

XXVIII Dental Meeting of Piracicaba
XIII International Dental Meeting
VI Uniodonto Dental Meeting



**XXVIII JORNADA
ODONTOLÓGICA DE
PIRACICABA**

XIII CONGRESSO INTERNACIONAL DE ODONTOLOGIA



**SEXTO
CONGRESSO
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A MOLECULAR ANALYSIS OF CANDIDA SPECIES AND CORTISOL IN TEETH WITH IRREVERSIBLE PULPITIS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Deep carious lesions can result in an increase in the density of blood vessels, pulpal inflammation and irreversible pulpitis (IP). Patients with pulpal inflammation and spontaneous pain may be compromised by sleep deprivation and quality of life. Cortisol is an accurate marker that may present altered levels due to these conditions. Yeasts of the genus *Candida* are present in the oral cavity and root canals. This study aimed to evaluate the presence of fungal species present by molecular methods and monitor cortisol in IP.

Method: Ten samples of caries (C1), initial (C2), post mechanical chemical preparation (C3) and post intracanal medication (C4) were collected from patients with IP. In addition, cortisol levels were analyzed using the ELISA test. The data were tabulated and a statistical analysis was performed with a significance level of 5% ($p < 0.05$). **Results:** The results observed that fungi were detected in 100% of samples C1 and C2 through Nested PCR. The most common species found in C1 were *C. glabrata*, *C. tropicalis* and *C. dubliniensis*. The most prevalent species in C2 were *C. tropicalis* and *C. dubliniensis* and in C3 were *C. tropicalis*, *C. dubliniensis* and *C. albicans*. In C4, *C. dubliniensis* was the most frequently detected fungus, followed by *C. albicans*, *C. tropicalis* and *C. glabrata*. Cortisol levels in C2 samples were higher ($2.96 \pm 1.18 \mu\text{g/dL}$) when compared between C3 and C4, which did not reveal statistical difference between groups.

Conclusion: It was concluded that teeth with PI have a diversified microbiota (Supported by FAPESP 2015/23479-5; 2021/13871-6, 2019/19300-0, 2019/10755-5, 2017/25242-8; CNPq 303852/2019-4, 421801/2021-2; CAPES 001).

A SCOPING REVIEW ABOUT THE EVALUATION OF ORAL HEALTH INFORMATION AVAILABLE ON THE INTERNET: PARTIAL RESULTS

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Aim: This scoping review sought to know, analyze and understand the characteristics of the current scientific production that evaluates the information found on the internet about oral health.

Method: A search was carried out in the Lilacs, Scielo (accessed by the Virtual Health Library - BVS), PubMed and Web of Science databases. All scientific articles that evaluated information published online on oral health were included, regardless of language and year of publication. Literature review studies, reflections, letters to the editor, editorials, books, book chapters, monographs, dissertations, theses and abstracts published in conference proceedings were excluded. Of the 2036 studies located, 129 were duplicates and 78 were selected for full reading.

Results: So far, 16 articles were included, published between 2013 and 2022, with 37.50% published in 2022 and 18.75% in 2020, 31.25% carried out in Brazil and 31.25% in Turkey. The most evaluated Dentistry topics were orthodontics (18.75%), oral cancer (12.50%) and orofacial functions (12.50%). Among them, 75.00% ($n=12$) evaluated the quality, 43.75% ($n=7$) the reliability and 37.50% ($n=6$) the readability of the information, 87.50% of the studies used instruments validated, 53.33% of the studies evaluated information published in text form and 33.33% in video form.

Conclusion: It is concluded that current scientific production has been concerned with assessing the quality, reliability and readability of online information on Dentistry, especially in Brazil.

ACCURACY AND REPRODUCIBILITY OF CEPHALOMETRIC LANDMARK IDENTIFICATION BY ARTIFICIAL INTELLIGENCE SOFTWARE PROGRAMS

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Aim: To assess the accuracy and reproducibility of the identification of cephalometric landmarks using Cefbot and WebCeph artificial intelligence software programs and human examiners, adopting the identification of cephalometric landmarks directly on dry skulls as a reference standard.

Method: Lateral cephalometric telerradiographs of ten skulls were obtained with and without metallic spheres located at ten cephalometric landmarks. The images with spheres were used to obtain the reference standard; the images without spheres were used to identify the points by the software programs and by ten examiners. The X and Y coordinate values of the cephalometric points identified by the software programs, examiners and the reference standard images were compared using one-way Analysis of Variance and Dunnett's post-hoc test. For reproducibility, Intraclass Correlation Coefficient was used ($\alpha=5\%$).

Results: CefBot and the examiners showed no significant differences from the reference standard on both axes ($p > 0.05$). WebCeph showed significant difference ($p < 0.05$) in four and six points evaluated on the x and y-axis, respectively. Cefbot and examiners reproducibility was excellent (values greater than 0.997). WebCeph had good reproducibility (0.786 for the x-axis and 0.816 for the y-axis).

Conclusion: With similar results to the human examiners, CefBot showed excellent reliability and is a potential auxiliary tool for determining cephalometric landmarks, while WebCeph showed inconsistencies that suggest caution in its use.

ACTIVE LEARNING METHOD IN RENAL PHYSIOLOGY: STUDENT'S PERCEPTION

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Aim: The aim of this study was to evaluate the student's perception about the contribution of the use of different active learning methodologies for their learning in renal physiology.

Method: Questionnaires submitted to 71 students regularly Registered in the 2nd semester of the Dentistry course at FOP/UNICAMP, at the end of the 2022 semester, on the following methodologies used in Renal Physiology classes were evaluated: educational games type "puzzle" (2 games - J1 and J2), interactive lessons on the Lt platform (LT) and individual tests on the Socrative app (SO). The questionnaire assessed whether the listed strategies were useful for learning using a scale from 1 to 10, where 1 = "was not useful for learning" and 10 = "was necessary for learning".

Results: The percentage of students who scored "10", "9" and "8" on the scale used for J1, J2, LT and SO was 97.18% and 95.65%, 95.72% and 87.32%, respectively. The average ($\pm$ SD) of the responses obtained for the different strategies was 9.44; 9.48; 9.43 and 9.04, respectively.

Conclusion: We concluded that the different strategies used to teach Renal Physiology helped students to improve their learning in the discipline.

ACTIVE METHODOLOGY IN TEACHING CARDIAC PHYSIOLOGY INCREASES LEARNING AND REDUCES TEST STRESS

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Aim: Active methodology (AM) can increase student interest and learning. The aim of this study was to test the hypothesis that AM could increase students' confidence in their learning, improving performance and reducing test stress.

Method: Two classes of the 1st year of the Dentistry course at FOP - UNICAMP participated in the study, after approval by the institutional Ethics Committee. For AM group, the topic of cardiac physiology was taught combining, in 2 classes: a reduced theoretical lecture, formative assessments, educational game and group discussion. Traditional method (TM) taught to the other group consisted of 2 theoretical lectures. In the 1st class of the school semester, saliva was collected to measure basal salivary concentration of the stress biomarker alpha-amylase, and a new sample was obtained immediately before test 1. Test 1 was applied in class 3, and immediately after, each group had a class with the other teaching method. In class 4, test 2 was applied, after both groups were taught with AM and TM.

Results: The group AM had higher score (8.89 ± 0.99 ; $n = 52$) in test 1, compared to the TM (6.96 ± 2.00 , $n = 51$; $p < 0.05$), without difference in test 2 (8.94 ± 2.06 ; 9.02 ± 2.00 ; $p > 0.05$). No difference was observed in basal salivary concentration of α -amylase between groups. Before test 1, there was an increase in alpha amylase, in relation to the basal level (68.8 ± 4.58 and 37.8 ± 3.07 U/mL; $p < 0.05$), in TM group, without change in the AM (33.5 ± 3.15 and 32.8 ± 2.89 ; $p > 0.05$).

Conclusion: The results obtained show that the AM used promoted increased learning and reduced test stress, compared to traditional methodology.

ACUPUNCTURE IN THE PUBLIC SERVICE

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Aim: The purpose of this study was to verify the effectiveness of acupuncture for several clinical conditions in the public health service.

Method: This study used seventy-two medical records from patients who were attended in CRAB/CECAP in Piracicaba. The main complaints of the patients were evaluated as well sex, pain classification using the verbal rating scale (VRS), observation of the tongue (color change and presence of coating), and pulse palpation, which were used to assess the most affected San Jiao (SJ). The patients' energy status was classified by the acupuncturist as deficient or excessive in the first and last treatment sessions. Chi-squared test, Fisher's exact test, and binomial proportion test were used for comparisons of data.

Results: Results showed significant analgesia by patients at the end of treatment ($p < 0.01$). At the end of treatment, the tongue showed a greater amount of coating in patients with a deficient energy state ($p = 0.02$) than in those with excess energy ($p = 0.70$); however, there was no difference in the tongue color ($p > 0.05$) between both patient groups. Pulse analysis showed an initial difference according to energy status, with reduced pulse in a deficiency state ($p < 0.05$), and balanced pulse at the end of the treatment ($p = 0.48$).

Conclusion: With this study it was possible to conclude that acupuncture is a therapeutic option for pain control and improved energetic state.

ADAPTATION TO THE UNIVERSITY: EFFECT OF SELF-REGULATED LEARNING WORKSHOPS IN REMOTETEACHING, IN A DENTISTRY COURSE

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Aim: In the first year in the university, many students may have difficulties in adapting because not having habit of daily study and skills to face the difficulties generated by the new academic, personal and economic demands. And, during the COVID-19 pandemic, emergency remote teaching brought new challenges for these students. In this context, the UNICAMP Student Support Service was asked to carry out online, for the Dentistry course, self-regulated learning workshops on routine and academic demands, offered in person, in previous years in main campus, as one of the strategies used to help incoming students adapt. The objective of this work was to evaluate the students' perception of these workshops, upon Ethics Committee of FOP approval.

Method: The workshops (2h) were included in the schedule of a basic discipline of the Dentistry course, and included oral presentations and discussions on the themes: talking about adapting to university, defining academic objectives, study strategies and time management in academic life. Students were asked to answer if the workshops were useful for organizing study and adapting to the routine of classes and activities of the undergraduate course, indicating (1 to 5): 1= not useful and 5=necessary; justifying their answer".

Results: Of the 66 students who signed the consent form, 65% found them helpful, 17% not helpful, and 18% did not participate. According to students, the workshops helped in the organization of studies, development of a study method, socio-emotional control and academic socialization.

Conclusion: We concluded that the workshops helped most of the participants in their adaptation to the university.

ADDITION OF CALCIUM POLYPHOSPHATE PARTICLES IN LOW CONCENTRATION BLEACHING GELS AND THEIR EFFECTS ON THE DENTAL SURFACE

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Aim: To evaluate the efficacy of low concentration experimental gels based on CP10% and HP 6% containing sub-microparticles of calcium polyphosphate (CaPP) and their effects on the properties of dental enamel.

Method: After preparation, two hundred and sixteen samples were divided for microhardness and color analyses. The samples were allocated into nine groups (n=12): G1: CP-commercial (Whiteness Perfect, FGM); G2: CP- experimental; G3: CP-CaPP-0.5%; G4: CP-CaPP-1.5%; G5: HP-commercial (Potenza Bianco – PHS); G6: HP- experimental; G7: HP-CaPP-0.5%; G8: HP-CaPP-1.5%; G9: Control (artificial saliva). The pH analysis of the gels, color analysis and KHN were performed before and after 14 days. In addition, Scanning Electron Microscopy (SEM) and Energy-dispersive X-ray spectroscopy (EDX) analyzes were performed. Linear mixed models (LML) for repeated measures over time were used to analyze the SMH. The ΔE , ΔE_{00} and ΔWID data were analyzed by generalized linear models (GLM), considering the group effect. The EDX data were evaluated using one-way ANOVA and Tukey's test, considering $\alpha=0.05$.

Results: The bleaching effectiveness was similar among all the groups, except in the control group ($p \leq 0.05$). The groups G1, G2, G6 and G7 had significantly lower hardness values than the control group ($p < 0.05$), while the groups G3, G4, G5 and G8 did not differ from the control group after the two weeks treatment ($p > 0.05$). The G1 and G2 showed significantly lower mean Ca:P ratio than the control and the G7 groups ($p < 0.05$).

Conclusion: The incorporation of CaPP was able to maintain enamel hardness, without interfering with the whitening efficacy.

ADHESION BETWEEN RESILIENT DENTURE LINING MATERIAL AND CAD/CAM DENTURE BASE RESIN: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Aim: This study evaluated the bond strength between resilient denture lining material and CAD-CAM denture base resin (milled and 3D Printed) compared with conventional resin.

Method: Electronic databases (PubMed/MEDLINE, Scopus, and Web of Science) were independently searched by 4 researchers for relevant studies published up to April 2023. The population, intervention, comparison, and outcome (PICO) question was: "Which conventional and CAD-CAM (milled and 3D Printed) denture base resin promotes greater bond strength when associated with resilient denture lining material?" A meta-analysis was performed based on bond strength values (mean and standard deviation) between denture base resins and resilient denture lining material, with 95% confidence intervals.

Results: Five in vitro studies were included in the analysis. In terms of bond strength, no difference between conventional and milled denture base resin ($-0.99 [-2.17 \text{ to } 0.20]$; $P=0.10$) was noted, with superiority of conventional resin compared to 3D printed ($3.03 [2.40 \text{ to } 3.66]$; $P=<0.01$), when relined with soft materials. Milled denture base resin was superior to the conventional one ($-0.85 [-1.33 \text{ to } -0.38]$; $P=0.0004$), with no

difference between 3D printed and conventional (0.18 [-4.23 to 4.59]; $P=0.94$), for rigid liners. No difference was observed between silicone and resin-based resilient denture lining for conventional denture base relining (-2.71 [-9.15 to 3.72]; $P=0.41$).

Conclusion: The bond strength between the 3D printed denture base and resilient denture lining material was less effective than the milled resin, regardless of the consistency of the resilient denture lining material.

ADVANCED DIGITAL PLANNING APPROACH USING 3D-PRINTED MOCK-UP: A CASE REPORT

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Aim: A diagnostic mock-up is a key tool that allows a preview outcome of the esthetic restoration. With recent developments in CAD-CAM technology, it is important to understand the pros and cons of the chairside digital dentistry and materials. The aim of this case report is to describe in detail the use of a 3D printed mock-up polymer-based material for an esthetic treatment plan with an exclusively digital workflow.

Method: Case report: A 45-years-old female patient presented concern about her esthetic appearance and color of anterior incisors. After conclusive diagnosis, the realization of ceramic veneers from upper arch premolar to premolar was planned. For preview visualization of the treatment plan, intraoral scanner was used to obtain 3D images and to allow the construction of the digital smile design. Next, the template STL file was exported to a 3D printer and the mock-up was produced after 25 minutes with 0.6 mm in A3 colored resin. The mock-up was tried on and approved by the patient. In the same appointment, teeth were prepared for laminate veneers and scanned again. As a result, the printed mock-up showed to be predictable and reliable for the final restoration.

Results:

Conclusion: Therefore, the ease, speed, and reduced costs derived from the digital workflow, in conjunction with the accuracy of the mock-up, make the procedure highly efficient and recommendable.

AESTHETIC CROWN LENGTHENING: IMPACT ON QUALITY OF LIFE AND SELF-ESTEEM

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Aim: The gummy smile can present different etiological factors and promote a disharmonious smile, bringing aesthetic dissatisfaction to the patient. This condition can be corrected by periodontal procedures associated or not with restorative procedures and are considered one of the most common in clinical practice. Thus, the objective of this study was to evaluate, through specific questionnaires, possible changes in the self-esteem and self-confidence of patients after performing aesthetic crown lengthening surgery (ACE) to correct a gummy smile.

Method: For this study, 18 patients were selected to undergo CEA in the anterior region of the maxilla. Before the surgery, two questionnaires were applied, OHIP-14/Brazil and the Rosenberg Self-Esteem Scale-UNIFESP/EPM. One month after surgery, the questionnaires were applied again. In all surgeries the same clinical protocol was followed: Internal bevel incisions were performed to remove excess gingival tissue. When necessary, a flap was opened, always preserving the papillae, for osteotomy in order to reestablish the biological width.

Results: The Rosenberg Self-Esteem Scale did not reveal a statistically significant difference in the patients' self-esteem after the ACE ($p > 0.05$). On the other hand, a statistically significant reduction could be observed in the OHIP-14/Brazil questionnaire score after surgery ($p = 0.041$), revealing an increase in the patient's quality of life. **Conclusion:** It can be concluded that the gummy smile can influence the quality of life of the patients, and the ACE surgery is capable of increasing or restoring their self-confidence.

ANATOMICAL CHARACTERISTICS OF THE LINGUAL FORAMINA IN DRIED HUMAN MANDIBLES IN A BRAZILIAN SUBPOPULATION

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Aim: The aim of this study was to describe the incidence, the number, and the position of lingual foramina in dry human mandibles from a Brazilian subpopulation.

Method: 80 dried human mandibles, both sexes, aged between 18 and 80 years were used for the analysis of qualitative parameters of the lingual foramina. The parameters were: absence or presence of the lingual foramina considering the side (right and left); when the lingual foramina was present, it was evaluated regarding the position and the number on each side. The values obtained were tabulated for descriptive statistical analysis.

Results: The qualitative analysis showed that of the 80 evaluated mandibles, 3 (3.75%) did not present the lingual foramina and 77 (96.25%) presented the lingual foramina. Of the 77 mandibles that had a lingual foramina, 40 (51.95%) had only one lingual foramina, 28 (36.36%) had two lingual foramina, 7 (9.09%) had three lingual foramina, 1 (1, 3%) had four lingual foramina and 1 (1.3%) had five lingual foramina.

Conclusion: In the sample used in this study, the lingual foramina is frequent and the positions varied considerably. Therefore, it is an

important bone accident to be considered before performing a surgical procedure in the anterior region of the mandible. Funding: PIBIC/CNPq

ANTIBIOTIC SUSCEPTIBILITY OF STREPTOCOCCUS SANGUINIS STRAINS ISOLATED FROM THE ORAL CAVITY AND THE BLOODSTREAM

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Aim: Streptococcus sanguinis is an abundant species of the oral cavity, which is commonly associated with infective endocarditis (IE). Antibiotic resistance is a major concern for controlling IE, but profiles of antibiotic resistance of S. sanguinis is unknown. This study aimed to analyze the susceptibility of a public collection of S. sanguinis strains isolated from the oral cavity or from the bloodstream to antibiotics applied in prevention and/or treatment of IE.

Method: The minimum inhibitory concentration (MIC) of penicillin (PG), amoxicillin (AM), vancomycin (VC), dalbavancin (DB), daptomycin (DT), erythromycin (ER), doxycycline (DO) were determined in seven strains isolated from the oral cavity and in two strains isolated from the bloodstream. Briefly, BHI medium with serially diluted antibiotic was inoculated with adjusted numbers of cells, and incubated during 24h (37°C, 10% CO₂). Non-inoculated medium and medium without antibiotic were used as controls. The MIC was defined as the lowest antibiotic concentration showing no detectable growth.

Results: Minimum and maximum MICs (µg/ml) found for PG (0.12 - 0.58), AM (0.19 - .58), VC (1.17 - 2.34), DB (0.07 - 0.58), DT (18.75 - 37.60), ER (0.07 - 2.34), and DO (0.29 - 4.68) indicated high diversity in antibiotic susceptibility among strains. One blood strain showed the highest MIC values for PG, AM, ER, DP, DB, VC as compared to other strains, indicating multi-drug resistance.

Conclusion: These data show a diversity in S. sanguinis susceptibility to antibiotics, and identify a multi-drug resistant strain isolated from the bloodstream. FAPESP (2021/13074-9; 2022/16831-8) and CNPq (303896/2022-1).

ANTIMICROBIAL ACTION OF CHEMICAL AUXILIARY SUBSTANCES IN ENDODONTICS

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Aim: The aim of this study was to evaluate the antimicrobial action of auxiliary chemical substances through the double layer agar diffusion method.

Method: The antimicrobial action of 2% chlorhexidine gel (2%CHX), 2.5% sodium hypochlorite (2.5%NaOCl), Otosporin (OTO), Otomixyn (OTM) and saline solution (SS)- control group, was evaluated against Enterococcus faecalis and Candida albicans. After solidification of the culture media containing the inoculum, sterile stainless- steel cylinders were placed on the agar surface and filled with 0.2 mL of the substances to be tested. The tests were performed in triplicate. The zones of inhibition of microbial growth were measured after the incubation period of 24-48 h in the incubator at 37°C.

Results: The results of the antimicrobial effects of the medicaments could be ranked from strongest to weakest as follows: 2%CHX, 2.5%NaOCl, OTM, OTO and SS against Enterococcus faecalis. 2.5%NaOCl, 2%CHX, OTM, OTO and SS against Candida albicans.

Conclusion: It was concluded that 2% chlorhexidine gel and 2.5% sodium hypochlorite have greater antimicrobial action compared to Otosporin and Otomixyn against the tested species. (Supported by FAPESP 2015/23479-5, 2021/13871-6; CNPq 303852/2019-4, 421801/2021-2; PIBIC-EM/ UNICAMP; CAPES 001).

ANTIMICROBIAL PHOTODYNAMIC THERAPY WITH METHYLENE BLUE/POTASSIUM IODIDE ON BIOFILM OF EARLY COLONIZING MICROORGANISMS

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Aim: This study aimed to evaluate the antimicrobial effect of antimicrobial photodynamic therapy (aPDT) mediated by methylene blue (MB) associated with potassium iodide (KI) and irradiated by laser light ($\lambda=660$ nm) in multispecies biofilms of S. gordonii, S. oralis, S. sanguinis, S. salivarius, and A. naeslundii.

Method: After reactivation of the microorganisms, multispecies biofilms of the initial colonizers were cultured on standardized blocks of bovine enamel after formation of acquired pellicles. Then, they were divided into 5 groups for treatment, in triplicate (n=9): negative control (C, NaCl 0.9%), positive control (CX, chlorhexidine 0.2%), a photosensitizer (P, methylene blue 0.01% associated with 25 mM potassium iodide), laser (L, 100 mW, 18J, 180 s, 200 J/cm²) and photodynamic therapy (LP, 0.01% methylene blue associated with 25 mM potassium iodide + 100 mW, 18J, 180 s, 200 J/cm²). The response variable was the count of colony-forming units (CFU/mL) in a selective medium and the data were analyzed using Kruskal-Wallis and Dunn's posthoc tests ($\alpha = 0.05$).

Results: The results showed that the association of KI with MB in aPDT applied on multispecies biofilms of early colonizers was effective. LP group reduced the counts of microorganisms without statistical difference from the positive control, although it statistically differed from all

other groups ($p < 0.001$).

Conclusion: It is concluded that antimicrobial photodynamic therapy mediated by methylene blue in association with potassium iodide is effective in controlling multispecies biofilms of early colonizers.

APPLICATIONS OF ETHYL CYANOACRYLATE FOR BONE REPAIR: INTEGRATIVE LITERATURE REVIEW

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Aim: To elucidate the use of ethyl cyanoacrylate for bone repair, based on current literature.

Method: an integrative literature review was conducted. The methodology and conduct of this review followed the steps suggested by PRISMA. Electronic search engines, including PubMed, Embase, Web of Science, Scopus and the Cochrane Library, were used, replicating the following search strategy: ("cyanoacrylates" AND "Bone" AND "dentistry" OR "Implants"). Inclusion criteria were the use of ethyl cyanoacrylate or cyanoacrylate ester in a biomedical context for bone repair. No filters were used for year or language of publication of the results.

Results: After removal of duplicates, 97 articles were retrieved, of which 24 met the inclusion criteria of our search, with temporal variations from 1973 to the present year. The literature uses divergent dosages, application methods, and analysis methodologies that make quantitative data analysis impossible.

Conclusion: Therefore, the use of ethyl cyanoacrylate-based compounds is controversial. However, due to its accessibility, low cost, rapid polymerization, and proven biocompatibility to aid in wound healing and bone cells, new in vivo research should be conducted for a better understanding of the potential use of this polymer in dentistry and orthopedics.

ARCHITECTURE OF THE TEMPORAL MUSCLE FIBERS OF WISTAR RATS SUBMITTED TO THE TOOTH EXTRACTION - STUDY BY PCSA ANALYSIS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to describe the architecture of the temporal muscle fibers of Wistar rats in the condition of dental surgery using the physiological cross-sectional area of the muscle (PCSA) analysis.

Method: Eight male rats, Wistar lineage, 2 months old were used. The rats were randomly distributed in different groups for the experiments, and for the control group ($n=4$) the normal dentition was maintained; for the extraction group ($n=4$) the upper incisor tooth (right side) was extracted. Sample euthanasia occurred on the 28th day after tooth extraction. To determine the architecture of the muscle fibers of the temporal muscle, two critical structural determinants of muscle function were used: the length of individual muscle fibers (Lf) and the PCSA. Statistical analysis of the data obtained was performed. The non-parametric Mann-Whitney U test (two-tailed) was performed to verify whether there was a difference in this parameter between groups (control vs experimental) on each side. The significance level $p < 0.05$ was considered.

Results: For right side and for the left side statistically significant differences were observed (for the right side: $P = 0.0286$; for the left side: $P = 0.0286$). The control group had higher absolute PCSA values than the experimental group on both sides.

Conclusion: The extraction of the upper right incisor caused alteration in the architectural arrangement of the studied muscle fibers, evidenced by the morphological changes identified in the group of fibers of the temporal muscle, which acts specifically in the function of the incisors in the chewing cycle of the Wistar rat. Funding: PIBIC/CNPq

ASSESSMENT OF THE MANDIBULAR ANGLE IN PATIENTS WITH DIFFERENT SKELETAL PATTERNS OF DEVELOPMENT: A CBCT STUDY

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Aim: The present study aimed to evaluate the influence of patient characteristics, such as sex, skeletal malocclusion (Class I, Class II, and Class III), and facial type (brachycephalic, mesocephalic, and dolichocephalic) on the height, width, thickness, and volume of the mandibular angle using cone-beam computed tomography (CBCT) scans.

Method: A total of 298 CBCT scans were evaluated, 144 males and 154 females, classified according to developmental skeletal patterns (skeletal malocclusion and facial type). The width, height, and thickness of the mandibular angle were performed in OnDemand 3D software. The volumes of the mandibular angle were obtained with ITK-SNAP software. Intraclass correlation coefficient and multiway ANOVA with Tukey post-hoc test were applied at 5% significance level.

Results: The intra- and interexaminer agreements were good to excellent for linear measurements (0.876 – 0.999) and excellent for volume assessment (0.938 – 0.958). Sex significantly influenced all variables analyzed (height, width, thickness, and volume of the mandible angle).

($p < 0.05$), in which male individuals showed higher values than females. Skeletal malocclusion and facial type factors influenced only the width and height variables ($p < 0.05$), with Class III and dolichocephalic patients, in general, showing greater values than the other types of malocclusion and facial types.

Conclusion: Variations in craniofacial growth considering different skeletal patterns influenced the width and height of the mandibular angle. Furthermore, the sex factor influenced all the variables investigated.

ASSOCIATION BETWEEN FREE ENERGY OF AXIN2 GENE SEQUENCES AND RELATIVE SIZE OF POSTERIOR TEETH OF PLACENTAL MAMMALS

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Aim: To identify possible regions of the Axin2 gene responsible for dentition variation in placental mammals.

Method: Mesiodistal and buccolingual measurements of the last premolar, first, second and third molar of 34 species of placental mammals were taken from the study by Jara-Espejo et. al., 2020. Axin2 gene sequences from each species matching the first 2 exons of the gene in humans were obtained from GenBank, Ensembl and USCS Genome Browser Gateway. They were aligned with the MAFFT software and scanned from 5' to 3' using sliding windows of 30, 36, 40, 46, 50, 56 and 60 bp, with a difference of 1 bp. Spearman correlations were performed with free energy data and proportions between posterior teeth. Regions in the gene were selected where the absolute value of correlation was greater than 0.45, p value < 0.01 and standard deviation of the free energy value > 6 .

Results: Twenty six sequences were selected, corresponding to 8 regions in human Axin2 gene. Twenty four of them are found in Intron 1, and two, in Exon 2. The most significant correlation values were found for ratios involving premolars and buccolingual dimensions. Correlations between free energy and relative size of molars showed negative values, while that of premolars showed positive. Two sequences, in intron 1, adopted a high number of species with G-quadruplex.

Conclusion: The free energy of several sequences located in Intron 1 of the Axin2 gene was correlated with mesiodistal and buccolingual dimensions of posterior teeth. These results suggest that variations in mRNA secondary structure in Intron 1 of this gene contributed to the diversification of dental phenotype in placental mammals.

ASSOCIATION BETWEEN RS1126478 GENETIC POLYMORPHISM IN THE LTF GENE AND GRADE C PERIODONTITIS IN THE BRAZILIAN POPULATION

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Aim: The single nucleotide polymorphism (SNP) rs1126478 located in LTF gene, responsible for human lactoferrin protein expression, has been associated with an increased risk of periodontitis development in certain populations. Since this SNP has not been validated in the Brazilian population, this study aimed to investigate whether the association between rs1126478 SNP in LTF gene and Grade C Periodontitis could be replicated among Brazilians. **Method:** Healthy ($n=191$) and Grade C Periodontitis patients ($n=199$) who fitted inclusion criteria for this research were selected. Both groups had to rinse 3% Dextrose solution to collect oral epithelial cells samples. Then, the genomic DNA was extracted, purified and measured by spectrophotometry in Nanodrop 2000 (ThermoScientific). Subsequently, genotyping was determined by real-time PCR using the Taqman® probe system. The genotypes distribution was considered by the deviation in relation to the Hardy-Weinberg equilibrium and, finally, the allele and genotype frequencies between the groups were evaluated by the chi-square test. Statistical results were analyzed considering a significance level of 5% (p value ≤ 0.05).

Results: The altered C allele presented a higher allele frequency in PerioC population in comparison to SP group (55,93% e 45,05%, respectively, $p=0,008$). The genotypes containing the altered allele (TT/TC) were also more recurrent in PerioC population ($p=0,005$).

Conclusion: This study demonstrated that rs1126478 may be associated with an increased development risk of Grade C Periodontitis in the Brazilian population.

ASSOCIATION OF FUSOBACTERIUM WITH PRO-INFLAMMATORY CYTOKINES IN PERIAPICAL LESIONS JULIANA DELATORRE BRONZATO; MARIA EUNICE DAVIDIAN DA SILVA; BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES

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Aim: The objective of this study was to verify the prevalence of *F. nucleatum* in periapical lesions and to analyze the levels of pro-inflammatory cytokines such as interleukin 1- α (IL1- α), interleukin 1- β (IL1- β), and tumor necrosis factor- α (TNF- α).

Method: Patients with periapical lesions of endodontic origin were indicated for endodontic microsurgery, where the periapical lesion was collected ($n=32$). The presence of *F. nucleatum* was analyzed using Nested-PCR. The levels of pro-inflammatory cytokines were measured through Enzyme-Linked Immunosorbent Assay. The normality of the data was checked using the Shapiro-Wilk test. Mann-Whitney test was applied to compare the data on pro-inflammatory cytokines in periapical lesions with the presence and absence of *F. nucleatum*. A significance level of 5% was adopted.

Results: F. nucleatum was present in 22/32 periapical lesions. The levels of IL1- α , IL1- β , and TNF- α were significantly different in lesions with the presence and absence of F. nucleatum ($p < 0.05$). The levels of cytokines were higher when F. nucleatum was detected.

Conclusion: It was concluded that periapical lesions of endodontic origin are composed of bacteria and pro-inflammatory cytokines.

