botulinum toxin type A (BoNTA) injection was measured. RANKL expression and bone microstructure parameters in mandible condyle were quantitated.

Results: Masticatory muscles (masseter, digastric), as well as mandible and maxilla bones, expressed several P2Y/P2X receptor subtypes. ES of masseter muscles released ATP through pannexin-1 hemichannels, that activated P2Y/P2X receptors increasing expression and secretion of IL-1β/IL-6. A soft diet induced masseter muscle atrophy, that increased basal levels of IL-1β/IL-6, as well as P2Y2 receptor and pannexin 1. Masseter muscle paralysis evoked by BoNTA injection induced muscle atrophy, with a significant bone loss in mandible condyle. An early increase in IL-1β/IL-6 was observed in masseter muscle, as well as an increase in RANKL in mandible condyle, 2d after BoNTA injection.

Conclusions: Masticatory muscles have a functional ATP signalling pathway. Changes in masticatory activity or muscle function, could induce bone remodelling by eATP itself or by myokines (IL-1β/IL-6) released in response to eATP. Unveiling this molecular mechanism could provide insights into the coordinated muscle-bone response to environmental demands in pathophysiological situations.

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GAP EVALUATION OF DIFFERENT RESIN-FILLING TECHNIQUES FOR CLASS-II RESTORATIONS – A MICRO-CT ANALYSIS VALIDATED BY SEM

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Objectives: This study aimed to evaluate gap formation of different resin composite filling techniques in class II restorations, seen by micro-computed tomography scans and scanning electronic microscopy(SEM).
Methods: Standardized class II cavities were prepared in 30 human third-molars(n=6) and analyzed in distal and mesial views. Prime & Bond Universal adhesive(Dentsply) was applied in all teeth according to manufacturers' instructions and randomly divided in 5 groups: G1:SS+HIT(Spectra Smart + Horizontal Incremental Technique);G2:SS+OBL(Spectra Smart + Oblique Incremental Technique);G3: SDR+BFT (Surefil SDR Flow + Bulk Fill Technique);G4:SDR+SS(Surefil SDR Flow placed on the pulpal floors from the mesial and distal boxes from the class II cavity (not yet light-cured), followed by application of conventional composite Spectra Smart and light curing incrementally together with the horizontal technique); and G5: BEZ+BFT (Bulk EZ+Bulk Fill Technique). All light-curing procedures were performed for 20s (High mode, Bluephase Style 20i). Teeth were scanned before and after resin composite application (1st scan–empty tooth; 2nd scan–filled tooth) by micro-computed tomography. Acquired mCT data were imported into a workstation and evaluated with Amira software looking for gaps at mesial and distal margins. Gaps were considered when misadjustments were bigger than 0.06nm according to previous findings. Data were submitted to statistical analysis (1-way ANOVA and LSD post-hoc test). Validation of the mCT analysis was performed by scanning electronic microscopy (SEM).
Results: G5 showed the lowest % of gap formation, statistically similar to G4 ($p=.20$).G4 also showed statistical similarities to G1($p=.41$) and G3($p=.13$).G2 showed the highest percentages of gap formation, statistically similar to G1($p=.10$),but different than the rest of the groups ($p<0.05$).SEM images validated the mCT technique.
Conclusions: Different techniques promoted different percentages of gap formations on class II cavities.The dual resin composite BEZ and the use of SDR non-polymerized plus the use of a horizontal filling technique showed

the best marginal adaptations (less % of gap formation). The mCT technique was validated for visualization of gap formation after being analyzed by SEM. MCT presents the advantage of being a non-destructive technique.

