

XXX Dental Meeting of Piracicaba XV International Dental Meeting



XXX JORNADA ODONTOLÓGICA DE PIRACICABA

XV CONGRESSO INTERNACIONAL DE ODONTOLOGIA

June 2nd to 4th, 2025

ACCESS OF PEOPLE WITH DISABILITIES TO ORAL HEALTH CARE IN PRIMARY CARE

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Aim: The aim of the study was to analyze access to oral health services for individuals with disabilities in the Family Health Units (USFs) of Piracicaba, SP.

Method: The observational and analytical study included people with various disabilities, using a semi-structured questionnaire to collect socioeconomic data and data on barriers to accessing treatment. The data was analyzed using SPSS software, version 20 (IBM).

Results: The sample revealed that the majority of those treated had intellectual disabilities (44%) or motor disabilities (42.6%), with a predominance of men (53.9%) and adults (56.7%). The majority live in their own homes (74%) and around 30.5% receive a pension. In relation to dental care, only 19.9% seek services frequently, and the barriers identified include communication difficulties (29.1%), physical limitations (27.0%), lack of companions (62.4%) and delays in scheduling (35.5%). It was noted that individuals without health insurance and who participate in income distribution programs are more likely to use dental services.

Conclusion: Despite the demand for services at USFs, access to dental care is hampered by various barriers. Slow scheduling and lack of information about available services also have a negative impact on access. The study highlights the importance of social inclusion policies and the role of USFs in promoting oral health for people with disabilities.

ACUPUNCTURE IN THE TREATMENT OF BELL'S PALSY: A CLINICAL CASE REPORT

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Aim: Unilateral facial paralysis, commonly known as Bell's palsy, is a neurological condition characterized by the sudden onset of weakness or paralysis of the facial muscles. Acupuncture has shown efficacy in the treatment of facial paralysis through the stimulation of specific acupoints. The objective of this study was to report a clinical case of a female patient presenting with right-sided facial paralysis, which had started five days prior.

Method: According TCM anamnesis, the patient exhibited a purplish, trembling tongue with a red tip, upward position, moist texture, absence of coating, and a pale floor, indicating an energetic pattern of Yin Deficiency, in addition to chronic headache. The patient reported regular use of medication for fibromyalgia, asthma, and anxiety. Two treatment protocols were employed: initially, the Gran Acupuncture technique (Yang Ming meridians at LI5, ST7, ST45, followed by points BL2, SI18, ST7, ST6, ST4, ST3, CV23), followed by cervical release (GB20, BL10, TE17, GV14, and acupoints LI11, ST40, TE5, GB41, BL2, GB14, TE23, LI20, TAIYANG), as well as electroacupuncture at ST4+ST6 / ST3+ST7 2Hz/20min). Treatment concluded with moxibustion at ST36/SP6. A total of four weekly sessions were conducted, each lasting 20 minutes. Evaluation was performed through photographic comparison before and after treatment. The Visual Analogue Scale (VAS) was used to assess headache intensity (initial VAS = 10; final VAS = 1).

Results: The results demonstrated remission of paralysis signs and restoration of energetic balance.

Conclusion: It can be concluded that both protocols were effective in reducing pain and improving facial movement.

ADHESION AND TOPOGRAPHIC ANALYSIS OF 3D-PRINTED RESINS

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Aim: To evaluate the effects of surface treatments on the microtensile bond strength (μ TBS) of resin cement to 3D printing resins (3DPR) and on the surface roughness (SURO) and morphology.

Method: Three 3DPR for "permanent" indirect restorations were tested: Varseo Smile Crown (VSC/Bego), Prizma Bio Crown (PBC/Makertech), and Smart Print Bio Vitality (SPV/Smart Dent). The cube shaped samples (5x5x5mm) were printed, cleaned with isopropyl alcohol and post-cured according to the manufacturers' specifications. Samples were subjected to four surface treatments: control (no treatment), blasting with 50 μ m aluminum oxide (BL/15s), 10% hydrofluoric acid (HF/20s), and argon plasma (AP/20s). The SURO was measured with roughness tester (Surfcode Roughness 1700) and surface morphology was evaluated using scanning electron microscopy (JSM-5600LV, Jeol). Two similarly treated surfaces were bonded together with Panavia V5 cementing system, stored in distilled water (37°C / 24 h), and serially sectioned for obtaining specimens for μ TBS. SURO and μ TBS data were analyzed by two-way ANOVA, and post-hoc Tukey test ($\alpha=0.05$).

Results: The surface treatment did not influence the μ TBS of VCS and PBC. For SPV resin, HF and AP treatments showed superior outcomes. BL significantly altered the 3DPR surfaces and increased their SURO.

Conclusion: Although BL significantly altered the surface of 3DPR, the surface treatments did not influence the μ TBS of resin cement to most 3D resins.

ADHESION OF UNIVERSAL ADHESIVES TO LITHIUM DISILICATE CERAMIC

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Aim: To evaluate the bond strength (BS), failure patterns and reactivity of silane contained in universal adhesives (SC-UAs) to lithium disilicate glass ceramic.

Method: Ceramic plates were etched with hydrofluoric acid for 20 s, cleaned in an ultrasonic bath for 5 min and divided into the following treatments (n=15): Control: silane (Ceramic Primer, Solventum) + adhesive (Scotchbond Multi-Purpose, Solventum); CUBQ: Clearfil Universal Bond Quick (Kuraray); SBUP: Scotchbond Universal Plus (Solventum); OC7U: One Coat 7 Universal (Coltene); AAPU: Ambar APS Universal (FGM); UBII: Universal Bond II (Tokuyama). Adhesives were light-cured for 10 s using Valo X (Ultradent). Composite resin cylinders were constructed on the ceramic surfaces using flowable resin (Clearfil AP-X, Kuraray) and light-cured for 20 s. Samples were stored in distilled water at 37°C for 24 hours and subjected to BS. Failure modes of tested samples were analyzed under a digital microscope. The reactivity of SC-UAs and pure silane to ceramic was evaluated by FTIR-ATR analysis (n=3). BS data was analyzed by one-way ANOVA and post-hoc Tukey test ($\alpha=0.05$)

Results: No significant differences in BS were found among Control, AAPU, and SBUP, which showed higher BS. CUBQ and UBII showed intermediate BS results, while OC7U the lowest one. Adhesive failures were most frequent in AAPU, followed by SBUP and UBII, CUBQ, Control, and OC7U. For the reactivity analysis, siloxane bonds (Si-O-Si ; 1120cm^{-1}) were observed in SBUP, UBII, and Control. OC7U had weak peaks, and no peaks were detected for CUBQ.

Conclusion: BS and reactivity of silane to ceramic depended on the type of SC-UAs used.

ADHESIVE PERFORMANCE OF A UNIVERSAL ADHESIVE USING THE QUICK TECHNIQUE ON DENTIN: IN VITRO STUDY

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Aim: This study aimed to evaluate the influence of the quick technique on microtensile bond strength and nanoleakage of a universal adhesive system.

Method: Forty third molars (CAAE: 86799525.5.0000.5418) were divided into four groups (n = 7) according to the adhesive system and application technique: Control – Clearfil SE Bond 2 (Kuraray Noritake) applied as recommended by the manufacturer; T0 – passive application of Clearfil Universal Bond Quick (Kuraray Noritake) with immediate light curing; T20A – active application for 20 s before light curing; T20P – passive application for 20 s before light curing. Teeth were restored and sectioned to obtain 1 mm² specimens. Half were stored for 24 h and half for 1 year in distilled water at 37°C. Microtensile bond strength was tested (EZ-test), and fracture patterns were analyzed under stereomicroscopy. For nanoleakage (n = 3), samples were immersed in ammoniacal silver nitrate, photodeveloping solution, and analyzed by Scanning Electron Microscope after 24 h and 1 year. Data were analyzed using two-way ANOVA and Tukey's test ($\alpha = 0.05$).

Results: Control and T20A showed the highest bond strength values at both times. T0 had the lowest values. T20P showed no significant differences from the others. Over time, only T0 ($p = 0.049$) and T20P ($p = 0.005$) showed bond strength reduction. Adhesive and mixed failures were most common. Control and T20A showed lower silver infiltration, while T0 and T20P had higher silver deposition, especially after aging.

Conclusion: The quick technique resulted in inferior bond strength and sealing ability compared to active and passive application techniques.

ADVANCEMENT OF THE OROFACIAL HARMONIZATION SPECIALTY, WHAT CAN AND CANNOT BE DONE AND WHAT ARE THE LIMITS

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Aim: To provide instruction on Orofacial Harmonization (HOF) as a Dental Specialty, its standardization and its advancement. To provide instruction on Orofacial Harmonization (HOF) as a Dental Specialty, its standardization and its advancement.

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

Results: The HOF was regulated by CFO resolution 198/2019, which also established the criteria for the performance of the Dental Surgeon (DS) in the practice of the specialty with competence and legal authorization, in accordance with Law 5.081/1966, which regulates the practice of Dentistry in Brazil. CFO Resolutions 196/2019 and 230/2020 are regulations that emphasized the prohibition of publishing care during courses and photos of biological materials. It is essential that the professional strictly follow all protocols that are indicated by regulatory councils. The term orofacial can only be used by DS and describes the procedures that are permitted: botulinum toxin, facial fillers, percutaneous collagen-inducing biomaterials, bichectomy and lipfitting, etc. The following are not permitted: blepharoplasty, chestnut surgery or eyebrow lifting, rhinoplasty and rhytidoplasty or face lifting, etc. Resolution 237/2021 authorizes and regulates the precautionary suspension of DS whose actions, resulting from professional practice, put the health and/or physical integrity of patients at risk, which applies to all dentists and not only to specialists in HOF.

Conclusion: HOF has revolutionized the Dentistry scenario, becoming the fastest growing specialty, joining the others for the common good of our patients.

ADVANCES IN DENTIN MINERAL RECOVERY: A SYNTHESIS OF CURRENT EVIDENCE

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Aim: Many protocols have been proposed for managing dentin hypersensitivity (DH) and dental erosion (DE), although no treatment is considered ideal for these conditions. The present study aimed to synthesize the current primary evidence on advances in dentin mineral recovery and their contributions to the control of DH and DE.

Method: An integrative literature review was conducted using the Web of Science and PubMed databases with the descriptors: remineralization AND dentin AND advanced materials. Articles published between 2018 and 2025, written in English, and with full-text availability were included.

Results: Evidence suggests that the most effective approach should mimic the natural process of dentin desensitization by occluding the dentinal tubules. Inducing mineral formation in dentin has emerged as a promising strategy, with inorganic, organic, and polymeric materials showing potential effects. Most studies have analyzed the development and potential in vitro of different agents applied to dentin, including those containing fluoridated agents, calcium phosphate, or bioactive glass (inorganic); peptides and amino acids (organic); and experimental polymers, polyaspartic acid, or polyacrylic acid (polymeric). The mechanisms involved include the deposition of calcium, fluoride, and phosphate ions, intrafibrillar remineralization, and nucleation of hydroxyapatite crystals, which result in altered permeability and morphology of dentinal tubules.

Conclusion: Despite the advances, further studies are needed to test their performance in simulated oral conditions, their long-term effects, and their real contributions to the clinical management of DH and DE.

AGE ESTIMATION IN BRAZILIANS FROM THE SOUTHEAST REGION: VALIDATION OF THE METHODOLOGY PROPOSED BY ALCANTARA

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Aim: Cranial sutures (CS) are one of the criteria used to estimate age. The pattern of obliteration of the CS helps to estimate the age of an individual in the last years of life. During craniofacial development, the sutures are the main sites of bone growth along the margins of the cranial bones. The closure often extends from the internal plate to the external plate. We sought to validate (agreement or not) the age estimation table proposed by Alcantara.

Method: This is a cross-sectional, analytical and observational study. After approval by CEP/FOP/UNICAMP, 320 skulls from the osteological and tomographic biobank of Forensic Dentistry were analyzed. Of these, only 252 skulls had their external cranial sutures (coronal, lambdoid and sagittal) analyzed in their three stages, namely: visualized in the entire segment = 2, suture visualized in part of the segment = 1; and not visualized in the entire segment = 0.

Results: It was found that, in general, males presented greater agreement when compared to females. It was also observed that the age group under 60 years was the one that presented the greatest agreement. The same also occurred with the white population affinity.

Conclusion: It was concluded that the use of the Alcantara table in the mixed-race population of the southeast region can generate inconsistencies regarding the real age of the individuals.

AGE ESTIMATION IN BRAZILIANS FROM THE SOUTHEAST REGION: VALIDATION OF THE METHODOLOGY PROPOSED BY MARTIN IN COMA

GABRIEL PASSOS PINESE; MONICA APARECIDA FRANCESQUINI, MARCIO ALBERTO DE LUCCA JÚNIOR, VANUEL ALBERTO SANCA, ULYSSES DE TOLEDO MONTEIRO, BRUNO SOARES GRANZIOL, JOÃO SARMENTO PEREIRA NETO; LUIZ FRANCESQUINI JÚNIOR
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Aim: Cranial sutures are gaps filled by connective tissue between the flat bones of the cranial vault. The extent of obliteration can help forensic professionals estimate an individual's age. These can develop between bony edges in the midline, between two adjacent bones, and at sites of overlapping bony plates that approach at different levels. We sought to validate (agreement or not) the age estimation table proposed by Martin in Coma. This is a cross-sectional, analytical, and observational study.

Method: After approval by CEP/FOP/UNICAMP CAAE 56090722.5.0000.5418, 320 skulls from the osteological and tomographic Biobank of Forensic Dentistry were analyzed. Of these, only 252 skulls had their external cranial sutures (coronal, lambdoid and sagittal) analyzed in their three stages, namely: visualized in the entire segment = 2; suture visualized in part of the segment = 1; and not visualized in the entire segment = 0.

Results: The combined analysis indicates that the concordance variables are modulated more strongly by the affinity and age of the participants, while sex presents more discreet variations.

Conclusion: It was concluded that the use of the Martin in Coma table in the mixed-race population of the southeast region can generate inconsistencies regarding the real age of the individuals.

AGE ESTIMATION IN BRAZILIANS FROM THE SOUTHEAST REGION: VALIDATION OF THE METHODOLOGY PROPOSED BY TOOD & LION IN COMA

IGOR FERNANDO CASTILHO GOMES; MÔNICA APARECIDA FRANCESQUINI MÁRCIO ALBERTO DE LUCCA JÚNIOR
BRUNO SOARES GRANZIOL GABRIEL PASSOS PINESE VANUEL ALBERTO SANCA JOAO SARMENTO PEREIRA NETO;
LUIZ FRANCESQUINI JUNIOR

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Aim: Cranial sutures have a fibrous structure, however, as ossification processes occur over time, these structures transform into bony unions. Age is estimated based on the obliteration of the cranial suture. The age at which intracranial sutures occur is preceded by the age at which extracranial sutures occur.

Method: The aim of this study was to validate (agreement or not) the age estimation table proposed by Vallois & Olivier in Coma. This is a cross-sectional, analytical and observational study. After approval by CEP/FOP/UNICAMP CAAE 56090722.5.0000.5418, 320 skulls from the osteological and tomographic Biobank of Legal Dentistry were analyzed. Of these, only 252 skulls had their external cranial sutures (coronal, lambdoid and sagittal) analyzed in their three stages, namely: visualized in the entire segment = 2; suture visualized in part of the segment = 1; and not visualized in the entire segment = 0.

Results: The analyses revealed that the SCTM and SCTA variables have a significant statistical association with sex, indicating that the perception or judgment of these variables may vary between men and women. Furthermore, it was found that agreement on some variables increases with age.

Conclusion: It was concluded that the use of the Vallois & Olivier in Coma table in the mixed-race population of the southeast region can generate inconsistencies regarding the real age of individuals.

AGE ESTIMATION IN BRAZILIANS FROM THE SOUTHEAST REGION: VALIDATION OF THE METHODOLOGY PROPOSED BY TOOD & LION IN COMA

DANIELLY MAZINI DOS SANTOS; MÔNICA APARECIDA FRANCESQUINE BRUNO SOARES GRANZIOL MARCIO ALBERTO DE LUCCA JUNIOR ULYSSES DE TOLEDO MONTEIRO VANUEL ALBERTO SANCA JOÃO SARMENTO PEREIRA NETO;
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Aim: Cranial sutures (CS) are fibrous joints that connect most of the bones of the skull. As an individual age, the cranial sutures obliterate in a predictable manner. However, certain intracranial sutures close and then gradually stop or continue, making non-closure or incomplete closure of extracranial sutures a common phenomenon.

Method: We sought to validate (agreement or not) the age estimation table proposed by Tood & Lion in Coma. This is a cross-sectional, analytical and observational study. After approval by CEP/FOP/UNICAMP CAAE 56090722.5.0000.5418, 320 skulls from the osteological and tomographic Biobank of Forensic Dentistry were analyzed. Of these, only 252 skulls had their external cranial sutures (coronal, lambdoid, and sagittal) analyzed in their three stages, namely: visualized in the entire segment = 2; suture visualized in part of the segment = 1; and not visualized in the entire segment = 0.

Results: Stratification revealed that the agreement patterns were maintained among different subgroups. Score 0 was always the most accepted. The age group showed little variation, with greater criticality at older ages. The affinities were consistent, with small variations in score 1.

Conclusion: It was concluded that the analyses indicate reliability of the current system, but with room for improvement in definition and interpretation.

AGGRESSIVE MIDFACE OSTEOSARCOMA: A CASE REPORT

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DR. FERNANDO MAURO PIRES DA ROCHA HOSPITAL

Aim: Report a case of osteosarcoma affecting the middle third of the face.

Method: A 57-year-old hypertensive male and with chronic alcohol use presented with a 6-month history of progressive, painless swelling in the upper lip following facial aggression. Clinical examination revealed a firm, non-tender mass involving the upper lip, bilateral nasolabial folds, and midface, with complete loss of the bottom maxillary vestibule. CT demonstrated a 7.0×12.5×5.5 cm calcified mass centered in the anterior maxilla with gaseous foci, bone destruction, and nasal pyramid involvement. Incisional biopsy was performed under local anesthesia.

Results: Histopathological and imaging findings confirmed osteosarcoma, prompting oncology referral.

Conclusion: Early detection of aggressive tumor is crucial for timely therapeutic intervention, improving prognosis and reducing morbidity.

ANALYSIS OF EARLY CHILDHOOD EDUCATORS' PERCEPTION OF THE RELEVANCE OF PEDAGOGICAL PROJECTS RELATED TO ORAL HEALTH

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Aim: The research project was carried out in partnership with the PET "Programa de Educação Tutorial" Dentistry group of Araçatuba, in support of the "Sorriso Feliz" Project and in partnership with the Prefeitura Municipal de Araçatuba, with the objective of analyzing the perception of early childhood educators regarding the importance of oral health education in very early childhood through pedagogical actions aimed at children from 0 to 6 years old.

Method: In the Teaching axis, the project students were trained to address the topic of oral health in daycare centers. In Extension, there was support in the training of educators on the importance of the theme with pedagogical materials and videos developed by students. For Research, visits were made to 12 daycare centers during HTPC "Horário de Trabalho Pedagógico Coletivo" meetings, where data were collected from 100 educators through digital forms, of which 86 were validated in order to analyze their perceptions about oral health in pedagogical projects.

Results: The results showed that 98.8% of educators understand the relevance of oral health to general health; 69.9% agreed that a smile can influence a child's acceptance among peers; 49.4% identified caries as a dental disease; 77.1% reported that they would guide children on brushing their teeth; and 42.2% mentioned that they carried out activities related to the topic sporadically.

Conclusion: It was concluded that the majority of the educators interviewed are concerned about the oral health of children in their daycare centers, demonstrating interest in guiding children and in receiving more information about pedagogical content in the area.

ANALYSIS OF SUGAR CONTENT IN CHILDREN'S BEVERAGES AND ITS IMPACT ON THE WHO'S RECOMMENDED DAILY INTAKE

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Aim: The marketing of sugar-sweetened beverages with child-oriented appeal significantly influences children's food choices, encouraging the consumption of products with high caloric density and low nutritional value, thereby increasing the risk of non-communicable chronic diseases. According to the World Health Organization (WHO), daily sugar intake should not exceed 10% of total caloric intake, which corresponds to about 50 g per day. This study aimed to quantify the sugar content in beverages targeted at children.

Method: The following products were analyzed: Life Mix (LM), Tial (T), Vigor Vig (VV), Fruit Shoot (FS), Toddynho Leinho (TL), Toddynho Tradicional (TT), Leite Fermentado Vigor Minions (VM), Leite Fermentado Bob Esponja (BE) e Coca-Cola Tradicional (CC). The analysis consisted of examining the nutritional labels and then weighing the sugar using an analytical balance (± 0.01 g), with values expressed in g/100 mL.

Results: The results were as follows: LM – 0 g, T – 13.5 g, VV – 9.5 g, FS – 5.1 g, TL – 7.5 g, TT – 11 g, VM – 17.3 g, BE – 15 g, and CC – 11 g. The beverage with the highest sugar content was VM, while LM had no sugar. TL, although marketed as a healthier option, had a sugar content similar to TT. Coca-Cola, despite not being considered as a healthier option, contained less sugar than some products targeted to children. It was found that by consuming just 100 mL of these beverages, a child may ingest between 10% and 34% of the WHO's recommended daily sugar limit.

Conclusion: These findings highlight the need for a critical evaluation of products marketed to children, which are often perceived as healthy by caregivers.

ANALYSIS OF THE ORAL MICROBIOME USING 16S SEQUENCING BEFORE AND AFTER THE USE OF A TOOTHPASTE WITH TRICLOSAN

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Aim: Our objective in the analysis of the oral microbiome by 16S sequencing is a key tool to study the bacterial composition of the oral cavity. The 16S rRNA gene is widely used because of its interspecies conservation and its hypervariable regions, which allow us to identify and classify bacteria. This approach has transformed our understanding of oral microbial diversity and its relationship to oral health. However, the study of the microbiome remains a constantly evolving field.

Method: In this work, the oral saliva microbiome was evaluated before and after the use of a triclosan-containing toothpaste. Five subjects with a low CPOD index were selected, from whom saliva and toothbrush samples were collected before and after use of the paste. The DNA extracted from the samples was analyzed by 16S rRNA gene sequencing. The brushes were incubated in sucrose broth with bacitracin for five days to observe the growth of *Streptococcus mutans*.

Results: Before use of the cream, bacteria such as *Streptococcus parasanguinis*, *Okadaella gastrococcus*, *Streptococcus oralis*, *S. mitis*, among others, were detected. After use, species such as *Streptococcus rubneri*, *S. sanguinis* and *S. tigurinus* were identified.

Conclusion: The results showed a significant reduction of bacteria on the brushes, indicating that triclosan reduces their presence, although it does not eliminate them completely.

ANALYSIS OF THE OSTEOCONDUCTIVE POTENTIAL OF A TWO-PHASE SYNTHETIC BIOCERAMIC IN CRITICAL DEFECTS IN RAT CALVARIA

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Aim: The present study examined the osteoconductive capacity of BoneCeramic® and Plenum-Oss® biomaterials in critical defects in the rat calvaria.

Method: To this end, 27 6-month-old Wistar rats were used, undergoing critical defects measuring 5 mm in diameter in the parietal region, bilaterally to the sagittal suture. The animals were distributed into 3 experimental groups of 9 animals (18 defects) per group: group 1 clot (CO), group 2 BoneCeramic® (BC) and group 3 Plenum-Oss® (PO). Euthanasias were performed at 7, 14 and 28 days postoperatively for histometric, immunohistochemical (VEGF at 7 and 14 days; Osteocalcin, OC, at 14 and 28 days) and microtomographic (Micro-CT) analyzes at 28 days.

Results: The histological results demonstrated that the PO group presented a greater area of newly formed bone at 14 and 28 days, presenting well-defined trabeculae and mature bone tissue in the later period. The BC group exhibited discrete areas of immature bone tissue at 14 and 28, while the CO group continued to present only cellularized connective tissue. In the immunohistochemical analysis, VEGF was expressed in all groups, with maximum intensity in PO at 7 days, and OC had moderate staining in PO and BC, absent in CO, indicating a delay in bone mineralization, which corroborates the histological findings. In Micro-CT, PO stood out for the highest values of bone volume, BV.TV, and number of trabeculae, TB.N.

Conclusion: It is concluded that the Plenum® Oss hp biomaterial presented superior osteoconductive properties compared to the other comparison groups in the bone repair of critical defects in rat calvaria.

ANALYSIS OF THE QUALITY OF CERVICAL CANCER SCREENING IN THE UNIFIED HEALTH SYSTEM IN LIMEIRA-SP (2020-2022)

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Aim: To assess the quality of the results of cervical cytology tests performed by the Unified Health System (SUS) in Limeira-SP between January 2020 and December 2022.

Method: A quantitative time-series study using secondary data from the Municipal Cytology Laboratory of Limeira from 2020 to 2022. The variables analyzed were age, altered results (ASC-US, LSIL-HPV, HSIL, AGUS-H) and unsatisfactory results (acellular/hypocellular, reading impaired by blood and pyocytes). The calculations of the indicators followed the guidelines of the Ministry of Health.

Results: 25,838 tests were processed. The age distribution revealed that 84% of patients were in the recommended screening range. There was a significant decrease of 47% in the total number of collections performed in 2020. Of the total reports related to the screening age range, 0.9% (199 tests) were classified as unsatisfactory, 11.5% were acellular, 34.1% were blood-borne, and 33.4% were pyocytes. Cytological abnormalities were 1.7% (374 cases), among which 54.3% were ASC-US; 26.8% were LSIL-HPV; 5% were HSIL; 13% were AGUS-H. The average positivity rate for the period was 1.6% and the average percentage of tests compatible with HSIL among the satisfactory tests was 0.34%.

Conclusion: It revealed a scenario with unsatisfactory quality indicators, highlighting the need for improvement and training in processes from collection to analysis. Low adherence to screening protocols in the recommended age group was also observed, which compromises the optimization of SUS resources and the effectiveness of cervical cancer prevention actions.

ANALYSIS OF THE SELECTION OF SMALL COLONY VARIANTS OF STREPTOCOCCUS SANGUINIS IN HUMAN UMBILICAL VEIN ENDOTHELIAL CELLS

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Aim: During infection processes caused by certain bacterial species, variants resistant to antibiotics and other stresses may emerge, which characteristically form small colonies, the small colony variants (SCVs). This project is intended to characterize the frequency of SCV formed by *S. sanguinis* induced by intracellular stresses in human umbilical vein endothelial cells (HUVEC).

Method: To that purpose, the *S. sanguinis* SK36 strain was cultured in BHI and exposed to HUVEC in DMEM medium with fetal bovine serum. Briefly, the bacteria were treated with human serum and incubated with HUVEC for 2 hours. Next, extracellular bacteria were eliminated by incubating the HUVEC with gentamicin and penicillin, after which the cells were lysed. Serial dilutions of these lysates were inoculated on BHI agar to count viable intracellular bacteria (CFU) and analyze colony sizes. Colonies from the initial inoculum were analyzed as control. Colonies were photographed and measured using ImageJ software and classified by their diameter as normal colonies (NC), small colonies (SC) and big colonies (BC). Cultures containing 100 to 400 CFU were analyzed to minimize interference from cell density on colony size.

Results: SCs were observed to be twice as frequent after surviving inside HUVEC (19.9%) compared to pre-inoculum colonies (10.1%) ($p=0.0014$).

Conclusion: These results suggest that upon surviving inside endothelial cells, *S. sanguinis* may generate variant subpopulations to persist in infected tissues.

ANALYSIS OF TITANIUM SURFACES TREATED BY ELECTROLYTIC OXIDATION PLASMA AND COATED WITH POLYPYRROLE AND ZINC FILM

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Aim: This study aimed to develop an Electrolytic Plasma Oxidation(PEO) coating with polypyrrole(PPy) deposition with improved antibacterial, electrochemical and physicochemical properties through the incorporation of Zinc Nitrate.

Method: Titanium discs were polished and allocated into 4 groups: commercially pure titanium(cpTi); treated with plasma(PEO); treated with plasma and PPy(PEO-PPy); 0.15 M of Zn(PEO-PPy/Zn). The surfaces were characterized by scanning electron microscopy, energy dispersive spectroscopy, Fourier transform infrared spectroscopy, Vickers microhardness, wettability and profilometry. The electrochemical evaluation was performed using a potentiostat connected to a three-electrode cell setup to evaluate the surface's anti-corrosion properties. The antimicrobial potential was assessed against monospecies biofilms (*S. sanguinis* and *E. coli*) and a polymicrobial microcosm model. Quantitative evaluations included colony-forming units, dry weight biomass, metabolic activity, and biofilm architecture via scanning electron microscopy. Cytocompatibility was investigated using pre-osteoblastic MC3T3-E1 cells through the MTT assay.

Results: The PEO-PPy/Zn group exhibited significantly higher surface roughness, while the presence of PPy increased the contact angle and hardness ($p < 0.05$), in addition to enhancing the electrochemical performance. Zn provided effective antimicrobial activity, and the PEO-PPy/Zn coating demonstrated favorable cytocompatibility.

Conclusion: These findings suggest that the PEO+PPy/Zn treatment constitutes a promising strategy for dental implant applications, combining technical simplicity with cost-effective production.

ANALYSIS OF ZOLPIDEM'S EFFECT ON ANXIETY LEVELS IN THIRD MOLAR SURGERY: A RANDOMIZED CLINICAL TRIAL

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Aim: This study aimed to evaluate the efficacy of zolpidem (ZOL) in managing anxiety during third molar extractions, comparing it with midazolam (MID) and placebo (PLA).

Method: The trial included 30 healthy patients aged 16-35 years (without comorbidities) scheduled for third molar extraction, randomly allocated to three groups ($n=10$ /group): PLA, MID, and ZOL. Medications were administered 30 minutes before the surgical procedure. Anxiety levels were assessed pre- and post-operatively using Corah's Dental Anxiety Scale, Hospital Anxiety and Depression Scale (HAD), and Modified Dental Anxiety Scale (MDAS). Salivary samples were collected at the same time points for measurement of stress biomarkers (cortisol and α -amylase). Additionally, heart rate (HR), blood pressure (BP), and oxygen saturation (SpO_2) were monitored during pre-, intra-, and post-operative periods.

Results: Statistical analysis ($\alpha=5\%$) revealed no significant differences in questionnaire scores between groups. However, the ZOL group showed significantly higher HR compared to both PLA and MID ($p<0.05$), with PLA demonstrating the lowest values. For systolic BP, ZOL showed significantly higher values than MID ($p<0.05$), which presented the lowest measurements. MID maintained a significant reduction in diastolic BP ($p<0.05$). No intergroup differences were observed in SpO_2 levels ($p>0.05$).

Conclusion: Therefore, midazolam demonstrated superior characteristics compared to zolpidem for surgical anxiety control, with more stable hemodynamic effects during third molar extractions.

ANTI-INFLAMMATORY AND ANTIMICROBIAL EFFECTS OF GINGER MOUTHWASH ON PATIENTS WITH FIXED ORTHODONTIC APPLIANCES

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Aim: This study aimed to evaluate the anti-inflammatory and antimicrobial effects of mouthwashes containing 0.12% Chlorhexidine (CHX) and 0.5% essential oil of Zingiber officinale (EOZO).

Method: Initially, gas chromatography-mass spectrometry (GC-MS) analysis of EOZO was performed, and the mouthwash formulation was developed. A total of 31 participants undergoing fixed orthodontic treatment were selected. The CHX, EOZO, and placebo (flavored sterile water) mouthwashes were used for 7 days, with a 21-day washout period between each solution, applied in a randomized order. Saliva samples were collected before, 1 minute, 15 minutes, and 7 days after the first rinse. Patients underwent clinical examinations (IPC and SS) and sensory analysis (flavor). Data were statistically analyzed with a 5% significance level.

Results: In the microbiological evaluation, the EOZO mouthwash showed antimicrobial activity against *S. mutans*, similar to CHX, although with lower substantivity. EOZO was also effective in reducing dental biofilm and controlling gingival bleeding. However, sensory analysis revealed that the taste of both EOZO and CHX solutions had low acceptance among participants.

Conclusion: The EOZO mouthwash demonstrated antibacterial properties, contributing to the reduction of plaque and gingival bleeding. However, its formulation still requires adjustments to improve taste acceptability.

ANTIMICROBIAL ACTIVITY OF I-PRF ON SUBGINGIVAL BIOFILM IN PATIENTS WITH DIFFERENT PERIODONTAL CONDITIONS

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Aim: The study evaluated the antimicrobial potential of Injectable Platelet-Rich Fibrin (iPRF) obtained from patients with different periodontal conditions on ex-vivo multispecies subgingival biofilm.

Method: A biofilm inoculum was collected from the gingival sulcus from four participants from both groups: healthy (G1) and with periodontal disease (G2). The participants with periodontal disease were classified as having periodontitis Stage III or IV, Grade A or B. iPRF membranes were prepared following a standardized protocol: samples were centrifuged for 5 minutes at 1600 rpm. Both (biofilm inoculum and iPRF) were placed in 24 wells plates with hydroxyapatite discs, coated with saliva's patients and vertically positioned. The biofilm was allowed to grow for seven days and then, metabolic activity was assessed using XTT assay. The metabolic analysis results were statistically analyzed using Kruskal-Wallis followed by Dunn's post-hoc test.

Results: G1 iPRF reduced 68% of biofilm metabolic activity when compared to the untreated biofilm of G1 ($p < 0.05$), indicating an antimicrobial effect compared to the untreated control. In G2 samples, the metabolic activity of iPRF treated-biofilms was also reduced by 61% ($p < 0.05$) compared to untreated biofilm control. When comparing the two groups of participants (G1 vs G2), no statistical difference was observed ($p > 0.05$), indicating a similar effect of PRF across different conditions.

Conclusion: iPRF collected from distinct participants presented a relevant antimicrobial effect on complex multispecies biofilms.

ANTIMICROBIAL ACTIVITY OF ORIGANUM VULGARE ESSENTIAL OIL (OREGANO) AND ITS COMPOUND ISOLATED

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Aim: The objective of this work was to evaluate the antifungal activity of essential oil and compound against standard strains of *Candida* spp., *Streptococcus* spp. and *Staphylococcus aureus* Methicillin resistant

Method: The present study evaluated the antibacterial and antifungal activity of *O. vulgare* and Carvacrol using the broth microdilution method (CLSI, 2008), determining MIC (Minimum Inhibitory Concentration) and MFC and MBC (Minimum Fungicidal Concentration and Concentration Minimum Bactericide). Used as standard comparative the antimicrobials Fluconazole and Chlorhexidine.

Results: The essential oil of *Origanum vulgare* and the isolated compound Carvacrol are biologically active against the genders *Candida* and *Streptococcus* and in the strain of *Staphylococcus aureus* methicillin resistant, exhibiting promising antimicrobial properties. The antimicrobial activity can be seen highlighted with a combination of traditional commercial antimicrobials.

Conclusion: The essential oil of *Origanum vulgare* and the isolated compound Carvacrol are biologically active in a dose dependent manner against the species tested in their planktonic form.

ANTIMICROBIAL EFFECTIVENESS OF CHEMICAL AUXILIARY SUBSTANCES USED IN ENDODONTICS THROUGH THE AGAR DIFFUSION METHOD

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Aim: This study aimed to evaluate the antimicrobial activity of various CAS using the agar diffusion method.

Method: The tested substances—2% CHX, 2.5% NaOCl, OTO, OTM, and saline (SS, control)—were assessed against *Enterococcus faecalis* and *Candida albicans*, key pathogens in persistent endodontic infections. Substances were applied to inoculated agar plates, and inhibition zones were measured after incubation. Tests were conducted in triplicate.

Results: Against *E. faecalis*, efficacy ranked as follows: 2% CHX > 2.5% NaOCl > OTM > OTO > SS; for *C. albicans*: 2.5% NaOCl > 2% CHX > OTM > OTO > SS.

Conclusion: It was concluded that 2.5% sodium hypochlorite and 2% chlorhexidine gel showed superior antimicrobial activity compared to Otosporin and Otomixyn. (Supported by FAPESP 2015/23479-5, 2021/13871-6; CNPq 303852/2019-4, 421801/2021-2 & CAPES 001).

ANTIMICROBIAL PHOTODYNAMIC THERAPY (aPDT) FOR THE TREATMENT OF PERI-IMPLANTITIS: A BIBLIOMETRIC ANALYSIS

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Aim: This study aimed to perform a bibliometric analysis to investigate global research trends in antimicrobial photodynamic therapy (aPDT) for the treatment of peri-implantitis, examining publication, authorship, citations, sources, and impact factors.

Method: The search was conducted in the Scopus database in March 2025 using the keywords: ("Peri-Implantitis" OR "Peri Implantitis" OR "Periimplantitis") AND ("PDT" OR "Photodynamic therapy" OR "laser" OR "Laser therapy" OR "Lasertherapy" OR "Photosensitization"). Articles in any language were considered. The "Year" filter was set to 2015–2024, and the "Document type" filter was limited to "articles" to include only original research, excluding reviews.

Results: The initial search returned 623 articles. After applying the filters, 451 remained. Following the inclusion and exclusion criteria, 240 articles were selected for final analysis. The data were analyzed using VOSviewer version 1.6.20 and Bibliometrix software. The highest number of publications was observed in 2023, with 36 articles. King Saud University (Saudi Arabia) was the leading institution, and Italy was the most productive country, with contributions in 38 and 107 publications, respectively. The most prolific authors were Abduljabbar T, Bahador A, and Vohra F, each contributing 8 studies. The most cited article received 281 citations. The top 10 studies accumulated 777 citations. The journal Photodiagnosis and Photodynamic Therapy had the highest number of publications (34) and a 3.1 impact factor.

Conclusion: The findings provide valuable insights into the current state of global research on aPDT for the treatment of peri-implantitis.

APICAL THIRD FUNGAL DETECTION IN TEETH WITH ENDODONTIC FAILURE AND VITAL PULP USING CRYOPULVERIZATION

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Aim: This study aimed to investigate the presence of fungal species in the apical third of extracted teeth with endodontic treatment failure (EF) and teeth with vital pulp (VP), using cryopulverization followed by molecular analysis with Nested-PCR.

Method: Fifteen EF teeth with periapical lesions, extracted due to prosthetic limitations, and 15 clinically healthy VP teeth, extracted for orthodontic or surgical reasons, were included. Teeth were sectioned at 6 mm from the apex and cryogenically ground (Freezer Mill 6750, Spex). DNA extraction and fungal identification were performed using Nested-PCR with species-specific primers. Statistical analysis included Fisher's exact test, Spearman's correlation, Shapiro-Wilk, and Student's t-test.

Results: Fungal DNA was detected in 60% (9/15) of EF samples, with *Candida albicans* (8/15) and *Candida tropicalis* (7/15) being the most frequent. In the VP group, fungi were found in 20% (3/15), with *C. albicans*, *C. tropicalis*, and *C. parapsilosis* each identified once. Significant associations were found between *C. albicans* and tenderness to percussion, and between *C. tropicalis* and inadequate obturation ($p < 0.05$).

Conclusion: In conclusion, fungal colonization is common in the apical third of teeth with endodontic failure, and inadequate obturation may contribute to their persistence and related symptoms. (Supported by FAPESP 2015/23479-5, 2021/13871-6, 2023/10620-8; CNPq 303852/2019-4, 421801/2021-2, & CAPES 001).

APPLICATION OF MINDFULNESS-BASED INTERVENTIONS IN BRAZIL: A SCOPING REVIEW

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Aim: This scoping review examined the characteristics of scientific literature on mindfulness-based interventions in Brazil.

Method: Studies published between 2014 and 2024 were analyzed, identified in the Medline database via PubMed and in Lilacs and Scielo via the BVS platform.

Results: Out of 345 studies retrieved, 53 met the inclusion criteria, which encompassed quantitative and qualitative research applied to the Brazilian population, excluding reviews, editorials, and non-published works. Study selection was conducted by three independent reviewers, with arbitration in cases of disagreement. Results indicated that most studies were published in 2021 and 2022 (n=10 each), with a predominance of randomized clinical trials (35.8%). The Southeast region accounted for 77.4% of interventions, with São Paulo being the most prominent (n=29). Mental health was the most frequently addressed focus (52.83%), followed by combined mental and physical health (37.74%).

Conclusion: The findings demonstrated that mindfulness-based interventions had a positive impact on mental and physical health, particularly in contexts such as stress, anxiety, and chronic conditions. However, regional disparities in research distribution were evident, with a scarcity of studies in the North and Central-West regions, highlighting the need for expanded implementation and dissemination of these practices in underserved areas.

ARE 980 NM DIODE LASER AND APF GEL EFFECTIVE IN REDUCING THE ENAMEL MINERAL LOSS AFTER A CARIOGENIC CHALLENGE?

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Aim: This in vitro study investigated if Indocyanine green plus 1.23% acidulated phosphate fluoride gel (APF-gel) application enhances the 980 nm Diode laser effect on the EML reduction after a cariogenic challenge.

Method: Fifty-five previously demineralized enamel specimens were randomly divided into 5 groups (n=11/group): No treatment (negative control); APF-gel; Diode laser; Diode laser + APF-gel; and Green indocyanine + Diode laser diode + APF-gel. After treatments, specimens were submitted to a pH cycling. Microhardness analysis was carried out to assess the EML quantitatively. The enamel mineral loss data were analyzed using the Kruskal-Wallis test and the Student-Newman-Keuls test.

Results: The APF-gel significantly reduced the enamel mineral loss as compared with no treatment, laser alone, and Indocyanine green + Diode laser (p<0.001, p<0.014, and p<0.001 respectively). No difference was noted between the Indocyanine green + Diode laser + APF-gel group and the APF-gel group.

Conclusion: Indocyanine green plus APF-gel application did not provide additional Diode laser effectiveness on the inhibition of enamel mineral loss.

ARE THE SO-CALLED COLOR CORRECTOR SERUMS EFFECTIVE FOR SHORT-TERM TOOTH WHITENING? AN IN VITRO STUDY

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Aim: To evaluate the efficacy and the effect on enamel surface of two commercial color corrector serums, claimed to promote short-term tooth whitening, compared to carbamide peroxide (CP).

Method: Bovine enamel-dentin specimens were subjected to staining protocols with coffee (CF), black tea (BT), or artificial saliva (AS). Afterward, each group of stained specimens (n=10/group) was treated using serums from HiSmile (HS) or Rizu (RZ), 15% CP, or without treatment. The color change (ΔE_{00}) and whiteness index for dentistry (ΔWID) were evaluated using a digital spectrophotometer. The pH of the products was measured with a pH meter. The enamel surface morphology was analyzed using a scanning electron microscope. Data was tested by means of Kruskal-Wallis and Dunn Tests ($\alpha=5\%$).

Results: Up to 24 h after treatments, RZ and HS promoted ΔE_{00} (for CF-stained enamel) and ΔWID (for AS or BT-stained enamel) statistically similar to CP. However, overall, the median ΔWID values reached by CP were higher than the ΔWID perceptibility and acceptability thresholds. After 1 week, RZ and HS exhibited ΔWID statistically similar to groups without treatment and lower than CP, regardless of the staining type. RZ was the only agent presenting an acidic pH, but no changes were observed in enamel morphology under any of the treatments.

Conclusion: Even though the color corrector serums did not damage enamel surface, its use did not promote acceptable whiteness effect after its immediate use, regardless the type of enamel staining. After one week, CP rendered significantly greater whiteness variation than the serums.

ASSESSMENT OF A METHOD FOR MEASURING TOOTH MOBILITY AND DISPLACEMENT FORCE IN INCISORS WITH LOSS OF PERIODONTAL SUPPORT

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Aim: The study investigated a new method for measuring dental mobility by controlling the applied force (gf) and the vestibulo-lingual/palatal displacement (mm) in upper and lower incisors.

Method: Twenty participants with stage II, III, and IV periodontitis, presenting periodontal pockets ≥ 4 mm and mobility in anterior teeth (13-23 and/or 33-43), were selected. The mobility assessment utilized a customized tray and instruments such as adapted dynamometer (Morelli, Brazil), dynamometer, mirror handles, periodontal probe, and caliper. After signing the informed consent form, the tray was fabricated, and periodontal parameters, OHIP-14, and dental mobility were analyzed. Initially, mobility was subjectively measured using mirror handles and subsequently quantified objectively with a adapted dynamometer and dynamometer, following the classification by Lindhe and Nyman (1975).

Results: The results showed a significant correlation between the forces measured by the two devices ($r = 0.6398$ and $r = 0.6599$), ($p = 0.6095$ and $p = 0.6470$) also being significant ($p < 0.01$). It was observed that the force required for dental displacement decreased with the increase in the degree of mobility, showing a moderate negative correlation ($p = 0.0057$ for f/v and $p = 0.0045$ for f/l). The depth of periodontal pockets was significantly greater in teeth with higher mobility ($p = 0.029$).

Conclusion: These findings highlight the importance of evaluating both dental mobility and force in the clinical management of patients with periodontitis. The adapted dynamometer may be a viable alternative to the dynamometer in assessing dental mobility.

ASSESSMENT OF CHATBOT PERFORMANCE IN RESPONDING TO DENTAL TRAUMA QUESTIONS

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Aim: This study compared the accuracy and reliability of five chatbots (ChatGPT, Google Gemini, Microsoft Copilot, DeepSeek, and Meta AI) in generating responses about dental trauma, based on the guidelines of the International Association of Dental Traumatology

Method: Sixty dichotomous (true/false) questions were submitted to each chatbot daily for 30 days, totaling 18,000 responses. The interactions were conducted both with and without an initial command prompt. The analysis employed a Generalized Linear Mixed Model (GLMM) with a binomial distribution ($\alpha = 5\%$), along with metrics such as sensitivity, specificity, accuracy, and area under the ROC curve (AUC).

Results: All chatbots demonstrated accuracy above 85%, with Microsoft Copilot (91.1%) and DeepSeek (90%) standing out as the most accurate, with no significant difference between them ($p > 0.05$), but both outperforming the others ($p < 0.05$). Response consistency was high ($KR-20 > 0.85$), with low variation over the evaluation period.

Conclusion: It is concluded that the evaluated chatbots, especially Copilot and DeepSeek, demonstrated high reliability in generating information about dental trauma, maintaining stable performance over time.

ASSESSMENT OF UNDERGRADUATE DENTAL STUDENTS' CONFIDENCE FOLLOWING TRAINING IN BREAKING BAD NEWS

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Aim: To assess the confidence levels of undergraduate dental students after participating in a training session focused on breaking bad news using the SPIKES protocol.

Method: The training was conducted online via Google Meet with third- to fifth-year dental students. It included an introductory lecture, video presentations of clinical simulations, guided group discussions, and a post-training questionnaire. In total, 106 students participated. Data was analyzed using descriptive statistics.

Results: Most participants reported feeling confident when managing routine clinical situations, such as caries and periodontal disease. However, confidence declined in more complex and sensitive scenarios, especially those involving oral cancer, HPV-related conditions, and suspected child neglect. In these contexts, a significant portion of students reported neutral or low levels of confidence, particularly among those in earlier years of the program. Although confidence tended to increase among senior students, the percentage of participants who felt "very confident" remained consistently low across all topics.

Conclusion: The findings indicate that while students generally felt prepared for routine clinical encounters, substantial gaps remained in their readiness to manage emotionally difficult conversations. These results highlight the need to incorporate structured communication training into dental curricula to better prepare future professionals for ethically and emotionally complex clinical interactions.

ASSOCIATION BETWEEN ANXIETY AND SENSE OF COHERENCE AND PROBABLE AWAKE BRUXISM IN SCHOOL-AGED CHILDREN

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Aim: To analyze the association between anxiety, sense of coherence (SOC), and probable awake bruxism (PAB) in children attending public schools in Piracicaba/SP, Brazil.

Method: A cross-sectional study with 276 children aged 6 to 11 years. Questionnaires on anxiety and SOC were completed by caregivers, and psychological tests (VPT and FIS) were applied to the children, followed by clinical oral examinations to identify signs of PAB. The data collection was conducted in three stages: caregiver questionnaires, psychological assessments with the children, and clinical dental exams to detect bruxism indicators.

Results: The sample included 139 boys and 137 girls, with the highest number of participants aged 10 (22%). There was strong participation in the early grades, especially 1st grade (11%). Clinical exams revealed signs suggestive of PAB, such as wear facets, linea alba, and tongue indentations. Preliminary analysis showed a correlation between higher anxiety levels and the presence of bruxism signs, particularly in children with lower SOC. Full data analysis will be completed upon the conclusion of data collection in the remaining schools, currently underway via PIBIC.

Conclusion: Findings suggest a possible relationship between emotional factors and PAB, highlighting the importance of an integrated approach to oral and mental health in childhood. Final results will be presented upon completion of the project.

ASSOCIATION BETWEEN PROBABLE AWAKE BRUXISM AND BULLYING AMONG SCHOOL-AGED CHILDREN

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Aim: To analyze the association between school bullying and probable awake bruxism (PAB) in children aged 6 to 11 years enrolled in public schools in Piracicaba, São Paulo, Brazil.

Method: This is a cross-sectional, analytical epidemiological study. Data collection occurred in three stages: (1) distribution of consent forms and parent questionnaires; (2) application of the Olweus Bully/Victim Questionnaire (OBVQ) with authorized children; and (3) clinical dental examination to identify signs of bruxism, such as wear facets, linea alba, and tongue indentations. A total of 276 children participated. Statistical analysis included chi-square tests and multiple logistic regression using R software.

Results: The sample was balanced by sex (139 boys, 137 girls), with a higher number of participants aged 10 years (22%). Preliminary results indicate a possible association between bullying and signs of awake bruxism. Statistical analysis is ongoing to confirm this relationship and assess the influence of other variables such as socioeconomic status and sleep quality.

Conclusion: Initial findings support the hypothesis that bullying is a psychological stressor potentially linked to awake bruxism in school-aged children. Continued research involving more schools is expected to strengthen the evidence and guide effective health interventions.

ASSOCIATION OF TOOTH BLEACHING AND DIRECT COMPOSITE RESIN VENEERS FOR AESTHETIC SOLUTIONS FOR ANTERIOR TEETH

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Aim: This case report describes a conservative approach to solving the aesthetics of anterior teeth, associating bleaching treatment and direct veneer replacement with composite resin.

Method: The patient, MJL, 23 years old, male, sought the Dentistry Specialization Clinic of the Piracicaba Dental School (FOP-UNICAMP) due to aesthetic discomfort in the resin veneer of tooth 12, which was darkened and poorly adapted. The proposed treatment was home bleaching treatment with 16% carbamide peroxide (Whiteness Perfect, FGM, Joinville, SC, Brazil), for 21 days. The initial color of the incisors was A2 and canines A3.5 (Vita scale). After the bleaching treatment, the color of the teeth became A1. Two weeks after the end of the whitening treatment, the veneer of element 12 was replaced, following the steps of grinding with diamond burs and polishing of the preparation, prophylaxis, absolute isolation, nanohybrid composite resin (Empress Direct, Ivoclar-Vivadent, Barueri, SP, Brazil), in different shades, respecting the dental anatomy. At the end of the composite resin veneer production, the finishing and polishing protocol was performed.

Results: The patient did not report any type of discomfort during the treatment.

Conclusion: Therefore, it is possible to conclude that the combination of supervised home whitening associated with direct composite resin veneer replacement is safe, pleasant and effective for aesthetic treatments in anterior teeth.

AUTOLOGOUS BONE GRAFTING FOR NASAL RECONSTRUCTION IN FACIAL TRAUMA

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Aim: The aim of this study is to present a narrative review regarding the use of autologous bone grafts for nasal dorsum reconstruction related to traumatic injuries.

Method: The search was conducted in PubMed database, without date restriction, in the English language using MeshTerms "nose deformities, acquired", "transplantation, autologous" e "bone grafting". Other narrative or systematic reviews were excluded. In our search, 79 studies were found, after title and abstract reading, 20 studies were included for the final review.

Results: Nasal fractures represent 10.8% of all facial trauma. As a protruding element in the middle face, the nose is severely affected in high energy trauma, resulting in a "saddle nose" appearance due to structural collapse derived from comminuted fractures. Thus, requiring reconstruction of the dorsum to maintain projection, improve aesthetic and return to function. Autografts are the gold standard for great nose reconstruction because of their unmatched biocompatibility and well-established mechanical properties. Our results show that autologous bone grafting donor sites used for nasal reconstruction are the iliac crest, the calvarium, the rib, the septum, the mastoid process and the mandible.

Conclusion: The variables to be considered when selecting a donor site are the volume and type of bone for reconstruction. cortical grafts such as the calvarium bone and the mandible are more predictable.