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BIOMECHANICS OF DEHISCENCE AND FENESTRATION FORMATION IN HUMAN ALVEOLAR BONE –STUDY BY FINITE ELEMENT METHOD

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Aim: The aim of this study was to test the hypothesis that functional masticatory forces, parafunctional and orthodontic forces can act as a predictive factor for the appearance of dehiscences and fenestrations in the alveolar bone of the upper central incisor and upper canine teeth using the finite element method.

Method: The CT scan was segmented in the software MIMICS Academic Research v18 (Materialise, Leuven, Belgium). The 3D reconstruction was used to construct a finite element model. The software Ansys Academic v17.2 (Ansys Inc., Cannonsburg, USA) was used for computational simulation using the finite element method where loads of a functional mastication and parafunctional load were applied to the incisal edge of the upper right central incisor and upper right canine. In addition, an orthodontic load on the buccal surface of the same teeth was applied. The von Mises equivalent stresses and principal stresses of the buccal bone lamina regions of the teeth in question were obtained and used for evaluation.

Results: The actions of orthodontic, functional and parafunctional forces generated different degrees of magnitude of stress in the buccal bone lamina in all analyzed regions, causing biomechanical variations in the levels of deformation.

Conclusion: In conclusion the difference of stresses obtained biomechanically may predispose the formation of dehiscence or fenestration in the alveolar bone. Funding: PIBIC/CNPq

BONE MICROARCHITECTURE OF FORCE TRAJECTORIES OF THE HUMAN MANDIBLE

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Aim: The aim of this study was to describe morphometric parameters of the bone microarchitecture of the force trajectories of the human mandible.

Method: Ten mandible CT scans were used. The Mimics 18.0 software (Materialise, NV, Belgium) was used to perform the image segmentation of each CT scan. The segmentation was defined by evaluating a threshold to obtain voxels according to the anatomical components to be evaluated in the regions corresponding to the mandible force trajectories in humans. In the same software, the morphometric parameters trabecular thickness (Tb.Th) and number of trabeculae (Tb.N) were obtained. The data obtained were submitted to a descriptive statistical analysis.

Results: The marginal trajectory presented a standard configuration, except in one of the analyzed points, where it showed greater trabecular thickness. The alveolar trajectory presents a high number of trabeculae, which proved to be the region where occlusal loads produce relatively high stress on the alveolar processes, and which are transferred along the trajectory with a lower trabecular number compared to the others and subsequently the energy is continued up to the temporomandibular joint. The temporal trajectory has trabecular thickness mainly in the oblique line, mandible base and retromolar region.

Conclusion: The present study reinforces current knowledge about the dynamics of stress dissipation on the organization of the trabecular structure of the human jaw.

BRUXISM: A WARNING SIGN

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Bruxism is a prevalent condition and can be destructive to the oral cavity, being widely discussed in Dentistry, especially due to its multifactorial etiology and controversial prevalence. To know bruxism focusing on the causes, symptoms and treatment.

Method: This is a literature review on Google Scholar and Scielo databases.

Results: Bruxism, in the most recent definition, was described as a repetitive activity of the masticatory muscles characterized by clenching or grinding the teeth and/or maintaining rigidity or vigorous movement of the mandible. The activity can occur in different ways, according to the circadian cycle, thus classified into sleep bruxism and awake bruxism. Bruxism does not always have a defined cause, however, it can happen due to genetic, neurological or respiratory factors, such as snoring and sleep apnea, for example, and it can be related to psychological factors such as stress, anxiety. Symptoms of bruxism can be sore face muscles, wear on the surface of the teeth, softening of the teeth, pain in the jaw joints, headaches when waking up, daytime tiredness. The treatment of bruxism aims to relieve pain and avoid problems in the teeth, which may

be use of an acrylic dental protection plate, practice relaxation techniques, administration of muscle relaxants, and in more severe cases, and the application of local injection of botulin toxin.

Conclusion: Although bruxism is multifactorial, additional studies are needed to better understand the local factors in the genesis of bruxism, as well as its treatment.

BUFFERED 2% ARTICHAINE IN BUCCAL INFILTRATION OF MANDIBULAR MOLARS: A RANDOMIZED TRIPLE-BLIND CLINICAL TRIAL

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Aim: This crossover design study aimed to compare the anesthetic effects of buffered 2% articaine with 1:200,000 epinephrine with that of non-buffered 4% articaine with 1:200,000 epinephrine.

Method: Forty seven volunteers were administered two doses of anesthesia in the buccal region of the second mandibular molars in two sessions using 1.8 mL of different local anesthetic solutions. The onset time and length of pulp anesthesia, the pressure pain threshold in the soft tissue and the score of pain on puncture and burning on injection were evaluated. Operator, volunteers and statistician were blinding.

Results: There were no significant differences in the parameters: onset of soft tissue anesthesia ($P = 0.80$), length of soft tissue anesthesia ($P = 0.10$), the onset of pulpal anesthesia in the second ($P = 0.28$) and first molars ($P = 0.45$), length of pulp anesthesia of the second ($P = 0.60$) and first molars ($P = 0.30$), pain during puncture ($P = 0.82$) and injection ($P = 0.80$). For pH of the buffered solution, which was higher ($P < 0.0001$) than the pH of the other solutions at each of the evaluated times. No significant adverse events were observed.

Conclusion: Buffered 2% articaine with 1:200,000 epinephrine did not differ from non-buffered 4% articaine with 1:200,000 epinephrine considering anesthetic success, safety, onset, length of anesthesia, and pain on injection.

CAN DIGITAL ENHANCEMENT RECOVER THE IMAGE QUALITY OF PHOSPHOR PLATE-BASED RADIOGRAPHS EXPOSED TO AMBIENT LIGHT?

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Aim: The aim of this study was to assess the effect of digital enhancement on the image quality of radiographs obtained with photostimulable phosphor (PSP) plates exposed to ambient light.

Method: Radiographs of an aluminum step wedge were obtained using VistaScan and Express systems with 0.20s of X-ray exposure. Half of the PSP plates were exposed to ambient light for 0, 5, 10, 30, 60, or 90 s, and then the PSP plates were scanned and the resulting radiographs were exported with and without digital enhancement. Brightness, contrast, and contrast-to-noise ratio (CNR) were obtained from both sides of the radiographs, and a ratio between the values in the exposed-to-light half and the non-exposed-to-light half were calculated with and without digital enhancement. The ratios, in percentage, of the radiographs with digital enhancement were subtracted from those without digital enhancement.

Results: Image enhancement reduced the influence of light by recovering 23.48% of brightness at 90 s of light exposure for VistaScan. For Express, recovery percentages below 1% of brightness were observed, irrespective of light exposure time. In general, digital enhancement recovered 53.25% of image contrast at 60 s of light exposure for VistaScan and, for Express, 5.79% at 90 s of light exposure; 40.71% and 35% of CNR was recovered at 60 s of light exposure for VistaScan and Express, respectively.

Conclusion: In conclusion, digital enhancement can partially recover brightness, contrast, and CNR of PSP-based radiographs exposed to ambient light. Light exposure of PSP plates can lead to unnecessary retakes and increase the patient exposure to X-rays.

CAPSAICIN-INDUCED SECONDARY HYPERALGESIA DIFFERENCES BETWEEN THE TRIGEMINAL AND SPINAL INNERVATION

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Aim: Topical capsaicin can cause transient sensory changes and has been used in humans to assess hyperalgesia mechanisms. Nonetheless, most studies focus on spinal innervation. Thus, this study compared the degree of secondary hyperalgesia induced by topical capsaicin between the spinal and trigeminal innervation.

Method: Forty healthy participants received applications of topical capsaicin 1% cream on the skin overlying the right masseter and on the right volar forearm in two different sessions. The areas of stroke (allodynia) and punctate hyperalgesia were assessed, respectively, with a standardized brush and a 180 g von Frey hair. Moreover, mechanical detection threshold (MDT) and mechanical pain threshold (MPT) were assessed. Mixed analysis of variance (ANOVA) and χ^2 were applied to the data.

Results: The proportion of allodynia following the capsaicin application was smaller in the trigeminal when compared with the spinal innervation. The areas of allodynia and punctate hyperalgesia were also smaller in the trigeminal innervation when compared with the spinal innervation. The

mean (SD) of the area of punctate hyperalgesia was 5.7 (6) cm² for the masseter and 19.8 (18) cm² for the forearm. Surprisingly, MPT increased following topical capsaicin in the trigeminal region (Tukey: $p=0.001$), which indicates hypoalgesia, whereas remained unchanged in the spinal region (Tukey: $p>0.050$).

Conclusion: The trigeminal region is less susceptible to the sensitization effects of topical capsaicin. These findings suggest relevant differences in central sensitization mechanisms between the trigeminal and spinal innervation.

CARIES IN EARLY CHILDHOOD: ETIOLOGY, PREVENTION AND TREATMENT

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Discuss early childhood caries (ECC), focusing on: its etiology, prevention and treatment.

Method: This is a literature review based on Google and SciELO databases.

Results: All carious lesions, including those associated with early childhood caries (ECC), result from the interaction of three variables: pathogenic microorganism in the mouth; fermentable carbohydrates that microorganisms metabolize into organic acids; and tooth surfaces susceptible to acid dissolution. For lesions to progress and be clinically diagnosed, these three variables must interact over an appropriate period. ECC happens mainly due to the lack of correct hygiene of the baby's mouth after feeding, through either breastfeeding or liquids given in the bottle, such as juices, milk or formulas, for example. Some of the harms of ECC for the baby are: change in the chewing process, delayed speech development for age, crooked or damaged permanent teeth, among others. Some measures to prevent the baby from developing ECC are: providing a healthy diet for the baby, avoiding sweet pacifiers and offering too much sugary liquids, which, in addition to harming oral health, contribute to other health problems for the baby; encourage the use of cups as soon as the child is 1 year old.

Treating CPI is much like treating tooth decay in adults. In very severe cases, teeth may even have to be extracted.

Conclusion: it is fundamental for the child's conditioning in relation to having a healthy diet and adequate oral hygiene habits. That is why parents are as important as health professionals in the education of their children.

CHARACTERIZATION OF PARTICLES OF COLLAGEN BIOSTIMULATOR MATERIALS USED IN FACIAL FILLER PROCEDURES

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Aim: The objective of this study was to characterize the hydroxyapatite particle of collagen biostimulating materials used in facial harmonization procedures. Five filling materials were evaluated: Radiesse, Rennovadiamond, HarmonyCa, Victalab Biostimulator and Optimus.

Method: One gram of each material was successively submerged in water to remove the organic part (carboxymethylcellulose) until supernatant was clear. Particles morphology and composition were analyzed by scanning electron microscopy (SEM) and FTIR.

Results: Radiesse showed particles with homogeneous distribution, spherical shape and size between 24 - 38 µm. Rennova Diamond and HarmonyCa presented spherical shape and size varying between 12 - 62 µm and 22 - 51 µm, respectively. Victalab and Optimus showed irregular particles, sharp angles, and size between 3 - 93 µm and 4 - 57 µm, respectively. FTIR analyses showed that all materials presented hydroxyapatite with similar composition. **Conclusion:** It can be concluded that the collagen biostimulator materials demonstrated different inorganic content in terms of size and morphology, but similar composition, the hydroxyapatite.

CHARACTERIZATION OF THE MICROBIOME OF DENTINAL CARIES AND IRREVERSIBLE PULPITIS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the microbiota of the dental pulp of teeth with dentin caries and irreversible pulpitis.

Method: This study used a state-of-the-art sequencing approach to identify bacterial taxa that occur in advanced dentinal caries associated with pulp exposure and irreversible pulpitis.

Results: Paired end sequencing on Illumina MiSeq of dentinal caries, irreversible pulpitis revealed that all cases were positive for the presence of bacterial DNA and resulted in 1,364,221 raw read pairs and 298,310 quality reads. The annotated OTUs went through a clustering process and were later normalized to 130,861 reads. Taxonomic attributions revealed 7 phyla in the DC and IP with relatively high abundances of Firmicutes (35.30%, 21.35%, respectively), Actinobacteria (24.06%, 20.29%) and Proteobacteria (5.76, 7.41%). There was a predominance of the genera Lactobacillus, followed by Olsenella, Pseudoramibacter and Streptococcus in the DC microbiota; while for irreversible pulpitis the taxa with the highest abundance were Lactobacillus, Olsenella and Actinomyces.

Conclusion: The microbiota of the two investigated conditions has a similar composition and the abundance of microorganisms varies among them.

CHARACTERIZATION OF ZYGOMATIC ARCH SHAPE BASED ON COMPUTED TOMOGRAPHY IN A SOUTHEAST BRAZILIAN POPULATION

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The zygomatic arch shape in a southeast Brazilian population was evaluated according to three-dimensional patterns.

Method: The sample was composed by 122 computed tomography scans of human dry skulls (66 male and 56 female), which were imported into the Mimics 18.0 software (Materialise, NV, Belgium). In this software, the scans were firstly evaluated in a cross-sectional classification of zygomatic arch and then, segmented to obtain 3D surface reconstructions of the bone structure featured by accurate anatomy of zygomatic arch. Then, the 3D surfaces were imported into Rhinoceros 5.0 software (McNeel & Associates, Seattle, USA), in which the morphological shapes of zygomatic arch were evaluated. Statistical analysis was performed in GraphPAD Prism v.8 (San Diego, CA, USA). Normality of the sample was checked by Shapiro-Wilks and significance level of 5% was considered.

Results: The cross-sectional classification incidence presented 59% of type elliptical (E) and 41% of type blade-like (BI) in 116 male zygomatic arches and 38% of type E and 62% of type BI in 102 female zygomatic arches.

There was no incidence of type cylindrical (C) in both sexes. From the classification proposed in the present study, the incidence was 58% of type parentheses (P), 38% of type bracket (B) and 4% of type M-shaped (M) for males and 33% (type P), 66% (type B) and 1% (type M) for females.

Conclusion: The zygomatic arch in a southeast Brazilian population presented shape variability, being elliptical and convex in males and a blade-like and straight in females. This study was funded by CAPES (Brazil) - Finance Code nº 001.

CHEMICAL PROPERTIES OF A BLEACHING GEL CONTAINING CALCIUM-POLYPHOSPHATE ASSOCIATED TO A PHOSPHATASE

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Aim: This study assessed the effect of incorporating alkaline phosphatase (ALP) in the chemical properties of an experimental bleaching gel (HP-CaPP) containing hydrogen peroxide (HP-35 wt%) and calcium-polyphosphate submicroparticles (CaPP-0.5 wt%).

Method: First, the ALP activity was assessed with a colorimetric endpoint assay through spectrophotometric methods at various pH levels (6, 7, 8, 9, and 10), different H₂O₂ concentrations (7, 4, and 0.6 mg/mL), and also in two types of thickener solution (H₂O-based and Tris-based). Following, the free orthophosphate (PO₄³⁻) levels were assessed after 10 and 30 min of the ALP incorporation (15U or 30U) into the thickener component of the bleaching formula with a colorimetric assay through spectrophotometric methods in the following groups: CaPP-H (H₂O-based); CaPP-H+15U; CaPP-H+30U; CaPP-T (Tris-based); CaPP-T+15U; CaPP-T+30U. The statistical analyses were carried out in the GraphPad Prism software, using two-way ANOVA and Tukey's post hoc tests (p<0.05).

Results: The ALP ideal medium was at a pH level of 9, the enzyme's activity is reduced in the H₂O₂-containing medium but it's high in the thickener solution. The PO₄³⁻ levels were significantly increased after the ALP incorporation within all the thickener solutions containing the CaPP (p<0.0029). Doubling the enzyme concentration (from 15U to 30U) or increasing its time of contact (from 10 to 30 min) did not significantly increase the PO₄³⁻ levels (p>0.91).

Conclusion: Adding ALP into the thickener component of a bleaching gel (HP-CaPP) increased the polymer scission and thus the PO₄³⁻ availability, suggesting a bio-inspired remineralization potential.

CLINICAL CASE REPORT: RESULTS OBTAINED AFTER LINGUAL FRENULUS SURGERY IN AN ADOLESCENT HEIDE MENDONÇA MOREIRA DE SOUZA; DANIELLI MAYUMI SATO NARIMATSU, KLEBER ROSA ALMEIDA; CRISTINALUCIA FEIJÓ ORTOLANI

UNIVERSITY OF SÃO PAULO - UNIP

Aim: The lingual frenulum or ankyloglossia, popularly known as tongue tie, is characterized by a small fibrodense connective fold, which is inserted between the middle third of the tongue and the floor of the mouth, which may be displaced anteriorly to the inferior alveolar crest or between the lingual caruncles, which may result in the restriction of tongue movements, as well as in its motor functions. It is possible to identify the problem soon after birth and the treatment can already be started, only the professional will say if it is necessary for the newborn to undergo surgery.

Method: A 17-year-old adolescent patient was referred to the postgraduate clinic in Orthodontics with a diagnosis of ankyloglossia, short lingual frenulum and anterior insertion. An infiltrative anesthetic technique was used in the lingual base with 2% mepivacaine. Two incisions were made parallel to the lingual frenulum, and followed by division of the fibrous tissue until the incisions were joined, starting from the tip of the tongue to its lower

portion, taking care not to damage the noble structures of the region. It was sutured with simple stitches in the ventral portion of the tip of the tongue.

Results: After seven days, the patient returned for suture removal, where a healing process within normal standards could be observed, with greater flexibility of movement.

Conclusion: Lingual frenectomy is efficient to different degrees, both to improve tongue movements and posture, as well as function and speech production, with a better response when diagnosed and treated early.

COLLECTIVE ACTION: HEALTH PROMOTION AND PREVENTION IN ORAL HEALTH

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Aim: To describe a collective action for health promotion and prevention in oral health.

Method: This is an experience report.

Results: Collective actions for health promotion and prevention in oral health were developed in a municipal school on the weekends, in a peripheral neighborhood. The actors were volunteers: health professionals and students in the area of Dentistry, being organized by religious group. The activities carried out were: educational lectures within the context of general and oral health promotion, individualized and supervised brushing with delivery of brushing kits (toothbrush, toothpaste, educational leaflet), guidance on oral health (fostering changes in individual behaviors related to changes in oral hygiene habits such as increasing the frequency of brushing and flossing; as well as encouraging the consumption of a healthy diet, etc.). The community also had service points, such as haircuts, massages, recreation, among others.

Conclusion: Collective action generates integration between the university and the community, providing social well-being and multiplying knowledge for all those involved. The results indicate that health promotion and prevention in oral health should be carried out, providing improvement of general and oral health to the community. There is a need for the insertion of health professionals to act in this scenario, strengthening it as a social support network, gradually reducing assistance activities and intensifying those aimed at health promotion.

CONCHA BULLOSA PREVALENCE AND ITS CORRELATION WITH NASAL SEPTAL DEVIATION, AND MAXILLARY SINUS THICKENING IN CBCT EXAMS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to evaluate the prevalence of concha bullosa (CB), as well as its correlation with sex, age, side and nasal septal deviation (NSD), and mucosal thickening of maxillary sinuses in cone-beam computed tomography (CBCT) exams of a Brazilian subpopulation.

Method: Two hundred and ninety-seven CBCT exams were assessed by two examiners that evaluated, in consensus, the presence of CB (present when more than 50% of the height of the turbinate was pneumatized), NSD (present when a curvature of the nasal septal was observed), and mucosal thickening of maxillary sinuses (assessed when the mucosa around the maxillary sinus walls had more than 3 mm of height). The correlation of the presence of CB with sex, age, side, NSD, and mucosal thickening of maxillary sinuses was evaluated by Pearson's chi-square test and Fisher's exact test, with a significance level of 5% ($\alpha=5\%$).

Results: A total of 208 CB were found (45.68% males and 54.32% females). The CB was significantly more prevalent in the middle turbinate than in the upper and lower turbinate (26.6%, 6.7% and 1.7% of the cases, respectively) ($p<0.0001$). There was no correlation between the presence of CB and sex, age, side, NSD, and mucosal thickening of maxillary sinuses ($p>0.05$).

Conclusion: The prevalence of CB was 11.7% in the studied population and was higher in the middle turbinate. There was no correlation between CB and sex, age, side, or sino-nasal conditions such as NSD and mucosal thickening of maxillary sinuses.

CONSEQUENCES OF KNOOP MICROHARDNESS ANALYSIS ON LIGHT REFLECTION AND COLOR ANALYSIS

ANA CAROLINA PEREIRA DOS SANTOS; HEMANUELLY ALBUQUERQUE DOS ANJOS, LARISSA DE JESUS GOMES, FLÁVIO HENRIQUE BAGGIO AGUIAR; DÉBORA ALVES NUNES LEITE LIMA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Analyze whether the indentations promoted by the microhardness analysis are capable of interfering with light reflection and color evaluation.

Method: Fifty specimens were prepared and divided into 5 groups (5 indentations/5s; 3 indentations/5s; 5 indentations/10s; 3 indentations/10s and control). All groups, except control, were submitted to indentations (50g) and color was evaluated based on the values of L^* , a^* , b^* , ΔE , ΔE_{00} and ΔWID initially and after indentations. L^* and b^* data were analyzed by mixed generalized linear models for repeated measures over time. The a^* value was analyzed by non-parametric tests parameters Kruskal Wallis for comparisons between groups and Wilcoxon paired for time comparisons. KHN, ΔE and ΔE_{00} were analyzed by generalized linear models considering the group effect and ΔWID was analyzed by the Kruskal Wallis test, considering $\alpha=0.05$.

Results: There were no statistical differences regarding the KHN value between the groups. L^* and b^* changed significantly between times, with no statistically significant differences between groups, except the control. The groups had a significant decrease in the a^* value ($p<0.05$) except

for the control group and 3/5s ($p > 0.05$). ΔE and ΔE_{00} were lower in the control group than in the other groups ($p < 0.05$).

Conclusion: Microhardness indentations are capable of producing changes in light reflection, with consequences for color analysis.

CONVENTIONAL X NON-INSTRUMENTAL ENDODONTIC TREATMENT: DIFFERENT APPROACHES TO NON-VITAL PRIMARY TEETH

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of the study was to review the literature about the treatment options [Pulpectomy, Extraction and Lesion Sterilization Tissue Repair (LSTR)] available for the primary teeth with pulpitis, necrosis or abscess resulting from caries or trauma.

Method: Twenty-eight studies (reviews and in vivo) were selected from Cochrane, PubMed, Scopus and Web of Science databases, using the keywords: Antibiotic Paste; Lesion Sterilization Tissue Repair; Paste 3Mix; Primary Tooth Pulpectomy; Triple Antibiotic Paste; Root Canal Preparation; Root Canal Treatment, between 2004 and 2023. **Results:** It was observed that both conventional and non-instrumental endodontic treatments are described in literature. LSTR is described as a faster technique that supports the treatment of non-collaborating children, since it is a non-instrumental procedure. Moreover, LSTR can be considered an alternative since the cost and time efficiency compared to conventional treatment. It was also observed that success rates for LSTR and pulpectomy were similar. However, if the roots are intact, pulpectomy is most often indicated and when the primary tooth is retained for less than 12 months, LSTR is preferred over pulpectomy.

Conclusion: Nevertheless, more clinical trials should be performed using different antibiotic combinations (Triple Antibiotic Paste, Chloramphenicol, tetracycline and zinc oxide-eugenol and others) and with longer follow-up time, as this is a promising technique that can avoid unnecessary extractions.

DAY-TO-DAY REPRESENTATIONS ABOUT PRACTICE BY DENTISTS IN PRIMARY CARE: A SCOPE REVIEW OF THE LITERATURE

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VILELA BULGARELI, BRUNNA VERA CASTRO GONDINHO, MICHELLI CAROLINY DE OLIVEIRA; LUCIANE MRANDAGUERRA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Although much is known about measurable data on Oral Health in Primary Health Care (PHC), little is known about the individual and subjective issues of the dental professional. In the performance of their functions, dentists keep in touch with some environmental and technological aspects, and with people in their total complexity triggering a series of emotions in their bodies, which are consciously expressed through their feelings. In this context, the study arose from the premise that dentists have a great deal to say about their work routine. The study was to identify the feelings expressed by dentists in their practice in PHC, based on the data that has been produced in the.

Method: The scope review was chosen due to the limited number of researches in this field and was conducted considering the 20 crucial items and the 2 optional items of the Prisma Extension for scope reviews presented by Tricco et al. in 2018. In the period from August to October 2020, by using the construction of the mnemonic research question that represented Population, Concept and Context, which was defined as follows: P = Dentists, C = feeling and C = primary care.

Results: Among the 10 studies selected, the dentists' emotions were expressed in feelings of satisfaction, sadness, suffering, fear, anxiety, anger, happiness, calm, trust, gratitude, helplessness, among others, and the examples listed next to these given the description with meaning.

Conclusion: Based on this study, we were able to realize the extent to which dental practice was subject to emotions and feelings that were often antagonistic and, so, it was necessary to examine them in greater depth.

DELETERIOUS ORAL HABITS AND THEIR REPERCUSSIONS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To discuss deleterious oral habits and their repercussions.

Method: This is a literature review based on Google and SciELO.

Results: The name of deleterious oral habits to the set of spontaneous acts that damage the stomatognathic system of the pediatric patient, modifying the standard growth reference and affecting occlusion in early childhood. They can be divided into: non-nutritive sucking, nutritious sucking, and functional habits. Pacifiers are generally used to soothe the baby and do not provide nourishment; its use may lead to less frequency of breastfeeding. As a result, stimulation of the breast and removal of milk from the breast may be reduced, leading to lower milk production, the consequence of which is to lead to weaning. They can also impair oral motor function, playing an important role in mouth breathing syndrome, and lead to orthodontic problems caused by nipple suction, which does not adequately stimulate the mouth muscles. In Brazil, with the aim of restricting the promotion of the use of pacifiers and teats among the public, ANVISA decided to include, on the product packaging, the inscription "The Ministry of Health warns: children who are breastfed do not need a bottle, nipple or pacifier. The use of a bottle, nipple or pacifier impairs breastfeeding and its prolonged use impairs the child's dentition and speech".

Conclusion: Natural breastfeeding is extremely important, reducing the chance of the child developing a deleterious oral habit, and the most frequently found habit is finger sucking and/or pacifier sucking.

DENTAL STOOL AND THE MAINTENANCE OF OCCUPATION HEALTH: A LITERATURE REVIEW

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ARARAQUARA DENTAL SCHOOL - UNESP

Aim: This study aimed to conduct a literature review on the types of stools used in Dentistry with emphasis on maintaining occupational health.

Method: The literature used in this review was obtained from databases (Science Direct, National Library of Medicine (MEDLINE) e Scientific Electronic Library Online) and only articles published between 1980 and 2022 were considered. The main keywords were "Dental Stool," "Ergonomic Stool," "Occupational Health" and "Saddle Seat". Each abstract was read to determine whether the information in the article included discussions on the use of stools in dental work, and 13 articles met the inclusion criteria.

Results: In the articles selected the most studied dental stools were the normal and adapted conventional stool and the normal and adapted saddle seat.

Conclusion: It was found that the use of a saddle seat can help to maintain the healthy working posture and prevent musculoskeletal disorders in dentistry.

DENTAL TRAUMA ASSOCIATED WITH TOOTH FRACTURE OF YOUNG PERMANENT INCISORS: 18-MONTH FOLLOW-UP

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BAURU DENTAL SCHOOL - USP

Aim: Dento-alveolar traumas are common in school children, causing fractures and dislocations. The purpose of this case report is to present a multidisciplinary approach for the treatment of a complex incisor trauma.

Method: Male patient, 9 years old, sought treatment 5 days after a fall. Clinical examination revealed lacerated dento-alveolar mucosa, fracture and intrusion of teeth 12, 11 and 21. Radiographic exam showed enamel and dentin fractures, without pulp involvement. In the immediate treatment, the region was cleaned, the hyperplastic gingiva was removed, and the areas with exposed dentin were protected. After 30 days, clinically there was improvement in the gingival tissues, re-eruption of the teeth, with a positive response to the vitality test. At the 90-day follow-up, it was observed discoloration of teeth 11 and 21 with imprecise response to the pulp vitality test, indicating the possibility that the pulp was in a transitional stage, and the patient was referred to orthodontics for expansion.

Results: After 18 months, the patient already had finished the orthodontic treatment, and clinical and radiographic examination revealed no pulp and tooth changes, in addition to normality of the adjacent regions.

Conclusion: Integrated treatment, added to clinical and radiographic follow-up, is essential for the best prognosis, aiming at maintaining the dental arches and their permanent dental elements, as well as the patient's overall health integrity.

DENTAL TRAUMA EMERGENCY CARE KNOWLEDGE OF PHYSICAL EDUCATORS AND PREVALENCE AMONG YOUNG ATHLETES IN PIRACICABA – SP

RODOLFO FIGUEIREDO DE ALMEIDA; PAULO HENRIQUE GABRIEL, WALBERT DE ANDRADE VIEIRA, JÚLIO VARGAS NETO, EDUARDO CÉSAR ALMADA SANTOS, JOSÉ FLÁVIO AFFONSO DE ALMEIDA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the physical educators' (PE) knowledge regarding dental trauma (DT) and emergency care actions in front sport accidents. Besides, the prevalence of DT on permanent teeth of young athletes, aged between 7 and 17 years, and the relationship among risk indicators, both realized on public schools in Piracicaba – SP – Brazil.

Method: The knowledge of 33 PE was analyzed with a questionnaire applied before an informative presentation about DT and reapplied before. To assess the DT prevalence on young athletes, a cross-sectional study was realized between 2019 and 2020, using the modified O'Brien's classification for DT as diagnosis, correlating with overjet and lip coverage.

Results: Initially, 76% of the PE knew about DT and 18% should manage properly avulsed teeth, showing unsatisfactory knowledge. After the presentation, the answers about the same theme were 100% and 97%, showing a knowledge improvement. The prevalence of DT was 31.2% (154) on the 495 analyzed cases, of which 17.4% (86) had DT on the evaluation moment. Were affected by DT, 114 young athletes males (23%) and 40 females (8.1%), ($p > 0.05$). The presence of overjet higher than 3mm was found on 182 athletes (44.7%), and 36 (7.3%) had inadequate lip coverage, no relationship with DT was found ($p > 0.05$).

Conclusion: It was concluded that, due to the lack of knowledge on DT of the PE, prevent health programs must be suggested, aiming to clarify and inform to the PE and the sports practitioners. In addition, the prevalence of DT among young athletes aged between 7 and 17 years, was high, and had no association with overjet and lip coverage.

DENTIN SENSITIVITY: CAUSES, TREATMENTS AND PREVENTIVE ACTIONS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dentin sensitivity is the result of a set of factors involving exposure of vital dentin to thermal, chemical and tactile stimuli. To discuss the causes, treatments and preventive actions for dentin sensitivity.

Method: This is a literature review on Google Scholar and SciELO databases.

Results: Despite being a frequent disorder in the dental clinic, diagnosis and treatment are still a challenge for dentistry professionals. Among the main causes of dentin sensitivity, we can mention: low or inappropriate level of oral hygiene; bruxism; gingival recession, which may be caused by traumatic brushing, gingivitis or even the patient's age, as already mentioned; use of very abrasive toothpastes; carrying out treatments and dental procedures that cause sensitivity, such as prophylaxis, bleaching, restorative procedures, among others.

Treatments and prevention actions for dentin sensitivity, check out some of them: use of desensitizing agents, such as anti-inflammatory drugs – corticosteroids, this being one of the oldest methods; use of tubular occlusion agents, such as calcium hydroxide, oxalates, fluorides, etc.; sealants: application of dentinal adhesives or restorations in the area without enamel to eliminate sensitivity, using composite resin or glass ionomer; among others. Remembering that it is essential to analyze each clinical case and understand the reality of the patient for a successful treatment.

