

XXIX Dental Meeting of Piracicaba XIV International Dental Meeting



XXIX JORNADA ODONTOLÓGICA DE PIRACICABA

XIV CONGRESSO INTERNACIONAL DE ODONTOLOGIA
“Prof. Dr. Alexander Tadeu Sverzut (*in memoriam*)”

June 5th to 7th, 2024

"MICROWAVE-OVEN": CASE REPORT

YARA VIEIRA LEMOS; RICARDO MOREIRA ARAÚJO, BEATRIZ CARMONA FERREIRA-PILEGGI, LUCIANE NAOMI OGUMA WATANABE, EDUARDO DARUGE JÚNIOR, FELIPPE BEVILAQUA PRADO, ALEXANDRE RODRIGUES FREIRE; ANA CLÁUDIA ROSSI

UNIVERSITY OF CAMPINAS, PIRACICABA DENTAL SCHOOL

Aim: This study encompasses a forensic case report pertaining to an illicit cremation of an individual employing a technique commonly referred to as the "microwave" modality in the context of Brazil.

Method: The microwave procedure entails a twofold process, involving the placement of the victim within a stack of tires, followed by the ignition of the structure through the utilization of combustible substances aimed at expediting the cremation process. Demise can transpire prior to the act of cremation, or alternatively, as an immediate consequence of exposure to flames, characterized by severe burns, elevated temperatures, or carbon monoxide intoxication. It should be noted that these mechanisms are not mutually exclusive, as they may occur concurrently. Within the Brazilian context, carbonization serves as a method employed by organized criminal entities to hinder forensic investigations and subsequently obstruct the prosecution of offenders, particularly in matters related to narcotic trafficking. The present case report delineates a forensic examination conducted on a body that underwent cremation via the "microwave" modality.

Results: Dental, medical, and anthropological analyses promoted the estimation of the biological profile, determination of the cause of death, and the identification of the victim.

Conclusion: The practice of "microwave" carbonization poses challenges for researchers. Therefore, fully understanding this practice can be helpful for the academic and forensic communities.

ADVANCED TECHNIQUES IN COMPOSITE RESIN RESTORATION FOR FRACTURED ANTERIOR TEETH: CASE REPORTS

VITÓRIA BEATRIZ SOUZA DA SILVA; LARA BEATRIZ FÉLIX DE ALMEIDA, MARLY VALE SOARES SILVA, DANIELA BIRNBAUM PESSOA DE MELO; LEONARDO FERNANDES DA CUNHA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this study was to elucidate, through the analysis of two clinical cases, the direct layering technique and the subsequent finishing and polishing process involved in composite resin restorations for fractured anterior teeth.

Method: In the first case, an 11-year-old female patient experienced a fracture of the upper central incisors, while in the second case, a 6-year-old female patient suffered a fracture of the left upper central incisor. A comprehensive description of the layering technique, including the materials and instruments used, was provided. This description covered not only the restorative procedure but also the need for finishing and polishing.

Results: In both instances, the dental fragment was irretrievably lost, necessitating the adoption of a direct restoration technique employing composite resin.

Conclusion: Composite resin serves as a substantive modality for the restoration of dental integrity, offering exceptional optical outcomes and fostering a sense of long-term predictability. Additionally, it serves as a conservative approach to reinstating both the aesthetic appeal and functional capacity of fractured anterior teeth. Through detailed descriptions and analyses of the cases, it was demonstrated that composite resin serves as an effective means to restore dental integrity, providing superior aesthetic outcomes and long-term predictability. Furthermore, its conservative nature makes it an ideal choice for reinstating both the aesthetic and functional capacity. These findings underscore the importance of understanding and employing advanced restorative techniques to achieve optimal outcomes in dental practice.

AESTHETIC STANDARD: THE WEIGHT OF BODY SELF-IMAGE

JÚLIA ARAÚJO MARQUES; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To reflect on aesthetic standards: the weight of body self-image on adolescents.

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

Results: 1160 articles were selected, and after the criteria, 7 articles remained. Adolescence is a stage characterized by one's own behaviors, questions about rules and values arising from the family, distancing from this family cycle and getting closer to the groups of friends with which one identifies. It is in this moment of discovery that the adolescent seeks to fit into society, to know and recognize himself in the environment in which he lives; while dealing with issues of identity and body image. The influence of the consumer market in defining beauty standards results in concerns about social acceptance and self-image. Contemporary society is described as a society of spectacle, where the image is fundamental and relationships are mediated by it. Adolescents are especially vulnerable to these influences. Beauty standards can often have numerous consequences, such as self-esteem problems, emotional problems or even disorders related to self-image. Eating disorders are one of the dangerous consequences of imposing beauty standards.

Conclusion: The adolescent's self-image reveals the contemporary way of being and living, the current values, the fragility and superficiality of the relationships that are established in the society of the spectacle. It is hoped that these reflections will offer support for other analyzes and possible ways to think about adolescent health care, from a biopsychosocial perspective, which can contribute to the construction of their identity.

ANALYSIS OF ABUSIVE SMARTPHONE USE AND SELF-ESTEEM LEVEL AMONG HIGH SCHOOL ADOLESCENTS: AN EXPLORATORY STUDY

MARCELA YAMADA DA SILVA; BEATRIZ ROCHA RIBEIRO, GUILHERME DA SILVA OCTAVIANO, TAINA RONDINI DOS SANTOS, JULIA MURAMOTO DOS SANTOS, JOÃO PAULO SANTANA DA SILVA, CÁSSIA CRISTINA ARAUJO VIEIRA; FÁBIO LUIZ MIALHE

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this exploratory study was to analyze excessive smartphone use and self-esteem levels among high school students in the city of Piracicaba, São Paulo, Brazil.

Method: Initially, the project was approved by the Research Ethics Committee of FOP/UNICAMP (CAAE - 67456017.2.0000.5418). The study included a convenience sample of 101 high school students from Piracicaba, SP, Brazil. They were invited to answer a questionnaire from the Smartphone Addiction Scale - Short Version (SAS-SV) and the Rosenberg Self-Esteem Scale, in addition to a sociodemographic questionnaire. The chi-square test was performed to test the association between the obtained scores of excessive smartphone use and self-esteem variables.

Results: The results of the sociodemographic questionnaire showed that the average age of the adolescents was 15.82 (± 0.87), with the majority being female (56.4%). The average SAS-SV score was 29.9 (± 9.04), with most male and female students reporting not engaging in excessive cell phone use (61.40% and 57.9% respectively). Regarding the self-esteem scale, the average was 26.6 (± 2.95). The majority of adolescents had satisfactory self-esteem (85.1%). No association was found between the variables, for both sexes, $p > 0.05$

Conclusion: It is concluded that adolescents do not engage in excessive smartphone use and also have good self-esteem.

ANALYSIS OF INSOMNIA DEGREE AMONG HIGH SCHOOL STUDENTS: AN EXPLORATORY STUDY

JULIA MURAMOTO DOS SANTOS; BEATRIZ ROCHA RIBEIRO, TAINA RONDINI DOS SANTOS, GUILHERME DA SILVA OCTAVIANO, MARCELA YAMADA DA SILVA, JOÃO PAULO SANTANA DA SILVA, CÁSSIA CRISTINA ARAUJO VIEIRA; FÁBIO LUIZ MIALHE

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this exploratory study was to analyze the difficulties with sleep experienced by high school students in the city of Piracicaba, São Paulo, Brazil

Method: Initially, the project was approved by the Research Ethics Committee of FOP/UNICAMP (CAAE - 67456017.2.0000.5418). The study included a convenience sample of 97 high school students from Piracicaba, SP, Brazil. The Athens Insomnia Scale was used to collect data, which is used to diagnose insomnia and consists of eight types of sleep difficulties with an assessment scale whose intensity is indicated by a score ranging from 0 to 3. Additionally, a sociodemographic questionnaire was applied.

Results: The results of the sociodemographic questionnaire showed that the average age of the adolescents was 15.82 (± 0.87), with the majority being female (56.4%). The average score on the insomnia scale was 6.34 (± 3.85). The majority of adolescents reported having some degree of insomnia (51.5%).

Conclusion: The results demonstrated that students experience difficulties sleeping, which suggests the importance of addressing and investigating more deeply the underlying causes of this problem.

ANTIBACTERIAL ACTION OF ALCOHOL ON GLASS AND PLASTIC ANESTHETIC CARTRIDGES

ANA JÚLIA DOS SANTOS; LARISSA CRISTIANE RODRIGUES SILVA, CLARA UNGARATTI CARDOSO, VINICIUS RAFAEL DE AMORIM FELICÍSSIMO, DANIEL FELIPE FERNANDES PAIVA; CAMILA BATISTA DA SILVA DE ARAUJO CANDIDO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study aims to assess the disinfectant efficacy of immersing anesthetic cartridges in alcohol.