BARRIERS TO CLINICAL TRANSLATION OF ANTIMICROBIAL IMPLANT SURFACES: A CRITICAL LITERATURE REVIEW

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Aim: Peri-implantitis has emerged as a significant clinical concern in recent years, especially due to the lack of an effective and definitive treatment options. In response, the development of antimicrobial implant surfaces has gained attention as a potential strategy to prevent biofilm formation on implant surfaces. However, despite promising in vitro results, the clinical implementation of these surfaces remains limited

Method: This critical review explores the main barriers that hinder the incorporation of antimicrobial surfaces into the dental implant market. The study evaluated various effects that antimicrobial surfaces can achieve, such as antifouling, contact killing, and release mechanisms.

Results: All of these effects had one goal: to prevent bacterial adhesion and biofilm formation on the implant surface. The study highlighted the high effectiveness of antimicrobial surfaces with contact-killing and release mechanisms. However, several limitations persist, including regulatory compliance gaps, lack of long-term stability, limited in vivo validations, and methodological weaknesses across the current literature.

Conclusion: Therefore, in light of these findings, this review highlight the need for further robust studies and translational research to enhance the clinical applicability and reliability of antimicrobial coatings for dental implants.

BIBLIOMETRIC ANALYSIS OF PAIN AND ANXIETY SCALES IN DENTISTRY: TRENDS AND MAIN CHARACTERISTICS ARTICLES (2020-2025)

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Aim: The assessment of anxiety and pain is essential in dentistry and is mediated by specific scales. This study aimed to conduct a bibliometric review of the most commonly used scales to measure these factors, based on the 500 most cited articles.

Method: The research was conducted in April 2025, using journals indexed in the Web of Science, Scopus and PubMed databases, with a search key composed of keywords and Boolean operators. The initial search generated 1,381 articles, of which 500 were selected, published between 2020 and 2025. Data such as citations, year of publication, journal, authors, countries, institutions, study design and keywords were extracted, with bibliometric networks created in the VOSviewer software.

Results: The most cited pain scales were the Visual Analogue Scale (VAS) (87 citations), followed by the Wong-Baker FACES Pain Rating Scale (WBFRS) (56 citations) and the Numerical Rating Scale (NRS) (23 citations). For anxiety, the most cited was the Modified Dental Anxiety Scale (MDAS) (34 citations), followed by the Spielberger State-Trait Anxiety Inventory (STAI) and the Modified Venham Picture Test (VPT) (20 citations). The most published journals on the subject were BMC Oral Health (36 publications), International Journal of Clinical Pediatric Dentistry (18 publications) and Journal of Dental Anesthesia and Pain Medicine (14 publications). The most frequent type of study was the randomized clinical trial (182 occurrences), followed by the cross-sectional study (106) and cohort study (22).

Conclusion: Highlighting the VAS and MDAS scales to assess pain and anxiety, with the majority of articles being randomized clinical trials.

BIOACTIVE S-PRG PARTICLE-MEDIATED ENAMEL REMINERALIZATION: A NARRATIVE REVIEW

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Aim: This narrative review examines enamel remineralization mediated by Surface Pre-Reacted Glass Ionomer (S-PRG) particles.

Method: A PubMed search using the terms "Remineralization," "Dental enamel," "S-PRG filling," "Giomer," and "Caries" retrieved English-language studies from 2004 to 2025, including in vitro, in situ, and clinical investigations. Exclusion criteria were studies not focused on enamel tissue, those with unsuitable study designs, or those published in other languages.

Results: Key findings demonstrate that S-PRG coatings reduce *Streptococcus mutans* viability, inhibit biofilm formation, and downregulate bacterial virulence genes, thus protecting demineralized enamel (Kornsombut et al., 2024; Nishimata et al., 2024). In primary tooth models, PRG Barrier Coat arrested the progression of early enamel lesions, confirming preventive efficacy. Comparative in vitro studies show that S-PRG varnishes outperform fluoride-only formulations by delivering sustained multi-ion release and buffering capacity, and surpass silver diamine fluoride in promoting enamel remineralization without causing discoloration. Furthermore, in vitro hardness tests confirm enamel hardness recovery, validating the restorative potential of S-PRG coatings.

Conclusion: In conclusion, S-PRG materials provide a dual-action mechanism—sustained release of bioactive ions (F^- , Sr^{2+} , Al^{3+} , B^{3-}) alongside potent antibiofilm activity—that collectively enhance enamel repair and caries prevention. Incorporation of these bioactive materials into clinical practice and preventive care protocols may improve therapeutic outcomes, especially in pediatric and high-risk patient populations.

BIOCHEMICAL HEMATOLOGICAL ELEMENTAL AND HISTOLOGICAL ANALYSES IN BLOOD AND ORGANS OF HEALTHY AND LESION-INDUCED ANIMALS

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Aim: Essential elements play vital roles in numerous metabolic and biological processes, acting as structural components, hormone regulators, and enzyme cofactors. Recent studies have shown that their concentrations can change significantly in pathological tissues. In Endodontics, apical periodontitis is a chronic inflammatory disease regulated by immune responses. Although literature suggests it may increase systemic inflammatory markers, no studies have evaluated essential systemic elements in relation to this pathology. This study aimed to investigate the systemic elemental profile in animals with and without apical periodontitis.

Method: 38 animals were analyzed; half ($n = 19$) underwent periapical lesion induction for 40 days, while the other half served as sham controls. After euthanasia, 3 mL of whole blood, liver, and kidney samples were collected. Blood was analyzed by ICP-OES, hematological, and biochemical tests. ICP-OES quantified sodium, potassium, magnesium, calcium, iron, manganese, cobalt, copper, zinc, and molybdenum. Additionally, 26 systemic parameters related to blood count, leukogram, and biochemistry were assessed, focusing on liver and kidney function. Organs were submitted to histopathological evaluation. Periapical lesions were confirmed radiographically.

Results: ICP-OES revealed increased calcium, copper, molybdenum, and manganese. Total bilirubin, direct bilirubin, creatinine, and ALT were altered. Histology showed mild hepatic inflammation and severe kidney damage.

Conclusion: These findings reinforce that periapical lesions can induce both localized and systemic effects, altering overall homeostasis.

BOND STRENGTH BETWEEN ACRYLIC RESIN AND ARTIFICIAL TEETH TREATED WITH COMMERCIAL OR EXPERIMENTAL SILANE

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Aim: This in vitro study evaluated the bond strength between heat-cured acrylic resin and artificial teeth treated with experimental silane containing thiourethane.

Method: Artificial molars were fixed on 50 mm wax rods and embedded in metal flasks with type III dental stone and silicone. Assemblies were removed, teeth separated, and bonding surfaces cleaned with detergent. Teeth were divided into three groups based on surface treatment ($n=10$): CON (control, no treatment), ABR (diamond bur abrasion), and JAT (sandblasting with 50 μm aluminum oxide). Each group received either commercial silane (PALABOND – SP) or experimental thiourethane-containing silane (SE). Teeth were repositioned, resin was packed and polymerized in heated water. Specimens were fixed in PVC tubes with self-cured resin, leaving 1 mm of space between the tooth and tube. Shear bond strength was tested using a universal machine. Data were analyzed with one-way ANOVA and Tukey's test (5%).

Results: JAT+SP showed the highest bond strength, followed by ABR+SE. CON and JAT+SE had the lowest values. ABR+SP showed intermediate strength.

Conclusion: Surface treatment with experimental silane containing thiourethane, combined with sandblasting or abrasion, influenced bond strength to acrylic resin denture base.

BOND STRENGTH OF A BIOACTIVE MATERIAL TO IRRADIATED HUMAN ENAMEL

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Aim: This study evaluated the bond strength of restorative systems to the enamel of extracted teeth from patients submitted to radiotherapy as a treatment for head and neck cancer.

Method: Two restorative systems were tested: a "bioactive" material (FL-Bond II adhesive and Beautifil II composite / Shofu Inc.) and a regular restorative material (Prime&Bond Active Universal adhesive and Neo Spectra ST composite / Dentsply Sirona) that served as a Control. Irradiated and non-irradiated extracted teeth had their buccal enamel surfaces flatted with #600 grit abrasive sandpaper. The restorative system adhesives were applied to the phosphoric acid-etched enamel and a composite block from the same manufacturer was incrementally built up (6 mm high) on the enamel surface (n=10). For microtensile bond strength test, the teeth were serially sectioned to obtain parallelepiped-shaped specimens (1 mm² at cross-sectional area), which were tested in a universal testing machine after 24 hours of storage in distilled water at 37°C. The data were analyzed by two-way ANOVA and Tukey's test.

Results: The bond strengths of the restorative systems to irradiated or non-irradiated enamel did not differ statistically. The bioactive material (31.2±8,1 MPa) showed higher bond strength to non-irradiated enamel than that obtained for the Control (20,3±4,1 MPa), while no significant difference between restorative systems was observed to irradiated enamel.

Conclusion: The enamel of the teeth from patients subjected to radiotherapy did not show a reduction in bond strength and the bond strength of restorative systems did not differ in irradiated enamel.

BOND STRENGTH OF BIOACTIVE AND CONVENTIONAL RESIN COMPOSITES IN DENTIN AFTER OZONATED WATER CLEANING. IN VITRO STUDY

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Aim: This study compared the microtensile bond strength (μ TBS) of bioactive and conventional resin composite on human dentin after using ozonated water (AO) as a cavity cleaning solution.

Method: In this study, 32 healthy human third molars were randomly divided into four groups (n = 8) according to the type of composite and dentin cleaning: BFP AO - Beautifil Flow Plus F00 + ozonated water; OBF AO - Opus Bulk Fill + ozonated water; BFP AD - Beautifil Flow Plus F00 + distilled water; and OBF AD - Opus Bulk Fill + distilled water. The samples were stored in distilled water at 37°C for 24 hours before being tested for μ TBS. The failure mode was assessed under a stereomicroscope with a magnification of $\times 40$ and classified as cohesive-dentin, cohesive-resin, adhesive, or mixed. Subsequently, representative specimens from each fracture type were selected for morphological analysis using scanning electron microscopy. Data were initially evaluated for normality using the Shapiro-Wilk test. Given the non-normal distribution, the Kruskal-Wallis test followed by the Dwass-Steel-Critchlow-Fligner post hoc test were employed for statistical analysis.

Results: The results demonstrated a significantly higher bond strength for the BFP AO group (39.03 MPa; $p \leq 0.05$) than the other groups.

Conclusion: It can be concluded that ozonated water, when utilized as a cavity-cleaning solution for the subsequent application of a bioactive system, significantly enhances bond strength in dentin.

CAFFEINE SALIVARY LEVELS OF YOUNG HABITUAL CAFFEINE CONSUMERS: CHARACTERISTICS AND SEX DIFFERENCES

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Aim: Caffeine may be related to systemic effects, but information on sex differences and its influence on salivary characteristics is scarce. The study assessed the relationship between caffeine consumption, saliva and gustatory characteristics and heart rate in 60 healthy adults (30 men/30 women; 18-27y).

Method: Caffeine-based foods, beverages and medicines intake were assessed in three pre-set days. Gustatory sensitivity, resting heart rate, and salivary flow, pH, amylase (AMY), total protein (TP), and caffeine levels were evaluated in stimulated (SS) and unstimulated saliva (US).

Results: The reported caffeine intake was higher in males and caffeine concentration was higher in SS compared to US ($p=0.029$). Salivary caffeine correlated with pH ($\rho=0.29$; $p=0.025$), while SS AMY and TP concentrations were lower in caffeine consumers. No difference was observed in gustatory sensitivity and resting heart rate considering caffeine intake. According to the hierarchical regression model, caffeine salivary concentration was predicted by age, caffeinated food/beverages intake on the day of collection, and female sex ($p=0.001$; $R^2=0.25$). Caffeine intake showed subtle effects on salivary pH and TP.

Conclusion: A relationship between salivary caffeine concentrations and sex was evidenced, with women consuming less but showing higher salivary caffeine concentration, information useful when considering saliva as a source of caffeine biomarkers.

CAPSAICIN-INDUCED SENSITIZATION AND ITS EFFECT ON TRIGEMINAL NOCICEPTIVE PROCESSING

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Aim: This study aimed to explore the effects of capsaicin-induced sensitization on neuronal excitability within the trigeminal pathways by assessing the nociceptive blink reflex (nBR), using both psychophysical and electromyographic parameters.

Method: Twenty-eight healthy participants [mean age (SD): 24.0 (3.6) years] received a 30-minute topical application of 1% capsaicin cream on the skin over the mid-region of the right masseter muscle. R2 response amplitude and habituation of the nBR, along with psychophysical parameters, were measured bilaterally before and after capsaicin application to the infraorbital branch.

Results: Following capsaicin exposure, the pain threshold to electrical stimulation on the ipsilateral side significantly increased [0.89 (0.34) vs. 1.09 (0.56) mA; $p < 0.050$]. A slight reduction in R2 amplitude [35.06 (24.65) vs. 33.98 (24.62) μ V] and habituation [37.44 (28.31) vs. 35.84 (27.84) μ V] was also observed ipsilaterally, although these changes did not reach statistical significance ($p > 0.050$).

Conclusion: These findings suggest a potential role of endogenous inhibitory mechanisms that may obscure central sensitization effects induced by capsaicin within the trigeminal nociceptive system.

CATIONIC COATINGS: ELECTROSTATIC INTERACTIONS THAT FAVOR CELLULAR RESPONSE ON IMPLANT SURFACES

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Aim: Cationic coatings (CC) using silanes favor the healing response and contribute to post-surgical implant recovery without using drugs. However, the concentration of silane used can generate by-products with a certain degree of cytotoxicity. We therefore investigated the influence of different silane concentrations on the formation of CC and their effects on mesenchymal cells.

Method: We used titanium discs (control group), which were then treated by plasma electrolytic oxidation (PEO) to form an alkaline surface with -OH groups (PEO group) and, finally, silanized with three different concentrations (0.3, 0.6 and 0.9 g/mL) of aminopropyltriethoxysilane (APTES), giving rise to the APTES0.3, APTES0.6 and APTES0.9 groups. All the groups were characterized physicochemically and assessed for metabolism and cell viability.

Results: After PEO treatment, -OH functional groups and the formation of crystalline phases such as hydroxyapatite were identified. After silanization, the surface charge was measured by zeta potential and the chemical composition was identified by energy dispersive X-ray spectroscopy. X-ray photoelectron spectroscopy identified oxides compatible with the protonated amines, and with contact angles $>138^\circ$. Biocompatibility was confirmed by metabolism and cell viability tests, with the group with the lowest concentration of APTES showing the best performance on day 8, with cell metabolism 80% higher than on day 1. Higher APTES concentrations resulted in reduced metabolism.

Conclusion: These findings demonstrate that lower concentrations are necessary to ensure a cytocompatible CC and enhance cell growth through electrostatic interactions.

CEMENTED AND SCREW-RETAINED IMPLANT PROSTHESES AND THEIR INFLUENCE ON MARGINAL BONE LOSS: OVERVIEW OF SYSTEMATIC REVIEWS

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Aim: Influenced by multiple factors, marginal bone loss (MBL) is a crucial factor for the longevity of dental implants. This overview aimed to assess the methodological quality of systematic reviews and synthesize the available evidence on the impact of cemented versus screw-retained prostheses on MBL.

Method: The study was conducted in accordance with the Preferred Reporting Items for Overviews of Reviews (PRIOR) guidelines, with a protocol registered on the Open Science Framework (OSF) platform (osf.io/t72my). A literature search was performed in six electronic databases to identify relevant systematic reviews. Study selection was carried out independently by two reviewers using the Rayyan platform. Methodological quality was analyzed using the AMSTAR 2 tool. Quantitative data on MBL across various time intervals (up to 1, 2, 3, 4, 5 years, and beyond 5 years) were extracted from primary studies and visually represented.

Results: Eight systematic reviews were identified, of which three were rated as low quality and five as critically low quality. None reported significant differences in MBL between the retention systems. Quantitative analysis revealed slight variations over time, with cemented prostheses showing slightly less bone loss after five years, and both systems exhibiting similar behavior beyond that period.

Conclusion: The results suggest that both types of prostheses are viable options for implant-supported rehabilitation. Nevertheless, the low methodological quality of the included reviews indicates that these conclusions should be interpreted with caution, emphasizing the need for more rigorous and well-structured future research.

CHALLENGES IN THE LONGITUDINALITY OF DENTAL CARE: INTEGRATION BETWEEN EMERGENCY DENTAL SERVICES AND PRIMARY HEALTH CARE

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Aim: To evaluate the longitudinality of dental care among users of the Emergency Dental Service (SUB) in Piracicaba-SP, focusing on the continuity of dental treatments and access to services within the healthcare network.

Method: A cross-sectional study was conducted using secondary data extracted from the OLOSTECH system, referring to services provided between January and December 2022. The sample consisted of 1,668 SUB users. Records of dental care in Primary Health Care (PHC) and referrals for specialized treatments were analyzed.

Results: 71.64% of users had no record of dental care in PHC in the past three years. Among the 28.35% with PHC records, 60.47% had not completed treatment. The highest demand was for specialized treatments such as endodontics (62.91% successful access) and surgery (69.30% successful access), though there was a significant rate of unsuccessful access (37.09% and 30.70%, respectively). Users from neighborhoods with higher social exclusion indexes (69.90%) were more likely to seek emergency services.

Conclusion: Longitudinal dental care is not achieved for many SUB users, highlighting the need for better integration between emergency dental services and PHC. The lack of treatment continuity, especially among vulnerable populations, reinforces the urgent need for public policies that ensure continuous access to dental services within Brazil's Unified Health System (SUS).

CHARACTERIZATION OF COMMERCIAL REGULAR TOOTHPASTES: LABEL INFORMATION AND PH ANALYSIS

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Aim: Erosive-abrasive tooth wear can be influenced by the degree of abrasiveness of the toothpaste, which depends on the type of abrasive used and the chemical interactions among the other components of the formulation. This study aimed to characterize regular toothpastes based on their composition and pH.

Method: Eleven toothpastes were analyzed according to: (I) labeling and technical profiles (II) advertising strategies (III) pricing; and (IV) pH levels.

Results: The labels indicated the presence of fluoride, anti-plaque, anti-tartar, natural ingredients, and desensitizing agents, in addition to excipients such as emulsifiers, sweeteners, humectants, detergents, and colorants. The most frequently listed fluoride agents were sodium monofluorophosphate (MFP) and sodium fluoride (NaF), while the main abrasives identified were silica and calcium carbonate. The terms "anticavity," "strong teeth," and "white teeth" were the most commonly found. Prices ranged from R\$2.90 to R\$17.33, with an average of R\$8.74, influenced by brand and packaging volume. The pH values ranged from 6.77 to 10.09; toothpastes containing silica had an average pH of 7.40, while those containing calcium carbonate reached an average of 9.58, resulting in an overall average pH of 8.47.

Conclusion: It was concluded that the analyzed toothpastes predominantly exhibited a neutral to alkaline pH, with common formulations based on NaF with silica or MFP with calcium carbonate. Additionally, some potentially misleading information may have been present on the labels.

CHATGPT-3.5 IN DENTAL MEDICAL EMERGENCIES: EVALUATING RELIABILITY AND QUALITY USING THE DISCERN TOOL

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Aim: This study aimed to compare the quality and reliability of ChatGPT®-3.5 recommendations for managing medical emergencies in Dentistry with established scientific evidence.

Method: It is a descriptive comparative observational study that assessed reliability, quality, and overall evaluation of information generated by ChatGPT-3.5 using an adapted DISCERN tool. Ten questions were developed based on Andrade, Ranali et al. (3rd ed., 2014), covering common emergencies. AI responses were independently evaluated by two calibrated reviewers. One question was excluded during calibration. Data were analyzed using Microsoft Excel® 15.0.

Results: In Section 1 (reliability), evaluator 1 scored a mean of 3.20 ± 0.35 , with highest scores in questions 8 (3.71) and 3, 7, 9 (3.43). Evaluator 2 scored 3.09 ± 0.54 , highlighting questions 8 (3.71) and 5, 9 (3.43), showing moderate reliability. In Section 2 (quality), evaluator 1 gave 2.49 ± 0.65 , with higher scores in questions 8 (3.29), 2, 3, 6 (3.00). Evaluator 2 gave 2.70 ± 0.88 , with best scores in questions 2 (4.14), 3 (3.86), 4, 6 (3.00), indicating low quality. In Section 3 (overall evaluation), both scored 3.20 (± 1.14 and ± 1.03), with maximum score (5.0) in question 8, suggesting a punctual positive perception.

Conclusion: Although ChatGPT-3.5 is increasingly used in health contexts, results showed moderate reliability but low quality, with gaps in clarity and scientific basis. Its use should be cautious and always supported by trusted sources, especially in clinical decision-making in medical emergencies.

CITRIC ACID AS A PROMISING DENTURE CLEANSER: BALANCING BIOFILM CONTROL AND MATERIAL INTEGRITY

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Aim: Effective decontamination of denture base acrylic resin is essential for biofilm control but may compromise material properties. Citric acid has shown promise as an antimicrobial agent, yet its performance as a denture cleanser remains unclear. This study aimed to evaluate the impact of citric acid on surface properties and biofilm removal efficacy of heat-processed denture base acrylic resin compared to conventional denture cleansers.

Method: A total of 130 acrylic resin disks were randomly assigned to five groups: control (0.9% NaCl), 0.1% sodium hypochlorite (SH), chlorhexidine (Periogard®), effervescent tablets (Corega Tabs®), and 10% citric acid (CA). Surface roughness, hydrophilicity, microhardness, and color stability were assessed at baseline, after 5 minutes, and after 1 week of exposure. A microcosm biofilm model evaluated antimicrobial efficacy through microbial viability, metabolic activity, biofilm dry weight, and morphology. Data were analyzed using two-way repeated measures ANOVA for surface properties and one-way ANOVA for microbiological outcomes ($\alpha=0.05$).

Results: Citric acid significantly increased surface hydrophilicity ($p<0.001$) without affecting roughness, microhardness, or color stability ($p>0.05$). All cleansers reduced microbial viability, but citric acid achieved superior biofilm disruption, significantly reducing metabolic activity and biofilm biomass ($p<0.001$).

Conclusion: By improving biofilm control without compromising material integrity, citric acid may contribute to greater denture longevity and better patient outcomes by minimizing biofilm accumulation and preserving esthetic and mechanical properties.

CITRIC ACID IMPROVE BIOFILM REMOVAL AND CORROSION RESISTANCE OF CO-CR ALLOY COMPARED TO CONVENTIONAL DENTURE CLEANSERS

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Aim: This in vitro study evaluated the effects of citric acid (CA) on surface properties, biofilm removal, and electrochemical performance of cobalt-chromium (Co-Cr) alloys, compared to conventional denture cleansers.

Method: Co-Cr discs were divided into five groups based on the decontamination solution: 0.9% NaCl (control), Corega Tabs®, Periogard®, and 10% CA. Baseline surface characterization included morphology, topography, and chemical/phase composition. Microhardness, wettability, and roughness were assessed before and after treatment exposure. Biofilm viability, metabolic activity, and structure were analyzed to evaluate antimicrobial effectiveness. Electrochemical tests and scanning electron microscopy (SEM) were performed to investigate corrosion resistance.

Results: No significant changes in microhardness were observed ($p > 0.05$). All solutions increased surface hydrophilicity and roughness ($p < 0.05$), though Ra values remained below thresholds for bacterial colonization. All cleansers significantly reduced biofilm viability compared to NaCl ($p < 0.05$), with complete elimination of viable colonies. CA also showed lower metabolic activity versus NaCl and Periogard® ($p < 0.05$). Electrochemical analyses demonstrated that CA preserved a stable Cr-oxide passive layer, with higher open-circuit potential and lower icorr and corrosion rates than Periogard® ($p < 0.05$). SEM images revealed pitting corrosion in all groups except CA.

Conclusion: These findings suggest that CA is a safe and effective alternative for denture hygiene, combining antimicrobial efficacy with electrochemical stability of Co-Cr alloys.

CLEIDOCRANIAL DYSPLASIA: CHARACTERISTICS AND TREATMENT OF MAXILOFACIAL COMPLEX DISORDERS

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Aim: Cleidocranial Dysplasia (CCD) is a defect caused by a mutation in the CBF $\alpha 1$ gene, which is responsible for endochondral and intramembranous bone formation. Clinical characteristics include hypoplasia of the midface, failure of permanent teeth eruption, prolonged retention of deciduous teeth, multiple supernumerary teeth, and the formation of odontogenic cysts. The treatment requires careful planning and management. This work aimed to review the literature regarding the dentofacial features of CCD and treatment modalities.

Method: A search was conducted in the PubMed database using the terms "cleidocranial dysplasia, treatment and tooth extraction," limited to articles published in the last ten years, with no language restrictions. Twenty-three articles were found; after applying exclusion criteria, 12 articles were included in the final review.

Results: Treatment options described include orthognathic surgery, surgical-orthodontic therapy, multiple extractions followed by rehabilitation with osseointegrated implants, and the fabrication of removable prostheses. The treatment is multidisciplinary, and it is up to the professional to use their skill and clinical experience to determine the most effective treatment option.

Conclusion: Factors to consider include the patient's age and developmental stage, efforts for rehabilitation, main complaints, desires, and the patient's ability to adhere to treatment.

CLINICAL MANAGEMENT OF AMELOGENESIS IMPERFECTA IN AN ADOLESCENT PATIENT: AN INTEGRATED MULTIDISCIPLINARY EXPERIENCE

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Aim: Amelogenesis imperfecta (AI) is a hereditary condition that affects the development of dental enamel, compromising its structure and functionality. Its clinical manifestations vary in severity and typically involve both the primary and permanent dentitions. In the absence of treatment, individuals may experience dental sensitivity, aesthetic compromise, structural loss, and challenges in social interactions. These effects tend to be more pronounced during adolescence, thereby increasing the complexity of case management. This case report aims to describe a multidisciplinary approach to treating an adolescent with AI.

Method: A 12-year-old female patient presented with concerns about dental aesthetics and posterior tooth pain. Given the patient's regular behavior during dental appointments, pharmacological and non-pharmacological behavioral management strategies were employed, along with a collaborative approach involving the endodontics and restorative dentistry teams. Aesthetic restorations were performed on the upper and lower anterior teeth. Upon completion of endodontic treatment on teeth 36 and 46, semi-direct resin composite restorations were placed.

Results: The patient remains under periodic follow-up with the pediatric dentistry and restorative dentistry teams.

Conclusion: The multidisciplinary approach enabled accurate diagnosis, pain relief, and both functional and aesthetic rehabilitation, highlighting the importance of teamwork. Family satisfaction with the outcomes reinforces the improvement in the patient's quality of life, both functionally and aesthetically.

COLOR ALTERATION IN NECROTIC DECIDUOUS MOLARS TREATED WITH DIFFERENT ANTIBIOTIC PASTES: A CASE REPORT

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Aim: This case report aimed to assess the degree of color alteration in necrotic primary molars following treatment with two antibiotic pastes: metronidazole, ciprofloxacin, and clindamycin (3Mix-MP) and chloramphenicol, tetracycline, zinc oxide (CTZ).

Method: Teeth 75 and 85, diagnosed with pulp necrosis in a 3-year-old male patient, underwent NIET following an identical protocol, differing only in the intracanal medicament used. Tooth 75 was treated with 3Mix-MP, whereas tooth 85 received CTZ paste. Color alteration was documented photographically and evaluated with a VITA EasyShadeV (ES) spectrophotometer. Measurements were recorded after two months from a standardized region in the middle third of the dental crown under natural light. Due to the extensive coronal destruction of the molars and absence of healthy posterior teeth, initial shade selection was performed using tooth 63 as reference, which presented shade A1 ($L=87.4; a=-0.2; b=14.1$) by ES assays. In tooth 85, the color reading was A4 ($L=66.6; a=4.1; b=23.9$), while in tooth 75, it was D3 ($L=63.8; a=14.3; b=17.9$).

Results: The color alteration in tooth 85 ($\Delta E=23.1$) was less pronounced compared to tooth 75 ($\Delta E=27.9$). However, due to a greater presence of the component related to the yellowness-blueness hues, it appears clinically darker within Vita Shade guide parameters.

Conclusion: In conclusion, the pattern of color alteration appears to be associated with the paste employed, and the tooth with CTZ paste was visually darker.

COMBINED EVALUATION OF CD44 AND SNAIL1 IMPROVES PROGNOSTIC PREDICTION IN ORAL SQUAMOUS CELL CARCINOMA

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Aim: To evaluate the mechanisms involved in the prognosis of oral squamous cell carcinoma (OSCC), with emphasis on the interaction between cancer stem cells (CSCs) and the epithelial-mesenchymal transition (EMT) process, aiming to understand their influence on the tumor microenvironment.

Method: A total of 132 OSCC samples were analyzed by immunohistochemistry to assess the expression of the CSC marker CD44 and EMT-related proteins (Snail1, Snail2, E-cadherin, and N-cadherin). Disease-free survival (DFS) and disease-specific survival (DSS) were evaluated using univariate and multivariate Cox regression (stepwise method), Kaplan-Meier survival curves with log-rank test, and receiver operating characteristic (ROC) curve analysis to assess the predictive accuracy of the markers.

Results: High Snail1 expression was significantly associated with worse DSS (HR = 2.62, $p = 0.004$), while elevated CD44 expression was an independent predictor of poorer DFS (HR = 2.22, $p = 0.01$) and DSS (HR = 2.75, $p = 0.003$). The combined analysis of CD44 and Snail1 improved the discrimination of unfavorable outcomes compared to individual marker evaluation. Additionally, lymphovascular invasion (HR = 8.68, $p < 0.0001$) and positive surgical margins (< 5 mm; HR = 4.45, $p = 0.0003$) were also independently associated with worse DSS.

Conclusion: The findings of this study highlight the prognostic relevance of CD44 and Snail1 expression in OSCC, suggesting that their interaction is strongly associated with tumor aggressiveness. These results may contribute to the development of targeted therapeutic strategies, improving clinical management of patients.

COMPARATIVE ANALYSIS OF THE COLONIAL SIZE OF STREPTOCOCCUS SANGUINIS SK36 PRE AND POST TREATMENT WITH HUMAN SERUM

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Aim: The aim of this study was to describe the colony size of *S. sanguinis*, and evaluate if the pretreatment with human serum can change the colony phenotype.

Method: The strain used was grown in BHI Agar at 37°C in a 10% CO₂. The first step was to define the size normal for a colony of *S. sanguinis* SK36 at the initial bacterial inoculum. A plate that presented a colony density (100 and 400) was selected for analysis. The same procedures were performed for bacteria that received pretreatment, with the exception of an additional step that is the addition of 20% human serum to the initial.

Results: Colonies of 0.260 to 0.426 mm were small colonies (SC); 0.427 to 0.888 mm normal colonies (NC) and 0.889 to 1.156 mm big colonies (BC). In the condition that did not undergo any treatment, a plate with 330 colonies was used. 5.15% SC, 89.70% NC and 5.15% BC. In the condition that received treatment, was used a plate with 235 colonies. 6.40% were SC; 82.97% as NC and 10.63% as BC. The results obtained in this study showed that there is a variation in the colonial size regardless of treatment with human serum or not, however it is noted that for the pre-treated culture the frequency of SC and BC in relation to the total was greater than in the untreated culture. It was also observed that in the pre-treated condition the growth of viable colonies was maintained at higher dilution factors while in the untreated condition growth was only observed up to dilution 10⁻⁷.

Conclusion: The phenotypic comparison at different treatment conditions is important to understand whether the presence of human serum is capable of inducing variation in colonial size in this species.

COMPARISON BETWEEN MAXILLARY TUBEROSITY AND PALATE AS DONOR SITES FOR CONNECTIVE TISSUE GRAFTS: AN INTEGRATIVE REVIEW

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Aim: To review the literature regarding the comparison between the maxillary tuberosity and the palate as donor sites for connective tissue grafts, with emphasis on the impact of graft origin on soft tissue volume gain.

Method: This was an integrative literature review. A bibliographic search was conducted in the PubMed, Embase, and BVS databases, with no restrictions regarding time frame or language, using the following terms with truncation strategy: "Connective Tissue Graft*", "Soft Tissue Graft*", "Maxillary tuberosity", and "Palat*". Only clinical trials were eligible for inclusion.

Results: After applying the eligibility criteria, three articles were included. In all studies, the mean thickness tissue gain was greater in the maxillary tuberosity group, with one study reporting a statistically significant difference compared to patients who received connective tissue grafts from the palate ($p < 0.026$). However, the risk of tissue hyperplasia over time was reported in patients who received grafts from the maxillary tuberosity.

Conclusion: All included studies demonstrated greater soft tissue volume gain with connective tissue grafts harvested from the maxillary tuberosity. However, based on this integrative review, it is not possible to state that this donor site is superior to the palate in this regard. Therefore, it is recommended that the selection of the donor site be individualized, considering the patient's needs, tissue availability, and the clinician's expertise.

COMPARISON OF IMAGE QUALITY IN INTRAORAL RADIOGRAPHS OBTAINED WITH WALL-MOUNTED AND HANDHELD DENTAL X-RAY UNITS

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Aim: To compare the quality of intraoral radiographs from two types of imaging receptors using wall-mounted and portable dental X-ray units.

Method: Six intraoral radiographs were obtained from a Dental Digital Quality Assurance radiographic phantom (Dental Imaging Consultants LLC, San Antonio, TX) using two types of receptors: photostimulable phosphor plate receptor (CS 7600 digital system, Carestream Dental, Rochester, New York, USA) under two conditions, filtered and unfiltered; and a complementary metal oxide semiconductor sensor (RGV 6200, Carestream Dental, Rochester, New York, USA) with portable (Nomad Pro 2; Kavo Kerr, Biberach, Germany) and wall-mounted (Midmark Preva DC Intraoral X-ray, Midmark Corporation, Illinois, USA) dental X-ray units. Spatial and contrast resolutions, as well as the percentage of radiographic contrast, were assessed. Additionally, radiographs of an acrylic block were obtained under identical conditions to evaluate brightness, noise, and uniformity. Values were compared between X-ray units and digital systems using Analysis of Variance ($P < 0.05$).

Results: No differences in spatial and contrast resolutions were found between dental X-ray units or imaging receptors. Portable dental X-ray units demonstrated significantly higher radiographic contrast ($P < 0.001$) along with lower brightness, noise, and uniformity ($P < 0.001$), regardless of the imaging receptor employed.

Conclusion: The portable X-ray unit provides higher radiographic contrast and lower brightness, noise, and uniformity compared to the wall-mounted dental X-ray unit, irrespective of the imaging receptor used.

COMPLEXITIES IN DENTAL CARE FOR PEOPLE WITH DISABILITIES IN PRIMARY HEALTH CARE

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Aim: The study investigates the structural and emotional challenges in dental care for people with disabilities in Primary Health Care, highlighting gaps in training, institutional limitations, and impacts on care quality.

Method: This study presents two qualitative investigations on dental care for PwD in PHC. The first analyzed the emotional meanings attributed by 12 dentists from the Family Health Strategy (FHS) in a southeastern Brazilian municipality. The results indicated relief and insecurity in referring patients to secondary care, revealing gaps in training, as well as frustration due to patient rejection, highlighting structural limitations.

Results: The second study investigated the organization of dental services for PwD in PHC. The research identified challenges such as a lack of continuous training, inadequate physical spaces, and scarce materials, resulting in fragmented care.

Conclusion: The findings reinforce the need for continuous training, improved infrastructure, and integration between PHC and secondary care. Additionally, understanding and managing professionals' emotions are essential for improving the quality of care. Institutional strengthening can promote greater autonomy for dentists and more efficient and humanized care for PwD.

CONE BEAM COMPUTED TOMOGRAPHY DIAGNOSIS OF VERTICAL ROOT FRACTURES IN A TOOTH ADJACENT TO IMPLANTS

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Aim: The aim of this study was to evaluate the influence of implant positioning (titanium and zirconia) in the endomass and exomass in the diagnosis of vertical root fracture (VRF) in a tooth adjacent to them in cone beam computed tomography (CBCT) and of the artifact reduction tool (ART) in the detection of VRF.

Method: A dry mandible, 10 single-rooted teeth and 2 implants (zirconia and titanium) were used. The teeth were positioned adjacent to the implants and CBCT scans were acquired for the teeth before and after being fractured. The acquisitions were performed with 5 mA, 90 kVp, 0.085 mm voxel and 5x5 cm FOV, with the implants in the endomass and exomass, with and without FRA activation, and repeated without implant (control group), totaling 240 scans that were evaluated by five radiologists.

Results: The area under the ROC curve and sensitivity were not significantly affected by the factors studied ($p > 0.05$). There was a significant difference in the mean specificity between the different groups ($p < 0.05$), with the mean of the zirconia group being significantly lower than the control and titanium groups, which in turn did not differ from each other ($p > 0.05$). The other factors studied did not significantly influence the specificity values ($p > 0.05$). The intra-examiner agreement was moderate to substantial and the inter-examiner agreement was insignificant to substantial.

Conclusion: The positioning of the implants in the endomass and exomass, as well as the use of the FRA tool, did not influence the diagnosis of VRF. The detection of VRF was impaired by the presence of the zirconia implant.

CONSEQUENCES OF VIOLENCE ON THE ORAL HEALTH OF ABUSED WOMEN: A SCOPING REVIEW OF THE LITERATURE

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Aim: The aim of this study is to highlight the impacts of gender-based violence on women's oral health based on the existing scientific literature

Method: A scoping review was conducted following the Joanna Briggs Institute method and the PRISMA-ScR guidelines. The research question, developed using the PCC strategy (Population: women; Concept: oral health; Context: violence), was: "What evidence is available regarding the impacts of violence on women's oral health?" Descriptors in Portuguese, English, and Spanish were used, based on the MeSH database. After the search, the studies were analyzed by two independent reviewers using EndNote® and Rayyan®.

Results: Nineteen studies were included: 8 quantitative, 4 qualitative, 1 mixed-methods study, 1 systematic review, and 5 literature reviews, mostly from Brazil. Oral and maxillofacial traumas affect between 51% and 81% of women victims of violence, with alcohol use, drug use, and jealousy being the main associated factors. In addition to physical injuries, aggression carries a symbolic value related to the aggressor's power. Victimized women show a higher prevalence of Temporomandibular Disorders (TMD), xerostomia, cariogenic diets, and oral diseases, often associated with depression and poor sleep quality. Emotional and material barriers hinder dental treatment, worsened by the high cost of rehabilitation and the omission of the causes of injuries during care.

Conclusion: It is concluded that gender-based violence, structured by patriarchal power relations, generates physical and emotional impacts on oral health, and that dentistry must develop prevention and rehabilitation strategies.

CONSERVED GENE EXPRESSION IN THE PULP AND DENTIN OF ADULTS AGED 18 AND OVER 50 YEARS

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Aim: This study investigated genes expressed in the pulp and dentin of healthy teeth from adults aged 18 and over 50 years to identify molecular signatures related to tissue homeostasis during aging.

Method: Twelve sound third molars were obtained from donors without caries or restorations: six from 18-year-olds and six from individuals over 50, under approved ethics protocols. Pulp and dentin tissues were dissected using sterile micro-instruments. RNA was extracted by phenol-chloroform, and quality assessed by spectrophotometry and electrophoresis. Libraries were prepared and submitted to high-throughput sequencing. TPM normalization was used to quantify transcript abundance. A Venn diagram identified genes expressed across tissues and age groups.

Results: Eighty-one genes showed conserved expression in both pulp and dentin regardless of age. Functional annotation revealed participation in mineral metabolism (ATP2A1, FGF23), extracellular matrix regulation (A2ML1, CHST5), transcriptional control (FER1L4, RPL24P8), cell signaling (HAND2, AVPR1B), immune modulation (HLA-J, IGKV2-24), and cell cycle regulation (NUSAP1, SETP6).

Conclusion: These findings support the existence of conserved transcriptional programs that remain active throughout life and may contribute to tissue stability in the dentin-pulp complex during aging.

CONSTRUCTION OF ANATOMICAL MACROMODELS FOR DENTAL ANATOMY EDUCATION

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Aim: In dental education and research, the detailed study of human teeth is essential. The evolution of university teaching has been marked by the introduction of tools that enable a three-dimensional understanding of dental anatomical structures. This study aimed to develop anatomical macromodels of human teeth to teach dental anatomy.

Method: After conducting a preliminary study on natural teeth and consulting dental anatomy references, plaster macromodels were sculpted, preserving the characteristic anatomical details. Subsequently, the anatomical structures on the macromodels were painted with customized colors, using glossy acrylic paints, to facilitate the understanding and study of dental anatomy. After painting, the models were varnished to ensure their preservation and enhance their durability.

Results: Ten models were constructed of different groups (anterior and posterior): incisors, canines, premolars, and molars.

Conclusion: The construction of these plaster macromodels contributed to the consolidation of learning and provided a valuable teaching tool for practical Anatomy lessons in the Dentistry program.

CONTINUOUS EXPOSURE TO CHLORHEXIDINE INCREASES EXPRESSION OF COMPETENCE-RELATED GENE IN STREPTOCOCCUS MUTANS

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Aim: Antimicrobials can alter gene expression related to bacterial competence, enabling bacteria to take up DNA from the environment and incorporate it into their genomes. Competence allows bacteria to acquire new traits, like antibiotic resistance. In *Streptococcus mutans*, competence is modulated by sigX, a gene activated by peptides like CSP (competence-stimulating peptide). Sub-inhibitory concentrations of antimicrobials like chlorhexidine (CHX), widely used in oral care, may interfere with sigX expression. This study evaluated the effect of continuous CHX exposure on sigX activation in *S. mutans*.

Method: An isogenic mutant of *S. mutans* UA159 containing a luciferase reporter in the sigX promoter was used. Culture stocks at OD₆₀₀ 0.5 were diluted, added in 96-well plates, and exposed for 7 days to different CHX concentrations (0, 1.4 and 1.6 µg/mL). After the exposure, cultures were transferred to new plates with 1 mM D-luciferin and 10 µM CSP. The plates were incubated at 37°C for 20 h in a multidetection microplate reader, measuring growth (OD₆₀₀) and sigX expression (luminescence) every 30 min. Luminescence data were normalized by OD₆₀₀ values and the area under the curve (AUC) was calculated. AUC data were analyzed by one-way ANOVA and Tukey's test ($\alpha=5\%$).

Results: sigX expression was upregulated with increasing CHX concentrations, with values of 23.1 ± 1.6 (A), 90.8 ± 2.1 (B), and 124.6 ± 1.9 (C) RLU/OD₆₀₀ × h at 0, 1.4, and 1.6 µg/mL, respectively.

Conclusion: The continuous exposure of *S. mutans* to CHX increases the expression of competence-related gene, potentially enhancing extracellular DNA uptake and genetic transformation.

COST EFFECTIVENESS OF AMALGAM VS COMPOSITE RESIN RESTORATIONS IN POSTERIOR MOLAR TEETH

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Aim: Over the last decades, dental amalgam been less used than composite resin to restore posterior teeth. Nevertheless, amalgam has been widely used in health services for ease of logistics, professional experience, and mainly, economic reasons due to lower costs, in comparison with composite resin. This work presents an analysis regarding the cost of effectiveness of these two materials. These substances have been employed in the restoration of posterior teeth in the Brazilian Unified Health System (UHS) based on cost, clinical time, and longevity.

Method: A systematic review of literature was done by using collected data from articles in public basis such as PubMed, MEDLINE and LILACS. The focus of this work can be pointed out in the acronym PICO: P (patients who need restorations from UHS), I (composite resin), C (silver dental amalgam) and O (Cost, time of clinical preparation and persistence in years). The research syntax will follow the Boolean logic and its operators (OR, AND and NOT). All the collected data from articles were used as reference to calculate Cost-Effectiveness Ratio (CER) and Financial Impact (FI).

Results: CER indicated a spending of 438 more reais in comparison with composite resin for each additional failure. FI, projected for every 10,000 restorations, has shown a difference of 385,900 reais in the spending with composite resin in comparison with silver dental amalgam.

Conclusion: Cost-effectiveness evaluation has shown a dominant based-amalgam technology, given that CER was negative. This indicates a better cost-effectiveness in comparison with composite resin.

CRANIAL ACUPUNCTURE EFFECT ON ANXIOUS DENTAL STUDENTS

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Aim: The objective is presenting a new technique of acupuncture in the skull that acts on areas related to the organs and consequently on the management of anxiety.

Method: Volunteers with moderate or severe anxiety levels (grade 4 or higher on the VAS scale) will undergo 5 sessions of cranial acupuncture and will have their anxiety and energy measured. The technique uses 5 disposable acupuncture needles measuring 0.25 x 30 mm that are inserted obliquely around the VG20 point, which is located on the top of the head and is a point of great energy concentration, transfixing from the Liver area to the Heart area, from the Heart area to the Spleen area, from the Spleen area to the Lung area and from the Lung area to the Kidney area, where finally a needle is fixed in the central line to unite the energy of the Yin Kidney with the Yang Kidney. Anxiety will be measured with the IDATE questionnaire and the energy of the volunteer and of each organ will be measured with the Ryodoraku device.

Results: Photos and figures of the technique will be presented, with needling angle and position of the areas.

Conclusion: It is expected that volunteers will report reduced anxiety and experience balanced energy in each session and at the end of the treatment.

CRANIOACUPUNCTURE: APPROACH TO EMOTIONAL DISORDERS

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Aim: Nowadays emotional disorders are very prevalent and acupuncture, with its various therapies, can help in their management. So, the aim is to report the cranioacupuncture treatment results of one patient with emotional disorders.

Method: We present a clinical case of the patient I. B., 70 years old, she presented marked sadness, mental confusion, pale tongue and no coating, pulse with signs of energy deficiency. Her energy pattern was Inner, Cold and Yin, she preferred salty taste. We use cranioacupuncture points associated with the spiritual functions of the Heart (Shen), Liver (Hun), Spleen (Yi), Lung (Po) and the two functions of the Kidney (Zhi Yin and Zhi Yang) according to Dr González's protocol. There were 3 sessions of cranioacupuncture, we used disposable needles (DongBang Medical Co.Ltd, 0.25 x 30 mm) and measurement with numerical verbal scale (NVS) was initially 9.0 and after the 3rd session it was 1.0.

Results: Patient reported at each session that she was getting more mental clarity, logical reasoning, emotional balance and greater motivation in daily activities, which could be a protocol for use in the clinic in patients with emotional disorders such as those presented by the patient in this study.

Conclusion: The activities of the organs in balance, especially the relationship of Hun (Ethereal Liver Soul) with Shen (Heart Consciousness) bring this clarity of thought and initiative with the contribution of the activities of Yi (Spleen intention), Po (Vegetable Soul Lung) and Kidney (Willpower Zhi).

DECLARED VERSUS ACTUAL FLUORIDE CONCENTRATION: WHAT IS THE IMPACT ON ENAMEL REACTIVITY?

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Aim: Fluoride varnishes (FV) are professionally applied fluoride (F) products, and new formulations with varying price ranges have been launched in the market without adequate evaluation. Thus, this study aimed to analyze the F concentration in low- cost FVs marketed in Brazil and their reactivity with carious enamel.

Method: The following FVs were tested: A) Biophat® (56,300 ppm F; 6% NaF + 6% CaF₂), B) Duofluorid XII® (56,300 ppm F; 6% NaF + 6% CaF₂), C) Enamelast® (22,600 ppm F; 5% NaF), D) Fluorniz® (22,500 ppm F; 5% NaF), E) Duraphat® (22,500 ppm F; 5% NaF, positive control), and F) Placebo varnish (negative control). For the reactivity test (n=10/group), varnishes were applied to bovine enamel slabs with caries lesions and immersed in artificial saliva at 37°C. After 24 h, "CaF₂" formed was determined. Data were analyzed using one-way ANOVA and Tukey's test (α=5%). F concentration in the FVs were analyzed using a fluoride ion-selective electrode after dissolution in ethanol; acid was used for CaF₂-containing varnishes.

Results: The "CaF₂" concentrations formed on enamel (µg F/cm²) were: A) 33.5±5.7AB; B) 25.7±5.3B; C) 14.8±3.4C; D) 1.9±0.9D; E) 36.5±6.5A; F) 0.29±0.06D. The percentage differences between measured and label-declared F concentrations were: A) 60.8%; B) 65.6%; C) 27.6%; D) 76.5%; E) 1.83%.

Conclusion: Some FVs showed low reactivity with carious enamel, which may compromise their anticaries efficacy and may be related to discrepancies between the F concentrations declared by the manufacturers and those actually found in the products.

DEMINERALIZATION IN DENTAL ENAMEL: A PILOT STUDY ON VALIDATING VOLUMETRIC ANALYSIS BY MICROCOMPUTED TOMOGRAPHY

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Aim: Understanding the dynamics of dental demineralization and remineralization processes is essential for the prevention, treatment, and control of dental caries. Mineral loss due to demineralization can be assessed using various techniques, and their integration can provide valuable insights for a deeper understanding of this process. This study aimed to validate a volumetric analysis technique using micro-computed tomography (Micro-CT) by correlating its findings with another method for assessing dental enamel demineralization.

Method: For this purpose, five bovine enamel slabs were exposed to a demineralizing solution for 64 hours. Demineralization was evaluated by measuring the percentage change in surface hardness and slab volume after this period. Volume analysis was performed by scanning the slabs using Micro-CT. The scans acquired before and after demineralization were aligned using ITK-SNAP software. Volumes were obtained using Bruker CT-Analyser software by applying semi-automatic thresholding to segment the mineralized tissue, using the same region of interest in both scans. Data distribution was assessed using the Shapiro-Wilk test, and the Pearson correlation coefficient was used to investigate the relationship between surface hardness loss and volume loss (p>0.05).

Results: The data showed a negative but non-significant correlation (r= -0.499; p = 0.470).

Conclusion: The lack of a significant correlation between surface hardness and volume loss may be due to superficial demineralization and the sensitivity of threshold-based segmentation to parameter variation, highlighting the need for more robust volumetric analysis methods.

DEMIRJIAN'S METHOD FOR AGE ESTIMATION USING THIRD MOLARS OF INDIVIDUALS FROM SOUTHEASTERN BRAZIL

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Aim: The study aimed to evaluate the applicability of third molar mineralization stages for estimating chronological age in a Southeastern Brazilian population and test a previously developed age estimation formula from a different Brazilian subpopulation.

Method: Panoramic radiographs of 1,570 individuals (7 to 22 years old) were assessed. Of these, 1,260 radiographs were used to develop the new formula, and 310 were used for testing it. The third molars were classified according to Demirjian's developmental stages by two independent examiners. Paired t-test, Mann-Whitney test, and multiple linear regression were used to compare chronological and estimated ages and to develop a new age estimation formula ($\alpha=0.05$).

Results: Chronological age was consistent across all four third molars for various developmental stages, with no statistically significant sex-related differences ($p>0.05$), and showed a strong correlation with third molar mineralization stages ($R=0.925$). The previously developed formula significantly overestimated chronological age by about one year ($p<0.05$). Alternatively, the newly developed formula demonstrated 85% accuracy, with no significant difference between estimated and chronological ages in most age groups ($p>0.05$). These findings reinforce the strong correlation between third molar development stages and chronological age in the studied population and highlight the importance of population-specific models, as the previous formula resulted in overestimation.

Conclusion: The new formula offers a more accurate method for age estimation in this subpopulation, with promising applications in both forensic and clinical contexts.

DENTAL ANXIETY IN THE SURGICAL WAITING ROOM: A CROSS-SECTIONAL STUDY ON PREDICTIVE FACTORS AND SCREENING TOOLS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To assess the anxiety levels of patients in the waiting room prior to tooth extractions at the dental school clinic of the Piracicaba School of Dentistry.

Method: One hundred literate adult patients completed a questionnaire collecting sociodemographic data, dental history, knowledge about sedation, and interest in being sedated. The modified Corah Dental Anxiety Scale and a visual analog scale (VAS; 1–10) were used to measure anxiety levels. Correlations between VAS and Corah scores, as well as between age and anxiety, were analyzed using Spearman's coefficient. Differences in anxiety levels by sex and history of extractions were assessed using the Mann-Whitney test; differences by education level and treatment duration at the clinic were analyzed using the Kruskal-Wallis test. Two ROC curve analyses were conducted to determine the optimal VAS cutoff points for identifying anxiety according to Corah criteria.

Results: A positive correlation was found between VAS and Corah scores ($p<0.01$; $\rho=0.747$). Women showed higher anxiety levels than men (VAS $p=0.006$; Corah $p=0.007$). No significant differences were observed regarding education level, treatment duration, or extraction history ($p>0.05$). Anxiety levels decreased with age (VAS $\rho=-0.431$; Corah $\rho=-0.359$; $p<0.001$). The suggested VAS cutoff was 3 for mild anxiety (AUC=0.912) and 5 for moderate anxiety (AUC=0.843).

Conclusion: The VAS showed high accuracy in screening for dental anxiety and may be a useful tool to guide decision-making regarding conscious sedation. Additionally, sex and age were identified as influencing factors for anxiety levels.