Prevalence Of Non-Nutritive Suction Habits And Occlusal Alterations In Children

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Objectives: To determine the prevalence of non-nutritive sucking habits (NNSH), anterior open bite, excess overjet and posterior cross-bite in children of 3 to 6 years of age in the city of Valdivia, Chile.
Methods: Descriptive cross-sectional study of the prevalence of NNSH and associated occlusal alterations in 345 preschoolers in deciduous dentition stage from the commune of Valdivia, Chile. The diagnosis of malocclusions was carried out by trained examiners between the months of August and October 2017 in educational institutions premises. The data on non-nutritive sucking habits was obtained via a questionnaire directed to the minor's parents. Once the information was obtained, a Google Forms survey was used to input data on a database. It was then analyzed using the R statistical software version 3.4.1. Averages and standard deviation were calculated as dispersion measurements.
Results: A 55.1% prevalence of active or previous NNSH was found, being pacifier usage the most prevalent (39.4%). A 22.3% of the sample held active habits at the moment of the evaluation. The most frequent age of ceasing was at 2 years old, signaling a decrease of these habits as age increased. The most prevalent malocclusion was increased overjet (37.7%), followed by posterior cross-bite (7.8%) and anterior open bite (6.1%). A progressive increment in increased overjet and anterior open bite, in relation to history or active presence of sucking habits was observed.
Conclusions: There is a high prevalence of NNSH among children in the city of Valdivia. The malocclusions studied were observed more frequently in those children with active or previous history of NNSH.

Reasons for Civil Claims in Dentistry in Chile Between 2011-2017.

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Objectives: The aim of this study is to describe reasons for civil claims related to dentistry practice in Chile between 2011 and 2017.
Methods: A descriptive study was conducted on civil claims presented against either dental surgeons or dental clinics using data from 2011 to 2017. These data were extracted from Chile's Judicial branch of the State official website, identified by jurisprudence judgment's coincidence of keywords. Interrater reliability was determined by 50 medical civil claims, resulting in "almost perfect" (kappa 0,962). Data was placed in a spreadsheet (Excel) database and analyzed by statistical means (Stata.15).
Results: Of the 749 judgments that were identified, 62 were selected. Frequencies of dental civil claims between 2006 and 2011were observed, Spearman Rho Correlation was 0,90 (p valor= 0,0056) for judgments, and 0,81 (p valor= 0,0044) for income of claims. The most common allegations involved in civil claims were " Treatment Failure" (20,97%), followed by "Carelessness during treatment" (12,9%) and "Failure to diagnose" (12,9%). The most frequent consequence was "Need to repeat treatment" (25,8%). Finally, in this context, in regards to procedure, Prosthodontics and Endodontics were the specialty with the greatest incidence of reported claims (19,35% both). The primary cause for litigation, categorised by type of harm caused was "Physiological" (87,10%), while "Psychological harm" was the cause for just 12,90% of the civil claims. The defendant was found "faulty in act" in 96,77% of the cases, where 77,42% of these were because of negligence, 11,29% owed to unskilfulness and 8,06% to recklessness. Dolo (committed by means of deceit) was present only in 3,23% in the form of simulated treatment.
Conclusions: The number of civil claims in dental practice showed an upward trajectory in the studied term. The most common reason for a liability claim was "Treatment Failure", with "Need to repeat treatment" as the most reported consequence. Implantology and Endodontics were the specialties with the most reported civil claims.

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Role of Cdk5 in Dental Pain

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Objectives: Dentin-pulp layer is implicated in dental pain although the molecular mechanism is not totally understood. Previously, we reported that Cdk5, an important kinase involved in inflammatory orofacial pain, is activated by inflammation in odontoblast-like MDPC-23 cells and in trigeminal nociceptive neurons, suggesting a role for Cdk5 in dental pain. Here we evaluated the expression and regulation of Cdk5 activity by TNF-α or LPS, two inflammatory mediators involved in dental pain, in differentiated mouse dental cells.
Methods:
Odontoblast activity of differentiated dental pulp cells was evaluated by Alizarin Red and expression and localization of odontoblast markers (DSPP and DMP-1). By Western blot and immunofluorescence we evaluated the expression of Cdk5/p35 and its regulation by TNF-α or LPS in dental pulp cells and in human teeth slices.
Results: We found that differentiated dental pulp cells have increased odontoblast activity and Cdk5/p35 expression and activity. TNF-α or LPS treatment also increased Cdk5/p35 expression and Cdk5 activity in dental pulp cells. Interestingly, we showed for first time expression of Cdk5/p35 and Cdk5-mediated-TRPV1 phosphorylation in odontoblast layer of human teeth section.