Method: Twenty-four cartridges, comprising equal numbers of glass and plastic variants, underwent exposure to the undergraduate dental clinic for 24 hours. Following this, the cartridges were partitioned into two groups: one subjected to immersion in 70% alcohol for durations of 30/60 minutes, while the other remained untreated. Subsequent to immersion, the entire surface of each cartridge was swabbed with a sterile, saline-moistened swab. These swabs were then transferred onto Brain Heart Infusion (BHI) agar plates and incubated in a CO₂ incubator for 48 hours. After the incubation period, colony formation was quantified.

Results: The alcohol-treated groups exhibited colony counts ranging from 0-2. Notably, at 30 minutes, glass cartridges displayed a higher incidence of colony formation compared to plastic counterparts, while no growth was observed in either treated group after 60 minutes. Conversely, the untreated group exhibited colony counts ranging from 7-22, with glass cartridges yielding fewer colonies. Both glass and plastic cartridges displayed similar contamination behaviors, with glass demonstrating slightly superior characteristics when untreated. At 30 minutes, alcohol treatment proved more effective compared to the negative control, albeit with minimal bacterial growth. By the 60-minute mark, the treatment demonstrated complete efficacy in bacterial control.

Conclusion: In conclusion, alcohol exhibited enhanced antibacterial effects after 60 minutes of exposure within anesthetic cartridges, irrespective of their material composition.

ANTIBACTERIAL ACTION OF IODIZED ALCOHOL ON GLASS AND PLASTIC ANESTHETIC CARTRIDGES

VINICIUS RAFAEL DE AMORIM FELICÍSSIMO; LARISSA CRISTIANE RODRIGUES SILVA, CLARA UNGARATTI CARDOSO, ANA JÚLIA DOS SANTOS, DANIEL FELIPE FERNANDES PAIVA; CAMILA BATISTA DA SILVA DE ARAUJO CANDIDO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study endeavors to assess the potential disinfectant properties of immersing various anesthetic cartridges in iodized alcohol.

Method: To this end, 24 cartridges, comprising 12 glass and 12 plastic variants, underwent exposure within the undergraduate dental clinic setting for a complete service day. Following this, the cartridges underwent division into two groups: one subjected to immersion in iodized alcohol, the other left untreated. Immersion durations were set at 30 and 60 minutes. Subsequent to the designated immersion periods, each cartridge underwent comprehensive surface swabbing with sterile swabs moistened with saline solution. These swabs were then cultured on Brain Heart Infusion (BHI) agar plates and placed within a CO2 incubator for 48 hours. Following incubation, the plates were meticulously examined for colony quantification.

Results: The iodized alcohol-treated groups exhibited no colony formation at either 30 or 60 minutes, irrespective of cartridge composition. Conversely, the untreated group displayed colony counts ranging from 7 to 22, with glass cartridges exhibiting fewer colonies.

Conclusion: Thus, iodized alcohol demonstrated antibacterial efficacy at both exposure durations within anesthetic cartridges, regardless of their composition. However, plastic cartridges, if not appropriately sanitized, exhibited slightly higher susceptibility to bacterial growth.

ANTIBACTERIAL ACTION OF SALINE SOLUTION ON GLASS AND PLASTIC ANESTHETIC CARTRIDGES

LARISSA CRISTIANE RODRIGUES SILVA; VINICIUS RAFAEL DE AMORIM FELICÍSSIMO, CLARA UNGARATTI CARDOSO, ANA JULIA DOS SANTOS, DANIEL FELIPE FERNANDES PAIVA; CAMILA BATISTA DA SILVA DE ARAUJO CANDIDO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study aims to assess the disinfectant efficacy of submerging anesthetic cartridges in saline solution.

Method: 24 cartridges, comprising 12 glass and 12 plastic variants, underwent exposure within the undergraduate dental clinic for a full service day. The cartridges were separated in two groups: one subjected to immersion in 0.7% sodium chloride solution, while the other remained untreated. Immersion durations were set at 30/60 minutes. After the immersion periods, each cartridge underwent comprehensive surface swabbing with sterile swabs moistened with saline solution. These swabs were subsequently cultured on Brain Heart Infusion (BHI) agar plates and placed within a CO2 incubator for 48 hours. Following incubation, the plates underwent meticulous analysis for colony quantification.

Results: The sodium chloride-treated groups exhibited colony counts ranging from 0-9. Notably, at 30 minutes, glass cartridges displayed greater colony formation compared to plastic ones, while at 60 minutes, only one colony grew in a plastic cartridge. Conversely, the untreated group displayed colony counts ranging from 7-22, with glass cartridges yielding fewer colonies. Both glass and plastic cartridges demonstrated similar contamination behaviors, with glass exhibiting slight superiority. At 30 minutes, both sodium chloride treatment and the negative control exhibited comparable behaviors. However, by the 60-minute mark, treatment demonstrated efficacy in bacterial control.

Conclusion: In conclusion, sodium chloride exhibited antibacterial effects only after 60 minutes of exposure within anesthetic cartridges, regardless of their composition.

ANTIBIOFILM EFFECT OF PLATELET-RICH FIBRIN MEMBRANE

URSULA MODESTO SANDI; TATIANE TIEMI MACEDO, GUSTAVO QUILLES VARGAS, LARISSA MATIAS MALAVAZI, NATHALIA ROHWEDDER DOS SANTOS, FÁBIO HIDEAKI UYEDA; BRUNO BUENO-SILVA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The purpose of this study was to evaluate the effect of platelet-rich fibrin (PRF) in its membrane presentation on the multi-species subgingival biofilm associated with periodontal disease.

Method: The biofilm of 33 periodontitis-related species was formed in the Calgary device for 7 days. The deep and superficial portions of the PRF membranes were added at the same time as the bacterial inoculum. On the third day of formation, the culture medium was changed, and after 7 days, metabolic activity (MA) and microbial profile were evaluated by colorimetric reaction and DNA-DNA hybridization, respectively.

Results: Statistical analysis was performed by Kruskal-Wallis followed by Dunn's post-hoc test ($p \leq 0.05$). The superficial and deep portions of the membrane reduced AM and total biofilm counts by approximately 35% and 50%, respectively ($p \leq 0.05$). Treatment with both portions also reduced the levels of *F. periodonticum*, *P. gingivalis* and *A. actinomycetemcomitans* ($p \leq 0.05$).

Conclusion: Therefore, different parts of the PRF membranes have similar antimicrobial activity. Future in vivo studies should confirm these results.

ARE HUMAN SUTURAL BONES ANATOMICAL VARIATIONS? STUDY ON SKULLS FROM A SAMPLE OF THE BRAZILIAN POPULATION

MATHEUS BACCO DE LUCA; ALEXANDRE RODRIGUES FREIRE, FELIPPE BEVILACQUA PRADO, BEATRIZ CARMONA FERREIRA-PILEGGI; ANA CLÁUDIA ROSSI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To describe the morphology and map the distribution of sutural bones according to the sutures that are located, and the sex of dry human skulls from a Brazilian population.

Method: 26 dry human skulls, adults, of both sexes was used. A previous anatomical study and calibration of the evaluator was carried out regarding macroscopic visual inspection of the sutural bones in each suture that make up the human skulls in the sample. Next, the number of sutural bones present (presence and absence) in the sutures of each skull was numerically counted. Each sutural bone found was described and classified according to its location and shape by the evaluator. The data were tabulated and descriptive statistics (%) were performed in Microsoft Excel®.

Results: Considering all the skulls evaluated, 753 sutural bones were found, of which 45.02% were on the right side and 49.80% were on the left side. The arithmetic mean showed that 28.1 sutural bones were in males and 31.83 in females. When evaluating the main sutures of the skull, the sutural bones were more common in the coronal (50.45%) and lambdoid (24.57%) sutures. The most common shapes found were irregular (34.25%) and oval (14.08%).

Conclusion: The sutural bones are present in the sample of the studied population. Despite the high incidence, more studies need to be carried out to generate greater scientific foundation, essential for clinicians who intervene in these cranial regions, experts and forensic anthropologists who investigate and seek to identify skeletonized remains.

ARE YOU HAPPY? ANALYSIS OF HAPPINESS LEVEL AMONG HIGH SCHOOL STUDENTS

TAINÁ RONDINI DOS SANTOS; BEATRIZ ROCHA RIBEIRO, GUILHERME DA SILVA OCTAVIANO, JULIA MURAMOTO DOS SANTOS, MARCELA YAMADA DA SILVA, JOÃO PAULO SANTANA DA SILVA, CÁSSIA CRISTINA ARAUJO VIEIRA; FÁBIO LUIZ MIALHE
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this exploratory study was the level of happiness among high school students in the city of Piracicaba, São Paulo, Brazil.