Conclusion: The dentistry professional must act preventively, promoting actions to prevent sensitivity, guiding patients and identifying the best treatment choice.

DENTOALVEOLAR TRAUMA GUIDELINES - HISTORY AND WORLDWIDE DISTRIBUTION

SIMONE DOS SANTOS SILVA; NÃO HÁ

BRAZILIAN NAVY

Aim: In 2009 the International Association of Dental Traumatology (IADT) launched the interactive program Dental Trauma. In addition to the IADT, other guidelines are available. The objective of the present work was to carry out bibliographical research from 2 virtual libraries in the health area (Pubmed and BVS). In addition, using the QGIS software presents a worldwide mapping of the concentrations of these publications and descriptions of their main differences in targeted behaviors.

Method: The search key used in the BVS portal consisted of the following subject descriptors joined by Boolean operators "AND" between the main descriptors and "OR" between similar terms: Traumatismos dentários, Tooth injuries, traumatismos de los dientes and Guia, Guideline and Guía. In the Pubmed portal, the search key was used only with descriptors in the English language associated with the Boolean operator "AND". The following additional search filters were used: Traumatismos dentários (main subject-BVS), Guia de prática clínica (Type of study-BVS), Guidelines (Pubmed), English, Portuguese, Spanish and publications in the last 10 years.

Results: As a result, 126 publications were obtained in BVS and 17 in Pubmed, which after the initial reading of the titles, 30 publications in BVS and 12 publications in Pubmed were selected to be read in full because they had contents related to the guidelines that were the objective of this work.

Conclusion: From the research carried out, it was possible to observe the development of techniques and the advance in the management of cases of dentoalveolar traumas that previously had a care centered on the dental element.

DEPTH OF CURE DETERMINATION OF LAYERED AND BULK-FILL COMPOSITES USING ISO SCRAPING OR SOLVENT-DISSOLUTION METHODS

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Aim: This study evaluated the effects of light exposure duration and the influence of different methodologies in determination of the depth of cure (DOC) of restorative composites.

Method: Two resin based restorative materials (Beautifil II, Shofu; Filtek Universal, 3M) and two bulk-fill composites (Beautifil Bulk Restorative, Shofu; Filtek One Bulk Fill, 3M) were evaluated. Specimens were fabricated (ID 6 mm, h 12 mm) and light-cured according to either 1X manufacturer-recommended duration or 2X that value. DOC was determined using the ISO 4049 method (ISO) or by solvent dissolution (SOL). ISO manually removed unpolymerized material from the to-cured cylinder using plastic spatula and measured the thickness of the unscrapable cylinder height. In the SOL method, after manually removing unpolymerized resin, specimens were distributed among solvent types (acetone, ethanol, chloroform, tetrahydrofuran (n=10) and stored for 48 h. Solvent-affected area (AAOS) and DOC were measured using ImageJ software. Microhardness (KHN) of sectioned and polished specimens was determined with depth. AAOS data were statistically analyzed using generalized linear models. DOC and KHN data were analyzed using generalized linear models and the Kruskal Wallis test followed by Dunn's method for multiple comparison with the control group (ISO).

Results: ISO indicated significant differences in DOC from that of SOL. KHN values for all the RBRMs declined with increasing depth. Results suggest that increasing exposure duration extended the DOC and KHN. AAOS was material- and solvent-dependent.

Conclusion: Determination of composite DOC varies according to the measurement technique used.

DETERMINATION OF THE ANTIOXIDANT AND ANTIMICROBIAL ACTIVITY OF THEOBROMINE

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Aim: Theobromine is a methylxanthine alkaloid originated from the cacao plant and mostly found in chocolates with important pharmacological properties. However, it remains unclear whether theobromine could aid as a therapeutic adjunct in the management of oral diseases. The aim of this study was to determine the antioxidant activity and the minimum inhibitory concentration of theobromine.

Method: The in vitro antioxidant activity was determined using the DPPH assay. In DPPH assay, 100 μ L theobromine [5 mg/mL] was added in five different concentrations (0.156 mg/mL; 0.3125 mg/mL; 0.625 mg/mL;

1.25 mg/mL; 2.5 mg/mL) into 100 μ L DPPH in a 96-well plate. During the radical scavenging, a coloration change was observed. After that, the absorbance was analyzed by Elisa, and the %AA was calculated to obtain the IC₅₀ by the line equation in Graphpad Prism. To determine the antimicrobial activity of theobromine, the Minimum Inhibitory Concentration (MIC) assay was performed on *Streptococcus mutans* UA159.

Results: Despite having no antimicrobial activity (MIC $\geq$ 2.5 mg/mL), theobromine has interesting antioxidant activity at concentrations 2.5 mg/mL and 1.25 mg/mL, with an IC₅₀ value of 2.16 mg/mL.

Conclusion: These findings suggest that theobromine acts as an antioxidant agent and could be used as an adjunctive therapy for medical purposes.

DEVELOPMENT AND CHARACTERIZATION OF AN EXPERIMENTAL FLOWABLE COMPOSITE CONTAINING Nb₂O₅

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Aim: This study developed and characterized an experimental flowable composite (e-FC) incorporated with niobium pentoxide (Nb₂O₅).

Method: The e-FC (TEGDMA+BisGMA 1:1 + 60%wt borosilicate 0.7 μ m) was formulated according to the type and concentration of Nb₂O₅ (0.5, 1, 1.5, and 2wt%). To stabilize and promote colloidal dispersion of the agglomerated Nb₂O₅ particles, a chemical surface treatment was carried out by adding 0.1M, 1M, and 2M HCl solution which remained in a water bath (50°C) for 60min. Scanning Electron Microscopy (SEM) was performed to evaluate the dispersion after the chemical treatment and images were obtained (500x and 2000x). For characterization of the composite surface, the samples were photopolymerized for 40s using a polywave light polymerization unit and subjected to SEM observation (1500x) and, concomitantly, the percentage of chemical elements present on the total surface of the samples was determined using Energy Dispersion X-Ray Spectroscopy (EDX) analysis.

Results: SEM micrographs showed that Nb₂O₅ dispersion is greater following 2M HCl treatment. As for morphology, particles were mostly irregular, but with the presence of some spherical particles of average size 32.4 μ m. The elemental composition revealed the presence of aluminum, silica, and barium in sizes ranging from

0.2 to 1 μ m in SEM micrographs. EDX analysis suggests the presence of Nb₂O₅ due to the detection of isolated Nb peaks in percentages ranging from 0.5-1.3%.

Conclusion: In conclusion, the experimental composite formulation successfully presented Nb₂O₅ in its composition, thus allowing its use for future mechanical and microbiological tests.

DIAGNOSIS AND SURGICAL TREATMENT OF A SUPERNUMERARY TOOTH FOR INTERDISCIPLINARY PLANNING

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Mesiodens can cause complications related to changes in occlusion, esthetics and function. Therefore, the objective of this case report (CAAE: 68473623.0.0000.5418) was to describe the importance of diagnosing mesiodens with interdisciplinary planning, surgical treatment, and follow-up after 6 months.

Method: A 6-year-old male patient was examined in the pediatric dentistry emergency service at FOP-UNICAMP with the main complaint "there is an extra tooth that does not allow the permanent tooth to erupt". An impacted mesiodens was observed between the elements 11 and 21 using clinical, radiograph and cone beam computed tomography exams, indicating the need for extraction. For the surgical procedure, topical and infiltrative anesthesia were performed, followed by removal of the mesiodens, suture, drug prescription for pain control and postoperative recommendations. Adequate healing was observed after seven days. Due to the mesiodens location, it caused dental rotation of element 21 during the eruptive process and this correction was considered in the orthodontic planning.

Results: After 6 months, the patient returned for follow-up, when two validated oral health questionnaires were applied (parents' perception and child's perception) and it was possible to assess the improvement in the patient's quality of life after mesiodens removal.

Conclusion: Thus, the correct diagnosis and planning allowed adequate treatment for the surgical opportunity, in addition to requiring interdisciplinary follow-up for the success of the treatment.

DIGITAL DENTISTRY: IMPACTS ON THE HUMAN IDENTIFICATION PROCESS AND FORENSIC DENTISTRY JAQUELINE APARECIDA NORONHA; JOÃO PEDRO PUPPIN DOS ANJOS, ULYSSES DE TOLEDO MONTEIRO, ANA FLÁVIA DE CARVALHO CARDOZO, ISRAEL MOREIRA PARADELA, JOÃO SARMENTO PEREIRA NETO, MÔNICA

APARECIDA FRANCESQUINI; LUIZ FRANCESQUINI JÚNIOR

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: We sought to verify the viability of Digital Dentistry with Forensic Dentistry in the process of human identification.

Method: Therefore, after approval by CEP/FOP/UNICAMP CAAE 60416022.0.0000.5418, we obtained digital intraoral models (via scanning and three-dimensional printing) of six students, as well as three intraoral models in the traditional model (molding with alginate and plaster) for a hypothetical crime simulation. We used these models to compare: smile line, rugoscopic analysis and bite marks.

Results: There was a comparison in quantitative and qualitative terms, highlighting pros and cons. It was observed that the models obtained using the traditional technique, in comparison to the 3D printer model, had more imperfections, greater measures in the mesio-distal distance of the teeth and lower quality of palatal rugoscopy details. Furthermore, the models obtained were compared with the skull of a suspected individual, making it possible to verify incompatibility between the paradigms.

Conclusion: The rapid expansion of the Digital Age led to the emergence of the Digital Dentistry, which seeks to integrate dentistry and new technologies, such as intraoral scanning, computed tomography (CT), prototyping, among others. This includes both technical qualification and professional alignment with new regulations. In this work, it was concluded that Digital Dentistry can and should be used as a strong contributor to human identification.

DOES PEEK WITH CARBON FIBER IMPROVE STRESS DISTRIBUTION IN REHABILITATION WITH WIDE-DIAMETER EXTRA-SHORT IMPLANTS?

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated by finite element analysis the stress distribution in wide diameter (WD) extra-short dental implants (ESDI) of pure titanium (Ti) and poly-ether-ether-ketone reinforced with carbon fiber (PEEKc), as support for a lower first molar crown submitted to axial load (AL) and oblique 30° load (OL).

Method: For this, 8 models were created according to implant diameter, regular (RD), Ø4 mm or WD Ø6 mm, load angulation, and implant and abutment material (Ti and PEEKc). Abutment and implant were evaluated by von Mises stress (σ_M), cortical (CB) and cancellous bone (CaB) by minimum principal stress (σ_{min}) and shear stress (τ_{max}).

Results: Regardless of load, the abutment of WD PEEKc had a 13.17% reduction in σ_M compared to Ti. The WD PEEKc implant shows at least 15.06% reduction for both loads. In the CB, τ_{max} of RD PEEKc implant under AL showed at least 28.56% reduction, while under OL the WD PEEKc showed a 20.02% reduction. In the CB, σ_{min} of WD PEEKc showed at least 27.97% reduction for both loads. In the CaB, the τ_{max} presented an increase of at least 5.26% for PEEKc in both loads. Regardless of load and diameter, in the σ_{min} there was a reduction of at least 2.89% in PEEKc.

Conclusion: In conclusion, PEEKc ESDI showed better stress distribution at the implant, cortical and cancellous bone.

DOES THE CENTRAL SENSITIZATION INVENTORY ASSESS THE PHENOMENON OF CENTRAL SENSITIZATION?

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BAURU DENTAL SCHOOL - USP

Aim: This cross-sectional study aimed to investigate the correlation between the results of the Central Sensitization Inventory (CSI) and somatosensory and psychosocial variables in women with painful temporomandibular disorders (TMD) (n = 95) and healthy controls (n = 100).

Method: The diagnosis of TMD was made according to the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD). Psychosocial profiles were assessed using the CSI, Perceived Stress Scale, Hospital Anxiety and Depression Scale, Pittsburgh Sleep Quality Index, and Pain Catastrophizing Scale. Psychophysical variables were measured by the Wind-Up Ratio (WUR) on the masseter and thenar muscles, and the Conditioned Pain Modulation (CPM). Correlation analysis was performed using Pearson's and Spearman's correlation coefficients ($\alpha = 5\%$).

Results: The results showed that the CSI scores were positively correlated with all psychosocial parameters evaluated, indicating that the CSI

can identify individuals with psychosocial vulnerability associated with pain. However, there was no significant correlation between the CSI and the psychophysical tests (WUR and CPM) in both healthy controls and TMD patients, which raises questions about the utility of the CSI in measuring central sensitization as a physiological phenomenon.

Conclusion: In conclusion, this study reveals a significant correlation observed between the CSI and all the psychosocial variables, but a lack of correlation between the CSI and the somatosensory variables.

DOES THE PRESENCE OF METAL CROWNS AFFECT THE CBCT-BASED DETECTION OF CARIES IN ADJACENT TEETH VARYING PROTOCOLS?

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Aim: The aim of this study was to evaluate if the presence of image artifacts generated by metal crown affect the diagnosis of proximal caries lesions in teeth close and distant to the crown in cone-beam computed tomography (CBCT). Also, if the tube current (mA) and metal artifact reduction tool (MAR) could influence this diagnostic task.

Method: Thirty teeth were arranged in 10 phantoms, composed by 1 first premolar, 1 second premolar, 1 second molar and a sound first molar (control group) or a first molar with metal crown (metal crown group). CBCT scans were acquired using the OP300 Maxio unit operating at 90 kVp, field of view of 5 x 5 cm and voxel size of 0.125 mm. The mA was varied in three levels (4, 8 and 12.5) and each scan was reconstructed without and with MAR activation. The scans were evaluated by five oral radiologists in a five-point scale and the values of the area under the Receiver Operating Characteristic curve (AUC), sensitivity, and specificity for each evaluator were calculated. The multi-way Analysis of Variance (ANOVA) analyzed the influence of the factors studied ($p < 0.05$).

Results: The diagnostic values were not significantly affected by the presence of metal crown, variation of mA and MAR activation ($p > 0.05$). The overall Az and specificity values were significantly lower on the surfaces closest to a dental or metal crown ($p < 0.05$).

Conclusion: The CBCT-based caries detection is affected by the proximity to a dental or metal crown; therefore, the CBCT is not an image method feasible to this diagnostic task.

EFFECT OF ADDING HYDROGEN PEROXIDE TO ANTIMICROBIAL PHOTODYNAMIC THERAPY ON STREPTOCOCCUS MUTANS BIOFILM

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Aim: This study evaluated the effect of adding hydrogen peroxide to antimicrobial photodynamic therapy (aPDT) mediated by methylene blue (MB) irradiated by laser or LED light ($\lambda = 660$ nm) on *Streptococcus mutans* biofilm.

Method: Biofilms of *S. mutans* cultured in microplates with BHI-sucrose at 1% for 24 h were divided into 13 groups, according to the treatment, in triplicate ($n = 3$): C (NaCl 0.9%), CX (chlorhexidine 0.2%), MB (photosensitizer) 0.01% (F), hydrogen peroxide 30% (H), MB+hydrogen peroxide (FH), laser (L), laser+MB (LF), laser+peroxide hydrogen peroxide (LH), laser+hydrogen peroxide+MB (LFH), LED, LED+MB (LEDF), LED+hydrogen peroxide (LEDH), LED+MB+hydrogen peroxide (LEDFH). The lights applied were low power laser GaAlAs at 9 J, 100 J/cm², 90 s and red LED at 9 J, 0.8 J/cm², 97 s. The response variable was the count of colony forming units (CFU/mL). Data were analyzed using the Kruskal-Wallis and Dunn tests ($\alpha = 0.05$).

Results: The L, LH and LEDH groups reduced *S. mutans*, with no difference between them ($p > 0.05$), but significantly different from all other groups. The LEDF group showed a significant reduction of *S. mutans* (1.12 log), differing from the LF, LFH, LEDH and LEDFH groups. The LFH and LEDFH groups reduced *S. mutans* from the biofilm by 2.94 and 2.59 logs, they did not differ among themselves, but showed a significant difference compared to the other groups. The LF group showed the greatest reduction in microbial viability, of 3.35 log, differing from all groups except for the LFH.

Conclusion: The association of hydrogen peroxide with methylene blue did not increase the effectiveness of aPDT on *S. mutans* biofilm.

EFFECT OF ARGON PLASMA AND FIBRILLAR REEXPANSION TECHNIQUE ON DENTIN ADHESION

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Aim: This study evaluated the effects of the application of argon plasma (ARP), re-expanding of collagen fibrils with water (RCF) and dental adhesives on the bond strength to dentin.

Method: Fifty-four sound human molars were used, which had their roots and the occlusal enamel surface removed. Three adhesives were tested: Gluma Bond Universal (GU), Prime&Bond Active (PA) and Scotchbond Multipurpose (SB). A flat dentin surface was exposed and a standardized smear layer was created with 600-grit silicon-carbide paper. Teeth were divided into three treatments for the 3 adhesives: 1-

phosphoric acid for 15 seconds (PAC); 2- PAC+ARP and 3- PAC+ARP+RCF. For the microtensile test, a composite block was built on each tooth and teeth were transversely sectioned to obtain specimens that were evaluated after 24 hours storage in distilled water. The data obtained were analyzed by two-way ANOVA and Bonferroni test.

Results: There was no statistically significant difference among adhesives, regardless of the type of dentin treatment. The bond strength of GU significantly increased when it was applied to PAC+ARP. The dentin treatment did not influence the bond strength of PA. SB showed lower bond strength with PAC+ARP+RCF compared to PAC+ARP.

Conclusion: The results suggest that the RCF approach with water after the use of PAC and ARP did not produce beneficial effects on the adhesion of tested adhesives.

EFFECT OF DISTINCT PUTATIVE PREBIOTICS ON STREPTOCOCCUS MUTANS BIOFILM

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Aim: Dental caries is a public health problem. It is initiated by a biofilm containing microorganisms (e.g., *S. mutans*) that ferment dietary carbohydrates into acids, leading to enamel demineralization. Prebiotics could prevent cariogenic biofilm (e.g., arginine in oral care products). Thus, the antibiofilm effect of different putative prebiotics was evaluated.

Method: The strain *S. mutans* UA159 was grown on a blood agar plate (37°C, 10% CO₂, 48h). A starter culture was prepared by inoculating 5 colonies in tryptone and yeast extract broth with 1% glucose (37°C, 10% CO₂, 16h). The starter was diluted in the same medium and incubated until OD_{550nm}=0.500. Next, this culture was diluted in a medium with 1% sucrose to achieve 2x10⁶ CFU/mL. Next, a 100 µL aliquot of this dilution was transferred to a 96-well plate followed by incubation (37°C, 10% CO₂, 90 min). After the adhesion phase, the medium with non-adherent cells was removed, and each well was washed with saline solution. Then, culture medium with 1% sucrose containing one of the putative prebiotics was added: aminosugar, arginine (positive control, proven effect), proline, sodium nitrate, and urea (at distinct concentrations). Also, a biofilm was grown without a supplement (negative control). The plate was incubated for biofilm formation (37°C, 10% CO₂, 24h). Biofilm biomass was assessed via crystal violet method (OD_{570nm}). Data from 3 experiments were analyzed.

Results: Among the substances tested, only arginine (at 3 and 1.5%) hindered the development of biofilms. **Conclusion:** Hence, the other putative prebiotics did not prevent the accretion of biofilm formed by *S. mutans* in the presence of sucrose.

EFFECT OF EXPERIMENTAL DENTIN ETCHANTS ON DENTIN BOND STRENGTH, METALLOPROTEINASE INHIBITION, AND ANTIBIOFILM ACTIVITY

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Aim: This study compared the effect of three experimental dentin etchants with 35% phosphoric acid (PAC) on dentin bond strength (BS) and failure modes, bonding interface, and surface morphology, in situ metalloproteinase (MMP) and antibacterial activities.

Method: The Adper Single Bond 2 adhesive (3M Oral Care) was applied on moist, etched dentin with PAC (control) or on air-dried, etched dentin with 3% aluminum nitrate + 2% oxalic acid (ANI), 6.8% ferric oxalate + 10% citric acid (FOX), or 10% citric acid (CAC). The BS used 40 extracted human molars that were tested according to the microtensile method with specimens water-storage for 24 h and one year (n=10) and fractured specimens were analyzed by scanning electron microscopy (SEM). The surface morphology of etched dentin was also analyzed by SEM (n=3), while the bonding interface morphology and MMP activity were evaluated by laser scanning confocal microscope (n=3). Antibacterial activity was evaluated against *S. mutans* biofilm by means of viable cells count (CFU/mL).

Results: PAC yielded the highest bond strength regardless of evaluation time. PAC, ANI, and CAC showed stable bond strengths after one year. Adhesive and mixed failures were predominant in all groups. Hybrid layer and resin tags were observed for the experimental etchants. The ANI-based etchant was able to completely inhibit MMP activity. All tested etchants presented antibacterial activity against *S. mutans* biofilm.

Conclusion: Although PAC resulted in high MMP activity, it was etchant that yielded the highest bond strength and antibacterial effect.

EFFECT OF POTASSIUM IODIDE ASSOCIATION ON ANTIMICROBIAL PHOTODYNAMIC THERAPY IN ORAL BIOFILM FORMED IN SITU

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Aim: To evaluate the effect of potassium iodide (KI) association with methylene blue (MB) photosensitizer in antimicrobial photodynamic therapy (aPDT) in oral biofilm formed in situ.

Method: A single-phase in situ study was conducted with 21 volunteers per 14 days. During this period, each participant wore a palatal appliance containing 8 bovine dentin slabs, which were exposed to 20% sucrose solution, 8 times a day, to simulate a high cariogenic challenge. After the intraoral phase, the biofilms formed on the slabs were randomly allocated into the following treatments: C (0.9% NaCl); CHX (0.2% chlorhexidine); KI (75 mM KI); MBKI (0.005% MB + 75 mM KI); L (0.9% NaCl + red laser 18J, 180 s); LMB (0.005% MB + laser); LKI (75 mM KI

+ laser); LMBKI (0.005% MB + 75 mM KI + laser). The treated biofilms were collected, diluted, and incubated for evaluation of cell viability (CFU/mL) for total microorganisms, total lactobacilli, total streptococci, and mutans streptococci. Data were analyzed by the Friedman test, followed by the Dunn test ($\alpha = 0.05$).

Results: The LMBKI group showed a significant reduction in the viability of all microorganisms compared with groups C, KI, MBKI, MB, L, LMB, and LKI ($p < 0.0001$), and showed a similar reduction as the CHX group ($p > 0.99$).

Conclusion: The antimicrobial photodynamic therapy with potassium iodide added to methylene blue and active red laser can be indicated as a non-invasive technique to reduce polymicrobial oral biofilms viability, allowing the management of dental caries.

EFFECT OF THE TOOTHPASTE WITH TRICALCIUM PHOSPHATE PARTICLES ASSOCIATED WITH LOW CONCENTRATION BLEACHING ON TOOTH ENAMEL

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Aim: The objective of this study was to evaluate the effects of tricalcium phosphate (β -TCP) in two commercial toothpastes on dental enamel color and microhardness after brushing followed by bleaching treatment with 10% carbamide peroxide (CP) in vitro.

Method: Seventy-five bovine enamel/dentin blocks (4x4x3mm) were randomly divided into six groups ($n=10$): Negative Control (NC) with no bleaching treatment or brushing; 10 CP (no brushing - Whiteness Perfect FGM); CT12 + 10 CP (Colgate Total® 12); ES + 10 CP (Elmex® Sensitive); BPC + 10 CP (Bianco® ProClinical); CMP + 10CP (Colgate® Máxima Proteção Anticáries). The color was evaluated by reflectance spectrophotometry (ΔE^*ab , $\Delta E00$, and ΔWID) at times T1 (baseline), T2 (24 hours after brushing), and T3 (24 hours after bleaching). Enamel changes were evaluated using Knoop microhardness (KHN) analysis at T3. The enamel surface was qualitatively analyzed by Scanning Electron Microscopy (SEM). The data were analyzed using generalized linear models through descriptive and exploratory analyses, and a significance level of 5% was considered.

Results: Significant differences were observed when the bleached groups were compared to the NC group for ΔE^*ab , $\Delta E00$, and ΔWID at time T3 ($p < 0.0001$). However, the bleached groups presented no significant differences regarding studied times ($p > 0.05$). KHN did not differ significantly among the six groups ($p=0.7585$). **Conclusion:** Toothbrushing with commercial toothpastes containing the remineralizing particle β -TCP before bleaching with 10% CP did not alter the KHN of dental enamel, maintaining the whitening efficacy and enamel surface without significant alterations.

EFFECTIVENESS OF CAO FOR CONTAINING THE AEROSOL PRODUCED BY HIGH-SPEED DENTAL HANDPIECE DURING DENTAL PROCEDURES

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of the present study was to evaluate the effectiveness of a new biosafety device (Odontological Aerosol Container - CAO) comparing procedures with and without the use of CAO, in containing the dispersion of the aerosol produced by the high-speed pen during dental procedures of different durations.

Method: This is a laboratory study composed of two experimental groups organized according to the biosafety protocols to be used: G1 – Without using the CAO; G2 – Using CAO. Each group was subdivided into three subgroups according to the aerosol generation time. In order to simulate clinical procedures in the laboratory, a dummy was used so that the mouth was positioned 70 cm from the floor. The high-speed pen was positioned at 45° along the long axis of the palatal surface of the maxillary central incisor, simulating endodontic access. To visualize the generated aerosol, the supply systems of the equipment were filled with distilled water and a dye solution. To evaluate the dispersion of the formed aerosol, white adhesive labels were fixed in pre-established places. The areas of each label pigmented were measured using the Image J software and statistically analyzed with Mann-Whitney test and significance of 5%.

Results: The results obtained, using the new biosafety device, during procedures using the high-speed pen, were satisfactory and relevant in reducing aerosol dispersion.

Conclusion: The use of CAO is quite effective during the use of procedures that generate aerosol, acting in the biosafety and protection of those involved. The CAO is an item of great value for the biosafety of professionals and patients, in a pandemic or non-pandemic scenario.

EFFECTS OF DIFFERENT TREATMENTS ON BOND STRENGTH BETWEEN 3D RESINS FOR COMPLETED DENTURES

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study aimed to evaluate the bond strength (BOST) of denture tooth to denture base 3D resins, which were subjected to different surface treatments.

Method: The square-shaped samples measuring 10 mm x 4 mm x 4 mm were printed on (Anycubic W3D, Wilcos) with the Prizma (Bio Crown

and Bio Denture) and Cosmo (Temp and Denture) 3D resins. The samples were cleaned with isopropyl alcohol and post-cured for 10 minutes. The treatment of 3D resins were: 1- application of heat-cured acrylic resin (Control); 2- application of the same unpolymerized resins (RE) + post-cure (PC); 3- RE + methyl methacrylate monomer (MO) + PC; 4- sandblasting with aluminum oxide (JA) + RE + PC, and 5- JA + RE + MO + PC. The blocks (base + tooth) were sectioned with a diamond disc to obtain resin-dentin stick-shaped specimens of 1mm² at the cross-sectional area. The BOST between 3D resins was evaluated by microtensile method (n=8) after 24 h or 10,000 thermal cycles (5°C/55°C with 30s baths). The BOST data were analyzed statistically by using 2-way ANOVA and post-hoc Tukey's test ($\alpha=0.05$).

Results: After 24 h and 10,000 cycles, the Control showed higher BOST, although aging reduced it. In general, the groups RE + MO + PC and JA + RE + MO + PC obtained intermediate values that were similar among them. **Conclusion:** The results suggested that the conventional method of applying MO to bond traditional denture teeth and denture base also applies to the prostheses made by digital flow with additive manufacturing.

EFFECTS OF TRICLOSAN ENCAPSULATED IN NANOSTRUCTURED LIPID CARRIERS IN ORAL SQUAMOUS CELL CARCINOMA CELLS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to evaluate the effects of the fatty acid synthase (FASN) inhibitor, Triclosan (TCS), encapsulated in nanostructured lipid carriers (NLC) in the proliferation of oral squamous cell carcinoma cells (SCC9 and LN1A) and compare with the effects of the free-TCS.

Method: Twenty different formulations of TCS in NLC were produced using the emulsification-ultrasonication method. Based on established parameters, particle size and ability to carry the highest concentration of TCS, we have chosen one formulation to perform in vitro assays. The proliferation rates were evaluated by two different methods two times: by toluidine blue stain (which reflects the number of cells) and MTT assays in 48h and 72h. The Half-maximal inhibitory concentration (IC₅₀) was calculated by using CompuSyn software. Comparative analyses between free-TCS and NLC-TCS were performed.

Results: NLC-TCS were successfully produced and we selected two different formulations based on the established parameters which showed 99.9% of TCS encapsulation rate. The IC₅₀ of the free-TCS at 48 hours, was 16.11µM by using MTT and 17.08µM by using toluidine blue. We also treated the SCC9 cells for 72h and we have obtained the IC₅₀ of 15.74µM (MTT) and 12.37µM (TB). The IC₅₀ of NLC-TCS is being calculated and will be compared with the obtained values of the free-TCS.

Conclusion: Our results indicate that FASN is a promising therapeutic target for cancer treatment. The encapsulation of TCS in NLCs can improve the therapeutic index of the drug. Indeed, the results of this study may be the foundations for preclinical and clinical test of FASN inhibition in OSCC.

EFFICIENCY OF USING PASSIFLORA INCARNATA TO CONTROL ANXIETY IN DENTISTRY. AN INTEGRATIVE LITERATURE REVIEW

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The present study aims to evaluate the clinical effectiveness of treatment with *Passiflora incarnata* in reducing anxiety in patients during dental treatment through a literature review.

Method: The present integrative literature review was conducted based on the steps suggested by PRISMA. Therefore, the databases Pubmed, Scopus, Web Of Science, Embase, and Cochrane were used. The MeSH descriptors "Anti-Anxiety Agents," "Phytotherapy, *Passiflora*," "Dental Anxiety," and "Patients" were used in the search strategy. There were no restrictions on language or publication date of the selected studies. The inclusion criteria were articles that addressed the use of *Passiflora* in the context of anxiety treatment in patients undergoing dental treatment. Exclusion criteria included studies in animal models and studies that evaluated patients who use allopathic medications to control anxiety chronically.

Results: Of the 240 pre-selected studies, only 6 were included in this review. Of these, 4 studies were randomized clinical trials, and 2 were systematic reviews. The studies presented heterogeneity in terms of *Passiflora* doses and their methods of outcome assessment, making quantitative data summarization impossible.

Conclusion: It can be concluded that the use of *Passiflora incarnata* L. for reducing anxiety in patients during dental treatment is effective and safe. Compared to other medications, it has a lower probability of side effects and does not lead to dependence.

EGCG: THE MAIN ACTIVE PRINCIPLE OF GREEN TEA AND ITS POSITIVE IMPACT ON CELLULAR HOMEOSTASIS

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Aim: Review studies in the literature that show how the EGCG molecule present in green tea interferes with mechanisms involved with cellular homeostasis and how these effects can contribute to our health.

Method: It is an integrative literature review in the Google Scholar and Scientific Electronic Library Online (SciELO) databases.

Results: Widely consumed in Asian countries such as China and Japan, green tea has been gaining more and more popularity in Western countries due to the medicinal properties attributed to it. It is rich in antioxidant substances, mainly from the polyphenol family, such as flavanoids, phenolic acids, catechins, and epicatechins, helping to prevent cancer and also premature cellular aging. The epigallocatechin-3-O-gallate (EGCG) is a catechin with action on epigenetic modulation. Studies show that the EGCG molecule is an inhibitor of DNA methyltransferase, enzymes that methylate CpG sites of the genome, which suggests a modulating action on DNA hypermethylation. EGCG has an inhibitory effect on matrix metalloproteinases, enzymes that degrade extracellular matrix macromolecules and may contribute to metastasis in cancer cases. Furthermore, EGCG also has a senolytic action, removing senescent cells resistant to the apoptosis process from tissues and thus preventing aging.