DENTAL COLOR VARIATION ON REGENERATIVE ENDODONTIC THERAPY

BIANCA FERRO BORGES DA SILVA; RODOLFO FIGUEIREDO DE ALMEIDA, KRISTALL NETO SOARES MENDONÇA, ARIAN BRAIDO, PAULO HENRIQUE GABRIEL, MARINA ANGÉLICA MARCIANO DA SILVA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to assess the dental discoloration, focused on the "a" and "b" color scale, caused by different intracanal dressings and cervical barriers used on the regenerative endodontic therapy.

Method: There were used 120 bovine teeth, which were prepared simulating an immature tooth with an open apex. They were divided into four intracanal dress groups: triple antibiotic paste (TAP), calcium hydroxide plus chlorhexidine gel 2%, BioC-Temp and negative control (without dress). After 21 days the intracanal dressing was removed and the teeth were divided once again according to the cervical barrier used: MTA HP Repair; Biodentine; EndoSeal MTA; SFS paste (calcium hydroxide, zinc oxide and chlorhexidine gel 2%); Coltosol (negative control). The crown discoloration was assessed by digital spectrophotometer according to the time: T0, T1, T7, T21, T1', T7', T30', T60' and T90'.

Results: On the "a" scale (green-red) the TAP group demonstrated a higher variability (1.42) next to the green value. The cervical barriers with higher variability were MTA HP Repair (0.9) and SFS (0.8) next to the red value. On the "b" scale the TAP group showed higher variability (4.38) to the blue value. All the cervical barriers group had similar values to the yellow scale.

Conclusion: We conclude that the TAP use must be prudent, and the tooth discoloration factors related to the cervical barriers should be better elucidated.

DENTAL DISCOLORATION DUE TO COMBINED USE OF INTRACANAL DRESS AND CERVICAL BARRIER ON REGENERATIVE ENDODONTIC THERAPY

RODOLFO FIGUEIREDO DE ALMEIDA; BIANCA FERRO BORGES DA SILVA, KRISTALL NETO SOARES MENDONÇA, VANESSA CAVALLI GOBBO, EMERSON ALVES MARTINS, MARINA ANGÉLICA MARCIANO DA SILVA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This essay aimed to verify the dental discoloration caused by different intracanal dressings and cervical barriers used on regenerative endodontic therapy.

Method: There were used 120 bovine teeth, which were prepared simulating an immature tooth with an open apex. They were divided into four intracanal dress groups: triple antibiotic paste (TAP), calcium hydroxide plus chlorhexidine gel 2%, BioC-Temp and negative control (without dress). After 21 days the intracanal dressing was removed and the teeth were divided once again according to the cervical barrier used: MTA HP Repair; Biodentine; EndoSeal MTA; SFS paste (calcium hydroxide, zinc oxide and chlorhexidine gel 2%); Coltosol (negative control). The crown discoloration was assessed by digital spectrophotometer according to the time: T0, T1, T7, T21, T1', T7', T30', T60' and T90'.

Results: The results showed a higher luminosity rate on the TAP dressing group (T0= 89,34 – T21= 80,23). The cervical barrier groups with higher luminosity rate were Biodentine (T1'= 91,88 – T 90'= 86,40) and MTA HP Repair (T1'= 91,47 – T90'= 87,24).

Conclusion: We conclude that the TAP use must be prudent, and the tooth discoloration factors related to the cervical barriers should be better elucidated.

DENTINE MICROHARDNESS: ANALYSES RELIABILITY AND EFFECTS OF STORAGE MEDIA

JAQUELINE NUNES MARTINS; RAFAELA CAIRES SANTOS, LAÍS SIQUEIRA BARBIERI, ED CAMPOS VIEIRA NETO, SAMUEL PALANDI, ADRIANA DE JESUS SOARES, PATRICIA DE ALMEIDA RODRIGUES SILVA E SOUZA; TALITA TARTARI

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the intra-examiner and inter-examiner reliability, as well as the influence of different storage media over time on dentine microhardness analyses.

Method: Root fragments from human mandibular incisors were obtained. To assess the reliability of the analyses, the fragments were distributed into groups (n=12) according to dentine surface treatment: G1 – polished surface; and G2 – polished surface treated with 17% EDTA for 3 min. Three indentations were made on each fragment, and readings were performed in the morning and afternoon by three examiners. To analyze the influence of storage media, the fragments were distributed into groups (n=7): SS – saline solution; DS – dry storage; and AS – artificial saliva. Analyses were performed at 0, 7, 14, and 21 days. Data were statistically analyzed.

Results: The intraclass correlation coefficient (ICC) demonstrated excellent intra-examiner reproducibility ($R \geq 0.75$), except for examiner B ($R = 0.70$) in the G2 analyses. Inter-examiner reliability was excellent in the morning period ($R \geq 0.75$) and ranged from moderate to good in the afternoon period ($0.4 \leq R < 0.75$). ANOVA with Tukey's post-hoc test ($\alpha < 0.05$) identified a significant decrease in microhardness over time only in the SS group, with statistically significant differences compared to AS from day 7 and to DS from day 14.

Conclusion: Microhardness measurements should be performed by a single examiner, and the use of substances that alter the dentine surface may hinder the analyses. Sample storage should be carried out in media that do not affect dentine microhardness, such as artificial saliva or a dry environment.

DENTISTS' PERCEPTION OF STATIC AND DYNAMIC PRESENTATIONS OF CONE BEAM COMPUTED TOMOGRAPHY REPORTS

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Aim: This study aimed to evaluate dentists' perceptions of static and dynamic presentations of cone beam computed tomography (CBCT) exams and reports.

Method: A website was developed to display both static (template-based) and dynamic (video-based) CBCT presentations of four clinical cases in Implantology, Oral Surgery, Orthodontics, and Endodontics. After reviewing both formats, participants completed an informed consent form and a questionnaire. Descriptive statistics, chi-square, and Fisher's exact tests were used to assess associations between responses, specialty, and diagnostic impact.

Results: Among the 77 participating dentists, 67.5% reported frequent use of CBCT exams, and 75.4% already used some form of digital presentation. Most participants were between 31–40 years old (39%) and had over 10 years of professional experience (88.3%). Endodontics was the most represented specialty (29.9%). All endodontists, along with 69.6% of specialists in surgery/implantology and 86.4% of orthodontists, expressed interest in learning how to use CBCT visualization software. Among those who considered the static format "sufficient for diagnosis and treatment planning in all cases", 66.6% reported changing their diagnosis or clinical approach in at least one case after viewing the dynamic version. Endodontics had the highest percentage of professionals (56.5%) who considered the static format insufficient ($p < 0.05$).

Conclusion: The study highlights the potential impact of dynamic CBCT visualization on diagnosis and clinical decision-making, underscoring the value of continuous professional education.

DETECTION OF GRAM-POSITIVE BACTERIA IN APICAL THIRD OF CRYOPULVERIZED TEETH WITH ENDODONTIC FAILURE

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Aim: This study aimed to evaluate the presence of *Enterococcus faecalis*, *Gemella morbillorum*, and *Parvimonas micra* in the apical third of teeth with failed endodontic treatment, using cryogenic grinding followed by molecular detection via Nested-PCR.

Method: Ten teeth presenting clinical and radiographic signs of endodontic failure, associated with periapical lesions and unsuitable for prosthetic rehabilitation, were extracted. The apical third of each root was disinfected, sectioned, and cryogenically pulverized (Freezer Mill 6750, Spex, NJ, USA). DNA was extracted using the DNeasy PowerSoil Pro Kit (Qiagen, CA, USA), and bacterial identification was performed by Nested-PCR with species-specific primers. Statistical analysis included Fisher's exact test, Spearman's correlation, Shapiro-Wilk, and Student's t-test.

Results: *E. faecalis* was found in 60% of samples, while *G. morbillorum* and *P. micra* were each found in 50%. Poor-quality root canal obturation correlated with greater bacterial presence and tenderness to percussion ($P < 0.05$).

Conclusion: These findings reinforce the importance of proper disinfection and sealing to prevent microbial persistence in the apical third. (Supported by FAPESP 2015/23479-5, 2021/13871-6, 2023/10620-8; CNPq 303852/2019-4, 421801/2021-2; CAPES 001).

DEVELOPMENT AND VALIDATION OF THE ORTHODONTIC-PEDIATRIC DENTAL AESTHETIC SCALE (ODAS) FOR CHILDREN WITH MIXED DENTITION

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to develop a pediatric Dental Aesthetic Scale (ODAS) tool to assess children's aesthetic self-perception during mixed dentition and to compare the performance with the Dental Health Component (DHC) and Aesthetic Component (AC) of the Index of Orthodontic Treatment Need (IOTN).

Method: The Delphi method was utilized to achieve expert consensus through anonymous structured rounds. The development process involved four phases: (1) pre-selection of images, (2) final image selection, (3) construction of the attractiveness scale, and (4) pre-testing. Descriptive analyses were conducted, and Spearman's correlation analysis was used to assess the relationship between the scores of the two instruments. Comparisons were made regarding application time and IOTN-AC scores, as well as between groups according to the IOTN-DHC.

Results: During development, three rounds of evaluation were held until a 90% agreement was achieved on the final arrangement, with Image 1 representing the lowest treatment need and Image 10 representing the highest. Pre-testing with 49 participants indicated no significant correlation between the IOTN-AC scores of the two instruments and no differences in application time ($p > 0.05$). However, scores obtained using the ODAS were significantly higher among participants without intra-arch malocclusion than those with malocclusion. Additionally, scores were higher in the group without malocclusion when the new tool was applied ($p < 0.05$).

Conclusion: These findings suggest that the ODAS is a valid and clinically relevant instrument that provides a more specific and sensitive measure of children's dental aesthetic self-perception.

DEVELOPMENT OF A NOVEL CARRIER DEVICE FOR QUALITY ASSESSMENTS IN DENTAL-DEDICATED MAGNETIC RESONANCE IMAGING

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Aim: The aim of this study was to develop and evaluate the first carrier device specifically designed for the recently introduced dental-dedicated magnetic resonance imaging (ddMRI).

Method: The new device consisted of five glass test tubes, each vertically positioned within a glass beaker and individually filled with one of the following materials: air, distilled water, 1.5% agar, nickel nitrate [$\text{Ni}(\text{NO}_3)_2$] in 1.5% agar, or $1000 \text{ g}\cdot\text{L}^{-1}$ dipotassium phosphate (K_2HPO_4). To simulate different surrounding environments, the beaker itself was filled with either distilled water, a $0.3 \text{ g}\cdot\text{L}^{-1}$ $\text{Ni}(\text{NO}_3)_2$ aqueous solution, or a $1000 \text{ g}\cdot\text{L}^{-1}$ K_2HPO_4 aqueous solution. The entire setup was scanned using a proton density turbo spin-echo pulse sequence on a ddMRI system equipped with a surface coil dedicated to dental imaging. Each combination of internal and external materials was scanned in triplicate, resulting in a total of 45 image volumes. Quantitative image analysis was conducted to assess mean voxel value (MVV), voxel value inhomogeneity (VVI), image noise (IN), and contrast.

Results: Among the tested configurations, the carrier device filled with 1.5% agar surrounded by a $1000 \text{ g}\cdot\text{L}^{-1}$ K_2HPO_4 solution, was identified as the most suitable for ddMRI quality assessments. This setup led to low VVI and IN values as well as high contrast between the carrier vial and the body, which are required for an optimal ddMRI phantom.

Conclusion: The proposed carrier device demonstrates potential as a reliable and versatile tool for embedding dental materials and other specimens in a reproducible imaging environment, supporting further research and validation efforts in ddMRI applications.

DEVELOPMENT OF BIOI MICROSPHERES: PROMISING PHOTOSENSITIZERS FOR PHOTODYNAMIC THERAPY OF PERI-IMPLANT INFECTIONS

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Aim: Photodynamic therapy is a promising approach against peri-implant infections, although it can cause oxidative stress and cellular damage depending on the photosensitizer used. This study aimed to develop bismuth oxyiodide (BiOI) microspheres, obtained by hydrothermal reaction, as an alternative photosensitizer for the treatment of peri-implantitis, due to their photocatalytic potential.

Method: The microspheres were characterized according to their morphology, chemical composition, ionic stability, crystallinity and photocatalytic activity under visible light. The reactive oxygen species generated and the proteomic profile were also analyzed. Cytocompatibility was evaluated in murine pre-osteoblastic cells (MC3T3-E1) and human gingival fibroblasts, exposed to different concentrations of the microspheres. The in vitro antimicrobial activity was tested against monospecies biofilms of *Staphylococcus aureus*, *Escherichia coli* and *Candida albicans*, as well as polymicrobial biofilms.

Results: The microspheres presented a morphology similar to flower bouquets, monocrystalline structure, influence of pH on ionic stability and affected the proteomic profile, with 25 proteins exclusive to blood plasma. They demonstrated excellent photocatalytic activity, without cytotoxicity up to $50 \mu\text{g}/\text{mL}$. In time-lapse, it was observed that MC3T3-E1 cells absorbed and degraded the microspheres without cell damage. Treatment with BiOI + light significantly reduced biofilms.

Conclusion: Thus, BiOI microspheres show promise as photosensitizers in photodynamic therapy of peri-implant infections.

DEVELOPMENT OF EXPERIMENTAL COMPOSITES CONTAINING MULTILAYER SILICA NANOPARTICLES LOADED WITH CHLORHEXIDINE

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Aim: This study aimed to evaluate the physicochemical and antibacterial properties of composites containing silica nanoparticles (SNPs) loaded with chlorhexidine (CHX-SNPs).

Method: Seven experimental composites were formulated using a Bis-GMA/TEGDMA (1:1) organic matrix, CHX-SNPs or pure SNPs at the following concentrations: 0% (control group - GC), 10, 20, or 30% (w/w) CHX-SNPs (G1, G2, and G3, respectively), and 10, 20, or 30% (w/w) pure SNPs (G4, G5, and G6, respectively). Physicochemical properties were evaluated through flexural strength (FS, $n = 10$), flexural modulus (FM, $n = 10$), surface roughness (R_a , $n = 6$), degree of conversion ($n = 5$), post-gel volumetric shrinkage ($n = 5$), and antimicrobial activity assessed via bacterial sensitivity testing using the agar diffusion method ($n = 6$) against *S. mutans*, *S. mitis*, and *S. gordonii*, as well as the inhibition of *S. mutans* biofilm formation (CFU/mL, $n = 6$). The CHX release ($n = 3$) was measured over a 30-day using HPLC at pH = 5 and pH = 7.4 solutions. Data were analyzed using ANOVA/Tukey ($\alpha = 5\%$).

Results: G3 exhibited higher FS and FM compared to GC ($p < 0.05$). Surface roughness increased with CHX-SNPs and SNPs content, with no significant difference between groups ($p > 0.05$). No difference was found for degree of conversion ($p > 0.05$). G1-G3 showed greater post-gel volumetric shrinkage ($p < 0.05$). Only CHX-SNPs groups inhibited Streptococci growth and reduced *S. mutans* biofilm formation ($p < 0.05$). CHX release rate was highest at pH = 7.4.

Conclusion: CHX-SNPs composites exhibited higher FS, FM, and post-gel volumetric shrinkage, along with effective antibacterial activity.

DEVELOPMENT OF METHACRYLATED CHITOSAN SCAFFOLD FOR USE IN DENTAL TISSUE ENGINEERING

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to synthesize and characterize chitosan scaffolds modified with methacrylic anhydride to enhance their mechanical, chemical, and structural properties for potential use in dentin-pulp complex regeneration.

Method: Scaffolds were divided into four groups: unmodified chitosan (CS) and CS modified with methacrylic anhydride at 0.2 M, 0.4 M, and 0.8 M concentrations. The modification process was carried out by incorporating methacrylic anhydride into the chitosan structure, followed by scaffold synthesis via lyophilization. Chemical and morphological characterization was conducted using FTIR, ^1H NMR, and SEM. Mechanical properties were evaluated through compression testing.

Results: FTIR spectra showed a peak at 1560 cm^{-1} ($-\text{NHCO}-$), indicating successful modification, while ^1H NMR displayed olefinic peaks at 5.3 and 5.6 ppm, confirming methacrylic anhydride incorporation. SEM images revealed porous structures suitable for tissue regeneration. Among the tested groups, the 0.4 M modified scaffold exhibited superior mechanical performance ($p < 0.05$).

Conclusion: These findings support the potential of methacrylated chitosan scaffolds as promising biomaterials for dentin-pulp complex regeneration.

DIAGNOSTIC CHALLENGES AND INTEGRATED THERAPEUTIC STRATEGIES FOR PAROXYSMAL HEMICRANIA AND TMD: A CASE REPORT

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INSTITUTO DE ENSINO ODONTOLÓGICO

Aim: Analyze diagnostic challenges and therapeutic strategies for HP and TMD

Method: A 59-year-old woman came to the clinic with left-sided facial pain, neck pain, and orbital-temporal pain. Facial pain was constant, severe (VAS=8), worsening with effort. Neck pain began in 2015 (VAS=10), described as constant pressure. Orbital pain occurred in stabbing episodes (VAS=10), lasting three minutes and recurring daily. Her history included hypertension and asthma, managed with losartan, nifedipine, hydrochlorothiazide, and alenia. She self-medicated with ketoprofen. Previous treatments with gabapentin and tramadol failed. She reported bruxism, poor sleep quality (PSQI=19), severe anxiety (GAD-7=16), undiagnosed knee pain, and trauma. Initial consultations focused on TMD management, including pain education, thermotherapy, self-massage, and controlling parafunctional habits. Anesthetic infiltrations were performed in the masseter muscle and left TMJ. Medications included cyclobenzaprine, meloxicam, and nortriptyline. A stabilizing occlusal splint was fabricated. Despite these efforts, severe headaches persisted, prompting further evaluation. During the fifth consultation, a headache assessment followed the International Classification of Headache Disorders (ICHD). The episodic nature of orbital-temporal pain, its response to indomethacin, and no secondary causes led to suspicion of HP. Indomethacin therapy (50 mg/day) significantly reduced headache frequency and intensity. Follow-up confirmed near-complete resolution of HP symptoms, with only one episode reported later.

Results:

Conclusion: Integrated approaches effectively managed HP and TMD in this case.

DIFFERENT 3D DESIGN STRATEGIES ON THE COMPRESSIVE STRENGTH OF FULLY 3D PRINTED

GERMANO VAINER VIEGAS; ULYSSES DE TOLEDO MONTEIRO, AMÉRICO BORTOLAZZO CORRER; WANDER JOSÉ DA SILVA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated two strategies to enhance the mechanical performance of 3D-printed dentures and their artificial teeth.

Method: A pair of complete dentures was digitized to isolate the lower posterior teeth (44–47), which were then redesigned in two configurations: splinted or separated. Additionally, teeth were modeled with 50% infill using a gyroid lattice structure. Denture bases were printed with a denture-specific resin, while teeth were printed using a filled composite resin on the same printer. Specimens ($n = 15$ per group) were categorized by tooth configuration (splinted or separated) and infill density (50% or 100%). Post-printing, all parts underwent a 5-minute isopropyl alcohol wash and 15-minute 405 nm light curing. Bases and teeth were bonded using the base resin, light-cured, and post-cured for 5 minutes. Nickel-chromium alloy antagonists (teeth 13–17) standardized load application. Compressive strength was tested at 1 mm/min crosshead speed and analyzed via two-way ANOVA and Tukey's test ($\alpha = 0.05$).

Results: Tooth configuration significantly affected strength ($p < 0.0001$), with splinted teeth exhibiting higher resistance (3818.91 ± 76.81 N) compared to separated teeth (3307.70 ± 75.98 N). In contrast, infill density (50%: 3567.17 ± 75.98 N; 100%: 3559.45 ± 76.81 N) showed no significant difference ($p = 0.9200$), and no interaction was observed between factors ($p = 0.8796$).

Conclusion: Within the study's limitations, reducing infill to 50% did not compromise compressive strength, but splinted tooth configurations significantly improved mechanical performance.

DIFFERENT DISCONTAMINATION PROTOCOLS USED IN REGENERATIVE ENDODONTIC THERAPY: A CLINICAL CASE REPORT

JÚLIA MORI GOMIDE; PAULO HENRIQUE GABRIEL, ARIAN BRAIDO, RODOLFO FIGUEIREDO DE ALMEIDA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, MARINA ANGÉLICA MARCIANO DA SILVA, TALITA TARTARI; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This report describes the treatment of a 10-year-old patient seen at the Dental Trauma Service at the Piracicaba School of Dentistry one month after he fell from his own height. The diagnosis was intrusive luxation of tooth 11 and lateral luxation of tooth 21, both with pulp necrosis and inflammatory external resorption.

Method: The tomography confirmed resorption and incomplete rhizogenesis with apices >1 mm. The treatment of choice was Regenerative Endodontics, following the AAE protocol on tooth 11 and the AAE protocol associated with ultrasonic agitation on tooth 21. The treatment was carried out in two sessions. In the first session, 2.5% NaOCl (20 mL), 0.9% saline solution (10 mL), 17% EDTA (20 mL) and 5% sodium thiosulfate (1 mL) were used for decontamination. The intracanal medication used was calcium hydroxide with 2% chlorhexidine gel for 21 days. In the second session, the medication was removed with saline solution (10 mL) and EDTA 17% (20 mL), followed by induction of a blood clot, insertion of a collagen sponge, MTA HP Angelus® and restoration with composite resin. On tooth 21, all the irrigating solutions were agitated with an ultrasound using the Irrisonic insert (Helse) at 10% power.

Results/Conclusion: At the 6-month clinical and radiographic follow-up, signs and symptoms had regressed.

DIGITAL FLOW IN DENTISTRY

GUILHERME DA SILVA OCTAVIANO; JOÃO SARMENTO PEREIRA NETO; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To demonstrate, through activities carried out during the PIBIC-EM internship, the digital flow in Dentistry, focusing on the creation of 3D models from intraoral scanning and highlighting the various stages for the CAD-CAM system in Dentistry.

Method: This is an experience report.

Results: Dentistry has evolved with the advent of technological innovations, transforming the way diagnoses, treatments and follow-ups are performed. Technological advances in the field of Dentistry can contribute to several aspects, such as the reduction or elimination of several clinical and laboratory steps, which favor greater patient comfort and improved precision and predictability of treatment. In view of this, the recent adoption of CAD/CAM (Computer-Aided-Design/Computer-Aided-Manufacturing) technology for diagnosis and customized manufacturing of devices allows the manipulation of 3D images and the 3D printing of orthodontic appliances, optimizing precision and efficiency. The customized production of devices from STL files for learning and training in digital tools using free software such as Meshmixer and their insertion into filament and resin 3D printers that revolutionized the manufacture of dental devices.

Conclusion: The use of these digital tools stands out, as they have brought numerous innovations to the Dentist, eliminating clinical and laboratory steps that favor greater comfort for the patient and better precision and predictability.

DOES THE LEVEL OF BATTERY OF A HANDHELD X-RAY UNIT INFLUENCE THE OBJECTIVE QUALITY OF RADIOGRAPHS?

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To assess the influence of different battery levels of a handheld X-ray unit in the objective image quality of radiographs.

Method: Radiographs of an acrylic block were obtained using a SnapShot solid-state sensor and an Eagle handheld X-ray unit configured at 60 kVp and 0.88 mAs, with the battery at ten different levels (ranging from 100% to 10%). Six radiographs were obtained at each level. Mean gray values and standard deviations were collected using ImageJ software to evaluate brightness, noise, and uniformity of radiographs. Then, radiographs of an aluminum step-wedge were also obtained under the same conditions aforementioned to assess image contrast. Image quality parameters were compared across different battery levels using Analysis of Variance and Tukey's post-hoc test ($\alpha=0.05$).

Results: Radiographs obtained at 100% battery level showed higher brightness than those obtained at 50% ($p<0.0001$). The battery level did not affect image noise ($p=0.091$). However, uniformity on radiographs obtained at 20% battery level differed significantly from all other levels ($p<0.0001$). The highest contrast was observed on radiographs obtained at 90% battery level ($p<0.0001$). Overall, the values remained consistent across different battery levels assessed.

Conclusion: Although the same statistically significant variations were observed, the overall objective image quality remained stable throughout the entire range of battery levels tested in the handheld X-ray unit.

EFFECT OF ADDITIONAL VIOLET LIGHT-CURING ON CHEMICAL AND MECHANICAL PROPERTIES OF COMPOSITE RESINS

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Aim: To evaluate the effect of additional violet light on the flexural strength (FS), elastic modulus (EM), and degree of conversion (DC) of composite resins with different photoinitiators.

Method: The Valo X (Ultradent) light-curing unit was used in different curing modes: (1) Conventional (20 s), (2) Violet light only (20 s), and (3) Additional (Conventional + Violet). Four composite resins were evaluated: two conventional (Z100 – Solventum; and Tetric N-Ceram – Ivoclar Vivadent) and two universals (Vittra APS Unique Universal – FGM; and Transcend Universal – Ultradent). For FS and EM, bar-shaped samples (n=15, 12 mm × 2 mm × 2 mm) were tested at 24 h in distilled water. Data were analyzed using two-way ANOVA and Tukey's test ($\alpha=0.05$). DC (n=3) for each curing mode was evaluated by FTIR-ATR and analyzed using one-way ANOVA and Tukey's test ($\alpha=0.05$).

Results: The Conventional and Additional modes exhibited higher FS within each resin composite. In the Conventional and Violet modes, Vittra showed the highest FS values. In the Additional mode, Vittra, Z100, and Transcend showed no differences, while Tetric had the lowest values. Only Z100 exhibited higher EM across curing modes. For DC, the Violet mode affected the composites except for Tetric.

Conclusion: Overall, violet light influenced FS and DC but did not provide consistent benefits compared to conventional polymerization.

EFFECT OF ANTIFUNGAL DRUGS ON THE GROWTH AND METABOLISM OF CANDIDA DUBLINIENSIS, CANDIDA GLABRATA AND CANDIDA TROPICALIS

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Aim: Candida spp are commensal fungi and opportunistic pathogens on the WHO priority list. This study evaluated the effect of different antifungal drugs on the growth and metabolism of *C. dubliniensis* (Cd), *C. glabrata* (Cg), and *C. tropicalis* (Ct). The drugs (targets) were fluconazole (cytoplasmic membrane sterol biosynthesis), echinocandins anidulafungin, caspofungin, and mycofungin (cell wall glucan synthesis), and amphotericin B (membrane integrity), with concentrations 512 to 1 mg/mL. The strains Cd ATCC MYA-646, Cg BG-2, and Ct ATCC MYA-3404 were reactivated on agar plates (37°C, 10% CO₂, 24h).

Method: The starter cultures were prepared with five colonies in TY+1% glucose (37°C, 10% CO₂, 16h). The starters were diluted 1:20 in the same medium and incubated until OD_{550nm} 0.8 was reached. Next, these cultures were diluted to 2x10⁶ CFU/mL, and a 50 µL aliquot was transferred to each well of a 96-well plate containing the antifungals, followed by incubation (37°C, 10% CO₂). Controls were inoculated culture medium without antifungal and medium without inoculum. After 24h, the growth was measured via reading at 550nm and metabolism by adding resazurin (37°C, 10% CO₂, 2h) and reading at 570nm.

Results: The echinocandins inhibited growth and metabolism at lower concentrations than the other antifungals; caspofungin was more effective against Cd. Amphotericin B was more effective against Cd (2 mg/mL), followed by Cg (16 mg/mL) and Ct (32 mg/mL).

Conclusion: Fluconazole was more effective against Cg (versus Cd and Ct). Thus, echinocandins were more effective than fluconazole and amphotericin B in inhibiting the growth and metabolism of the fungi.

EFFECT OF BRIGHTNESS AND CONTRAST IN THE DIAGNOSIS OF CARIES LESIONS ON RADIOGRAPHS OBTAINED WITH A HANDHELD X-RAY UNIT

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Aim: To evaluate the influence of brightness and contrast adjustments in the diagnosis of proximal caries lesions on radiographs obtained with a handheld X-ray unit.

Method: Radiographs of 40 human teeth were obtained with a complementary metal oxide semiconductor sensor (Snapshot system) and an Eagle X-ray handheld unit (Alliage, São Paulo, Brazil) operating at 2.5 mA, 60 kVp and 0.45 seconds of exposure time. Then, the brightness and contrast of the resulting radiographs were adjusted in four different combinations (–30% brightness and +30% contrast; –15% brightness and +15% contrast; +15% brightness and –15% contrast; and +30% brightness and –30% contrast). The original radiographs and the four different combinations were randomized and individually assessed by five oral and maxillofacial radiologists regarding proximal caries lesions diagnosis. Area under the receiver operating characteristic curve (AUC), sensitivity, and specificity were calculated from the responses of the examiners and compared with Analysis of Variance one-way ($p<0.05$).

Results: The sensitivity values for diagnosing proximal caries lesions on radiographs with increased brightness and decreased contrast (+30% brightness and -30% contrast) were significantly lower than the original radiographs and the other combinations tested ($p < 0.05$). The AUC and specificity values were not influenced by brightness and contrast adjustments.

Conclusion: Increased brightness and decreased contrast can impair the diagnosis of proximal caries lesions on radiographs obtained with a handheld X-ray unit. Therefore, the clinician should perform these adjustments cautiously.

EFFECT OF HYDROLYTIC ENZYMES ON EXTRACELLULAR POLYMERIC SUBSTANCES PRODUCED BY STREPTOCOCCUS MUTANS

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Aim: This study analyzed the effect of the hydrolytic enzymes DNase I, proteinase K, and dextranase and their combinations on the extracellular polymeric substances (EPS) produced by *S. mutans* after exposure to glucose and sucrose. Transmission electron microscopy (TEM) analysis was performed to evaluate the cells' ultrastructure and EPS.

Method: For this purpose, the strain *S. mutans* UA159 was cultivated until the beginning of the logarithmic growth phase (37°C; 10%CO₂), after which the cells were exposed to 1% glucose or 1% sucrose (37°C; 10%CO₂). After four hours, the samples were centrifuged, washed to remove the culture medium, and treated with the enzymes (37°C, 30min) under agitation. Next, samples were centrifuged. The supernatants were used for protein and carbohydrate quantification as indirect controls of enzyme activity. The pellets were washed to remove debris and enzymes and fixed with Karnovsky's fixative, followed by sample processing and imaging via TEM. For cells exposed to glucose, EPS were absent in the micrographs; based on previous research, it was expected to observe them in the control without enzymes; so, the absence of EPS may be due to the sample washing process.

Results: An abundance of EPS was observed in the sucrose group, except for dextranase treatment, alone or combined with the other enzymes, where there was a notable absence of EPS. DNase I and proteinase K alone or combined had no effect on visible EPS in the TEM micrographs.

Conclusion: Thus, as dextranase cleaves α 1-6 glycosidic bonds, this enzyme's activity shows the polysaccharide nature of visible EPS in the TEM micrographs.

EFFECT OF INFLAMMATORY MEDIATORS ON THE ALVEOLAR BONE REPAIR PROCESS IN AN ANIMAL MODEL

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Aim: The aim of the present study was to evaluate the effects of inhibiting the cysteinyl leukotriene receptor 1 (CysLT1R) with the drug montelukast sodium (MTK) and the enzyme 5-lipoxygenase (5-LO) on the alveolar bone repair process.

Method: Male 129Sv mice (wild-type [WT] and 5-lipoxygenase knockout [5-LOKO]), aged 12–16 weeks, were divided into three groups: WT-C and 5-LOKO (both treated with 0.9% saline) and WT-MTK4 (treated with montelukast sodium, 4 mg/kg/day, orally). All animals underwent tooth extraction and were euthanized after 21 days. Maxillae were collected for alveolar bone healing evaluation through microarchitectural analysis, qualitative histology, and birefringence assessment.

Results: An increase in bone volume and more evident trabecular thickness were observed in the MTK4 group compared to the WT-C and 5-LOKO groups. Histological analysis revealed that all groups exhibited similar characteristics, with alveolar sockets filled with mature bone trabeculae undergoing remodeling, interspersed with loose connective tissue and a predominantly mononuclear inflammatory infiltrate. The presence of red-spectrum collagen fibers was similar among the groups; however, green-spectrum collagen fibers were more prominent in the 5-LOKO group.

Conclusion: It was concluded that 5-LO inhibition appears to alter the bone remodeling process; however, overall, neither 5-LO inhibition nor MTK therapy had a significant impact on alveolar bone repair compared to untreated animals.

EFFECT OF NARINGIN, WITH VIOLET LED LIGHT, ON MICRO-SHEAR BOND STRENGTH AND COLOR ALTERATION IN BLEACHED DENTAL ENAMEL

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Aim: This study evaluated the antioxidant compound Naringin, with violet LED light (Bright Max Whitening, MMO), at 24h and 7 days on micro-shear bond strength and color alteration of dental enamel after bleaching with 35% hydrogen peroxide (Whiteness HP, FGM).

Method: Naringin solutions were analyzed by UV-Vis spectroscopy to determine the highest absorbance with violet LED light (400-420 nm). Eighty bovine incisor crowns were divided into 2 groups (A: 24h and B: 7 days), which were then subdivided into 4 groups: 1. Positive control (PC); 2. Negative control (NC); 3. Naringin 120 mM (NA); 4. Naringin 120 mM with LED (NA+LED). After bleaching, antioxidant treatment, and restoration, micro-shear bond strength was tested (n=10). Samples were also analyzed with SEM (n=3) and colorimetric analysis at 5 time points: T1: Initial, T2: After Bleaching, T3: After Antioxidant, T4: After 24h, and T5: After 7 days.

Results: Naringin 120 mM showed the best absorbance profile in the violet LED light range. No significant color changes were observed after 7 days. Two-way ANOVA revealed no significant difference in micro-shear bond strength between groups at 24h and 7 days. After 24h, PC group showed better bond strength than NA+LED and NA, but no significant changes occurred after 7 days. SEM images showed adhesive failures in all groups and time points.

Conclusion: Naringin, with violet LED light, did not affect composite bond strength after bleaching with 35% hydrogen peroxide, However, it maintained stability. Yet, Naringin did not compromise the aesthetic appearance of the bleached enamel.

EFFECT OF NATURAL COMPOUNDS ON THE GROWTH AND METABOLISM OF CANDIDA ALBICANS

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Aim: Candida albicans is a commensal fungus and an opportunistic pathogen on the WHO critical priority list. This study evaluated the effect of different compounds on the growth and metabolism of C. albicans

Method: The compounds were: 1-(2-hydroxyphenyl)-3-phenylprop-2-en-1-one (ANG), (+)-dihydromyricetin (V1568), 2'-hydroxychalcone (R815), and quercetin (AK), with concentrations 1000 to 15.265 µg/mL. The strain SC5314 was reactivated on SDA plate (37°C, 10% CO₂, 24h). The starter culture was prepared with five colonies in TY+1% glucose (37°C, 10% CO₂, 16h). The starter was diluted 1:20 in the same medium, followed by incubation until OD_{550nm} 0.8 was reached. Next, this culture was diluted to 2x10⁶ CFU/mL, and a 100 µL aliquot was transferred to each well of a 96-well plate containing the compounds, followed by incubation (37°C, 10% CO₂).

Controls were inoculated culture medium without compounds and medium without inoculum. After 24 h, growth was measured via reading at 550nm and metabolism by adding resazurin (37°C, 10% CO₂, 2h) and reading at 570nm

Results: The compound AGN was the most effective, inhibiting growth and metabolism in all concentrations tested. V1568 reduced growth and metabolism at 62.5 and 125 µg/mL, respectively; its effect was not dose-dependent because it could have complexed with the culture medium proteins and/or its color could have interfered with the readings. R815 reduced growth and metabolism at 15,26 and 250 µg/mL, respectively

Conclusion: The effect of AK varied a lot between experiments, indicating that the compound may be unstable. Thus, AGN was better at inhibiting the growth and metabolism of the fungus.

EFFECT OF ORAL TREATMENT WITH NEOVESTITOL AND VESTITOL ON GENE EXPRESSION IN RATS WITH EXPERIMENTAL PERIODONTAL DISEASE

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Aim: Evaluate the effect of oral treatment with Neovestitol and Vestitol on gene expression in rats with experimental periodontitis.

Method: Experimental periodontitis was developed in rats, divided into 3 groups: treated orally with CNV, treated orally with metronidazole, and treated with vehicle control. On the first day, P. gingivalis cells were inoculated for 5 days, twice a day. Ligatures were placed on the first mandibular molar on day 4. Treatments started on day 5 and were done once daily for 14 days. After this period, the animals were euthanized and gingival tissues were collected. RNA was extracted, converted to cDNA and real-time PCR was used to evaluate gene expression related to inflammation and bone metabolism. The statistical analysis was done using Kruskal-Wallis followed by Dunn's post-hoc test (p<0,05).

Results: The group treated with CNV increased the expression of Bmp2 by 20 times, compared to the other groups (p<0,05), demonstrating a positive effect for the treatment of bone loss. However, there was an increase in the expression of Mmp7 and Wnt5a by 15 times, when compared to the other groups (p<0,05), both associated with inflammation, suggesting a persistent inflammatory response.

Conclusion: The oral treatment with CNV promoted an increase in the expression of Bmp2, suggesting a positive effect on the formation of the bone matrix. However, the increased Mmp7 and Wnt-5a expressions indicate a possible tissue inflammatory response. The absence of a reduction in the values of pro-inflammatory genes suggests that the CNV beneficial effect on periodontitis may be related to its antimicrobial action and the increased Bmp2 expression.

EFFECT OF OZONE THERAPY ON BONE TISSUE TREATED WITH ZOLEDRONIC ACID: A SYSTEMATIC REVIEW OF IN VIVO STUDIES

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Aim: The aim of this study was to evaluate the effects of ozone therapy on bone tissue in animal models treated with zoledronic acid (ZA).

Method: A systematic review was conducted in the MEDLINE (Pubmed), Embase, Scopus, and Web of Science databases without time or language restrictions. Studies using animal models with bone tissue treated with ZA and subjected to local or systemic ozone therapy were included. The risk of bias was assessed according to SYRCL's risk of bias tool. Article selection was performed by two researchers ($\kappa = 0.87$). Eligibility was defined according to the PICOS strategy.

Results: A total of 265 documents were identified, of which five were included. All articles used animal rat models treated with different doses of ZA. Of these, four evaluated bone repair following mandibular molar extraction, and one analyzed bone dynamics in the femurs and spine. All groups treated with ozone and ZA showed improved bone repair or greater vital bone area. Systemic ozone therapy or topical application of ozonated oil (600 mEq/kg) as postoperative treatment yielded better results in bone repair and in preventing medication-related osteonecrosis of the jaw. The risk of bias was considered unclear in most of the parameters evaluated.

Conclusion: The data suggest that ozone can be used to improve bone dynamics and modulate bone repair after oral surgeries. However, further experimental studies with more robust methodological designs are needed to establish application protocols and elucidate the mechanisms of action of ozone in patients receiving antiresorptive agents.

EFFECT OF POLISHING TECHNIQUES ON SURFACE ROUGHNESS, ROUGHNESS PROFILE AND VOLUME LOSS OF COMPOSITES AFTER TOOTHBRUSHING

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Aim: This study aimed to evaluate the effect of simplified polishing system and electric motor on surface roughness (Sa), roughness profile (Rv) and volume loss (VI) of three conventional composites after toothbrushing.

Method: Discs (10 mm x 2 mm) were prepared: Forma (Ultradent / FOR), Essentia (GC / ESS), and Estelite Omega (Tokuyama / EOM), and polished with a sequential set of rubber cups or in a spiral-shaped (Jiffy, Ultradent) using low speed electric motor (EM-E6 TP, W&H) or low speed air driven motor (GentlePower 20LP, Kavo). Half of the polished sample surfaces were covered by adhesive tape (unbrushed control area). The other half of the samples were submitted to 25,000 toothbrushing reciprocal strokes. Sa and Rv of each sample side (unbrushed and brushed) were measured using laser confocal microscopy (LEXT 3D OLS400, Olympus). Reference plans from the top of unbrushed areas were defined and calculated the composite volume loss (VI) after toothbrushing. Sa and Rv were analyzed with three-way ANOVA, VI with two-way ANOVA, followed by Tukey's test ($\alpha=0.05$).

Results: EOM composite presented the lowest Sa and Rv, while FOR the highest one. ESS presented the highest VI among the materials tested. EOM generally showed intermediate VI results, while FOR was the lowest. Spiral-shaped polisher provided a more polished surface and the use of electric motor showed lower Sa and Rv. The VI of FOR and ESS composites increased when polished with the electric motor.

Conclusion: Spiral-shaped polisher and electric motor yielded smoother surfaces for the composites. Toothbrushing promoted VI which varied depending on the type of composite and low-speed handpiece.

EFFECT OF PUTATIVE PREBIOTICS ON IN VITRO CARIOGENIC MICROCOSMOS BIOFILMS

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Aim: Dental caries is a disease mediated by a dysbiotic biofilm and modulated by dietary sugars (e.g., sucrose). Prebiotics are substances that could affect cariogenic biofilms. Thus, this study evaluated the effect of putative prebiotics on two cariogenic microcosm biofilm models (initial and pre-formed).

Method: The inoculum was human salivary microbiota in culture media TY+1% sucrose, added in two polystyrene 96-well plates, one to assess biomass (crystal violet method) and microbial population. Both were incubated (37°C; 10% CO₂) for 1.5 h (for adhesion and initial biofilm) or 24 h (for pre-formed biofilm). Next, the content of the well was aspirated, and medium with or without a substance was added. Six groups were assessed: 1) aminosugar (N-acetyl-D-glucosamine), 2) arginine (positive control, proven effect), 3) proline, 4) sodium nitrate, 5) urea e 6) no prebiotic substance (negative control). The plates were incubated (24 h) and processed.

Results: Regarding biomass, groups 2 and 5 inhibited initial biofilm, while group 3 impeded the accretion of pre-formed biofilm. Regarding total microbiota, there were more microorganisms in group 1 in the initial biofilm, but no other differences were observed for the two models. For aciduric microbiota, only group 5 inhibited it in both models. For the mutans streptococci group, groups 2 and 3 inhibited them in both models, but in the pre-formed biofilm, groups 1 and 5 also hindered them, but to a lesser extent. For fungi, group 5 inhibits them in both models.

Conclusion: Therefore, like the proven probiotic arginine, proline and urea are promising to control cariogenic microcosmos biofilms in vitro.

EFFECT OF SODIUM HYPOCHLORITE AGITATION ON MULTISPECIES ORAL BIOFILM IN SIMULATED IMMATURE TEETH

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Aim: To compare the effects of different sodium hypochlorite (NaOCl) agitation techniques on an ex vivo oral multispecies biofilm during passive disinfection of simulated immature roots.

Method: Extracted human teeth were prepared to simulate immature roots and infected with a dental plaque-derived multispecies biofilm, cultured for 14 days. Roots were randomly assigned to six groups: (1) negative control (PBS), (2) 1.5% NaOCl (CNI), (3) CNI + ultrasonic activation (UA), (4) CNI + EasyClean agitation (ECA), (5) CNI + XP-endo finisher agitation (XPF), and (6) positive control (6% NaOCl). Biofilm samples were collected and analyzed for viable cells (colony-forming units, CFU/mL), scanning electron microscopy, and 16S rRNA sequencing. Statistical analyses included One-way ANOVA for CFU/mL and alpha (observed OTUs, Shannon index, Chao1) and beta diversity (Bray-Curtis dissimilarities) metrics for 16S rRNA sequencing data. LEfSe was used to assess treatment effects on microbial abundance, with significance set at .05

Results: PBS and CNI groups exhibited significantly higher CFU/mL counts compared to UA, ECA, XPF, and 6% NaOCl groups ($p < .05$). Alpha diversity was higher in pre-treatment, PBS, and CNI groups than in UA, ECA, XPF, and 6% NaOCl groups ($p < .05$). NaOCl agitation techniques and 6% NaOCl led to pronounced bacterial reductions, particularly among *Fusobacterium*, *Actinomyces*, *Porphyromonas*, and *Capnocytophaga*.

Conclusion: NaOCl agitation techniques significantly enhanced passive disinfection effectiveness, supporting their role in improving revitalization outcomes.

EFFECT OF SURFACE TREATMENTS ON THE SHEAR BOND STRENGTH OF RESTORATIVE 3D PRINTED MATERIALS

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Aim: To compare the shear bond strength (μ SBS) of four bonding strategies over restorative 3D printed material.

Method: Forty disc-shaped samples (17 mm diameter x 2 mm thickness) of restorative 3D printed material were divided into four groups and treated with different adhesive protocols: (G1) no treatment; (G2) ScotchBond Multi-Purpose; (G3) Scotchbond Universal; and, (G4) sandblasting, phosphoric acid 35% and ScotchBond Universal. All samples were printed, washed and post-cured according with the manufacture instructions. Following the groups adhesive protocols, samples were treated, and cylinders (1 mm height X 1 mm diameter) of resin cement (RelyX Ultimate, 3M/Solventum) were bonded using a silicon matrix. Samples had the excess removed, light cured through the 3D printed material for 40s, and stored in deionized water for 24h. Two resin cement cylinders from each disc were then submitted to μ SBS test using a universal testing machine (Instron 4411) at a crosshead speed of 0.5 mm/min until failure occurred. Data were submitted to three-way ANOVA and Tukey post-hoc test ($\alpha=0.05$).

Results: The mean μ SBS (MPa) at G4 (19.7 ± 0.9) was significantly higher than G1 (14.8 ± 0.6) ($p < 0.05$). The groups G2 (17.2 ± 1.3) and G3 (17.7 ± 1.1) showed intermediate values, with no statistically significant differences when compared to the other groups ($p > 0.05$).

Conclusion: The combined surface treatment (sandblasting, phosphoric acid, and universal adhesive) significantly improved bond strength. Simplified protocols showed intermediate performance, while the untreated group had the lowest values

EFFECT OF USING MOUTHWASHES CONTAINING β -TCP AFTER IN-OFFICE WHITENING ON THE PHYSICAL PROPERTIES OF TOOTH ENAMEL

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Aim: This study evaluated the effects of mouthwashes with Tricalcium Phosphate (β -TCP) on samples subjected to a whitening protocol.

Method: Samples ($n=60$) were prepared from bovine teeth ($3 \times 4 \times 4$ mm) and randomly divided into groups: Artificial saliva (control), Whiteness HP 35% (HP35%), Tricalcium Bianco Pro Clinical® + Whiteness HP 35% (TBPC+HP35%), Tricalcium Bianco Advanced® + Whiteness HP 35% (TBA+HP35%), Elmex Sensitive® + Whiteness HP 35% (ES+HP35%), and Colgate Plax + Whiteness HP 35% (CP+HP35%). The whitening treatment consisted of three sessions at 7-day intervals, with 3×15 min. Thereafter, the mouthwash protocol was initiated, in which the samples were exposed to 100 ml of the respective mouthwash, twice daily for 7 days. Analyses of surface roughness (Ra), microhardness (KHN), and color parameters (ΔE_{ab}^* , ΔE_{00} , and ΔWID) were performed at T1 (initial), T2 (after whitening), and T3 (24 hours after the mouthwash protocol). Color, KHN, and Ra were analyzed using generalized linear models ($p \leq 0.05$).

Results: Ra did not show significant differences. A higher whitening effect was observed in the CP + HP35% at T3 compared to the other groups. The groups that used mouthwashes with β -TCP were able to maintain enamel KHN after the whitening treatment. Moreover, among the groups subjected to the mouthwash protocol, ES + HP35% and CP + HP35% exhibited similar and greater color variation than the others containing β -TCP at T3.

Conclusion: The use of mouthwashes after the whitening treatment did not interfere with color efficacy, and the analyzed groups maintained the microhardness after the mouthwash protocol and during the 7-day post-treatment.

EFFECTIVENESS OF LASER ACUPUNCTURE IN MIXED TEMPOROMANDIBULAR DYSFUNCTION: A RANDOMIZED CLINICAL TRIAL

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Aim: Temporomandibular dysfunction (TMD) consists of changes that can affect the masticatory muscles and the temporomandibular joint (TMJ), causing orofacial pain, pain in the TMJ region and limitation of mandibular movements. Laser acupuncture consists of the stimulated emission of photons on acupoints in order to biomodulate and unclog energy channels, restoring energy balance and reestablishing circulation of Qi (energy) and Xue (blood). The objective of this study was to evaluate whether laser stimulation of acupoints was effective for pain management in patients with TMD.

Method: Blinded and randomized clinical study with 34 volunteers diagnosed with mixed TMD divided into 3 groups: Systemic Acupuncture Group (SAG n=11), performed conventional needling at acupoints PC8, TE5, KI6, GB34, BL64 and ST40; Real Laser Acupuncture Group (RLA n = 14), infrared laser light was emitted with a dosage of 2 joules in the same acupoints of the SAG; Placebo Laser Acupuncture Group (PLA n = 9), the laser was activated, but not directed to the acupoints. Self-reported pain was evaluated by the VAS scale; the DC/TMD PHQ-4 questionnaire was used to evaluate emotional symptoms.

Results: The results showed improvement in self-reported pain for the studied groups SAG and RLA ($p = 0.000$) and in PLA ($p = 0.002$); in the PHQ-4 evaluation, there was a statistical difference in SAG ($p = 0.001$) and RLA ($p = 0.001$) and not for PLA ($p = 0.181$).

Conclusion: The laser was effective in activating the acupoints, improving self-reported pain and decreasing the level of anxiety, and that this selection of points may be a possible choice for TMD treatments.

EFFECTS OF BAICALEIN ANTIOXIDANT APPLIED TO BLEACHED ENAMEL: IMMEDIATE COLOR STABILITY AND BOND STRENGTH ANALYSIS

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Aim: To evaluate the effect of baicalein (BA) antioxidant solution applied at different times on bleached dental enamel, considering immediate color stability and bond strength.

Method: Bovine enamel/dentin specimens (4 x 4 x 3mm) were randomly divided into five groups (n=10): Positive Control (PC): non-bleached, restored teeth; Negative Control (NC): bleached, restored teeth; and BA5, BA10, BA15 groups, with BA applied for 5, 10, or 15 minutes after bleaching with HP35%, followed by immediate restoration with Filtek Z350XT composite resin. The antioxidant activity (AA%) was evaluated using the DPPH test. Immediate color stability was assessed by $\Delta E00$ and ΔWID at T1 (post-bleaching) and T2 (post-BA application), with repeated measurements at 24h (T3) and 7 days (T4). Micro-shear bond strength (SBS) was evaluated at 24h and 7 days. Statistical analysis was performed at a 5% significance level. SBS data were analyzed using two-way ANOVA, $\Delta E00$ with generalized linear models, and ΔWID with Kruskal-Wallis followed by Dunn's post-hoc test. Antioxidant activity and failure modes were analyzed descriptively.

Results: The BA solution demonstrated an AA% of 97%. The final analyses (T4) of $\Delta E00$ revealed that BA10 and BA15 presented statistically similar values to NC ($p > 0.5$), while BA5 exhibited the lowest $\Delta E00$ among the groups ($p < 0.05$). For ΔWID (T4), all groups showed values similar to NC ($p > 0.05$). The application of BA improved SBS values at all time points ($p < 0.05$), with adhesive failures being predominant, followed by mixed failures.

Conclusion: Baicalein increased bond strength without compromising bleaching outcomes.

EFFECTS OF DISTANCE AND DIAMETER OF THE LIGHT-CURING UNIT TIPS ON THE MICROHARDNESS OF BULK-FILL RESIN COMPOSITES

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Aim: This study aimed to evaluate the influence of the distance and diameter of the light-curing unit (LCUs) tips on the Knoop microhardness (KHN) of bulk-fill resin composites.

Method: For specimen preparation, 3D-printed resin discs containing seven cylindrical cavities (2mm $\varnothing$ x 2.5mm h) were used as a mold for resin placement and to simulate different potential positions of a restoration relative to the light-curing tip. Two composites, Opus Bulk Fill APS (OBFA/FGM) and Filtek One Bulk Fill (FIOB/Solventum), were light-cured using Valo X (VAX/Ultradent) or Elipar DeepCure-S (EDC/Solventum) for 20s. The LCUs were positioned in contact or 8mm away from the composite surfaces at the central cavity position (#1). The KHN was determined at the top of the resin samples (n=10), and data were analyzed using Generalized Linear Models with Bonferroni correction.

Results: The tip diameters of VAX and EDC were 12mm and 10mm, respectively. The distance from the light tip (0 or 8mm) significantly reduced the KHN of FIOB when light-cured with EDC ($p < 0.01$). For the OBFA composite, the distance did not affect the KHN, regardless of the type of LCU ($p = 0.28$). For EDC, samples of both composites located at the periphery of the mold (#1-6) showed significantly lower KHN compared to the central position (#7) ($p = 0.005$). For VAX, the KHN value of composites in the different positions in the mold did not differ statistically ($p = 1.00$).

Conclusion: The larger diameter of the VAX enabled adequate polymerization of the resin samples at the periphery of the mold. Furthermore, it did not promote a reduction in the KHN of the composites when its tip was positioned 8mm away.