Method: Initially, the project was approved by the Research Ethics Committee of FOP/UNICAMP (CAAE - 67456017.2.0000.5418). The study included a convenience sample of 101 high school students from Piracicaba, SP, Brazil. They were invited to answer a questionnaire from the Subjective Happiness Scale, which identifies overall subjective happiness, including four items, rated on a 7-point Likert scale, in addition to a sociodemographic questionnaire.

Results: The results of the sociodemographic questionnaire showed that the average age of the adolescents was 15.82 (± 0.87), with the majority being female (56.4%). The average score on the subjective happiness scale was 19.0 (± 3.72). Out of the total students, 54.50% exhibited a high level of happiness, and 45.5% reported a low level of happiness.

Conclusion: Based on the results, it was possible to conclude that students, in general, feel happy. However, future studies may benefit from investigating in more detail the factors associated with teenagers' happiness levels, in order to guide policies and programs aimed at improving their quality of life and emotional well-being.

ARGININE HINDERS STREPTOCOCCUS MUTANS BIOFILM BY INHIBITING BACTERIAL GROWTH AND EXTRACELLULAR MATRIX BUILD-UP

PEDRO CANTO BUENO; VINÍCIUS SAMPAIO ALVES DE FIGUEIREDO; MARLISE INÊZ KLEIN FURLAN
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dental caries is a disease mediated by biofilm and modulated by dietary sugars, mainly sucrose. Microorganisms in the biofilm (e.g., *S. mutans*) ferment sugars into organic acids entrapped in the biofilm by the extracellular matrix, leading to teeth demineralization. Prebiotics are substances that could interfere with the development of cariogenic biofilms. Thus, the antibiofilm effect of putative prebiotics was assessed.

Method: *S. mutans* UA159 biofilms were grown on saliva-coated hydroxyapatite discs, with a culture medium containing 1% sucrose with or without putative prebiotics (37°C/10% CO₂). Six groups were evaluated: 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 culture medium was changed twice daily, and the pH of the spent medium was assessed. After 67 h, the biofilms were evaluated to determine the bacterial population, biomass, and extracellular matrix components (water-soluble and -insoluble exopolysaccharides). Also, the 3D architecture was evaluated via confocal microscopy.

Results: There was less bacterial population, biomass, and exopolysaccharides in group 2 (arginine) versus all other groups. In addition, the 3D architecture varied among groups regarding the size of microcolonies (cells agglomerate enmeshed in exopolysaccharides) for five groups, but group 2 presented only small arrangements of bacterial cells with little exopolysaccharides.

Conclusion: Thus, arginine impeded the biofilm development, and the other putative prebiotics evaluated did not present that effect.

ARTIFICIAL INTELLIGENCE APPLIED TO DENTISTRY

THAIS BAUMANN DA SILVA; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To discuss artificial intelligence applied to Dentistry.

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

Results: 970 articles were selected, and after the criteria, 9 articles remained. The application of artificial intelligence (AI) to healthcare is an important area of study and has seen recent growth in several areas. The approach carried out preventively can be improved and improved, as diagnoses can be made early, obtaining better treatment outcomes. The interpretation and definition of clinical dental diagnosis with the use of AI can act to support and assist in clinical decision-making; therefore, there will be help in the role played by the dental surgeon. Dental care provided to individuals undergoing treatment can be improved with the use of this resource, as it allows for treatments that are more effective. There are many applications capable of being carried out by AI in Dentistry. Identification of tooth decay is a possible resource using AI, using Deep Learning, Convolutional Neural Networks. This device allows for improved identification and diagnosis of tooth decay. In orthodontics, the apparatus provided by AI can be used in the clinical stages of diagnosis and orthodontic planning; as well as in other specialties.

Conclusion: With the use of AI, it is possible to obtain a better outcome in the dental treatments carried out, at the same time being viable to rationalize the time spent on treatments and a better comfort for patients and dental surgeons who are receiving care.

ARTIFICIAL INTELLIGENCE IN THE ACADEMIC CONTEXT: A STUDY ON THE USE OF CHATGPT TO PRODUCE SCIENTIFIC ABSTRACTS

CAIO ALENCAR-PALHA; THAÍS SANTOS CERQUEIRA OCAMPO, THAÍSA PINHEIRO SILVA, FREDERICO SAMPAIO NEVES; MATHEUS LIMA OLIVEIRA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate ChatGPT's ability in writing abstracts for scientific articles, assessing its applicability in the academic context.

Method: Ten dental radiology scientific articles had their original abstracts collected, while another ten articles had their methodology and results information added to a ChatGPT prompt to generate an abstract. All abstracts were randomized and compiled into a single file for subsequent assessment. Five oral radiology teachers classified if the text was written by a human, through a 5-point scale, and provided justifications within seven aspects, including formatting, information accuracy, orthography, punctuation, terminology used, text fluency and writing style. A GPT detector was used, providing "Human Score" values and plagiarism detection to evaluate ChatGPT's performance.

Results: Sensitivity values for detecting human writing ranged from 0.20 to 0.70, with a mean of 0.58; specificity values ranged from 0.40 to 0.90, with a mean of 0.62; and accuracy values ranged from 0.50 to 0.80, with a mean of 0.60. Orthography and Punctuation were the most indicated characteristics for texts generated by ChatGPT. The GPT detector revealed confidence levels for a "Human Score" of 16.9% for the AI-generated texts and plagiarism levels averaging 35%.

Conclusion: When evaluated by humans, ChatGPT generated abstracts blended well compared to the original ones, showing the tool's good performance in this task of the academic context. However, when evaluated by GPT detectors, the use of ChatGPT was very noticeable.

ASSESSMENT OF METAL REMOVAL FROM BIOFILMS BY EDTA AND ETIDRONIC ACID USING CONFOCAL LASER SCANNING MICROSCOPY

RAFAELA CAIRES SANTOS; MARCO ANTONIO HUNGARO DUARTE, ED CAMPOS VIEIRA NETO, MARCIA SIRLENE ZARDIN GRAEFF, FLAVIANA BOMBARDA DE ANDRADE, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; TALITA TARTARI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this study was to quantify the removal of metal ions by the chelating agents EDTA and etidronic acid (HEDP) in *Enterococcus faecalis* biofilms, as well as to evaluate the impact of this removal on community stability using confocal laser scanning microscopy (CLSM).

Method: *E. faecalis* biofilms were grown for 21 days on acrylic coverslips, which were subsequently immersed in 2 mL of (n=10): G1) saline solution (control, 5 min); G2) 17% EDTA (3 min); and G3) 9% HEDP (Dual Rinse HEDP, 5 min). Next, they were stained with Phen Green FL to identify metals, DAPI to mark bacterial DNA, and propidium iodide (PI) to label nucleic acids in cells with damaged membranes. Images were captured (4/sample) by CLSM and subsequently analyzed using Leica Application Suite X software. The individual and total volumes of the stained biofilm components (μm^3) and their respective percentages were compared using One-Way ANOVA with Tukey's post-hoc test ($\alpha < 0.05$).

Results: EDTA removed a higher amount of metals ($P < 0.05$), potentially destabilizing the biofilms and causing detachment of bacterial cells. Consequently, EDTA significantly reduced the total cubic volume of the biofilms compared to the other irrigants ($P < 0.05$), while the control and HEDP groups were similar ($P > 0.05$). However, the percentages of nucleic acid and metals remained constant in all treatments ($P > 0.05$).

Conclusion: In conclusion, strong chelating solutions such as EDTA can remove substantial amounts of metals from biofilms and affect community stability.

ASSESSMENT OF TOOTH DISCOLORATION CAUSED BY DIFFERENT MEDICATIONS AND CERVICAL BARRIERS, ASSOCIATED WITH BLOOD CLOTS

BIANCA FERRO BORGES DA SILVA; RODOLFO FIGUEIREDO DE ALMEIDA, ARIAN BRAIDO, PAULO HENRIQUE GABRIEL, MARINA ANGÉLICA MARCIANO DA SILVA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, TALITA TARTARI; ADRIANA DE JESUS SOARES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate tooth discoloration in regenerative endodontic procedures, correlating the use of different intracanal medications [triple antibiotic paste (TAP), calcium hydroxide paste associated with 2% Chlorhexidine gel and BIO-C TEMP], associated with cervical barriers [White Angelus MTA, Biodentine, EndoSeal MTA, Calcium Hydroxide paste, Zinc Oxide and 2% Chlorhexidine gel (SFS) and Coltosol] associated with the blood clot.

Method: There were analyzed 160 bovine teeth, simulating incomplete rhizogenesis. The groups were randomly distributed according to the intracanal medications used, and maintained for 21 days. Then, the medication was removed and the canal was filled with hydrocolloid added to defibrinated sheep blood, followed by a collagen membrane and the groups were subdivided according to the cervical barrier. The color of the specimens was evaluated using a digital spectrophotometer at different times, statistically considering the color change (ΔE) of each experimental group, per period of time.