Conclusion: The diverse effects of EGCG may explain its broad pharmacological activities in modulating cell signaling pathways in cells. EGCG, in addition to other mechanisms, at the dose achievable for humans, is known to activate cell death signals and induce apoptosis in precancerous or cancer cells, resulting in inhibition of tumor development and/or progression.

ENDODONTIC RETREATMENT DUE TO SECONDARY ENDODONTIC INFECTIONS OR FOR PROSTHETIC REASONS: A MICROBIAL EVALUATION

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The present study aimed to: a) Evaluate the microbiological profile of RC indicated for the ER due to CAP or PR; b) Evaluate the efficiency of the chemo-mechanical preparation (CMP) and the use of intracanal medication (ICM) based on calcium hydroxide and 2% chlorhexidine gel; c) Correlate the profile and microbiological load detected with clinical features. Microbial samples were collected from RC of 15 teeth indicated for ER due to CAP and 15 teeth indicated for ER due to PR.

Method: Samples were obtained soon after RC filling removal, after the CMP, and after the use of ICM for 30 days. The presence of 17 bacterial species was evaluated using Nested-PCR. The count of colony forming units was used to monitor the efficiency of ER in reducing microbial loads of the RC. Statistical tests were used: Fischer Exact, Shapiro-Wilk, Mann-Whitney, Wilcoxon and McNemar.

Results: ER was effective in reducing microbial loads in both study groups (CAP and PR). Associations between the microbial profile and the presence of clinical signs and symptoms were detected.

Conclusion: It was concluded that the microbial profile of teeth indicated for ER due to the presence of CAP and PR is mixed and heterogeneous. They differ in the detection frequency of species, number of species per case, and in the microbial load. ER was effective in reducing the microbial load in PR/CAP.

ESTIMATION OF THE MASTICATORY MUSCLES FORCE OF WISTAR RATS USING THE CROSS-SECTIONAL AREA METHOD

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Aim: The aim of this study was to estimate the masticatory muscles force of Wistar rats using the Cross-sectional Area (CSA) method.

Method: Six heads of rats (adult, male, Wistar lineage) were submerged in the contrast solution to obtain the micro-CT images. The micro-CT images were obtained in the SkyScan equipment model 1174 (Bruker, Belgium). The scanning protocol was of 50 Kv, 800 mA, generating images with pixel dimension of 19,41 µm, exposition time of 5200 mS, and aluminium filter with 0,05mm of thickness. The Mimics v.18 software (Materialise, Belgium) was used to segment and generate the tridimensional surfaces for each masticatory muscle and rat skull to analyze the muscular structural characteristics. The muscles analyzed were Temporalis, Masseter, Internal-Pterygoid and External-Pterygoid. For the determination of the CSA method, a specific formula was used

Results: For all studied muscles it was possible to obtain muscle force, including by layers. The CSA values were multiplied by the specific muscle tension (22.5 N/cm²) to obtain muscle force values for each muscle layer in each masticatory muscle.

Conclusion: The results of the present study showed that is valid use the CSA formula in computerized models to estimate the muscular force in Wistar rats. This method is important to be used in future research that use Wistar star rats as models to simulate different conditions such as experimental studies with chewing, dental occlusion, and mandibular movements conditions Funding: PIBIC/CNPQ

EVALUATION OF APICAL EXTRUSION OF SODIUM HYPOCHLORITE USING DIFFERENT IRRIGATION PROTOCOLS IN IMMATURE TEETH

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VICTOR AUGUSTO BENEDICTO DOS SANTOS, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, JOSÉ FLÁVIO AFFONSO DE ALMEIDA; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to evaluate in vitro the volume of irrigant extruded after application of different agitation techniques during passive decontamination of teeth with simulated incomplete root formation.

Method: Forty-five single-root human teeth were prepared so as to simulate teeth with incomplete rhizogenesis with a length of 7 mm. The specimens were irrigated with 20 ml of sodium hypochlorite (NaOCl) for 5 minutes and distributed into four groups according to the agitation protocol (no agitation, ultrasonic agitation, agitation with EasyClean® and agitation with XP-endo Finisher). To evaluate the apical extrusion of NaOCl, the specimens were molded in hydrophobic condensation silicone. After the irrigation and agitation procedures, the volume of irrigant present in the silicone was collected, quantified by spectrophotometry and described in μL . Data were analyzed using the ANOVA and 5% significance level.

Results: All groups showed irrigant extrusion, with no statistically significant difference between them ($p > 0.05$).

Conclusion: It can be concluded that agitation of NaOCl by ultrasound, EasyClean or Xp-endo Finisher does not cause greater apical extrusion of irrigant when compared to no agitation.

EVALUATION OF BOND STRENGTH BETWEEN CAD/CAM FIBERGLASS POSTS TO DIFFERENT RESIN CEMENTS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Evaluate the adhesion of three resin cements (RC) to the CAD/CAM fiberglass composite, Fiber CAD Post and Core (Angelus).

Method: The cements tested were: G1 - Self-adhesive dual-cure RC, RelyX U200 (3M Oral Care); G2 - Adhesive dual-cure RC RelyX Ultimate (3M Oral Care) and G3 - Adhesive dual-cure RC RelyX ARC (3M Oral Care). Eight FiberCAD block plates (9 x 15 x 1 mm) were obtained and sectioned into 3 equal sized portions (6.3 x 15 x 1 mm). The surface treatment of the post was: cleaning with alcohol, application of a silane coupling agent (RelyX Ceramic Primer, 3M ESPE) for 1 min and application of chemical adhesive Adper Scotchbond Multipurpose (3M ESPE), except for G1, which was applied Single Bond Universal (3M ESPE). Two cylinders of RC were adhered to each plate ($n=15$). The shear bond strength test (SBS) was performed in a universal testing machine (EZ-test – Shimadzu) after 24h of storage. The BS data were statistically analyzed with two-way ANOVA and Tukey's post-hoc test.

Results: The SBS values of G1 and G2 were higher than G3 ($p < 0.001$ and $p < 0.001$) and did not differ statistically from each other ($p = 0.123$).

Conclusion: Groups G1 and G2 produced higher SBS values than G3.

EVALUATION OF BOND STRENGTH TO DENTIN OF CAD-CAM GLASS-FIBER POSTS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Evaluate the bond strength (BS) of prefabricated glass-fiber posts (GFPs), GFPs customized with composite resin and milled fiber post and core, cemented into root canals using dual-cure self-adhesive resin cement (RelyX U200, 3M Oral Care).

Method: Thirty endodontically treated, human, upper central incisors were randomly divided into three groups: G1 – GFP (Exacto, Angelus); G2 – Customized GFPs (Exacto and Z350, 3M ESPE); G3 – milled post made by computer-aided design-computer-aided manufacturing (CAD-CAM) technology (Fiber CAD Post and Core, Angelus). An intraoral scanner (Primescan, Dentsply Sirona) was used to directly scan the post space (10 mm) and a 3D model were fabricated and milled. After the surface treatment with silane, the post cementation procedure was equally performed for all groups. The specimens were dried stored at 37°C for 24 h, transversally sectioned (two slices for each root third) and subjected to push-out test (1 mm/min). The BS data were statistically analyzed with two-way ANOVA and Tukey's post-hoc test. Failure mode analysis was performed by a stereomicroscope with 4x magnification and classified as: AD – adhesive between dentin and cement; AP – adhesive between post and cement; M – mixed failure (AD and AP).

Results: G2 showed higher BS when compared to G1 and G3, in all thirds ($p < 0.001$), excepted in the cervical region from G1 ($p > 0.999$). G3 obtained lower BS than G2 in all thirds, although they created a lower percentage of AP failure.

Conclusion: The BS of the milled GFP was lower than the approach with customized post.

EVALUATION OF CASUISTRY OF CARE PERFORMED IN THE DENTAL INJURY CARE SERVICE AT FOP-UNICAMP

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of the study was to evaluate the casuistry of traumatic dental injuries (TDI) in permanent teeth treated at the dental trauma clinic of

FOP-UNICAMP during the period from June 2021 to July 2022.

Method: From the medical records, information regarding the gender, age group, trauma etiology, arch and number of teeth involved. With the data collected, a descriptive analysis was performed and they were statistically analyzed using the chi-square test.

Results: The results found were: Males and females had the same frequency (50%) each, the age group ≤ 14 and > 26 also had the same frequency (42%) and the most common trauma etiology was a fall from their own height (34%). The upper arch was reached in all treated patients (100%); in addition, most patients had ≥ 3 teeth affected (96%), with central incisors affected in all patients (100%).

Conclusion: The most recurrent etiology was a fall from standing height and avulsion and extrusive dislocation were the most frequent traumas.

EVALUATION OF CYTOTOXICITY AND CHEMICAL CHARACTERIZATION OF DIFFERENT CALCIUM SILICATE-BASED MATERIALS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the in vitro cytotoxicity of filling materials.

Method: Three materials were evaluated: Biodentine (Septodont, France), Cimmo DTA (Cimmo, Brazil) and TheraCal LC (Bisco, USA), on NIH/3T3 fibroblasts. Each group was analyzed with 6 replicates, in duplicate. The sealers were analyzed in Teflon rings according to ISO 10993-5. Samples were suspended in DMEM to obtain eluents. The assay was performed in 96-well plates, containing 5×10^3 cells per well. After 24 h of cell exposure to the treatments, the supernatant was removed and the formazan crystals resulting from the MTT reduction were dissolved in 0.1 mL of DMSO. Absorbance was measured and cell viability in percentage was calculated in comparison to the negative control group.

Results: Surface analyzes and chemical characterization of the materials were performed using SEM/EDS, demonstrating the presence of calcium, silicate and their respective radiopacifiers. ANOVA and Tamhane's T2 Test statistical analysis were performed with a significance level of 5%. Cimmo DTA and TheraCal LC demonstrated a greater cytotoxic effect analyzed according to the ISO standard, resulting in lower cell viability than the Biodentine ($p < 0.05$).

Conclusion: The chemical elements and their respective radiopacifiers directly influenced the cytotoxicity of the materials. Keywords: Chemical Characterization. Cytotoxicity. Materials.

EVALUATION OF DENTAL SERVICES AND MULTIPROFESSIONAL PERFORMANCE IN PRIMARY CARE IN THE BASIC HEALTH UNIT

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of the study was to evaluate the dental services in primary health care offered to users of the Basic Health Unit (UBS - Headquarters) in the city of Paripiranga-BA, focusing on the multidisciplinary and intersectoral articulation between the Family Health Strategy (ESF) and the Family Health Support Center (NASF) to address disease prevention, health protection and promotion.

Method: A documentary research was carried out, which used data about dental services and multidisciplinary activities in primary care, obtained through reports of procedures by the 2 dentists linked to the UBS, referring to the 2017-2018 biennium and the 1st two months of 2019 in the e-SUS system. After this analysis, we proceeded with the categorization of joint actions between ESF professionals (nurses, doctors, dentists and community health agents) and NASF (nutritionist and psychologist) to evaluate the multidisciplinary performance in the scope of primary care in health.

Results: The results indicate that the dental services most offered to users include: tooth extraction, supragingival scaling, composite resin restoration and prophylaxis. The multidisciplinary actions developed between the ESF and the NASF ensured the resolution of health services associated with the establishment of bonds and autonomy of professionals.

Conclusion: It was concluded that the implementation of dental services is based on co-responsible care, in which the subject's role in the self-care process and the commitment of the multidisciplinary team to complement health promotion and prevention actions prevail.

EVALUATION OF EFFECTIVENESS IN ACTIVATION OF CHLORHEXIDINE GLUCONATE: AN IN VITRO STUDY

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Aim: The aim of the study was to evaluate the effectiveness of irrigation technique (IT) [conventional (CI), sonic activation (SA) and ultrasonic activation (USA)] using auxiliary chemical solution (ACS) [2% chlorhexidine (CHX) in the presentations [solution (sol) and gel], in the reduction of

root canal contaminated with *E. faecalis* in intratubular dentin.

Method: 60 lower premolar roots were selected and standardized. Afterwards, they were contaminated with *E. faecalis*, and divided into 6 groups (n=10) according to IT, ACS and presentation. Saline solution and 1% natrosol gel were used as controls. Bacteriological samples were collected before and after IT for colony forming units (CFU) counting. For Confocal Laser Scanning Microscopy (CLSM) analysis, 3 dentin discs were obtained for root thirds (RT) for quantification of intratubular viable cells (VC). Friedman/Wilcoxon tests were used to compare initial/final CFU and groups, Kruskal-Wallis to compare VC and U-Mann-Whitney to compare IT and RT.

Results: CFU results showed that USA was more effective than CI ($p < 0.05$). SA was more effective when using ACS-sol but in ACS-gel it was similar to CI ($p < 0.05$). CLSM results showed that CI still left many intratubular VC and that USA was better than SA and CI, respectively, in RT ($p < 0.05$). There was no difference between CHX gel and CHX solution in UFC and CLSM analyses ($p < 0.05$).

Conclusion: It was concluded that ACS activation optimizes its cleansing action in the root canal. (Supported by FAPESP 2015/23479-5; 2021/13871-6; CNPq 303852/2019-4, 421801/2021-2; CAPES 001).

EVALUATION OF EFFECTS OF THE ANTIBIOTIC TRICLOSAN ON MITOCHONDRIAL MORPHOLOGY OF ORAL SQUAMOUS CELL CARCINOMA CELL LINES

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To analyze, identify and compare alterations in mitochondrial morphology of oral squamous cell carcinoma cells (SCC-9) and its metastatic derivative (LN-1A), treated with Triclosan (TCS), using transmission electron microscopy.

Method: SCC-9 and LN-1A cells were treated for 48 hours with different concentrations of TCS and compared to cells treated with the vehicle (DMSO). At the end of the treatment, the cells were processed to be read by electronic microscopy. After obtaining the images, the area and perimeter of each of the mitochondria, as well as the distance between the mitochondria, autophagic vacuoles containing mitochondria, presence of fusion/fission, mitochondrial elongation and the quality of the mitochondrial cristae were quantified using the ImageJ software.

Results: Treatment with TCS in SCC-9 cells promoted an increase in the number of mitochondria at the concentration relative to the IC50, a reduction in the electron density of mitochondrial cristae at all concentrations and a tendency towards mitochondrial elongation at high concentrations of TCS. In LN-1A cells, treatment with TCS promoted a reduction in the number of mitochondria in the concentration relative to IC50, a reduction in the electron density of mitochondrial cristae in concentrations relative to IC25 and IC50, an increase in the number of mitochondria in vacuoles and a tendency to mitochondrial elongation in higher concentrations of TCS.

Conclusion: The results suggest that Triclosan affects mitochondrial morphological characteristics that reflect important changes in the dynamics of these cellular organelles, especially mitobiogenesis, mitophagy and membrane potential.

EVALUATION OF REMNANT DEBRIS IN ISTHMUSES OF MESIAL ROOTS OF MANDIBULAR MOLARS DAVID SALDANHA DE BRITO ALENCAR; ADRIANA DE JESUS SOARES, ANA CRISTINA PADILHA JANINI, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, CAIO CESAR RANDI FERRAZ, JOSÉ FLÁVIO AFFONSO DE ALMEIDA, MARCO ANTONIO HUNGARO DUARTE; MARINA ANGÉLICA MARCIANO DA SILVA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the removal of debris in regions of canals and isthmuses after the use of supplementary irrigation systems in canals with isthmuses of mesial roots of mandibular molars.

Method: One hundred mesial roots of mandibular molars were sectioned at 6, 4 and 2 mm from the root apex and then irrigated with 2.5% sodium hypochlorite (n=50) or 2% chlorhexidine gel with saline solution (n=50). Then the irrigants were activated (n=10) using passive ultrasonic irrigation (PUI), the XP-endo Finisher file, the EQ-S agitator device, the Easy Clean file or manual irrigation with syringe and needle (without activation). All root canals were instrumented with R25. The sections were evaluated considering the occupied area (in percentage) of debris (in canals and isthmuses) in scanning electronic microscopy (SEM) in a non-destructive way to the sample. For statistical analyzes between groups, the Kruskal-Wallis test was used, and for intragroup analyzes, the

Friedman test was used, both followed by the Dunn test for multiple comparisons with a significance level of 5% ($p < 0.05$).

Results: In the root canal region, 2% chlorhexidine gel was more efficient in removing debris using PUI at 6 mm, and PUI or Easy Clean at 4 mm. However, in the isthmus region, no statistical difference was found. Regardless of the activation method, the protocol of 3 activations, lasting 20 seconds each, significantly reduced the remaining debris.

Conclusion: In conclusion, the use of supplementary irrigation systems and activation of the irrigating solution improved the removal of debris.

EVALUATION OF THE DECOMPOSITION OF EXPERIMENTAL BLEACHING AGENTS CONTAINING ACTIVE BIOGLASS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The experimental gels with high concentrations of hydrogen peroxide (HP 35%) combined with active bioglass (Bioglass 45S5 - BG or Biosilicate - BS) demonstrated remineralizing capacity without intervening in the whitening promoted by the HP 35%. However, it is believed that this association can intensify the speed of adhesion of HP 35% to reactive oxygen species, accelerating bleaching, generating less contact of the bleaching agent on the tooth surface. In view of this, the objective was to evaluate the regulation of HP in relation to time, the pH and the color change released by experimental gels that contained the concentrations (0, 2.5%, 5%, 7.5%, 10 %) of bioglass (BG and BS) combined at HP 35%.

Method: A bleach with PH 35% was used without addition of BG or BS and (PH/BG and PH/BS) in concentrations (2.5%, 5%, 7.5% and 10%). Experimental bleaching gels containing BS or BG did not interfere with the bleaching efficacy of 35% hydrogen peroxide. The decomposition of the experimental whitening gel by the potassium permanganate titration method was performed in an automatic titrator (Hanna Instruments) with a potentiometric electrode.

Results: The titration tested that the variation in the concentration of hydrogen peroxide over time was similar between the experimental groups, however the PH35% (control) showed a higher concentration of hydrogen peroxide at the end of the PH composition.

Conclusion: The experimental groups containing BG or BS, regardless of the concentration, adopted alkaline pH in relation to the neutral pH of PH 35%.

EVALUATION OF THE PHYSICOCHEMICAL PROPERTIES OF AN EXPERIMENTAL BIOCERAMIC ENDODONTIC SEALERS WITH CHITOSAN BIOPOLYMER

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Chitosan is a natural biopolymer extracted from the arthropod exoskeleton and is a material with wide application due to its antimicrobial, healing, repairing and bioactive properties. This study evaluate the use of chitosan in the vehicle of an experimental calcium silicate-based sealer. As a comparison, this study evaluated Bio-C Sealer bioceramic and a control, without chitosan.

Method: To evaluate the behavior of adding the biopolymer to the vehicle, the ISO 6876/2012 physicochemical tests were used (n = 6). The chemical and crystalline characterization was performed by scanning electron microscopy (SEM) coupled with energy dispersive X-rays (EDS).

Results: The flow was greater for the Bio-C Sealer, with 33.12 mm, in relation to the other cements (p<0.05) experimental and control, with 16.94 and 19.61 mm, respectively. The setting time of the experimental sealer was similar to that of the control and Bio-C (p>0.05), with respectively 9h52min, 11h54min and 8h21min. The experimental sealer showed lower solubility (p<0.05) than Bio-C, with 0.91 and 1.52, respectively. Radiopacity was higher for Bio-C (p<0.05) and the same for the other experimental and control sealer (p>0.05), presenting 6.75, 3.11 and 3 mmAl, respectively. The pH increased from acidic to alkaline for the control and remained stable and alkaline for Bio-C and experimental. In SEM, smaller particle size of Bio-C and higher amount of calcium, by EDS, in relation to the other sealer it was observed.

Conclusion: The experimental sealer showed solubility lower than 3%, adequate radiopacity, setting time similar to Bio-C Sealer and alkaline pH in the 3 evaluation times.

FACTORS ASSOCIATED WITH PULPAL AND PERIAPICAL PROGNOSIS OF REIMPLANTED TEETH: RETROSPECTIVE STUDY

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to evaluate, through the medical records of the patients, the clinical and radiographic prognosis in reimplanted teeth during follow-up consultations carried out by the Dental Trauma Service (SATD). **Method:** 38 medical records were evaluated with patients of both sexes, aged 7 to 27 years old, attended by the SATD, between the years 2012 to 2023. Data were collected, such as: site of trauma, involved teeth, whether or not there was tooth loss, trauma classification, etiology, such as falling from a standing height, from a bicycle or motorcycle, sports practice, among others. In the case of dental replantations, the period of extra-alveolar time and the means of storage of the tooth were noted.

Results: Of the 38 patients evaluated, 26 were male and 14 were female, with falls from standing height being the main cause of trauma. The treatment performed for 15 of these patients was the use of filling paste FOP - UNICAMP, in 21 endodontic treatment was performed and 2 made use of containment.

Conclusion: Teeth that suffered avulsion-type trauma and were reimplanted had a favorable clinical and radiographic prognosis during preservation appointments.

FATTY ACID SYNTHASE INFLUENCES IN THE EXPRESSION OF AUTOPHAGY-RELATED GENES IN ORAL SQUAMOUS CELL CARCINOMA CELLS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The enzyme fatty acid synthase (FASN) has been shown to be important for cell survival, proliferation and metastatic spread in several human cancers, including oral squamous cell carcinoma (OSCC). Autophagy is an intracellular catabolic process that has been suggested as relevant in malignant neoplasms, however, its role in OSCC is still controversial. Therefore, here we investigate the influence of FASN knockdown on the expression of autophagy-related genes in OSCC cells.

Method: RT-PCR arrays (Qiagen, Human Autophagy) containing primers to amplify mRNA associated with autophagy, such as unc-51-like kinase 1 (ULK1), mechanistic target of rapamycin (mTOR), and beclin 1 (BECN1) will be used to analyze 2 OSCC cell lines: SCC-9 and SCC-9 shFASN (SCC-9 genetically modified to specifically inhibit FASN). Western blotting and immunofluorescence reactions will be performed for transcripts that show significant changes in expression levels.

Results: Our preliminary results revealed that SCC-9 cells were arranged in epithelial nests with polygonal cells, while SCC-9 shFASN cells showed fibroblast-like morphology. FASN protein levels were significantly lower in SCC-9 shFASN cells than in SCC-9 cells, confirming the efficiency of silencing. Total RNA from both cell lines was extracted, and its quality and integrity were confirmed by electrophoresis on agarose gel stained with GelRed.

Standardizations of cell confluence and fetal bovine serum concentrations are underway to improve RNA extraction.

Conclusion: Taken together, our results will allow a better understanding of the role of endogenous synthesis of fatty acids in OSCC autophagy.

FISTULA TREATMENT AFTER DECOMPRESSION OF A DENTIGEROUS CYST USING THE BUCCAL FAT PAD DÉBORA NASCIMENTO CINTRA; BRUNO DEZEN VIEIRA, ALINE COELHO GONZALES PERES; ALEXANDER TADEU SVERZUT

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Presents a clinical case of a complication after exodontia of an upper third molar associated with a dentigerous cyst. The patient developed a bucosinus fistula, which was treated using buccal fat pad. The case illustrates different treatment possibilities for complex cases, serving as guidance for professionals and as a therapeutic guide for similar cases. This presentation is useful in raising awareness among patients and professionals about the signs, symptoms, and treatment possibilities for improvement of the condition.

Method: The patient attended the Faculdade de Odontologia de Piracicaba and underwent extraction of tooth 18 associated with a dentigerous cyst, followed by installation of a drain for decompression of the cyst. In 2022, the patient returned with the chief complaint of "passage of food and liquid into the nose" (SIC). Clinically, an oroantral fistula and mobility of element 17 were observed, which was indicated for extraction after endodontic evaluation.

Tomography showed a loss of continuity of the left maxillary sinus floor. The treatment chosen was closure using the buccal fat pad in two layers. A fistulectomy was performed and tissue was removed for pathological examination. The patient has been under follow-up for 8 months with no signs of recurrence.

Results: The diameter of the oroantral fistula in the reported case was 19,4X15,8 mm.

Conclusion: In these cases, the use of surgical techniques, such as the buccal fat pad, is indicated. The treatment performed with buccal fat pad has advantages, such as greater predictability and comfort to the patient, besides being used in cases of greater complexity as the one presented.

FORENSIC TAPHONOMY: CHARACTERISTICS AND RECOGNITION OF CASUISTRY OF THE FORENSIC DENTISTRY BIOBANK

VITÓRIA MARIA GUIMARÃES CIPRIANO DOS SANTOS; PABLO VERRENGIA SIMONI, THAÍS FADEL GONÇALVES, STÉFANY LIMA GOMES, ISRAEL MOREIRA PARADELA, JOÃO SARMENTO PEREIRA NETO, MÔNICA APARECIDA FRANCESQUINI; LUIZ FRANCESQUINI JÚNIOR

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: We sought to catalog taphonomic aspects found in different skeletons of the Forensic Dentistry Biobank and compare them with sex, age, population affinity and cause of death.

Method: The project was approved under CEP/FOP/UNICAMP CAAE 657977722.6.0000.5418. Skeletons were selected (n = 320, with 184 males and 136 females; 42 considered melanoderms, 89 faioderms and 188 leucoderms). In these, there was a photographic record of the skeletons, in order to discriminate taphonomic lesions, such as the action of rodents, color change due to soil minerals, transformative/putrefactive processes of thanatology, among others.

Results: The photographic record allowed obtaining 615 photographs, 29 of which were chosen for the preparation of a taphonomic and traumatological atlas. The taphonomic analysis indicated that the cause of death is related to the characteristics found.

Conclusion: Taphonomy is the area of science that aims to study the post mortem modifying processes of a corpse, which are also recorded in the bones and teeth. This includes, among others, the cause of death and the location of the biological remains. As a result of its object of study,

it has strong relevance within the forensic area, as it would allow discrimination between natural processes and those caused by crime. In this sense, the human identification process benefits from taphonomy, although this science cannot be used for positive identification.

FORENSIC TRAUMATOLOGY: CHARACTERIZATION AND PHOTOGRAPHIC REGISTRATION WITH THE LEGAL FORENSIC BIOBANK

ENZO PELLEGRINOTTI CORREA; ANGELO AUGUSTO DA SILVA BENEDITO, SORAYA MONTEIRO GUEDES FERNANDEZ, ANA FLÁVIA DE CARVALHO CARDOZO, ISRAEL MOREIRA PARADELA, JOÃO SARMENTO PEREIRA NETO, MÔNICA APARECIDA FRANCESQUINI; LUIZ FRANCESQUINI JÚNIOR

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: We tried to compare sex, age, population affinity and cause of death with lesions identified in skeletons belonging to the osteological and tomographic Forensic Dentistry Biobank.

Method: First, the project was approved through CEP/FOP/UNICAMP CAAE 657977722.6.0000.5418. Subsequently, 320 skeletons ($n = 100\%$) from the Biobank were selected for physical description and photographing.

Results: Of the skeletons, 57.5% were male and 42.5% female, and in relation to population affinity, most were leucoderms (58.5%), followed by faioderms (27.81%), melanoderms (13.2%) and xanthoderms (0.32%). Visual analysis was used for the description and identification of traumas and the photographs obtained for the preparation of a mini-atlas that brought indicative illustrations of the harmful agents and the injury produced. It is important to point out that the metallic plate for traumatic reconstruction with registration number can be used for positive identification.

Conclusion: Forensic traumatology is the study of traces and traumas resulting from aggressions, in order to identify the type of injury – among the seven different types of energies described by Borri – which makes it an indicator of the cause of death. Finding and recognizing the cause of death in the analysis of the lesions found can facilitate positive identification when it helps in the collection of samples for dental and/or DNA examinations.

GENOMIC LANDSCAPE FROM PLEOMORPHIC ADENOMA TO CARCINOMA EX PLEOMORPHIC ADENOMA BY WHOLE EXOME SEQUENCING

JOÃO FIGUEIRA SCARINI; SHEILA TIEMI NAGAMATSU, LUCIANA SOUTO MOFATTO, MARCELO FALSARELLA CARAZZOLLE, ERIKA SAID ABU EGAL, ROGERIO CASTILHO, ALBINA ALTEMANI; FERNANDA VIVIANE MARIANO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To identify the genetic alterations that drive the development of CXPA using whole exome-sequencing (WES).

Method: WES was conducted on DNA samples from 13 CXPA, 7 PA, and 5 residual PA individuals. Sequencing reads were aligned to the hg38 reference genome. Single nucleotide variants were identified in all samples, and a population disease allele frequency (AF) ≥ 0.2 filter was applied to the data.

Results: A total of 823 genes with non-synonymous mutations were identified, of which 251 (30.5%) were unique to PA, 236 (28.7%) were unique to residual PA, and 848 (18.3%) were unique to CXPA. We observed that mutations in 104 of these genes (12.6%) were present in PA and remained in the carcinoma counterpart.

Mutations in 65 genes (7.9%) were present throughout the entire adenoma-carcinoma sequence. Extracellular matrix-related genes were important targets in all the groups: COL5A3, COLCA2, COL24A1, ITGA3, LAMA5, and TNXB. Mutations in known tumor-suppressor genes, including PCDH9, LRMP, KDM5A, BHLHE41, EPB41L3, RB1, NEDD4L, TP53, PTPRT, ARL11, STARD13, SEPTIN4, ARG1, SMYD4, CNBP2, CHFR, and MAPK10 were found, along

with mutations in important oncogenes such as USP4, MUC4, BRAF, and GNAS. Additionally, MYB mutation was identified in the adenoma-carcinoma sequence for the first time.

Conclusion: These findings suggest that the malignant transformation of PA is a sequential process involving multiple oncogenes and tumor suppressor genes.

HEAD SPATIAL ORIENTATION AND THE EXPRESSION OF ARTEFACTS ADJACENT TO DENTAL IMPLANTS IN CONE-BEAM COMPUTED TOMOGRAPHY

JULIA RAMOS DE BARROS CANDIDO; MATHEUS BARROS COSTA, MATHEUS SAMPAIO DE OLIVEIRA, DEBORAH QUEIROZ DE FREITAS, ALEXANDER TADEU SVERZUT; MATHEUS LIMA DE OLIVEIRA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the influence of two head spatial orientations in relation to the projection plane of the X-rays on the expression of image artefacts adjacent to dental implants in cone-beam computed tomography (CBCT).

Method: Two polypropylene tubes were filled with an aqueous solution of dipotassium phosphate and inserted in a synthetic mandible, in the anterior and posterior aspects of a titanium dental implant placed in first molar region. The mandible was connected to a dry human skull to compose the phantom. Three repeated CBCT scans were acquired of phantom positioned in two different head spatial orientations –

perpendicular and parallel to the projection plane of the x-rays – using the OP300 Maxio adjusted at 90 kVp, 8 mA, field of view of 5 x 5 cm and voxel size of 0.125 mm. Mean gray and noise values of each tube were obtained using the ImageJ software and averaged for the three repeated scans. Because the Shapiro-Wilk test revealed normal distribution of the sample, Independent Sample T-Test compared mean gray and noise values between the two head spatial orientation ($\alpha=0.05$).

Results: The mean gray values were significantly greater in the parallel orientation for both tubes than in perpendicular orientation ($p<0.05$). However, the noise values were significantly lower in the parallel orientation for both tubes than in perpendicular orientation ($p<0.05$).

Conclusion: In conclusion, the parallel spatial orientation of the head had lower expression of image artefacts generated by a titanium dental implant in CBCT scans.

HISTOPATHOLOGICAL DESCRIPTION OF TWO RARE CASES OF ORAL MELANOMA ON THE HARD PALATE WITH DIFFERENT OUTCOMES

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aims to report two cases of melanoma on the hard palate.