EFFECTS OF EXPERIMENTAL MUSCLE AND CUTANEOUS PAIN ON THE SOMATOSENSORY PROFILE OF HEALTHY INDIVIDUALS

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Aim: This study evaluated the effects of tumor necrosis factor (NGF) injection and 1% topical capsaicin application over the masseter on the mechanical somatosensory profile of healthy individuals.

Method: Twenty-eight healthy participants (mean age (SD) 24.0 (3.6) years) received a 30-minute application of 1% capsaicin to the skin over the right masseter, 24 hours after receiving an injection of NGF ($n = 14$) or saline solution ($n = 14$). Somatosensory tests were conducted on both sides of the face before and after capsaicin application.

Twenty-eight healthy participants (mean age (SD) 24.0 (3.6) years) received a 30-minute application of 1% capsaicin to the skin over the right masseter, 24 hours after receiving an injection of NGF ($n = 14$) or saline solution ($n = 14$). Somatosensory tests were conducted on both sides of the face before and after capsaicin application.

Results: The results indicate the involvement of endogenous pain modulation mechanisms within the trigeminal pathways, which may be activated by the combined action of topical capsaicin and experimental muscle pain.

Conclusion: These results contribute to the understanding of the neurophysiological processes involved in central sensitization and may provide a basis for the development of therapeutic strategies aimed at controlling orofacial pain.

EFFECTS OF FATTY ACID SYNTHASE (FASN) INHIBITION ON THE AUTOPHAGY PROCESS IN ORAL SQUAMOUS CELL CARCINOMA (OSCC)

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Aim: FASN is overexpressed in various cancers, including OSCC, and is associated with cell survival, proliferation, and metastasis. Different compounds inhibit FASN; triclosan (TCS) was found to be effective in previous studies by our group. Autophagy is crucial for cellular homeostasis, but its role in OSCC remains controversial. Thus, we investigated the effects of FASN inhibition (pharmacological with TCS vs. genetic) on autophagy in SCC-9 cells.

Method: FASN was inhibited in SCC-9 cells by genetic silencing (SCC-9 shFASN) or by treatment with TCS for 48h, comparing with parental cells (control). Autophagy protein markers were evaluated by western blot (LC3B and p62), the quantification and morphology of autophagic vacuoles by TEM, and the expression of autophagy pathway genes by RT-PCR arrays in SCC-9 shFASN.

Results: SCC-9 shFASN expressed higher levels of LC3B-I, without notable conversion to LC3B-II. In contrast, SCC-9 treated with TCS (IC50 and IC25) exhibited increased expression of both LC3B I and LC3B II. Electron microscopy demonstrated that FASN inhibition modulates the formation of autophagic vacuoles; they were more frequent in TCS-treated cells and displayed distinct morphological characteristics between the inhibition groups.

Conclusion: FASN inhibition, whether through genetic silencing or pharmacological treatment with TCS, induces the formation of autophagic vacuoles in OSCC cells, albeit with morphological particularities that vary depending on the inhibition method.

EFFECTS OF PREVINE BRASIL ON MATERNAL AND INFANT MORTALITY: CHALLENGES BETWEEN INCREASED PRENATAL CARE AND REAL OUTCOMES

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Aim: To investigate the impact of prenatal care on reducing maternal and infant mortality in Brazilian municipalities following the implementation of the new financing model for Primary Health Care (Previne Brasil).

Method: An ecological study following STROBE guidelines, analyzing data from 5,570 municipalities between 2016–2018 (before) and 2019–2022 (after implementation). Municipalities were categorized based on variations in mortality rates, prenatal care coverage, health service coverage, and socioeconomic factors.

Results: This nationwide study analyzed data from 5,570 Brazilian municipalities before and after the new financing model was implemented. After implementation, 86.7% of municipalities showed an increase in prenatal consultations, but only 30.9% experienced a reduction in maternal mortality. There was no significant association between increased prenatal care and reduced maternal or infant mortality. Factors such as region, primary care coverage, GDP, Gini index, and population size had greater influence. The South region and municipalities with higher PHC coverage showed the greatest reductions. The study suggests that although the new financing model improved access to prenatal care, it had no significant impact on maternal and infant mortality.

Conclusion: The Previne Brasil model expanded access to prenatal care but did not show a significant impact on maternal and infant mortality, highlighting the need for more integrated strategies that are sensitive to regional and socioeconomic disparities.

EFFECTS OF PROPOLIS EXTRACT AS A DESENSITIZING AGENT ON DENTAL STRUCTURE AFTER IN-OFFICE BLEACHING

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Aim: The study evaluated the effect of propolis extract on the physical properties of dental enamel and compared it with commercial desensitizing agents used after high-concentration whitening, focusing on color change (ΔE , ΔE_{00} , ΔWID), surface microhardness (KHN), and surface roughness (Ra).

Method: Sixty bovine tooth samples were stained with black tea for six days, with daily solution replacement. The groups were divided as follows: Artificial Saliva (Control); Whiteness HP35% (HP35%); Whiteness HP35% + Potassium Nitrate Desensitizer FGM (HP35% + FGM); Whiteness HP35% + Potassium Nitrate Desensitizer FGM + Propolis Extract (HP35% + FGM + P); Whiteness HP35% + Neutral Fluoride + Propolis Extract (HP35% + F + P); and Whiteness HP35% + Propolis Extract (HP35% + P). The treatment consisted of three 15-minute applications, performed across three sessions with 7-day intervals between sessions. The groups were analyzed at T_1 (baseline) and T_2 (24 hours). Generalized linear models ($p \leq 0.05$) were used to assess the effect of the bleaching agents on color change, microhardness (KHN), and roughness (Ra).

Results: All bleached groups showed a significant color change compared to the control. Regarding Ra, all groups exhibited a significant increase compared to baseline. In terms of KHN, the HP35% + FGM + P group was able to maintain enamel microhardness 24 hours after whitening.

Conclusion: Propolis extract did not affect whitening efficacy or alter the physical properties of enamel.

EFFECTS OF TITANIUM DIOXIDE BASED BLEACHING GELS ACTIVATED BY VIOLET LED ON ENAMEL BOND STRENGTH AND COLOR CHANGE

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Aim: This study aimed to evaluate the effects of bleaching gels containing hydrogen peroxide (HP) or titanium dioxide (TiO_2), activated by violet LED light (LVL), on enamel bond strength and color change.

Method: Titanium dioxide nanoparticles (5% by weight; 1:1 ratio of rutile to anatase) were incorporated into an experimental gel formulation. Bovine enamel specimens were subjected to five at-home bleaching protocols: 1- no treatment (negative control/CN); 2- 6% hydrogen peroxide gel (WhiteClass, FGM) / (positive control); 3- 6% HP gel with 5% TiO_2 activated by LVL (HP+ TiO_2 +VL); 4- 5% TiO_2 gel activated by LVL (TiO_2 +VL); and 5- only LVL. The bleaching protocols were applied for 2 hours daily over a 14-day period. Color change (ΔE_{00}) and the whitening index (ΔWID) were measured using digital spectrophotometry after 14 days ($n=24$). Microtensile bond strength (μTBS) was assessed at 24 hours, 7 days, and 14 days post-bleaching ($n=8$). Data were analyzed using two-way ANOVA for μTBS and one-way ANOVA for ΔE_{00} and ΔWID , followed by Tukey's post hoc test ($\alpha=0.05$).

Results: After 14 days, the HP+ TiO_2 +LVL group showed higher ΔWID and ΔE_{00} means than CN and LVL ($p<0.05$), but did not differ from CP and TiO_2 +LVL groups. For μTBS , CN and LVL groups exhibited the highest bond strength at 24 hours and 7 days ($p=0.018$). No significant differences in bond strength were observed among groups after 14 days ($p>0.05$).

Conclusion: Although TiO_2 yielded effective whitening results, it initially caused a reduction in enamel bond strength; however, this effect was mitigated within 14 days.

EFFICACY OF LOW-LEVEL LASER THERAPY AS AN ADJUNCTIVE IN ROOT CANAL TREATMENT AND RETREATMENT: AN UMBRELLA REVIEW

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Aim: To evaluate and synthesize evidence from systematic reviews investigating the efficacy of low-level laser therapy (LLLT) as an adjunct to endodontic treatment in reducing postoperative pain, microbial load, and promoting apical healing.

Method: A comprehensive search of electronic databases (PubMed, Embase, Web of Science, Cochrane Library, Google Scholar) was conducted up to March 2025, to retrieve systematic reviews that evaluate the efficacy of LLLT as an adjunct to endodontic treatment in reducing postoperative pain, microbial load, and promoting apical healing. Two independent authors selected the studies, extracted relevant data, and assessed the individual risk of bias and methodological quality using the ROBIS and AMSTAR-2 tools, respectively.

Results: The electronic search identified 280 records, 18 of which met the eligibility criteria and were included in the qualitative synthesis. The studies were published between 2014 and 2024. Only six reviews demonstrated a low risk of bias, and two were classified as having high methodological quality. Most systematic reviews indicated that LLLT is effective in reducing the incidence and intensity of postoperative endodontic pain and the microbial load following instrumentation. The studies also highlighted the high heterogeneity, the lack of a standardized protocol for LLLT application, and the low certainty of evidence for the outcomes.

Conclusion: LLLT is an important adjunctive therapy in endodontic treatment; however, robust evidence regarding its application protocol is still lacking.

EFFISEGNET: PIONEERING AUTOMATED SEGMENTATION FOR ACCURATE DIAGNOSIS OF ACTINIC CHEILITIS IN CLINICAL PHOTOGRAPHY

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Aim: This study aimed to develop and validate a segmentation model to aid in the diagnosis of actinic cheilitis and labial squamous cell carcinoma, using digital photographs of patients.

Method: EffiSegNet-B0 was trained with 10-fold cross-validation using a 90-10 split of 414 digital photographs of 315 patients with actinic cheilitis and lip squamous cell carcinoma. Training parameters included 100 epochs, DiceCELoss loss function and Adam optimizer. Metrics such as accuracy, recall, precision, IoU and Dice coefficient were calculated.

Results: The model achieved accuracy of 96%, recall of 88%, precision of 90%, IoU of 80% and Dice coefficient of 89%. The low standard deviation indicated the robustness of the model and adequate stratification of the data set.

Conclusion: EffiSegNet-B0 showed high accuracy and adaptability in segmenting lip lesions, reinforcing its potential for clinical applications.

ENAMEL SURFACE PROPERTIES SUBMITTED TO BLEACHING WITH 35% HYDROGEN PEROXIDE ASSOCIATED WITH TITANIUM TETRAFLUORIDE

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the surface roughness, color change, microstructure and morphology of enamel submitted to bleaching with 35% PH associated with experimental gel containing 1% TiF₄.

Method: 48 bovine enamel blocks were selected (n=12): (CT) Control; (TiF) experimental gel containing 1% TiF₄; (PH) bleaching with 35% PH; (PHT) 35% PH associated with 1% TiF₄. Whitening was performed in 3 sessions, with an interval of 7 days. Surface roughness (Ra), color change, microstructure and enamel morphology were determined by a roughness meter, spectrophotometer, μ FT-Raman spectroscopy, energy dispersive X-ray spectroscopy (EDS) and scanning electron microscope (SEM), respectively. The Δa data were not normally distributed and were analyzed by Kruskal-Wallis. The other data showed normality and homoscedasticity (Shapiro-Wilk/Levene). ΔL , Δb , ΔE , ΔWID and FT-Raman were analyzed by one-way ANOVA. Surface roughness was analyzed by two-way ANOVA.

Results: For ΔL , Δa , Δb , ΔE and ΔWID there were significant differences between groups C and PH, C and PHT, TiF and PH, TiF and PHT ($p > 0.05$). For surface roughness, only at the end of the bleaching time, the TiF group showed a statistical difference from the other groups ($p = 0.0001$). The FT-Raman showed no statistics between groups ($p > 0.05$). The SEM and EDS analyzes showed changes on the surfaces of the groups tested and the Ti element was found only in the TiF group.

Conclusion: The association of commercial PH and the experimental gel of TiF₄ did not change the surface roughness, nor the peaks of calcium and phosphate obtained by FT-Raman, however it significantly altered the color of the enamel and the appearance morphological.

ENERGY ASSESSMENT IN PATIENTS WHO UNDERWENT THIRD MOLAR EXTRACTION SURGERY

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Aim: Third molar extraction is an invasive procedure causing pain, edema, and bleeding. In addition to anti-inflammatory and analgesic drugs, acupuncture with energy regulation enhances therapeutic efficacy by promoting physico-chemical repair. This study aimed to evaluate meridian energy during surgery and after energy regulation and is part of a larger clinical trial that demonstrated the effectiveness of acupuncture-based energy regulation in controlling post-surgical effects.

Method: Using the Ryodoraku method, energy flow was measured at four time points: T1 (baseline), T2 (after needle removal), T3 (five minutes post-surgery), and T4 (seven days post-surgery). Patients (n=44) were assigned to two groups: a real group (n=22), with energy regulation and a placebo group (n=22), without energy regulation.

Results: Among the 12 meridians evaluated, the Large Intestine meridian showed the greatest changes, especially during surgery. Between T1 and T2, the real group decreased from 18.95 to 9.0 ($p=0.000$), while the placebo group remained nearly unchanged (14.13 to 14.27, $p=0.957$) with no significant difference ($p=0.096$). Between T1 and T3, the real group fell from 18.95 to 11.04 ($p=0.016$) and the placebo group increased from 14.14 to 20.82 ($p=0.039$), with a significant difference ($p=0.020$). Between T1 and T4, the real group declined from 18.95 to 13.00 ($p=0.062$) and the placebo group from 14.13 to 8.72 ($p=0.089$), without statistical significance ($p=0.167$).

Conclusion: These findings indicate potential for further research, as energy regulation via acupuncture supports pre and post extraction management and promotes patient recovery and less complications.

ENERGY BALANCE USING ACUPUNCTURE ON THE CHAKRAS TO CONTROL ANXIETY AND PSORIASIS: CASE REPORT

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Aim: Psoriasis is a chronic inflammatory skin disease that goes beyond physical limits and poses a mental health challenge. The prevalence of anxiety in patients with psoriasis varies between 20% and 30%, which can manifest as generalized anxiety and/or panic disorder. Understanding the relationship between anxiety and psoriasis is important for establishing a diagnosis and treatment plan. Regulating the flow of energy using chakras, which are energy vortices (areas in the body with the highest concentration of energy), allows the free flow of energy (Qi) and Blood (Xue), restoring balance. The objective of this report is to demonstrate the results obtained in the treatment of patient LAG,

Method: The energy diagnosis is based on changes in the tongue and pulse. The patient's tongue was purple, with teeth marks and no coating, which means energy stagnation, and the pulse was deep, with a fast speed, indicating heat and energy deficiency, and the position of the lung organ had a greater force. Five weekly sessions were performed, lasting 20 minutes, and the protocol used was needling at the acupoints DM20 RM3 RM17 RM12 RM6 RM2, which correspond to the points of the chakra areas. The initial anxiety assessed by the VAS was 5 and that of psoriasis was 4.

Results: The final VAS was 0 for anxiety and 2 for psoriasis, and the tongue returned to normal patterns in the pinkish red color.

Conclusion: Thus, energy regulation by the chakras was effective in managing anxiety and controlling psoriasis, providing an improvement in quality of life.

EPIDEMIOLOGICAL PROFILE OF INTERMAXILLARY AND INTRA-ARCH RELATIONSHIPS OF MALOCCLUSION IN CHILDREN WITH MIXED DENTITION

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Aim: This study investigated the prevalence of malocclusion in mixed dentition by analyzing intermaxillary and intra-arch relationships.

Method: It was a cross-sectional, population-based study involving 1,120 children aged 6 to 11 years enrolled in public schools in Piracicaba, São Paulo, Brazil. Clinical evaluations measured transversal relationships, overjet, overbite, anteroposterior relationships, midline diastema, and mandibular crowding. The examiners underwent theoretical and practical training to ensure consistency and inter-examiner agreement was assessed using the Kappa index. The descriptive analysis involved calculating means, standard deviations, and relative frequencies.

Results: The results indicated the following prevalence rates for malocclusion among the children studied: 9.1% had unilateral posterior crossbite; 29% showed increased overjet; 42.1% exhibited increased overbite; 40.9% had a class II molar relationship; 58.2% presented with diastema; and 54.3% experienced mandibular crowding.

Conclusion: This study overviews the most common intermaxillary and intra-arch malocclusion traits in children with mixed dentition. Among the evaluated intermaxillary relationships, the most frequently observed conditions were unilateral posterior crossbite, increased overjet, increased overbite, and Class II molar relationship. Intra-arch irregularities, such as median diastema and mandibular crowding, were also highly prevalent. These findings underscore the importance of early diagnosis and prompt orthodontic intervention to prevent the progression of malocclusion.

ESCAPE ROOM AS AN ACTIVE METHODOLOGY FOR TRAINING SKILLS AND COMPETENCIES IN HEALTH STUDENTS: A LITERATURE REVIEW

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Aim: This study aimed to evaluate the use of the Escape Room active methodology as an interprofessional educational tool to develop skills and competencies in health science students.

Method: A qualitative literature review was conducted to assess the use of Escape Rooms as educational games. Articles indexed in PubMed, Scopus, Web of Science, Cochrane Library, and Google Scholar were included. The review covered articles in Portuguese and English (2020–2025), using descriptors such as interprofessional education, recreational games, gamification, health science students, and health education.

Results: Most studies identified teamwork as the main academic benefit, especially regarding knowledge sharing and the development of social and communication skills, which are essential for healthcare professionals. Another frequently reported effect was the stimulation of quick cognitive and psychomotor decision-making, particularly under time constraints during the game. Participants gave positive feedback, reporting that they applied theoretical knowledge, learned new content, and practiced technical skills during the Escape Room.

Conclusion: These educational games enhance content learning, teamwork, and mutual respect through challenges, clues, and puzzles. Therefore, applying this innovative and enjoyable tool—already explored in medicine, nursing, pharmacy, and dentistry—may be revolutionary in fostering student engagement and training competent health professionals.

ESTHETIC TREATMENT ALTERNATIVE FOR MAXILLARY CENTRAL INCISORS WITH CERVICAL LESIONS CAUSED BY MIH

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Aim: The aim of this study is to report a minimally invasive restorative clinical approach in upper central incisors with cervical lesions caused by molar-incisor hypomineralization (MIH), focusing on achieving aesthetic and functional rehabilitation while preserving tooth structure.

Method: The clinical case involved a 24-year-old female patient presenting with brownish discoloration in teeth #11 and #21, associated with MIH. The treatment was performed in two stages: (1) combined dental bleaching, including one in-office session using 35% hydrogen peroxide (Whiteness HP Blue, FGM) and a 21-day at-home protocol with 16% carbamide peroxide (Whiteness Perfect, FGM), associated with the use of a desensitizing toothpaste (Sensodyne Clinical Repair) starting 15 days before and throughout the whitening treatment; (2) direct composite resin restoration performed 14 days after the end of bleaching. Relative isolation was achieved with Optradam Plus (Ivoclar Vivadent), gingival retraction was performed using retraction cords and PTFE tape, and a layering technique was applied using Easy Match (shade Bleaching, 3M Solventon) and Palfique WE resins.

Results: Treatment effectiveness was evaluated through photographic documentation before and after the procedure, with qualitative analysis by calibrated examiners.

Conclusion: The case demonstrated significant aesthetic improvement, with satisfactory clinical results and preservation of healthy dental structures.

EVALUATION OF BLACK PIGMENT BACTERIA IN THE APICAL THIRD OF CRYOPULVERIZED TEETH WITH ENDODONTIC FAILURE

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Aim: This study aimed to evaluate the presence of black-pigmented Gram-negative anaerobic bacteria, *Porphyromonas gingivalis* and *Porphyromonas endodontalis*, in the apical third of teeth with failed endodontic treatment, using cryogenic grinding followed by molecular analysis via nested-PCR.

Method: Ten teeth were extracted due to clinical and radiographic evidence of primary endodontic treatment failure, along with the impossibility of prosthetic rehabilitation. Each apical fragment was cryogenically pulverized using a Freezer Mill 6750 (Spex, Metuchen, NJ, USA). DNA was extracted from the resulting root powder using the DNeasy PowerSoil Pro Kit (Qiagen, Valencia, CA, USA), following the manufacturer's instructions. Microbiological identification was performed via nested-PCR using species-specific primers for *P. gingivalis* and *P. endodontalis*. Statistical analysis included Fisher's exact test, Spearman's correlation, Shapiro-Wilk test, and Student's t-test.

Results: *P. gingivalis* was detected in 60% of the samples, while *P. endodontalis* was identified in 30%. Poor-quality root canal obturation was significantly associated with a higher microbial presence and with clinical signs such as tenderness to percussion ($p < 0.05$).

Conclusion: In conclusion, *P. gingivalis* and *P. endodontalis* were frequently found in the apical third of teeth with endodontic failure. Their presence appears to be strongly associated with inadequate root canal fillings, which likely promote microbial persistence and the development of symptoms. (Supported by FAPESP 15/23479-5, 21/13871-6, 23/10620-8; CNPq 303852/2019-4, 421801/21-2; and CAPES 001).

EVALUATION OF PH AND BUFFERING CAPACITY OF SUGAR-SWEETENED BEVERAGES MARKETING TO CHILDREN

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Aim: Frequent consumption of sugar-sweetened beverages marketed to children has been associated with negative impacts on oral health, particularly when these beverages exhibit low pH and limited buffering capacity. This study aimed to evaluate the initial pH and buffering capacity of sugar-sweetened beverages targeted at children.

Method: The following beverages were analyzed: Vigor Vig (VV), Fruit Shoot (FS), Toddynho Levinho (TL), Toddynho Tradicional (TT), Vigor Minions Fermented Milk (VM), and SpongeBob Fermented Milk (BE). Initial pH was determined using a previously calibrated pH electrode (standards pH 4.0 and 7.0). Buffering capacity was assessed by the incremental addition of 0.25 mL of 1 M NaOH to 50 mL of each beverage until reaching pH 7.0. The lowest pH was found in FS (3.14), while the highest was observed in TL (6.69). The chocolate milk drinks TT and TL demonstrated low buffering capacity, reaching neutral pH with only 0.25 mL of NaOH. In contrast, the fermented milk beverages BE (pH 3.69) and VM (pH 3.84) required 5.5 mL and 4.0 mL of NaOH, respectively.

Results: The higher amount of neutralized H^+ ions in the fermented milk beverages indicates greater resistance to pH change, likely due to the presence of buffering agents such as proteins and phosphates. Beverages containing citric acid also showed low pH values but were neutralized more quickly.

Conclusion: The findings suggest that beverages with greater buffering capacity can maintain an acidic pH for longer periods, hindering salivary neutralization and increasing the risk of dental demineralization, particularly in children who are frequently exposed to these sweetened beverages.

EVALUATION OF TEMPERATURE AND VOLUMETRIC LOSS DURING FIBERGLASS POST REMOVAL WITH GUIDED ENDODONTICS

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Aim: This study aims to evaluate, in vitro, the temperature generated during the removal of fiberglass posts using different burs, with the assistance of endodontic guides and ultrasound. Additionally, we seek to analyze volumetric changes and potential deviations through computed tomography, both before and after the fiberglass post wear.

Method: Printed teeth were endodontically prepared and cemented with fiberglass posts. Samples were proportionally divided: bur 1.3; bur 1.0; ultrasonic insert with diamond-tipped probe. Teeth were affixed to pre-planned acrylic models, each with its respective endodontic guides for full access to the posts. Temperature during wear was measured with a digital thermometer and ITK-SNAP software was utilized for volumetric loss analysis through initial and final tomographic images. Scanning electron microscopy/energy-dispersive X-ray spectroscopy analyses were performed on the burs.

Results: It was observed that the 1.0 bur exhibited a lower temperature during fiberglass post removal, followed by the 1.3 bur and the ultrasonic insert, which showed higher values, even with irrigation. While there was no statistical difference between operators regarding wear volume, the instruments demonstrated significant differences among themselves, with lower wear for the 1.0 bur, followed by the 1.3 burs and the ultrasonic insert.

Conclusion: The diameters and types of burs/inserts directly influence both the temperature and volumetric wear of fiberglass posts. It is also concluded that operator experience varies, especially when using the ultrasonic insert; however, in terms of volumetric wear, no significant difference was observed.

EVALUATION OF THE ANTIMICROBIAL ACTIVITY OF ESSENTIAL OILS ON MICROORGANISMS ASSOCIATED WITH ORAL CAVITY INFECTIONS

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Aim: To evaluate the antimicrobial activity of essential oils against microorganisms in the oral cavity.

Method: By assessed determining of the Minimum Inhibitory Concentration (MIC), the activity of citral/limonene/Melaleuca alternifolia essential oil/Terpinel 4-ol was developed according to CLSI guidelines M27-A4 and M11(9th ed.) The MIC for *Candida albicans* ATCC10231 was estimated by microdilution. Thus, an inoculum of 500-2500 cells/ml was exposed to concentrations of 500µg/ml-0.24 µg/ml of the compounds for 24 hours at 37°C. The Minimum Fungicidal Concentration (MFC) on Sabouraud agar was determined from the MIC. For *Porphyromonas gingivalis* (Pg) (33277/W83/381), the MIC was analyzed for the absence of colony growth. Compound stocks at 40% concentration in DMSO (0.05%)+Tween 20 (0.32 µM) were mixed with supplemented Brucella agar (0.085 µg/ml-4.18 µg/ml). Strains were subsequently inoculated and exposed to anaerobic conditions for 7 days at 37°C. *Bacteroides fragilis* ATCC25285 and tetracycline 10,000µg/ml(0.25 µg/ml-8 µg/ml) were used as controls.

Results: The limonene fraction showed inhibition of *C. albicans* (MIC=62.5µg/ml). Commercial limonene (500µg/ml) showed moderate antifungal activity. In Pg, growth inhibition of 33277/W83/381 was observed when exposed to commercial citral (4.18µg/ml) and inhibition of strains W83 and 33277 with an MIC of 2.09 µg/ml.

Conclusion: Citral had an antimicrobial effect against Pg, and the limonene fraction was effective as an antimicrobial against *C. albicans*. This study provides groundwork for the development of dental devices functionalized with natural substances.

OF THE EFFECT OF CISPLATIN CHEMORESISTANCE ON THE EXPRESSION OF STIP1, HSP47 AND HSF1 IN OSCC

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Aim: Based on the hypothesis that elevated levels of stress-related proteins contribute to cisplatin chemoresistance in OSCC cells, this study aimed to evaluate the impact of cisplatin-induced resistance on the expression of STIP1, HSP47, and HSF1 in OSCC.

Method: Cisplatin-resistant OSCC lines (SCC9 and HSC3) were generated using a modified protocol from Barr et al. (2013). Resistance levels were assessed using the Promega® CellTiter-Glo 3D Assay. EMT markers were analyzed by RT-qPCR, western blot, and immunofluorescence (Ferreira do Carmo et al., 2020). Migration and invasion were tested using transwell assays, with Myogel-coated membranes for invasion (Dourado et al., 2023). STIP1, HSP47, HSF1 expression and production were tested via RT-qPCR and western blotting.

Results: Post-chemoresistance, IC50 values were tested. SCC-9R cells required 2.8x more cisplatin than SCC-9P, and HSC-3R cells needed 3.55x more than HSC-3P. Chemoresistance was linked to EMT, with SCC-9R cells lacking E-cadherin and increasing vimentin, SNAIL1, TWIST1 and spindle morphology. HSC-3R cells also exhibited EMT traits, though milder, and reduced proliferation. Both resistant lines showed greater migration and invasion. SCC-9R cells showed reduced STIP1, HSP47, and HSF1, while upregulation in HSC-3R cells, confirmed by RT-qPCR.

Conclusion: These findings link cisplatin resistance in OSCC to EMT and altered stress protein expression in HSC-3R cells, supporting their role in poor response, tumor aggressiveness, and prognosis. The divergent SCC-9R profile suggests cell-specific mechanisms. The results reinforce the relevance of exploring stress proteins to improve OSCC treatment.

EVALUATION OF THE EFFECT OF OZONE THERAPY ON BONE REPAIR IN OSTEOPOROTIC RATS TREATED WITH ZOLENDRONATE

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Aim: The aim of this study was to analyze the potential of ozone therapy for bone repair in osteoporotic rats treated or not with zoledronate.

Method: To this end, 44 female Wistar rats underwent bilateral ovariectomy (Ovx) at 6 months of age. After this period, the animals were divided into four experimental groups: group 1, saline solution (SAL); group 2, saline solution + zoledronate (SAL+ZOL); group 3, saline solution + ozone (SAL+OZN) and group 4, zoledronate + ozone (ZOL+OZN). After the third month of ovariectomy, the drug protocol was started in the animals in the groups (ZOL+SAL, ZOL+OZN), with zoledronate 100 µg/Kg/28 days. In the sixth month of the study, a femur from each animal was accessed for fracture simulation and fixation with 1.5 mm miniplates. Ozone therapy was started immediately after the surgical procedure at a concentration of 0.7mg/kg every two days until the end of the experiment (SAL+OZN and ZOL+OZN groups). After 30 days of fracture simulations, the animals in each group were euthanized for histometric analysis of the area of newly formed bone and histological analysis to count osteocytes and empty osteoplasts.

Results: The results showed that the group treated with zoledronic acid and ozone (ZOL+OZN) had a higher percentage of bone volume and osteocytes when compared to the other groups.

Conclusion: It is concluded that ozone shows synergistic behavior when used in the treatment of rats with low bone density and treated with zoledronic acid.

EVALUATION OF THE EFFECTIVENESS OF CLEANING PROCEDURES FOR LOCAL ANAESTHETIC CARTRIDGES: A PILOT STUDY

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Aim: To evaluate the efficacy of different cleaning methods applied to local anaesthetic cartridges.

Method: This was a pilot, experimental, in vitro study conducted in a controlled environment. Local anaesthetic cartridges made from different materials (glass and plastic), manufacturers, and storage conditions were analysed using two cleaning methods: friction and immersion. The disinfecting agents tested included dry sterile gauze, 0.9% sodium chloride solution (NaCl), 2% chlorhexidine, 70% ethyl alcohol, and iodised alcohol (containing 0.1% iodine and 50% alcohol). The cartridges were previously contaminated with *Staphylococcus aureus*, and the antimicrobial efficacy of the procedures was assessed by counting colony-forming units (CFUs) in Brain Heart Infusion (BHI) medium. Statistical analyses were performed using GraphPad software (Kruskal-Wallis and Dunn's test), with a significance level set at 5% ($p < 0.05$).

Results: The results demonstrated variable efficacy depending on the agent used. The positive control group exhibited uncountable microbial growth. Friction with dry gauze and cleaning with 0.9% NaCl solution proved ineffective, with a significant number of CFUs observed. In contrast, immersion in 2% chlorhexidine, 70% alcohol, and iodised alcohol for 5 and 10 minutes resulted in complete elimination of microorganisms. Chlorhexidine also showed favourable results even with shorter exposure times.

Conclusion: Therefore, immersion in 2% chlorhexidine, 70% alcohol, and iodised alcohol proved highly effective for decontaminating anaesthetic cartridges, highlighting the importance of selecting an appropriate cleaning protocol.

EVALUATION OF THE EFFECTIVENESS OF THE USE OF INTERMEDIATE MEDICATION IN THE NON-INSTRUMENTAL TECHNIQUE: CASE REPORT

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Aim: Pulpectomy is the most common treatment for irreversible pulpitis and pulp necrosis in deciduous teeth, although it is challenging to perform due to the complex anatomy and management of children. Non-instrumental endodontic treatment (NIET) is an alternative, conservative, simple, fast and affordable technique that aims to control infection and promote tissue repair. The technique does not involve root instrumentation and antibiotic pastes such as CTZ (chloramphenicol, tetracycline, zinc oxide) and modified 3Mix (clindamycin, metronidazole and ciprofloxacin) are indicated. However, many patients seek out emergency services for pain relief and infection control, and urgent treatment is carried out, with coronal opening and the use of standby medication for subsequent endodontic treatment. The aim of this case report was to evaluate the influence of the use of holding medication on the clinical and radiographic success of lower deciduous second molars submitted to NIET with different antibiotic pastes (3Mix-MP and CTZ) in two patients.

Method: The patients (8 years old/female and 2 years old/male) were seen in emergency appointments at FOP- Unicamp, in which coronal openings were made and formocresol was placed as a waiting medication, followed by provisional restoration. Subsequently, the first patient received NIET with 3Mix-MP and the second with CTZ.

Results: The patients were followed up clinically and radiographically for 3 months.

Conclusion: Effective infection and pain control was observed, demonstrating the success of the technique.

EVALUATION OF THE EFFECTIVENESS OF TWO DISINFECTION PROTOCOLS FOR THE ENDODONTIC OPERATIVE FIELD

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Aim: Disinfection of the operative field before endodontic procedures is of great importance to ensure treatment success and is also a prerequisite in microbiological research to avoid contamination that could compromise microbial analysis. This study aimed to evaluate the effectiveness of two disinfection protocols for the endodontic operative field.

Method: Samples were collected from 20 patients at two time points: after rubber dam isolation (C1) and after disinfection (C2). The protocols tested were: (a) 30% H₂O₂ followed by 2.5% NaOCl, neutralized with 5% sodium thiosulfate (NaOCl group, n=10); and (b) 2% chlorhexidine gel, followed by neutralizers (0.5% Tween 80 and 0.07% soy lecithin) (CHX group, n=10). Microbial culture and nested-PCR using specific primers for *Streptococcus mutans*, *Enterococcus faecalis*, and *Candida albicans* were performed.

Results: Microbial growth occurred in 80% (16/20) of the C1 cultures and in none of the C2 cultures. With regard to molecular analysis, in the NaOCl group, *S. mutans* (1/10) and *C. albicans* (1/10) were detected before disinfection, and *C. albicans* (2/10) after. In the CHX group, *E. faecalis* (4/10) and *C. albicans* (2/10) were detected in equal numbers before and after disinfection.

Conclusion: In conclusion, both protocols eliminated viable microorganisms but did not prevent molecular detection of microbial DNA, indicating a need for improved strategies. (Supported by FAPESP 2015/23479-5, 2021/13871-6; CNPq 303852/2019-4, 421801/2021-2, 123157/2023-4, 123513/2024-3 & CAPES 001)

EVALUATION OF THE PHYSICAL PROPERTIES OF EXPERIMENTAL INFILTRANT CONTAINING AMORPHOUS CALCIUM PHOSPHATE AND TIN FLUORIDE

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Aim: To evaluate the influence of incorporating different concentrations (0%, 1%, 1.5% and 2%) of amorphous calcium phosphate (ACP) and tin fluoride (SnF₂) on the physical properties of experimental resin infiltrants.

Method: For the degree of conversion (n=5), measurements were performed before and after photoactivation of the samples, using a Fourier transform infrared spectrometer (FTIR-ATR). For color stability and surface roughness, samples of human teeth with incipient caries lesions were infiltrated, immersed in coffee solution for 7 days and polished after staining. Average roughness values were obtained for infiltrated, stained and polished enamel. For the analysis of penetration depth (n=5), blocks of teeth with incipient caries lesions were stained, infiltrated, cut into slices, polished and taken to the confocal fluorescence microscope to obtain qualitative images.

Results: The experimental control group had the highest degree of conversion. Roughness was lower in polished enamel when compared to infiltrated and stained enamel. All groups reduced ΔWID. SnF₂ groups had higher ΔE00 for T1-T2. ΔE00 was the same for all groups at T2-T3. SnF₂ groups had increased ΔL at T2-T3 compared to ACP groups. SnF₂ groups had higher Δa at T1-T2. 1.5% SnF₂ achieved higher Δb at T1-T2.

Conclusion: The incorporation of different concentrations of ACP and SnF₂ particles in the experimental infiltrant was able to influence all the physical properties tested.

EVALUATION OF THE TOXICITY OF TOPICAL FORMULATIONS FOR TEETHING RELIEF IN INFANTS USING THE HET-CAM MODEL

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Aim: The aim of this study was to evaluate the toxicity of topical formulations intended for teething relief in infants using the alternative model of the chorioallantoic membrane (CAM) of the chicken embryo.

Method: Ethical approval was not required, as this is an internationally recognized alternative method to animal testing. The toxicity of the commercial formulations Nenê Dent®, Gengi Baby®, and Ad.Muc® Kids was assessed, as well as that of the model controls (positive – sodium hydroxide; negative – saline solution), using DB-ALM Protocol No. 96 – “Hen’s Egg Test on the Chorioallantoic Membrane” (HET-CAM), developed by the European Centre for the Validation of Alternative Methods (ECVAM). The eggs were weighed, sanitized with 70% alcohol, and incubated at 37.5 °C with a relative humidity of 55–65% for 10 days. On the tenth day, candling was performed, followed by egg opening, CAM exposure, and treatment application. Pre-treatment and post-treatment images were obtained for each egg. According to the protocol used, the following irritant effects were visually scored: hemorrhage, lysis, and coagulation. At the end, a final score was obtained and used to classify each tested substance.

Results: As for the results, the negative control was classified as non-irritant, while the positive control was classified as severely irritant. Although the commercial formulations showed different final scores, all were classified as moderately irritant.

Conclusion: It is concluded that the tested formulations caused moderate irritation in the HET-CAM model and may cause irritation to the oral mucosa of infants, depending on the form and duration of application.

EVALUATION OF THIRD MOLARS ON PANORAMIC IMAGES BY ARTIFICIAL INTELLIGENCE CHATBOTS: PROMISE OR LIMITATION?

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Aim: This study evaluated the performance of two AI chatbot assistants in classifying the position of third molars on panoramic radiographs.

Method: A total of 114 third molars were classified based on four position parameters by three human examiners and two AI chatbot assistants: ChatGPT-4 and Microsoft Copilot. Keywords generated by the AI chatbot assistants were scored and compared to those provided by the examiners using Wilcoxon test ($\alpha=0.05$).

Results: Both AI chatbot assistants achieved low scores for the evaluated parameters, with Microsoft Copilot performing significantly better in assessing the space between the lower second molar and the mandibular ramus ($p<0.05$).

Conclusion: The assessed AI chatbot assistants demonstrated limited accuracy in classifying the position of third molar positions on panoramic radiographs. Therefore, they should not be recommended for clinical use at this stage.

EXCISION OF GIGANTIFORM PERIPHERAL OSSIFYING FIBROMA: CASE REPORT

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Aim: Peripheral ossifying fibroma (POF) is a slow-growing pathology of traumatic origin, with various clinical forms described in the literature. It can present aggressive behavior, leading to tooth migration and aesthetic-functional deformities. This study reports a case of POF that reached large proportions due to its long evolution, highlighting the importance of early diagnosis.

Method: A 63-year-old male patient sought medical care complaining of increased facial volume for approximately 5 years, with mild painful symptoms. Clinically, a nodular, pedunculated lesion was observed, fixed to the left mandibular ridge, measuring approximately 7 cm, with a red-ulcerated color and firm consistency. Radiographically, radiopaque areas surrounded by a radiolucent halo were noted, suggesting calcifications in fibrous tissue. Treatment consisted of excision of the lesion and removal of the etiological agents.

Results: In the immediate postoperative period, there was complete resolution of the aesthetic-functional deformity.

Conclusion: Thus, the study illustrates the different clinical presentations of FOP and highlights the diagnostic difficulty faced by patients, despite it being an entity widely described in the literature. In addition, it reinforces the disabling potential of this pathology, even though it is a benign lesion.

EXPERIMENTAL PAIN RESEARCH AS AN EFFECTIVE ACTIVE LEARNING METHOD FOR PAIN EDUCATION

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Aim: This study evaluated the perception of undergraduate dental students regarding the effectiveness of a practical learning activity involving experimental pain research.

Method: Seventy-six first-semester students participated in a 40-minute activity consisting of four stages: demonstration, baseline assessment, intervention, and post-intervention. Pain and unpleasantness intensities were measured using mechanical stimuli applied to the face and forearm, assessed with a 0-100 mm visual analog scale. The intervention involved visual and verbal cues suggesting analgesia on one side and hyperalgesia on the other, followed by a 10-minute application of topical anesthetic cream on both sides. Students completed a questionnaire rating the activities effectiveness on a 0-10 numeric rating scale and took a theoretical exam.

Results: ANOVA, Wilcoxon test and Spearman correlation were applied to data ($p < 0.050$). The mean (SD) effectiveness rating for facilitating learning was 8.75 (1.26), and for increasing interest and curiosity in the subject, it was 8.89 (1.18). There was no significant relationship between students' perceptions and their theoretical exam performance ($p > 0.050$). There was a reduction in pain and unpleasantness with the suggestion of analgesia, -0.70 (14.70) and -2.94 (16.23), and an increase in pain and unpleasantness with the suggestion of hyperalgesia, 5.85 (12.85) and 1.70 (14.74) ($p < 0.001$).

Conclusion: It is possible to replicate results from experimental pain research in a teaching environment. Thus, incorporating experiments as a teaching method is valuable and effective for pain education.

EXPOSURE TIME AND AEC AFFECT THE QUALITY OF RADIOGRAPHS OBTAINED WITH A PORTABLE X-RAY DEVICE

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Aim: To evaluate the influence of exposure time and automatic exposure compensation (AEC) on the image quality of digital radiographs obtained with a portable X-ray device compared to a wall-mounted unit.

Method: To assess brightness, noise, and uniformity, radiographs of an acrylic block were obtained using a size-2 photostimulable phosphor (PSP) plate (VistaScan system) and 2 X-ray devices: a Focus wall-mounted unit (60 kVp, 7 mA) with 8 exposure times (0.063-0.320 s) and an Eagle portable unit (60 kVp, 2.5 mA) with 8 exposure times (0.180-0.900 s). For contrast evaluation, radiographs of an aluminum step-wedge were obtained. Six radiographs were acquired per exposure time per device (48 per device) for each phantom. Images were exported with and without AEC. Image quality was assessed by analyzing gray values.

Results: Image quality parameters were significantly affected by the X-ray device, AEC condition, and exposure time ($p < 0.05$). The portable unit showed higher brightness than the wall-mounted unit when AEC was off, and at exposure times 4 and 5 with AEC ($p < 0.05$). Both devices had higher brightness without AEC and reduced brightness with longer exposures ($p < 0.05$). Noise was higher for the portable unit, with AEC affecting noise differently at shorter and longer exposures ($p < 0.05$). The portable unit had lower contrast, but AEC improved contrast for both devices ($p < 0.05$).

Conclusion: Exposure time and AEC significantly impact image quality. Despite limitations in contrast and noise, optimized exposure times and AEC use can enhance image quality, allowing the use of portable devices when fix units are unavailable.

EXPRESSION OF STREPTOCOCCUS MUTANS GENES ASSOCIATED WITH CELL WALL AND GLUCAN METABOLISM

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Aim: Streptococcus mutans is an oral bacterium associated with dental caries occurrence, whose virulence is related to its cellular morphology and activity. The study aimed to evaluate the gene expression associated with the metabolism of the cell wall and glucan synthesis in different strains subjected to distinct carbohydrate exposure.

Method: To achieve this purpose, the parental strain S. mutans UA159 and the strains with deletion of genes associated with glucans synthesis (Δ gtfB, Δ gtfC, Δ gtfBC), lipoteichoic acids metabolism (Δ dlta, Δ dltd) and cytoplasmic membrane remodeling (Δ lytT, Δ lytS) were grown until the beginning of the log growth phase (37°C; 10%CO₂), at this point, sucrose or a glucose pulse was performed (4 h). Next, the RNA was isolated from the bacterial cell samples, followed by the synthesis of cDNA and reactions quantitative PCR to evaluate two specific genes (gtfB and murA - peptidoglycan synthesis) and the normalizing gene (16S rRNA).

Results: The gene expression data showed that there was a higher expression of the 16S rRNA gene for strains Δ dlta - glucose and Δ dltd - sucrose, and, despite being significantly less than both strains, there is also a significant value for strain Δ gtfC - sucrose. Thus, the 16S rRNA gene cannot be used as a normalizer. For the genes gtfB and murA, there was a greater expression for the strains Δ gtfC - sucrose.

Conclusion: Therefore, the Δ gtfC strain with the sucrose pulse was the strain that had higher expression of three genes. Still, it was not possible to identify why that happened, and more analyses are necessary to elucidate this bacteria behavior.

EXTENSION: WORK AND INTERACTION IN ORAL HEALTH PRACTICES

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Aim: Describe how this experience took place, point out its results and identify its potential and challenges.

Method: This is an experience report of a research and extension project in the field of oral health education, carried out in a private school in Piracicaba.

Results: In March and April 2025, the project enabled the participation of 25 students from the Piracicaba School of Dentistry - UNICAMP working in a private school with 98 schoolchildren, aged 6 to 14 years. Proactive and preventive oral health measures were shared, such as a lecture on oral health and oral hygiene guidelines; clinical tables; posters; and informative leaflets, accessible and open manner to dialogue with schoolchildren. Thus, the consequences of not following these guidelines can cause harm to the oral cavity, such as caries, periodontal diseases, etc. To encourage the practice of these behaviors, oral hygiene kits were delivered, with brushing and evidence of dental biofilm supervised by students. Health education is seen as a complex action, full of ambiguous challenges, which occurs daily at the level of social relations between students driven by scientific knowledge and the community through common sense and traditional knowledge.

Conclusion: The experience was successful, as it generates integration between the university and the community. It encourages schoolchildren to make oral hygiene practices a daily habit that is essential for their overall health and spreads knowledge to all involved. The implementation of this project contributed to significant changes in the students' educational process and path.

FAMILY STRUCTURE AND SOCIAL VULNERABILITY AS RISK FACTORS FOR TRAUMATIC DENTAL INJURIES IN CHILDREN AND ADOLESCENTS

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Aim: Was investigated the associations between family structure and social vulnerability with Traumatic Dental Injuries (TDIs) in children and adolescents.

Method: An electronic search was conducted in seven databases (PubMed, Scopus, LILACS, Embase, Web of Science, ProQuest, and Google Scholar) to retrieve observational studies that evaluated the prevalence of Traumatic Dental Injuries (TDIs). The risk of bias was assessed using the JBI Critical Appraisal Tools. Meta-analyses were also conducted using odds ratios (ORs) and 95% confidence intervals (CIs). The certainty of evidence was evaluated using the GRADE approach. Out of 7,424 records, seventeen articles were included (n=18,806 children and adolescents aged between 0 and 19 years). Only two studies had a low risk of bias.

Results: Children and adolescents from nonnuclear families were more likely to suffer from Traumatic Dental Injuries (TDIs) (OR: 1.39; 95% CI: 1.17; 1.66). On the other hand, the level of social vulnerability did not show a positive association with Traumatic Dental Injuries (TDIs) (OR -1.21; 95% CI: 1.00; 1.47). The GRADE approach assessed the certainty of evidence as low

Conclusion: Despite the uncertainty of the evidence, children and adolescents from nonnuclear families are more likely to have Traumatic Dental Injuries (TDIs) than are those from nuclear families. On the other hand, social vulnerability does not seem to be associated with episodes of Traumatic Dental Injuries (TDIs) in children and adolescents. Through knowledge of the risk factors for Traumatic Dental Injuries (TDIs), it is possible to develop public policies for their prevention.

FIXED BRACES: BENEFITS AND ESSENTIAL CARE

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Aim: To discuss orthodontic appliances, focusing on fixed appliances: benefits and essential care.

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

Results: 372 articles were selected, and after the criteria, 6 articles remained. Preventive and interceptive orthodontics takes care of the prevention and interception of malocclusions, preventing their occurrence, reducing their severity or correcting malocclusions while there is facial growth. The success of any orthodontic treatment begins with a good diagnosis and identification of the factors related to that malocclusion. It is necessary to know the ways, means and paths to intervene in the problem. The success of the treatment depends on the professional's knowledge: their diagnosis, case planning and execution of actions. More accurate and long-lasting results for complex cases are a benefit of fixed braces. For those who wear fixed braces, increased oral hygiene, a specific diet and regular visits to the orthodontist are crucial. Oral hygiene should include the use of special toothbrushes and dental floss, as well as mouthwash. The diet should avoid hard, sticky and crunchy foods, which can damage the braces. Regular appointments allow for adjustments and checks of the braces.

Conclusion: With the right care, the treatment offers long-term benefits, such as a healthy, well-aligned smile. With the right care, the treatment offers long-term benefits, such as a healthy, well-aligned smile.

FLUCTUATION OF CONDITIONED PAIN MODULATION AND ITS IMPACT ON POSTOPERATIVE PAIN SEVERITY IN THE TRIGEMINAL REGION

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Aim: This study evaluated the fluctuation of conditioned pain modulation (CPM) following acute inflammatory processes in the trigeminal region caused by third molar extractions and its impact on postoperative pain severity.

Method: Eighty-four healthy participants underwent bilateral third molar extraction. Conditioned pain modulation was assessed one week before and five days after surgery. Pain and inflammation control was managed through a protocol using analgesics and non-steroidal anti-inflammatory drugs. The test stimulus was the pressure pain threshold applied to the temporal (trigeminal) and thenar (spinal) muscles on the dominant side, and the conditioning stimulus was immersion of the non-dominant hand in a bucket of ice water. Conditioned pain modulation was classified as inhibitory or non-inhibitory for each participant at each assessment. McNemar and T-tests were applied to the data ($p < 0.050$).

Results: The proportion of inhibitors in the trigeminal test significantly decreased after the surgical procedure (from 45.2% to 31%, $p = 0.036$). In contrast, there was no significant reduction in the proportion of inhibitors in the spinal test (from 62% to 52%, $p = 0.185$). Among baseline inhibitors for the trigeminal region, the maximum pain intensity was higher in those who did not maintain an inhibitory profile after the procedure, with a mean (standard deviation - SD) of 6.5 (2.7), compared to those who remained inhibitors, with a mean (SD) of 4 (2.4) ($p = 0.017$).

Conclusion: The ability to sustain an inhibitory profile of trigeminal conditioned pain modulation after the surgical procedure is associated with lower severity of orofacial postoperative pain.

FOP STUDENTS' KNOWLEDGE ABOUT THE ROLE OF THE DENTIST IN ADDRESSING VIOLENCE AGAINST CHILDREN

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Aim: The objective of this study is to evaluate the knowledge of dental students at the Piracicaba Dental School (UNICAMP) about domestic violence against children.

Method: This descriptive cross-sectional study, in an online format, and the studied population was composed of all students actively enrolled in the undergraduate dental program at FOP-UNICAMP. The questionnaires in Google Forms format were sent to dental students at FOP-UNICAMP. After 3 months, the questionnaire was closed and the data were tabulated and organized in Excel spreadsheets to carry out the descriptive analysis with the preparation of tables to characterize the sample and profile of the participants.

Results: In axis 1, the descriptive analysis of the data shows that undergraduate students at FOP/UNICAMP have a high level of knowledge on the subject, since they answered most of the questions correctly. In axis 2, we concluded that the students do not have a solid knowledge of what "compulsory notification" would be, nor about the conduct of the Guardianship Council in cases of violence against children. In axis 3, through descriptive analysis, we can see that students do not feel prepared/capable of dealing with cases of violence against children, since there is a lack of technical and scientific clarification during the undergraduate period.

Conclusion: It is concluded that this study confirms that although dentists are among the professionals most likely to encounter oral aspects of child abuse, they do not feel prepared to make an appropriate referral, mainly due to a lack of technical and scientific clarification.

FORMANDO SORRISOS PROJECT: EXPERIENCE REPORT OF A HYBRID AND INTERINSTITUTIONAL ORAL HEALTH EXTENSION INITIATIVE

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Aim: To report the experience of the Formando Sorrisos project as a strategy to promote equity and oral health education within the university setting.

Method: Active since 2015, the project operates through two main approaches. In the in-person component, weekly dental care is provided to students at the Federal University of Rio Grande do Norte who are classified as socioeconomically vulnerable. These sessions are held on Friday afternoons, with support from the Offices of Extension and Student Affairs. The team includes dental students assigned to roles such as patient intake, clinical care, health education, and coordination, all under the supervision of licensed dentists with postgraduate training. The virtual component involves continuous educational actions via social media, with a focus on self-care, oral health, and responding to public inquiries. Volunteers from other academic institutions participate in this virtual component by contributing to the planning of digital content, assisting with public inquiries, and joining weekly meetings to discuss clinical cases.

Results: The project demonstrates sustained activity, serving over 30 students per semester in-person and performing approximately 80 procedures weekly. The project's Instagram profile has 1,680 followers, with regular content updates and four weekly clinical case discussions involving an interinstitutional team.

Conclusion: The hybrid and collaborative approach of the project enhances access to oral healthcare, promotes health education, and serves as a relevant training environment for students from multiple institutions.

FORMATION OF CaF₂-LIKE PRODUCTS ON CARIOUS ENAMEL BY ACIDULATED PHOSPHATE FLUORIDE AND ITS EFFECT ON REMINERALIZATION

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Aim: Most (90%) CaF₂-like reaction products formed on carious dental enamel by professional fluoride application (PFA) dissolve in saliva within the first 48 hours post-application. We hypothesized that the CaF₂-like products released during the initial hours would enhance the remineralization of existing carious lesions.