Results: Considering luminosity, Triple Antibiotic Paste (TAP) showed greater changes in tooth darkening, up to a period of 21 days. In relation to the insertion of the clot and cervical barriers, the luminosity decreased in all groups up to 30 days, showing greater changes when combined with the triple paste.

Conclusion: Understanding the cause of post-regenerative therapy discoloration remains a challenge. This study to helped understand the interaction of materials used, particularly in association with blood clot formation.

ASSESSMENT OF TOOTH DISCOLORATION ON REGENERATIVE PROCEDURES CAUSED BY DIFFERENT MEDICATIONS AND CERVICAL BARRIERS

KRISTALL NETO SOARES MENDONÇA; RODOLFO FIGUEIREDO DE ALMEIDA, ARIAN BRAIDO, PAULO HENRIQUE GABRIEL, MARINA ANGÉLICA MARCIANO DA SILVA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, TALITA TARTARI; ADRIANA DE JESUS SOARES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate tooth discoloration in regenerative endodontic procedures, correlating the use of different intracanal medications [triple antibiotic paste (TAP), calcium hydroxide paste associated with 2% Chlorhexidine gel and BIO-C TEMP], associated with cervical barriers [White Angelus MTA, Biodentine, EndoSeal MTA, Calcium Hydroxide paste, Zinc Oxide and 2% Chlorhexidine gel (SFS) and Coltosol].

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Results: The results showed that TAP had more luminosity variation (ΔL 75) than HCCHX na BioC-Temp groups, wich remains even with cervical barriers added.

Conclusion: Based on this, we concluded that the discoloration due to the TAP use is significant, and his use must be avoided.

AUTOTRANSPLANTATION AND DENTAL TRAUMA: SCIENTIFIC LITERATURE REVIEW

JOÃO PEDRO ARRUDA; PAULA FIALHO SIMÕES, JOSÉ FLÁVIO AFFONSO DE ALMEIDA, CAIO CEZAR RANDI FERRAZ, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, RODOLFO FIGUEIREDO DE ALMEIDA, JÚLIO VARGAS NETO; ADRIANA DE JESUS SOARES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dental autotransplantation is a technique that involves transplanting a tooth from one location to another within the same patient, allowing the replacement of an avulsed or traumatized teeth. This scientific literature review aims to elucidate the technique and clarify indications.

Method: A scientific literature review was performed at PUBMED website using as keywords: autotransplantation; prognosis; tooth autotransplantation.

Results: The autotransplantation showed to be an old, easy and successful technique with survival rates ranged from 75.3% to 91%. Ankylosis (4.2-18.2%) and root resorption (3-10%) showed to be the most common sequel.

Conclusion: Whereas the professional is adequately trained, the success rate is improved and outcome lower complications, as like periodontal inflammation, resorption and unsuccessful healing.

ASSOCIATION OF THE PREVINE BRASIL PROGRAM IN PRENATAL CARE AND MATERNAL-CHILD MORTALITY

CAIO VIEIRA DE BARROS ARATO*; LUCIANE MIRANDA GUERRA, MICHELLI CAROLINY DE OLIVEIRA, ANTONIO CARLOS PEREIRA; LIVIA FERNANDES PROBST
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To investigate the impact of prenatal care on the reduction of maternal-child mortality in Brazilian municipalities following the new financing model of Primary Health Care, the Previne Brasil program.

Method: Medians of maternal mortality, infant mortality, and prenatal care rates were calculated for Brazilian municipalities from 2016 to 2022. Logistic regression analyses were conducted to assess associations between independent variables (primary care coverage, population, Gross Domestic Product, and Gini index) and outcomes (variation in maternal and infant death rates). Raw and adjusted odds ratios were estimated, with a significance level set at 5%.

Results: Prenatal care rates increased by 86.7%, while maternal death rates decreased by 30.9%, with no significant association between them ($p>0.05$). Region, primary care coverage, municipal GDP, and population showed significant associations ($p<0.05$) with the variation in maternal death rates. The Southern region had a higher chance of reducing maternal death rates. No significant association was found between an increase in prenatal care rates and a decrease in infant death rates ($p>0.05$). The country's region, primary care coverage, population, and Gini index were significantly associated ($p<0.05$) with the variation in infant death rates, with a greater chance of reduction in more populous municipalities and in the Northeast, Southeast, and Midwest regions.

Conclusion: The Previne Brasil Program led to an increase in prenatal care consultations in Brazilian municipalities but did not significantly impact the reduction of maternal-child mortality.

AVAILABILITY OF TOTAL SOLUBLE FLUORIDE IN TOOTHPASTES WITH ACTIVATED CHARCOAL AFTER ACCELERATED AGING CONDITIONS

DANIEL SANTARATO; LARISSA CAROLINY DE BRITO BENEDITO; CINTHIA PEREIRA MACHADO TABCHOURY
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Toothpastes with activated charcoal have been mostly studied regarding their abrasiveness, yet there is limited data on the potential interaction between charcoal and fluoride, a concern due to charcoal's high adsorbent effect. This hypothesis raises questions about the availability of total soluble fluoride (TSF) in these toothpastes.

Method: Thus, the present study assessed seven different toothpastes containing activated charcoal before and after accelerated aging condition. Tandy (NaF and silica) and Sorriso Dentes Brancos (MFP and calcium carbonate) toothpastes served as controls. After initial F analysis, all toothpastes were stored at 45°C and additional F analyses were conducted after 24, 48, 96, and 192 h, simulating aging at room temperature. The concentrations of TSF, ionic fluoride (IF), and total fluoride (TF) were determined using a standardized methodology with ion-specific electrode.

Results: There were no changes in TSF, IF and TF concentrations for all charcoal toothpastes and Tandy during accelerated aging, while a decline in TSF was observed for the toothpaste Sorriso (1,355 ppm F and 1,167 ppm F, respectively, before and after aging).

Conclusion: In conclusion, toothpastes with activated charcoal maintain their stability with regard to total soluble fluoride availability after accelerated aging condition, suggesting that this abrasive does not interact with fluoride, thereby maintaining their potential anti-caries effect.

BUFFERED 1% ARTICAINA VERSUS NON-BUFFERED 4% ARTICAINA IN MAXILLARY INFILTRATION: RANDOMIZED CLINICAL TRIAL

JÚLIA MORI GOMIDE; ANNE CAROLINE GERCINA CARVALHO DANTAS, DANIEL FELIPE FERNANDES PAIVA, AMANDA DE JESUS MEDEIROS, CAMILA BATISTA DA SILVA DE ARAÚJO CÂNDIDO, KLINGER DE SOUZA AMORIM; FRANCISCO CARLOS GROppo

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the efficacy, onset, length of pulpal and soft tissue anesthesia, and pain during injection of buffered 1% Articaine Hydrochloride with 1:400,000 Epinephrine solution (test) and non-buffered 4% Articaine Hydrochloride with 1:200,000 Epinephrine solution (control).

Method: This randomized, triple-blind, crossover clinical trial was performed in line with ethical principles, and approval was granted by the Ethics Committee of the University of Campinas (protocol number 63041822.1.0000.5418). In this study, 41 volunteers received local anesthesia (supraperiosteal) in the upper canine with each solution in 2 sessions. The assessment of onset and length of pulpal and soft tissue anesthesia was performed using a pulp tester and esthesiometer, and pain during injection using the Visual Analog Scale (VAS).

Results: There was no difference (Wilcoxon, $p>0.05$) between the two anesthetic solutions in the onset and length of soft tissue anesthesia, and length of pulpal anesthesia. However, there was a difference between solutions in the onset of pulpal anesthesia ($p=0.036$), which was lower than buffered 1% articaine, and in pain during injection, in which non-buffered 4% articaine presented more discomfort ($p=0.001$).

Conclusion: Except for the onset of pulpal anesthesia, buffered 1% articaine solution provided the same anesthetic properties as 4% unbuffered articaine with the benefit of pain reduction during the injection. These results demonstrate a relevant potential of using an articaine solution with a quarter reduced concentration compared to the commercially available articaine.

CAD/CAM FIBERGLASS POSTS: A SYSTEMATIC REVIEW WITH BIBLIOMETRIC ANALYSIS

LETÍCIA TANK OLIVEIRA; CAROLINA MARINO WANDERICO, LUCAS PEIXOTO DE ARAÚJO, CAIO CEZAR RANDI FERRAZ; JOSÉ FLÁVIO AFFONSO DE ALMEIDA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To map the available scientific evidence regarding CAD/CAM fiberglass posts (FGP) and explore publication trends.

Method: This review is in accordance with the PRISMA 2020 Statement. Two independent reviewers carried out a comprehensive search of seven databases (PubMed/MEDLINE, The Cochrane Library, SciVerse Scopus, EMBASE and Web of Science) up to December 2023. Studies that investigated CAD/CAM FGP were selected, and the data were analyzed using the VOSViewer software.