Method: Case 1: A 71-year-old man came to the clinic for the management of a blackened lesion on the palate. He reported an evolution of 20 years with the presence of painful symptoms in the last 4 months. Incisional biopsy was performed revealing cell proliferation with intense pleomorphism, the presence of melanin inside the cells, tissue infiltration, and invading adjacent structures with tooth resorption. Given the characteristics, the diagnosis of melanoma was established. The patient underwent partial maxillectomy, radiotherapy, and later cervical emptying with evolution to death after 2 years of follow-up. Case 2. 49-year-old female for management of blackened and ulcerated lesion on the hard palate. Incisional biopsy was performed revealing a fibrinopurulent membrane in the superficial region of the tissue, deeply there is the presence of infiltrative pleomorphic fusiform cells and melanin pigmentation. The cells are arranged in sheets and there is intense chronic inflammatory infiltrate.

Results: Given the histopathological features, the diagnosis of melanoma was established and the patient underwent partial maxillectomy and cervical emptying due to metastases to cervical lymph nodes. After 4 years of follow-up, the patient remains in follow-up.

Conclusion: This study described two cases of oral melanoma on the hard palate. Although melanomas are uncommon in the oral cavity, they can affect this location. The dental surgeon should be aware of their clinical presentation to establish an early diagnosis.

HORIZONTAL ROOT FRACTURE IN CBCT: INFLUENCE OF A NEARBY IMPLANT, TUBE CURRENT, AND METAL ARTEFACT REDUCTION TOOL

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to evaluate the impact of a zirconium implant on horizontal root fracture (HRF) detection in a nearby tooth. In addition, to assess the effect of the tube current (mA) and metal artefact reduction (MAR) tool in this diagnosis.

Method: Nineteen single-rooted teeth (ten without HRF and nine with HRF) were individually positioned in the right central incisor tooth of a maxilla and scanned with the OP300 Maxio unit. Cone-beam computed tomography (CBCT) exams were obtained with and without a zirconium implant placed nearby each tooth, using three levels of mA (4 mA, 8 mA, and 10 mA), two MAR modes (enabled and disabled), 5 x 5 cm field of view, 0.085-mm voxel size, and 90 kVp. Four examiners evaluated the CBCT exams. Sensitivity, specificity and the area under the receiver-operating curve for the detection of HRF were calculated and compared by multi-way Analysis of Variance ($\alpha=5\%$). The intra- and interexaminer agreements were assessed by weighted Kappa test.

Results: The presence of the zirconium implant decreased the AUC ($p<0.0001$), sensitivity ($p<0.0001$), and specificity ($p=0.005$). Tube currents of 8 mA or 10 mA led to greater AUC values ($p=0.010$). Overall, the negative effect of the presence of the implant did not happen when MAR was enabled. The values of intraexaminer agreements varied from moderate to almost perfect and the values of interexaminer agreements were moderate.

Conclusion: The presence of a zirconium implant impaired HRF detection when MAR was disabled. In this scenario, a tube current of 8 mA is recommended to increase the diagnostic performance while avoiding non-essential radiation dose to the patient.

IDENTIFICATION OF INFLAMMATORY MEDIATORS AND THEIR REPERCUSSIONS IN PRIMARY ENDODONTIC INFECTIONS

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Aim: The aim of this study was to evaluate the influence of chemo-mechanical preparation (CMP) and intracanal medication (ICM) on lipopolysaccharide (LPS) levels and inflammatory modulators.

Method: Microbial samples were collected from 10 patients diagnosed with necrosis of the pulp tissue, presence of chronic apical periodontitis and absence of symptoms. LPS levels were quantified using the Limulus Amebocyte Lysate (LAL) test and pro-inflammatory cytokines (IL-1 α , IL-1 β ; TNF- α) and prostaglandin E2 (PGE2) using enzyme immunoassay (ELISA). LPS levels were quantified before, after CMP and after 30 days of ICM with calcium hydroxide [Ca(OH)₂] and 2% chlorhexidine gel (CHX). Cytokines and PGE2 were quantified after CMP (initial analysis) and after 30 days of ICM based on Ca(OH)₂ + CHX. Analyses were performed in the R program, considering a significance level of 5%.

Results: Significant decrease in LPS levels was detected after CMP and after ICM ($p < 0.05$). Significant decrease in IL-1 α , IL-1 β and TNF- α levels were found after ICM. No significant difference was observed for PGE2 after ICM ($p > 0.05$).

Conclusion: It is concluded that chemo-mechanical preparation and intracanal medication are capable of positively influencing the significant reduction in LPS levels and in the production of pro-inflammatory cytokines.

IMAGE QUALITY OF INTRAORAL PHOTOSTIMULABLE PHOSPHOR PLATES DISINFECTED WITH DIFFERENT ALCOHOLIC SUBSTANCES

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Aim: The aim in this study was to evaluate objectively and subjectively the quality of images obtained with PSP receptors disinfected with different alcoholic substances, using two PSP systems.

Method: Eight PSP receptors - 4 from VistaScan® and 4 from Express® systems - were used. Two PSP receptors of each system were disinfected with 70% isopropyl alcohol and 2 with 70% ethyl alcohol. Before disinfections (baseline), and after every 5 cycles of disinfections, 2 radiographs of an acrylic block and 2 radiographs of an aluminum step wedge were acquired using each of the 8 PSP receptors. In total, 100 disinfections and 672 radiographs were obtained. Gray values of the radiographs were analyzed regarding contrast, density, uniformity, and noise. Also, 4 oral radiologists evaluated the images for the presence of artifacts, and 2 of them measured the largest dimension of the artifacts. Two-way analysis of variance and Pearson's correlation analyzed the data ($\alpha = 0.05$).

Results: Differences between the images of the baseline and disinfection groups were small for all parameters, for both radiographic systems and disinfectant substances, except for contrast. Image contrast varied from 5 disinfections with 70% isopropyl alcohol for both systems. Correlation between number of disinfections and artifact size was positive and moderate ($p < 0.05$) for Express, and strong for VistaScan ($p < 0.05$), for both disinfectants. Artifact size was greater for VistaScan when 70% isopropyl alcohol was used ($p < 0.0001$).

Conclusion: Therefore, disinfection with 70% ethyl alcohol is recommended for the two PSP systems studied.

IMAGES ACQUISITION OF MICROSTRUCTURE OF TOOTH ENAMEL IN INTACT TEETH. EFFECT OF WAVELENGTH VARIATION OF EMITTED LIGHT

LÍVIA MARTINS ALVES; SÉRGIO ROBERTO PERES LINE

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Aim: Human tooth enamel is characterized by layers of prisms in alternating directions. These layers form Hunter-Schreger Bands (HSB) that appear as light and dark bands when viewed with side lighting. The aim of this work was to compare the effect of different light wavelengths in the images of HSB and assess the heating of irradiated surfaces.

Method: Twenty extracted human lower incisors were used (CONEP059/2-14). The HSB images were obtained with a Canon EOS5S camera attached to an InfiniProbe TS-160 objective. HSB were evidenced by applying laterally directed light (left and right side) emitted from a high-brightness RGB LED lamp.

Results: The RGB LED allowed obtaining photos with lights of different wavelengths and their combinations. Identical areas on the same tooth were demarcated and a densitometric analysis was performed with the ImageJ software. The area of the bands were compared between images of the same tooth obtained by different wavelengths. Comparative analysis of band areas did not show significant differences ($p > 0.05$) when compared using the Kruskal-Wallis test. The light source was maintained at a distance of 0.5 cm from the temperature sensor, and measurements were taken at times 0, 5 and 10 min. There was no significant heating of the sensor in the periods studied ($p > 0.05$).

Conclusion: No differences were observed with the different light wavelengths used.

IMMUNE RESPONSE DISTINCTION BETWEEN PATIENTS WITH MOLAR-INCISOR PATTERN OR GENERALIZED GRADE C PERIODONTITIS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Grade C periodontitis in young people (PerioC), rapid progression periodontitis, can have two different extensions: The molar-incisor

pattern (PerioC-MIP) and the generalized one (PerioC-G). Until now, the etiopathogenic differences that lead to the development of these two phenotypes are still unclear. Thus, this study aimed to characterize and compare the local immune response of healthy and diseased periodontal sites of both PerioC phenotypes and with periodontally healthy (PH) patients.

Method: For this, samples of gingival crevicular fluid (GCF) from 20 patients with PerioC-G and PH and 18 patients with PerioC-MIP were collected, and the quantification of cytokines IL-1 β , IL-5, IL-6, IL-10, IL-12, IL-17, TNF- α , and chemokines MIP-1 α and IL-8 were performed using the Luminex/MAGpix technology.

Results: Regarding the pro-inflammatory ones, our results showed that PerioC-G produces higher concentrations of IL-1 β and IL-6 at diseased sites than PerioC-MIP and PH ($p < 0.05$). On the other hand, PerioC-MIP produces more TNF- α and IL-12 and also more chemokines (MIP-1 α and IL-8) than PerioC-G and PH ($p < 0.05$). The anti-inflammatory IL-5 was elevated in PH patients compared with PerioC profiles ($p < 0.05$), and IL-10 levels were higher for PerioC-MIP compared with PerioC-G at diseased sites ($p < 0.05$).

Conclusion: In conclusion, PerioC-G and PerioC-MIP presented a distinguished activation pattern of immune response pathways. While PerioC-G seemed to have a primary response focused on IL-1 β production, leading to higher levels of IL-6 and lower of IL-10, PerioC-MIP, on the other hand, produces more TNF- α , and consequently, more chemokines.

IMPACT OF COVID-19 ON LEARNING OF STUDENTS OF THE SCHOOL OF DENTISTRY OF PIRACICABA –FOP/UNICAMP

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Aim: To assess how the COVID-19 pandemic has affected teaching and clinical practice at the School of Dentistry of Piracicaba - FOP/UNICAMP in the operative dentistry area.

Method: The Google Forms platform was used to administer a questionnaire with 20 questions about the pandemic's effects on student learning, mental health, and clinical-laboratory dental practice at the school, as well as student satisfaction with teaching methods. R software was used to analyze a total of 120 forms utilizing tables and graphs showing the distribution of absolute and relative frequencies.

Results: 99% of the students whose lives were examined had been impacted by COVID-19. Due to the pandemic's effect on distance learning, 50% of students thought about stopping their college studies or leaving out. The field of operational dentistry was the one most impacted by distance and a lack of practical experience. Most students confess that the workload in practical disciplines had been replaced, but 95% of them thought that there was still a gap in clinical and laboratory practice. In addition, 93.3% of students were concerned that their lack of professional qualifications would result from the pandemic's weaknesses.

Conclusion: Students expressed their discontent with the lack of clinical and laboratory practice in the field of operative dentistry because of the pandemic. They admitted that they were worried about how this would affect their professional futures. Given that dentistry is mostly a practical field that suffers from learning losses, the recommendation of distant classes should only be made in dire circumstances.

IMPACT OF GINGIVAL ALTERATIONS ON SMILE ESTHETICS: A PILOT STUDY

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Aim: This study aimed to evaluate the impact of gingival alterations on smile esthetics using real photographs.

Method: Fifty individuals were divided into three evaluator groups: laypersons ($n=14$); dental professionals ($n=20$) and dental students ($n=16$). A questionnaire was elaborated with 3 parts: Part I - participants'

demographic data; Part II – two questions about facial characteristics; and Part III - photographs evaluation using Visual Analog Scale (VAS). Twenty-five photographs of the female smile were taken with alterations in the gingival margin or interdental papilla positions, color changes due to varying degrees of inflammation or pigmented gingiva, gingival recession, and different upper lip positions during smiling.

Results: Most participants (56%) reported "looking at the mouth when communicating" and 95% of participants considered "the smile to be one of the most important facial esthetic features". Variations in the interdental papilla position and the presence of gingival recession were the least relevant changes in smile perception. On the other hand, the position of the upper lip and the melanin pigmentation presence had a negative impact on smile perception. Unilateral changes in the gingival margin position were considered less esthetic compared to bilateral changes. Comparing the different groups of individuals, significant differences in the perception of the harmonic smile were observed between the dental professionals and laypersons.

Conclusion: It was concluded by this pilot study that the position of the upper lip and the melanin pigmentation presence were the changes with the greatest impact on the perception of smile esthetics.

IMPACT OF PASSIVE ULTRASONIC IRRIGATION ON THE OUTCOME OF NON-SURGICAL ROOT CANAL TREATMENT: A SYSTEMATIC REVIEW

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Aim: To evaluate whether the use of Passive Ultrasonic Irrigation (PUI) has an impact on the success rate of non-surgical root canal treatment.

Method: The electronic search was performed up to January 2022 in six indexed database. Also, searches were performed on the grey literature. As dichotomous variables, the Relative Risk (RR) was used as an estimated effect, with a confidence interval (CI) of 95%. The certainty of the evidence was assessed using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach.

Results: Based on three included trials, the results showed that the use of PUI is more successful when compared to conventional syringe irrigation (CSI) on the periapical healing outcome (RR: 1.10; 95%CI: 1.01;1.21, I²=0%). The trial sequence analysis was performed using 5% type I error and 20% type II error, using a random effects model. This analysis showed that the evidence obtained in the meta-analysis can be considered "inconclusive". The certainty of evidence assessed by the GRADE approach was considered moderate due to imprecision. Moreover, the available evidence supports the use of PUI shows several benefits that could potentially lead to a more favorable outcome in root canal treatment.

Conclusion: It is clear that more high-impact RCTs with a larger sample size, longer follow-up periods, and following RCTs quality reporting guidelines are needed to fully understand the impact of PUI on the periapical healing outcome. However, the findings showed that the use of PUI has a potential positive impact on the periapical healing rate of nonsurgical primary root canal treatment when compared with CSI.

IMPACT OF PERIODONTAL HEALTH ON HIGH-PERFORMANCE ATHLETES

ENOQUE FERNANDES DE ARAÚJO; VINICIUS QUEIROZ MIRANDA CEDRO, STÉFANY DE LIMA GOMES, CAROLINE NOGUEIRA DE MORAES, ANDREZA MARIA LUZIA BALDO DE SOUZA, MARCELO DE CASTRO MENEGHIM; ANTONIO CARLOS PEREIRA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To describe the association between the periodontal health of high-performance athletes and their sports performance.

Method: This study adopts a qualitative, exploratory, and bibliographic approach, using research on databases such as MEDLINE, PubMed, SciELO, and BVS to examine the main periodontal pathological occurrences in high-performance athletes. There were no restrictions on date or language in the selection of studies included in the analysis. The descriptors used to conduct the searches were "Sports," "Sports Performance," "Oral Health," and "Periodontal Disease."

Results: Sports can be a risky lifestyle for the development of oral pathologies, but promoting periodontal health can have a positive impact on sports performance. It is essential for athletes to undergo oral health screening, clinical examination, and oral health promotion programs to assess risk status and minimize periodontal problems. **Conclusion:** It was concluded that the oral health of athletes is deficient and new studies are needed to evaluate the extent of the problem and investigate possible impacts on performance in order to obtain more robust scientific evidence.

IMPACT OF THE COVID-19 PANDEMIC ON PEDIATRIC DENTISTRY CLINICAL CARE IN A BRAZILIAN PUBLIC INSTITUTION

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study evaluated the COVID-19 pandemic impact on the procedures performed by dental undergraduates at Pediatric Dentistry Clinic in Piracicaba Dental School (FOP/UNICAMP), in pre- and post-pandemic.

Method: Four clinical disciplines comprise Pediatric Dentistry area (DC073, DC083, DC093 and DC103). However, only the first three have been evaluated so far. Data were collected from the institution's electronic medical record (2018 to 2023) and the analysis was performed quantitatively. All undergraduates' records were included. The procedures were categorized into oral adequacy, rehabilitation phase and preventive maintenance.

Results: An increase in procedures for oral adequacy was observed in post-pandemic period (92.5%, 79.9%, 79.4%) compared to pre-pandemic period (83.0%, 76.4%, 68.3%) in all disciplines. In pre-pandemic period, considering the rehabilitation and preventive maintenance phases, the procedures were greater in DC073 and DC083 (12.4% and 4.6%; 18.7% and 4.9%), respectively. In DC093 it was observed a higher number of procedures in pre-pandemic of the rehabilitation phase (26.8%) when compared to post-pandemic period (15.6%) and the opposite was observed in preventive maintenance procedures, being 4.6% before and 5.0% after the pandemic.

Conclusion: Despite some differences observed, there were structural changes in the dental clinic, as the biosafety intensification and the establishment of pairing in clinical. These changes suggest benefits in the teaching-learning process and the safe care for patients.

IMPROVED IMAGING OF TOOTH ENAMEL MICROSTRUCTURE. EFFECT OF CHANGING THE POSITION OF THE LIGHT SOURCE

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Aim: Knowing the biometric recognition capability from prism patterns of the enamel microstructure (Hunter-Schreger Bands - HSBs), the study aimed to verify the interference of light source position on HSBs observation quality.

Method: Among several points addressed, the ideal light source angle was identified, and the similarity variation between images was tested with 20° horizontal and vertical angle modifications. 29 teeth were photographed and manipulated with a software developed in Giovanni Fogalli's post-graduation project (FAPESP: 2018/23038-7), positioning the light source in 6 distinct ways: ideal angles, vertical ideal angle and horizontal increased by 20°, horizontal ideal angle and vertical reduced by 20°, both mesial and distal.

Results: Similarity matrices were generated between manipulated images, obtaining numerical data that score how much a tooth in one image resembles that in another. After t-tests, it was found that there was no significant difference between ideal angles by face, despite ideal means being 31.17° horizontally and 2.67° vertically. It was also proved that 20° variations are not significant concerning the ideal angle, although vertical variations are less relevant in this distinction.

Conclusion: Is possible to conclude that the project clarified that light source position characteristics do not interfere significantly in HSBs observational results, provided the employed techniques allow their actual observation, which is guaranteed by using the proposed ideal angles as a reference.

IN VITRO DETERIORATION OF MECHANICAL IMPLANT SURFACE DECONTAMINATION METHODS

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Aim: There is still a lack of effective non-surgical decontamination protocols for dental implants, including for 3D- printed surfaces. Thus, the purpose of this research was study the deleterious effects of different mechanical decontamination treatments on titanium (Ti) surface, electrochemical properties, biofilm cleaning potential, and cell behavior.

Method: 3D-printed Ti discs obtained by direct metal laser sintering were used. These samples were randomly and equally allocated to the following decontamination protocols: 1) untreated [control group]; 2) titanium curette; 3) plastic curette; 4) titanium brush; 5) water-air jet irrigator; and 6) Er:YAG laser application, the surface deterioration [confocal laser scanning microscopy (CLSM); inductively coupled plasma optical emission spectrometer (ICP-OES); profilometer and wettability] and corrosion [open circuit potential (OCP); electrochemical impedance spectroscopy (EIS); potentiodynamic] were analyzed before and after mechanical instrumentation. Additionally, the discs were decontaminated to analyze the fibroblast adhesion on these degraded surfaces by MTT assay. Data were analyzed inferentially ($\alpha = 5\%$).

Results: The application of the Er:YAG laser created minor morphological changes on the implant surface. Furthermore, laser-treated surfaces were found to be electrochemical stable and cytocompatible with gingival fibroblasts after instrumentation.

Conclusion: Therefore, Er:YAG laser can be considered a reliable decontamination protocol for 3D-printed implants surfaces, providing theoretical evidence for clinical translatability.

IN VITRO EVALUATION OF CYTOTOXICITY AND CHEMICAL CHARACTERIZATION OF DIFFERENT ENDODONTIC SEALERS

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Aim: The aim of this study was to evaluate the in vitro cytotoxicity of filling materials using different methodologies.

Method: Two new endodontic sealers were evaluated: AH Plus Bioceramic (Dentsply, Germany) and MTApeX (Ultradent, USA) against: EndoSequence BC Sealer (Brasseler, USA), BioRoot RCS (Septodont, France) and AH PlusJet (Dentsply, Germany), on NIH/3T3 fibroblasts. Each group was analyzed with 6 replicates, in duplicate. The sealers were analyzed: simulated root canals with apical foramen (#40.02); and in Teflon rings according to ISO 10993-5. Samples were suspended in DMEM to obtain eluents. The assay was performed in 96-well plates, containing 5x10³ cells per well. After 24 h of cell exposure to the treatments, the supernatant was removed and the formazan crystals resulting from the MTT reduction were dissolved in 0.1 mL of DMSO. Absorbance was measured and cell viability in percentage was calculated in comparison to the negative control group. ANOVA and Tukey statistical analysis were performed with a significance level of 5%.

Results: Surface analyzes and chemical characterization of the materials were performed using SEM/EDS, RAMAN and FTIR, demonstrating the presence of calcium, silicate and their respective radiopacifiers. AH Plus Bioceramic and EndoSequence BC Sealer demonstrated a greater cytotoxic effect analyzed according to the ISO standard, resulting in lower cell viability than the MTApeX ($p < 0.05$).

Conclusion: The test that simulated the root canal showed no statistical difference between the materials, suggesting that the volume of sealer in contact with the medium influence's cellular cytotoxicity.

IN VITRO FLUORIDE RELEASE AND RHEOLOGICAL PROPERTIES FROM TOOTHPASTES INDICATE INVIVO BIOAVAILABILITY DURING BRUSHING

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Aim: How much total soluble fluoride (TSF) a toothpaste formulation releases during toothbrushing should be evaluated as its anticaries potential. Moreover, rheological properties of formulations may interfere with TSF release. Thus, we developed an in vitro test to indicate TSF release and checked if it correlates with in vivo release and rheological properties from toothpaste formulations.

Method: A crossover in vivo study was conducted in three phases during which three volunteers brushed their teeth for 1 min with MFP/CaCO₃-based (1450 ppm F) and two NaF/SiO₂-based (1100 or 1450 ppm F) toothpastes, and collected the slurry produced. After that, saliva samples were collected during 120 min. The in vitro test (n=6) evaluated fluoride release by mechanically disturbing toothpaste samples (n=6) placed on the bottom of a flask and immersed in purified water for 1 min. TSF was determined in the samples and toothpastes with an ion-specific electrode. %TSF released and AUC for µg TSF/ml x min were calculated. A rheometer evaluated the stepped-shearflow curves (n=3) by increasing the shear rate from 0.1 to 30 s⁻¹ and then back to 0 s⁻¹. Viscosity (Pa.s) was defined by averaging the last 5 s for up and down-shear curves. Data were evaluated by one-way ANOVA-Tukey's or t-test (α=5%). Linear regression was checked for %TSF in vivo vs. other variables.

Results: MFP/CaCO₃-based presented the highest %TSF and lowest viscosity. High and significant linear regression was found between in vivo vs. in vitro and up-shear viscosity.

Conclusion: The in vitro test developed and rheological properties may indicate fluoride bioavailability from toothpaste during toothbrushing.

INFLUENCE OF AGENTS ON STREPTOCOCCUS MUTANS CELLS HYDROPHOBICITY

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Aim: The study aimed to evaluate the changes in *S. mutans* cell hydrophobicity triggered after exposure to agents that presented an anti-biofilm effect.

Method: *S. mutans* UA159 cells were grown until reaching two growth phases (mid-log and stationary). Next, they were treated with different agents (main targets per agent): compound 1771 (lipoteichoic acids metabolism; cell wall), 4'-hydroxychalcone (exopolysaccharides, cell wall), myricetin (exopolysaccharides, cell wall), tt-farnesol (cytoplasmatic membrane), sodium fluoride (enolase glycolysis), chlorhexidine (antimicrobial, positive control), and vehicle. After 10- or 60-min exposure, the treated cells were washed and assessed using a methodology to determine the hydrophobicity (phase separation method; hydrophilic cells in the aqueous phase and hydrophobic cells in the oil phase) by incubating cells with hexadecane. The OD_{550nm} values were determined longitudinally at 0, 1, 2, and 3 hours. The cultures were also visually inspected. The quantitative data were analyzed using descriptive and inferential statistics (α=0.05).

Results: In both growth phases, myricetin affected the cell's hydrophobicity because it lowered the OD readings over time (versus all other agents; Two-way ANOVA, Tukey's comparisons test). The vehicle control presented a more pronounced effect on the stationary phase than the mid-log phase. Chlorhexidine affected the hydrophobicity at the mid-log phase. The other tested agents did not significantly affect the cells' hydrophobicity.

Conclusion: Thus, among the tested agents, only myricetin changed in the hydrophobicity, which can affect the cells' ability to adhere to dental surfaces.

INFLUENCE OF THE USE OF POLYETHYLENE FIBER ON THE RESISTANCE TO FRACTURE OF TEETH WITH FRAGILIZED CUSPS

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Aim: This work aimed to evaluate the influence of the use of polyethylene fiber (FP) on the fracture resistance of teeth with fragilized cusps.

Method: Fifty human third molars were selected and divided into five groups (n = 10): Gc (Control group), RCti (Restoration in composite resin by the incremental technique), RCti+FP (Restoration in composite resin by the incremental technique + polyethylene fiber), BF (Restoration in composite resin by the Bulk-fill technique) and BF+FP (restoration in composite resin by the Bulk-fill technique + polyethylene fiber). Standardized MOD cavities with a 4 mm depth, leaving a 1,5 mm cusp thickness were made in all groups, except for Gc. The specimens were air abraded with aluminum oxide for 10 s, conditioned 35% phosphoric acid, Clearfil SE Bond applied and restored, according to the group. Restored samples were subjected to mechanical cycling (200,000 cycles under 50 N load) in a universal testing machine. Then submitted to a fracture resistance test at a speed of 1mm/min. Visual analysis of the type of fracture was made (Fracture of the pulp floor, Fracture of the cusp, Fracture of the pulp floor and cusp, No fracture) and diagnosis of the tooth (repairable, condemned or doubtful). The data obtained was submitted to statistical analysis with a significance level of 5%.

Results: No statistical significant differences regarding fracture resistance were found between groups.

Conclusion: Although the use of fiber polyethylene had no additional reinforcing effect on the fracture resistance, it did influence the tooth diagnosis as all the fractures in restorations reinforced with this fiber were considered as repairable.

INFLUENCE OF TOOTH EXTRACTION AND DIET ON INCISOR BITE FORCE IN OVARECTOMIZED RATS

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Aim: The aim of this study was to analyze the influence of tooth extraction and diet on incisor bite force in ovariectomized rats.

Method: Eighty female rats (Wistar lineage) were used. The rats were randomized into groups. Bilateral ovariectomy was performed in the rats of the OVX group and surgical simulation in the rats of the SHAM group. Followed 30 days after the day of surgery, extraction of the upper right incisor was performed, and a soft diet was introduced for half of the animals. At the beginning of the experiments, all the rats were being fed a hard diet. In vivo measurement of the bite force on the incisors (N) was performed, using a specialized sensor, in all animals after the day of tooth extraction. The Kruskal-Wallis test was performed and multiple comparisons between groups were analyzed using the Dunn test ($p < 0.05$).

Results: The Kruskal-Wallis test showed that there was a statistically significant difference between the groups ($P < 0.0001$). The highest bite force was detected in the group with OVX, tooth extraction and hard diet ingestion in relation to the other groups. The lowest bite force was detected in SHAM group with soft diet without tooth extraction in relation to the other groups.

Conclusion: In conclusion, although diet (hard or soft) caused variations in the magnitude of bite force, tooth extraction had a tendency to increase the force required for the bite to be executed. Funding: FAPESP process number 2021/04776-0

INFRARED LASER PHOTOBIMODULATION TO CONTROL PAIN IN PEDIATRIC WITH MOLAR-INCISOR HYPOMINERALIZATION- CASE SERIES

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to describe the low-power laser treatment of two patients with molar-incisor hypomineralization (MIH) and hypersensitivity.

Method: Two male patients aged 6 and 7 years old, respectively, attended the Pediatric Dentistry Service at the Piracicaba Dental School complaining of pain and sensitivity to thermal and mechanical stimuli and were diagnosed with MIH. In the first session, a sensitivity test was performed with friction with a Robinson brush for 3 s and with compressed air from a triple syringe, followed by pain measurement from 0 to 10 using the visual analog scale. We opted for photobiomodulation therapy with a low-power infrared laser with 2 J of energy, power of 100 mW for 20 s, per point, in the following points: 1 point in the cervical, 1 point in the occlusal, and 1 point in the apical region of each root. Four photobiomodulation sessions were performed, at weekly intervals. Then, follow-up consultations were carried out, with reports from those responsible and the patient, in addition to sensitivity tests, at intervals of 7, 14, 30, and 45 days after the end of the treatment. During the controls, caregivers and patients reported an improvement in pain symptoms after photobiomodulation sessions. It was observed that, on average, after 7 months of the first laser application, there was a complaint of pain in both cases.

Results: Thus, the remaining structure of the affected teeth was preserved by sealing it with resin-modified glass-ionomer cement.

Conclusion: In conclusion, photobiomodulation therapy with low-power infrared laser effectively controlled pain, allowing more quality of life for the evaluated patients.

INSIGHTS INTO MOLECULAR ALTERATIONS IDENTIFIED BY NGS IN PLEOMORPHIC ADENOMA AND CARCINOMA EX PLEOMORPHIC ADENOMA

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Aim: To perform a comprehensive and up-to-date literature review on the molecular profiling of pleomorphic adenoma (PA) and carcinoma ex pleomorphic adenoma (CXPA) using next-generation sequencing (NGS) highlighting their implications in the diagnosis, prognosis, and advances in precision medicine.

Method: An electronic search using 'pleomorphic adenoma', 'carcinoma ex pleomorphic adenoma', and 'next-generation sequencing' was conducted on February 2023, on MEDLINE by PubMed. The article selection was first performed by reading the titles and abstract and subsequently reading in their entirety. Only articles that contained molecular changes detected by NGS diagnostic or prognostic implications were included.

Results: Molecular alterations have been described in thirty-three genes in both PA and CXPA. Regarding PA, translocations and rearrangements result in fusion genes involving mainly PLAG1 or HMGA2, and the BOC-PLAG1 fusion appears to be a diagnostic marker. In turn, CXPA also harbors fusions involving PLAG1 or HMGA2 genes. Several mutations in cancer-related genes have been identified in CXPA being correlated according to histological subtype and capsular extent, with some mutations associated with poor prognosis.

Conclusion: In conclusion, this review highlights the importance of next-generation sequencing in the molecular profiling of PA and CXPA. The study identified molecular alterations in several genes, with diagnostic and prognostic implications, that can be translated into clinically applicable therapies to treat patients affected by these lesions.

INTEGRATED ANATOMO-FUNCTIONAL ENERGETIC VIEW OF FACIAL POINTS USED IN ACUPUNCTURE / SABELLA BARROSO SANCHES; ANA CLÁUDIA ROSSI, JORGE EIJO SATO; MARIA DA LUZ ROSÁRIO DE SOUSA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the connection between the functional and energetical effects of acupoints on the face and neck described by the Traditional Chinese Medicine (TCM) and the anatomic-functional knowledge described by the western medicine.

Method: Ten anatomical human head pieces from the anatomy laboratory were observed, regardless of sex or age and mostly from adult corpses aged 18 to 80 years. Disposable acupuncture needles were inserted in each acupoint according to the location and depth described in the literature, the anatomical structures reached by the needle and the interconnections between the anatomic-functional and energetical effects were detailed.

Results: The results were compiled for each energetic function and recommendation of each acupoint, analyzing whether these energetic functions and recommendations were totally, partially or not explained by the location and depth of the stimulus performed by needling. Seven acupoints were analyzed, performing the needling according to one of the main Atlas in acupuncture. Twenty-eight energetic functions of the seven acupoints were analyzed, of which 89,3% were evaluated as Yes, 0% as No and 10,7% as Partially. Seventy-two recommendations were analyzed, from 6 to 13, of which 52,8% were evaluated as Yes, 33,3% as No and 13,9% as Partially.