Method: To test this, we conducted an in vitro study using a pH-cycling model (Re>Des). Carious bovine enamel slabs (n=12 per group) were treated with either an acidulated phosphate fluoride solution (APF, 12,300 ppm F, pH=4.5) or a placebo solution (P). After treatment, the slabs were immersed in artificial saliva to replicate the dissolution of CaF₂-like products in the mouth for 0, 24, and 48 hours, resulting in the following groups: 1) APF-0h; 2) APF-24h; 3) APF-48h; 4) P-0h; 5) P-24h; 6) P-48h. Following saliva immersion, the slabs underwent pH cycling. After this process, we analyzed the concentration of CaF₂-like products formed (groups 1 and 4) and retained (remaining groups). Additionally, the area of caries lesion change was evaluated by microhardness ($\Delta\Delta S$).

Results: The results (mean $\pm$ SD) showed a decrease in the concentration of CaF₂-like products: (1) 77.6 $\pm$ 52; (2) 3.3 $\pm$ 3; (3) 5.9 $\pm$ 1.8; (4) 0.6 $\pm$ 0.4; (5) 1 $\pm$ 0.5; and (6) 0.3 $\pm$ 0.1, according to immersion time and treatment. Conversely, $\Delta\Delta S$ values increased as follows: (1) -6128.3 $\pm$ 2571.8; (2) -2693.6 $\pm$ 4322.4; (3) -1180.9 $\pm$ 1370.7; (4) 1497.0 $\pm$ 5100.4; (5) 277.9 $\pm$ 2345.7; and (6) 479.7 $\pm$ 3353.7.

Conclusion: These findings suggest that PFA has a therapeutic effect, primarily focusing on repairing early carious lesions rather than preventing the formation of new carious lesions.

FULL PULPOTOMY IN MATURE PERMANENT TEETH AND SYMPTOMATIC IRREVERSIBLE PULPITIS

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Aim: Pulpotomy is a vital pulp therapy used for immature permanent teeth with open apices and pulpal vitality. However, it has also been recommended for mature permanent teeth with symptomatic irreversible pulpitis due to advancements in the understanding of the condition's biology and the development of bioactive materials. Aim: To report the vital pulp treatment of a 37-year-old female patient who presented to the emergency department at the Piracicaba Dental School (FOP-Unicamp).

Method: She complained of spontaneous pain in teeth 15 and 16, with a diagnosis of irreversible pulpitis confirmed by sensitivity testing (EndoIce) and radiographic evaluation. After administering infiltrative anesthesia, caries removal, and pulp chamber roof removal, bleeding from exposed pulp tissue was confirmed in both teeth. The pulp chamber was irrigated with 2.5% sodium hypochlorite (NaOCl) and hemostasis was achieved using a cotton ball moistened with NaOCl over the canal orifices. Biodentine (Septodont Ltd., France) was placed in the pulp chamber and sealed with photopolymerizable glass ionomer cement, followed by a final restoration with composite resin. Follow-up clinical and radiographic evaluations after 6 months and 1 year showed effective coronal sealing, absence of symptoms, and no periapical lesions, indicating the success of the treatment.

Results:

Conclusion: Conclusion: Pulpotomy is a viable and promising alternative for treating symptomatic irreversible pulpitis in permanent teeth. (Supported by FAPESP 2015/23479-5, 2021/13871-6; CNPq 303852/2019-4, 421801/2021-2 & CAPES 001).

FUNCTIONAL ANALYSIS OF A CANDIDATE CIS-REGULATORY ELEMENT ASSOCIATED WITH COAGULATION DISORDERS AND COVID-19 SEVERITY

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Aim: This study investigated a candidate cis-regulatory genomic region located on chromosome 9 (chr9:133,278,350–133,278,900), which includes the genetic variants rs8176643 and rs532436, previously associated with plasma levels of von Willebrand factor (vWF)—a key protein in hemostasis and implicated in thrombotic events—and with COVID-19 severity.

Method: The region was cloned into a reporter vector for functional assessment in human hepatic cell lines HepG2 and LX-2.

Results: The luciferase assay revealed a significant reduction in reporter activity in LX-2 cells ($p = 0.0237$), suggesting a potential repressive function in this cellular context. In HepG2 cells, no significant effect was observed ($p = 0.2596$), indicating that the regulatory activity of the region may be cell-type dependent.

Conclusion: These findings contribute to the functional characterization of non-coding variants associated with gene regulation in thrombosis and COVID-19 severity.

GLUCANASES ENHANCE CHLORHEXIDINE EFFICACY AGAINST ENAMEL DEMINERALIZATION DURING CARIOGENIC BIOFILM FORMATION

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Aim: Chlorhexidine (CHX) is an effective antimicrobial agent for reducing biofilm formation but has limited efficacy in preventing dental caries. This study evaluated whether the degradation of exopolysaccharides (EPS) by glucanases during cariogenic biofilm formation could enhance the efficacy of CHX in reducing enamel demineralization.

Method: Streptococcus mutans UA159 biofilms (n=3) were grown for three days on enamel blocks in TYEB medium under sucrose exposure and assigned to the following groups: MD – biofilms incubated overnight in TYEB with mutanase and dextranase (0.125 mg/mL each), and treated with 0.9% NaCl; CHX 0.12% and CHX 0.012% – biofilms incubated overnight in TYEB and treated with CHX at respective concentrations; MD+CHX 0.012% – biofilms incubated in TYEB with enzymes, and treated with CHX 0.012%; NaCl (negative control) – biofilms incubated in TYEB and treated with 0.9% NaCl; NaF (demineralization control) – biofilms incubated in TYEB and treated with 0.05% NaF. Calcium released into the culture medium was quantified as a chemical indicator of enamel demineralization. Bacterial viability, biomass, and EPS content were also assessed. Data were analyzed using ANOVA, Tukey's test ($\alpha=5\%$).

Results: The cumulative calcium release (mean $\pm$ SD; mM; n=3; different letters indicate significant differences, $p<0.05$) for MD, CHX 0.12%, CHX 0.012%, MD+CHX 0.012%, NaCl, and NaF were: $3.3\pm0.4A$; $1.9\pm0.2B$; $3.1\pm0.2A$; $1.4\pm0.1B$; $9.2\pm0.6C$; and $1.8\pm0.2B$, respectively.

Conclusion: EPS degradation by MD enhanced the efficacy of CHX to reduce enamel demineralization during cariogenic biofilm formation.

HEATING OF IRRIGATION SOLUTIONS: A STRATEGY TO ENHANCE EFFICACY WITHOUT INCREASING CONCENTRATION

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Aim: To evaluate the free available chlorine (FAC) concentration, organic tissue dissolution, and smear layer removal by sodium hypochlorite (NaOCl) alone or combined with etidronic acid (HEDP) or tetrasodium EDTA (Na_4EDTA) at different temperatures.

Method: Mixtures of 1:1 of 5% NaOCl with distilled water (NaOCl alone), 18% HEDP, or 10% Na_4EDTA were heated to 25 °C, 37 °C, 48 °C, and 60 °C. The FAC was evaluated after 5, 10, 20, 30, 60, and 120 min. Bovine muscle tissue samples (n=10) were weighed before and after 5, 10, and 15 min of immersion in the solutions to assess organic matter dissolution. Bovine dentin blocks (n=10) were examined by scanning electron microscopy before and after immersion in the irrigants to determine the time required for smear layer removal. Saline solution was used as a control. Data were statistically analyzed ($\alpha < 0.01$).

Results: Heating NaOCl alone did not alter the FAC concentration. However, in the mixtures with chelators, FAC decreased with increasing temperature. Tissue dissolution improved with the heating of NaOCl and its mixture with HEDP ($P < 0.01$), but not with the Na_4EDTA mixture ($P > 0.01$). Smear layer removal was enhanced by heating NaOCl and became faster in the mixtures with chelators. Saline solution did not dissolve organic matter or remove the smear layer ($P > 0.01$).

Conclusion: Heating NaOCl alone and mixed with HEDP enhanced its efficacy of tissue dissolution and smear layer removal. However, the HEDP mixture requires frequent renewal. Heating the mixture with Na_4EDTA accelerated the loss of NaOCl FAC.

HEMODYNAMIC EFFECTS OF ALPRAZOLAM DURING THIRD MOLAR SURGERY: A RANDOMIZED TRIPLE-BLIND SPLIT-MOUTH TRIAL

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Aim: To compare hemodynamic responses during third molar surgeries performed under preoperative sedation with 1 mg alprazolam versus placebo, evaluating its effectiveness for anxiety control.

Method: A randomized, triple-blind, split-mouth clinical trial was conducted with nine volunteers undergoing bilateral third molar extraction in two sessions. Each patient received 1 mg alprazolam or placebo orally, in randomized order, 30 minutes prior to surgery. Anxiety was assessed using the Corah Dental Anxiety Scale, visual analog scale (VAS), and the Trigger Test. Psychomotor performance was measured at two points: baseline (on arrival) and 30 minutes after drug intake. Vital signs were recorded at seven surgical time points: baseline, preoperative, anesthesia, incision, extraction, suturing, immediate postoperative, and final recovery. Data were analyzed using two-way repeated measures ANOVA (vital signs), Mann-Whitney (anxiety and psychomotor tests), and chi-square (memory loss). $p<0.05$ was considered significant.

Results: No significant differences were found in anxiety scores, psychomotor performance, or memory loss. Temperature increased progressively during surgery ($p < 0.001$). Alprazolam was associated with lower mean heart rate, systolic pressure, and respiratory rate compared to placebo, though not statistically significant. Oxygen saturation remained unaffected. Most participants (77.78%) reported greater comfort with alprazolam, despite being blinded to treatment.

Conclusion: Alprazolam 1 mg improved subjective patient experience and induced mild cardiovascular and respiratory effects, without clinical compromise.

HETEROCONTROL OF WATER SUPPLY FLUORIDATION IN LIMEIRA-SP

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Aim: Fluoride is a well-known and effective anti-caries agent, and its concentration is adjusted in public water supplies during treatment at Water Treatment Stations (WTS). However, the concentration of this ion must be regularly monitored: the optimal range for fluoride in water is 0.6 to 0.8 ppm F. To monitor these levels, a descriptive, exploratory, and longitudinal study was conducted.

Method: Water samples were collected monthly over six consecutive months from eight different locations in the city, one of which was an artesian well not subjected to fluoride adjustment at the WTS. In addition, samples were collected over a further three months from three new locations, all Basic Health Units (BHU) supplied with water coming treated at the WTS. Water samples were analyzed in duplicate using a fluoride ion-specific electrode at the Biochemistry Laboratory of FOP – UNICAMP. A calibration curve ranging from 0.125 to 4 µg F/mL was used and the data were recorded in Excel.

Results: The results indicate that at the location supplied by the artesian well, both the anti-caries benefit and the risk of fluorosis are insignificant, with an average fluoride concentration of 0.15 ppm F. On the other hand, in the other locations, the risk of fluorosis was minimal and the anti-caries benefit was optimal, with an overall average fluoride concentration of 0.74 ppm F.

Conclusion: The findings demonstrate the importance of continuous monitoring of fluoride levels in both public water supplies to ensure effective caries prevention and minimize the risk of fluorosis.

HISTORY OF DENTAL TRAUMA WITH PLANNING FOR ORAL REHABILITATION: A CLINICAL CASE REPORT

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this case report is to describe the multidisciplinary treatment of dental trauma in a 22-year-old female patient who sustained an injury from a fall from her own height.

Method: The dental diagnosis was avulsion of the upper left central incisor, upper right central incisor and upper right lateral incisor, lateral luxation of the upper left lateral incisor, as well as fracture of the maxillary bone plate. The initial treatment and follow-up of the case were carried out at the Piracicaba School of Dentistry, with a multidisciplinary approach during care and planning for the rehabilitation of the case.

Results: The patient underwent follow-up care in the areas of trauma, endodontics, oral and maxillofacial surgery, dental prosthetics and orthodontics during the treatment period.

Conclusion: In this way, the relevance and approach to dental trauma in the clinical case, the clinical stages and the procedures carried out will be presented in this paper.

HISTORY OF FIXATION IN ORTHOGNATHIC SURGERY

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Aim: The evolution of fixation techniques in orthognathic surgery reflects advances in biomechanical understanding and the pursuit of stable, predictable outcomes. From the introduction of rigid plates to the use of biodegradable systems, various methods have been developed to optimize postoperative stability.

Method: A review of six articles indexed in PubMed was conducted, covering studies on rigid fixation, stable dynamic fixation, and the use of biodegradable materials in orthognathic surgery.

Results: Rigid fixation, introduced in the 1970s, demonstrated greater stability compared to wire fixation, allowing for the elimination of intermaxillary fixation and facilitating postoperative recovery. Subsequent studies indicated that single-plate, bicortical screw fixation showed lower rates of revision due to central condylar sinking. Finite element analysis further suggested that miniplates provide better force distribution on the temporomandibular joint, reducing condylar stress.

Conclusion: The transition of fixation techniques in orthognathic surgery reflects significant advances in achieving stable and predictable results. Rigid fixation—particularly single-plate with bicortical screws—has proven effective in maintaining postoperative stability. Furthermore, the use of biodegradable materials offers advantages in biocompatibility and reduces complications related to hardware removal.

HYALURONIC ACID-BASED BLEACHING GELS CONTAINING NF_TiO2 AND VIOLET LED IRRADIATION: EFFICACY AND CYTOTOXIC

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Aim: This in vitro study evaluated the cytotoxicity of experimental whitening gels based on hyaluronic acid (HA) or carbomer (CAR) containing nitrogen- and fluorine-co-doped titanium dioxide nanoparticles (NF_TiO2 NPs) and hydrogen peroxide (HP) at 1.5% and 6%.

Method: For biocompatibility, intact bovine enamel discs were treated (n=8) with: CAR + HP (1.5% and 6%) + LED; HA + HP (1.5% and 6%) + LED; 35% HP (commercial control); and negative control (no treatment). The discs were placed in artificial pulp chambers (APCs), with dentin remaining in contact with Dulbecco's Modified Eagle Medium (DMEM). The bleaching protocol consisted of: 3 sessions / 30 min each / 7-day intervals. Immediately after bleaching, extracts were collected and applied to MDPC-23 cells. The following parameters were evaluated: color change (ΔE_{00} and ΔWID), HP diffusion ($\mu g H_2O_2/mL$), cell viability (MTT assay), oxidative stress (SOx), and cell morphology via scanning electron microscopy (SEM) [one-way ANOVA and Tukey's test ($\alpha=0.05$)].

Results: No statistically significant differences were observed in color change (ΔE_{00} and ΔWID) between the experimental gels and the commercial 35% HP control. HP diffusion and oxidative stress levels were significantly lower in the 1.5% and 6% HP groups ($p<0.05$), while cell viability was highest in the 1.5% HP treatment groups.

Conclusion: The findings demonstrate that experimental whitening gels containing NF_TiO2 nanoparticles in either HA or CAR bases, when combined with low hydrogen peroxide concentrations and violet LED irradiation, achieved effective whitening while significantly reducing cytotoxic effects.

IMAGE QUALITY OF RADIOGRAPHS ACQUIRED WITH PSP PLATES DISINFECTED WITH ALCOHOL-BASED SUBSTANCES BEFORE SCANNING

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Aim: This study aimed to evaluate the image quality of radiographs obtained with photostimulable phosphor (PSP) plates disinfected with different alcohol-based substances after image acquisition but before scanning.

Method: Eight size-2 PSP receptors from the VistaScan system were used - four disinfected with 70% isopropyl alcohol and four with 70% ethyl alcohol. Before disinfections (baseline), two radiographs of an acrylic block were obtained using four receptors, while two radiographs of an aluminum step-wedge were obtained with the other four. After each baseline acquisition, the phantoms were radiographed with each receptor, which was then disinfected and scanned. This procedure was repeated for 20 disinfection cycles. Image brightness, uniformity, noise, and contrast were assessed by analyzing the gray values of the obtained radiographs. Two-way ANOVA with Tukey's post-hoc test determined the effects of disinfectant type and number of disinfections on image quality ($\alpha=0.05$).

Results: Results showed no significant effect of either disinfectant on image uniformity and contrast, regardless of the number of disinfections ($p>0.05$). Differences in brightness and noise between baseline and disinfection groups, as well as among disinfection groups themselves, were minimal or absent for both substances.

Conclusion: In conclusion, although minor theoretical differences in brightness and noise were observed, image quality remained stable across all disinfection cycles for both substances. These findings suggest that disinfection with 70% isopropyl or 70% ethyl alcohol prior to PSP scanning can be performed without compromising radiographic image quality.

IMPACT OF CHI KUNG PRACTICE ON THE QUALITY OF LIFE OF OLDER ADULTS IN THE UNIVERSIDADE PROGRAM

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Aim: The UniversIDADE Program at UNICAMP aims to promote integrative and interdisciplinary education in a non-formal context for individuals aged 50 and older, fostering physical, mental, and social well-being. Among the offered activities, the Chi Kung (or QiGong) course—a traditional Chinese practice focused on cultivating vital energy through coordinated movements, breathing, and meditation—had full enrollment in the second semester of 2024. The aim is to present quality of life data from elderly after 3 months Chi Kung practice.

Method: Eleven older adults participated weekly and completed all sessions. To assess the practice's impact on quality of life, participants answered the WHOQOL-BREF instrument before and after the course. This validated questionnaire evaluates four domains: physical, psychological, social relationships, and environment, in addition to an overall score. Statistical analysis used the Wilcoxon test.

Results: Initially all scores are positive, meaning higher values indicate better perceived quality of life. Numerical improvements were observed in all domains after the intervention: physical from 67.21 to 78.25; psychological 65.91 to 74.24; social relationships 57.58 to 60.61 and environment from 69.32 to 73.58. In the physical domain ($p = 0.044$) and in overall quality of life ($p = 0.05$) were statistical significant differences.

Conclusion: These results suggest that Chi Kung practice may contribute to physical enhancement and global quality of life perception in older adults, serving as a potential strategy for educational programs aimed at healthy aging.

IMPACT OF DMAHDM AND NACP ON ANTIBACTERIAL ACTIVITY AND PROPERTIES OF RESIN INFILTRANTS

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Aim: This study evaluated the effects of incorporating the antibacterial monomer dimethylaminohexadecyl methacrylate (DMAHDM), with or without amorphous calcium phosphate nanoparticles (NACP), on the physical and antibacterial properties of experimental resin infiltrants (RI).

Method: The tested groups were: Experimental RI (ERI) control (75/25 wt.% TEGDMA/BisEMA, 0.5% CQ, and 1% EDMAB); ERI + 0.75% DMAHDM (0.75DM); ERI + 1.5% DMAHDM (1.5DM); ERI + 2.5% DMAHDM (2.5DM); ERI + 5% DMAHDM (5DM); ERI + 2% NACP (NACP); combinations of DMAHDM and NACP (0.75DM_NA, 1.5DM_NA, 2.5DM_NA, 5DM_NA); and the commercial Icon (DMG, Germany). Degree of conversion (DC; n=10), water sorption (WSor) and solubility (WSol) (n=10) and contact angle (CA; n=6) were assessed. Antibacterial potential was analyzed by a bioluminescence assay (n=18) after 24 h of *Streptococcus mutans* (UA159) growth. Data were analyzed by ANOVA and Tukey's test, except for bioluminescence (Kruskal-Wallis), with a significance level of 5%.

Results: ERI showed the highest DC, differing significantly from all other groups, while NACP had the lowest. For WSor, Icon had the lowest value, differing from all other groups. ERI had the second lowest WSor, differing from all except NACP. 5DM_NA showed the highest WSor. WSol was lowest in 0.75DM and highest in 5DM_NA. NACP had the highest CA value. Regarding antibacterial activity, ERI, NACP, and Icon exhibited significantly higher bacterial metabolism than all DMAHDM-containing groups.

Conclusion: The incorporation of DMAHDM, with or without NACP, significantly reduced biofilm viability. However, both agents adversely affected the evaluated physical properties.

IMPACT OF IRRIGATION PROTOCOLS ON ENDODONTIC INSTRUMENT TORSIONAL FATIGUE RESISTANCE AND SEALER PENETRATION

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Aim: This study aimed to evaluate the influence of different irrigation protocols on sealer penetration and the torsional fatigue resistance of endodontic instruments.

Method: Single-rooted teeth were assigned to four groups according to the irrigation protocol: G1) 2.5% NaOCl (n=40); G2) 2.5% NaOCl + 17% EDTA + 2.5% NaOCl (n=40); G3) a mixture of 5% NaOCl + 18% HEDP (n=40); and G4) saline solution (control group, n=10). Root canals were instrumented with X1 Blue 40/.06 reciprocating files that were following subjected to torsional fatigue testing. For final flush (FF), groups were further divided based on the agitation method (n=10): a) no agitation; b) ultrasonic; c) sonic; and d) continuous rotation. The control group remained as subgroup "a". Root canals were filled using the single cone technique with Sealer Plus, in which rhodamine B dye was incorporated. Sealer penetration into dentinal tubules was analyzed using confocal laser scanning microscopy at 3 mm and 6 mm from the apex. Statistical analysis was performed.

Results: No significant differences were observed in torsional strength or angle of rotation among the instruments in any group ($P > 0.05$). Sealer penetration was greater at 6 mm than at 3 mm from apex in all groups ($P < 0.05$), except in G1b, G1d, G2c, and G3a ($P > 0.05$). No significant differences were found among the groups at either the cervical or apical levels ($P > 0.05$).

Conclusion: It can be concluded that the irrigation protocols evaluated did not influence the instrument's resistance to fracture or the penetration of sealer into dentinal tubules.

IMPACT OF SALIVARY FLOW ON FLUORIDE RELEASE FROM VARNISH AND ITS UPTAKE BY CARIOUS DENTIN

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Aim: Since part of the fluoride (F) in fluoride varnish (FV) reacts with the surface to which it is applied and part is released into saliva, this study aimed to evaluate the effect of artificial salivary flow on F release from FV and its reactivity with dentin adjacent to the application site.

Method: FV (Duraphat; 22,500 ppm F) was applied to carious dentin hemiblocks, each positioned side by side (adjacent) to its respective untreated hemiblock. These pairs (n=10/group) were maintained for 24 h under simulated salivary flow at the following rates: Group I=0.5; II=0.25; III=0.125; and IV: 0.5 mL/min (no FV application). Saliva samples were collected over time to analyze F concentration. The concentrations of "CaF₂"-like material and fluorapatite (Fap) were determined in all hemiblocks. Data were analyzed using ANOVA and Tukey's test ($\alpha=5\%$).

Results: A peak in F concentration in saliva was observed after 3 h immersion (Group I: 0.203; Group II: 0.243; Group III: 0.290; Group IV: 0.022 µg F/mL). Regarding the "CaF₂"-like material, no significant differences were found among the FV-treated hemiblocks (Group I: 125.3±13.2; Group II: 118.8±17.5; Group III: 121.2±15.7; Group IV: 2.78±0.90 µg F/cm²); nor among the adjacent hemiblocks (Group I: 11.1±3.5; Group II: 11.7±3.2; Group III: 13.8±4.1; Group IV: 2.78±0.90 µg F/cm²). Similarly, no differences were observed among groups in terms of FAp formation, either in the treated or adjacent dentin.

Conclusion: These results suggest that lower salivary flow rates increase the release of fluoride from varnish into saliva, while salivary flow does not interfere with FV reactivity on carious dentin adjacent to the application site.

IMPACT OF SMOKING ON ANTIOXIDANT DEFENSE: SUPEROXIDE DISMUTASE EXPRESSION AND OXIDATIVE STRESS IN GINGIVAL FIBROBLASTS

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Aim: The impact of smoking on biological mechanisms in healthy periodontium remains unclear. Evidence indicates that smoking disrupts redox balance by reducing superoxide dismutase (SOD) activity. This study aimed to uncover how cigarette smoke condensate (CSE) affects SOD expression and oxidative stress in gingival fibroblasts.

Method: CSE was collected in vitro using a validated apparatus; HPLC quantified nicotine at 486 µM. Primary fibroblasts from three periodontally healthy patients were exposed to CSE (20 and 40 µM) and nicotine (100 µM) for three days. MTT assessed cell viability; qPCR analyzed gene expression (SOD, PI3K, AKT, PTEN, IL-6, IL-1β); and ROS levels were evaluated via flow cytometry and confocal microscopy.

Results: CSE exposure revealed a significant downregulation of SOD, PTEN, AKT, and PI3K compared to control and pure nicotine. IL-6 expression also declined, indicating a dampened pro-inflammatory response. Confocal imaging with H₂-DCFDA revealed increased ROS levels, further confirmed by flow cytometry.

Conclusion: CSE downregulated SOD mRNA, increasing oxidative stress in gingival fibroblasts from periodontally healthy patients in vitro. It also modulated key signaling pathways, including PTEN/PI3K/AKT, and pro-inflammatory cytokines. These data highlight the importance of understanding cellular responses to oxidative stress, offering a foundation for targeted therapies in smoking-related conditions. The results may guide the development of targeted therapeutic interventions to mitigate smoking-induced damage, contributing to effective strategies for managing smoking-related conditions, such as periodontitis.

IMPROVING TITANIUM IMPLANT SURFACES BY ZIRCONIA OXIDE DEPOSITION THROUGH MICROARC OXIDATION

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Aim: This study aimed to investigate the effect of the addition of zirconium oxide (ZrO₂) to Ti surfaces by micro-arc oxidation (MAO) to improve the electrochemical and mechanical properties. Additionally, the antimicrobial and modulatory potentials, cytocompatibility and proteomic profile of the surfaces were investigated.

Method: Ti discs were divided into four groups: machined – control (cpTi), treated by MAO with 0.04 M KOH – control (KOH), and two experimental groups incorporating ZrO₂ at concentrations of 0.04 M and 0.08 M, composing the KOH@Zr₄ and KOH@Zr₈ groups.

Results: KOH@Zr₈ showed higher surface porosity and roughness, even zirconia distribution, crystalline phases like ZrTiO₄ formation, and hydrophilicity. ZrO₂ groups showed better mechanical performance including higher hardness values, lower wear area and mass loss, and higher friction coefficient under tribological conditions. The formation of a more compact oxide layer was observed, which favors the electrochemical stability of ZrO₂ surfaces. Besides not inducing greater biofilm formation, ZrO₂ surfaces reduced the load of pathogenic bacteria evidenced by the DNA-DNA checkerboard analysis. ZrO₂ surfaces were cytocompatible with pre-osteoblastic cells. The saliva proteomic profile was slightly changed by zirconia, with more proteins adsorbed. KOH@Zr₈ group notably absorbed proteins crucial for implant biological responses, like albumin and fibronectin.

Conclusion: Incorporating ZrO₂ improved the mechanical and electrochemical behavior of Ti surfaces, as well as modulated biofilm composition and provided suitable biological responses.

IN VITRO CYTOTOXIC AND RANDOMIZED CLINICAL TRIAL OF THE EFFICACY OF HYALURONIC ACID-BASED BLEACHING GELS WITH VIOLET LED

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Aim: This study evaluated the in vitro cytotoxicity and the in vivo bleaching efficacy, tooth sensitivity, and pulp oximetry of experimental bleaching gels containing hyaluronic acid (HA) or carbomer (CAR), NF-TiO₂ nanoparticles (NPs), 6% hydrogen peroxide (HP), and violet LED.

Method: For the in vitro analysis, bovine enamel/dentin discs were treated with (n=8): positive control (HP 35%), negative control (NC – no treatment), HA, HA+NPs+6%HP+LED, and CAR+NPs+6%HP+LED. Gels were applied to the discs adapted in artificial pulp chambers, and the extracts were collected and exposed to MDPC-23 cells to assess cell viability (CV), oxidative cellular stress (OCS), HP diffusion, and cell morphology (SEM). In the randomized clinical trial, 72 patients were randomized into three groups (n=24): 35%HP, CAR+NPs+6%HP+LED, and HA+NPs+6%HP+LED. Objective (ΔE_{00} , ΔWID) and subjective (ΔSGU) color assessments, tooth sensitivity (TS), and pulp oximetry (SaO₂) were performed. Data were analyzed by one-way ANOVA and Tukey's test ($\alpha=0.05$).

Results: 35%HP caused lower CV, higher OCS, and greater HP diffusion ($p<0.05$). The experimental groups exhibited lower bleaching efficacy, but also lower TS than 35%HP ($p<0.05$).

Conclusion: In conclusion, although the low-concentration experimental gels did not achieve the same bleaching efficacy as the 35%HP commercial gel, they did not induce cellular cytotoxicity, did not alter SaO₂ levels, and reduced tooth sensitivity during the bleaching procedure.

IN VITRO EVALUATION OF PHOTODYNAMIC THERAPY ASSOCIATED WITH IRRIGANTS IN REDUCING ENDODONTIC MULTI-SPECIES BIOFILMS

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Aim: This study assessed the effectiveness of antimicrobial Photodynamic Therapy (aPDT), either alone or combined with different irrigants, in reducing mature endodontic multi-species biofilms composed of 09 bacterial strains including facultative and strict anaerobes.

Method: A total of 72 bovine dentin discs were used to culture the biofilms in a growth medium. The specimens were divided into six experimental groups based on the irrigant used and whether aPDT was applied. The groups included saline control, 2.5% sodium hypochlorite + 17% EDTA, 2% chlorhexidine + 17% EDTA, with or without aPDT. The aPDT protocol involved a low-intensity red laser (660 nm, 9 J, 90 s) with methylene blue as the photosensitizer. Biofilm viability was evaluated by colony-forming unit (CFU) counts, and statistical analysis was performed using Prism software. Normality was assessed with the Shapiro-Wilk test, followed by Kruskal-Wallis and Dunn's post hoc tests for statistical comparisons.

Results: Results showed that sodium hypochlorite + EDTA, with or without aPDT, significantly reduced bacterial viability compared to saline control ($p < 0.0001$). However, chlorhexidine + EDTA, regardless of aPDT, showed no significant difference from the control group.

Conclusion: In conclusion, the combination of sodium hypochlorite and EDTA proved to be effective for reducing mature biofilms, while chlorhexidine + EDTA was not effective under the same conditions.

IN VITRO EVALUATION OF POLYHEXAMETHYLENE BIGUANIDE (PHMB) AGAINST KEY ORAL PATHOGENS

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Aim: The aim of the present study was to evaluate the antimicrobial efficacy of polyhexamethylene biguanide (PHMB) against oral microorganisms, comparing its effects with chlorhexidine (CHX).

Method: The Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal/Fungicidal Concentration (MBC/MFC) of PHMB and CHX were determined against *S. mitis*, *S. mutans*, *S. oralis*, *S. salivarius*, *E. faecalis*, *F. nucleatum*, *P. gingivalis*, *P. intermedia*, and *C. albicans*. Biofilms of *S. mutans*, *E. faecalis*, and *C. albicans* were formed in 96-well plates and treated with PHMB and CHX solutions at concentrations of 12.5x, 25x, 50x, 100x, and 400x the MIC for 30 seconds twice. Saline-treatment and untreated samples serve as controls. Biofilm biomass was measured using crystal violet method, and the most effective concentrations were analyzed by scanning electron microscopy (SEM).

Results: PHMB showed MIC and MBC/MFC values comparable to CHX, except *S. oralis* and *P. intermedia*, for which CHX showed lower values. For *S. mutans*, the most effective concentration for both PHMB and CHX was 400x MIC. In the case of *E. faecalis*, both compounds showed similar efficacy. For *C. albicans*, PHMB was more effective at 12.5x, 25x, and 50x MIC, whereas CHX showed superior performance at 400x MIC. SEM micrographs revealed significant reductions in biofilm biomass and structural disruption with both treatments, with PHMB showing greater effectiveness against *S. mutans*.

Conclusion: Overall, PHMB exhibited strong antimicrobial activity against oral microorganisms, both in planktonic and biofilm forms, with efficacy comparable to that of CHX.

INCORPORATION OF CHITOSAN INTO EXPERIMENTAL SELF-ADHESIVE ORTHODONTIC BRACKETS

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Aim: The aim of this study was to evaluate the effect of adding chitosan (0% - control, 1%, 2.5%, 5%, 7.5%, and 10%) to experimental self-adhesive orthodontic resin cements on the maximum tensile strength (UTS), shear bond strength (SBS).

Method: For the SBS test, brackets were bonded using each experimental resin cement to the enamel of 60 bovine teeth (n = 10), which were pre-conditioned with 37% phosphoric acid for 30 seconds. The orthodontic cements were light-cured for 20 seconds (Grand Valo, Ultradent Products). After 24 hours of storage in water at 37°C, the SBS test was performed using a universal testing machine with a chisel. For the UTS test, hourglass-shaped specimens (n = 10) were fabricated for each orthodontic adhesive and tested in a universal testing machine. Data from each test were statistically analyzed using one-way ANOVA, followed by the Tukey test ($\alpha = 0.05$).

Results: Regarding SBS, one-way ANOVA revealed a significant difference between the groups ($p = 0.031$). The control group showed a significantly higher mean SBS value than the 1%, 2.5%, 5%, 7.5%, and 10% groups. For UTS, one-way ANOVA demonstrated a significant difference between the groups ($p < 0.001$).

Conclusion: The control and 1% groups exhibited significantly higher mean UTS values than the 2.5%, 5%, 7.5%, and 10% groups. It can be concluded that chitosan at a 1% concentration did not negatively affect the bond strength values of the brackets and their cohesive strength.

INCORPORATION OF DMAHDM INTO 3D-PRINTED PROVISIONAL CROWN RESIN: PHYSICOCHEMICAL AND BIOLOGICAL PROPERTIES

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Aim: The incorporation of the antimicrobial monomer dimethylaminohexadecyl methacrylate (DMAHDM) into a 3D printing resin for provisional crowns may reduce bacterial adhesion and enhance mechanical properties. Such advantages can contribute to increasing the useful life of these materials in addition to reducing the risk of caries and gingivitis during rehabilitation treatment. This study evaluated the influence of 1.5% and 3% DMAHDM on antibacterial potential, cell viability, surface morphology, and mechanical performance of a 3D printing resin for provisional crowns (PriZma 3D Bio Crown).

Method: DMAHDM was synthesized by a modified Menschutkin reaction and confirmed via ¹HNMR. Samples were printed, post-cured, polished, and tested for flexural strength (n=10), microhardness (n=10), roughness (n=10), and biocompatibility (n=6). Mechanical tests followed ISO 4049 standards. MTT and crystal violet assays were used to assess bacterial metabolism and biomass using *Streptococcus mutans*, while cell viability was tested with 3T3 fibroblasts.

Results: Results showed that 1.5% and 3% DMAHDM improved flexural strength compared to control; microhardness was highest in the 1.5% group. Roughness were similar between groups. Antibacterial activity was significantly increased in both DMAHDM groups, with reduced metabolic activity and biofilm accumulation. However, cell viability decreased in the 3% group.

Conclusion: In conclusion, DMAHDM enhanced the mechanical and antibacterial properties of the 3D printing resin. The resin doped with 1.5% DMAHDM was more favorable, showing strong antimicrobial effect with better cell compatibility.

INDIRECT EFFECT OF BIO-C TEMP AND CHLORHEXIDINE WITH CALCIUM HYDROXIDE IN REGENERATIVE ENDODONTIC: IN VITRO STUDY

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Aim: Endodontic regenerative procedures have gained prominence in dentistry because they enable the process of root formation to continue, intracanal medication being essential for the success of these treatments. This study evaluated the effect of six different intracanal medications on the metabolic activity and adhesion of human undifferentiated cells of mesenchymal origin from the periodontal ligament.

Method: Uniradicular bovine teeth were prepared to simulate immature teeth with 1 mm apical diameter and divided into six groups: negative control (G-C), Triple Antibiotic Paste (G-TAP), Double Antibiotic Paste (G-DAP), Calcium Hydroxide with Saline Solution (G-HC+SS), Calcium Hydroxide with Chlorhexidine (G-HC+CHX), and Bio-C Temp® (G-BIOC). Roots were medicated, stored in PBS at 37 °C for 21 days, and cleaned with 17% EDTA and saline solution. Dentin samples were used for cell culture over 3, 5, and 7 days. Metabolic activity was assessed via MTT assay, and adhesion by Scanning Electron Microscopy (SEM). Shapiro-Wilk and Levene tests assessed data distribution, comparisons were made with Kruskal-Wallis, Dunn's post-hoc, and Holm-Bonferroni correction ($\alpha = 5\%$).

Results: On day 3, significant differences were found between G-TAP and G-HC+CHX, and G-BIOC and G-HC+CHX ($p < 0.05$). At 5 days, G-TAP differed from G-HC+CHX and G-BIOC ($p < 0.05$). On day 7, G-TAP differed from G-HC+SS ($p < 0.05$). SEM showed similar cell adhesion and spreading across groups and time points.

Conclusion: The medications did not interfere metabolic activity and cell adhesion on intraradicular dentin, reinforcing their relevance for regenerative endodontics.

INFLUENCE OF ACIDIC BEVERAGES ON PREMATURE ORAL AGING: LITERATURE REVIEW

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Aim: Dental biocorrosion comes from an acidic diet, with drinks such as soft drinks, wine, energy drinks and sports drinks playing an important role in the development of these biocorrosive lesions. Therefore, the present study aims to carry out a literature review on the influence of acidic drinks on premature oral aging.

Method: The materials and methods of this review include a bibliographic search in the source and databases Medline, Scielo, Scopus and Lilacs using the key words in English: Dental biocorrosion; acidic beverages and dental enamel. Inclusion criteria were established for articles whose titles and abstracts addressed one or more key words from the present study, thus only works in English were accepted.

Results: Therefore, the present study observed that the frequency with which these drinks are used was decisive for good oral health.

Conclusion: The process of dental biocorrosion is closely linked to lifestyle, with literature providing robust data on the increase in these injuries in the young population when associated with acidic beverages.

INFLUENCE OF ACQUISITION PARAMETERS AND THE POSITIONING OF IMPLANTS ON THE EXPRESSION OF ARTIFACTS IN CBCT

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Aim: To investigate how different acquisition parameters influence artifact formation around roots adjacent to zirconia and titanium implants placed in endomass and exomass using cone beam computed tomography (CBCT).

Method: A zirconia or titanium implant were inserted into the second premolar socket of a dry human mandible, and three roots were positioned in the first premolar socket. CBCT scans were obtained with a 5×5 cm FOV, 90 kVp, using two voxel sizes (0.085 mm and 0.2 mm), three milliamperage settings (5, 8, and 12.5 mA), and with or without the metal artifact reduction (MAR) algorithm. In total 216 scans were acquired. Gray values and standard deviation (SD) were measured along eight lines of interest (LOIs) surrounding the premolar canal and analyzed using ANOVA ($p < 0.05$).

Results: For zirconia implant, larger voxel sizes led to greater homogeneity in SD values among the LOIs. Changes in mA showed no impact the measurements. The MAR tool increased gray values only when using a 0.2 mm voxel size and positioning the zirconia implant in the endomass, with no effect observed in other conditions. Titanium implant showed higher gray values in the exomass than in the endomass, resembling the control group. Overall, zirconia implant did not exhibit significant differences between positions.

Conclusion: Increasing voxel size improved image uniformity around zirconia implant, while milliamperage variations had minimal influence on artifact expression for both implants. Artifact reduction was observed when zirconia implant were placed in the endomass with MAR enabled and when titanium implants were positioned in the exomass.

INFLUENCE OF CHLORHEXIDINE ON HEALING AFTER ORAL SURGERY: AN INTEGRATIVE REVIEW

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Aim: To review the literature on the influence of chlorhexidine use on postoperative wound healing in dental practice, going beyond its well-known antiplaque effect.

Method: This was an integrative literature review. The search was carried out in the PubMed and BVS databases using the following strategy: "Chlorhexidine" AND ("Wound Healing" OR "Gingival Healing" OR "Soft Tissue Healing") AND ("Mouth" OR "Oral surgery" OR "Dentistry"). Original studies published in the last 10 years, with no language restriction, were eligible for inclusion.

Results: After applying the eligibility criteria, six studies were included. It was observed that the effect of different concentrations of chlorhexidine has been tested, ranging from 0.002% to 0.2%, in gel or liquid form. In vitro studies revealed that low concentrations of chlorhexidine (0.002%) do not interfere with the proliferation and morphology of gingival fibroblasts. Moreover, in vivo studies, in which the observation parameters were clinical and histological, demonstrated a favorable effect on healing with the use of 0.2% chlorhexidine for seven days, although a tendency toward fibrotic repair was noted, due to increased collagen deposition.

Conclusion: No consensus was observed among the studies regarding the interference of chlorhexidine in the healing process. However, based on clinical outcomes, this substance appears to have a positive influence on postoperative wound repair.

INFLUENCE OF FILTER IN PANORAMIC RADIOGRAPHS IN THE DETECTION OF ERR IN MANDIBULAR SECOND MOLARS CAUSED BY THIRD MOLARS

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Aim: The aim of this study was to evaluate the influence of filters applied to panoramic radiographs in the detection of external root resorption (ERR) in second molars caused by impacted third molars.

Method: 124 panoramic radiographs were selected with 182 lower third molars in close proximity to the second molars, which were evaluated by 5 examiners, without applying filters and with individual application of the Sharpness, Invert, Invert + Sharpness and Equalized + Magnification filters. The detection of ERR on CBCT was used as a reference standard. The results of the examiners' evaluation were compared with the reference standard and values for the area under the ROC curve (AUC), sensitivity and specificity were obtained. For the statistical analysis, analysis of variance (one-way ANOVA) was used to evaluate the influence of the studied filters.

Results: As a result, in relation to the accuracy in diagnosing ERR, there was no significant influence of the filters ($p = 0.359$). Regarding sensitivity, the Invert and Invert + Sharpness filters presented lower values than the other conditions ($p = 0.004$). Finally, in relation to specificity, the Invert and Invert + Sharpness filters presented higher values than the Equalized + Magnification ($p = 0.002$).

Conclusion: It was possible to conclude that the accuracy in the diagnosis of ERR in lower second molars caused by impacted lower third molars in panoramic radiographs is not influenced by the application of filters. However, sensitivity was negatively affected by the Invert and Invert + Sharpness filters, making their use contraindicated.

INFLUENCE OF IRRIGATION PROTOCOLS ON ENTEROCOCCUS FAECALIS AND CANDIDA ALBICANS ADHESION TO DENTINE

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Aim: To investigate the effects of different irrigation protocols on the adhesion of Enterococcus faecalis and Candida albicans to dentine.

Method: Bovine dentine samples were prepared and distributed to submission to one of the following irrigation protocols ($n=10$): G1 - 0.9% saline solution; G2 - 2.5% sodium hypochlorite (NaOCl); G3 - 2.5% NaOCl + 17% ethylenediaminetetraacetic acid (EDTA); G4 - 2.5% NaOCl + 0.5% peracetic acid (PAA); G5 - 2.5% NaOCl + 9% etidronic acid (HEDP); G6 - 2.5% NaOCl + 17% EDTA + 2% chlorhexidine (CHX); G7 - 2.5% NaOCl + 0.5% PAA + 2% CHX; G8 - 2.5% NaOCl + 9% HEDP + 2% CHX; and G9 - mixture of 5% NaOCl + 18% HEDP. After irrigation, the samples were individually incubated in 2 mL of E. faecalis ($OD_{600}=0.25$) or C. albicans (1×10^7 UFC/mL) suspensions at 37°C for 2 h. Following, the samples were rinsed with PBS, stained with Live/Dead and analysed by confocal laser scanning microscope. The number of microorganisms adhering to the surfaces were determined. The data obtained was subjected to one-way ANOVA ($\alpha < 0.05$).

Results: The adhesion of E. faecalis was favoured on surfaces treated with only saline solution and NaOCl, and on samples that had decalcifying agents as the final irrigant ($P < 0.05$). The adhesion of C. albicans was highest on surfaces treated with only saline solution and on surfaces that NaOCl was used as the last irrigant ($P < 0.05$). CHX as a final irrigant reduced the adhesion of both microorganisms.

Conclusion: The adhesion of both microorganisms to dentine was highly influenced by the irrigation protocols. The final flush with CHX reduced the adhesion of microorganisms.

INFLUENCE OF QUORUM SENSING ON PROTEIN EXPRESSION DIFFERENCE ON CANDIDA ALBICANS

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Aim: To identify the influence of quorum sensing (autoinducer 2) on the difference in protein expression on C. albicans.

Method: A sample of *C. albicans*-derived supernatant will be systematically collected from the tooth at intervals of days 1, 7, and 14. Observational and measurement methodologies will be implemented using hydrophobic interaction chromatography (HICO) coupled with protein sequence homology analysis by mass spectrometry. De novo peptide sequencing and bioinformatics analysis using MASCOT and PatternLab were also performed to identify and compare proteins expressed under quorum-sensing and non-quorum-sensing conditions.

Results: Fourteen different proteins expressed only when *C. albicans* were exposed to autoinducer 2 were identified. These proteins included enzymes related to cell wall synthesis, biofilm, vitamin B6 metabolism and defense mechanisms against oxidative stress. In samples without the inducing molecule, these proteins were not detected, suggesting a clear effect of quorum sensing on the yeast proteome.

Conclusion: It is concluded that quorum sensing, through autoinducer 2, significantly modifies protein expression in *C. albicans*, reducing the virulence of the fungus and acting as a mechanism of population self-regulations.

INFLUENCE OF VICK AND COVR GENES ON SUSCEPTIBILITY OF STREPTOCOCCUS MUTANS AND STREPTOCOCCUS SANGUINIS TO ANTIBIOTICS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The regulatory proteins *VicK* and *CovR* are conserved in several streptococcal species and typically regulate the transcription of genes that influence antibiotic resistance and other stresses. The aim of this study was to analyze the effect on the deletion of *vick* and *covR* genes in *S. mutans* and *S. sanguinis*, on the sensitivity of these species to antibiotics.

Method: To this end, the minimum inhibitory concentrations (MIC) of penicillin (PG), amoxicillin (AM), vancomycin (VC) and doxycycline (DO) were determined in microdilution assays with the knockout mutants of these genes obtained in *S. sanguinis* SK36 (SKvic and SKcov) and in *S. mutans* UA159 (UAvic and UAcov). Briefly, the strains were transferred to microplates with BHI medium with or without increasing concentrations of each antibiotic. After incubation (24h at 37°C, 10% CO₂) the MICs were defined by visual analysis of bacterial growth.

Results: The SKvic and SKcov strains respectively showed mean MIC values (µg/ml) for PG (0.07 and 0.05), AM (3.12 and 1.95), VC (0.97 and 1.36) and DO (0.14 and 0.11), similar to those of the parental strain SK36 [PG (0.05), AM (3.12), VC (0.97) and DO (0.09)]. The respective mean MICs observed in UAvic and UAcov [PG (0.05 and 0.05), AM (1.95 and 1.95), VC (0.87 and 0.97) and DO (0.24 and 0.24)] were also similar to the MIC of UA159 [PG (0.05); AM (1.56), VC (0.97) and DC (0.38)].

Conclusion: Therefore, the deletion of *vick* and *covR* did not significantly alter the sensitivity of *S. mutans* and *S. sanguinis* to the tested antibiotics.

INFLUENCE OF XANTHAN GUM-BASED BLEACHING GELS CONTAINING BIOS_MNO, 3% HYDROGEN PEROXIDE, AND VIOLET LED ON ENAMEL

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Aim: This study evaluated the bleaching efficacy, mineral content, and surface morphology of enamel treated with experimental xanthan gum-based bleaching gels, containing manganese oxide-doped Biosilicate particles (BioS_MnO), 3% hydrogen peroxide (HP), and violet LED irradiation.

Method: Sound bovine enamel specimens were treated (n=12) with the following protocols: 35%HP-commercial (control group), 3%HP, 3%HP+BioS_MnO, 3%HP+LED, and 3%HP+BioS_MnO+LED. Three bleaching sessions were conducted (30 min each, with a 7-day interval). The following parameters were evaluated: pH analysis, color change (ΔE_{00}), whiteness index difference (ΔWID), surface microhardness (KHN), and surface morphology by scanning electron microscopy (SEM). Data were analyzed using two-way ANOVA followed by Tukey/Bonferroni ($\alpha = 5\%$).

Results: pH of all gels remained stable and above 6. The 3%HP+LED group exhibited the highest ΔE_{00} and ΔWID values among the experimental groups ($p < 0.05$), however, its bleaching efficacy was lower than that of the 35%HP-commercial ($p < 0.05$). All experimental gels exhibited higher KHN than 35% HP ($p < 0.05$). SEM revealed no morphological changes in enamel after treatments.

Conclusion: In conclusion, the experimental xanthan gum-based bleaching gel, containing 3% hydrogen peroxide and violet LED irradiation, demonstrated the most favorable color change results among the experimental groups, despite not matching the bleaching efficacy of the 35% HP commercial gel. Furthermore, all experimental gels exhibited higher microhardness than the commercial high-concentration gel and did not induce surface morphological alterations.

INTEGRATION OF TEACHING, RESEARCH AND OUTREACH FOR ORAL HEALTH TEAMS ADDRESSING DOMESTIC VIOLENCE

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Aim: To discuss a proposal for the integration of teaching, research, university outreach, and professional practice aimed at strengthening the role of Oral Health Teams (OHTs) in addressing domestic violence (DV).

Method: The proposal is structured around four key components: (1) academic guidance for undergraduate and graduate dental students on the topic of DV; (2) training of OHTs in the municipality of Itatiba, São Paulo, through an extension course ("Training for the Care of Victims of Domestic Violence") offered by the authors; (3) development of a technical booklet ("The Oral Health Team and the Response to Violence") (ISBN 978-65-5993-680-9), in collaboration with the National Oral Health Coordination of the Ministry of Health; and (4) establishment of a Municipal Committee for Addressing DV in Itatiba, São Paulo, involving multiple local government sectors.

Results: This experience highlights significant progress and training OHT professionals. The intersectoral involvement of the municipal committee emphasizes the importance of coordinated efforts to promote effective strategies for protection. Scientific research conducted by undergraduate and graduate students contributes to increased interest in the topic among peers and reveals curricular gaps. Furthermore, the development of the technical booklet and its adoption as a policy by the National Oral Health Coordination expands access to information and enhances the quality of professional healthcare practice.

Conclusion: The integration of OHTs in actions to address DV is essential to strengthening the protection network for victims.

INTERACTIVE TEACHING TOOLS FOR CELL LEARNING: PERCEPTIONS OF BASIC EDUCATION STUDENTS IN A BRAZILIAN PUBLIC SCHOOL

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Low academic performance and lack of attention among elementary students during traditional classes remain a challenge in Brazilian education. Interactive learning can improve this scenario. This study aimed to assess the perception of 9th-grade students regarding 3 interactive teaching tools about cells used in groups: 1) a 3D model of a eukaryotic cell with movable organelles; 2) augmented reality cards (ARCs) displaying detailed 3D cellular structures; and 3) a memory game with matching cards featuring images and information on cell types and organelles

Method: Forty-three students from a public school in São Paulo (SP) participated with approval from the institutional ethics committee. In the first class, the teacher gave a theoretical lesson using the 3D model. In class 2 and 3, the AR cards (ARCs) through a mobile app were used. In class 4 and 5, the memory game was used. In class 6, each student indicated on a scale from 0 (did not help) to 10 (helped a lot), the contribution of each teaching resource to their learning, justifying their answers

Results: The following average scores were recorded: 3D cell model (8.33 ± 1.44), memory game (8.30 ± 1.42), and ARCs (8.14 ± 1.61). Most students considered the activities a fun way to learn (81.40%), helping them understand cell structure (58.14%), memorize content (55.81%), learn in groups (53.49%), and stay focused in class (51.16%). Only 20% preferred the theoretical explanation alone

Conclusion: These results suggest that combining lectures with interactive resources increases student interest and comprehension, offering a valuable strategy to improve basic education in Brazil.

INTERDISCIPLINARY ACTION OF POSTGRADUATE STUDENTS IN A UNIVERSITY DAYCARE CENTER: AN EXPERIENCE REPORT IN EXTENSION

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This report presents the experience of postgraduate students engaged in an extension program at a university nursery. The initiative aimed to promote oral and general health among children through a comprehensive approach that integrates disciplines: Dentistry, Nursing, Nutrition, Psychology and Speech Therapy.

Method: Developed during the first trimester of the 2025 academic year, weekly meetings were held at the university's Dentistry nursery. Activities included: assessment of children's oral health; playful workshops on oral hygiene; nutritional activities focusing on healthy eating; monitoring language development; general health and hygiene care guidance; and a lecture for parents on language development, behaviors, and boundaries. The activities were tailored to suit children aged 2 to 5 years and were well-received by children, parents, and educators.

Results: There was an improvement in adherence to supervised tooth brushing and increased interest from children in the topics addressed.

Conclusion: The integrated approach provided a broader perspective on child care, reinforcing the interdisciplinary nature of health care. For postgraduate students, this experience contributed to the development of communication skills, teamwork, and practical application of scientific knowledge. The collaboration among different fields underscores the importance of interdisciplinarity in creating more comprehensive and sensitive care practices that meet community needs while highlighting the significance of integrating education, service, and community through extension initiatives.