Conclusions:
Together our results demonstrate that dental cells express Cdk5/p35, and inflammatory mediators increased Cdk5 activity, suggesting that Cdk5 might be implicated in dental pain.

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Role of microRNAs in immune cells stimulated with Aggregatibacter actinomycetemcomitans

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Objectives: Background: Periodontitis are inflammatory pathologies caused by a subgingival disbiotic biofilm. Aggregatibacter actinomycetemcomitans has been recognized as a pathobiont associated with these dysbioses. In particular, A. actinomycetemcomitans expresses several virulence factors, such as lipopolysaccharide (LPS), which determines its immunogenicity. Although, the presence of different serotypes of A. actinomycetemcomitans are associated with different clinical conditions in periodontitis lesions, it is not clear whether there is any mechanism of post-transcriptional regulation that could determine the differential immune response associated to the different serotypes.
Objectives: To determine the expression levels of miRNA-146a, miRNA-146b and miRNA-155 in human dendritic cells stimulated with the serotypes a, b o c of A. actinomycetemcomitans and to associate these expression levels with the expression levels of Toll-like receptors (TLRs) and the production of pro-inflammatory cytokines.
Methods: Methodology: Monocytes were separated through a Ficoll gradient from peripheral blood samples. These monocytes were differentiated to immature dendritic cells and, subsequently, stimulated with the different serotypes of A. actinomycetemcomitans. Then, the expression levels of miRNA-146a, -146b, -155, TLR2, TLR3, TLR4, TLR5 and TLR7, and the production of the cytokines interleukin (IL)-1β, IL-5, IL-6, IL-10, IL-12, IL-23, interferon (IFN)-γ and tumor necrosis factor (TNF)-α were quantified.
Results: Results: Dendritic cells stimulated with serotype b of A. actinomycetemcomitans expressed higher levels of miRNA-146a, -146b and -155 and reported a significant increase in TLR3 expression levels, compared to cells stimulated with the serotypes a, c or not stimulated. However, no significant correlation was found between secreted levels of cytokines and miRNAs expression levels.
Conclusions: Conclusion: Taken together, these data could allow us to speculate about the possible existence of alternative regulatory signaling pathways mediated by miRNAs after the stimulation of microbial recognition receptors, capable of determining the variability of the immune response to A. actinomycetemcomitans in dendritic cells.

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Schwann cell activation and vascular changes during physiological root resorption

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Objectives: The physiological root resorption (PRR) process in human primary teeth is mainly mediated by the dental follicle of the developing permanent tooth, a process that produces a progressive Wallerian-like axonal degeneration and inflammatory condition of the dental pulp. It has been established that Schwann cells dedifferentiate into repair phenotypes in damaged peripheral nerves, allowing axonal regeneration. The purpose of this study was to characterize changes in Schwann cell phenotypes and vascular components associated with axonal degeneration and inflammatory processes during physiological root resorption in human primary teeth.
Methods: Twenty one canine primary teeth were extracted under clinical indication, fixed in 4% PFA and decalcified with EDTA. Written parental consent and child agreement were requested. Teeth were classified in three different stages, according to root length remnants: early, middle, and advanced. Longitudinal cryosections were obtained and assayed with immunohistochemical procedures, using a panel of markers for nerve fibers (NF, TUBB3), Schwann cells (S100, c-Jun, p75NTR), vascular components (CD31, CD34, vWF, CD105), lymphatic vessels (PDPN) and immunocompetent cells (HLA-DR, CD68, CD15 and CD3). Quantitative analysis was performed on confocal image stacks at different magnifications.
Results: Dental pulp nerves at different PRR stages display axonal degeneration with a progressive degradation of myelin. At the same time, Schwann cells exhibit a significant over-expression of p75NTR and c-Jun. Vascular components were comparatively enlarged, with significant angiogenic activity in association with chronic immune cell infiltration.
Conclusions: Reprogrammation of Schwann cells into repair phenotypes constitutes a robust response to nerve injury during PRR. Vascular changes were prominent in connection with a conspicuous increase of immune-competent cell infiltration and the development of an extensive lymphatic network. These results validate the injury-activated plasticity condition of Schwann cells and increase our understanding of the physiological root resorption process.
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Soluble Neuropilin-1 In Pregnant Women's Gingival Crevicular Fluid With Periodontitis