Results: The search yielded a total of 42 CAD/CAM FGP-related articles from 14 countries and 27 journals, with an increasing trend for publications over the last three years. The majority of studies was based on in vitro experiments (81%), followed by case reports (11,9%). The highest number of studies were carried out by the Faculty of Dental Medicine, Lebanese University and Piracicaba Dental School, University of Campinas (UNICAMP), and published in the Journal of Prosthetic Dentistry. No controlled clinical studies were found.

Conclusion: This systematic review with bibliometric analysis examined scientific advancement and publication trends in CAD/CAM PFVs area, providing insights into the landscape of in vitro studies and identifying gaps to guide future research.

CASUISTRY OF MULTIDISCIPLINARY CARE IN THE TRAUMA SERVICE OF FOP-UNICAMP: 10-YEAR RETROSPECTIVE ANALYSIS

JULIA SERAFIM NOLASCO DE MORAES; ANA LAURA LOPES AMILCAR, RODOLFO FIGUEIREDO DE ALMEIDA, ARIAN BRAIDO, WALBERT DE ANDRADE VIEIRA, PAULO HENRIQUE GABRIEL, ALINE CRISTINE GOMES MATTA, ADRIANA DE JESUS SOARES; ADRIANA DE JESUS SOARES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this study was to evaluate the casuistry of interdisciplinary care provided to patients at the Dental Trauma Care Service of the Piracicaba Dental School - Unicamp over a period of 10 years.

Method: Patient records from 2012 to 2022 were analyzed, collecting data such as name, age, gender, systemic conditions, medications, tetanus vaccination status, date and etiology of trauma, affected teeth, emergency care provided, treatments performed, and referrals. The data were tabulated and analyzed for frequency to identify multidisciplinary treatments and involved dental areas.

Results: During the period, 366 patients were treated (1,059 teeth), with the majority being male (223) and aged ≤ 14 years (155). Upper central incisors were the most affected teeth (50% of traumatized teeth), mainly due to falls (32%), bicycle accidents (15%), and motorcycle accidents (12%). Fractures (37%) and extrusive luxations (18%) were the most common types of trauma. The most frequent treatments were endodontic treatments (20.21%), restorations (11.24%), and fabrication of splints (9.63%).

Conclusion: It was concluded that dental traumas mainly affected males aged ≤ 14 years, with fractures being the most common type, and conventional endodontic treatment being predominant.

CHAIN OF CUSTODY, ANTHROPOLOGY, ARCHAEOLOGY, THANATOLOGY AND FORENSIC TRAUMATOLOGY AND THEIR USE IN RESOLVING CRIMES

BRUNO SOARES GRANZIOL; FRANCIELLEN FERREIRA DO NASCIMENTO, SORAYA MONTEIRO GUEDES FERNANDEZ, THAIS FADEL GONÇALVES, MÔNICA APARECIDA FRANCESQUINI, JOÃO SARMENTO PEREIRA NETO, VINÍCIUS EDUARDO FERREIRA; LUIZ FRANCESQUINI JÚNIOR
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: this sought to reproduce (step by step) the survey of a possible dumping site for corpses (reduced to skeletons), originating from the actions of organized criminal groups.

Method: using the chain of custody (set of all the procedures used to maintain and document the chronological history of traces collected from sites or victims of crimes) established by Law 13,964 and forensic archeology (use of techniques and methods, in field stages, applied to search, location, delimitation and mapping of a scene, with the recording and interpretation of different evidence found superficially or buried), complying with the dictates of the Civil and Criminal legislation in force. Is Observational, cross-sectional and analytical study, approved by CEP/TOP/UNICAMP. CAAE 25627819.2.0000.5418.

Results: Next, we sought to list (through the chain of custody) the number of individuals (bone remains). present at the site, the animal species, sex, age, population affinity and height through forensic anthropology, as well as indicating the probable cause of their death (homicide, suicide, accidents) and even their identification if possible

Conclusion: It was concluded that it is possible to reproduce and teach theoretical and practical Archeology and Forensic Anthropology of interest in the process of human identification, aiming at the positive and individual identification of the studied/analyzed bone remains.

CHARACTERIZATION OF MULTIPLE-PEAK LIGHT-CURING EQUIPMENTS AND ANALYSIS OF THE DEPTH OF CURE OF BULK-FILL COMPOSITES

NATALIA DE SOUZA LOPES; MAY ANNY ALVES FRAGAA, VANESSA DIAS BARBOZA MUNHOZA, JOÃO MARCOS NASCIMENTO BATISTAA, CARLOS ALBERTO KENJI SHIMOKAWAB, MÁRIO ALEXANDRE COELHO SINHORETI; AMÉRICO BORTOLAZZO CORRER

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The purpose of this study was to characterize and to evaluate the depth of cure of three multiple-peak light-curing units (LCU): Emitter NowBlack (Schuster), Valo Cordless (Ultradent), and Bluephase G2 (Ivoclar).

Method: The characterization of these LCUs was performed in standard mode with regarding to irradiance (mW/cm^2), power variation over time (W/s), spectral power (W/nm), and light beam profile. Knoop microhardness ($n=5$) of Filtek bulk-fill and Tetric bulk-fill was evaluated at 5 depths (0.3, 1, 2, 3, and 4 mm). Statistical analysis was conducted considering $\alpha=0.05$.

Results: Irradiance values were higher for the Valo ($958 \pm 41 \text{ mW}/\text{cm}^2$), followed by Emitter ($856 \pm 60 \text{ mW}/\text{cm}^2$) and Bluephase ($665 \pm 60 \text{ mW}/\text{cm}^2$). The violet spectrum irradiance (380-440 nm) of Emitter was considerably lower than Valo and Bluephase. All groups exhibited heterogeneous light beam profile, although light distribution was better in Valo and Bluephase. For Tetric, microhardness was higher at 0.3 and 1 mm when activated by Valo. At other depths, there was no statistical difference between devices. For Filtek composite, Valo and Bluephase presented similar results to each other and superior to Emitter up to 2 mm in depth.

Conclusion: In conclusion, bulk-fill composites exhibited better performance in superficial layers when activated by LEDs with higher irradiance in the violet spectrum. Factors such as spectral power and light beam profile should be considered when choosing a multiple-peak light-curing equipment.

CHRONIC APICAL ABSCESS WITH EXTRAORAL FISTULA AND SELECTIVE ENDODONTIC RETREATMENT: A CLINICAL CASE REPORT

GABRIELA SANCHES DE JESUS; ARIAN BRAIDO, RODOLFO FIGUEIREDO, PAULO HENRIQUE GABRIEL, ADRIANA DE JESUS SOARES; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Report the diagnosis and treatment of a 19-year-old male patient who was seen at the Piracicaba School of Dentistry - UNICAMP. The patient had been complaining of a wound on his face for two years, previously diagnosed as an extraoral periapical abscess. During the clinical examination, a circumscribed swelling was observed in the right submandibular region, teeth 46 and 47 had caries lesions and pulp necrosis, and were diagnosed with a chronic apical abscess with the presence of an extraoral fistula.

Method: Treatment was initiated on tooth 46, for which conventional endodontic treatment was made in a single session. Shortly after, endodontic treatment was started on tooth 47, using rotary files and irrigation with 2% chlorhexidine gel and saline solution, and 21 days later, with an inactive extraoral fistula, treatment was completed with AhPlus cement. A thorough evaluation of the cone-beam computed tomography (CBCT) scan revealed that the mesio-vestibular canal of tooth 46 had not been treated and, at a subsequent appointment, selective endodontic reintervention was carried out.

Results: After 8 months, the patient was asymptomatic, with complete regression of the fistula and bone formation shown on imaging tests.

Conclusion: This case highlighted the relevance of multidisciplinary approach, correct diagnosis, and appropriate treatment of odontogenic infections, especially when related to extraoral complications, aiming to ensure a satisfactory clinical outcome and overall patient health.

CLEANING PROTOCOLS FOR FIBERGLASS POST PREPARATION IN ROOT CANALS FILLED WITH AH PLUS AND ENDOSEQUENCE HIFLOW SEALERS

DAPHNE FILLIETTAZ DA SILVA; THIAGO BESSA MARCONATO ANTUNES, ROCHARLES CAVALCANTE FONTENELE, ANA CRISTINA PADILHA JANINI, JULIANA DELATORRE BRONZATO, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, FRANCISCO HAITER NETO; MARINA ANGÉLICA MARCIANO DA SILVA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to assess the effectiveness of various agitation protocols, including ultrasonic inserts or the XP-endo Finisher R file, in removing residual endodontic sealer remnants and enhancing the bond strength of fiberglass posts to dentin.