Conclusion: Most of the acupoints presented an anatomical-functional relationship partially explained by the knowledge of western medicine, thus demonstrating the importance of studies in search of energetic action mechanisms for non-coincident situations, in addition to being able to build material of clinical anatomical importance for acupuncturists.

INTERNET USE BY HIGH SCHOOL STUDENTS IN PIRACICABA/SP/BRAZIL: AN EXPLORATORY STUDY THALLYTA CUMI DA SILVA
BOAVENTURA SANTANA; KEUNY MARIA SANTOS DE OLIVEIRA, MARIA EDUARDA RODRIGUES DE OLIVEIRA SANTOS, MIGUEL
MORANO JÚNIOR; FÁBIO LUIZ MIALHE
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this exploratory study was to evaluate the use of the internet by a sample of high school students in the city of Piracicaba, SP, Brazil.

Method: Initially, the project was approved by the Research Ethics Committee of FOP/UNICAMP (CAAE - 67456017.2.0000.5418). The study included a convenience sample of 40 high school students from the city of Piracicaba, SP, Brazil, who participated in the Institutional Program of Scholarships for Scientific Initiation of High School (PIBIC-EM) at UNICAMP. They were invited to answer the Smartphone Addiction Scale-Short Version (SAS-SV) questionnaire, which identifies problematic internet risks, and a sociodemographic questionnaire.

Results: The results of the scores of SAS-SV questionnaire showed a high risk of smartphone addiction among the evaluated students.

Conclusion: The results of the present study demonstrated a high risk of smartphone addiction among the evaluated students, a fact that should be discussed in the school environment for the prevention of mental problems in students.

INTRAORAL INFILTRATION OF ANTI-INFLAMMATORY AGENTS IN POST-ENDODONTIC TREATMENT PAIN CONTROL – A SYSTEMATIC REVIEW

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Discomfort after non-surgical endodontic treatment is expected in some cases. In this context, steroidal anti-inflammatory (IAEs) or non-steroidal (IAIN) medications have been used in order to minimize or even eliminate this discomfort and can be administered before or after endodontic treatment. This systematic review aimed to answer the following question: "Is the use of injectable IAEs or IAINs effective in controlling pain after non-surgical endodontic treatment?"

Method: This study followed prisma recommendations and was recorded in the PROSPERO database (CRD42020212391). Several databases were used for the search, which was completed in September 2020. Two independent reviewers performed data extraction and assessed the risk of bias in the studies through the checklist proposed by the JBI Systematic Reviews for Randomized Controlled Trials tool.

Results: The search in the databases resulted in 2,016 records, of which only 6 were included in the systematic review. The studies were published between 1994 and 2019, including a sample of 509 patients, where efficacy in the control of postoperative pain after injectable administration of IAEs or IAIN drugs, pre or post-endodontic treatment, was investigated. Among the 6 studies, only one presented a high risk of bias, and the others low risk. All eligible studies adopted postoperative pain control for at least 24 hours.

Conclusion: A decrease in the incidence of postoperative pain was observed in patients undergoing anti-inflammatory injections, regardless of the route of administration (submucosal or intraligamentary injection), medication (IAEs and IAINs), dosage and pulp and periapical diagnosis in relation to placebo.

IONIZING RADIATION EFFECT ON THE DEJ CHEMICAL STRUCTURE MEDIATED BY P11-4, A SELF-ASSEMBLY PEPTIDE

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The effects of SAP on the organic (type IV collagen) and inorganic (PO43-) phase of DEJ in teeth irradiated by ionizing radiation (RT) were evaluated.

Method: Forty sound permanent third molars were allocated into the following groups (n=10): non-irradiated (GNI), irradiated (GI), irradiated treated with P11-4 (GIT) and irradiated treated with P11-4 analyzed 6 months after RT (GIT6). Groups GI, GIT and GIT6 underwent in vitro simulated radiotherapy (RT), received an equivalent to 70 Gy dose. GIT and GIT6 groups received treatment with P11-4 before each RT session. DEJ collagen IV and PO43- were evaluated by FT-Raman (n=7) and FTIR-ATR (n=3). The data obtained were submitted to the Kruskal-Wallis and Dwass-Steel-Critchlow-Fligner tests for comparison considering $\alpha = 5\%$.

Results: There was a significant reduction in the median of the integrated area in the peaks referring to phosphate at 960 cm⁻¹ and amide at 1245 and 1640 cm⁻¹ in the GIT and GIT6 groups. This decrease was not significant between GNI and GI at peaks 960, 1245 and 1640 cm⁻¹. Furthermore, there was no significant difference between the ratio of organic and inorganic content between the evaluated groups.

Conclusion: Thus, the previous application of PPA to RT demonstrated to have limited action on the organic and inorganic content.

IS QUINOA EXTRACT (CHENOPODIUM QUINOA WILLD) ABLE TO REVERSE THE BOND STRENGTH OF BLEACHED ENAMEL?

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Aim: To evaluate the capacity of experimental gels containing quinoa extract, a natural antioxidant, to reverse enamel bond strength immediately after bleaching.

Method: First, pH and antioxidant activity (%AA) of *Chenopodium quinoa* Willd (Qu) experimental gels (1.625, 3.25, and 6.5 wt%) were evaluated. Then, seventy-two bovine incisors were selected and randomized into six groups (n=12): 10% hydrogen peroxide (10%HP), 10%HP followed by sodium ascorbate 10% (SA), 10% HP followed by Qu (1.625, Qu3.2, and Qu6.5 wt%) and no treatment (C-control). Bleaching with 10% HP was carried out for 30 min daily for 14 days. Immediately after bleaching, antioxidants were applied for 10 min, and composite resin cylinders were built up on the enamel-treated surface to perform a microshear bond strength test (μ SBS).

Data (%AA and μ SBS) were evaluated by one-way ANOVA and Tukey post-test ($\alpha = 0.05$).

Results: The pH (=6.0) of experimental antioxidant gels remained stable over time, and no differences in the %AA, regardless of the Qu concentration. No differences were found among Qu gels and C, 10% HP, and SA treatments ($p > 0.05$).

Conclusion: The natural Qu-antioxidant gels exhibited a stable pH over time and antioxidant activity. Nevertheless, did not influence enamel bond strength immediately after bleaching.

IS THERE AN ASSOCIATION BETWEEN LOW BONE MINERAL DENSITY AND HEAD AND NECK SOFT TISSUES CALCIFICATIONS?

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to investigate if there is a relationship between low bone mineral density (BMD) and the presence of head and neck soft tissue calcifications (STC) and impaired visibility of the mandibular canal (MC). **Method:** One thousand panoramic radiographs of women aged between 50 to 75 years old were used for this retrospective study. The BMD was assessed by two evaluators using the Klemetti Index (C1-normal, C2-

moderately eroded and C3-severely eroded), and they should search for sialoliths, atheroma, phleboliths, calcified stylohyoid ligament, triticeus and thyroid cartilage, and classify the visibility of the MC at the ramus region. The chi-square test was used to evaluate the correlation between the Klemetti index with the presence of STC and the visibility of the MC. ($p < 0.05$).

Results: Overall, no significant association was found between the presence of STC and bone loss, apart from calcified thyroid cartilage which was less visualized at C3 group than others ($p < 0.05$). Higher bone loss was observed in women aged from 61 to 70 years old than those between 50 to 60 years old ($p < 0.05$). The C3 group presented the poorest visibility of the MC when compared with C1 and C2 groups ($p < 0.05$).

Conclusion: Broadly, no correlation was found between the presence of STC and bone loss. Meanwhile, greater bone loss had a positive correlation with aging and impaired visibility of the MC.

KEY MARKETING STRATEGIES IN DENTISTRY: A LITERATURE REVIEW

JADE MARQUES DA SILVA; BEATRIZ CRISTINA DE FREITAS; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Marketing strategies in dentistry use specific techniques to bring dentists closer to their patients. They can be used to clarify doubts, bring more knowledge about the procedures performed or directly to create a relationship of trust and credibility. To analyze the marketing strategies

most used by dentists in private offices and dental clinics.

Method: A literature review was carried out in the databases: PubMed/MEDLINE, LILACS, SciELO, WoS, Scopus and Google Scholar, in October 2022, referring to articles published from January 2012 to January 2022. 325 articles were identified according to the search strategy ("Dentists", "Marketing Strategies", "Clinics and dental offices"), after applying the inclusion and exclusion criteria, 10 articles were included in the review.

Results: Of the 10 articles included, 60% (n=6) were literature review studies, and 40% (n=4) were cross-sectional studies. The results indicate that the marketing strategies most used by dentists are leaflets and folders; the use of social networks has increased and they provide effective results, word of mouth is not the most cited marketing strategy in the literature, there are some problems in advertising such as ethical violations and unfair competition as well as ignorance of the ethical parameters involved in the use of publicity and propaganda.

Disciplines of clinical management and administration are still little explored in higher education courses in dentistry.

Conclusion: There is a need for more effective marketing models in dentistry.

LACTOFERRIN DIFFERENTIAL PRODUCTION BETWEEN PATIENTS WITH MOLAR-INCISOR PATTERN AND GENERALIZED GRADE C PERIODONTITIS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The rapid progression periodontitis, or Grade C periodontitis in young people (PerioC), can have two different extensions: The molar-incisor pattern (PerioC-MIP) and the generalized one (PerioC-G), with the etiopathogenic differences between them still unclear. Lactoferrin (LTF) is an important glycoprotein with antibacterial and anti-inflammatory properties, with lower levels of this marker associated with chronic periodontitis. Until now, no study has been done to investigate these protein levels in PerioC patients, being the aim of this study is to compare the local LTF concentration on healthy and diseased periodontal sites of both PerioC phenotypes and with periodontally healthy (PH) patients.

Method: For this, samples of gingival crevicular fluid (GCF) from 20 patients with PerioC-G and PH and 18 patients with PerioC-MIP were collected, and the LTF quantification was performed using the Luminox/MAGpix technology. The Kruskal-Wallis test was used to analyze the data.

Results: Regarding diseased sites, our results showed that PerioC-G produces less concentration of LTF than PH patients ($p = 0.003$) and then PerioC-MIP ($p < 0.0001$). At healthy sites, PerioC-G patients also produced LTF at lower concentrations than the other phenotype ($p = 0.0107$). No statistical difference was obtained when the GCF of PH patients was compared with PerioC healthy sites.

Conclusion: In conclusion, lower levels of LTF protein can also be associated with PerioC disease. Further, LTF levels varied between PerioC phenotypes, indicating possibly distinct etiopathogenesis between PerioC-G and PerioC-MIP.

LYMPHOEPITHELIAL CARCINOMA IN THE LOWER LIP: A CASE REPORT

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Lymphoepithelial Carcinoma (LEC) is a rare and aggressive subtype of head and neck squamous cell carcinoma (HNSCC) that has a similar appearance to the undifferentiated subtype of non-keratinizing nasopharyngeal carcinoma accompanied by a prominent reactive lymphoplasmacytic infiltrate. Here, we present a case report of LEC in the oral cavity.

Method: A 56-year-old male presented to a health service with an ulcerated and painful vegetating lesion with one year of evolution in the lower lip with a previous diagnosis of SCC. Patient reported being an ex-smoker and ex-alcohol user and difficulty in eating due to the lesion. Tumor resection was performed and a microscopic examination revealed diffuse infiltration of connective tissue by malignant epithelial cells with a dense infiltrate of lymphoplasmacytic cells invading up to the underlying musculature. Perineural invasion and eosinophilic infiltrate were also present. The neoplastic cells were positive for AE1/AE3 and p63 supporting the LEC diagnosis. In addition to tumor resection, the patient underwent neck dissection and chemoradiotherapy.

Results: There are no signs of recurrence or metastasis after 1 year of follow-up.

Conclusion: LEC is rare in the oral cavity and recognition of this histological subtype of HNSCC is important during the routine of the head and neck pathologist.

MICRO-CT EVALUATION OF DIFFERENT CLEANING PROTOCOLS IN DESOBSTRUCTION OF ROOT CANALS FOR FIBERGLASS POST PREPARATION

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FERRAZ; MARINA ANGÉLICA MARCIANO DA SILVA
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Aim: This study evaluated, by means of computed microtomography, the removal of remnants in the spaces of root canals, prepared for cementation of fiberglass post, through different cleaning protocols after post preparation in canals sealed with AH Plus, epoxy resin-based sealer, and EndoSequence HiFlow, calcium silicate-based sealer.

Method: Thirty human teeth with canals instrumented with Reciproc R50 were used: 15 teeth filled with AH Plus and 15 with HiFlow. After 30 days, the teeth were post prepared and divided into 3 cleaning groups: without agitation (n=5), with 5mL of 0.9% saline solution and 5mL of distilled water; with XP-endo Finisher (n=5) and with R1-Clearsonic and E1-Irrisonic inserts (n=5). In these last two groups, 1mL of 2.5% NaOCl was activated for 30 seconds, followed by 1mL of 17% EDTA for 30 seconds and finally 1mL of 2.5% NaOCl for 30 seconds. For each cleaning subgroup, two scans were performed, one after post preparation and the other after cleaning with different protocols. The percentage of remnants was evaluated in volume (mm²) in the CTAn program. The statistical test used was ANOVA for repeated measures and Bonferroni's post-hoc, with a significance level of 5%.

Results: In all groups, the cleaning subgroup that showed the greatest reduction in the percentage of remnants was the one that used ultrasonic agitation, proving to be an alternative for cleaning the canal prepared for cementing fiberglass posts.

Conclusion: Therefore, the use of an ultrasonic insert after desobturation of canals prepared for posts is an alternative to improve cleaning.

MICROBIOLOGICAL (FUNGAL) PROFILE AND MONITORING OF ROOT CANALS WITH SECONDARY/PERSISTENT INFECTION

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Aim: to evaluate the mycobiological profile of cases of failed endodontic treatment (ET) with the presence of chronic apical periodontitis (CAP) and of treated teeth without periapical lesion indicated for reintervention for prosthetic reasons (PM), the effect of mechanical chemical preparation (PQM) and of intracanal medication (MIC) on the prevalence of *Candida* species investigated

Method: We selected 20 cases indicated for endodontic retreatment (ER), 10 had primary ET failure evidenced by the presence of CAP and 10 were indicated for MP. Collections were performed immediately after root canal unobturation (CR), after PQM, and after using MIC for 30 days. The presence of fungal species *Candida* spp. was evaluated by Nested-PCR.

Results: Fungi were detected in 100% of the initial collections. *C. albicans* and *C. glabrata* were more prevalent. *C. albicans* was the most frequently detected fungal species in 100% of CAP cases and 30% of cases referred to the ER due to PM. RE altered the prevalence of species in both groups. Significant associations between detected species and clinical signs and symptoms were found ($p < 0.05$).

Conclusion: It was concluded that fungal species are present in endodontically treated teeth in the PAC and MP groups, with the main difference between both groups being the prevalence of the detected species. RE altered the prevalence of species in both groups. Specific fungal species are associated with the presence of the signs and symptoms presented. (Support FAPESP 2015/23479-5, 2017/16516-7, 2017/25090-3, 2019/14448-0, 2021/13871-6, 2021/14570-0; CNPq 303852/2019-4, 421801/2021-2; (CAPES 001). SISGEN: AD8AABAUM FAEPEX 2036/17

MINIMALLY INVASIVE STRATEGIES: MANAGEMENT AND CONTROL OF CARIES LESIONS IN PRESCHOOL PATIENTS

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Aim: The aim was to demonstrate the effectiveness of the application Silver Diamine Fluoride (SDF) for the control of carious lesions in preschool patients.

Method: Patient P.E.F.S., 5 years old, attended at the FOP/Unicamp Pediatric Dentistry specialization clinic through the Emergency Service with complaints consistent with Early Childhood Caries (ECC), in February 2022. He had a highly cariogenic diet, poor oral hygiene, and uncooperative behavior during dental care. After anamnesis, clinical and physical examination, it was found that he had active carious lesions in elements 55, 54, 53, 52, 51, 61, 62, 63, 64, 74, 75, 83, 84, and 85. Then dental prophylaxis was performed with prophylactic paste, Robson brush, and rubber cup, followed by isolation of the soft tissue with Vaseline and application of SDF with a disposable applicator on all affected teeth to paralyze the lesions, reducing the symptoms and enabling the child behavior management. A new application of SDF was necessary for elements 51 and 52, after 30 days.

Results: After 6 months, the patient was reassessed and the carious lesions treated with the SDF of the elements that remained in the mouth were effectively paralyzed and had the expected darkened appearance, which resulted in a decrease in the patient's complaints, which continues in attendance at the specialization clinic and allowed better adherence to treatment and adequate oral hygiene.

Conclusion: Treatment with SDF helps controlling caries disease in deciduous teeth affected by ECC and allows the management of child behavior in preschool.

MOLECULAR IDENTIFICATION OF CANDIDA IN PERSISTENT ENDODONTIC INFECTIONS

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Aim: The study investigated the presence of *Candida krusei*, *Candida parapsilosis* and *Candida glabrata* in cases of secondary/persistent infection (ISP); monitored the effects of mechanical chemical preparation (MCP) and the use of intracanal medication (MIC) on the investigated fungal species and compared the presence of clinical aspects to the presence of these species.

Method: Microbiological samples were collected from 20 teeth with ISP indicated for endodontic reintervention (ER), 10 with periapical lesion (CL) and 10 for prosthetic reasons (PM). Samples were collected from the CR after desaturation, MCP and MIC placement for 30 days, and then analyzed by Nested-PCR. Statistical tests were applied: Exact Fischer and McNemar.

Results: *C. glabrata* was found in 100% of the initial samples of the CL group, with a 100% reduction Post-MCP and Post-MIC. *C. krusei* and *C. parapsilosis* were not detected in any of the samples in the CL cases. In the (MP) cases *C. krusei* was seen in 10% of the initial samples, 10% in the Post-MCP and not found in the Post-MIC, *C. glabrata* and *C. parapsilosis* were not found in any of the samples in the MP group. RE reduced the prevalence of *C. glabrata* and *C. krusei* in CR ($p < 0.05$). No statistical associations were detected between the presence of species and clinical aspects.

Conclusion: It was concluded that *C. krusei* and *C. glabrata* are present in ISP cases. RE was effective in reducing *C. glabrata* and *C. krusei* in ISP cases. (Apoio FAPESP 2015/23479-5, 2017/16516-7, 2019/14448-0, 2021/13871-6, 2021/14570-0; CNPq 303852/2019-4, 421801/2021-2; (CAPES Finance Code 001). CEP: CAAE 483746157.0000.5418 Parecer: 4.301.708 SISGEN: AD8AABAUM. FAEPEX 2036/17

MORPHOLOGICAL STUDY OF THE PTERYGOID CANAL IN SKULLS FROM A BRAZILIAN SUBPOPULATION – STUDY IN CT SCANS

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Aim: The study aimed to evaluate the morphology of the pterygoid canal on computed tomography (CT) scans of a Brazilian subpopulation.

Method: 65 CT scans were included in the sample. The CT scans were from human skulls, adults, both sexes, belonging to a population of Brazilian southeastern. The CT scans were segmented in the region corresponding to the sphenoid bone and the pterygopalatine fossa. After the three-dimensional reconstructions, the types of pterygoid canals were analyzed following the criteria: type 1 (pterygoid canal completely within the sphenoid sinus), type 2 (pterygoid canal on the floor of the sphenoid sinus or partially protruding into the sphenoid sinus), and type 3 (pterygoid canal completely embedded in the sphenoid corpus). The prevalence of pterygoid canal types was analyzed descriptively according to the sex (female/male) and side (right/left).

Results: The sample was composed of 49,24% females (32 CT scans) and 50,76% males (33 CT scans). On the left side were found 6 pterygoid canals of type 1 (3 females and 3 males), 26 pterygoid canals of type 2 (11 females and 15 males), and 33 pterygoid canals of type 3 (18 females and 15 males). On the right side were found 5 pterygoid canals of type 1 (2 females and 3 males), 23 pterygoid canals of type 2 (12 females and 11 males), and 37 pterygoid canals of type 3 (18 females and 19 males). There were 11 (8,46%) pterygoid canals of type 1, 49 (37,69%) of type 2, and 70 (53,85%) of type 3.

Conclusion: The pterygoid canal of type 3 is the most common among the types of pterygoid canals. Type 3 had a higher prevalence in both sexes and side.

MORPHOMETRIC ANALYSIS OF THE FORAMEN OVALE IN HUMAN SKULL AND ITS RELATIONSHIP WITH THE SEXUAL DIMORPHISM

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Aim: The aim of this study was to describe the sexual dimorphism of the foramen ovale of dried human skulls from a Brazilian subpopulation using morphometric analysis.

Method: Fifty dried human skulls of both sexes, aged between 18 and 80 years, were used. The anteroposterior and transverse diameters of the foramen were evaluated, on both sides, using a digital caliper. The data obtained were submitted to statistical analysis using the software GraphPAD Prism v.8 (San Diego, CA, USA). The distribution of the data was verified by Shapiro-Wilk test and was considered normal. The mean and standard deviation of each dimension was computed. Sex differences were analyzed for each dimension using the Mann Whitney test with a p -value ≤ 0.05 .

Results: For both measurements, the Mann Whitney test showed significant difference when compared male and female sexes in a same side (P value: 0.0001). And for both measurements, the male sex presented higher values of the diameters in relation to the female on both sides.

Conclusion: In conclusion, the morphometric analysis of the foramen ovale is sexually dimorphic and this showed anatomical significance for the medical and dental procedures in cases of trigeminal neuralgia and in diagnostic detection of tumors.

MOTIVATIONAL FACTORS AGAINST THE IMPACT OF CONFINEMENT DUE TO COVID-19: A CASE REPORT OF A DISABLED PATIENT

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Aim: The objective of this work is to report the dental treatment of a 35-year-old male patient with mental and intellectual disabilities whose motivational factors were able to overcome the negative impact caused by COVID-19. This case report has a protocol in the Ethics Committee (CAAE: 65752322.2.0000.5418) where the dental care was provided.

Method: The clinical exams allowed identifying malocclusion with maxillary atresia, buccolingual inclination and crowding of the lower anterior teeth. In addition to poor oral hygiene, periodontal disease, mobility of anterior teeth and bone resorption due to occlusal trauma. After 3 months of periodontal treatment, orthodontic treatment was started with the installation of a fixed appliance, by prescription of Maxillary Transversal Bioadaptation.

Strategies and activities for interaction and motivation for adherence to treatment were carried out and resulted in the establishment of a relationship of trust between patient and team. After a year, the COVID-19 pandemic stopped treatment for about two years. This resulted in the regression of the results obtained, including regarding self-care.

Results: Dental treatment was resumed through prophylaxis procedures and consultations for periodontal treatment that took place interactively.

Conclusion: People with disabilities require dental care with specific strategies for their needs, which must be carried out by a multidisciplinary team. Despite the access limitation imposed by the pandemic, the patient reestablished his motivation to restart treatment, which was facilitated by the bond of trust established between him and the team.

MYTHS AND TRUTHS: ORAL HEALTH OF PREGNANT AND PUERPERAL WOMEN

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Instruct the female community of childbearing age about the myths and truths related to the oral health of pregnant and postpartum women.

Method: This is a literature review in the SciELO and PubMed databases.

Results: Pregnancy is a period that involves hormonal and metabolic changes that affect women's health and influence fetal development. Citing some myths: pregnancy causes tooth decay; dental floss should be avoided in inflamed gums; local anesthetics are not safe; sugar-free gum and mouthwash replace mechanical brushing; hygiene is only efficient with a large amount of toothpaste and performed with hard bristle brushes to remove plaque; among others. Citing some truths: hormonal changes aggravate periodontal diseases; vomiting exposes the enamel to stomach acid, causing tooth sensitivity and erosion; certain soft brushes reduce risk of wear; the radiation dose during dental radiography is very low and with the protection of lead aprons it is possible to guarantee the safety of the mother and fetus; periodontal alterations are common (gingivitis, gingival hyperplasia and pyogenic granuloma), salivary alterations (flow and buffering capacity) and caries, related to poor oral hygiene; dental floss prevents interproximal caries; inflammation mediators of periodontal disease, such as prostaglandins, can induce premature delivery; among others.

Conclusion: Based on studies, during pregnancy, women are more likely to acquire new knowledge and change diet and oral hygiene habits, with the aim of promoting and preventing health; demystifying apprehensions and popular beliefs about dental treatment.

NECK PAIN: EFFECTS OF PULSED ELECTROMAGNETIC FIELD THERAPY AND PHOTON THERAPY

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Aim: The aim of this study was to evaluate the decrease in pain and energy balance in patients with neck pain after using electromagnetism therapy and photon therapy.

Method: To assess initial pain (VAS I), after therapy (VAS F) and on the next day (VAS T), the Visual Analogue Scale (VAS) was used, which ranges from 0 to 10. Objective pain measurement was performed by algometry at the initial (ALI) and final (ALF) moments in bilateral acupoints GB20 and GB21. The assessment of energy balance was performed using the Ryodoraku method, also at the initial (ERYI) and final (ERYF) moments. The Test Group (TG) received electromagnetism using the Kenkobi device (intensity of 0.055 mT and frequency of 60 Hz) and photon therapy through a blanket that emits long infrared rays and in the Placebo Group (PG) the device was not activated and the blanket was not used. The t test and ANOVA were used, with $p \leq 0.05$. 48 volunteers were randomized into two groups.

Results: In TG there was a greater decrease in pain in VAS T compared to VAS I, from 6.96 to 3.50 than in PG (6.21 to 5.50) ($p = 0.020$). The TG maintained pain resistance at the left GB20 point ($p = 0.019$), when comparing ALF and ALI. In the TG, 11 of the 12 meridians showed a drop in energy, while in the PG, only 6 meridians showed a drop ($p < 0.05$). There was no achievement of energy balance ($p > 0.05$).

Conclusion: The electromagnetic device was effective in reducing late pain in patients with cervicobrachialgia and did not promote energy balance. More studies are needed to evaluate this energy balance, considering the energy expenditure caused in the TG.

OCCLUSAL DEVICES OBTAINED BY A DIGITAL WORKFLOW

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Aim: Present a complete sequence of making a customized bite splint using exclusively a digital workflow.

Method: The production of the occlusal device by the digital technique started with the receipt of the intraoral scanned models in STL format. The chosen CAD software was Exocad version 3.0 Galway, which generated a service order and the subsequent import of the STL models of both arches and their mounting on the semi-adjustable virtual articulator BioArt 7. During the design phase, the average thickness of the splint was determined to be 3mm, its extension limits, and the relief zones to avoid excessive retention. After slicing the design in the Lychee software, the splint was printed on an Anycubic Photon M3 monochromatic LCD 3D printer using BioSplint biocompatible resin, and finally finished and polished.

Results: The study clearly and objectively presented the sequence of producing an occlusal device using the digital workflow. It was also possible to produce a bite splint following the described workflow in less than 24 hours. The process involves three stages: obtaining and aligning 3D files, designing the device, and 3D printing. **Conclusion:** It was possible to demonstrate the production of an occlusal device using the digital workflow in conjunction with 3D printing. Additionally, a simple sequence was developed that can be followed by trained professionals.

ONE-YEAR SPECTROPHOTOMETRIC ANALYSIS OF DENTAL DISCOLORATION CAUSED BY A INTRACANAL CALCIUM SILICATE-BASED DRESSING

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BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, MARINA ANGELICA MARCIANO DA SILVA; ADRIANA DE JESUSSOARES
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Aim: Regenerative endodontic procedures (REP) offer a valuable solution for promoting apical formation continuity and increasing the thickness of dentin walls, particularly in necrotic teeth with incomplete apices. This study aimed to evaluate the extent of coronal discoloration caused by a novel intracanal calcium silicate-based dressing and compare it with other commonly used intracanal dressings in REP.

Method: Sixty bovine incisors were prepared to simulate teeth with incomplete apices, and divided according to the intracanal dressing used: triple antibiotic paste - TAP, double antibiotic paste - DAP, calcium hydroxide associated with 2% chlorhexidine gel, calcium hydroxide associated with saline solution, and Bio-C Temp. As control, no dressing was performed. The intracanal dressings remained in the simulated root canal for 21 days. Luminosity (ΔL) and color difference (ΔE_{ab} and ΔE_{00}) were evaluated using long-term (1 year) spectrophotometric analysis. The results were analyzed using the ANOVA test with Tukey's post hoc with a significance of 5%.

Results: TAP showed the highest values of ΔE_{ab} and ΔE_{00} and lowest values of ΔL ($p < .05$). Bio-C Temp showed higher ΔE_{ab} than the other groups from 6 months ($p < .05$), higher ΔE_{00} and lower ΔL after one year ($p < .05$).

Conclusion: After one-year analysis, Bio-C Temp caused observable coronary discoloration.

ORAL STENT TO BE USED IN RTHN: DESIGN AND MATERIALS. - A REVIEW

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Aim: Radiotherapy in head and neck (RTHN) cancer may cause toxicities to patient's tissues and they are divided in acute and chronic sequelae. The intraoral stents are been proposed as an option to protect the normal tissues from the radiation coming from the irradiated area. In this context, the goal of this study was to conduct a literature review to address the state of the art on intraoral stents producing for radiotherapy treatment in head and neck cancer

Method: Database search considered PubMed and Google Academic, concerning April 2010 to March 2023, as well English language, using the descriptors "intraoral stents", "radiation shielding" and "head and neck cancer". Based on the exclusion/inclusion criteria, 10 articles were included in this review.

Results: The results in this review evidenced that the intraoral stents capacity of move away the normal tissues from the irradiated area, sparing them of complications due the radiation. It was verified that the use of intraoral stents during the radiotherapy increases the distance between the mandible and maxilla, thus making it possible to preserve the maxilla from radiation damage. The most material used for stents producing was polymethylmethacrylate (PMMA). Furthermore, researches are driven to evaluate the incorporation of nanoparticles with high Z number into the intraoral stent, in order to make it a radiation attenuator, in addition to moving away the tissues from the radiation.

Conclusion: Based on this review, it was concluded that designs and materials for making intraoral stents are incipiently being researched as a way to attenuate radiation in RTHN.

PERCEPTION AND CONDUCT OF RESEARCHERS IN CALIBRATION FOR MALOCCLUSION

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Aim: The objective of this study was to evaluate the perception of researchers who carry out research on malocclusion in relation to the calibration stage and the way they conduct it.

Method: An observational, cross-sectional, descriptive, quantitative study was carried out with 50 researchers. An online questionnaire was applied to researchers in the areas of Orthodontics, Pediatric Dentistry and Public Health who carry out research on malocclusion. Three search strategies were designed to allocate the target audience: a) public consultation on an open data platform to identify postgraduate courses in the areas of interest and contact e-mail of the coordinators, b) bibliographic search of published articles focusing on epidemiological surveys on malocclusion and c) prior identification of target-audience researchers. The results were presented descriptively with frequency distribution tables.

Results: Of the 50 volunteers, 24 reported having participated and/or organized a calibration stage for malocclusion, being them the target audience of the study: 5 of them from the Pediatric Dentistry area, 10 from the Orthodontics area and 9 from the Public Health area. The results showed that there is great variability among researchers on how to conduct the calibration step for clinical and/or epidemiological studies on malocclusion. Despite presenting a consensus on the malocclusion assessment instrument, this was the variable with the greatest inconsistency in the response.

Conclusion: It is concluded from this work that there is no methodological standardization of the calibration stage in clinical and/or epidemiological studies on malocclusion.