INTERPROFESSIONAL EDUCATION IN HEALTH COURSES AND THE CHALLENGES TO IMPLEMENTATION

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Aim: To discuss interprofessional education (IPE) in health courses and the challenges to implementation.

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

Results: 423 articles were selected, and after the criteria, 7 articles remained. IPE is a strategy that contributes to share learning among professions, promotes collaborative practices, and positively influences actions and health outcomes. Studies on IPE in health reinforce the positive impacts on teamwork with the introduction of teaching methods and practices based on experiences and the development of interprofessional skills. Studies report that undergraduate health courses that include IPE in their pedagogical projects with specific and scarce references, delegating its implementation to extension projects. The challenges identified for the implementation of IPE were: sociopolitical, institutional and relational. The sociopolitical challenges include the scrapping of the public health system and violence in the territories where primary care teams operate, while the institutional challenges include curricular rigidity, turnover of university managers, and the incipience of evaluation processes for innovative teaching experiences. In the relational dimension, the central element is the strength of professional silos and hierarchical and power relations between different health professionals.

Conclusion: The research allowed us to understand the main challenges that still exist for the implementation of interprofessional education, in addition to highlighting the need for institutional support for IPE actions.

INTRAORAL SOMATOSENSORY ALTERATIONS IN PATIENTS WITH OROFACIAL MYOFASCIAL PAIN

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Aim: This study aimed to assess differences in intraoral sensitivity to thermal and mechanical stimuli, as well as pulpal sensitivity, between patients with orofacial myofascial pain and healthy controls, using simple quantitative sensory tests (sQST), qualitative sensory tests (QualST), and the pulp sensitivity test.

Method: A controlled study was conducted with 50 patients with orofacial myofascial pain and 104 healthy controls, aged between 18 and 65 years. Sensitivity was assessed using sQST and QualST in intraoral and extraoral regions, while pulpal sensitivity was evaluated in the lower premolars. Statistical analyses included repeated-measures ANOVA and Fisher's exact test ($p < 0.050$).

Results: Patients with orofacial myofascial pain showed significantly higher frequencies of intraoral hypersensitivity to touch (14%), cold (34%), and pinprick stimuli (36%) compared to healthy controls. The pulp sensitivity test revealed a significantly longer duration of dental pain in patients (mean of 5.9 seconds) compared to controls (mean of 3.7 seconds). QualST identified somatosensory abnormalities in both intraoral and extraoral regions.

Conclusion: Thus, patients with orofacial myofascial pain present increased intraoral sensitivity and prolonged pain responses, highlighting a diagnostic challenge for odontogenic pain in this population.

INVESTIGATION OF GENETIC POLYMORPHISMS IN THE SPXB GENE OF STRAINS OF S. SANGUINIS, S. MITIS AND S. PNEUMONIAE

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Aim: The *spxB* gene encodes the enzyme pyruvate oxidase (SpxB), widely conserved among streptococci of the oral cavity and nasopharynx due to its importance in the production of hydrogen peroxide, a function involved in the interaction with the host, with other microorganisms and in the production of eDNA for the formation of biofilms. The aim of this study was to investigate the frequency of SpxB polymorphisms potentially related to the diversity in hydrogen peroxide production among strains of *S. sanguinis*, *S. mitis*, *S. pneumoniae*.

Method: Nine strains of each species were obtained from the genome, a total of 27 SpxB FASTA sequences available in GenBank (NCBI). Multiple alignment of protein sequences was performed using the ClustalW tool to identify polymorphisms, using the sequence of the reference strain *S. sanguinis* SK36. The polymorphic regions were then mapped in relation to the functional domains of SpxB determined from the SMARTDomain platform.

Results: A total of 25, 21 and 21 amino acid changes were identified in the species *S. sanguinis*, *S. mitis* and *S. pneumoniae*, respectively. Most of these (67 to 76%) were found in functional domains. The strain *S. sanguinis* SK678, defective in H₂O₂ production, presented the highest number of polymorphisms ($n=15$), 9 of which were non-conservative. Non-conservative polymorphisms were also found in functional domains in strains of *S. mitis* ($n=4$) and *S. pneumoniae* ($n=5$).

Conclusion: Therefore, although *spxB* is a conserved gene in the species analyzed, there are protein polymorphisms in functional domains potentially involved in the diversity of H₂O₂ production among strains of the same species.

IPRF AND ACUPUNCTURE APPROACH IN WOMEN WITH TMD AND FIBROMYALGIA: A PILOT STUDY

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Aim: The literature shows that the association between TMD (temporomandibular disorders) and fibromyalgia has become an increasingly common clinical presentation. Thus, approaches supporting the well-being of these women are increasingly necessary. This study aims to describe outcomes from four clinical cases after treatment with acupuncture and IPRF (Injectable Platelet-Rich Fibrin).

Method: The volunteers sought care at the CRAB (Basic Care Reference Center) Cecap health unit in Piracicaba due to widespread facial and body pain. Assessment tools included: DC/TMD (Diagnostic Criteria for Temporomandibular Disorders), ACR (American College of Rheumatology, 2016), PHQ-9 (Patient Health Questionnaire-9), GAD-7 (Generalized Anxiety Disorder 7-item scale), and FIRQ (The Fibromyalgia Impact Questionnaire: a review). At the start and end of each session, the following were recorded: pain using the Visual Analog Scale (VAS, 0–10), mouth opening (mm), and energy levels (Ryodoraku device). Treatment involved four acupuncture sessions with disposable 0.25x30 mm needles at dorsal shu points for the diaphragm and organs: Kidney, Liver, Heart, Spleen, and Lung. IPRF was applied to the same points, with 15–21 day intervals.

Results: Average initial mouth opening was 36 mm, increasing to 45 mm by session six ($p = 0.035$). The average initial VAS score was 7.3, dropping to 2.2 post-treatment ($p = 0.028$). Energy levels showed no significant change: initial average was 14.7, ending at 14.3 ($p = 0.902$).

Conclusion: The findings suggest that combining acupuncture and IPRF benefits patients with TMD and fibromyalgia, improving pain and mouth opening, and enhancing quality of life.

KNOWLEDGE OF DENTAL STUDENTS ABOUT VIOLENCE AGAINST CHILDREN: SCOPING REVIEW

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Aim: To evaluate scientific production on the knowledge of dentists regarding violence against children, with a focus on academic training in dentistry.

Method: A scoping review of the literature was performed in the PubMed and BVS databases. The construction of the guiding question used the PCC strategy (Population, Concept and Context). The guiding question was: "What is the scientific production on the knowledge of dentists regarding violence against children?" After applying the inclusion criteria, 13 articles were selected for analysis.

Results: Most of the studies included had a quantitative approach, published between 2006 and 2024, with emphasis on productions in the United States and in journals such as the Journal of Dental Education. The findings indicate significant gaps in student training, especially in case recognition and reporting. Although there is ethical and legal awareness on the subject, practical and curricular gaps are observed, such as insufficient workload and a limited pedagogical approach.

Conclusion: Scientific production reveals a weakness in the academic training of dentists regarding the identification and management of cases of child abuse. The evidence points to the urgent need to include it in an effective and structured manner in the academic training of dentists.

LABORATORY EVALUATION OF FLUORIDE RELEASE FROM CHILDREN'S TOOTHPASTES AS AN INDICATOR OF BIOAVAILABILITY

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Aim: Due to its anticaries effectiveness, fluoridated toothpaste (1,000–1,500 ppm F) is considered by the WHO an essential medicine to be used throughout life. However, toothpastes are cosmetic pharmaceutical formulations in which, beyond requiring fluoride in soluble form to ensure therapeutic efficacy, it must be released in the oral cavity during the brief period children brush their teeth. This release depends on the formulation's rheological behavior, which can be estimated in the laboratory. This study evaluated the in vitro fluoride release from children's toothpastes using a validated model as an indicator of oral bioavailability.

Method: The products analyzed were Sorriso Kids, Tandy, and Colgate Kids Zero (NaF/Silica; 1,100 ppm F; mg F/kg), from the same manufacturer, batch, and expiration date, but with different rheological properties. For each, 4 g (± 0.01) were mixed with 12.0 mL water, stirred at 100 rpm for 40 s. The supernatant was collected and analyzed in sextuplicate using an Orion 96-09 ion-selective electrode, calibrated with standards from 0.25 to 16.0 $\mu\text{g F/mL}$ in 50% TISAB II.

Results: Fluoride release (%) was: Tandy ($71.4 \pm 3.2A$), Sorriso Kids ($70.3 \pm 2.1A$), and Colgate Kids Zero ($37.7 \pm 9.7B$); different letters indicate statistical difference ($p < 0.05$). The lower release from Colgate was associated with its higher viscosity ($1,371,864.7 \pm 302.8$ cps), compared to Tandy ($505,401.0 \pm 1,497.6$ cps), measured with a rotational viscometer.

Conclusion: These data suggest that Colgate Kids Zero's lower fluoride release may be attributed to its higher viscosity.

LONG-TERM EFFECTS OF EROSIVE/ABRASIVE CHALLENGES AND STAINING ON CAD/CAM RESINS: COLOR, GLOSS, AND ROUGHNESS

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Aim: This study evaluated the long-term effects of aggressive erosive/abrasive challenges and staining susceptibility on resin-based CAD/CAM materials.

Method: Tested materials included nanohybrid resins (Grandio Blocks, Katana Avencia), a hybrid resin (Brava Blocks), and a conventional nanofilled resin as control (Filtek Z350). Specimens ($n=12$) were assigned to: (G1) erosive-abrasive challenge (hydrochloric acid simulating gastric juice + brushing); (G2) staining with red wine; (G3) combined erosive-abrasive challenge and red wine; and (G4) control (no treatment). Color stability (ΔE_{00}), gloss (GU), and roughness (Ra) were measured at baseline (T0), after 5 years (T1), and after 10 years (T2). Data were analyzed using generalized linear models ($\alpha=0.05$).

Results: Brava showed the highest roughness after erosive-abrasive and combined challenges ($p < 0.05$). All challenges caused significant color change (ΔE_{00}) vs. control ($p < 0.05$). Acidic conditions reduced gloss, especially in Brava and Grandio, after both time intervals ($p < 0.05$). Morphological changes were also observed after acid and wine exposure.

Conclusion: The changes were material-dependent. Katana resin demonstrated superior performance across all parameters, regardless of the challenge.

LOW-CONCENTRATION HYDROGEN PEROXIDE ACTIVATED BY SELF-APPLIED LEDS: AN INNOVATIVE APPROACH TO DENTAL BLEACHING

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Aim: This study aimed to evaluate the bleaching efficacy and safety of self-applied LED devices combined with 7.5% hydrogen peroxide (HP), in comparison to in-office light sources and 35% HP.

Method: Bovine enamel-dentin specimens ($n = 10/\text{group}$) were treated with 7.5% HP for 30 minutes, with or without irradiation by self-applied LEDs (Venus Stars [VS] and IviSmile [IV]), violet LED (Bright Max Whitening [BMW]), or curing lights (RadiiCal [RD] and Valo [VL]). A 35% HP group without light activation served as the control. Color change (ΔE_{00}) and whiteness index (ΔWID) were assessed at 24 hours and 14 days post-treatment. Temperature variation (ΔT) was measured every 5 minutes, and each device's power output (mW) and irradiance (mW/cm^2) were recorded. Human gingival fibroblast viability was analyzed using the MTT assay (% viability). Statistical analysis included Student's t-test and one-way ANOVA followed by Tukey or Bonferroni post hoc tests ($\alpha = 0.05$).

Results: No significant differences were observed among groups for ΔE_{00} and ΔWID at both time points ($p > 0.05$). VL induced the highest ΔT , while VS, IV, and non-irradiated groups showed no significant temperature variation ($p > 0.05$). Self-applied LEDs demonstrated lower irradiance and power output. RD significantly reduced cell viability, whereas IV and VS maintained values comparable to the control.

Conclusion: In conclusion, self-applied LEDs did not impair the bleaching efficacy of 7.5% HP, did not induce significant increases in intrapulpal temperature, and showed no cytotoxic effects.

LPS, LTA, AND CYTOKINES LEVELS IN SYMPTOMATIC AND ASYMPTOMATIC NECROTIC ROOT CANALS DURING ENDODONTIC TREATMENT

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Aim: This study aimed to quantify levels of lipopolysaccharides (LPS), lipoteichoic acid (LTA), and key pro-inflammatory cytokines—IL-1 β (interleukin-1 β), IL-1 α , IL-6, and TNF- α (tumor necrosis factor- α)—in symptomatic (G1) and asymptomatic (G2) necrotic root canals at different stages of endodontic treatment (ET). Samples were collected from 20 root canals at three time points: before and after chemomechanical preparation (CMP) with 2% chlorhexidine gel, and after 30 days of intracanal medication (ICM) with calcium hydroxide [$\text{Ca}(\text{OH})_2$] combined with chlorhexidine.

Method: LPS levels were measured using the Limulus Amebocyte Lysate (LAL) assay, while LTA levels were quantified by ELISA.

Results: Significantly higher LPS levels were observed in G1 compared to G2 ($P < 0.05$), with both groups exhibiting notable reductions after CMP and ICM ($P < 0.05$). Interestingly, LTA levels were higher in G2, though G1 showed a significant reduction after ICM, and G2 after both CMP and ICM ($P < 0.05$). Regarding cytokines, IL-1 β , IL-1 α , and IL-6 levels were consistently lower in G2 compared to G1, while TNF- α levels remained stable throughout treatment. In G1, IL-1 β , IL-1 α , and IL-6 levels did not change following CMP, but all three were significantly reduced after ICM in both groups.

Conclusion: In conclusion, the findings reveal distinct inflammatory and microbial profiles between symptomatic and asymptomatic necrotic root canals, as evidenced by the differential expression of cytokines, LPS, and LTA across the stages of endodontic treatment.

MAGNESIUM COATINGS TO ENHANCE OSSEOINTEGRATION OF TITANIUM IMPLANTS: SYSTEMATIC REVIEW AND META-ANALYSES

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Aim: This systematic review with meta-analyses evaluated the effect of magnesium (Mg)-doped coatings on titanium (Ti) to improve osseointegration on dental implants.

Method: This review followed PRISMA 2020 guidelines and was registered in PROSPERO (CRD42024572571). The search was conducted in PubMed, Scopus, Web of Science, and Embase databases without restrictions on date or language. The PICOS strategy included: Population – dental implants; Intervention – Mg coatings; Control – surfaces without Mg; Outcomes – bone-implant contact (BIC), bone area (BA), implant stability quotient (ISQ), and removal torque (RTQ); Study design – clinical or in vivo studies. Risk of bias was assessed using SYRCLE for animal studies and ROBINS-I for non-randomized clinical studies.

Results: Twenty-four studies were included, and 21 were eligible for meta-analyses. Micro-arc oxidation was the most common Mg-doping method. Mg-doped coatings significantly improved BIC [-6.09 (-8.35, -3.82), I^2 : 50%, $p < .00001$], particularly at 3, 4, 6, and 8 weeks compared to control surfaces without Mg. Similarly, they also enhanced BA up to 6 weeks [-8.20 (-14.31, -2.09), I^2 : 0%, $p < .008$] and RTQ up to 3 weeks [-8.44 (-12.33, -4.56), I^2 : 63%, $p < .0001$]. However, ISQ was not significantly affected [-0.24 (-2.05, 1.58), I^2 : 88%, $p = .80$].

Conclusion: Mg-doped coatings effectively enhanced osseointegration by improving BIC, BA, and RTQ, with no impact on ISQ. Mg-doped coating represent a crucial advancement in osseointegration. This strategy can reduce recovery time, increase success rates and minimize failures, even compared to high-performance control surfaces.

MAIN MEASURES TO PREVENT MICROBIAL RESISTANCE: SPREAD AWARENESS

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Aim: To discuss the importance of combating microbial resistance: main measures.

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

Results: Antimicrobial resistance, also known as antimicrobial resistance (AMR), refers to the ability of microorganisms such as bacteria, fungi, viruses, and parasites to survive and thrive in the presence of antimicrobial drugs that would normally be effective against them. This resistance can occur naturally, but the misuse (self-prescriptions, empirical use without following protocols, and incorrect timing and doses) accelerates the process, making infections more difficult to treat. The main measures for preventing and controlling infections are correct use of PPE, hand hygiene, environmental cleaning and disinfection, and correct use of antimicrobials through management of the use of these drugs. Antimicrobial management is a coherent set of actions that promote the use of these drugs in order to ensure sustainable access to effective therapy for all who need them. Health service professionals (prescribers, nurses, microbiologists, pharmacists, health service managers) have a responsibility to spread awareness to prevent microbial resistance.

Conclusion: Therefore, discussing and raising awareness among the medical, dental and general population about antimicrobial resistance is essential to minimize this serious public health problem, which is among the WHO's 10 health priorities. We are all responsible for the prudent use of antimicrobials!

MANAGEMENT OF SOFT TISSUE INJURIES IN MAXILLOFACIAL TRAUMA

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Aim: Maxillofacial trauma results in a wide spectrum of soft tissue injuries. The severity of these lesions is influenced by the anatomical site of impact as well as the magnitude and direction of the applied force. This study aims to present an updated overview of the management of soft tissue injuries in maxillofacial trauma.

Method: A search was conducted on the PubMed database, using the terms "soft tissue wounds" and "maxillofacial trauma", and identified 372 articles. After applying relevance criteria, 20 articles were selected.

Results: Initial patient evaluation should adhere to the Advanced Trauma Life Support (ATLS) protocol, including thorough assessment of the trauma mechanism, symptoms, relevant medical history, tetanus immunization status, and other clinical information. Broad-spectrum antibiotic prophylaxis is recommended in cases of contaminated wounds and injuries resulting from human bites. The management begins with copious irrigation of the wounds, combined with hemostasis and debridement of nonviable tissue. Primary closure with sutures is indicated when feasible; however, extensive avulsion defects require reconstructive procedures involving grafts or local/regional flaps. Adjunctive therapies such as pulsed dye lasers and intralesional corticosteroid injections are used to minimize hypertrophic scarring and enhance aesthetic outcomes.

Conclusion: Soft tissue injuries in maxillofacial trauma show diverse clinical presentations and require individualized, etiology-specific management approaches. A systematic treatment strategy is important to prevent complications such as infection and wound dehiscence.

MANAGING PROCEDURAL ACCIDENTS AND ENSURING SUCCESS IN ENDODONTIC RETREATMENT: 8-MONTH CBCT CASE REPORT

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Aim: Endodontics has significantly progressed due to scientific advances and new technologies, materials, and techniques. Still, complications such as instrument fractures, perforations, canal deviations, and difficulty in locating root canals remain frequent, especially in retreatment. These challenges can impair chemo-mechanical preparation, obturation, and periapical healing. This clinical case, performed at the Specialization Clinic of the Piracicaba Dental School (FOP-Unicamp), aimed to establish an accurate diagnosis through clinical and radiographic exams, supported by cone-beam computed tomography (CBCT), enabling an effective retreatment plan.

Method: The procedure occurred in two sessions. First, the MV1 canal was desobturated; MV2, DV, and P canals were located; calcium hydroxide with 2% chlorhexidine gel was used as intracanal medication, and abscess drainage was done via the sulcus. In the second session, the medication was removed, a fractured instrument was retrieved from MV2, and both the perforation and canal deviation were sealed. Irrigants were activated, and final obturation was completed. CBCT follow-up after eight months showed signs of periapical healing.

Results: According to the European Society of Endodontology, lesion regression is expected within a year; in this case, it was noted earlier. However, follow-up for up to four years is advised.

Conclusion: In conclusion, accurate diagnosis, careful complication management, and strict infection control were essential for clinical success and functional tooth preservation.

MANDIBLE RECONSTRUCTION WITH VASCULARIZED FIBULAR BONE GRAFT AFTER HEMIMANDIBULECTOMY FOR UNICYSTIC AMELOBLASTOMA

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Aim: The mandible is crucial for vital functions and facial aesthetics. In cases such as Unicystic Ameloblastoma, surgical resection may be necessary, often leading to functional and aesthetic impairments. Among the reconstruction options, the vascularized fibula graft stood out for restoring mandibular structure and function. This literature review aims to highlight its clinical benefits and the therapeutic strategies used.

Method: The bibliographic survey included scientific articles in English and Portuguese that address the topic comprehensively, from classic publications from 1995 to recent studies from 2024, including several case reports, with the inclusion criteria being only cases involving Unicystic Ameloblastomas in which reconstruction was performed with vascularized fibula bone graft.

Results: Despite its high cost and complexity, mandibular reconstruction with a microvascularized fibular flap is considered the gold standard for extensive cases, offering significant benefits. Success depends on adequate clinical planning and continuous patient monitoring.

Conclusion: Mandibular reconstruction with a microvascularized fibular flap is currently considered the most effective and safe method, with the best functional and aesthetic results, especially in cases of large lesions such as some unicystic ameloblastomas. This technique offers large bone volumes, allows rehabilitation with dental implants and presents low morbidity in the donor area. In addition, it allows combination with skin flaps, facilitates modeling of the mandible, allows multiple osteotomies and can be performed by simultaneous teams, optimizing surgical time.

MANDIBULAR METASTASIS AS THE FIRST SIGN OF UNKNOWN COLORECTAL ADENOCARCINOMA: A CASE REPORT

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Aim: The aim of this study is to report a clinical case of an oral metastasis of colorectal adenocarcinoma prior to the knowledge of the primary lesion.

Method: A 58-year-old male patient presented with spontaneous paresthesia in the left mental region. Clinical examination revealed facial asymmetry and mobility of the lower left premolars. A computed tomography demonstrated an irregular, expansile lesion causing bone resorption and cortical perforation of the left mandibular body. An incisional biopsy was performed under the provisional diagnosis of benign conditions. Histopathological and immunohistochemical analysis suggested a metastatic adenocarcinoma, likely of colorectal origin. The patient was referred to oncologist, where a colonoscopy confirmed a primary tumor affecting the sigmoid colon and rectum. Clinical staging revealed widespread metastases, including abdominal lymph nodes, lungs, kidneys, nasal cavity, maxillary sinus, skull, along mandible.

Results: The patient later developed vision loss due to optic nerve compression. After twelve months, the patient remained alive under palliative chemotherapy.

Conclusion: Metastasis to the oral cavity may be the first sign of an occult primary malignancy and is associated with a poor prognosis.

MANDIBULAR OSTEOTOMIES FOR ACCESS TO DEEP CERVICOFACIAL TUMORS: A LITERATURE REVIEW

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Aim: Tumors located in deep regions of the face present significant surgical challenges due to their proximity to vital neurovascular structures and difficult anatomical access. Mandibular osteotomies have emerged as effective techniques to expand the surgical field, allowing better visualization and control during tumor resection. This expanded access has proven to be a viable alternative in selected cases, offering relatively lower functional and aesthetic morbidity compared to other approaches. The aim of this study was to evaluate, through a literature review, the outcomes obtained in the treatment of deep tumors in the cervicofacial region using these techniques.

Method: A search was conducted in the PubMed, Scopus, and Web of Science databases, including case reports, case series, and retrospective studies from the last 10 years.

Results: Six studies were selected for qualitative analysis, excluding those that did not align with the study criteria. The main pathologies treated were: large pleomorphic adenoma, schwannoma, Warthin's tumor, and other tumors located in the parapharyngeal space. The main approaches used were double mandibular osteotomy via transcervical access and mandibular swing via submandibular access with a midline lip incision. Both techniques were effective in treating tumors in deep regions of the face, with a low complication rate.

Conclusion: It is concluded that mandibular osteotomies are a reliable and reproducible technique for improving surgical access to deep cervicofacial spaces, allowing complete visualization and treatment of associated pathologies with low morbidity and few long-term complications.

MANDIBULAR SAGITTAL SPLIT OSTEOTOMY FOR THIRD MOLAR REMOVAL – LITERATURE REVIEW

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Aim: The purpose of this study was to conduct a literature review of the MSSO technique for third molars removal. The aim was to understand its indications, surgical technique, risks, and outcomes.

Method: The algorithm used was "((((((((Molar, Third) OR (Molars, Third)) OR (Teeth, Wisdom)) OR (Third Molar)) OR (Third Molars)) OR (Tooth, Wisdom)) OR (Wisdom Teeth)) OR (Wisdom Tooth)) AND (Osteotomy, Sagittal Split Ramus)) OR (Sagittal Split Ramal Osteotomy)) OR (Sagittal Split Ramus Osteotomy)" on Pubmed® database platform.

Results: A total of 1,845 studies were identified, with 11 chosen for final analysis: 10 case reports and 1 retrospective study. Publication years ranged from 1995 to 2017.

Conclusion: Impacted teeth surgery is a routine procedure in oral and maxillofacial surgery. Mandibular Sagittal split osteotomy (MSSO) is an alternative to third molar removal in cases where ostectomy and odontossection can become more invasive and carry a high risk of mandible fracture and/or damage in the alveolar inferior nerve. MSSO offers excellent access, direct visualization of the inferior alveolar nerve (IAN), and better bone preservation. Disadvantages include IAN neurosensory deficits, temporomandibular joint disorders, infections, nonunion, malocclusion, potential for bad splits, and high costs. However, it has low postoperative complications and morbidity rates and can be performed efficiently and quickly. Thus, oral and maxillofacial surgeons can indicate and execute this surgical procedure to treat third molars in an unusual position.

MAXILLOMANDIBULAR ADVANCEMENT AND OBSTRUCTIVE SLEEP APNEA IN THE LONG-TERM. PRELIMINARY RESULTS OF A LITERATURE REVIEW

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Aim: Maxillomandibular advancement (MMA) surgery is commonly used to treat obstructive sleep apnea (OSA). The severity of OSA is classified by the apnea-hypopnea index (AHI) registered during a polysomnography. MMA has been clinically shown to significantly reduce AHI scores in the short-term. However, long-term results aren't as clear. This literature review aimed to evaluate the long-term effectiveness of MMA surgery in treating OSA.

Method: A search was conducted on Pubmed, Scopus, Cochrane, Scielo and Lilacs databases, without language restrictions, using the search query "(Apnea AND Maxillomandibular AND Long-term).

Results: A total of 145 articles were initially found, of which 135 were excluded (111 after initial screening, 14 after full-text reads, and 10 duplicates). Thus, 10 reports were included in this review's sample. The data collected were: sample size, age at the moment of surgery, follow-up time, AHI, Epworth sleepiness scale and body mass index (BMI), pre and postoperative for the latter three. Significant AHI reduction was observed in all the reports during short-term follow-ups. On later follow-ups, ranging from 2 to 19 years post-operation, partial OSA relapses were observed across the board, with moderate AHI increases.

Conclusion: Although limited, this literature review's data suggests that MMA surgery is reasonably effective in treating OSA in the long-term. Even considering the partial relapse, the most recent AHI values were still considerably lower than the preoperative scores. Reports of long-term follow-ups for MMA are scarce, but of utmost importance to truly elucidate the surgery's effectiveness in treating OSA.

MEANING OF BREASTFEEDING FOR MOTHERS OF CHILDREN WITH CLEFT LIP AND/OR PALATE: AN INTEGRATIVE REVIEW

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Aim: Thus, the objective of this integrative review was to explore the literature on the meanings and significance of breastfeeding for mothers of children with cleft lip and/or palate and to develop a field study.

Method: The review included both qualitative and quantitative studies to consolidate different approaches regarding the meanings and significance of breastfeeding for mothers of children with cleft lip and/or palate. The guiding question, based on the PCC (Population, Concept and Context) strategy, was: "What are the meanings and significance attributed to exclusive breastfeeding by mothers of children with cleft lip and/or palate in the scientific literature?" The research was registered on the OSF (DOI: 10.17605/OSF.IO/G9YNF).

Results: During the primary search stage, 224 publications were identified across the following databases: Google Scholar, ScienceDirect, Scopus, and PubMed. After a thorough analysis, 4 articles were selected that showed greater alignment with the focus of the study. Despite the different methodologies of the studies, the multiple challenges faced by mothers of children with cleft lip and/or palate during breastfeeding were highlighted

Conclusion: Difficulties with sucking, combined with emotional factors such as insecurity, anxiety, sadness, and feelings of guilt, compromise adherence to breastfeeding and lead to early weaning. The lack of support and care worsens these obstacles, highlighting the need for interventions that validate maternal experiences and combat the social stigma faced by these women. The scarcity of qualitative studies on their perceptions reveals an important gap in the literature

MEANINGS OF CARE FOR VICTIMS OF VIOLENCE AT THE WOMEN'S CARE REFERENCE CENTER (CRAM)

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Aim: This study explores the meanings of the care provided to women victims of violence by professionals at the Women's Care Reference Center (CRAM).

Method: In-depth interviews were conducted with seven professionals (administrative staff, legal professionals, social workers, and psychologists) from the only CRAM in the city, all women aged between 25 and 55 years. Data were analyzed using Clinical-Qualitative Content Analysis (CQCA). The study followed ethical standards (CAAE 48017321.2.0000.5418), with the guiding question: "How do you feel when assisting women who are victims of domestic violence?"

Results: The analysis revealed three main categories. The first, Identification that causes distress in daily work, showed the duality experienced by the professionals between caring and suffering. Although the work is rewarding, it also generates anguish. The second, Work and personal relationship traumas, revealed that constant exposure to domestic violence made the professionals more rigid and intolerant in their personal relationships. The third, Impact of the service network organization on the relationship between workers and users, highlighted the importance of the service network in supporting and treating victims, strengthening the bond between professionals and users.

Conclusion: The CRAM proved to be an environment of intense emotional load. The participants' accounts reveal the need for support not only for the victims but also for the professionals. Despite the challenges, the professionals perceive their work as rich and meaningful, demonstrating resilience and empathy in addressing violence against women.

MECHANICAL, SURFACE, AND OPTICAL EFFECTS OF ARAMID FIBER REINFORCEMENT IN 3D-PRINTED RESINS FOR REMOVABLE PROSTHESES

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Aim: This study assessed the impact of reinforcing 3D-printed resins for removable prostheses with aramid fibers on their mechanical properties.

Method: Following ISO 20795-1:2013 standards, specimens (n=6/group) were manufactured using a Digital Light Processing 3D printer and divided into two groups: a control group consisting of 3D-printed resin for denture bases and an experimental group reinforced with 5% aramid fibers. Red aramid fibers were chosen for aesthetic purposes, and the mechanical properties analyzed included surface microhardness (KHN), surface roughness (μm), elastic modulus (GPa), flexural strength (MPa), and surface free energy (mJ/m^2). The statistical test chosen after the exploratory analysis of the data was the One-way ANOVA, and post hoc Tukey was applied when the interaction had a statistically significant difference ($\alpha=0.05$).

Results: The results showed statistical differences in elastic modulus ($P<.0001$), flexural strength ($P<.0001$), surface free energy's polar variable ($P=0.0263$), and total surface free energy ($P=0.0344$). Surface microhardness and surface roughness showed no statistical difference ($P\geq 0.05$). The color difference (ΔE) obtained through the CIEDE2000 calculus was below the perceptibility threshold (≤ 1.1).

Conclusion: Incorporating aramid fibers into the 3D-printed resin for denture bases enhanced its flexural strength, elastic modulus, and surface free energy, while its surface hardness and roughness remained unchanged. Additionally, it offers a simple solution for enhancing the mechanical properties and aesthetic appearance of 3D-printed resin used in removable denture bases.

MEDICINES: HOW TO STORE, RATIONAL USE AND CONSCIOUS DISPOSAL

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Aim: To discuss medicines, focusing on how to store, rational use and conscious disposal.

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

Results: 1860 articles were selected, and after the criteria, 8 articles remained. According to the official definitions that regulate the health sector in Brazil, according to Ministerial Ordinance 3.916/MS/GM of the Ministry of Health, a drug is a chemical substance that is the active ingredient of a medicine. A medicine is understood to be a pharmaceutical product with prophylactic, curative, palliative or diagnostic purposes. Storing the medicine properly is essential to ensure that its expiration date is not shortened. Since these are chemical products, many external factors can influence the effectiveness of the medicines. The promotion of the rational use of medicines must involve the participation of several social actors: patients/consumers, health professionals, legislators, public policy makers, industry, commerce and government. Studies report that consumers do not have a good level of knowledge about the administration of medicines. Many of them take the medication without even knowing what it is for, how to administer it correctly and for how long. Improper disposal is also related to a lack of knowledge, whether by professionals who work directly in handling these products or by consumers. Improperly disposed of medications have caused contamination in environmental matrices around the world, especially in water and effluents, since they are still commonly disposed of in regular trash or in the sewage system itself (e.g., toilet flushes).

Conclusion: In this sense, it is necessary to improve the means of providing information to consumers in general.

METALLOMIC CHARACTERIZATION OF INDUCED PERIAPICAL LESIONS: AN IN VIVO STUDY

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Aim: Apical periodontitis is a chronic inflammatory condition associated with endodontic infections and is directly modulated by the host immune response. Metals are essential for metabolism and play key roles in biological functions; however, the differential metallographic profile between apical periodontitis and healthy bone tissue remains unexplored.

Method: This study evaluated 76 lower first molars from 38 Wistar rats, comparing induced periapical lesions and healthy controls (sham). Lesions were induced by pulp exposure, allowing infection to develop. After 40 days, the animals were euthanized, and their hemimandibles were analyzed using periapical radiography, micro X-ray fluorescence (μ -XRF), inductively coupled plasma optical emission spectrometry (ICP-OES), and inductively coupled plasma mass spectrometry (ICP-MS). Ten essential metals (sodium, potassium, magnesium, calcium, iron, manganese, cobalt, copper, zinc, and molybdenum) were investigated. Normality was assessed using the Shapiro-Wilk test, and group comparisons were performed using the t-test or Mann-Whitney test, as appropriate ($p < 0.05$).

Results: Radiographic analysis confirmed lesion induction; μ -XRF revealed reduced calcium and zinc and increased iron. ICP analyses showed significantly higher levels of sodium ($p = 0.0137$), potassium ($p = 0.0005$), calcium ($p = 0.0059$), magnesium ($p = 0.0004$), iron ($p < 0.001$), iron-56 ($p = 0.0078$), iron-57 ($p = 0.0315$), and manganese ($p < 0.001$) in periapical lesions.

Conclusion: These findings suggest that apical periodontitis disrupts mineral homeostasis. The study demonstrated distinct elemental profiles between diseased and healthy bone tissue.

MICROSHEAR BOND STRENGTH OF COMPOSITE RESINS WITH DIFFERENT PULP CHAMBER CLEANING PROTOCOLS AFTER ENDODONTIC TREATMENT

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Aim: Evaluate microshear bond strength (μ SBS) of resin composite on bovine dentin contaminated with BioRoot RCS or AH Plus Jet sealers after three cleaning protocols.

Method: 72 bovine incisors were sectioned and embedded in acrylic resin. The dentin surfaces were contaminated with either BioRoot RCS or AH Plus Jet endodontic sealers and subjected to one of three cleaning methods: Cotton pellet soaked in 70% alcohol; Round diamond bur; Prophylactic brush. A control group without sealer contamination was included. After cleaning, a universal adhesive system was applied to the dentin. Resin composite cylinders ($n = 8$) were fabricated using Tygon tubes positioned onto the dentin and stored in water (37 °C for 24 hours). After storage, the specimens were tested for μ SBS using a universal testing machine. Failure modes were classified under a stereomicroscope.

Results: Differences were observed among the cleaning methods ($p < 0.026$), endodontic sealers ($p < 0.001$), and their interaction ($p < 0.001$). In the control group, the cotton pellet soaked in alcohol showed the highest μ SBS mean values, whereas, for AH Plus Jet and BioRoot RCS, the prophylactic brush yielded the highest mean values. Failure analysis revealed that mixed failures were predominant, with an increase in cohesive failures in the AH Plus Jet group when cleaned with the round diamond bur.

Conclusion: The cleaning methods significantly influenced the microshear bond strength of resin composite. The cotton pellet with alcohol provided the highest μ SBS mean value in the control group, but for both BioRoot RCS and AH Plus Jet, the prophylactic brush resulted in the highest μ SBS mean values.

MINIMALLY INVASIVE ANTERIOR ESTHETIC REHAB WITH DIRECT COMPOSITE VENEERS GUIDED BY DIGITAL PLANNING - CASE REPORT

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Aim: The esthetic disharmony of anterior teeth can compromise self-esteem and negatively impact the expressiveness of the smile. This clinical report aimed to describe the re-anatomization of maxillary incisors using direct composite resin veneers guided by digital smile design.

Method: A 24-year-old female patient presented to the Clinic of Specialization in Operative Dentistry at FOP-UNICAMP, complaining about dissatisfaction with the shape and height/width ratio of her anterior maxillary teeth (teeth 12 to 22), as well as discoloration of restorations on the lateral incisors. Clinical procedures included diagnostic impressions, clinical photography, and digital smile planning, whose predictability was evaluated with an intraoral mock-up. The treatment protocol involved one in-office bleaching session (Whiteness HP 38%) combined with supervised at-home bleaching (Whiteness Perfect 16%) for two weeks. After 30 days, unsatisfactory restorations were removed, followed by the fabrication of direct veneers using composite resins of different opacities and brands (WB Forma, WE Palfique, Vit-L-escence Ultradent). Pigment was applied to the incisal halo, and a single anterior matrix (Polydentia) was used to optimize proximal contours and cervical adaptation.

Results: The integrated, sequential, and minimally invasive approach resulted in morphofunctional refinement, esthetic predictability, and high patient satisfaction.

Conclusion: The protocol proved to be effective, accessible, and reproducible, representing a viable alternative for anterior esthetic rehabilitations.

MINIMALLY INVASIVE ESTHETICS: TREATMENT OF ANTERIOR HYPOPLASTIC LESIONS WITH RESIN INFILTRANT

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Aim: The aim of this clinical case was to restore the esthetics of teeth 11 and 21 using a minimally invasive treatment with resin infiltrant.

Method: A 22-year-old female patient sought care at the Operative Dentistry clinic with a chief complaint of white spots on the anterior teeth, but did not wish to undergo any tooth preparation. After anamnesis and transillumination with a green LED tip, hypoplastic lesions were diagnosed, likely related to childhood trauma, with different involvement of teeth 11 and 21. Prophylaxis was performed with pumice paste, followed by absolute isolation. The treatment began with hydrochloric acid etching (IconEtch, DMG) for 2 minutes, rinsing, and ethanol solution application (IconDry, DMG). The resin infiltrant (Icon, DMG) was applied for 3 minutes, excess removed, and light-cured (Valo Corded, Ultradent). A second application was performed for 1 minute, followed by another light-curing cycle. Final polishing was done using abrasive rubber tips (Optimize, TDV). Follow-ups at 6 months and 1 year included clinical inspection and photographic documentation. Near-complete masking of the lesions was observed, with only slight visibility in the incisal region of tooth #21, which did not bother the patient.

Results: The esthetic result remained stable, with no staining, surface roughness, or gloss loss.

Conclusion: It was concluded that the minimally invasive approach was effective and met the patient's esthetic expectations.

MODIFIED SINTERING PROTOCOL TO IMPROVE STRENGTH, MAINTAIN TRANSLUCENCY, AND OPTIMIZE DENTAL ZIRCONIA LAB WORKFLOW

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Aim: This study aimed to optimize conventional sintering (CS) by introducing a modified protocol (m-CS) with reduced dwell time to save time in the lab workflow without compromising — and potentially improving — the mechanical and optical properties of yttria-stabilized zirconia (YSZ).

Method: 300 disc-shaped specimens ($n = 10$) were cold-isostatically pressed from 3YSZ (Zpex), 4YSZ (Zpex 4), and 5YSZ (Zpex Smile) powders (Tosoh Corp.) and sintered at 1350, 1400, 1450, 1500, and 1550 °C using: CS (2h dwell time); m-CS (1 min dwell time), with constant heating/cooling at 5 °C/min. Density, phase content, microstructure, translucency, and flexural strength were assessed using Archimedes', XRD, SEM, spectrophotometry, and piston-on-3-ball methods. Data were analyzed by one-way ANOVA and Tukey's test ($\alpha = 0.05$).

Results: m-CS at high sintering temperatures (HST) for all zirconia compositions promoted comparable densification to CS ($> 99\%$) ($p > 0.05$). m-CS achieved higher tetragonal phase content than CS. SEM showed m-CS above 1500 °C produced significantly larger grain size in all YSZs ($p < 0.05$). Translucency at HST for 3YSZ and 4YSZ was unaffected by the sintering protocol ($p > 0.05$), but 5YSZ showed lower translucency with m-CS ($p < 0.05$). m-CS improved significantly the strength of all YSZs vs. CS ($p < 0.05$).

Conclusion: Considering these findings, the m-CS by HST, low and constant cooling/heating rates, and short dwell times are recommended to increase the strength of 3YSZ, 4YSZ, and 5YSZ while preserving optical properties and save time in the lab workflow of dental zirconia.

MOLAR-INCISOR HYPOMINERALIZATION (MIH) AND DECIDUOUS MOLARS (HSPM): PREVALENCE, SEVERITY AND ASSOCIATION IN BRAZIL

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Aim: To determine the prevalence of MIH and HSPM in Brazilian schoolchildren and explore the distribution of hypomineralised lesions on permanent and primary molars.

Method: This is a population-based, cross-sectional, and analytical epidemiological study that assessed 1,652 schoolchildren from the public school system of Piracicaba, São Paulo, aged 6 to 13 years. Permanent incisors and second primary molars were examined by two trained and calibrated examiners according to the diagnostic criteria for MIH and HSPM established by the European Academy of Paediatric Dentistry (EAPD). In addition, demographic data (age, grade, sex, and ethnicity) were collected.

Results: The observed prevalence of MIH was 15.71%, while hypomineralization of the second primary molars (HSPM) was detected in 3.43% of the children. The simultaneous occurrence of both conditions (MIH and HSPM) was 2.83%. These results indicate a higher frequency of hypomineralization in permanent teeth compared to primary teeth. Regarding severity, demarcated opacities (grade 1) were the most frequent lesions observed in permanent molars, followed by post-eruptive enamel breakdown (grade 2) and atypical restorations (grade 3). Lesion severity was also predominantly mild, with a lower proportion of moderate or severe cases.

Conclusion: Molar-incisor hypomineralization was more prevalent than hypomineralization of the primary molars in this Brazilian pediatric population, while lesion severity was predominantly mild and asymmetrically distributed among the teeth.

MUCOPYOCELE: DIAGNOSIS AND TREATMENT – LITERATURE REVIEW

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Aim: A literature review was performed to verify the challenges regarding the diagnosis and treatment for frontal sinus mucopyoceles, correlating them with the care of the oral and maxillofacial surgeon.

Method: Through the search "mucopyocele AND (oral and maxillofacial surgery)" in Pubmed, Scopus, Embase, Chocrane, and Web of Science, without time or language limitations, 103 articles were initially evaluated based on reading of the title and abstract.

Results: Diagnosis is determined by clinical examination with the aid of computed tomography and, in some cases, magnetic resonance imaging. Intracranial extension can result in complications such as meningitis, meningoencephalitis, pneumocephalus, brain abscess, seizures, and cerebrospinal fluid fistulas. Mucopyoceles are treated surgically, with drainage of the region, removal of the associated sinus membrane, cranialization, obliteration, and stenting of the nasofrontal duct, associated with the external endonasal or endoscopic approach.

Conclusion: It occurs infrequently and requires prompt treatment to reduce complications and sequelae for patients.

MULTIDISCIPLINARY MANAGEMENT OF MESIODENS IN A CHILD: CASE REPORT WITH 16-MONTH FOLLOW-UP

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this case report is to highlight the importance of a multidisciplinary approach to achieve satisfactory clinical and esthetic outcomes in a child with delayed eruption of the permanent maxillary central incisor due to mesiodens.

Method: A 9-year-old female patient came to the Pediatric Emergency Room of the Faculdade de Odontologia de Piracicaba (UNICAMP), complaining that her tooth was growing too far forward and that she was being bullied at school because she had another tooth that, according to her classmates, was shaped like a "hook". Clinical and radiographic examination revealed an erupted mesiodens in the region of the upper left central incisor (ULCI), causing its impaction. The supernumerary tooth was extracted, and the ULCI eruption was monitored. The patient was referred for interceptive orthodontic treatment, where clinical and radiographic examinations, scanning and cephalometric analysis (USP/UNICAMP standard) were performed for diagnosis. She was in the second transition period of mixed dentition, with class I occlusion and class III growth tendency, presenting vestibuloversion and infraocclusion of the ULCI. A 4x2 fixed appliance was installed to pull and align the ULCI. After 15 days, the tooth was properly aligned and leveled, with satisfactory root positioning, allowing removal of the appliance. At the three-month follow-up, a slight relapse was observed, possibly related to onychophagy.

Results: A removable appliance with a Hawley arch was made and installed to maintain alignment.

Conclusion: Thus, the multidisciplinary approach ensured functional and aesthetic rehabilitation, positively impacting the patient's self-esteem.

NINE MONTHS FOLLOW-UP OF ROOT PERFORATION REPAIR USING MTA-HP IN A SINGLE RETREATMENT SESSION: A CASE REPORT

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Aim: Root perforations are accidents and complications that may occur during endodontic or restorative procedures, particularly during the cementation of posts. With the advent of calcium silicate-based repair cements, effective sealing and preservation of the affected tooth have become viable options. This case report aims to evaluate the success and healing of a root perforation sealed with a calcium silicate-based repair cement in a tooth previously indicated for extraction.

Method: A 59-year-old female patient, healthy and without systemic conditions, sought dental care presenting with a fistula, spontaneous pain, and sensitivity to both vertical and horizontal percussion on tooth 24, which had a metal-ceramic crown, a metallic post, and inadequate endodontic treatment. The crown was sectioned, and the post was removed using ultrasonic tips. Cone-beam computed tomography (CBCT) revealed a perforation in the palatal root and associated bone resorption. The perforation was sealed with MTA HP (Angelus), and the root canals were retreated using rotary instrumentation systems and obturated in a single session. The tooth was rehabilitated with a post and a digital workflow, including intraoral scanning and 3D printing of the crown.

Results: Follow-up evaluations at six and nine months showed no painful symptoms upon vertical or horizontal percussion. CBCT imaging revealed regression of the bone resorption.

Conclusion: Thus, bone healing and the absence of clinical or radiographic signs of periradicular pathology indicate the successful outcome of the treatment nine months after sealing the root perforation with a calcium silicate-based repair cement.

NON-INSTRUMENTAL ENDODONTIC TREATMENT WITH 3MIX-MP AND CTZ IN PRIMARY MOLARS: REPORT OF TWO CASES WITH 6-MONTH FOLLOW-UP

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Aim: This case report aimed to describe the clinical and radiographic success of primary molars treated using non-instrumental endodontic treatment (NIET) with different antibiotic pastes (3Mix-MP and CTZ) over six months.

Method: The first patient, a 6-year-old girl, was treated at the children's dental emergency service at the Faculdade de Odontologia de Piracicaba da Universidade Estadual de Campinas, presenting pain and intraoral abscess in the lower left second primary molar, diagnosed with pulp necrosis. NIET was performed using local anesthesia, rubber dam, coronal access, disinfection with 2.5% sodium hypochlorite, and application of 3Mix-MP paste (metronidazole, ciprofloxacin, clindamycin with propylene glycol). The tooth was provisionally restored with glass ionomer cement and received a stainless-steel crown after 15 days. At 15 days, 3 and 6 months, the patient had no pain, fistula, abscess, or mobility, with reduction in periapical radiolucency. The second patient, a 6-year-old boy, had pain and an abscess in the lower left first primary molar, also diagnosed with pulp necrosis. The same protocol was used, except for CTZ paste (chloramphenicol, tetracycline, zinc oxide with eugenol). After provisional restoration, a metal crown was placed. At 15 days, abscess and fistula were observed in the adjacent tooth, but the treated tooth was asymptomatic.

Results: No signs or symptoms of infection were observed at 3 and 6 months. Radiographically, there was a reduction in periapical bone loss.

Conclusion: The pastes evaluated demonstrated good performance in the NIET at 6 months follow-up, with 3Mix-MP showing better clinical and radiographic results.

ORAL HEALTH EDUCATION FOR CHILDREN WITH AUTISM: DEVELOPMENT AND IMPLEMENTATION OF ADAPTED EDUCATIONAL MATERIALS

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Aim: The objective of this extension experience was to develop and apply educational materials on oral health aimed at children with Autism Spectrum Disorder (ASD).

Method: Considering the sensory, cognitive, and behavioral particularities of children with ASD, the goal was to create accessible, playful, and adapted resources that respect the individuality of each child. Illustrated booklets with simple language, demonstrative videos with soft visual and sound stimuli, as well as practical and interactive activities were developed and implemented in educational institutions and specialized support centers. The action was carried out by Dentistry students, with faculty guidance and support from special education professionals.

Results: The results show that the materials facilitated the understanding and acceptance of oral hygiene practices, promoting inclusion, self-care, and awareness of the importance of oral health.

Conclusion: The project reinforces the social role of the university and the importance of multidisciplinary approaches in the healthcare of people with ASD.

ORAL HEALTH LITERACY AND ITS IMPACT ON ORAL HEALTH: A NARRATIVE LITERATURE REVIEW

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Aim: Oral health literacy (OHL) has emerged as a key concept in health promotion, directly influencing access to, understanding of, and use of information related to oral health. This narrative literature review aimed to analyze the impact of OHL on various oral health outcomes, including self-perception, preventive behaviors, treatment adherence, quality of life, and clinical oral health conditions.

Method: A comprehensive search was conducted using the PubMed, Scielo, and Scopus databases, in addition to gray literature, considering articles published in Portuguese and English, with no year restrictions.

Results: Twenty-four articles were included, most of which indicated that low levels of OHL are associated with poorer clinical indicators, lower use of preventive services, higher prevalence of oral diseases, and worse oral health-related quality of life scores. Vulnerable populations—such as older adults, children, and Indigenous groups—were particularly affected by low health literacy. Furthermore, the literature reveals important limitations, such as the predominance of cross-sectional studies, methodological heterogeneity of measurement tools, and a narrow focus on specific population groups.

Conclusion: The development of longitudinal studies, validation of comprehensive and culturally sensitive instruments, and implementation of interdisciplinary strategies that incorporate OHL into public health policies are strongly recommended.

ORAL HEALTH, NUTRITIONAL STATUS, FEEDING BEHAVIOR AND SOCIODEMOGRAPHIC CHARACTERISTICS IN EARLY CHILDHOOD

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Aim: The aim of this study was to describe oral health conditions, nutritional status, feeding behaviors, and sociodemographic characteristics among preschool children in early childhood.

Method: This descriptive cross-sectional study included 34 preschool children (ages 3 to 5). Data collected comprised oral health, nutritional, feeding behavior, and sociodemographic variables. A clinical form included anamnesis, the Brazilian Economic Classification Criteria (ABEP), the Brazilian Portuguese version of the Montreal Children's Hospital Feeding Scale (EAHPM), and WHO food frequency questionnaires. Clinical data collection assessed the dmft index, weight, height for BMI calculation, sweet consumption frequency, and occlusion characteristics.

Results: Regarding oral health, boys presented greater caries experience (73% of decayed teeth) and higher frequencies of crossbite (26.08%) and overbite (21.73%), whereas girls had higher frequencies of open bite (27.27%). Boys also had a higher prevalence of underweight (20%), and among the 34 children evaluated, 14.7% were classified as obese. Girls consumed more sweets, including cakes and homemade desserts. According to the EAHPM, no feeding difficulties were reported by caregivers. Most children had at least one parent with a secondary education level (ABEP score 2 or 4).

Conclusion: The findings reveal significant oral health disparities, dietary habits, and sociodemographic influences in early childhood, emphasizing the critical need for targeted preventive strategies to address these challenges and promote healthier outcomes.

ORAL LICHENOID REACTION RELATED TO PEMBROLIZUMAB THERAPY: AN UNCOMMON CASE REPORT

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Aim: To report an uncommon case of oral lichenoid reaction associated with pembrolizumab therapy, emphasizing the importance of clinical recognition and follow-up during immunotherapy.

Method: Oral lichenoid reaction related to pembrolizumab therapy, a monoclonal antibody used in immunotherapy, is presented here. A 61-year-old female patient with a history of treated melanoma in the left sclera (2019) and metastasis in the left parotid gland (2022), who underwent parotidectomy, was indicated for radiotherapy and pembrolizumab. The patient was referred to the School of Dentistry in July 2022 for pre-treatment dental care. In October 2022, the patient developed mucositis during radiotherapy, treated with photobiomodulation. In July 2023, a lichenoid lesion appeared on the left border of the tongue during pembrolizumab therapy. In October 2023, immunotherapy had ended, and the lesion had decreased. In 2024, after completing immunotherapy, the lichenoid lesion disappeared by the end of follow-up in October. Pembrolizumab, first approved by the FDA in 2014, can trigger immune-mediated adverse events. Oral lichenoid lesions are uncommon but may impact quality of life.