Method: Seventy-two human teeth were selected, and the canals were prepared using Reciproc 50 and Easy ProDesign 30./10 before being filled with either AH Plus or EndoSequence BC Sealer HiFlow. During post space preparation, obturation remnants were removed using Largo burs, with groups divided based on different irrigant agitation protocols: no agitation, agitation with R1-Clearsonic combined with E1-Irrisonic ultrasonic inserts, or agitation with XP-endo Finisher R file. After 28 days, fiberglass posts were cemented using Rely X ARC, and push-out tests were conducted on root slices (1 mm). Micro-CT analysis assessed the efficacy of irrigating solution agitation in removing remnants.

Results: Results showed that cleaning protocols with agitation significantly increased bond strength compared to non-agitation ($p<0.05$) for both sealer groups. No significant differences were observed between the same cleaning protocols for different sealers. Additionally, there were no statistical differences among different thirds for the same sealer and cleaning protocol ($p>0.05$).

Conclusion: Both agitation protocols using the XP-endo Finisher file or Clearsonic combined with Irrisonic ultrasonic inserts effectively cleaned root-filled canals with resin-based and calcium silicate-based sealers, resulting in improved bond strength during fiberglass post cementation compared to non-agitation.

CLINICAL AND RADIOGRAPHIC FOLLOW-UP OF A PERMANENT SUCCESSOR AFTER DENTAL TRAUMATOLOGY IN PRIMARY TOOTH: A CASE REPORT

LETÍCIA FONSECA SANT ANA; LETÍCIA MARTINS PEREIRA, GABRIELLE LOPES BATISTA; LENITA MARANGONI LOPES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dental traumatology can occur throughout an individual's life, however the prevalence during early childhood is evident. It is known that deciduous teeth have an intimate relationship with their permanent successors. Therefore, the present clinical case presentation aims to present a clinical and radiographic follow-up of a permanent successor after dental trauma to a deciduous tooth in a 5-year-old child.

Method: Patient E.A.A., female, attended a routine consultation at the CEPAE FOP/UNICAMP clinic in Jul/2023, one day after falling from a swing. The mother reported that in the fall, her face fell to the ground, causing a strong impact on the mouth area, with no visible change in her teeth, just bleeding from the mucous membrane. During this consultation, a periapical x-ray was performed, in which no damage to the dentition was observed. In Oct/2023, a panoramic x-ray was performed, in which no damage to the deciduous dentition was observed, but there was rotation and proclination of the germ of the permanent upper right central incisor as a consequence of the external impact.

Results: The patient has been clinically and radiographically monitored and in April 2024, she underwent periapical and lateral radiographs, showing that the permanent successor of the deciduous tooth that suffered trauma is returning to the eruption position considered normal.

Conclusion: It concludes the importance of good clinical and radiographic monitoring in cases of trauma to deciduous teeth due to the proximity of their permanent successors, which may have future sequelae when not periodically monitored.

COMPARISON BETWEEN CENTER OF ROTATION OF TEETH MOVED BY BRACKETS AND ALIGNERS, IN A TORQUE MOVEMENT, IN A FE STUDY

RENAN ROMANINI BUDIN; ALÉCIO DOMINGUES MENDES, ROBERTO BRUNOW LEHMANN; MAURÍCIO DE ALMEIDA CARDOSO
SÃO LEOPOLDO MANDIC

Aim: The aim of this work was to compare the center of rotation of some dental elements moved by brackets and aligners, and to compare the displacements and tensions generated.

Method: The finite element method was used using ANSYSTM software. Two systems were created, brackets and aligners systems. In both, the teeth chosen for analysis were the upper central incisor, upper canine, upper first premolar and first molar. For standardization purposes, a displacement of 1.5 mm was applied in the simulation for each dental element, towards the palatal.

Results: The results were very different when performed with brackets and aligners. In general, when the torque movement was performed by brackets, the center of rotation tended to be located close to the cervical region and coronary pulp. In movements that were performed using aligners, this center of rotation was always located close to the center of the crown. In all bracket movements, the tension that the movement exerts is entirely in the slot area. In aligners, the tension suffered is much more balanced. With regard to the displacement of the tooth apices to generate the 1.5mm displacement from the crown to the palatal, in comparing the two, the displacement of the roots necessary to generate this simulated torque was always greater when moving with aligners than when moving with brackets. The number of times greater this displacement was variable.

Conclusion: So, we concluded that the centers of rotation of the studied dental elements and the tensions generated differed between the movements performed by brackets and aligners. Therefore, orthodontists need to consider this in their respective planning.

COMPARISON OF ANTIMICROBIAL ACTIVITY BETWEEN PHARMACEUTICAL-GRADE AND FOOD-GRADE NISIN AGAINST ORAL BACTERIA

MARIA EDUARDA QUINTINO COSTA; MURILO VITOR DA SILVA PINTO, LORENA REBEKA CARVALHO SIMÃO, RENATA RAMIRO DA SILVA, LARISSA PAVANELLO, IAGO TORRES CORTÊS DE SOUSA; KARINA COGO MÜLLER
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Nisin is an antimicrobial peptide of bacterial origin (*Lactococcus lactis*) that has demonstrated antimicrobial activity (ATB) against microorganisms related to oral and systemic infections. It can be found in pharmaceutical-grade and food-grade versions, varying in price due to differences in purity and specific production and usage requirements. Considering this, this study aimed to compare the ATB activity of pharmaceutical-grade and food-grade nisin against oral bacteria

Method: Assays to determine the minimum inhibitory concentrations of food-grade nisin (S. Vale Alimentos) and pharmaceutical-grade nisin (Sigma) were performed according to the standards established by the Clinical and Laboratory Standards Institute (CLSI) using the serial microdilution method in 96-well plates. *S. oralis* (ATCC 10556), *S. mitis* (ATCC 49456), and *S. sanguinis* (ATCC 10904) were the bacteria used in the assays, which were conducted in triplicate and at two different time points.

Results: Pharmaceutical-grade and food-grade nisin showed ATB activity against the tested bacteria. The MIC was 3.91 µg/mL for *S. oralis*, 7.8 µg/mL for *S. mitis*, and 62.5 µg/mL for *S. sanguinis*. There was no difference in the MIC value for the two substances tested.

Conclusion: Therefore, the antimicrobial potential exhibited by the substances against oral bacteria allows them to be directed towards various dental applications in formulations or dental materials to reduce and/or prevent oral complications. In this context, due to its low cost, food-grade nisin can still be considered a more viable option for future tests in dentistry.

CONCENTRATIONS OF POTASSIUM IODIDE ASSOCIATED WITH METHYLENE BLUE IN REDUCING MICROORGANISMS IN MULTISPECIES BIOFILM

ÉRICA DE SOUSA- PEREIRA; FELIPE FABRÍCIO FARIAS-DA-SILVA, ALEJANDRA DEL CARMEN BRENES-ALVARADO; CAROLINA STEINER-OLIVEIRA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the effect of antimicrobial photodynamic therapy (aPDT), mediated by methylene blue (MB) photosensitizer associated with different concentrations of potassium iodide (KI) and with different pre-irradiation times, in reducing microbial viability in multispecies biofilm.

Method: The biofilm was cultivated in vitro on bovine dentin blocks (n=9) using a microcosm microbiological model, based on saliva collection, for 5 days. At the end of this period, the formed biofilms were treated, according to the groups: C (0.9% NaCl); CHX (0.2% chlorhexidine); PKIL 5-50 (50 mM KI, 5 min); PKIL 5-75 (75 mM KI, 5 min); PKIL 5-100 (100 mM KI, 5 min); PKIL 10-50 (50 mM KI, 10 min); PKIL 10-75 (75 mM KI, 10 min); PKIL 10-100 (100 mM KI, 10 min). The treated biofilms were collected, diluted, and incubated to evaluate cell viability (CFU/mL) for total microorganisms. Data were analyzed by Kruskal-Wallis/DSCF tests ($\alpha = 0.05$).

Results: All experimental groups differed from group C ($p < 0.05$), showing microbial reductions. The CHX group reduced microorganisms compared to the other groups ($p < 0.05$), except when compared to PKIL 5-75 and PKIL 5-100.

Conclusion: aPDT with methylene blue associated with potassium iodide at concentrations of 75 mM and 100 mM, with a 5-minute pre-irradiation time, was as effective in reducing microbial viability in a multispecies biofilm as chlorhexidine.

CONTRIBUTION OF CELL WALL PROTEINS OF STREPTOCOCCUS SANGUINIS TO SURFACE HYDROPHOBICITY AND SERUM-MEDIATED AGGREGATION

MARIA FERNANDA ZACCHARIAS OKUYAMA; MEIRE ELLEN LIGIA SOMMER BRAMBILA, EDUARDO MARTINELLI FRANCO, LÍVIA ARAÚJO ALVES; RENATA DE OLIVEIRA MATTOS-GRANER

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: *Streptococcus sanguinis* is an abundant species of the oral cavity commonly involved in infective endocarditis. Its surface hydrophobicity might promote serum-mediated aggregation and thus, evasion to immune functions. The aim of this study was to assess the contribution of genes involved in cell surface decoration, *srtA*, *swan* and *srpA*, to *S. sanguinis* hydrophobicity and serum-mediated aggregation.