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Objectives: To assess the presence of soluble Neuropilin-1 (sNRP-1) in gingival crevicular fluid (GCF) of early pregnancy women with distinct severities of periodontitis and its relationship with different periodontal parameters.
Methods: A case-control study was performed. GCF samples were collected from 80 early pregnancy women (11–14 weeks of gestation) with different severities of periodontitis belonging to the Karol Wojtyla health service located in Puente Alto (Santiago, Chile). Quantification of sNRP-1 in GCG was determined by ELISA assay. Full-mouth clinical periodontal parameters such as bleeding on probing (BOP) and periodontal inflamed surface area (PISA) were also recorded. Data was analyzed using descriptive statistics and the relationship between the number of patients sNRP-1 (+) with periodontitis severity and periodontal parameters was determined by Kruskal-Wallis and Mann-Whitney tests, respectively. Finally, the correlation between sNRP-1 levels and periodontal parameters was estimated through Spearman test.
Results: A greater amount of sNRP-1 was observed in GCF from pregnant women with severe (41.67%) and moderate (41.17%) periodontitis compared with those with mild periodontitis (18.8%). sNRP-1 (+) pregnant women had increased BOP (76,5% v/s 57%; p=0.0071) and PISA (1199,5 mm2 v/s 880,2 mm2; P = 0.0282) compared with sNRP-1 (-) pregnant women. However, no difference was observed in probing deep and clinical attachment loss. A positive correlation of 0.29 (p=0.0081) and 0.23 (p=0.0398) was observed between sNRP-1 levels with BOP and PISA, respectively.
Conclusions: The present findings suggest that sNRP-1 may have a role in the pathogenesis of periodontitis during pregnancy favoring the inflammatory and angiogenic processes that can be exacerbated during this period.

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Untreated caries: an indicator of active damage by caries

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Objectives: To estimate the active damage by caries in children from 1 to 6 years old in the Metropolitan Region of Chile.
Methods: Cross-sectional study in 2,275 children from 1 to 6 years old in the Metropolitan Region. This is a secondary analysis with the data of the FONIS project SA13I20130.
Untreated caries (UC) indicator was developed adding the component d (decayed) and m (missing) of the dmft index and the component D of the DMFT index to determine the active damage by caries.
A descriptive univariate analysis of the UC indicator was applied stratifying by age, using measurements of central tendency and position. The prevalence of UC was described by percentages.
Results: The global mean of UC was 1.44 (SD 2.68) and the prevalence for all ages combined was 36.05%. Per age, a tendency to increase was observed. The UC average starts at 0.08 (SD 0.44) decayed teeth (d) in children of 1 year old and 1.82 (SD 3.03) teeth, at 6 years old. At the age of 3 years old, was observed the largest increase in UC indicator (mean 1.46 and SD 2.64).
The prevalence of UC, showed the greatest proportion in children of 4 (42.11%) and 6 years old (42.17%).
Conclusions: The UC indicator, allows to estimate the active damage by caries at the time of evaluation, without considering the filled teeth that suffered the pathology but not cause disability in children.
The incorporation of this indicator, will allow the understanding of this pathology from the perspective of active damage, the same as chronic diseases are evaluated in general and in accordance with international suggestions for the measurement of burden disease related to caries.

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