Results:

Conclusion: This case illustrates that oral lichenoid reactions may occur during pembrolizumab therapy and tend to regress after treatment discontinuation. Clinical recognition and regular follow-up are essential to prevent overtreatment and to support comprehensive oral care in oncologic patients.

ORAL SCREENING IN AN OUTREACH ACTIVITY: EPIDEMIOLOGICAL PROFILE AND EARLY DETECTION OF ORAL LESIONS

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Aim: To promote oral health and contribute to the early detection of oral diseases through a university-led outreach activity aligned with World Health Day initiatives.

Method: On April 12, 2025, an outreach event was conducted involving dental surgeons and students from the Academic League of Oral Pathology and Stomatology (LAEPO) at Universidade Brasil, Fernandópolis campus. The intervention included oral hygiene instructions, distribution of dental care kits, and systematized intraoral clinical screenings. Sociodemographic and behavioral data were digitally recorded for adults, while observational data collection was used for children.

Results: A total of 96 individuals received oral hygiene instructions and dental kits, and 30 adults underwent intraoral clinical screening. Among screened adults, 63.3% were female, with a mean age of 61.8 years. The majority had incomplete primary education (36.6%), identified as White (53.3%), and reported tobacco use (13.3%) and alcohol consumption (46.6%). Eight lesions with benign clinical characteristics were identified, and these individuals were referred to the Dental Specialty Center for definitive diagnosis and follow-up. An additional 18 children were observed.

Conclusion: The initiative reinforced the role of university outreach in promoting oral health, supporting early detection, and integrating education, healthcare services, and community engagement. It also provided a valuable hands-on learning opportunity for dental students, contributing to their professional development.

OUTCOME OF REGENERATIVE ENDODONTICS USING TAP OR CH PASTE IN IMMATURE TEETH: SYSTEMATIC REVIEW AND META-ANALYSIS

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Aim: The aim of this review was to investigate the influence of Triple Antibiotic Paste compared to different intracanal medications containing calcium hydroxide paste on the outcome of regenerative endodontic procedures in permanent teeth with an open apex.

Method: The study followed the PRISMA 2020 guidelines and was registered a priori in the PROSPERO database (CRD42024513838). A systematic search was conducted across five databases (Web of Science, PubMed, Scopus, Embase, and Cochrane Library) up to September 20, 2024. Two independent reviewers screened a total of 949 studies based on predefined eligibility criteria, focusing on randomized clinical trials that evaluated pulp revascularization success rates using TAP or CHP as intracanal medications. Meta-analysis was performed using random-effects models to assess the pooled effects of TAP and CHP.

Results: Of the 949 initial records, three randomized clinical trials met the inclusion criteria. Meta-analysis revealed no statistically significant differences between TAP and CHP in terms of apical closure, root canal thickness, or periapical healing (RR: 0.84; 95% CI: 0.08–0.97, $I^2 = 0\%$). Both treatments showed similar results in reducing apical diameter, thickening root walls, and alleviating preoperative symptoms.

Conclusion: Both TAP and CHP show promise in REP, with moderate-to-high certainty of evidence supporting their ability to achieve favorable clinical and radiographic outcomes. However, the limited number of included studies highlights the need for additional high-quality clinical trials to provide stronger evidence.

OZONE THERAPY IN ORAL SURGERY: A BIBLIOMETRIC ANALYSIS OF RESEARCH TRENDS

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ARAÇATUBA DENTAL SCHOOL - UNESP

Aim: The aim of this study was to analyze the bibliometric characteristics of the 20 most cited articles on ozone therapy in oral surgery

Method: A comprehensive search strategy without filters was applied in the Web of Science Core Collection. Data extracted included total citations, citation density, authors, country, institution, publication year, journal, study design, focus topics, keywords, and access type. Editorials and studies on ozone therapy in other specialties were excluded. Bibliometric networks were generated and analyzed using VOSviewer.

Results: The mean citation count was 32 (range: 9–91). The most productive author was Agrillo A (University of Rome, $n=4$). Publications spanned 1997–2022, with 50% originating from Europe. The Journal of Craniofacial Surgery was the most frequent journal, while randomized clinical trials on third molar surgery and case series on medication-related osteonecrosis of the jaws (MRONJ) were the most cited. All studies evaluated ozone as a local therapy, and no international collaboration networks were observed.

Conclusion: Findings revealed a rising citation trend for ozone therapy in MRONJ and third molar surgery management. However, robust clinical trials and meta-analyses are needed to establish protocols and validate the therapy's efficacy and safety.

PAIN PERCEPTION IN PATIENTS UNDERGOING MINIMALLY INVASIVE SURGICAL TECHNIQUES FOR THE TREATMENT OF INTRABONY DEFECTS

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Aim: Periodontitis is a multifactorial disease that causes progressive destruction of dental supporting tissues. This study focuses on vertical alveolar bone loss, which leads to angular bone defects, known as intrabony defects. These defects are associated with an increased risk of periodontal disease and tooth loss in patients under maintenance care, presenting a clinical challenge. Several therapeutic approaches exist, including minimally invasive surgical techniques like double flap (MIST) and single flap (M-MIST), which aim to provide access for decontamination while preserving the interdental papilla. These techniques have shown satisfactory results. The goal of this study was to assess participants' perceptions of these techniques during the first 7 postoperative days through a questionnaire using a visual analog scale (VAS) for pain and recording analgesic consumption.

Method: The sample included 53 patients—Control Group (MIST): $n=26$ and Test Group (M-MIST): $n=27$.

Results: Statistical analysis revealed both groups reported low pain intensity, ranging from “no pain” to “moderate pain”, with pain lasting up to day 4, showing no significant differences. The maximum pain report on the VAS scale was 31% for the control group and 15% for the test group on day 1. Analgesic consumption ranged from 4–12% in the control group and 15–11% in the test group during the first two days, showing low consumption with no significant differences.

Conclusion: Therefore, the conclusion is that both techniques present low morbidity in terms of pain perception and analgesic consumption and proved to be similarly satisfactory regarding postoperative pain.

PERACETIC ACID DISINFECTION OF PHOTOSTIMULABLE PHOSPHOR PLATES: EFFECTS ON CARIES LESION DIAGNOSIS AND IMAGING ARTIFACTS

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Aim: To evaluate the effects of disinfecting a photostimulable phosphor plate (PSP) receptor with peracetic acid (0.2%) on the radiographic diagnosis of proximal caries lesions. Additionally, to assess and measure the artifacts resulting from this process.

Method: Forty posterior teeth were mounted in 20 phantoms. Using a PSP receptor, one bitewing radiograph was obtained for each phantom. Subsequently, the disinfection protocol was initiated, in which 20 disinfections constituted one cycle. After each cycle, new radiographs were acquired. This process was repeated nine more times, totaling 200 disinfections (10 cycles × 20 disinfections) and 220 radiographs (200 post-disinfection radiographs + 20 baseline radiographs). The radiographs were evaluated by five examiners for the diagnosis of proximal caries lesions. One radiologist identified and measured the size of the artifacts. The area under the ROC curve, sensitivity, and specificity were calculated and compared according to the number of disinfections, using Analysis of Variance ($\alpha = 0.05$). Intra- and inter-examiner agreement was assessed using the weighted Kappa index.

Results: Disinfection did not affect the diagnostic metrics for detecting proximal caries lesions ($p > 0.05$). After 200 disinfections, the largest artifact measured 0.24 cm. Intra- and inter-examiner agreements ranged from moderate to substantial (0.60–0.69) and from fair to moderate (0.34–0.60), respectively.

Conclusion: After 200 disinfections, the radiographic diagnosis of proximal caries lesions remained unaffected by peracetic acid disinfection, and the observed artifacts were small.

PERCEPTION OF UNDERGRADUATE AND POSTGRADUATE STUDENTS REGARDING MANUAL AND MECHANIZED INSTRUMENTATION WITH NITI FILES

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study compared the perception and acceptance of undergraduate and postgraduate Dental students from FOP/UNICAMP regarding the use of different nickel-titanium (NiTi) endodontic instruments in the preparation of the root canal system (RCS).

Method: Participants included final-year undergraduate students, enrolled in the DC101 course, and postgraduate students in Endodontics, serving as interns in the same course. All had prior training with stainless steel manual files (SSF). During the course, they were trained in the use of NiTi manual M files (MMF, Easy Bassy) and the Reciproc Blue (RB, VDW) reciprocating NiTi system through theoretical classes, lab training, and clinical activities. A questionnaire was applied addressing concerns, level of difficulty, fear of accidents, and perception of treatment quality with each system. Instrumentation time, ease of use, efficiency, and safety were also evaluated using a Likert scale.

Results: Only 9 students had completed training at the time of data collection. SSF was rated as difficult to use, while MMF and RB were considered easier to learn and handle. Students reported feeling less apprehensive and experienced faster instrumentation with the NiTi systems, which were also preferred for their flexibility, cutting efficiency, and overall treatment quality. The preference order was RB > MMF > SSF.

Conclusion: It was concluded that there was excellent acceptance of NiTi instruments compared to stainless steel ones, with a clear preference for the reciprocating system.

PHOTOBIOMODULATION AS A PRE-ANESTHETIC STRATEGY IN PEDIATRIC DENTISTRY: CASE REPORTS

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Aim: This case report aims to demonstrate the application of low-level laser photobiomodulation (LLLTL) as a rapid, effective, and non-invasive alternative to conventional topical anesthetics prior to local anesthetic procedures in pediatric dental care.

Method: Managing children's behavior during anesthesia remains one of the most significant challenges in pediatric dentistry. Two pediatric patients—a 6-year-old boy and a 9-year-old girl—undergoing distinct dental interventions were included. One required anesthesia in the papillary region for absolute isolation, while the other required it in the sulcus region for maxillary tooth extraction. In both cases, pre-anesthetic laser therapy was administered using 6 J of energy at an infrared wavelength of 808 nm, applied immediately before the anesthetic injection. All appropriate measures were taken to ensure patient comfort and minimize discomfort related to the injection, and both procedures were performed by the same experienced operator.

Results: Following the anesthetic administration, both children reported mild pain levels—1 and 2, respectively—on the visual analogue pain scale, indicating minimal discomfort.

Conclusion: The outcomes suggest that low-level laser photobiomodulation provides a level of comfort comparable to that achieved with topical anesthetics, but with the added benefits of reduced clinical time and improved patient cooperation during anesthetic procedures in pediatric dentistry.

PHOTODYNAMIC THERAPY AS A POTENTIAL COMPLEMENTARY METHOD IN ENDODONTIC MICROSURGERIES: A LITERATURE REVIEW

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Aim: The objective of this review was to evaluate photodynamic therapy as a potential complementary technique to endodontic microsurgeries, highlighting its role in the decontamination of the surgical field. Additionally, the effectiveness of substances used in disinfection protocols was investigated.

Method: A search was conducted in the PubMed database, where a total of 70 articles were found using the following keywords: Endodontics, Photodynamic Therapy and Endodontic Surgery. Based on the inclusion criteria, 22 articles were selected for the literature review.

Results: Endodontic microsurgery is the final option when non-surgical treatments fail, presenting good success rates. To enhance the results and promote decontamination of the site, photodynamic therapy has proven effective, both in its ability to inactivate bacterial cells and in contributing to tissue recovery in the periapical region. Photodynamic therapy proves to be a potential adjunctive treatment for endodontic microsurgery, due to its high antimicrobial capacity, cellular selectivity, and potential to assist in tissue regeneration at the periapex.

Conclusion: Therefore, it is essential that more clinical studies are conducted to establish photodynamic therapy as a routine complementary procedure in endodontic microsurgeries.

PHYSICOCHEMICAL AND STRUCTURAL PROPERTIES OF TWO CALCIUM SILICATE-BASED REPAIR CEMENTS: CIMMO HP AND HD

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Aim: Evaluate the physicochemical properties and chemical characterization of CIMMO HP and HD and compare them with Biodentine and Portland cement.

Method: Setting time and radiopacity were evaluated according to ISO 6876/2012. Solubility was assessed in cement samples immersed in distilled water for 28 days. pH was measured in cement samples immersed in distilled water at 1, 7, 14, and 28 days post-mixing. Chemical characterization was performed using SEM/EDS, Raman spectroscopy, FT-IR, and X-ray diffraction at 1 and 28 days. The data were analyzed using ANOVA and Tukey's test ($p < 0.05$).

Results: The setting time of CIMMO HD was longer than CIMMO HP and similar to Portland cement ($p < 0.05$). The setting time of Biodentine was equal to that of all cements ($p < 0.05$). CIMMO HP exhibited the highest radiopacity ($p < 0.05$). Biodentine showed higher solubility ($p < 0.05$). The cements maintained an alkaline pH throughout all periods. Calcium carbonate and silicate peaks were observed in Raman, and hydration peaks in FT-IR. In XRD, all cements showed the compounds calcite, hatrurite, and portlandite. CIMMO HP and HD presented barium sulfate.

Conclusion: CIMMO HP and HD show a short setting time. Radiopacity of CIMMO HP exceeds 3 mm Al. The solubility of CIMMO HD and HP is at the limit of 3%. The cements maintained alkaline pH. CIMMO HP and HD cements exhibit adequate physicochemical properties and important chemical compounds for tissue repair.

PHYSICOCHEMICAL PROPERTIES AND MINERAL DEPOSITION OF AN EXPERIMENTAL BIOSILICATE-BASED CEMENT ON CARIOUS DENTIN

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Aim: This study evaluated the physicochemical properties and mineral deposition potential of an experimental BioS-based cement on artificially carious dentin.

Method: Phase 1 investigated the cement's pH during setting and after 7 days of immersion in solution, sorption and solubility ($\mu\text{g}/\text{mm}^3$), morphology (SEM), and spectroscopy (FT-IR). In Phase 2, bovine dentin blocks ($n=10$) were subjected to artificial caries induction and treated with: BioS (70% BioS, 10% Na_2HPO_4 , distilled water, HCl); Disodium phosphate (80% Na_2HPO_4 , distilled water, HCl); Calcium hydroxide (CH); and a negative control (NC). Microhardness (KHN) was measured at three time points: T0 (baseline), T1 (post-demineralization), and T2 (after 7 days), with the calculation of %SHR (Surface Hardness Recovery). SEM and FT-IR analyses were performed at T2. Data were analyzed statistically with a 5% significance level ($p < 0.05$).

Results: BioS and CH significantly increased the pH during setting (7.01–9.62 and 7.05–9.26, respectively) and after 7 days (12.16 and 11.3). FT-IR spectra of BioS revealed calcium silicate, PO_4^{3-} , and OH^- bands, compatible with hydroxyapatite formation; CH showed predominance of OH^- and carbonate peaks, indicating carbonation. BioS presented controlled solubility, unlike CH (unstable) and Disodium phosphate (complete dissolution). BioS also promoted the highest increase in KHN and %SHR ($p < 0.05$).

Conclusion: These findings suggest that the BioS-based cement is stable, alkalizing, and bioactive, with promising potential for remineralization and repair of carious dentin.

PHYTIC ACID CONDITIONING AND ITS INFLUENCE ON DENTIN ADHESION AND SMEAR LAYER ELIMINATION

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Aim: This study aimed to evaluate the effectiveness of phytic acid (IP6) at different concentrations as an alternative to phosphoric acid for dentin conditioning, focusing on resin-dentin bond strength and interface morphology
Method: Seventy-eight extracted human third molars were sectioned and had their smear layer standardized by polishing with 600-grit silicon carbide paper for 15 seconds under constant pressure. The specimens were divided into six groups (n=13): one control group (35% phosphoric acid, 15s) and five experimental groups treated with phytic acid (IP6) at 0.5% or 1% for 15 or 30 seconds, and at 50% for 15 seconds. After application of a universal adhesive and microhybrid resin composite, the samples were stored for 24 hours, sectioned into sticks (~1 mm²), and submitted to microtensile bond strength testing. Selected samples were analyzed by scanning electron microscopy (SEM).

Results: The groups treated with 0.5% and 1% IP6 showed early adhesive failures and lacked sufficient bond strength. Only the group treated with 50% IP6 for 15 seconds retained the restoration and showed bond strength comparable to the control. SEM analysis confirmed effective smear layer removal and dentinal tubule exposure in both the 50% IP6 and control groups.

Conclusion: At 50%, phytic acid demonstrated potential as a dentin conditioner, offering a more biocompatible alternative to phosphoric acid and contributing to the preservation of collagen structure and long-term bond stability.

POINT-OF-CARE ULTRASOUND PROTOCOL FOR ODONTOGENIC INFECTIONS

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Aim: Deep-neck odontogenic infections represent a significant aspect of daily oral and maxillofacial surgery practice, leading to considerable morbidity and mortality. Point-of-care ultrasound is a valuable tool for assessing problematic airways, detecting fluid collections and soft-tissue edema, and guiding drainage procedures. This study aims to validate a protocol for evaluating these clinical features in patients with severe odontogenic infections.

Method: We conducted a single-group prospective cohort study involving 20 patients diagnosed with deep-neck propagation of odontogenic infections. A transcervical linear high-frequency probe transducer (13-6 MHz) was utilized to scan the upper airway structures and infectious collections. Ultrasound-guided drainage was performed, and patients were evaluated daily according to the established protocol. Key data collected included airway volume, midline deviation, length of hospital stay, dysphagia, voice alteration, raised floor of the mouth, dyspnea, and neck swelling.

Results: The ultrasound findings correlated with various clinical symptoms, including dyslalia (p=0.069), dysphagia (p=0.028), and dyspnea (p=0.001). This protocol is advantageous for bedside evaluations, particularly for severe and unstable patients, and it can predict increased hospitalization time (p=0.019).

Conclusion: In conclusion, this protocol is reliable for assessing the upper airway in emergencies, providing insights into the severity of clinical features and aiding in determining hospitalization duration.

POTENTIAL OF PEEK AS AN ALTERNATIVE MATERIAL TO GLASS FIBRE POSTS: AN INTEGRATIVE LITERATURE REVIEW

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Aim: The rehabilitation of endodontically treated teeth with significant loss of coronal structure poses a clinical challenge, particularly in selecting the ideal intra-radicular post. In this context, polyetheretherketone (PEEK), a high-performance polymer, has garnered interest. This study aimed to conduct an integrative literature review on the use of PEEK as a material for intra-radicular posts, comparing its biomechanical, adhesive, and aesthetic properties with those of glass fibre posts.

Method: The search was carried out in the PubMed and SciELO databases, following the methodological principles proposed by Whittemore and Knafl, and considered studies published between 2013 and January 2025. Keywords related to "PEEK", "intra-radicular posts", "glass fibre", and "restorative dentistry" were used. After applying inclusion and exclusion criteria, 25 articles were selected for qualitative analysis.

Results: The studies indicate that PEEK presents an elastic modulus similar to that of dentine, favouring the distribution of masticatory stresses and resulting in a higher prevalence of restorable fractures. However, limitations were reported regarding the material's adhesion to resin cements and its colour-matching ability with dental substrates.

Conclusion: PEEK demonstrates promising biomechanical performance as an alternative to glass fibre posts. Nevertheless, further clinical studies are required to validate its applicability in various clinical scenarios and to propose solutions to its adhesive and aesthetic limitations.

PRE-BLEACHING REMINERALIZING THERAPY WITH DENTIFRICES CONTAINING CALCIUM POLYPHOSPHATE AND ITS EFFECTS ON DENTAL ENAMEL

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Aim: This study evaluated the effect of brushing with remineralizing dentifrices, with or without calcium polyphosphate (CaPP), applied prior to in-office bleaching with 35% hydrogen peroxide (HP), on bleaching efficacy and enamel physical properties.

Method: Eighty bovine enamel-dentin samples were divided into eight groups (n=10): NC (negative control); HP (Whiteness HP 35%-FGM); HP+CT12 (HP + Colgate Total 12); HP+CPA (HP + Colgate Máxima Proteção Anticáries); HP+CPA (HP + Colgate Sensitive Pró-Alívio); HP+SRP (HP + Sensodyne Repair and Protect); HP+CT12+CaPP (HP + Colgate Total 12 with 1%CaPP); and HP+CPA+1%CaPP (HP + Colgate Máxima Proteção Anticáries with 1%CaPP). Samples underwent 825 brushing cycles followed by bleaching (3 applications of 15 min each). Analyses included color evaluation (ΔE , ΔE_{00} and WID), microhardness (KHN), and surface roughness (Ra). Data were analyzed using generalized linear mixed models for repeated measures over time for microhardness and roughness tests, and generalized linear models were used to assess group effects for the other tests ($\alpha=5\%$).

Results: Regarding microhardness, the HP+CPA and HP+CT12+CaPP groups showed the highest values after bleaching, indicating greater structural preservation of enamel. The roughness analysis differed significantly between all groups at T1. In terms of color change, the HP+SRP group showed the highest bleaching efficacy.

Conclusion: The addition of CaPP to Colgate Total 12 enhanced enamel microhardness. All groups exhibited increased surface roughness following the brushing cycles, and the combination of in-office bleaching with dentifrices significantly affected the whiteness index.

PRF MEMBRANES FROM HEALTHY AND DIABETIC PATIENTS EXHIBITS ANTIMICROBIAL PROPERTIES AGAINST EX-VIVO MULTISPECIES BIOFILM

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Aim: The study evaluated the antimicrobial potential of platelet-rich fibrin (PRF) membranes obtained from patients with different periodontal and systemic conditions through an ex-vivo multispecies subgingival biofilm.

Method: Biofilm, saliva, and blood samples were collected from three distinct groups: periodontal and systemic healthy patients (G1), periodontal healthy patients with diabetes (G2), and patients with periodontitis (stage III-IV) and diabetes (G3). The PRF membranes were prepared by a 10-minute centrifugation at 2110 rpms. The biofilm inoculum and PRF membranes were placed in 24-well plates with saliva-coated, vertically positioned, hydroxyapatite disks. After 7-days incubation under anaerobiosis, with a 48-hours culture medium replacement, the biofilm metabolic activity (BMA) was assessed through XTT assay. Statistical analysis was performed by Kruskal-Wallis test followed by Dunn post-hoc test.

Results: The G1 PRF reduced the BMA by 21% when compared to untreated G1 biofilm ($p<0.05$). In G2, PRF-treated BMA was reduced by 16% ($p>0.05$) compared to G2 untreated control. The G3 PRF-treated BMA was decreased by 38% when compared to G3 untreated BMA ($p<0.05$). A subsequent comparison of the three treatments (G1 vs. G2 vs. G3) revealed no statistically significant differences among the PRF-treated BMA biofilms.

Conclusion: PRF membrane produced from diabetic patients did not exhibit antibiofilm property however, PRF membranes from patients with periodontitis and diabetics demonstrated antimicrobial action. Future studies should evaluate the changes that diabetes may produce over PRF membranes.

PROPERTIES AND CLINICAL APPLICABILITY OF BIOACTIVE RESIN COMPOSITES CONTAINING S-PRG PARTICLES: A LITERATURE REVIEW

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Aim: This review aimed to investigate the physical-mechanical properties, performance and clinical applicability of resin materials containing S-PRG particles (Surface Pre-Reacted Glass, giomer).

Method: Studies that used resin composites containing S-PRG particles and analyzed their properties, with or without comparison to conventional resin materials or glass ionomer cement (GIC), were included. Searches were performed in PubMed, Scielo and Lilacs databases (in October of 2024), resulting in 15 studies.

Results: Among the included studies, 9 assessed the resin composite Beautifil II, 3 evaluated the flowable resin Beautifil Flow, and 3 investigated the BeautiBulk Restorative. Of the 15 studies, 10 were laboratory-based, 4 were systematic and literature reviews, and 1 was a clinical study. The main properties analyzed were color stability, roughness, bioactivity, microhardness, water sorption and solubility.

Conclusion: Resin composites containing S-PRG particles exhibit promising mechanical properties, although further clinical studies are needed to validate their indications and investigate their degradation mechanisms.

PROTEIN PROFILE OF CANDIDA ALBICANS FROM PERIODONTAL POCKETS: VIRULENCE UNDER AEROBIC AND CO₂ CONDITIONS

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Aim: This study aimed to evaluate differences in virulence factor expression between a standard strain (ATCC 21234) and clinical isolates from deep periodontal pockets, under aerobic and facultative aerobic (10% CO₂) conditions.

Method: Cultures were incubated in Sabouraud broth at 37°C for five days, and supernatants were analyzed via two-dimensional electrophoresis and mass spectrometry.

Results: The results showed increased expression of virulence-associated proteins under facultative aerobic conditions, especially HWP2 and EAP1, related to adhesion and biofilm formation. RBT1 was consistently expressed in both conditions, suggesting a key role in adaptation to hypoxic environments. Additionally, periodontal isolates showed higher expression of GPI transamidase compared to the standard strain, reinforcing its relevance in host-fungus interaction.

Conclusion: These findings indicate that the periodontal microenvironment favors a more pathogenic protein expression profile in *C. albicans*, enhancing its colonization and persistence. Understanding this modulation offers new insights for the diagnosis and treatment of oral fungal infections.

PROTEOMIC APPROACH IN THE CELL PROLIFERATION OF A PRIMARY CULTURE OF ORAL SQUAMOUS CELL CARCINOMA

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Aim: This research aimed to determine, through a proteomic approach, the differentially expressed proteins involved in the cell proliferation of a primary culture of oral squamous cell carcinoma, comparing its proteomic profile with that of healthy tissue.

Method: For this purpose, two-dimensional electrophoresis (2D SDS-PAGE) and mass spectrometry (ESI-Q-TOF-MS/MS) techniques were used on SCC-4 and SCC-9 cell lines, as well as on healthy tissue samples.

Results: The analysis identified three relevant proteins: keratin, type II cytoskeletal 4 (KRT4), heat shock cognate 71 kDa protein (HSC70), and fibrinogen beta chain (FGB). These proteins showed altered expression patterns compared to control tissues, suggesting their involvement in key tumor development processes such as cellular dedifferentiation, apoptosis evasion, and the promotion of migration and invasion. The results suggested that the downregulation of KRT4 and the overexpression of HSC70 and FGB might be associated with the progression of OSCC, positioning these proteins as potential diagnostic and prognostic biomarkers.

Conclusion: It was concluded that the proteomic approach was a valuable tool for the molecular characterization of oral carcinoma, offering new perspectives for early diagnosis and the development of targeted therapies.

PROTEOMIC EXPRESSION ANALYSIS OF SURVIVAL FACTORS IN CANDIDA ALBICANS IN PERIODONTAL POCKETS WITH FLUCONAZOLE

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Aim: The expression of survival factors was determined in supernatants of *C. albicans* cultures isolated from periodontal pockets in the presence of fluconazole.

Method: In this study, supernatant samples of *Candida albicans* isolated from periodontal pockets were collected in the presence and absence of fluconazole on days 1, 7, and 14. An observational approach was used, with two-dimensional electrophoresis (2-DE or 2D-PAGE) as the measurement method, complemented by protein sequence homology analysis using mass spectrometry.

Results: A total of 31 proteins ('spots') were identified without drug exposure, and only 7 in the presence of fluconazole: cdr2p, hsp90, upc2p, sterol 14-demethylase (Erg11p), mrr1p, tac1p, and C5,6 desaturase (partial). These proteins are associated with defense mechanisms, gene regulation, transport, and ergosterol biosynthesis, contributing to antifungal resistance.

Conclusion: The study revealed that *C. albicans* can activate specific proteins as an adaptive mechanism in response to fluconazole pressure, supporting the need for combined or alternative therapies to treat infections such as candidiasis in patients with periodontitis.

PROTEOMIC EXPRESSION OF MOLECULAR MARKERS IN THE CARIOGENIC PROCESS CAUSED BY CANDIDA ALBICANS

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Aim: The study sought to determine the variation in the proteome of *Candida albicans*, as a causal agent of caries disease that affects dental tissue due to alterations in the acid-base balance.

Method: It is through the use of two-dimensional electrophoresis technique and protein sequence homology analysis by mass spectrometry that the proteomic variation of *Candida albicans* in the development of the cariogenic process was determined.

Results: As a result, the expression of 6 proteins was obtained when the control was done at 7 days and at 14 days the expression of another 13 proteins could be seen, highlighting the role of the proteins Ca_27 and Ca_29 in the release of the acidic metabolic byproducts of the fungus.

Conclusion: In conclusion, the direct involvement of *Candida albicans* in the enamel demineralization process was demonstrated, forming part of the causal agents of dental caries.

PURCHASE AND DISTRIBUTION OF FLUORIDE TOOTHPASTE BY MUNICIPALITIES IN THE DRS-X REGION OF PIRACICABA

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Aim: The purchase of fluoride toothpastes by Brazilian municipalities supports public health programs aimed at controlling dental caries. In the state of São Paulo, Regional Health Departments (DRS) coordinate groups of municipalities, contributing to the implementation and strengthening of local oral health practices. This study aimed to evaluate the purchase and distribution of fluoride toothpastes by municipalities within Regional Health Department X (DRS-X), in the Piracicaba region.

Method: For data collection, a form was developed and sent to the health coordinators of the 26 municipalities that comprise this regional department. In addition to general municipal information, specific data were collected regarding the purchase of fluoride toothpastes and their intended use. The forms were distributed in October and November 2024, and the data obtained were analyzed descriptively.

Results: Of the 26 municipalities in DRS-X, 18 (69.2%) responded. Among these, 17 (94.4%) reported purchasing fluoride toothpastes. Regarding their use, 16 municipalities (88.9%) reported distributing the toothpastes in schools, of which five (31.3%) did so through the Health in Schools Program (PSE). Six municipalities (33.3%) distributed them in health facilities, such as Basic Health Units (UBS), Family Health Units (USF), or Psychosocial Care Centers (CAPS). Additionally, four municipalities (22.2%) promoted distribution during lectures and events focused on oral health promotion.

Conclusion: These findings indicate that most municipalities in DRS-X purchase and distribute fluoride toothpastes as part of their strategy to control dental caries.

PUTATIVE PREBIOTICS CAN AFFECT THE CONSTRUCTION OF MIXED-SPECIES CARIOGENIC BIOFILM IN VITRO

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Aim: Modulation of the oral microbiome by prebiotics is a strategy to reverse the dysbiotic cariogenic biofilm. This study analyzed four substances with prebiotic potential (N-acetylglucosamine, proline, sodium nitrate, and urea) and one prebiotic (arginine) to determine their influence on the formation of cariogenic biofilms.

Method: Mixed-species biofilms with *Streptococcus mutans*, *Streptococcus gordonii*, and *Actinomyces naeslundii* were cultivated in the presence of sucrose with and without one of the five aforementioned substances. The pH of the spent media was assessed longitudinally. After 67 hours, the biofilms were evaluated to determine microbial population, biomass, and tridimensional structure.

Results: After incubation, the pH of the spent media varied depending on the substance present; the metabolism of N-acetylglucosamine reduced the pH (<5.5), while arginine increased the pH. Sodium nitrate, proline, and urea produced pH values similar to the control group without any added substances. The microbial population of biofilms cultivated with arginine presented a lower amount of *S. mutans* and biomass. Proline contributed to less biofilm biomass, whereas sodium nitrate and urea had effects similar to those of the control group.

Conclusion: The biofilms exhibited fewer exopolysaccharides in the presence of arginine and proline, reducing their thickness and structural complexity. Thus, like the control arginine, proline showed promise in altering biofilm structure, while sodium nitrate and urea had no significant effects. Conversely, N-acetylglucosamine had a negative impact, making the biofilm more acidogenic (potentially more cariogenic).

QUALITATIVE STUDY ON EXPERIENCES REPORTED BY PEOPLE WITH COMPLEX WOUNDS IN PRIMARY HEALTH CARE

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Aim: To explore both explicit and latent meanings that may reveal important subjective aspects for the emotional management of patients.

Method: Approved by the Ethics Committee of Piracicaba Dental School, the study employed a clinical-qualitative methodology, with intentional and sequential sampling of patients aged 18 to 80 years treated at Health Units in Amparo (SP). Data collection was conducted through semi-structured interviews, analyzed using the clinical-qualitative content analysis technique.

Results: Eight patients aged 50–80 (average 65) were interviewed; most were women, with histories of diabetes, amputations, or vascular diseases. Wounds lasted from 1 to 50 years. Only one was employed, and half required relocation due to physical dependence. The study showed that chronic wounds impact not only the body but also emotional and social well-being, causing loss of autonomy, isolation, and hopelessness. Communication gaps with healthcare professionals increased insecurity and hindered treatment adherence. Religiosity appeared as both comfort and burden, influencing patients' views on healing. The findings highlight the need for empathetic, holistic care that includes emotional support and clear, respectful communication.

Conclusion: Hard-to-heal wounds deeply affect both the physical and emotional health of patients, and that attentive listening and a psychotherapeutic approach by healthcare professionals are essential to improving care and making it more sensitive to each case's subjectivity.

RECOVERY PROFILE OF CANDIDA ALBICANS FROM BIOFILMS TREATED WITH DISTINCT COMPOUNDS AND ANTIFUNGALS

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Aim: *Candida albicans* is a critical priority fungal pathogen (WHO, 2022), which presents resistance to several antifungals. Hence, it is necessary to understand how antifungals and new compounds could modulate its virulence. This study evaluated the recovery profile of *C. albicans* colonies from biofilms exposed to antifungals (amphotericin B-4 µg/mL, anidulafungin-0.5 µg/mL, fluconazole-512 µg/mL) and compounds (tt-farnesol-62.5 µg/mL, hydroxichalcon'4-62.5 µg/mL, myricetin-250 µg/mL) with distinct targets.

Method: The cells of strain SC5314 at mid-log growth phase were added to 96-well polystyrene plates for adhesion (90 min, 37°C, 10% CO₂). The unbound cells were removed, and treatments in a fresh medium were added, using selected concentrations known to inhibit 50% of its metabolism. The controls were culture medium without treatment and chlorhexidine (0,0012%). Ten plates were prepared per experiment, each corresponding to a treatment cycle for processing biofilms to determine the colony-forming units (CFU) of recovered cells after treatments. Ten cycles of consecutive treatments were performed. After 20h, the spent culture medium was removed, the biofilms were rinsed with 0,89% NaCl solution, and the biofilms were scrapped off and transferred to vials for 10-fold serial dilution and plating. The agar plates were incubated (20h, 37°C, 10% CO₂), followed by colony counting.

Results: Most treatments decreased CFU over time (amphotericin B, anidulafungin, hydroxichalcon'4, myricetin, chlorhexidine), but some did not (fluconazole, tt-farnesol).

Conclusion: The profile of cells recovered was distinct over time, depending on the antifungal or compound used.

RELATIONSHIP BETWEEN SLEEP-DISORDERED BREATHING RISK, MALOCCLUSION AND OHRQOL IN MIXED DENTITION CHILDREN

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Aim: This study evaluated the relationship between sleep-disordered breathing risk, malocclusion, and oral health-related quality of life (OHRQoL).

Method: This cross-sectional observational study was conducted with 799 children aged 8 to 9 years, in the mixed dentition phase, enrolled in public schools in Piracicaba (São Paulo, Brazil). Malocclusion was clinically assessed based on intermaxillary relationships (transverse, anteroposterior, overjet, and overbite) and intra-arch characteristics (midline diastema and mandibular crowding). OHRQoL was measured using the Child Perceptions Questionnaire (CPQ8-10), and the risk of SDB was assessed using the Pediatric Sleep Questionnaire (PSQ). Data analysis was performed using robust Poisson regression models with a hierarchical approach, retaining variables with $p \leq 0.05$. Adjusted odds ratios (ORs) were calculated with 95% confidence intervals (95% CI).

Results: The prevalence of sleep-disordered breathing risk was 14.6%. Children with a Class III canine relationship were 2.17 times more likely to present a risk for sleep-disordered breathing risk (95% CI: 1.33–3.55; $p < 0.05$).

Conclusion: It was concluded that the sleep-disordered breathing risk did not impact OHRQoL; however, children with a Class III canine relationship were more likely to present a higher risk for sleep-disordered breathing.

REUSE OF MONOMERS IN DENTAL 3D PRINTING AND THEIR IMPACT ON PHYSICAL-MECHANICAL PROPERTIES

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Aim: The aim of this study was to evaluate the influence of reusing resin monomers on the physical-mechanical integrity of dental parts produced by 3D printing. Prizma 3D BioCrown resin, suitable for indirect restorations, was evaluated.

Method: A progressive model was used, in which the first impression (G1) was established as the control group, using new resin, and the subsequent groups (G2 to G10) represented different reuse cycles, with the same resin being reused successively in each new impression. After the samples were manufactured, they were subjected to flexural strength tests, modulus of elasticity, depth microhardness, impression accuracy and surface morphology analysis. The tests followed the ISO 4049:2019 standards. The results obtained were statistically analyzed, allowing an assessment of the impact of monomer reuse on the quality of parts produced by 3D printing.

Results: The partial results indicate that the 3D print produced in resin for indirect restorations by the printer showed dimensional accuracy. In addition, the reuse of the resin for 3D printing did not have a significant impact on the results obtained in the mechanical tests (flexural strength and modulus of elasticity).

Conclusion: In conclusion, there was no significant difference between the groups analyzed, indicating that the reprints did not cause any changes in the mechanical properties of the parts produced from this material.

ROLE OF NOX AND SWAN GENES IN THE INDUCTION OF NETOSIS IN HUMAN PMNS BY STREPTOCOCCUS SANGUINIS

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Aim: Streptococcus sanguinis is a commensal bacterium of the oral cavity commonly involved in opportunistic cardiovascular diseases. Our previous studies indicate that S. sanguinis can modulate neutrophil (PMN) activation from peripheral blood, altering NET production and accumulation in the bloodstream, a cardiovascular risk factor. S. sanguinis produces reactive oxygen species through nox expression but can also degrade exogenous DNA via swan. This study investigates how nox and swan influence S. sanguinis' ability to induce NET production in human blood PMNs.

Method: Isogenic mutants for nox (SKnox-) and swan (SKswan-) were compared to the parental strain SK36 in ex vivo assays. Mutants complemented with an episomal copy of the inactivated gene (+) were used as controls. Fresh heparinized blood was inoculated with equal amounts of bacterial strains, incubated (37°C, orbital shaking) for 5, 15, and 30 minutes, and analyzed via May-Grünwald Giemsa-stained smears. PMNs were classified as: without bacteria, with phagocytosed bacteria, or undergoing NETosis. Unchallenged blood smears served as controls.

Results: NETosis in SKnox- was reduced 2.5-fold compared to SK36 ($p < 0.05$), while SKswan- increased NETosis threefold ($p < 0.05$). Complemented strains restored NETosis frequencies.

Conclusion: nox is essential for S. sanguinis-induced NETosis, while swan potentially downregulates NET activation in PMNs. These findings highlight the need to explore nox and swan regulation and their role in S. sanguinis systemic virulence.

ROLE OF TOOTHPASTE COMPOSITION IN EROSIVE DENTAL WEAR AND RESTORATIVE MATERIAL DEGRADATION: CURRENT INSIGHTS

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Aim: Toothpastes are widely used to maintain oral health and feature complex formulations that, when combined with proper mechanical brushing, contribute to oral hygiene. This review examined studies published between 2023 and 2025 in international scientific databases, focusing on the role of toothpastes in enhancing the erosion-abrasion of enamel, dentin, and restorative materials.

Method: Most of the studies, conducted in vitro or in situ, use methods to quantify volumetric loss and morphological changes in dental surfaces. These methods include contact profilometry, optical profilometry, and scanning electron microscopy.

Results: Silica-based toothpastes generally preserve the properties of enamel and dentin, causing less wear on dental structures compared to calcium carbonate and dicalcium phosphate dihydrate, which are more abrasive. Whitening toothpastes, in particular, may alter the properties of restorative materials, especially when brushing is done with excessive force. The extent of these changes is linked to the quantity and physical properties of the abrasives, which act through mechanical action. Commercial toothpastes typically have a neutral or alkaline pH.

Conclusion: The careful selection of toothpaste, along with proper professional guidance, is crucial for treatment success. While toothpastes deliver important active agents for oral health, they can also have negative effects on enamel, dentin, and restorative materials.

SCIENCE THAT CLOSES AND CARE: TELEHEALTH AND TELEDENTISTRY

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Aim: To discuss digital transformation tools in the healthcare sector.

Method: This is a literature review in the databases of public health organizations (PAHO, SUS), CFO, SciELO.

Results: Law 14,510/2022 authorizes and regulates the practice of telehealth throughout the national territory. CFO Resolution 228/2020 already includes teledentistry in the SUS. In April 2025, the Pan American Health Organization (PAHO) launched the Digital Literacy Program for Health Professionals, a virtual initiative that aims to strengthen the digital skills of health professionals and support efforts to improve access and quality of care with emerging technologies. Digitization is transforming the way health information is managed and how care is delivered. However, there are still gaps regarding access, lack of integration of information systems, use and understanding of digital health tools - such as electronic health records, telemedicine platforms, mobile applications for patient monitoring and epidemiological alert systems. In-person consultations will never be replaced by remote consultations, but we can have a hybrid model, remembering that technology can and should help meet the high demand that the SUS has to meet, including dental issues. Social inclusion without digital inclusion does not exist.

Conclusion: There is a need to appropriate the digital transformation tools of the health sector and modify processes to improve the capacity to welcome and care for all Brazilians. Propose actions to improve access and care and to implement the strategies of the National Oral Health Policy - Brazil Smiles Program, which guides all actions.

SCIENTOMETRIC ANALYSIS OF CLINICAL STUDIES ON ENDODONTICS IN DECIDUOUS TEETH

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Aim: This study performed a scientometric analysis of clinical studies on the topic, using the PubMed database.

Method: The search strategy involved the terms ("endodontic" OR "root canal") AND ("treatment") AND ("deciduous teeth" OR "primary teeth"), with filters applied to clinical studies published between 2000 and 2024, without language restrictions. The collected data were analyzed using VOSviewer (version 1.6.20) and Bibliometrix software to evaluate the evolution of publications, main countries publishing on the topic, journals and types of clinical studies carried out.

Results: Seventy-two articles were found, which evaluated subjects as filling materials, irrigating solutions, decontamination and restoration methods. The year 2024 presented the highest number of publications (6). The countries with the highest scientific production were Brazil (59) and India (53) contributions. Universidade Nove de Julho stood out as the main institution, with 19 contributions, followed by Universidade de São Paulo with 11. The journal with the largest number of publications was the Journal of the Indian Society of Pedodontics and Preventive Dentistry, with 15 articles.

Conclusion: The scientometric analysis confirms the progressive increase in scientific interest in this topic over the last two decades, highlighting the importance of promoting new clinical studies that contribute to research and the improvement of endodontic therapeutic approaches in primary dentition.

SECONDARY HYPERALGESIA IN THE OROFACIAL AND SPINAL REGION INDUCED BY TOPICAL CAPSAICIN

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Aim: The aim of this study was to compare the degree of secondary hyperalgesia and allodynia induced by topical capsaicin between spinal and trigeminal innervation in women.

Method: To this end, an experimental clinical trial was carried out with the participation of 53 healthy volunteers who received 0.25 g of topical capsaicin 1% applied to the cutaneous regions over the masseter muscle and the volar surface of the right forearm, in 2 different sessions, between 24 and 72 hours. The areas of secondary hyperalgesia and allodynia were assessed by mechanical stimuli using a 180 g nylon von Frey filament and a soft hair brush, respectively. Student's t-tests for dependent samples and McNemar's test were applied to the data considering a significance level of 5% ($p < 0.050$).

Results: Regarding the proportion of participants who developed areas of sensory alterations, 88.7% developed hyperalgesia to the bite in the masseter region and 92.5% in the forearm. For allodynia, 41.5% and 64.2% developed in the masseter region and forearm, respectively. The incidences of prick hyperalgesia and allodynia were lower in the trigeminal innervation region when compared to the spinal innervation region ($p < 0.001$). The mean (SD) area (cm²) of hyperalgesia was lower in the masseter 7.80 (11.06) compared to the forearm 15.01 (19.31) ($p < 0.001$). The mean area of allodynia was also lower in the masseter 1.74 (4.63) compared to the forearm 6.29 (13.77) ($p < 0.001$).

Conclusion: These findings suggest that the central sensitization induced by capsaicin seems to be less potent in the trigeminal region.

SEX ESTIMATION USING COMPUTED TOMOGRAPHY SCANS OF BRAZILIAN SKULLS

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Aim: A antropologia forense é uma das ferramentas para identificação positiva de um indivíduo, diante de casos de morte violenta, se destaca com a capacidade de estimar altura, afinidade populacional e sexo a partir de estudo de peças do esqueleto humano.

Method: O estudo buscou avaliar presença de dimorfismo sexual em 6 medidas lineares do crânio em tomografias computadorizadas (TCs). Foram selecionadas 200 TCs do biobanco osteológico e tomográfico da FOP/UNICAMP e feitas as seguintes medidas: Forame incisivo ao forame infraorbitário direito (FI-FIOD), Forame infraorbitário direito à base central do processo estiloide direito (FIOD- BCPELD), Forame incisivo à Glabella (FI-G), Espinha nasal anterior à porção anterior da sela turca (ENA-PAST), Base central do processo estiloide direito à Espinha Nasal Anterior (BCPELD-ENA), Básio – Bregma (BASIO-BREGMA). Os dados foram submetidos aos seguintes testes estatísticos: teste de Levene (homocedasticidade), Kolmogorov-Smirnov (normalidade) e teste t não pareado (dimorfismo sexual).

Results: Para todas as variáveis, apenas a variável FIOD-BCPELD não apresentou dimorfismo sexual, enquanto as demais mostraram-se dimórficas.

Conclusion: Logo, foi possível a elaboração de um modelo de regressão logística (Logito: $-39.26365 + 0.14384*FI-G + 0.19760*ENA-PAST + 0.11399*Basio-Bregma$) para a estimativa do sexo com uma acurácia de 79%.

SILANIZED TITANIUM SURFACES CONTROL BIOFILM FORMATION AND ENHANCE ELECTROCHEMICAL STABILITY

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Aim: Biofilm formation on implant surfaces stimulates the production of organic acids, lowering the local pH. This acidification accelerates titanium corrosion and leads to the release of metallic ions that intensify the inflammatory response

Method: To address this issue, we investigated the potential of cationic coatings (CC)—which increase surface charge and act through electrostatic interactions—to reduce biofilm adhesion and formation, as well as their anticorrosive properties. Titanium (Ti) discs were used as the control group, then treated by plasma electrolytic oxidation (PEO) to generate hydroxyl (-OH) groups, forming the experimental control group. Subsequently, surfaces were silanized with two gel-sol containing 6.6% of each silane, resulting in the experimental groups: GPTMS (3-glycidyloxypropyl-trimethoxysilane) and TEOS (tetraethyl orthosilicate)

Results: All groups underwent physicochemical characterization to determine surface charge, along with electrochemical and antimicrobial assays using *Staphylococcus aureus* (gram-positive) and *Escherichia coli* (gram-negative) strains. Hydroxyl groups were confirmed after PEO treatment. After silanization, X-ray Photoelectron Spectroscopy identified protonated amines, which, confirmed by zeta potential, indicated the formation of CC. The CC also generated contact angles greater than 120°

Conclusion: Experimental surfaces showed improved electrochemical behavior and were able to modulate bacterial adhesion and reduce biofilm formation after 24h in both strains. These findings highlight promising properties for implant applications, enhancing electrochemical resistance and controlling bacterial growth.

SINUOUS MAXILLARY CANAL, WHAT ARE THE CLINICAL IMPLICATIONS? SYSTEMATIC REVIEW

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Aim: The sinuous maxillary canal (SC) is a tortuous bony canal that originates in the infraorbital canal, contains a neurovascular bundle constituted by the anterior superior alveolar nerve, and its compression may have clinical implications. This study aimed to investigate the clinical implications of SC.

Method: For this purpose, a systematic review was carried out based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, registered in the Prospero database (CRD42023458791). Strategic searches were applied in the PubMed, EMBASE, Scopus, Web of Science and LILACS databases, up to the year 2023. Two reviewers filtered the data and assessed the risk of bias of the included studies using the checklist proposed by AQUA (Anatomical Quality Assessment Tool of meta-analyses and systematic reviews). A total of 334 studies were found, of which 52 were selected for titles and abstracts and 32 for full-text reading, with 23 manuscripts included in the final analysis.

Results: The patient may present clinically with pain, dysesthesia, hyperesthesia or paresthesia due to exposure/compression of the SC by filling materials, dental prostheses and installation of osseointegrated implants, in addition to failure in the osseointegration process.

Conclusion: The study demonstrated that the SC presents relevant anatomical variations, with potential for neurovascular alterations during dental procedures, reinforcing the importance of detailed preoperative evaluation to prevent complications.

SOLITARY MANDIBULAR PLASMACYTOMA: CASE REPORT AND CONSIDERATIONS ON THE DIFFERENTIAL DIAGNOSIS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To describe a rare case of an atypical manifestation in the mandible, contributing to the clinical and diagnostic understanding of such presentations

Method: A 42-year-old male patient sought care due to persistent numbness in the posterior region of the mandible lasting approximately two months. Clinical examination revealed a slight swelling in the right mandibular body, with edema in the vestibular sulcus. Imaging studies showed a hypodense, poorly defined lesion with cortical bone thinning and disruption, suggesting a malignant neoplasm. An incisional biopsy and subsequent histopathological analysis revealed plasma cell proliferation within a sparsely vascularized stroma. Immunohistochemistry was positive for CD29, CD56, plasma cells, MUM-1, lambda light chain, with a proliferative index of 10%, and negative for CD138 and Epstein-Barr virus. The differential diagnosis included solitary intraosseous plasmacytoma and multiple myeloma. The patient underwent oncological staging, and PET-CT revealed no additional lesions, confirming the diagnosis of solitary bone plasmacytoma. Treatment with radiotherapy alone resulted in an excellent clinical response. After one year, the patient remains asymptomatic with no signs of recurrence.

Results:

Conclusion: This case highlights the importance of a thorough clinical examination, combined with histopathology and imaging, for the early diagnosis of solitary bone plasmacytoma. Careful distinction from multiple myeloma is essential, as it guides appropriate treatment decisions and directly influences the patient's prognosis and quality of life.

SORTASE A CONTRIBUTES TO IMMUNE EVASION AND MODULATES NEUTROPHIL RESPONSES IN STREPTOCOCCUS SANGUINIS

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Aim: *S. sanguinis* is a commensal pioneer colonizer of the tooth surface and an opportunistic pathogen responsible for infective endocarditis due to its ability to evade the immune system. This species expresses a large arsenal of surface proteins ($n=33$), anchored to the cell wall via LPxTG motifs processed by enzyme sortase A, encoded by the *srtA* gene. Neutrophils are the most abundant immune cells in the blood and employ several mechanisms to control infections, including phagocytosis, degranulation, and the formation of neutrophil extracellular traps (NETs), which are composed of DNA, histones, and antimicrobial proteins. This study aimed to evaluate the role of *srtA* in complement-mediated immune evasion and its interaction with human neutrophils. A non-polar isogenic *srtA* mutant (SK*srtA*) was generated from *S. sanguinis* SK36 using a PCR-ligation strategy

Method: Bacterial binding to complement proteins (C3b) was assessed by flow cytometry. NET formation was evaluated using Giemsa staining and scanning electron microscopy. SK36 and SK*srtA* strains were incubated with human blood and with isolated neutrophils in the presence or absence of normal or heat-inactivated human serum; PBS was used as a control

Results: Inactivation of *srtA* led to increased C3 deposition. It was observed from two methods that neutrophils exposed to SK*srtA* exhibited increased NET formation compared to the parental strain SK36

Conclusion: Multiple pathways, including complement activation, contribute to NET induction. The inactivation of *srtA* affecting complement activation and interaction with human PMNs. In summary, *srtA* is required for bacterial evasion of complement-mediated immunity

SUCCESS RATE OF ENDODONTIC TREATMENT IN HEAD AND NECK IRRADIATED PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Aim: The scientific literature was analyzed to estimate the success rate of endodontic treatment in patients who underwent head and neck radiotherapy

Method: This systematic review was registered in PROSPERO (CRD42023490312) following PRISMA guidelines. Searches were conducted in seven electronic databases, supplemented by manual searching and gray literature. Studies included irradiated head and neck patients who received non-surgical endodontic treatment, excluding those with combined therapies or follow-up periods of less than six months. Study selection and data extraction were performed in duplicate, with risk of bias assessment using the Joanna Briggs Institute tools.

Results: Three studies were included in the meta-analysis, totaling 29 patients and 68 teeth. The overall success rate was 39% (95% CI=0.05–0.92), with high heterogeneity ($I^2=95.35\%$, $\text{TAU}=0.374$, $Q\text{ test}=48.372$ [$p<0.001$]). One study presented low risk of bias and two presented high risk.

Conclusion: Due to significant methodological limitations of the included studies, it was not possible to establish definitive conclusions or identify factors associated with treatment success. There is need for clinical trials with greater statistical power and adequate sample size to obtain results applicable to clinical practice.