Method: To that goal, these traits were compared between deletion mutants of SK*srtA*, SK*swan* or SK*srpA* with parent strain SK36. Surface hydrophobicity was measured in bacterial suspensions in phosphate- urea buffer (A 550nm 0.9) mixed with hexadecane for sequestering hydrophobic cells during 30 min. of incubation. The A 550nm of aqueous phases of these mixtures were subtracted from the A 550nm of control suspensions (buffer only) for calculating the percentages of hydrophobic cells. Aggregation was assessed in bacterial suspensions in PBS added of 20% normal human serum (NS), 20% heat-inactivated serum (HIS) or PBS only (negative control), by measuring A 550nm after 0, 90 to 210 min. of incubation at room temperature.

Results: Significant reductions in hydrophobicity and in aggregation mediated by NS and HIS were found in SK*srtA* as compared to SK36. The SK*srpA* showed the highest reduction in aggregation mediated by NS and HIS, but no changes in hydrophobicity. No relevant changes in hydrophobicity or serum-mediated aggregation were detected in SK*swan*.

Conclusion: These findings indicate that *S. sanguinis* relies on *srtA* and *srpA* expression for achieving surface hydrophobicity and for binding to serum components.

CPM IS ASSOCIATED WITH TOPICAL ANESTHESIA EFFICACY IN WOMEN WITH TMD BUT NOT IN HEALTHY PARTICIPANTS

ISADORA ALVES LORENZO; PAULO CÉSAR RODRIGUES CONTI, LEONARDO BONJARDIM; YURI MARTINS COSTA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Conditioned pain modulation is an indirect assessment of endogenous analgesia mechanisms through psychophysical tests. These mechanisms are shown to be relevant in the clinical area. However, a possible contribution of conditioned pain modulation in the response to local anesthetic is still poorly understood. The objective of this study was to evaluate the association between conditioned pain modulation and the efficacy of topical anesthesia applied to the trigeminal region in women with chronic primary orofacial myofascial pain and in healthy women.

Method: This randomized, placebo-controlled experimental clinical trial evaluated 20 women with painful temporomandibular disorder (TMD) and 20 healthy women. The somatosensory assessment in the masseur's region was carried out in three sessions: baseline, 1% lidocaine and placebo, separated by at least 24 hours and no more than 48 hours. Conditioned pain modulation was assessed in the baseline session. Changes related to somatosensory testing between lidocaine/placebo and baseline sessions were correlated with the magnitude of conditioned pain modulation.

Results: The Bonferroni correction applied distributed a significance level of 0.3% ($p < 0.003$). There was a moderate and positive brightness ($r = 0.54$; $p = 0.001$) between the relative change in cold detection thresholds in the lidocaine session and the magnitude of conditioned pain modulation for participants with chronic painful TMD

Conclusion: There was no difference between the degree of anesthesia and pain modulation in healthy women. It is possible to conclude that endogenous analgesia has some influence on the somatosensory response to topical anesthetic.

CRANIOFACIAL GROWTH IN RATS WITH TESTOSTERONE SUPPRESSION: A MICRO TOMOGRAPHIC ANALYSIS

FABRÍCIO FERNANDES FERREIRA; CAIO LUIZ BITENCOURT REIS, IAGO RAMIREZ, ALICE CORRÊA SILVA SOUSA, MANOEL DAMIÃO DE SOUSA NETO, MIRIAN AIKO NAKANE MATSUMOTO, ERIKA CALVANO KÜCHLER; DANIELA SILVA BARROSO DE OLIVEIRA

FEDERAL UNIVERSITY OF ALFENAS - UNIFAL

Aim: The objective of this study was evaluate the impact of testosterone suppression on cranial growth and development in rats.

Method: Testosterone suppression was induced by Orchiectomy (ORX) in the experimental group ($n = 18$), while Sham surgery (SHAM) was performed in the control group ($n = 18$) in Wistar rats on the 23rd day of life. The animals were euthanized at 45 and 73 days of life. Linear and angular dimensions were measured on microtomography of the skulls using the Inobitec® software. Data were compared using the Mann-Whitney test and values of $p < 0.05$ were considered statistically significant.

Results: There were 63 cranial measurements compared between the ORX and SHAM groups. When comparing groups over a 45-day period, 15 measurements were statistically higher in the ORX group and 11 higher in the SHAM group ($p < 0.05$). When comparing groups over a period of 73 days, 9 measurements were higher in the ORX group and 18 higher in the SHAM group ($p < 0.05$). The anterior cranial height, the anterior length of the skull base, nasal width, interzygomatic width, frontal width were smaller in the ORX group at 45 days group ($p < 0.05$). The following measures were also smaller in the ORX group group at 73 days: mandibular, condyle and arch widths, intercoronoid distance, distance between the mental foramens, length of the posterior arch and upper mandibular segment ($p < 0.05$). Nasal bone length, facial height and jaw diastema length were smaller in the ORX group at periods of 45 and 73 days ($p < 0.05$).

Conclusion: In conclusion, testosterone suppression affected craniofacial growth and development leading to a smaller maxilla and mandible dimensions.

CURRENT MANAGEMENT STRATEGIES FOR MEDICATION-RELATED OSTEONECROSIS OF THE JAWS

LARISSA CONSTANTINO FRANÇA; PAULO HENRIQUE DE BRITO, SAMARA CAROLINE FERNANDES GALVANI; LUCIANA ASPRINO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study presents a literature review of the current treatment protocols for medication-related osteonecrosis of the jaws (MRONJ).

Method: A search using the PubMed database was carried out without language restriction, published in the last five years, using the following algorithm: "medication-related osteonecrosis AND management".

Results: MRONJ is an adverse event due to bone antiresorptive treatments (ART). The American Association of Oral and Maxillofacial Surgeons recommends several strategies for preventing MRONJ, which include orienting patients about the risks of MRONJ, optimizing dental health before ART treatment, and avoiding dentoalveolar surgery. When nonoperative therapy is required, the focus is on controlling pain and secondary infections and stabilizing or curing the disease. Some adjuvant therapies, such as hyperbaric oxygen or ozone therapy, vitamin E, and Pentoxifylline, have been described, but there is limited evidence supporting their efficacy. Teriparatide administration has also shown promising results in the management of MRONJ. Surgical treatments have demonstrated high success rates, including resection of these lesions, and are considered a viable option for treatment. Oral surgeons should employ treatment strategies for MRONJ in each stage based on updated clinical information and scientific evidence whenever possible. The use of medications with the potential to induce osteonecrosis of the jaw is a prevalent occurrence.

Conclusion: Therefore, it is essential that the dentist be proficient and competent in implementing preventive measures and providing immediate treatment.

DENTAL CARE AT THE EMERGENCY DENTAL SERVICE (SUB) IN THE MUNICIPALITY OF PIRACICABA - SP: CHARACTERIZATION OF DEMAND

VITOR RAFAEL GOMES; MARIANA JOSINA PEREIRA, LETÍCIA SILVA MADEIRA; KARINE LAURA CORTELLAZZI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective was to analyze the profile of users of the Emergency Dental Service (SUB) and to characterize the emergency dental care provided.

Method: A cross-sectional study was conducted using secondary data collected during the period from January to December 2022, totaling a sample of 1668 users. Data were extracted using the OLOSTECH software.

Results: There was a balanced distribution in the demand for emergency dental care services between males (50.66%) and females (49.34%). Regarding age groups, the highest demand was among individuals aged 20-49 years (61.69%), while adults over 50 years old, seniors, children, and adolescents represented 38.31%. The most common procedures performed in the service were medication and guidance (34.77%), followed by restorations (24.73%), pulp interventions (23.71%), surgical procedures (11.76%), and others (5.02%). It was observed that users treated at the EDS from neighborhoods classified with higher social exclusion rates (69.90%) sought emergency dental care more than users from neighborhoods with lower social exclusion rates (30.10%).

Conclusion: It is concluded that the EDS played an important role in the care network, allowing populations with a high level of social vulnerability and who cannot access treatment through the Family Health Strategy (FHS) to have access to dental care.

DENTAL TRAUMA IN PERMANENT TEETH: PEDIATRIC DENTISTRY REHABILITATION STRATEGIES

WILIAN SEGATTO ZANELLI; CARLA MARINHO BARRETO GOIS, PATRÍCIA VITOR DE SOUZA, EDUARDO CÉSAR ALMADA SANTOS, FERNANDA MIORI PASCON; REGINA MARIA PUPPIN-RONTANI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this study was to present a case involving permanent teeth in a child referred to the Pediatric Dental Clinic of Faculdade de Odontologia de Piracicaba.