PERIPHERAL FACIAL PARALYSIS: IMPACT ON QUALITY OF LIFE

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Aim: To discuss peripheral facial paralysis (PFP) and its impact on quality of life.

Method: This is a literature review on Google Scholar and SciELO databases.

Results: The peripheral facial paralysis (PFP) generally has a benign prognosis, but it should not be underestimated, as it can cause serious psychological and social consequences. PFP results from a dysfunction of the VII cranial nerve. Although patients may have a history of a wide variety of congenital or acquired diseases, the most common etiology is idiopathic, known as Bell's paralysis. Among the manifestations of PFP, we can highlight facial asymmetry, difficulties in speaking, eating and involuntary spasms. The disability caused by PFP has significant effects on the physical and social functions related to the face, especially on individual identity, body image and social interaction, with repercussions on the functional capacity and quality of life of those affected. The exact cause of PFP has not yet been identified. The symptom that calls the most attention is the sudden, partial or total loss of movement on one side of the face. The diagnosis is based on clinical and neurological evaluation of the patient. The treatment of PFP is symptomatic and includes the use of medication, physiotherapy and speech therapy.

Conclusion: In this research, there were few studies referring to the relationship between facial paralysis and quality of life.

PHYSICOCHEMICAL AND ANTIBACTERIAL PROPERTIES OF AN EXPERIMENTAL PASTE ASSOCIATED WITH OZONIZED OIL

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Aim: The present study aimed to conduct a preliminary assessment of the physicochemical and microbiological properties of a new material as a proposal for filling traumatized teeth.

Method: Four experimental groups were created according to the filling paste composition (calcium hydroxide, zinc oxide, zirconium oxide, and ozonized or non-ozonized sunflower oil). For pH assessment, root canals of acrylic teeth (N = 10) were prepared, filled, and immersed in ultrapure water for 30 days. A pH meter determined the hydroxyl concentration in the medium. Radiopacity was measured in millimeters of aluminum. Flow properties were analyzed according to the ISO 6876/2012 standard. Agar diffusion and direct contact tests assessed the antimicrobial activity of the paste. The data were statistically analyzed at a 5% significance level.

Results: All groups showed an alkaline pH after immersion throughout the analysis. The flow values of groups with ozonized oil were higher than those referenced by the ISO 6876/2012 (17 mm in diameter). The radiopacity of all groups was higher than 3 mmAl. None of the groups presented inhibition halos, but all showed antimicrobial activity in direct contact.

Conclusion: Based on the physicochemical properties, the proposal of a filling paste associated with ozonized sunflower oil may represent a viable alternative for traumatized teeth.

PRACTICE OF PHYSICAL ACTIVITY AND ANXIETY LEVELS OF UNDERGRADUATE AND GRADUATE STUDENTS IN THE PANDEMIC

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Aim: The aim of this study was to describe the practice of physical activity and anxiety levels of university students during the Covid-19 pandemic.

Method: This is a cross-sectional study carried out from September 2020 to November 2021. 149 undergraduate and graduate students from the faculties that make up the State University of Campinas (UNICAMP) participated. They were invited to respond to an online form prepared on the Google-Forms platform, containing socio- demographic and health information about physical activity and the State Anxiety Inventory (IDATE-E). Descriptive data analysis was performed.

Results: It was found that 74.50% (n=111) were female and 25.50% male. Most had moderate (53.69%, n=80) and severe (33.56%, n=50) anxiety levels. Among those with severe anxiety, 72.00% (n=36) were female and 28.00% (n=14) were male, 62.00% (n=31) were aged ≤28 years and 38.00% (n=19) aged >28 years, 32.00% (n=16) used some medication for anxiety and/or depression and 64.00% (n=32) practiced physical activity at least two times a week.

Conclusion: It was observed that during the pandemic, most students had moderate and severe levels of anxiety, used psychotropic medication and reported practicing physical exercise during the pandemic.

PRECLINICAL TRAINING: EFFECT OF FINGER REST POSITION ON WORKING POSTURE DURING PRECLINICAL PROCEDURES

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ARARAQUARA DENTAL SCHOOL - UNESP

Aim: This study aimed to observe the effect of finger-rest position on working posture and angular deviation from the neutral position of the body's upper extremity during pre-clinical procedures.

Method: An experimental laboratory study was performed. Response variables were 1) working posture during cavity preparation, measured by the Compliance Assessment of Dental Ergonomic Posture Requirements (CADEP), and 2) angular deviation from the neutral position of the neck, trunk, arm and forearm, measured by the Software for Postural Assessment (SAPO) version 0.69. Independent variable was finger-rest position during cavity preparation (no finger rest, usual rest, and ergonomic rest). Class I cavity preparations (N=120) were performed on artificial molars (16, 26, 36, and 46). One-way ANOVA and Tukey's or Games-Howell's post-hoc tests were performed ($\alpha=0.05$).

Results: For the CADEP, there was no statistically significant difference for teeth 16, 26 and 36. For tooth 46, the final CADEP score was better during the work with no finger rest ($p=0.005$). There was a higher angular deviation of the arm during the work in tooth 16 with no finger rest ($p<0.001$). For teeth 26 and 46, the ergonomic rest provided less angular deviation from the neutral position of the arm ($p=0.009$ and $p=0.040$, respectively). For tooth 36, ergonomic rest provided less angular deviation of the neck ($p=0.043$).

Conclusion: It was concluded that the use of finger-rest positions during simulated cavity preparations, regardless of the type of rest position, provided less angular deviation from the neutral position of the neck and arm, although it didn't interfere with the working posture.

PRESENCE OF TREPONEMA IN PERIAPICAL LESIONS OF ENDODONTICALLY TREATED TEETH

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Treponema is a genus of Gram-negative bacteria of the Spirochaetaceae family that can be found in root canals of secondary endodontic infections. This study aimed to verify the presence of two species of Treponema in periapical lesions of teeth with failed primary endodontic treatment.

Method: Twelve periapical lesions were collected through endodontic microsurgery following all antiseptic care. Lesions were stored in Tris-EDTA buffer and stored at -80°C for further processing. The DNA of the samples was extracted and the same was used during the Nested-PCR. Specific primers for Treponema denticola and Treponema socranskii were used to identify the presence or absence of these bacteria through the presence or absence of a band in the electrophoresis gel. Positive and negative controls were used during the Nested-PCR. Data were tabulated in Excel to calculate the prevalence of each species.

Results: The prevalence of Treponema socranskii was 5.26% and Treponema denticola was 10.53%.

Conclusion: In conclusion, Treponema species can be detected in periapical lesions of teeth with failed endodontic treatment.

PREVALENCE OF ENTEROCOCCUS FAECALIS IN PERIRADICULAR LESIONS

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Aim: The aim of this study was to verify the presence of *Enterococcus faecalis* in periapical lesions of teeth with failed primary endodontic treatment.

Method: Twelve periapical lesions were collected through endodontic microsurgery following all antisepsis care. Lesions were stored in Tris-EDTA buffer and stored at -80 °C for further processing. The DNA of the samples was extracted and the same was used during the Nested-PCR. Specific primers for *Enterococcus faecalis* were used to identify the presence or absence of this bacterium through the presence or absence of a band in the electrophoresis gel. Positive and negative controls were used during the Nested-PCR reaction. Data were tabulated in Excel to calculate the prevalence of *Enterococcus faecalis*.

Results: The prevalence of *Enterococcus faecalis* in periapical lesions was 78.95%.

Conclusion: In conclusion, *Enterococcus faecalis* can be found in periapical lesions of teeth with failed endodontic treatment.

QUANTIFICATION OF TOTAL PROTEINS AND VIRULENCE FACTORS IN SYMPTOMATIC AND ASYMPTOMATIC NECROTIC TEETH

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Aim: The objectives were: 1) to quantify the total protein levels in the initial samples; 2) to evaluate the levels of lipopolysaccharides (LPS) and lipoteichoic acid (LTA) in symptomatic necrotic root canals associated with acute apical abscess (symptomatic group: G1); and in asymptomatic necrotic root canals (asymptomatic group: G2) in different stages of endodontic treatment.

Method: Samples were collected from 20 root canals, before and after chemo-mechanical preparation (CMP) with 2% chlorhexidine gel and after 30 days of intracanal medication (MIC) with (Ca(OH)₂) + chlorhexidine. Initial total protein levels were quantified with the Micro BCA Protein Assay, while LPS and LTA levels were quantified with the LAL and ELISA method, respectively.

Results: The results showed that G1 had a higher amount of total proteins compared to G2. LPS levels were higher in G1 than in G2 ($P < 0.05$). There was a significant reduction in LPS levels after CMP and ICM ($P < 0.05$) in G1 and G2. LTA levels were higher in G2 and significantly reduced in G1 after ICM; and in G2 after CMP and ICM (both $P < 0.05$).

Conclusion: It was concluded that the symptomatic group had higher levels of total proteins and LPS and that CMP was able to reduce LPS levels, but not LTA in the symptomatic group. High levels of LPS were correlated with spontaneous pain and pain on percussion in the symptomatic group. Keywords: acute apical abscess, endodontics, endotoxins, LTA, microorganisms, PCR Supported by FAPESP 2015/23479-5; 2021/13871-6; 2022/07799-3, 2017/25090-3; CNPq 303852/2019-4, 421801/2021-2; CAPES 001).

REPAIR OF CERAMIC RESTORATION USING COMPOSITE RESIN: A VIABLE ALTERNATIVE

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Aim: Indirect restorations are commonly used in anterior and posterior teeth because of their good mechanical properties and color stability. In certain situations, to avoid making a new restoration, repair using composite resin can be chosen.

Method: A 43-year-old male patient complained of food accumulation in a cavity of a posterior tooth. During the clinical examination, a lithium disilicate ceramic cavitated was observed in the posterior element. The treatment of choice consisted of composite resin restoration associated with adhesive procedures. Initially, the rubber dam isolation was performed and the cavity was cleaned using a spherical diamond tip and a low-rotation carbide bur.

Results: Next, cavity prophylaxis was performed with water and pumice stone. The hydrofluoric acid, phosphoric acid, silane and adhesive system were applied, followed by light curing. The composite resin was inserted using the horizontal incremental technique.

Conclusion: The approach involving repairs in ceramic restorations is still widely discussed in the literature. In this context, the use of composite resin is a viable alternative, presenting numerous advantages for the clinician and patient. Adequate knowledge of the type of ceramic, as well as its characteristics, is paramount for the long-term success of the technique.

REPLACEMENT OF CLASS IV RESTORATION IN COMPOSITE RESIN: CLINICAL CASE REPORT

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Aim: This case report describes the replacement of a class IV restoration with composite resin by the direct technique, presenting the clinical protocol used, from planning to definitive rehabilitation, with the purpose of spreading knowledge of the technique and helping

other professionals in their daily clinical routine.

Method: Patient JPJ, 28 years old, male, presented to the dental office complaining about the aesthetic aspect of a composite resin restoration on his anterior tooth. During the intraoral physical examination, the presence of a class IV restoration in element 21 was identified, which was unsatisfactory due to degradation and surface staining. For a complete and detailed esthetic analysis, intraoral photographs and molding with alginate were taken to make plaster models and it was identified that, in addition to the unsatisfactory restoration of tooth 21, both central incisors had incisal wear. As a treatment, prophylaxis, absolute isolation and replacement of the restoration of tooth 21 were performed by the direct technique with the aid of a silicone guide. A conventional 2-step adhesive system (Single Bond 2, 3M ESPE, St. Paul, MN, USA) and nanohybrid composite resins (Empress Direct, Ivoclar-Vivadent, Barueri, SP, BRA) were used, one for enamel reproduction and another for dentine. In addition, an addition of composite resin for enamel was performed in the incisal region of tooth 11.

Results: Finally, finishing and polishing the restorations were carried out.

Conclusion: Direct restorations with composite resins, when properly indicated and executed, allow the return of function in a satisfactory way and highly esthetic results.

RESISTANCE OF ENAMEL TREATED WITH DIFFERENT TOOTHPASTES AGAINST AN EROSIVE CHALLENGE

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Aim: To evaluate the percentage of enamel microhardness loss (%SHL) following erosive challenge and treatment with commercial toothpastes containing different remineralizing strategies: strontium acetate (SA), arginine 8% (AG), and tricalcium phosphate (TCP).

Method: Twenty enamel-dentin blocks were polished and treated with (n=5/group): SA (Rapid Relief, Sensodyne), AG (PRO RELIEF, COLGATE) TCP (PRO CLINICAL, BIANCO), and untreated control group (C). Specimens underwent an erosive cycling challenge for five days, comprising immersion in the toothpaste slurry (2 min, 2x/day), erosive acid challenge (0.3% citric acid, pH = 2.6, 4x/day), and immersion in artificial saliva (2 h, 4x/day). %SHL was verified on the 1st, 3rd, and 5th days and data were submitted to one-way ANOVA followed by post hoc Tukey ($\alpha = 5\%$).

Results: On the 1st day, the %SHL was approximately 40% in TCO and 52% in the C group, respectively, with no statistical differences among all the groups ($p > 0.05$). On the 3rd and 5th days, TCP caused %SHL significantly lower than C, ranging from 80% (TCP) to 90% (C). Although SA and AG toothpastes promoted %SHL lower than C ($p < 0.05$) on the 3rd day, no differences were found among these groups and TCP and C at the final hardness evaluation.

Conclusion: None of the dentifrices tested prevented enamel surface microhardness loss after erosive challenge, regardless of the evaluation time. However, tricalcium phosphate-containing toothpaste promoted lower microhardness loss than the untreated enamel surface.

RESTORATIVE APPROACH IN POSTERIOR TOOTH USING DEEP MARGIN ELEVATION TECHNIQUE

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Aim: Deep Margin Elevation (DME) has been widely studied in recent years, proving to be an interesting approach for deep proximal cavities.

Method: A 53-year-old female patient sought dental care for rehabilitation of a posterior tooth. Clinical examination revealed the presence of an extensively destroyed tooth. The treatment chosen was the making of a total lithium disilicate crown. The rubber dam isolation was performed and unsatisfactory restorative material was removed. This was followed by blasting with 50-micron aluminum oxide. After this step, the adhesive procedures were started. The copper band matrix was adapted and etched with 37% phosphoric acid. The Optibond FL adhesive system, a conventional three-step adhesive system, was then applied. After primer and adhesive system application, light curing was performed. The deep margin elevation procedure was performed with composite resin by the horizontal incremental technique. Dental impression was taken with addition silicone using two-step impression technique. In a second consultation, the dental crown was treated by hydrofluoric acid, phosphoric acid, silane and adhesive.

Results: In tooth preparation, etching with phosphoric acid and application of the adhesive system were performed. Dual-cure resin cement was used for cementation.

Conclusion: DME is considered a promising technique for posterior teeth, being an efficacy treatment alternative. Knowledge of dental materials, as well as knowledge of adhesive steps is essential for successful treatment.

RESTORATIVE DENTISTRY IN AESTHETIC SMILE: DIASTEMA CLOSURE

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Aim: Diastema in anterior area can compromise patients self-esteem, being a negative factor in self-perception aesthetic. Composite resins are an option of non-invasive treatment that shows great results and patient's satisfaction. This case reports a clinical intervention on smile harmony obtained through dental bleaching and composite resin restorations.

Method: A male patient, 23 years old, came to Operative Dentistry Specialization on Piracicaba Dental School – FOP (UNICAMP), with a complain about the gap between his anterior teeth, their colour and shape. The patient also related that he already did orthodontic treatment but the diastema got back. After extra and intra oral exams, it was chosen to do a dental bleaching and composites resin increments adding in specific spots. It was made the in-office (peroxide hydrogen 37%) and at-home (carbamide peroxide 16%) bleaching, and after patient aproval was performed a direct composite simulation and a silicon matrix was obtained to guide the restorative process.

Results: Lastly, polishing and finishing was made on the composite restorations.

Conclusion: The association between dental bleaching and composite resin additions in specifics spots with an adequate indication and work-flow provided an aesthetic smile with non-invasive approaching and pacient reliefand fullfill expectations.

RETROSPECTIVE STUDY OF CLINICAL AND RADIOGRAPHIC DATA ASSOCIATED WITH DISLOCATED TEETH

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To carry out a retrospective study evaluating the clinical and radiographic prognosis in dislocated teeth,evaluating medical records from the Dental Trauma Service.

Method: The study analyzed 362 SATD clinical records between 2012 and 2022. Data were collected on patients and their general health, and in relation to the trauma: date, time between occurrence and initiation of treatment, etiology, location, affected teeth, number of teeth involved, if there was tooth loss, classification, existence of associated facial injuries. Regarding the clinical evaluation: presence or absence of painful symptoms and/or coronary fractures; vertical and horizontal percussion test; palpation test; presence of mobility; presence of fistula;color change; assessment of pulp sensitivity; cavity test. In the radiographic exams, the following were analyzed: stage of root development; presence of periapical lesions; tooth positioning; obliteration of the pulp canal; presence of external and/or internal inflammatory resorptions; presence of substitution resorption.

Results: In the raw analysis of the data, we observed that there was a lesion mainly in the upper teeth, with thecentral incisor being the most affected; the most recurrent cause of trauma is falls. Regarding dislocation, it was observed that of the 1059 teeth evaluated, 628 of them suffered dental dislocation, among which 208 presented dental extrusion. In addition, tooth fracture was associated in 205 cases of dislocation.

Conclusion: We conclude that the prognosis of dislocated teeth is unfavorable, since 208 teeth had dentalextrusion and in 205 of the cases there was an association with fracture.

RETROSPECTIVE STUDY ON TRAUMATIZED TEETH WITH EMPHASIS ON MULTIDISCIPLINARY TREATMENT

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of the study was to carry out a retrospective analysis evaluating the multidisciplinary treatment bythe Dental Trauma Service (SATD) of FOP-UNICAMP.

Method: The study analyzed the clinical records of 362 patients treated at the SATD between 2013 and 2019. Data collection was carried out according to the date and the time of occurrence of the trauma, the beginning of treatment at the service. It was performed, etiology of the trauma, place of trauma, teeth affected, number of teeth involved, whether or not there was tooth loss, trauma classification according to the IADT. Data were also collected from referrals to areas that work in a multidisciplinary way, the areas are: endodontics orthodontics dentistry periodontics and maxillofacial surgery.

Results: Of the 362 medical records evaluated none of the patients required periodontal treatment; 216 neededendodontic treatment; 120 needed treatments in the field of dentistry, including direct and indirect restorations resulting from crown fractures or tooth whitening; 17 patients were referred to the surgery area, among them evaluation with associated fractures of the face, surgical traction, extractions and implants; 104 were evaluated regarding the need for orthodontic treatment.

Conclusion: It is concluded that there is a need for treatment between different areas of dentistry, so that it is possible to meet the demands and planning of patients with dental trauma. It is of paramount importance, the etiology to define the diagnosis and direct the appropriate treatment, since the prognosis becomes more favorable with a multidisciplinary and integrated treatment.

ROLE OF AMYLOID FIBRIL PRODUCTION IN BIOFILM FORMATION BY STREPTOCOCCUS SANGUINIS *EDUARDO MARTINELLI FRANCO; LÍVIA A. ALVES, HASSAN NAVEED, VICTOR A. FREITAS; RENATA O. MATTOS-GRANER*

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Aim: Multiple bacterial proteins can be assembled into amyloid fibrils (AF), which are protease resistant exopolymers involved in biofilm formation and host colonization. We have hypothesized that Streptococcus sanguinis, an abundant commensal oral species commonly involved in infective endocarditis, may produce AF, because it typically expresses a wide range of surface proteins. Thus, the aim of this study was to

investigate the production of AF by strains of *S. sanguinis* and its influence on biofilm formation.

Method: The presence of AF were investigated by polarized light microscopy in mature biofilms formed by *S. sanguinis* strains during 72h, which were treated with proteinase K and stained with Congo Red (CR). Biofilm formation in BHI medium supplemented or not with EGCG (0.1 and 1mM), an inhibitor of amyloid formation, was also assessed in four strains grown in 96 microtiter plates during 18, 48 and 72 h (37°C, 10% CO₂).

Results: Typical apple-green birefringent fibrils under polarized light and resistant to proteinase K were detected in mature biofilms formed by all the *S. sanguinis* strains analyzed. Medium supplementation with EGCG at 0.1mM, significantly reduced biofilm formation formed by all the strains tested (Kruskal-Wallis, $p < 0.05$).

Conclusion: These results indicate that most *S. sanguinis* strains produce AF and that these exopolymers are required for biofilm formation. This study was supported by FAPESP (proc. 2022/13074-9) and CAPES (financial code 001).

SCIENTIFIC EVIDENCE OF THE ASSOCIATION BETWEEN PERIODONTITIS AND ALZHEIMER'S DISEASE

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SAN FRANCISCO UNIVERSITY

Aim: Alzheimer's disease (AD) is one of the most prevalent neurodegenerative diseases and an important cause of mortality in the world, without effective measures for its prevention or interruption. Thus, the survival of possible risk factors associated with the development and progression of AD is sought, with periodontal disease (PD) being one of these objects of study.

Method: The present study was developed from a literature review based on scientific publications between the years 2015 to 2022. The databases used were PubMed, Google Scholar and Journal of Clinical Medicine.

Results: PD, like AD, is a chronic inflammatory/infectious disease that may be associated with other systemic disorders, which justifies a possible transition between the two. Among other factors felt for this relationship, there is the discovery of the presence of the periodontopathogen *Porphyromonas gingivalis* (Pg) in the brain of patients with AD. Furthermore, the activation of microglial pro-inflammatory cytokines and contribution to AD progression was described as possible to be triggered by the periodontopathogen *Aggregatibacter actinomycetemcomitans*. Finally, the swallowing of periodontal pathogens through saliva could intensify the dysbiosis of the intestinal microbiota, inducing an intense inflammatory response in this tissue.

Conclusion: It appears that periodontitis affects pathologies of systemic origin mainly through its inflammatory and infectious component and thus may be related to the development and progression of AD. However, more preclinical and clinical studies are needed to establish this relationship.

SCIENTIFIC INITIATION IN HIGH SCHOOL: IMPACT ON THE STUDENT'S TRAJECTORY

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This review aimed to analyze the impact of the participation of public school students in the Institutional Scientific Initiation Scholarship Programs for High School (PIBIC-EM).

Method: This was a literature review, based on publications on the theme in the following databases: LILACS, PubMed, Scielo. There was no date or language restriction and, after a careful selection, 12 articles were found, all of them national. The descriptors used for the search were "Scientific Initiation", "Social Impact", "High School".

Results: It was observed that students who participated in the program differentiate themselves from others both in the academic environment and in the job market. However, it was noted so far, that few studies address the impact of the program on students' lives in depth.

Conclusion: We conclude that the studies analyzed report a positive impact on academic development, the construction of a new vision of science, professional socialization, and awakening and encouragement of scientific vocation, as well as expose the need for the development of studies that address the impact on the lives of students.

SPEECH RECOVERY IN POST-COVID PATIENT USING TRADITIONAL CHINESE MEDICINE PRACTICES

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Aim: The aim of this case report is to demonstrate the use of Traditional Chinese Medicine (TCM) practices in the management of post-COVID patient with speech difficulties in a public health unit in Piracicaba/SP.

Method: 70-year-old female, smoker, arrived at the service referred by a health professional, complaining of speech difficulties and fatigue, which appeared after the COVID infection in 2021, not requiring hospitalization. The patient was evaluated by a volunteer acupuncturist associated to the Piracicaba School of Dentistry and included in an ongoing clinical study. The patient received 9 sessions of TCM practices using acupuncture, bloodletting, cupping and moxibustion, according to the protocol called González. Her speech difficulty was assessed before and after all sessions by Visual Analogue Scale (VAS), which ranges from 0 to 10. In addition, the patient had TCM tongue and pulse parameters

checked at the beginning of all sessions. At the beginning of the service, the VAS for speech difficulty was 7 and, at the end of the 4th session, the VAS was zero, remaining so until the end of the treatment, for fatigue dropped from 10 to 1. TCM anamnesis demonstrated that tongue was red with yellow sides, purple floor and curved tip indicating an energy stasis, and at the end she had a normal appearance. The pulse was at medium depth and energy throughout the period.

Results: The patient finished the treatment from the service without any difficulty speaking and with less fatigue.

Conclusion: The TCM techniques employed were able to nullify the speech difficulties caused by post-COVID, and could be a complementary practice to conventional treatment.

STRESS INDUCED PHOSPHOPROTEIN 1 CONTROLS PROLIFERATION, MIGRATION AND INVASION IN ORAL SQUAMOUS CELL CARCINOMA

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Although dysregulated expression of stress induced phosphoprotein 1 (STIP1) has been associated with malignancy phenotypes, therapeutic resistance and poor prognosis for several types of tumors, its role in oral squamous cell carcinoma (OSCC) has not been properly investigated to date. The aim of this study was to evaluate the impact of STIP1 on viability, apoptosis, proliferation, migration and invasion of OSCC cells.

Method: Two OSCC cell lines (HSC3 and SCC9), selected for having high levels of STIP1 expression, were submitted to a loss-of-function strategy by transducing lentiviral particles containing shRNA against the mRNA of the target protein. Cells transduced with nonspecific lentiviral particles were established and used as controls.

Functional assays, including MTS colorimetric assay, annexin-V FITC and 7-AAD staining, bromodeoxyuridine incorporation assay, colony formation assay and migration and invasion assays, were employed to investigate the effect of this protein on oral tumorigenesis.

Results: Our results demonstrated that STIP1 neutralization was significantly accompanied by a reduction in the proliferative, migratory and invasive potential of the HSC3 and SCC9 cells.

Conclusion: These results reveal that overexpression of STIP1 contributes to the aggressiveness of OSCCs, suggesting that STIP1 may represent a prognostic biomarker and possible therapeutic target for oral cancer.

STUDY OF THE POLYMERIZATION REACTION OF RESINOUS MATERIALS FOR ADHESIVE CEMENTATION

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Aim: To evaluate the polymerization shrinkage stress, degree of conversion and kinetics of the polymerization reaction of four resin-based cementing materials, as well as the flexural strength and modulus of elasticity of a feldspathic ceramic.

Method: The tested materials were VisCalor Bulk (Voco GmbH), Variolink Esthetic (Ivoclar Vivadent), Surefil SDR (Dentsply Sirona) and Filtek Z100 (3M Oral Care). For the polymerization shrinkage test, polymethyl methacrylate rods (13 and 28 mm in length x 6 mm diameter) were placed in a universal testing machine (n=5). The cementing materials were light cured for 20 seconds. VisCalor and Z100 were previously heated (65°C and 69°C, respectively). For the analysis of polymerization kinetics, 12 samples (6 mm diameter x 0.8 mm thickness) of the cementing materials were monitored by near-infrared Fourier transform spectroscopy for 5 minutes (n=3). To determine the flexural strength and modulus of the ceramic, disc-shaped samples of feldspathic ceramic (EX-3, Kuraray Noritake) with 14 mm diameter x 0.5 mm thickness were submitted to a biaxial flexure test (n=18).

Results: The evaluation of the polymerization shrinkage stress of cementing materials showed that Variolink obtained the highest mean, while VisCalor obtained the lowest. The speed of the polymerization reaction was lowest for the Variolink Esthetic LC and highest for the Z100. The flexural strength and modulus of feldspathic ceramic were 88.0 (9.8) MPa and 16.1 (3.5) GPa, respectively.

Conclusion: The high polymerization shrinkage stress of cementing materials and the low flexural modulus of feldspathic ceramic may result in the formation of cracks in the ceramic.

SUCROSE-INDUCED EXTRACELLULAR POLYSACCHARIDES INCREASE THE ACIDOGENICITY OF S. MUTANS BIOFILM

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Aim: Sucrose is metabolized to acids by bacteria, but extracellular polysaccharides (EPS) synthesized from this disaccharide may increase the acidogenicity of biofilms. To test this hypothesis, we evaluated in vitro the acidogenicity of *Streptococcus mutans* biofilms containing, or not, EPS in the matrix.

Method: After salivary pellicle formation, the specimens (Ø9mm; n=6) were immersed in UTYEB culture medium with 1% glucose and *Streptococcus mutans* UA159 inoculum for bacterial adhesion. After adhesion, the biofilms were grown for 8 h in medium containing 1%

sucrose (EPS+) or 0.525% glucose + 0.525% fructose (EPS-), followed by 16 h in medium containing 0.1 mM glucose. This cycle was repeated 4 times and then each type of biofilm was exposed 5 times for 3 min at intervals of 45 min to one of the solutions: 0.9% NaCl (control group), 10% sucrose (S) or glucose 5.25% + fructose 5.25% (GF). Before each new exposure, the pH was measured in the medium as an indicator of biofilm acidogenicity. Additional biofilms (n=6) were formed to evaluate viable cells, biomass and EPS, soluble (S-EPS) and insoluble (I-EPS). pH data was analyzed by two-way ANOVA-Tukey's test and the other analyses by Student's t-test ($\alpha=5\%$).

Results: S-EPS and I-EPS were formed in EPS+ biofilms. Similar bacterial viability ($p>0.05$) was found for both biofilm types (EPS- and EPS+). Regarding acidogenicity, EPS factor was statistically significant for all evaluated time points ($p<0.05$), but at all time points the GF group was similar to S ($p>0.05$), differing from NaCl ($p<0.05$). **Conclusion:** The data suggest that sucrose-induced EPS matrix increases acidogenicity of *S. mutans* biofilms.

TECHNOLOGICAL INNOVATION IN HEALTH AND ENTREPRENEURSHIP

DAGMAR DE PAULA QUELUZ; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To discuss technological innovation in health and entrepreneurship.

Method: This is a literature review, in the SciELO and Google Scholar databases.

Results: There is ample evidence throughout history about the positive impacts of innovation on the growth and competitiveness of companies both in developed economies and in the context of developing and emerging economies. Innovation at the company level is also one of the vital inputs to the growth and economic development of countries. In the business environment, the Hubs strategy aims to connect different needs and opportunities in a connection point that accelerates the production of new solutions or businesses. It is the Innovation Hubs that make open innovation strategies tangible. Health innovation is a set of new technologies and methodologies for the prevention, diagnosis and treatment of the various diseases and conditions that affect the population. It is through it that medicine evolves and people's quality of life increases. The hub is like a school, providing learning experiences, connecting innovative topics of interest and inspiring people from the community who are at the forefront of innovation in different areas. We have the Piracicaba Hub, which is a Municipal Public Platform to support open innovation and scientific-technological based entrepreneurship (<https://www.hubpiracicaba.com/nagi>).

Conclusion: With this tool, you will find public and private instruments that can take your innovation projects further.

TELEHEALTH IN BRAZIL: A SCOPING REVIEW

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to characterize scientific publications about telehealth in Brazil since the implementation of the National Telehealth Program Brasil Redes in 2007.

Method: This is a scoping review of studies about telehealth actions performed in Brazil indexed in Medline, Lilacs and Scielo databases (accessed through the Virtual Health Library - VHL platform) published from 2007 to 2022.

Results: After the study selection steps, 177 studies were included, mostly published in the years 2021 and 2020. Telehealth actions were carried out especially in the Southeast and South regions, with telediagnosis and teleconsultation being the most performed. Medicine was the area where telehealth actions were most frequent (54.80%), mainly focused on General Health and Cardiology (38.42% and 19.21% respectively).

Conclusion: It can be concluded that telehealth in Brazil has advanced, especially with the COVID-19 pandemic, as it triggered the need to expand these services. The Southeast and South regions have offered the largest number of services, with telediagnosis and teleconsultation being the most frequent, especially in primary care.