SURFACE EVALUATION OF OSSEOINTEGRATABLE IMPLANTS BY BIOMIMETIC METHOD WITH CALCIUM COMPOUNDS: AN EXPERIMENTAL STUDY

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Aim: The aim of this study was to evaluate the bone/implant interface after surface treatment of implants using the biomimetic method with different calcium-based compounds through histological, histometric, biomechanical and topographical analysis.

Method: Twenty adult male rats were divided into two groups: the Calcium Phosphate CaP Biomimetic (FCB) group for the right tibia and the Calcium Hydroxide $\text{Ca}(\text{OH})_2$ Biomimetic (HCB) group for the left tibia. Twenty implants had their surfaces treated with CaP and twenty implants with $\text{Ca}(\text{OH})_2$. Euthanasia was carried out after 40 days. The results showed that there was a statistically significant difference between the groups ($p<0.05$) in the biomechanical analysis.

Results: The histomorphometric results showed greater cellular activity in the FCB group compared to the HCB group. The data on the area of newly formed bone (AON) showed greater bone formation in the FCB group compared to the HCB group, although there was no statistically significant difference ($p>0.05$). The topographical analysis showed that the surfaces of the implants in both groups were roughened and had similar roughness, with the surface with the greatest roughness being that of the implants in the HCB group.

Conclusion: Treating the implant surfaces with calcium hydroxide proved to be more effective in terms of implant stability, and was superior to calcium phosphate. Both groups showed satisfactory results in terms of bone neoformation and bone-implant contact.

SYSTEMIC DENTISTRY: WHAT IS THE RELATIONSHIP BETWEEN ORAL HEALTH AND SYSTEMIC HEALTH?

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Aim: To understand the relationships between oral and systemic diseases, emphasizing the knowledge of the nursing team regarding the management of periodontal disease and its association with systemic diseases.

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

Results: The relationship between systemic diseases and oral diseases is demonstrated in more than one way. Oral diseases, such as periodontitis, increase the risk of developing and worsening Diabetes Mellitus (DM), lung diseases, cardiovascular diseases (CVD), and can cause problems related to pregnancy. Furthermore, people with systemic diseases have a higher risk of developing lesions of the oral mucosa, tongue, gums, teeth, periodontal lesions, salivary glands, facial skeleton, and extra oral skin. Furthermore, the oral cavity may show signs or symptoms of certain systemic conditions, so attention to oral health can ensure early diagnosis. Nursing professionals recognize the importance of maintaining oral hygiene and the relationship between periodontal disease and systemic diseases. However, their practical knowledge of oral hygiene is limited.

Conclusion: The study shows that there are several relationships between oral and systemic health. Systemic diseases increase the risk of developing and worsening oral diseases and vice versa. Furthermore, attention to oral health can show us signs of a systemic disease. It is recommended that oral hygiene topics be included in the curricula of nursing professionals.

SYSTEMIC OZONE THERAPY WITH LOCAL TREATMENTS IN MODULATING MRONJ: AN EXPERIMENTAL STUDY IN RATS

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Aim: Medication-related osteonecrosis of the jaw (MRONJ) is a serious condition with challenging clinical management. This study evaluated the performance of a topical metronidazole 10% paste and chlorhexidine 2% gel, combined with systemic ozone therapy, in preventing MRONJ after tooth extraction in ovariectomized rats treated with zoledronate (100 µg/kg).

Method: Forty-two rats were divided into seven groups (n=6). The SAL group received 0.9% sodium chloride solution; the ZOL group received zoledronate every third day for seven weeks. The zoledronate+ozone (ZOL+OZ), zoledronate+chlorhexidine (ZOL+CLX), zoledronate+ metronidazole (ZOL+MTZ), zoledronate+ozone+ metronidazole (ZOL+OZ/MTZ), and zoledronate+ozone+chlorhexidine (ZOL+OZ/CX) subgroups followed the same ZOL protocol and received topical applications of paste or gel, with or without systemic ozone (0.7 mg/kg, intraperitoneally). Applications were performed immediately after extraction of the left mandibular first molar and on days 2 and 4 post-extraction. Extractions occurred at week three and euthanasia at week seven, 28 days after extraction. The mandibles were dissected for clinical, histological and histometric analysis.

Results: The ZOL group showed deeper epithelial invaginations ($p < 0.001$), while SAL maintained normal structures and ZOL + MTZ was closest to healthy tissue ($p < 0.001$). ZOL showed necrotic bone, while the treated groups showed vital bone and minimal necrosis.

Conclusion: Systemic ozone therapy associated with local therapies demonstrated positive results in the modulation of MRONJ.

TECHNICAL PROFILE AND PH OF VEGAN AND DESENSITIZING TOOTHPASTES

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Aim: The formulation of toothpastes can mediate both positive and negative effects on tooth surfaces. Parameters such as the type of abrasives, chemical composition, and pH play a significant role in determining the erosive-abrasive potential of these products. Considering the relevance of these factors in maintaining the integrity of oral hard tissues and restorative materials, this study aimed to evaluate the composition and pH of toothpastes marketed in Brazil.

Method: Eleven toothpaste formulations from brands available in the Brazilian market were selected. Analyses were performed in triplicate. For each sample, 5 g of toothpaste were diluted in 15 mL of distilled water (1:3 ratio) in Falcon tubes, followed by 1 minute of vortex mixing (SCI-VS, Scilogex), and subsequent pH measurement using a pH meter (MPA 210, MS Tecnoyon Instrumentação).

Results: The pH values ranged from 6.75 (Sensodyne Alívio Rápido) to 10.42 (Hi Clean), with an overall average of 8.35. N&M Dental Care toothpaste (6.87) exhibited a pH slightly below neutral, while Natural Dentes (7.42) presented a value close to neutrality. Hi Clean (10.42), Sorriso Herbal (9.79), and Elmex Sensitive (8.81) demonstrated the most alkaline pH levels.

Conclusion: Although none of the toothpastes exhibited potentially harmful pH values, vegan formulations may lack fluoride in their composition. The results and topics related to the theme will be used to inform the population, students and dentists through publications on social networks and guidance actions with the academic and non-academic community.

TEMPORAL SUMMATION OF PRESSURE STIMULI IN PATIENTS WITH CHRONIC OROFACIAL MYOFASCIAL PAIN AND HEALTHY PARTICIPANTS

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Aim: This study compared the temporal summation of pressure stimuli between patients with orofacial myofascial pain and healthy participants, and evaluated the effect of a conditioning stimulus on the intensity of this summation.

Method: Fifty-six healthy individuals and thirty-three patients with chronic orofacial myofascial pain were evaluated. Temporal summation was assessed bilaterally in the masseter and temporalis muscles using ten pressure stimuli with a load of 1 kg applied for 10 seconds, with 10-second intervals between stimuli. The intensity of the pressure sensation was evaluated using a numerical rating scale after each application, and the area under the curve was calculated to determine temporal summation. The same protocol was repeated during the application of a conditioning stimulus (immersion of the non-dominant hand in ice water).

Results: Temporal summation was greater in patients compared to the control group ($p < 0.050$). The mean (standard deviation) summation values for patients before conditioning for the masseter and temporalis muscles were 555.94 (147.27) and 500.51 (191.95), respectively. For healthy participants, the values were 331.73 (163.38) for the masseter and 281.64 (165.01) for the temporalis muscle. Additionally, the conditioning stimulus reduced the intensity of temporal summation in both groups ($p < 0.050$).

Conclusion: Patients with chronic orofacial pain present higher intensity of temporal summation of pressure stimuli, and this temporal summation can be attenuated by a remotely applied conditioning stimulus, indicating alterations in central pain modulation mechanisms.

TEMPORAL TRENDS IN CARE AND PROCEDURES IN AN ORAL EMERGENCY SERVICE OVER 5 YEARS: A LONGITUDINAL ANALYSIS

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Aim: To analyze the trend in care and procedures performed in an Oral Emergency Service (SUB) over a 5-year period.

Method: Methods: Longitudinal study with the analysis of 76,530 records of care and procedures at the SUB in the city of Piracicaba, state of São Paulo, between January 2019 and October 2023. Data were collected by the OLOSTECH software, generating monthly reports on the services and types of procedures performed. Control charts were created and generalized additive mixed models (GAMM) were adjusted, in addition to applying the chi-square test for the association between type of procedure and year.

Results: In April 2020, there was a 30.2% drop in the number of visits to the SUB compared to the previous month and 39.7% compared to the same month of the previous year. Regarding the number of procedures, there was a drop of 29.1% compared to the previous month and 39.5% compared to the same month of the previous year. In every year there was a higher percentage of tooth extractions than other procedures (around 73% of procedures). The second most common procedure was the temporary sealing of pulp cavities (around 16% of procedures). The percentage of pulp interventions increased from 8.2% of procedures in 2019 to 6.9% in 2023 and the percentage of occlusal adjustments increased from 0.6% in 2019 to 3.2% in 2023.

Conclusion: The analysis shows a sharp drop in demand for emergency dental services during the COVID-19 pandemic, followed by a gradual recovery from 2021 onwards.

THE 50 MOST-CITED ARTICLES ABOUT ARTIFICIAL INTELLIGENCE IN ENDODONTICS: A BIBLIOMETRIC ANALYSIS

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Aim: This study aimed to identify the 50 most-cited articles related to artificial intelligence (AI) in the endodontics field analyzing their main characteristics.

Method: The 50 most-cited articles were identified using Web of Science (WoS). Data on year and journal of publication, citations, title, authors, institutions, countries, journal impact factor, study design, keywords, AI method and open access status were extracted. VOSviewer software analyzed authorship network, while Power BI evaluated keywords, international collaboration, study design, and citation metrics. Poisson regression was performed in R software ($P < .05$).

Results: We reviewed 104 studies and selected the top 50 most-cited articles, totaling 2,253 citations in the WoS Core Collection database, with an average of 45.06 citations per article. The most-cited article, a 2019 diagnostic study by Ekert, T. et al. had 178 citations. The highest publication activity occurred between 2020 and 2023 ($n = 37$). Leading institutions were the Charité-Universitätsmedizin Berlin and Aichi-Gakuin University School of Dentistry. Asia accounted for 62% of publications and 1,375 citations, followed by Europe and America. The most common study type was diagnostic study. Most articles (56%) weren't available through open access and were published in journals with an impact factor above 3 (66%), with the Journal of Endodontics leading in number of articles.

Conclusion: An increasing application of artificial intelligence in the field of endodontics has been observed, especially within the last five years. Keywords: artificial intelligence; endodontics; bibliometrics.

THE CONTRIBUTION OF ACTIVE LEARNING METHODOLOGIES TO THE ADAPTATION OF STUDENTS TO UNIVERSITY: A STUDENT PERSPECTIVE

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Aim: In the Brazilian context, it is common for students in elementary and high school to review content only before exams, which can compromise their performance in higher education. Active learning methodologies can increase engagement and promote meaningful learning. The aim of this study, approved by the Institutional Ethics Committee (CAAE: 42980515.00000.5418), was to assess students' perceptions of the contribution of active methodologies to their learning.

Method: Thirty-two students enrolled in a basic course in the second semester of the Dentistry program at FOP - UNICAMP participated. In addition to theoretical classes, pre-class videos (Edpuzzle), interactive lessons on the online Lt-Kuracloud platform, team activities, and educational games were used. At the end of the semester, students filled out an online questionnaire evaluating the usefulness for learning of each methodology on a scale from 0 (not useful) to 10 (very useful), with justifications.

Results: The average responses were: pre-class videos (9.47 ± 0.91), online platform (9.75 ± 0.56), team activities (9.44 ± 0.8), and educational games (9.69 ± 0.73). According to the students, these strategies facilitated understanding of the content, identification of doubts, recall of concepts, and collaborative learning, in addition to promoting a more pleasant environment, encouraging the creation of study routines, and increasing motivation.

Conclusion: These results indicate that, in students' perceptions, active methodologies significantly contributed to learning and positively influenced their study habits.

THE EFFECT OF FLUCONAZOLE AGAINST CANDIDA ALBICANS IS POTENTIATED BY TT-FARNESOL

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Aim: *Candida albicans* is a commensal fungus and an opportunistic pathogen on the WHO critical priority list. This study evaluated whether antifungal drugs combined with compounds affect the fungal growth and metabolism more efficiently to control *C. albicans*.

Method: The drugs (targets) were fluconazole (cytoplasmic membrane sterol biosynthesis), echinocandins anidulafungin (cell wall glucan synthesis), and amphotericin B (membrane integrity; bind to ergosterol). The compounds (targets) were hydroxichalcon 4' (cell wall glucan synthesis?), myricetin (cell wall glucan synthesis?), and tt-farnesol (a quorum sensing molecule that affects morphological transition).

Results: After obtaining the minimal inhibitory concentration, the checkboard assay was performed to determine the Fractional Inhibitory Concentration Index (FICI; synergism $FICI \leq 0.5$; lack of interaction $0.5 > FICI < 4.0$; antagonism $FICI \geq 4.0$). Nine combinations were tested: 1) anidulafungin+ hydroxichalcon 4'; 2) anidulafungin+ myricetin; 3) anidulafungin+tt-farnesol; 4) amphotericin B+ hydroxichalcon 4'; 5) amphotericin B+ myricetin; 6) amphotericin B+tt-farnesol; 7) fluconazole + hydroxichalcon 4'; 8) fluconazole +myricetin; e 9) fluconazole+tt-farnesol. The FICI data showed that only the combination fluconazole+tt-farnesol was synergic (FICI: 0.375), and the other combinations did not present this property neither were antagonistic; i.e., they were indifferent (FICI: 1 to 1.25).

Conclusion: Therefore, the synergism observed for fluconazole combined with tt-farnesol could potentiate the antifungal effect to control *C. albicans*.

THE EVALUATION OF LIGHT EXPOSURE TIME OVER THE SURFACE ROUGHNESS, GLOSS AND COLOR CHANGE OF COMPOSITES: A IN VITRO STUDY

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Aim: The aim of this in vitro study was to evaluate the surface roughness and gloss of a composite light cured with three different exposure times before and after thermocycling.

Method: A nano hybrid composite (Tetric-N-Ceram, Ivoclar Vivadent;) was selected. Twenty-four samples (6mm diameter x 2mm thickness) were made for each light exposure time G1 (10s) G2 (20s) and G3 (40s) using a poly-vynilsiloxane mold. All samples were polished for 20s and divided in three groups (n=8) according to each light exposure time. A two-step polishing system (Professional Polishing Resin Kit Espiral, JOTA AG, Rüthi, Suíça) were used to polish all samples. Roughness (Ra) gloss (GU) and color change were measured before and after thermocycling. Representative images were acquired using a Scanning Electron Microscope (SEM).

Results: Data were analyzed using two-way ANOVA, followed by Tukey's test ($\alpha = 0.05$). The results showed that light-curing time influenced the surface roughness of the composite resin. Before thermocycling, G3 (40s) presented lower roughness than G1 (10s), with G2 (20s) showing intermediate values. After thermocycling, G2 was the most affected, with a significant increase in roughness compared to the other groups. G1 and G3 maintained more stable values, suggesting greater resistance to thermal aging.

Conclusion: Within the limitations of this in vitro study, it can be concluded that the light-curing time had a significant effect on the surface roughness of the composite resin. Proper polymerization is essential to optimize surface properties and potentially enhance the longevity of composite restorations.

THE IMPACT OF ANXIETY ON ENDODONTIC PATIENTS: A NARRATIVE REVIEW OF THERAPEUTIC APPROACHES

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Aim: The objective of this study was to describe the scientific articles in the literature that analyze the relationship between anxiety and endodontic treatment, as well as the therapeutic approaches adopted, through a narrative review of the literature.

Method: The search for articles was performed in the PubMed, Scopus, Web of Science, Cochrane Library and Google Scholar databases, using the descriptors: Endodontics, Root Canal Therapy, Dental Anxiety, Conscious Sedation. Articles in Portuguese and English were included, from 2020 to 2025.

Results: Of the 64 scientific studies found, only 23 met the inclusion criteria. Fear and anxiety significantly impact intra- and postoperative pain in endodontic treatment. However, there are a variety of therapeutic approaches with the potential to minimize their effects, including anxiolytics, inhaled sedation, acupuncture, music, yoga and hypnosis.

Conclusion: Anxiety is an emotion described by feelings of worry, tension, and discomfort, which can cause physiological changes in the individual, such as increased blood pressure, dizziness, and tremors. Thus, fear and anxiety are important pretexts for avoiding dental treatments, especially endodontic treatments. A better understanding by dentists of dental anxiety and its therapeutic approaches can promote more effective interventions.

THE INFLUENCE OF MEDIA AND SOCIAL NETWORKS ON PATIENTS' EXPECTATIONS OF ORTHODONTIC TREATMENT

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Aim: The aim of this study was to gather information on the degree of influence that media and social media have on patients' expectations regarding orthodontic treatment, on the quality of communication between the orthodontist and the patient, and to identify the strategies adopted by professionals to personalize orthodontic treatment, respecting the patient's needs.

Method: The methodology was based on a literature review analyzing articles found in the following databases: PubMed/Medline, Web of Science, Lilacs, Cochrane and Embase, all published within the last 10 years.

Results: 21 articles were found in PubMed/Medline, 9 articles in Web of Science, 8 articles in Lilacs, 3 articles in Cochrane and 16 articles in Embase, all published within the last 10 years. After reviewing titles, abstracts, and full texts, 32 articles were selected.

Conclusion: It was observed that orthodontists develop assertive communication with their patients by engaging in active listening, explaining the possibilities and limitations inherent to each case, and personalizing treatment in accordance with the patient's expectations, thus contributing to the development of patient-centered care.

THE ROLE OF THE SWAN GENE IN THE DEGRADATION OF EXTRACELLULAR DNA BY STREPTOCOCCUS SANGUINIS

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Aim: *S. sanguinis* is a commensal bacterial species of the oral cavity, widely recognized for its role in the formation of dental biofilm and for being associated with infective endocarditis. *S. sanguinis* expresses a surface-anchored nuclease Swan (Streptococcal wall-anchored nuclease). Studies indicate that this species is capable of producing DNase, an enzyme involved in the degradation of extracellular DNA, which may contribute to the dispersal of the biofilm and evasion of the immune system. The objective of this study was to evaluate the influence of the Swan protein on the degradation of extracellular DNA.

Method: A knockout mutant was constructed through the homologous recombination technique, using the standard strain SK36. The strains were grown in BHI agar medium and transferred to BHI broth (both incubated at 37°C and 10% CO₂). 1 mL of this culture was concentrated four times in PBS1X, a 10 µL drop was placed in BHI agar medium containing salmon sperm DNA [2 µg/mL], and incubated at 37°C and 10% CO₂ for 72 hours. After incubation, the plate was washed with HCl solution [1 M], evidencing the degradation of exogenous DNA.

Results: The parental strain showed evident DNase activity, while the mutant strain showed a weaker halo, indicating a significant reduction in DNA degradation. The results suggest that swan is related to DNase production.

Conclusion: Analyses indicate the absence of swan expression by the mutant strain, however, this inactivation was not sufficient to completely inhibit the DNA degradation capacity, indicating the presence of other mechanisms involved in this activity.

THE SUBGINGIVAL MICROBIOME AND JUNCTIONAL EPITHELIUM IMMUNE CHARACTERIZATION IN GRADE C PERIODONTITIS

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Aim: In periodontitis Stage 3-4 Grade C (PerioC), gingival cells may present dysfunctional expression of genes responsible for tissue inflammation during infection. This study aimed to characterize dysbiotic colonization, immune response, and tissue gene expression in healthy (PerioC-H) and diseased (PerioC-D) periodontal sites of patients with PerioC and periodontally healthy (PH) ones.

Method: Samples of crevicular fluid, subgingival biofilm, and gingival tissue were collected from 20 PerioC and PH patients. Bacterial DNA was extracted, and 16S rRNA was used for species identification. The cytokines were quantified through the MAGPIX assay. Tissue biopsies were subjected to Spatial and Transcriptomic Single-Cell sequencing.

Results: Higher concentrations of IL-5 were associated with PH. Higher concentrations of IL-1β and IL-6, with PerioC-D, and greater MIP-1α and TNF-α, with PerioC-H. Differences in Alpha and Beta diversities between PerioC groups and PerioC-D and PH were seen. Key discriminative pathogens were detected, with *P. gingivalis* standing out for PerioC-D, *Granulicatella adiacens* for PerioC-H, and *Pseudomonas oleovorans* for PH. Intracellular Adhesion Molecule 1 (ICAM1) was 150 times more expressed in PerioC-D than it was in PerioC-H.

Conclusion: PerioC-H and PerioC-D presented unique Alpha and Beta communities, with key discriminative pathogens standing out for each group. Inflammation markers were differently produced, highlighting IL-5 for PH, TNF- α and MIP-1 α for PerioC-H, and IL-1 β and IL-6 for PerioC-D. Despite clinical destruction, PerioC-D expressed higher levels of ICAM1.

THE USE OF ARTIFICIAL INTELLIGENCE IN THE CONTEXT OF UNKNOWN VICTIMS IN FORENSIC DENTISTRY

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Aim: This work aims to evaluate the benefits, limitations and forensic implications of the use of AI, with emphasis on its current and future applications in Forensic Dentistry.

Method: Since the enactment of Law No. 5,081/66, Forensic Dentistry has been dedicated to human identification in individuals at different thanatological stages. The procedure generally begins with anthropometric studies — such as estimating sex, age and population affinity —, which provide support for the next stage: facial approximation, aimed at disseminating the reconstructed image on social media, with the aim of locating family members who can provide genetic material and dental/medical records. With the advancement of technology, new forms of identification have emerged, and one of them is artificial intelligence (AI) applying them to facial reconstructions (facial approximation). A literature search was carried out for articles concerning the use of AI in Forensic Dentistry in the period between 2019 and 2025, considering relevant publications indexed in the databases (MEDLINE, PubMed, LILACS and SciELO). Fifteen articles were selected from the set of 31 articles selected for analysis.

Results: It was possible to verify the technical accuracy of anatomical identification details, three-dimensional analysis of bite marks in forensic identification, 3D reconstruction of dental patterns in the identification of human remains, predict the facial morphology of unknown victims, and estimate sex and age.

Conclusion: The use of AI exhibits precision and accuracy equivalent to that of trained examiners, overcoming the variability in allocation caused by the human eye and mind.

THE USE OF CONSCIOUS SEDATIVE IN PEDIATRIC DENTISTRY FROM THE PARENT'S PERSPECTIVE

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aims to present a case involving the use of Midazolam in a child referred to the Pediatric Dentistry Clinic of the Piracicaba School of Dentistry (FOP) and the use of a questionnaire to assess parents' perception about the appointment.

Method: An 8-year-old female patient was treated at the FOP/UNICAMP Pediatric Dentistry Clinic, and in her treatment plan, some teeth should be extracted for orthodontic reasons. However, due to the patient's fear due to previous experiences, the patient did not allow the treatment. With the use of Midazolam, it was possible to perform tooth extractions without protective stabilization, and the patient was monitored during the treatment with an oximeter, which measured oxygenation, oxygen saturation, and heart rate. The guardian remained present during the entire treatment. To assess the guardian's perception of using this medication, a questionnaire was given immediately after the appointment finished and the guardian's perception and the patient's behavior after using Midazolam was assessed.

Results:

Conclusion: Based on the responses obtained, it could be concluded that the guardian felt safe about using the medication and considered the recovery after the medication smooth and uneventful.

THERAPEUTIC APPROACHES AND CLINICAL OUTCOMES IN MEDICATION-RELATED OSTEONECROSIS OF THE JAWS: A CASE SERIES REPORT

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ARAÇATUBA DENTAL SCHOOL - UNESP

Aim: To report the clinical follow-up, therapeutic interventions, and outcomes observed in patients diagnosed with medication-related osteonecrosis of the jaws (MRONJ), treated at the School of Dentistry of Araçatuba – UNESP.

Method: Among the patients evaluated, five were classified as stage II and one as stage I of MRONJ; the latter was treated exclusively with antimicrobial photodynamic therapy (aPDT). Surgical treatment was performed in five cases, while aPDT was applied every three days to all patients. Methylene blue at 100 μ g/mL was used as the photosensitizing agent, with an application time of 60 seconds. Irradiation was performed using a low-power diode laser (Photon Laser III, DMC, Equipamentos Ltda.; 660 nm; 100 mW; 60 s; 6 J/point; 3.57 W/cm²; 214 J/cm²). Each session lasted approximately four minutes, with at least two applications per week. This approach resulted in complete tissue healing and significant pain reduction in all cases, with response times ranging from two to eight weeks.

Results: The adjuvant therapies employed in the cases analyzed demonstrated promising clinical results, showing improvements in healing rates and in patients' quality of life

Conclusion: . These findings highlight the importance of further well-designed clinical studies to support the development of effective and standardized therapeutic protocols for the management of MRONJ.

THERAPEUTIC POTENTIAL OF MEDICINAL PLANTS IN PAEDIATRIC DENTISTRY: AN INTEGRATIVE REVIEW

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Aim: This integrative review aims to survey the current state of the topic "Paediatric Dentistry and Medicinal Plants", with the objective of identifying the main medicinal plant species with therapeutic properties that show promising results in paediatric dentistry.

Method: The review was conducted using the descriptors "Phytotherapy," "Paediatric Dentistry," "Herbal Medicine," and "Medicinal Plants," which were applied to searches in the PubMed, LILACS, SciELO, and Google Scholar databases, combined using the Boolean operator "AND." Inclusion criteria comprised full-text articles freely available in Portuguese or English, indexed in the aforementioned databases, and published within the last ten years (2014–2024).

Results: A total of 19 articles met the inclusion criteria. Among the plant species identified with therapeutic potential for oral conditions in paediatric dentistry are: Aloe vera, propolis, chamomile, green tea, pomegranate, garlic oil, rosemary, nigella, neem, cranberry, and miswak. The primary biological activities attributed to these plants include anti-inflammatory, antibacterial, antimicrobial, antiseptic, healing, analgesic, and antifungal effects.

Conclusion: Brazil's rich biodiversity offers great potential for research on medicinal plants in paediatric dentistry. These plants may provide accessible, less toxic, and effective alternatives to synthetic drugs. However, more scientific evidence is needed to confirm their safety, efficacy, and therapeutic use.

THIRD MOLARS IN ECTOPIC POSITIONS ASSOCIATED WITH CYSTIC LESIONS

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Aim: The aim of this study was to perform an integrative review on the incidence of third molars in ectopic positions associated with cystic lesions.

Method: A search was performed in the PubMed database using the following algorithm: "Third, Molar and Odontogenic Cysts and Ectopic", with no language restrictions, published in the last five years. A total of 5 articles were found, which were read in full.

Results: The lower third molars are the most affected by impaction, with a prevalence that can reach 20 to 30%, followed by the maxillary canines, being mainly related to situations of limited space for their eruption, or even associated with cystic lesions and odontogenic tumors. The anatomical regions that can be affected by ectopic development are: maxillary sinus; coronoid process; condyle, angle, body, ramus and mandibular symphysis. Treatment may vary according to: the position of the tooth, the potential risks of surgical intervention, the possibility of tooth eruption, among others, and when associated with cystic or tumoral lesions, surgical treatment is necessary to perform the excision of the lesion.

Conclusion: Surgical intervention may cause sequelae to the patient, such as: paresthesia, scars, paralysis and fractures; which should be weighed in order to establish the best approach for each case, being preferable that the procedure be performed through intraoral access and with the least possible surgical trauma, with the association of the transoral approach assisted by endoscopy being presented in the literature, aiming at less surgical trauma and total removal of the lesion.

TOOTH AVULSION IN A CHILD AFTER SEDATION: FAILURE IN INSTRUCTIONS AND ITS CONSEQUENCES: A CASE REPORT

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Aim: This study reports a clinical case of oral rehabilitation following the avulsion of primary tooth 61 due to a lack of proper postoperative instructions after sedation.

Method: The patient, N.C.L., a 3-year and 10-month-old female child, was treated at the dental clinic of the Faculdade de Odontologia de Piracicaba (FOP/UNICAMP) by the dental team, along with her guardians, after the traumatic incident. The patient's mother expressed frustration, as the avulsion occurred on the same day that a restorative procedure was carried out under sedation, which was indicated only for esthetic reasons. Additionally, the guardian reported being informed that the child would undergo minimal sedation, as stated in the signed consent form; however, the procedure escalated to deep sedation, and the child was discharged while still unconscious. Fifteen days post-trauma, an intraoral scan and 3D model printing were performed to fabricate a removable esthetic-functional space maintainer.

Results: Despite the patient's limited cooperation, the appliance successfully prevented space loss and maintained speech, function, and esthetics.

Conclusion: This case highlights the importance of pediatric dental sedation being performed with ethical responsibility, professionalism, and clear communication. The safety and satisfaction of all involved depend on proper case management, with non-pharmacological behavior management techniques preferred when possible. While sedation can be useful in specific cases, it must be carefully indicated, always prioritizing a humanized and safe approach to patient care.

TOOTH AVULSION PREDICTION BY MACHINE LEARNING ALGORITHMS

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Aim: To evaluate the performance of four machine learning algorithms in predicting tooth avulsion.

Method: Patients of both sexes, any age, and any type of trauma treated at the Dental Trauma Care Service of FOP-UNICAMP (2021–2023) were included. Records with incomplete data or without trauma were excluded. Clinical and sociodemographic data were extracted by a calibrated researcher and analyzed using four tree-based models: Decision Tree, Random Forest, XGBoost, and LightGBM, in Python. Model performance was evaluated using AUC, accuracy (ACC), sensitivity, specificity, F1-score, precision, and negative predictive value.

Results: SHAP values were used in the best-performing model to assess each variable's contribution. The sample included 104 medical records, of which 35 had avulsion. Random Forest had the best performance (AUC: 0.807; ACC: 0.782; F1: 0.720), followed by XGBoost (AUC: 0.803; ACC: 0.750; F1: 0.692). The most influential variables were complicated crown fracture, age, soft tissue trauma, and associated bone fracture.

Conclusion: Random Forest was the algorithm that performed best. Machine learning algorithms show promise as tools to support clinical decision-making in dental traumatology

TOPICAL CAPSAICIN AS A EXPERIMENTAL MODEL TO ASSESS CENTRAL NOCICEPTIVE PROCESSING IN CHRONIC OROFACIAL PAIN

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Aim: This case-control study compared pain intensity and the degree of secondary hyperalgesia induced by topical capsaicin between healthy individuals and patients with chronic temporomandibular disorder (TMD)-related pain.

Method: Thirty-five healthy participants [mean age (SD) = 28 (9) years, 28 women] and 35 patients with chronic TMD [29 (10) years, 28 women] were assessed. A 1% capsaicin cream was applied for 45 minutes to the right masseter muscle and the volar surface of the right forearm in two distinct sessions in a randomized order. Pain intensity evoked by capsaicin was recorded every 5 minutes using a 0–10 numerical rating scale. Immediately after the application, the incidence and extent of areas of allodynia and pinprick hyperalgesia were assessed using mechanical stimuli with a soft hair brush and a 180 g nylon von Frey filament. ANOVA models were applied to the data ($p = 0.050$).

Results: Pain intensity did not differ significantly between groups ($p > 0.050$). However, the incidence of allodynia and hyperalgesia was higher in the case group (54% and 83%, respectively) compared to the control group (17% and 54%, respectively; $p = 0.002$ and $p = 0.019$). Moreover, the areas of allodynia and hyperalgesia were significantly larger in patients with TMD than in healthy controls ($p = 0.002$; $p = 0.001$).

Conclusion: These findings suggest that topical capsaicin-induced sensitization is more pronounced in patients with chronic TMD, indicating that this model may be useful for mechanistic investigations of orofacial pain in humans.

TOPICAL NEOVESTITOL AND VESTITOL AFFECT GENE EXPRESSION IN GINGIVAL CELLS OF RATS WITH INDUCED PERIODONTAL DISEASE

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Aim: This study aimed to evaluate the effect of topical treatment with Neovestitol-Vestitol compounds (CNV) formulated in PL-407 on gene expression in gingival cells of rats with experimental periodontitis.

Method: Periodontitis was induced in Wistar rats through oral inoculation of *P. gingivalis* and placement of ligatures around the first mandibular molars. Animals were divided into three groups ($n=6$) and treated for 14 days with CNV (1600 µg/mL), 0.12% chlorhexidine (CHX), or vehicle (LIG). After 15 days, gingival tissue samples were collected for gene expression analysis via qPCR. Genes analyzed included *Calm1* (related to nitric oxide synthesis), *Birc3*, *Egr1*, and *Egf* (related to NF-κB signaling), *Capns1* (related to IL-1β regulation), *Icam1* (related to leukocyte transmigration), and *Bmp2*, *Nfatc1* (related to bone metabolism-related genes).

Results: Gapdh was used as an endogenous control. Birc3, Calm1, Icam1, and Egr1 expressions were significantly reduced by treatments with CNV and CHX compared to LIG group ($p < 0.05$), suggesting inhibition of NF- κ B-mediated inflammation and nitric oxide synthesis. Nfatc1, linked to osteoclastogenesis, remained at same levels in animals of LIG and CNV groups ($p > 0.05$), however with a significant decrease in cells of animals treated with CHX ($p < 0.05$). No significant differences were found for Capns1, Bmp2, and Egf expressions ($p > 0.05$).

Conclusion: Topical applications of CNV affected expression of genes related to inflammation, indicating a regulatory effect on molecular inflammatory mechanisms of periodontitis progression, comparable to CHX effects.

TRANSDENTINAL EFFECTS OF FLAVONOID-BASED PRIMERS APPLIED TO CARIES-AFFECTED DENTIN ON DENTAL-PULP CELLS

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Aim: To investigate the response of dental pulp stem cells (DPSC) and odontoblast-like cells (MDPC-23) to applying flavonoid-based primers on caries-affected dentin, as well as to assess the anti-inflammatory potential of these solutions in macrophages through reactive oxygen species (ROS) analysis.

Method: Primers were prepared with 20 mM flavonoids (Naringin, Kaempferol, Baicalein) in 20% ethanol. Dentin surfaces were demineralized using a microcosm biofilm model, and infected dentin was removed. Dentin discs (0.5 mm) were placed in artificial pulp chambers with MDPC-23 seeded on the pulpal side. Occlusal surfaces ($n=8$) were etched with phosphoric acid, rinsed, blot-dried, and treated with 20% ethanol (solvent control, SC) or flavonoid primers. Ultrapure water (negative control, NC) and 29% hydrogen peroxide (positive control, PC) were used without acid etching. After 24h, cell viability (AlamarBlue) and morphology (Scanning electron microscopy -SEM) were assessed. Extracts from transdentinal diffusion were applied to DPSC and MDPC-23 for 1, 3, and 7 days (viability), and 7 days (Alizarin Red staining), and to RAW 264.7 macrophages (ROS). ANOVA and Sidak test ($\alpha=5\%$) were used.

Results: After 24h, none of the flavonoids reduced viability, while PC and acid etching showed statistical differences from NC. SEM showed altered cell morphology and dentin exposure in acid-etched groups. At 7 days, flavonoid groups increased DPSC viability and maintained MDPC-23. Flavonoids also enhanced mineralization and reduced ROS.

Conclusion: Flavonoid-based primers were non-cytotoxic and promoted mineralization and anti-inflammatory responses.

TREATMENT OF PERSISTENT MAXILLARY LABIAL FRENULUM WITH DIODE LASER: CASE REPORT IN A PEDIATRIC PATIENT

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Aim: The purpose of this case report is to describe the diagnosis and surgical treatment of a persistent maxillary labial frenulum using a high-power laser.

Method: A 9-year-old female patient was treated at the Integrated Children's Dental Clinic of the Faculdade de Odontologia de Piracicaba (UNICAMP), presenting with an interincisal diastema and a low insertion of the frenulum into the palatal papilla, with palatal ischemia observed on lip traction. Based on the diagnosis of a persistent maxillary labial frenulum, high-power laser frenectomy was indicated. Initially, a low-level laser (wavelength 808 ± 10 nm, total energy 6 J) was used for preanesthetic analgesia, followed by infiltrative anesthesia with 2% lidocaine. The frenulum was removed with a diode laser (wavelength 800 ± 10 nm; continuous mode; power 2 W). No sutures were required and the procedure was completed without intra- or postoperative complications. Postoperative care included the prescription of a nonsteroidal anti-inflammatory drug (oral ibuprofen for two days) and a 0.12% chlorhexidine mouth rinse for oral hygiene for seven days.

Results: Follow-up showed good healing without any complications.

Conclusion: Thus, diode laser frenectomy proved to be an effective and safe alternative, offering shorter operative time, less bleeding, greater precision, faster healing, and improved postoperative comfort for the patient.

UPREGULATION OF MATRIX METALLOPROTEINASES 2 AND 9 IN CISPLATIN RESISTANT ORAL SQUAMOUS CELL CARCINOMA CELLS

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Aim: Oral squamous cell carcinoma (OSCC) is a very aggressive tumor, often diagnosed in advanced stages, where the treatment requires the administration of chemotherapy. Several challenges can occur during treatment, including the acquisition of chemoresistance, which not only compromises the efficacy of treatment, but also directly impacts clinical outcomes, such as reduced response rates, increased tumor progression, and decreased overall survival of patients. The expression of matrix metalloproteinases (MMP) is related to invasiveness and metastatic potential of the tumor cells. The aim of this study was to determine the expression and activity of MMP2 and MMP9 in cisplatin (CDDP)-resistant OSCC cells obtained through a stepwise increasing drug dose method.

Method: Differences in the expression of MMP2 and MMP9 of OSCC resistance and parental cells were assessed using RT-qPCR, and their activities were determined by gelatin zymography.

Results: SCC9-resistant cells showed significantly higher levels of MMP2 ($p<0.005$) and MMP9 ($p<0.0001$) than parental cells, but differences in the activity were observed only for MMP2 ($p<0.05$). For HSC3-resistant cells, the expression ($p<0.001$ for MMP2 and $p<0.005$ for MMP9) and activity ($p<0.005$ for MMP2 and $p<0.01$ for MMP9) of both enzymes were significantly higher than HSC3 parental cells.

Conclusion: This study provides novel insights into CDDP resistance in OSCC, allowing a better understanding of the mechanisms associated with chemoresistance, as well as opportunities to reverse the aggressive behavior acquired by tumor cells.

USE OF ACUPUNCTURE TO TREAT TEMPOROMANDIBULAR MUSCLE DYSFUNCTION WITH EMOTIONAL CHANGES

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Aim: In this case report, the objective was to demonstrate the effectiveness of a specific protocol for TMD in which the cause is associated with emotional factors, such as anxiety and stress.

Method: A young 32-year-old female patient sought care with bilateral orofacial pain, headaches, and generalized anxiety. During clinical examination, she observed that during palpation of the masseter muscles, she presented referred pain with spreading and in the temporal muscle, the pain remained in the same location, however, the level of headache increased. Initial orofacial pain and anxiety level were assessed by the visual analog scale and presented a value of 10 (VAS=10). In TCM, treatment is based on energy diagnosis that is performed with specific anamnesis together with evaluation of the tongue and pulse. In this case, the tongue was purplish, trembling, and had a red tip, demonstrating stasis of energy (Qi) and blood (Xue), and changes in Shen (emotional), reflecting changes in the heart's energy. The proposed treatment was the TMD protocol for emotional rebalancing, with needling at the acupoints SI3; HT7; PC6; GB20+TE23. Weekly treatment of 5 sessions lasting 20 minutes each.

Results: The results showed improvement in pain (the final VAS was 7) and in the anxiety (the final VAS was 6).

Conclusion: In this case, the proposed protocol can help in the management of TMD when triggered by emotional factors.

USE OF ANTIMICROBIAL PHOTODYNAMIC THERAPY IN THE TREATMENT OF MEDICATION-RELATED OSTEONECROSIS OF THE JAWS

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PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to review the literature on the use of antimicrobial photodynamic therapy (aPDT) as an adjuvant in the treatment of medication-related osteonecrosis of the jaws (MRONJ).

Method: A search was performed in the PubMed, Scopus, Scielo and Lilacs databases, including investigations on the use of aPDT in the therapy of MRONJ, with no language or time restrictions.

Results: The American Association of Oral and Maxillofacial Surgeons (AAOMS) defines MRONJ as bone exposure in patients who are currently or previously treated with antiresorptive therapy and recommends several strategies for the prevention and treatment of this condition. When non-surgical therapy is necessary, the focus of this treatment is the control of pain, secondary infections and the stabilization or cure of the clinical condition. Some adjuvant therapies, such as hyperbaric oxygen, pentoxifylline and aPDT have been described, but with limited evidence to support their efficacy. Most studies have demonstrated that aPDT contributes to local microbial reduction, pain relief, and improved tissue healing. Several application protocols have been reported, commonly involving photosensitizers such as methylene blue or toluidine blue, activated by light sources (such as low-level lasers).

Conclusion: Antimicrobial photodynamic therapy is described as a promising adjuvant strategy in the treatment of MRONJ; however, more clinical trials are needed to standardize the protocols and confirm its efficacy.

USE OF ARTIFICIAL INTELLIGENCE (AI) IN ORTHODONTIC TREATMENT PLANNING: A SCOPE REVIEW

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Aim: To map and describe the main machine learning and neural network techniques used in orthodontic treatment planning, identifying the main uses, benefits and limitations as reported in the world literature.

Method: The research was conducted according to the PRISMA-ScR guidelines. The electronic search was performed in the electronic databases PubMed/MEDLINE, Lilacs/BIREME, Scopus, Web of Science and Embase. Additional studies were identified in Google Scholar and by manual search in the included studies. The search was conducted until April 2024 without restriction of language and year of publication, as long as they directly addressed AI in orthodontic treatment planning.

Results: The search resulted in 804 articles from the databases, of which 567 remained after the removal of duplicates. Based on title and abstract screening, 30 articles were selected for further evaluation with full-text screening. The main uses of AI included automatic image segmentation, tooth movement prediction, outcome simulation, and clinical decision support.

Conclusion: This scoping review shows that AI has great potential as an auxiliary tool in orthodontic planning, contributing to improving clinical efficiency and reducing operator variability. However, accuracy and reliability still do not surpass results obtained by human experts.

USE OF CALCIUM HYDROXIDE, ZINC OXIDE AND 2% CHLORHEXIDINE GEL IN TRAUMATIC INJURIES: CASE REPORT

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Aim: This clinical case report presents the clinical approach to the diagnosis and treatment of a 12-year-old male patient who suffered dental trauma after falling from his own height during sports activities and sought care at the Dental Trauma Care Service (SATD) of the Piracicaba School of Dentistry – UNICAMP.

Method: Upon clinical and radiographic examination, teeth 11 and 12 presented extrusive luxation, in addition to a change in the color of tooth 11. The cone-beam computed tomography showed images indicative of external inflammatory resorption and root fracture in the apical third of tooth 12. Treatment consisted of endodontic therapy and obturation of the root canals of teeth 11 and 12 with a dressing paste composed of calcium hydroxide, 2% chlorhexidine gel, and zinc oxide. After 3 and 5 months of follow-up was observed regression of the signs and symptoms of endodontic infection, as well as stabilization of the fracture and root resorption, and maintenance of the obturator material used to fill the root canal.

Results:

Conclusion: The clinical and radiographic monitoring of the clinical case allows us to conclude that a correct diagnosis and treatment plan were established for the case, in order to enable the remission of symptoms and other clinical signs, in addition to ensuring the permanence of the traumatized tooth in the oral cavity, thus reestablishing the patient's oral health and self-esteem.

USE OF FREE SOFTWARE AND PHOTOGRAMMETRY IN THE FABRICATION OF 3D-PRINTED CUSTOM TRAYS FOR EDENTULOUS PATIENTS

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Aim: To present an alternative and cost-effective technique for the fabrication of custom trays for complete denture treatment, by integrating photogrammetry and 3D printing technologies as a feasible option for clinical settings with limited resources.

Method: This case report describes an alternative, cost-effective technique for fabricating custom trays for complete denture production, combining photogrammetry with additive manufacturing. A patient sought dental care due to dissatisfaction with her existing complete denture. Clinical evaluation confirmed the need for a new prosthesis. An initial anatomical impression was taken using irreversible hydrocolloid, serving as the foundation for subsequent steps. Based on this impression, a photogrammetric protocol was implemented, involving video capture with a smartphone and image processing using dedicated software to generate a three-dimensional (3D) digital model. This model was imported into 3D modeling software, where a custom tray was digitally designed, considering anatomical landmarks and appropriate material thickness. The finalized digital file was printed using fused deposition modeling technology and polylactic acid filament.

Results: After minor clinical adjustments, a functional impression was made using an elastomeric material, and the complete denture was subsequently fabricated following conventional protocols as recommended in the literature.

Conclusion: This technique proved to be reproducible, cost-effective, and feasible in resource-limited clinical settings, offering a promising alternative to conventional impression methods.

USES OF CAPSAICIN IN THE TREATMENT OF POST TRAUMATIC TRIGEMINAL NEUROPATHY: A LITERATURE REVIEW

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Aim: Capsaicin is a bioactive compound found in red pepper, responsible for the burning sensation. Owing to its pharmacological properties, it has been used as an agent in the treatment of intraoral neuropathic pain caused by invasive dental procedures.

Method: In the studies analyzed, capsaicin was applied daily for up to four weeks, with weekly reassessments, administered directly to the affected area. A custom acetate device was used to prevent dispersion to adjacent regions and minimize adverse effects.

Results: Capsaicin results have shown significant peripheral desensitization in patients with post-traumatic trigeminal neuropathy.

Conclusion: Capsaicin acts on C-type sensory fibers related to pain stimuli by inhibiting substance P. By acting on these C-type fibers, capsaicin provides a reduction in pain sensitivity, supporting its use in neuropathic pain conditions. Furthermore, it stimulates the release of endogenous endorphins, enhancing the analgesic effect and contributing to a sensation of well-being.

VALIDATION OF AN IMPROVED AI MODEL FOR AUTOMATIC MANDIBULAR INCISIVE CANAL SEGMENTATION ON CBCT IMAGES

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Aim: To validate an improved artificial intelligence (AI) model specifically designed for automatic MIC segmentation on cone beam computed tomography (CBCT) images. Additionally, its performance and time efficiency were compared to manual segmentation by experts and a previously developed AI model that simultaneously segments the mandibular canal (MC) and MIC.

Method: The enhanced AI model was trained using 100 CBCT scans featuring expert-refined MIC segmentations via the Virtual Patient Creator platform. To evaluate its performance, the model was applied to an independent set of 40 CBCT scans. Its segmentation outcomes were compared to those from human experts and the prior AI model. Performance was assessed using metrics such as intersection over union (IoU), dice similarity coefficient (DSC), recall, precision, accuracy, and root mean square error (RMSE). Segmentation time was also recorded.

Results: The improved AI model achieved high performance, with 93% for both IoU and DSC, 94% recall, 93% precision, 99% accuracy, and 0.23 mm RMSE. These results significantly outperformed the previous AI model across all metrics and surpassed manual segmentation in IoU, DSC, recall, and accuracy ($p < 0.0001$). The model also exhibited superior time efficiency, completing segmentation in just 17.6 seconds—approximately 125 times faster than manual efforts ($p < 0.0001$).

Conclusion: This enhanced AI tool enables highly accurate and efficient automated MIC segmentation, outperforming both expert manual methods and earlier AI models.

VEGAN AND DESENSITIZING TOOTHPASTE FORMULATIONS: MARKET TRENDS AND SCIENTIFIC RELEVANCE

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Aim: A research was conducted on toothpastes available on the market, selected based on commercial claims displayed on their labels, particularly those related to formulation, the presence of essential oils, natural ingredients, and vegan or desensitizing components.

Method: The products were obtained from drugstores, natural product stores in the city of Piracicaba (SP), as well as from e-commerce platforms offering both national and imported items. The analysis was carried out by organizing the data in Google Forms, with a focus on ingredients and marketing claims presented on the packaging. The toothpastes were classified according to the presence of active ingredients such as fluoride, essential oils, plant extracts, desensitizing agents, and indications of vegan formulations. Additionally, a literature review was conducted to assess the efficacy and safety of the main components identified.

Results: The results showed that most toothpastes labeled as vegan did not contain fluoride, which may compromise their effectiveness in preventing dental caries. On the other hand, desensitizing toothpastes containing ingredients such as potassium nitrate, arginine, or calcium derivatives were found to be well-accepted and potentially effective in alleviating dentin hypersensitivity.

Conclusion: In conclusion, although the market offers a wide variety of toothpastes with different appeals, product selection should be guided by scientific evidence rather than marketing strategies.

VIRTUAL PLANNING IN ORTHOGNATHIC SURGERY: ADVANTAGES AND LIMITATIONS

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Aim: This study aimed to review the current literature regarding the advantages and limitations of virtual planning in orthognathic surgery.

Method: A search was conducted in the PubMed database using the terms "Orthognathic Surgery", "Surgical Procedures", and "Virtual Planning" including only English language for the last five years. A total of 15 manuscripts were found. After reading the titles, ten articles were excluded and five English manuscripts were included in this literature review.

Results: Orthognathic surgery is performed to correct maxillomandibular discrepancies that cannot be addressed solely through orthodontic treatment. Traditionally, surgical planning involved the use of plaster models, two-dimensional cephalometric tracings, and surgical guides are made from acrylic resin. However, with technological advancements, virtual planning is an essential tool, enhancing predictability, precision, and interdisciplinary collaboration. It is used digital images of the facial skeleton and dental tissues obtained through tomography and intraoral scanning that are processed using specialized software, allowing for the simulation of osteotomies, bone repositioning, three-dimensional cephalometric analysis, and creating customized surgical guides through 3D printing.

Conclusion: The primary advantage is the ability to accurately simulate bone movements while simultaneously visualizing the expected changes in soft tissues. The limitations of this type of planning include the necessity for technical training, and the dependence on the quality of the images acquired.

WHAT INFLUENCES PLANNING BY ORAL HEALTH TEAMS? A NATIONWIDE STUDY IN BRAZILIAN PRIMARY CARE

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Aim: Aim This study evaluated the factors associated with the planning of actions by oral health teams (OHTs) in Brazilian primary health care.

Method: A cross-sectional analysis was conducted using data from the external evaluation of the third cycle of the National Program for Improving Access and Quality of Primary Care (PMAQ-AB), carried out between 2017 and 2018. The final sample included 22,268 OHTs from 4,679 municipalities. The outcome was whether OHTs performed action planning. Independent variables included characteristics of the teams, features of PHC management, and municipal socioeconomic indicators. Five models were built sequentially: an intercept-only model, models with OHT-level variables, municipal management variables, municipal indicators, and a multilevel logistic regression model.

Results: Planning was absent in 32.5% of OHTs. In the final model, team-level characteristics showed stronger associations with planning than municipal-level variables. Participation in joint meetings with PHC teams and conducting case and therapeutic project discussions were the most influential factors, with adjusted ORs of 3.75 (95%CI: 3.42–4.10) and 3.74 (95%CI: 3.46–4.05), respectively. The absence of team meetings, case discussions, self-assessment processes, and embracement protocols were identified as main barriers to planning.

Conclusion: These findings highlight that strengthening internal work processes of OHTs is essential to improve planning and integration within PHC services

WHOLE-EXOME SEQUENCING REVEALS EXTRACELULAR MATRIX AS POTENTIAL RESISTANCE MECHANISMS IN PDX ADENOID CYSTIC CARCINOMA

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Aim: This study investigated the genomic and functional effects of Entinostat, a class I histone deacetylase inhibitor, and cisplatin in patient-derived xenograft (PDX) models of adenoid cystic carcinoma (ACC) through whole-exome sequencing (WES).

Method: ACCX5M1 and ACCX6 tumors were implanted in immunodeficient mice (N=24) and treated with vehicle, Entinostat (5 mg/kg), cisplatin (3 mg/kg), or their combination. While ACCX5M1 exhibited a favorable clinical therapeutic response, ACCX6 showed resistance to the treatments. Tumor DNA was subjected to WES, followed by somatic variant calling and functional enrichment analyses based on Gene Ontology and Reactome pathways (p-adjusted < 0.05).

Results: Genomic analysis revealed a significant increase in the number of somatic variants in ACCX6 upon treatment, contrasting with minimal changes in ACCX5M1. Treatment with Entinostat induced extracellular matrix (ECM) degradation pathways in ACCX5M1, whereas ACCX6 activated ECM-related resistance mechanisms. Notably, combination therapy led to extensive ECM remodeling exclusively in ACCX6, with enrichment of pathways related to ECM degradation and reorganization (p < 0.001), involving MMP, ADAM, and COL gene families. Additionally, ACCX6 showed activation of RUNX3-mediated cell cycle arrest via CDKN1A (p < 0.001), enrichment of detoxification pathways, and downregulation of Wnt signaling (p < 0.001).

Conclusion: These findings suggest that treatment-induced genomic alterations in ACCX6 contribute to resistance via enhanced detoxification and ECM remodeling highlighting adaptive mechanisms that may reduce therapeutic efficacy.