TEMPORAL SUMMATION OF DEEP STIMULI IN PATIENTS WITH CHRONIC PRIMARY MYOFASCIAL OROFACIAL PAIN

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Aim: The aim of this – ongoing – case-control study was to compare the magnitude and modulation of temporal summation of deep stimuli between patients with chronic primary myofascial orofacial pain and healthy volunteers. **Method:** Temporal summation (TS) was estimated through a mechanical pressure device, Palpeter®, loaded with 1Kg that was applied bilaterally to the masseter and anterior temporal. The TS protocol consisted of a sequential application of 10 stimuli, lasting 10 seconds per stimulus, at a frequency of 0.1 Hz. Participants reported the perceived pain intensity for each stimulus based on the numeric scale 0-50-100. TS protocol was performed before and during a conditioned stimulus (CS) that consisted of immersing the non-dominant hand in a bucket of ice water. Mann-Whitney and Wilcoxon tests were applied to the data ($p<0.050$).

Results: Temporal summation was higher in patients with myofascial pain (n=25) when compared to healthy volunteers (n=32) in both the

masseter and anterior temporal ($p<0.001$). Also, for the healthy participants, a significant effect of the CS was observed in reducing the temporal summation both in the masseter and anteriortemporal ($p<0.050$). However, for the patients with myofascial pain, this reduction was observed only for the anterior temporal ($p=0.002$).

Conclusion: These preliminary findings suggest that temporal summation of deep stimuli with simple mechanical devices may be a promising tool in the clinical assessment of central amplification mechanisms in patients with chronic myofascial orofacial pain.

TEMPOROMANDIBULAR DISORDERS IN TIMES OF COVID-19

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The impact of COVID-19 in the psychological sphere has been studied globally and studies tend to demonstrate an increase in the perception of anxiety and depression. To discuss Temporomandibular Disorders (TMD), a condition present in times of COVID-19.

Method: This is a literature review on Google Scholar and Scielo databases.

Results: TMD is a change in the structures of the stomatognathic system, considered as a set of three main signs and symptoms: pain in the temporomandibular joint (TMJ), or in the muscles of mastication; limitations in mandibular movements; and noises during the movement of the TMJ. TMD is a frequent source of search for dental treatments, as well as treatments in other areas of health (e.g. physiotherapy, medicine, behavioral therapy). The cause of TMD is multifactorial and may occur in the entire population, regardless of age and gender, and is usually associated with psychological factors, muscle hyperactivity, injuries, among other factors. The occurrence of post-pandemic signs and symptoms of chronic orofacial pain, including TMD, psychological factors, such as anxiety and depression, in the emergence, maintenance or worsening of TMDs. The inability to predict the outcome makes the "new normal" lead dentists to face and adapt to the challenge imposed by the presence of COVID-19 and its consequences.

Conclusion: Studies indicate that physiological or psychological variables may interact in the etiology of the dysfunction, but that there is no consensus on the relationship between such factors, requiring new studies that seek to delimit this interaction.

THE 25 MOST CITED ARTICLES ON THE EFFECTIVENESS OF TOPICAL ANESTHESIA IN DENTISTRY: A BIBLIOMETRIC STUDY

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Aim: To identify the trend in relation to the demographic characteristics, research groups and types of anesthetics studied in the 25 most cited articles in the world on topical anesthesia efficacy in clinical studies in dentistry.

Method: For this, a bibliometric search of the most cited articles was carried out through the "web of science" platform. A search key was determined, and 25 articles were selected. Demographic data such as countries and continents were extracted, as well as title, authors, abstract, number of citations, year of publication and types of anesthetics used.

Results: The most cited article found had 64 citations, while the least cited in the selection had 21. The publications ranged from 1992 to 2016. The articles with the highest number of citations originated in the United States ($n=5$), Brazil ($n=4$), England ($n=3$) and Japan ($n=3$). The main local anesthetic studied was lidocaine (43.9%), followed by prilocaine (26.8%) and benzocaine (12.2%). Even so, based on co-authorship maps, there was dominance of the study area in research groups in Brazil, England and the United States.

Conclusion: In view of this, there was a predominance of citations and dominance on the subject in first world countries. Despite this, Brazil stood out as one of the countries with the greatest mastery of the subject. Lidocaine was the most studied drug and one of the most used in dentistry. In addition, it is noted that published articles on topical anesthesia related to clinical studies in dentistry were rarely cited in the literature.

THE ADDITION OF BIOSILICATE TO WHITENING GELS INTERFERES WITH THE ALTERATION OF COLOR AND MORPHOLOGY IN ERODED ENAMEL?

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated whether the addition of 10% Biosilicate (10BS) to a 35% hydrogen peroxide (HP) bleaching gel influences the bleaching efficacy, roughness, and mineral recovery in early enamel erosion lesions. **Method:** Bovine enamel blocks were submitted to an erosive protocol (immersion in 0.3% citric acid; 5 min). Then, specimens were treated according to the groups ($n=10$): HP (positive control), HP_10BS, 10BS, and NC (negative control; no treatment). Treatments were carried out in 3 sessions of 40 min, and 72-h intervals among sessions. Roughness (Ra) and surface hardness (SH) were analyzed 24 h after the 3rd session and color evaluation (ΔE_{00} , ΔL , Δa , Δb , and ΔW_{id}), and 21 d after artificial saliva immersion. Data were submitted to one-way ANOVA and Tukey test (% surface hardness recovery - %SHR, and Δa), and Kruskal-Wallis test and Mann-Whitney (ΔRa , ΔE_{00} , ΔW_{id} , Δb , and ΔL).

Results: The addition of BS did not affect the whitening efficacy of HP ($p>0.05$) and no differences in ΔRa were detected between HP and NC

($p > 0.05$). BS-containing groups and NC displayed no differences in %SHR ($p > 0.05$), while HP treatment promoted the lowest %SHR, differing from the 10BS and NC groups ($p < 0.05$).

Conclusion: The addition of BS to the bleaching gel did not affect the whitening efficacy or enamel surface roughness and prevented the mineral loss.

THE EFFECT OF DENTIFRICES ON MICROHARDNESS LOSS OF BOVINE ENAMEL SUBMITTED TO ORANGEJUICE EROSIVE CYCLING

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the impact of commercial sodium fluoride-containing (NaF) toothpaste combined with active bioglass Novamin (SRP – Sensodyne Repair&Protect), amine fluoride (ELM – Colgate Elmex), and stannous fluoride (OBP – Pró-gengiva Oral-B) on bovine dental enamel submitted to an orange juice-simulated erosive cycling.

Method: Twenty polished enamel-dentin blocks were submitted to orange juice erosive cycling (pH = 3.24) and treated with (n=5/group): SRP; ELM; OBP; C – control (without treatment). The erosive-cycling challenge comprised orange juice immersion for 5 min, four times a day for five days, followed by artificial saliva (AS) immersion at intervals. Toothpaste slurry was applied for 2 min before the last acid-saliva immersion and before the first acid challenge. Enamel surface microhardness was evaluated at baseline (T0) and after the first acid immersion on the 1st (T1), 3rd (T3), and 5th (T5) days. The percentage of surface microhardness loss (%SML) was analyzed by one-way ANOVA and Tukey's test ($\alpha = 5\%$).

Results: No differences in %SML were noted among groups at T1 ($p > 0.05$) and the %SML increased in comparison to T0, regardless of the toothpaste ($p < 0.05$). At T3 and T5, a 30%-SML reduction was noted for ELM in comparison to the C group ($p < 0.05$), but no differences were found among ELM, SRP, and OBP treatments at both time points.

Conclusion: None of the commercial toothpaste tested was able to reverse the microhardness loss promoted by the erosive challenge. However, the amine fluoride-based toothpaste (ELM) minimized the microhardness loss caused by orange juice exposure.

THE EFFECT OF EROSIVE OR ABRASIVE SIMULATED CHALLENGES ON THE SURFACE OF 3D PRINTED RESINS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Assessing the Impact of Simulated Oral Challenges of Erosion or Brushing Abrasion on Resins Manufactured by 3D Printing, with indications for Provisional Rehabilitation (Resilab Temp/RT) and Simulation of Gingival Tissue (Resilab Gingiva/RG).

Method: Samples (5x5x1 mm) were printed, polished with abrasive sandpapers (#600, 1200, 2400) and felt with diamond paste (0.6 and 0.3 μm) and evaluated (Baseline) for Roughness (Ra, n=10), Gloss (BR, n=10) and surface morphology with scanning electron microscopy (n=5). The samples were exposed to erosive challenges (5 mL of 0.3% citric acid, pH 2.5, in an oven at 37°C for 1, 2 and 4 weeks) or abrasive challenges (brushing machine, for 2,500, 5,000 and 10,000 cycles) and evaluated at the end of each time (erosion) or cycle (abrasion). The data obtained was analyzed by Generalized Linear Models.

Results: Erosion did not generate changes in Ra and BR for both materials at all tested times. RG showed higher Ra than RT, but both materials presented the same BR at all tested times. For abrasion, RT presented an increase in Ra after 5,000 cycles, while RG did not show statistical difference with the increase in cycles. Both materials showed an increase in BR: RT after 2,500 cycles and RG after 10,000 cycles. The erosive challenge did not alter the surface morphology of the materials, but an increase in irregularities was observed after abrasion for RT from 2,500 cycles onwards.

Conclusion: Erosion did not produce deleterious impacts on the surface of both tested materials, while abrasion produced an increase in BR for both materials and in Ra for the resin indicated for provisional restorations. Support: 137444/2021-4.

THE EFFECT OF PHOTODYNAMIC THERAPY IN REDUCING MICROBIAL LOAD, LPS AND LTA IN TEETH WITH PRIMARY ENDODONTIC INFECTION

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Aim: The aims of this work were to analyze the effect of photodynamic therapy (PDT) in reducing the microbial load and to quantify the levels of LPS and LTA virulence factors in teeth with pulp necrosis and periapical lesion. **Method:** Twenty teeth were selected, divided into conventional endodontic treatment group (CG) and PDT group (GPDT). Samples were collected with paper cone before and after CMP (chemo-mechanical preparation) and after PDT. The samples were diluted, plated, and incubated to count colony forming units (CFU/mL).

Results: The samples were diluted, plated, and incubated to count colony forming units (CFU/mL). There was bacterial growth in all analyzed samples. The CMP was effective in decreasing viable bacteria in all groups ($p < 0.05$). The levels of LPS and LTA were detected in all initial samples from both groups, with averages of 20.561 EU/mL (G1) and 430.91 pg/mL (G2). CMP significantly ($p < 0.05$) decreased

the levels of LPS and LTA, in both groups. PDT significantly ($p < 0.05$) decreased the levels of LPS and LTA after CMP.

Conclusion: It was concluded that the photodynamic therapy coadjutant to endodontic treatment was effective in reducing bacterial load, as well as in reducing virulence factors, when compared to those obtained after chemo-mechanical preparation. (Support: FAPESP 2015/23479-5, 2019/09115-1, 2021/13871-6; CNPq 303852/2019-4, 421801/2021-2; CAPES 001).

THE IMPACT OF TITANIUM MATERIAL AND SURFACE TREATMENTS ON MICROSTRUCTURE AND MECHANICAL PROPERTIES OF DENTAL IMPLANT

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Aim: The effect of surface treatments on different titanium alloys have not yet been clarified. This study aimed to investigate the effect of surface treatments with sandblasting and double acid attack [‘SLA-type surface’] and bioactive surfaces with calcium and phosphorus treated with Plasma Electrolytic Oxidation [PEO-CaP] in commercially pure titanium (CpTi) and Ti6Al4V alloy regarding the microstructure and mechanical properties.

Method: CpTi and Ti6Al4V samples were polished to carry out surface treatments and obtain control groups. Part of the polished specimens were separated into two more groups, being subjected to surface treatments such as SLA and PEO. The surfaces were characterized using scanning electron microscopy (SEM) and confocal laser scanning microscopy (CLSM). The evaluation of the mechanical properties was performed using the Vickers microhardness, flexural strength, and modulus of elasticity tests.

Results: The machined surfaces showed longitudinal grooves and homogeneous surfaces due to polishing, while the SLA-type surfaces showed depressions, sharp edges, and micro pits. The surface treatment via PEO was characterized by porosities similar to circular wells. Treated surfaces showed better mechanical properties when compared to conventional alloys. The Ti6Al4V group showed lower values of modulus of elasticity and flexural strength, maintaining similar values between SLA and PEO groups. A higher microhardness value was observed in the Ti6Al4V-PEO followed by the Ti6Al4V-SLA, and Ti6Al4V-Control.

Conclusion: In conclusion, the Ti6Al4V alloy with bioactive PEO surface shown enhances mechanical properties for dental implant applications.

THE IMPORTANCE OF THE EXTRAMURAL STAGE FOR GRADUATION IN DENTISTRY: LITERATURE REVIEW

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: According to the DCNs, the extramural stage (ES) must provide the student with learning through experience, through contact with the community and work in a multidisciplinary team. To analyze through scientific evidence the influence of ES in the professional training process of graduating in Dentistry.

Method: A search was carried out on the Google Scholar, Pubmed and Scielo platforms, with the theme of Extramural Stage and Dentistry. For the search, the following terms were used: extramural stage; dentistry and preceptors. With a search between the period from 2017 to 2023. Twenty articles were selected, six in English and fourteen in Portuguese, on the subject and subsequently made the file in the Microsoft Excel program.

Results: Most articles discuss the impact through the perception of the undergraduate student. It was possible to identify that the students legitimized their experience in the scenario of SUS practice as an opportunity to get to know the reality of the service and the dynamics of the community.

Conclusion: Thus, it was concluded that the ES was positively evaluated by undergraduate students in Dentistry, as it contributed to their professional training and the development of a critical sense about the SUS.

THE PRACTICE OF TAI CHI CHUAN IN THE CONTROL OF ANXIETY AND STRESS DURING THE PANDEMIC

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the practice of Tai Chi Chuan in controlling anxiety and stress levels during the Covid-19 pandemic.

Method: 368 adult individuals participated, these being undergraduate and graduate students at the State University of Campinas, users of 3 sports academies and members of the Brazilian Society of Tai Chi Chuan and Oriental Culture, of both sexes. Socio-demographic data, habits related to the practice of physical exercise and the State Anxiety Inventory (STAI-E) and Perceived Stress Scale (PSS14) instruments were collected. The questionnaires were sent via Google Forms via email and/or messaging application (WhatsApp) provided by the participating institutions. Descriptive data analysis was performed.

Results: Among non-practitioners of Tai Chi, 71.6% were women, 53.7% were aged up to 27 years, 89.0% reported having done physical

exercise and 71.8% did physical exercise at least twice a week, 59, 5% had a moderate/severe level of stress and 95.0% moderate/severe level of anxiety Among Tai Chi practitioners, 85.2% were women, 92.6% were over 27 years old, all (100.0%) reported doing physical exercise, 88.9% did physical exercise twice a week, 33.3% had a moderate/severe level of stress and 70.4% had a moderate/severe level of anxiety.

Conclusion: It was concluded that a smaller percentage of individuals with moderate/severe levels of stress and anxiety was observed among Tai Chi Chuan practitioners.

THE THREE-DIMENSIONAL CONTOUR OF THE FACE AND ITS RELATIONSHIP WITH AGE *HENRIQUE TONELLI; ALEXANDRE RODRIGUES FREIRE, ISABELA LESSE DE PAULA; ANA CLÁUDIA ROSSI* PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of the research was to evaluate the three-dimensional contour of the face through the morphometric analysis of three facial angles in computed tomography (CT) scans of human skulls in different age categories.

Method: It was used 123 computed tomography scans of intact human skulls from both sexes and divided them into three age categories (young, middle-aged and elderly). The Mimics software (Materialise, Belgium) was used for tridimensional reconstruction of each skull. Angular measurements (orbital, piriform, and maxillary angles) were performed in the three-dimensional reconstructions. Descriptive statistical analysis was performed to obtain the mean and standard deviation of each measurement in each age and sex category. A significance level of 5% was considered. Two-way ANOVA was performed, with multiple comparisons by Tukey's test.

Results: In females, there was a tendency for the piriform angle to increase from the young to the middle-aged group ($P = 0.6397$) and decrease from the middle-aged to the elderly group ($P = 0.0216$).

Conclusion: In conclusion, females are more prone to selective resorptions than males throughout life mainly in the middle third of the face.

THE USE OF BIOSILICATE® AS A REMINERALIZING PROTOCOL BEFORE AND AFTER WHITENING WITH DIFFERENT GELS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated color change, surface roughness, microhardness, and morphology of enamel after remineralizing treatment with Biosilicate gel (BS) before or after bleaching with high concentrations of hydrogen peroxide (HP) and carbamide peroxide (CP).

Method: Enamel blocks were submitted to ($n=10$): 38% HP; 35% CP; BS_HP (BS applied before HP); HP_BS (BS applied after HP); BS_CP (BS applied before CP); CP_BS (BS applied after CP) and BS (remineralizing treatment with BS). Bleaching was carried out in three sessions of 30 min (HP) and three sessions of 45 min (CP), 7 days apart. Specimens were kept in artificial saliva (pH 7.0) among sessions. Color change (ΔE_{00}), color parameters (ΔL , Δa , Δb), mean surface roughness (ΔRa), and microhardness were evaluated at baseline (T0), 24h after each session (T1, T2, and T3). The percentage of surface hardness loss (%SHL) was calculated and enamel morphology was analyzed at T3, by scanning electron microscopy (SEM). Data were evaluated by ANOVA and Tukey's test ($\alpha=0.05$).

Results: BS did not affect the color change promoted by the HP or CP (ΔE_{00}), and the BS_HP group exhibited greater color variation with the increase of ΔL . No differences in ΔRa were detected before and after treatments in any group.

Conclusion: Regardless of the protocol (before or after HP and CP bleaching), BS increased surface hardness. But the application of BS before HP enabled more effective color changes and a lower % of surface hardness loss among groups.

THE USE OF CONE-BEAM COMPUTED TOMOGRAPHY IN ORTHODONTIC PLANNING: A REVIEW OF THE LITERATURE

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to review the literature on the use of CBCT in orthodontic planning.

Method: The search strategy for this integrative literature review was performed in the Pubmed, Scopus, LILACS, and Embase databases, with the keywords "Cone-Beam Computed Tomography", "Planning" and "Orthodontics".

The Boolean operator "AND" was used for the search key combination. Studies published in the last 5 years involving human subjects were eligible for the study. There was no restriction on country of publication or language. Letters, reviews, and opinion articles were excluded.

Results: The database searches identified 570 records. After the removal of duplicates and analysis of titles and abstracts, 10 studies were included in this review. The studies mainly investigated the condition of development and bone maturation of the craniomaxillofacial complex of the patients and the optimization in surgical-orthodontic planning through CBCT.

Conclusion: The literature reports that CBCT can be a useful tool in orthodontic diagnosis and planning, as it allows detailed multiplanar visualization of the dental and bony structures of the craniomaxillofacial complex, besides monitoring the outcomes obtained.

THE USE OF LASERPUNCTURE IN THE ENERGY REGULATION OF PATIENTS WITH TMD

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Aim: Verify whether laserpuncture is effective in promoting energy regulation in patients, who in the case of the present study will present TMD.

Method: This is a clinical, blinded, randomized study. The sample consisted of 48 volunteers who had energy imbalance and pain resulting from temporomandibular disorders (TMD) of muscular origin. Participants were divided into 4 groups: acupuncture control group (GCA), laser test group (GTL) and their respective placebos, GPA and GPL, in which points that did not promote regulation were selected. Energy regulation in the GCA was performed with conventional needling according to the imbalance presented; in the GTL, the adjustment was made with laserpuncture, also according to the imbalance presented. For statistical analysis, the variance test of repeated measures ANOVA was used, considering a significance level of $p > 0.05$.

Results: It was found that only the GCA group showed energy regulation (20.8%), and only GPA did not show pain reduction ($p = 0.077$). Only the LPG group showed a decrease in energy ($p = 0.012$). There was energy balance in the BP ($p = 0.008$) and B ($p = 0.032$) meridians in the GCA group.

Conclusion: Laserpuncture therapy did not provide energy regulation, but it proved to be effective in reducing pain in patients with TMD. This finding can be a protocol for pre-assistance of people with pain.

THEOBROMINE FOR PREVENTION AND TREATMENT OF DENTAL CARIES – A REVIEW

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Aim: Theobromine is a primary alkaloid belonging to the methylxanthine class of chemical compounds, derived from the cacao plant. It is a crystalline, water-soluble powder found in chocolates along with tea and other foods. This methylxanthine has stood out in dental research when tested as a protective agent against caries disease, being considered an alternative to fluorides. In this context, the objective of the study was to carry out a literature review to address the use of theobromine for caries prevention and treatment.

Method: Papers published in the last 10 years, in Pubmed and Google Scholar databases in English, using the descriptors “theobromine”, “tooth Remineralization” and “dental caries” were selected. After the bibliographic survey, 20 papers were included in the review.

Results: The results of this review showed the use of theobromine in gel formulation, dentifrices, solutions and restorative materials. Studies demonstrated that theobromine has an ability to remineralize carious lesions as well as to inhibit biofilm formation, showing an antimicrobial effect against *S. mutans*, *L. acidophilus*, and *E. faecalis*.

Conclusion: Theobromine anti-caries effects are similar to those of fluoride agents, making it a promising alternative for prevention and treatment of dental caries.

TOBACCO CONTROL: CHALLENGES AND ACHIEVEMENTS

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Aim: To discuss tobacco control: challenges and achievements.

Method: This is a literature review, in the SciELO and Google Scholar databases.

Results: The prevalence of smoking in Brazil has greatly reduced in recent decades, but the country still has a high burden of diseases associated with this risk factor. The habit of smoking is recognized as an epidemic disease that causes physical, psychological and behavioral dependence similar to what occurs with the use of other drugs such as alcohol, cocaine and heroin. Dependence occurs due to the presence of nicotine in tobacco products. Data from the Surveillance System for Risk Factors for Non-Transmissible Chronic Diseases (Vigitel, 2021) indicate that the total percentage of smokers aged 18 years or older in Brazil is 9.1%. There is a worldwide consensus that nicotine addiction is a serious public health problem, with higher annual mortality compared to lethality from infectious diseases such as AIDS, tuberculosis and malaria. Tobacco is the leading cause of preventable death in the world. Law No. 13.541/2009 art. 2nd: prohibits in the territory of the State of São Paulo, in environments of collective use, public or private, the consumption of cigarettes, cigarillos, cigars or any other smoking product, whether or not derived from tobacco. The World Health Organization created in 1987 “World No Tobacco Day” to warn about preventable diseases and deaths related to smoking.

Conclusion: The understanding of this theme allows identifying the risks, contributing to the development of increasingly appropriate preventive and therapeutic strategies.

TOOTH COLOR CHANGE AFTER PHOTODYNAMIC THERAPY IN ENDODONTICS: A SYSTEMATIC REVIEW

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ALMEIDA GOMES; CAIO CEZAR RANDI FERRAZ
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Aim: The objective of this systematic review was to evaluate if the performing of PDT (photodynamic therapy) could influence tooth color change and to imply the most effective methods to remove PS (photosensitizer agents) from the root canal system.

Method: This study followed the PRISMA 2020 statement, and the protocol was registered at the Open Science Framework. Two blinded reviewers searched five databases up to November 20th, 2022: Web of Science, PubMed, Scopus, Embase, and the Cochrane Library. The eligibility criteria were studies that investigated tooth color change after PDT in endodontics.

Results: 1695 studies were selected, but 7 were included in the qualitative analysis. All the included studies were in vitro evidence and evaluated five different PS: methylene blue, toluidine blue O, malachite green, indocyanine green, and curcumin. Except curcumin and indocyanine green, the remaining agents caused tooth color change, and the methods employed wasn't effective in removing all these PS from the root canal system.

Conclusion: Even though the results showed that curcumin and indocyanine green didn't influence tooth color change, the present evidence should be interpreted with caution whereas it is based on in vitro studies with questionable methods, and all efforts should be employed to avoid this undesirable side effect during clinical practice.

TOXICOLOGICAL SCREENING OF A LIQUID CRYSTALLINE SYSTEM THROUGH CHICK EMBRYO CHORIOALLANTOIC MEMBRANE MODEL

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Aim: The objective of this study was to assess the toxicity of a grape seed oil and hyaluronic acid-based liquid crystal precursor (LCP) emulsion containing lidocaine (LCP/LDC) using the chicken embryo chorioallantoic membrane (CAM) model.

Method: An LCP composed of ethoxylated cetyl alcohol 20 and propoxylated alcohol 5, grape seed oil as the oil phase, and an aqueous dispersion of hyaluronic acid as the aqueous phase, containing lidocaine was prepared. Subsequently, the toxicity of LCP/LDC was investigated using the in vivo CAM model. The LCP/LDC formulation was tested and compared with the commercial formulation of lidocaine, the positive control of sodium hydroxide and negative control of saline solution. Before and after the application of each formulation for a period of 180 seconds, a visual analysis of the CAM was conducted using a stereomicroscope, and a photograph is taken at both time-points. The photographs were analyzed by two evaluators and the possible damages (lysis, hemorrhage and coagulation) were scored. A final score was obtained and used to classify the formulations according to their toxicity.

Results: The negative control was classified as non-irritant, and the positive control as irritant. The commercial formulation of lidocaine and LCP/LDC were classified as moderately irritant.

Conclusion: In conclusion, the lidocaine formulation incorporated into a liquid crystalline system based on grape seed oil and hyaluronic acid demonstrated similar toxicity in the chicken embryo chorioallantoic membrane model when compared to the commercially available formulation. Therefore, it holds promise for future in vivo efficacy testing.

TREATMENT OF MALOCCLUSIONS IN THE UNIFIED HEALTH SYSTEM

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Aim: To discuss the implementation of orthodontic treatment in Unified Health System (SUS), demonstrating its importance and effectiveness.

Method: A search was carried out in the PUBMED, SciELO and Google Scholar databases using the following terms: "Orthodontics in the SUS", "Orthodontics and public health" and "Malocclusions in the SUS".

Results: On the scale of world public health priorities, malocclusions rank third among dental problems, second only to caries and periodontal disease, according to the World Health Organization. Thus, the Unified Health System, through Ordinance No. 718/SAS of December 20, 2010, included orthodontic procedures in the list of services offered. Despite the high prevalence of problems related to orthodontics, there are few public health studies on malocclusions. Even with the implementation of the "Brazil Sorridente Program" and with the insertion of orthodontic procedures covered by the system, there is not a considerable volume of preventive and/or interceptive actions and not even clinical protocols or screening systems, since there is a deficit in service provision in the national territory.

Conclusion: Orthodontic treatments must be accessible to the population, as the consequences of malocclusion in an individual's life go beyond aesthetics. In addition, they will enable a greater offer of services, improving the living conditions of users and intensifying evaluative studies on Dental Specialty Centers.

TUMORIGENIC AND METASTATIC POTENTIAL OF DISTINCT CANCER STEM CELL PHENOTYPES IN ORAL CANCER

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Aim: Cancer stem cells (CSC) are associated with local recurrence, metastatic dissemination, and chemoradiotherapy resistance. We characterized the in vitro and in vivo behavior of the CSC phenotypes in metastatic cell line LN1-A derived from oral squamous cell carcinoma (OSCC).

Method: Three CSC subpopulations with different patterns of positivity for CD44 and CD326 were isolated by flow cytometry from LN-1A cells: CSC-M1 (CD44+/CD326-), CSC-E (CD44Low/CD326High), and CSC-M2 (CD44High/CD326-). Proliferation, migration, adhesion, clonogenic and sphere formation potential were analyzed in vitro, as the levels of epithelial-mesenchymal transition markers and p-Akt, and sensitivity to cisplatin and TVB-3166. Tumor formation in vivo was tested both in the subcutaneous flanks and orthotopically in the tongue of BALB/c mice, and metastatic foci were analyzed in cervical lymph node.

Results: E-cadherin levels were higher in CSC-E, while vimentin and slug were more produced by CSC-M2. CSC-M1 and CSC-M2 showed greater proliferative potential, which was accompanied by a high production of p-Akt. CSC phenotypes formed spheres, and the greatest ability to grow in colonies was observed in CSC-M1 and CSC-M2, which also have stronger adhesion to myogel. CSC-E were more sensitive to the exposure to TVB-3166, and all cell lines generated tumors when subcutaneously or orthotopically inoculated in mice. CSC-E and CSC-M2 metastasized to cervical lymph nodes.

Conclusion: OSCC-derived CSC subpopulations exhibited distinct and enhanced cancer phenotypes in vitro, and tumorigenic capacity in vivo, and must be exploited to provide novel therapeutic targets for OSCC.

USE OF ACUPUNCTURE ON EMOTIONAL CHANGES IN A PATIENT WITH TMD: CLINICAL CASE REPORT ZULEICA MARIA KRIEGER COSTA NOGUEIRA; MARIA LUCIA BRESSIANI GIL; MARIA DA LUZ ROSARIO DE SOUSA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Temporomandibular Disorders (TMD) have a high prevalence and have a proven relationship with emotional changes. The objective of this study was to report a clinical case of a patient with emotional changes who had limited mouth opening (31mm) and pain in the temporomandibular joint on the left side.

Method: According to the anamnesis of Traditional Chinese Medicine, a purplish tongue with a red tip was observed, presence of thin white coating, preference for sour and bitter taste. So these energy signs indicated Heat, Fullness, Inner and Yang being. The patient already made regular use of medication for anxiety. For treatment, acupuncture with disposable needles (DongBang Medical Co. Ltd, 0.25 x 30mm) was used in acupoints HT7, PC6, TE23, GB20 and SI3. Complementarily, auriculotherapy was applied to the Shenmen, Kidney, Sympathetic, Neurasthenia, TMD and Heart points. There were 6 weekly sessions lasting 20 minutes each. The VAS (Visual Analogic Scale) was used to measure pain and mouth opening measured by a millimeter ruler.

Results: After the sessions, the patient reported complete absence of pain (from initial VAS = 5 to final VAS = 0) and its opening increased to 42mm at the end. Anxiety symptoms showed complete remission, without changing the use of medication for anxiety.

Conclusion: At the end of the treatment, the examination showed that the tongue had a pink color and normal humidity, indicating energy balance. Thus, the protocol used was effective in remitting pain and improving mouth opening, also acting in the management of anxiety.

USE OF TRADITIONAL CHINESE MEDICINE PRACTICES TO IMPROVE THE QUALITY OF LIFE OF PATIENTS WITH POST-COVID SEQUELAE

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ANHEMBI MORUMBI UNIVERSITY

Aim: The post-acute COVID-19 syndrome is characterized by symptoms that ranges from mild discomfort to severe adverse effects on health and quality of life. One option for managing these symptoms are integrative practices, such as Traditional Chinese Medicine (TCM). The objective of this study was to monitor and treat patients with post-Covid sequelae, using the TCM practice protocol, and to assess its impact on quality of life.

Method: This is a series of clinical cases conducted in a public health unit in Piracicaba/SP, including patients with COVID-related symptoms, in both sexes and over 18 years old. Patients were treated weekly with 10 sessions of different TCM practices, by acupuncturists linked to the Piracicaba School of Dentistry. Before and after each session, the symptom that most impacted the patient at that moment was noted using the Visual Analog Scale (VAS). Quality of life was assessed using the WHOQOL-bref instrument, applied before the 1st session, at the end of the 5th and after the last session.

Results: 12 patients were treated, 10 women, with an average age of 56.3 years. The most frequent complaints were pain (66%), fatigue and shortness of breath (50%), among others. At the beginning of the study, the average overall VAS was 8.27 and, after the sessions, it dropped to 1.4 ($p \leq 0.0001$). The percentage increase in the WHOQOL-bref from 54.38 to 61.53 throughout the study may indicate an improvement in the perception of quality of life, especially in the physical and psychological domains.

Conclusion: The present study allowed us to understand that TCM, through its techniques, can help to recover the quality of life of these patients.