Method: The patient L.G.N.C, a child of male gender, aged 8 years, experienced a fall during a sports practice in 2022. Seeking private dental care, the patient underwent periapical radiography and immediate aesthetic reconstruction with resin composite in both left and right maxillary central incisors. One year later, the patient reported mobility in the left maxillary central incisor and sought further dental care. Referred to the pediatric dentistry on-call service at Faculdade de Odontologia de Piracicaba (FOP), the patient underwent clinical examination and radiography. After the evaluation, it was observed a horizontal fracture of the third middle root, alveolysis, and exposure of root fragments, making endodontic treatment unfeasible. The patient's mother received guidance about the situation, and after her approval, the tooth was extracted. For rehabilitation, was planned a space maintainer with a stock tooth due aesthetics issues and need to preserve the space. Periodic consultations are ongoing for patient monitoring and adjustments to the space maintainer. Four months later, in follow-up consultations was observed the maintaining of the space and aesthetic patient approval.

Results: Four months later, in follow-up consultations was observed the maintaining of the space and aesthetic patient approval.

Conclusion: In conclusion, monitoring dental trauma is essential for maintaining the oral health of the patient, preserving aesthetics and function until the end of the patient's growth.

DENTAL TRAUMATIC INJURIES PREVALENCE IN WOMEN'S DOMESTIC VIOLENCE SITUATION

LETÍCIA DE ANDRADE SOUZA; AMANDA DOS SANTOS SILVA, RODOLFO FIGUEIREDO DE ALMEIDA, ARIAN BRAIDO, PAULO HENRIQUE GABRIEL, ISIS VITÓRIA BARBOSA DE CAMPOS, YANNA DE OMENA SOARES; PROFA. DRA. ADRIANA DE JESUS SOARES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dental traumatic injuries (DTI) are a public health problem due to affect most people. Domestic violence situation has been an emerging etiologic factor to DTI. During the physical aggression, the face shows to be an unprotected and easy target. The aim of this study was to assess the DTI prevalence in women's domestic violence situation, as well as the etiology and sequels.

Method: The patients were forwarded by the Secretaria Municipal de Assistência e Desenvolvimento Social (SMADS) to the Serviço de Atendimento aos Traumatismos Dentários (SATD) at FOP-UNICAMP. There were assessed 18yo plus, female gender, domestic violence's victims. The anamnesis aimed to asses the aggression's fact and the injuries suffered on DTI.

Results: There were forwarded 144 patients of which 30 were examined and 21 had dental treatment. It was found 42.85% (n 9) DTI, being the enamel dentin fracture the main DTI. The most prevalent support tissue trauma was subluxation (n 21). Furthermore, it was found periodontics (95.2%) and prosthetic (42.85%) needs.

Conclusion: Based on this data it was concluded that the domestic violence could result in DTI and affect the women's self care and self esteem, being the interdisciplinary dental care prominent.

DIFFERENCES BETWEEN SIDES AND BRANCHES OF INNERVATION IN THE HABITUATION OF THE NOCICEPTIVE BLINK REFLEX

SAMANTHA DE OLIVEIRA SOARES; RHAYANE DA CONCEIÇÃO MONTEIRO, CAMILA DE JESUS SOUZA, JAMILY EDUARDA BATISTA, SARA BEATRIZ DE MACEDO, SORAYA SALMANZADEH ARDESTANI; YURI MARTINS COSTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The nociceptive blink reflex is a neurophysiological test that measures brainstem reflexes and can be used to assess the excitability of central trigeminal pathways involved in trigeminal nociceptive processing. Thus, the aim of this study was to compare the habituation of the nociceptive blink reflex between the right and left sides of the ophthalmic and maxillary branches of the trigeminal nerve.

Method: The habituation of the nociceptive blink reflex was evaluated in 25 volunteers (18 women and 7 men). Electromyographic records of the R2 response were evaluated from electrical stimuli applied to the supraorbital and infraorbital branches of the trigeminal nerve on the right and left sides, quantified as the root mean square (RMS) (μV) observed in the window between 27 to 87 ms considering the average of 10 stimuli and an interval time between stimuli of 15 s; and the respective percentage changes of the RMS between the first and tenth stimulation block (habituation). Different intensities (150-300%) of stimulus were applied in a randomized manner. McNemar test was applied to the data considering the significance level of 5% ($p < 0.050$).

Results: There was no significant difference in the proportion of individuals who habituated and did not habituate after the sequence of ten stimuli applied on both the right and left sides and on both the ophthalmic and maxillary branches ($p > 0.05$).

Conclusion: The evidence from this preliminary study does not suggest laterality or differences between innervations in the habituation of the nociceptive blink reflex.

DIFFERENCES BETWEEN SIDES AND BRANCHES OF INNERVATION IN THE PSYCHOPHYSICAL PARAMETERS OF THE NOCICEPTIVE BLINK REFLEX

CAMILA DE JESUS SOUZA; RHAYANE DA CONCEIÇÃO MONTEIRO, JAMILY EDUARDA BATISTA, SAMANTHA DE OLIVEIRA SOARES, SARA BEATRIZ DE MACEDO, SORAYA SALMANZADEH ARDESTANI; YURI MARTINS COSTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The nociceptive blink reflex provides objective parameters and consequently reduces the potential confounding of clinical variables that depend on the subjectivity of individuals and are commonly used in the assessment of patients with chronic pain, such as pain intensity. Thus, the aim of this study was to compare the psychophysical data of the nociceptive blink reflex between the right and left sides of the ophthalmic and maxillary branches of the trigeminal nerve.

Method: The psychophysical data of the pain perception threshold of the nociceptive blink reflex were evaluated in 25 volunteers (18 women and 7 men). Selective stimulation electrodes for A δ -type thin fibers were positioned at the nerve exits of the ophthalmic and maxillary branches of the trigeminal nerve on the right and left sides. The pain perception threshold was determined for each trigeminal branch, assessed ophthalmic and maxillary, and for each side, right and left. ANOVA was applied to the data considering the significance level of 5% ($p < 0.050$).

Results: The pain perception threshold of the blink reflex was higher in the ophthalmic branch when compared to the maxillary branch ($p < 0.05$). There was no significant difference between the right and left sides ($p > 0.05$).

Conclusion: The evidence from this preliminary study does not suggest laterality and suggests a difference between innervations in the psychophysical parameters of the nociceptive blink reflex.

DIFFERENCES BETWEEN SIDES OF THE TRIGEMINAL NERVE FIRST BRANCH IN THE AMPLITUDE AND LATENCY OF NOCICEPTIVE BLINK REFLEX

JAMILY EDUARDA BATISTA; RHAYANE DA CONCEIÇÃO MONTEIRO, CAMILA DE JESUS SOUZA, SAMANTHA DE OLIVEIRA SOARES, SARA BEATRIZ DE MACEDO, SORAYA SALMANZADEH ARDESTANI; YURI MARTINS COSTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The nociceptive blink reflex corresponds to a neurophysiological test that measures the nociceptive function of the trigeminal system, being capable of assisting in the identification of possible neurophysiological alterations in the orofacial region. Thus, the objective of this study was to compare the amplitude and latency of the nociceptive blink reflex between the right and left sides of the ophthalmic branch of the trigeminal nerve (V1).

Method: The amplitude and latency of the nociceptive blink reflex were evaluated in 25 volunteers (18 women and 7 men). Electromyographic records of the R2 response were evaluated from electrical stimuli applied to the supraorbital branch of the trigeminal nerve on the right and left sides, quantified as the root mean square (RMS) (μV) observed in the window between 27 to 87 ms considering the average of 10 stimuli and an interval time between stimuli of 15 s; and the onset latencies (ms) of the R2 responses. Different intensities (150-300%) of stimulus were applied in a randomized order. ANOVA was applied to the data considering the significance level of 5% ($p < 0.050$).

Results: The right side presented higher amplitude values when compared with the left side ($p < 0.05$). There was no significant difference between the right and left sides for latency ($p > 0.05$).

Conclusion: The evidence from this preliminary study suggests a laterality in the amplitude of the nociceptive blink reflex originating from the ophthalmic innervation of the trigeminal nerve.

DIFFERENCES BETWEEN SIDES OF THE TRIGEMINAL NERVE SECOND BRANCH IN THE AMPLITUDE AND LATENCY OF NOCICEPTIVE BLINK REFLEX

SARA BEATRIZ DE MACEDO; RHAYANE DA CONCEIÇÃO MONTEIRO, CAMILA DE JESUS SOUZA, JAMILY EDUARDA BATISTA, SAMANTHA DE OLIVEIRA SOARES, SORAYA SALMANDAZEH ARDESTANI; YURI MARTINS COSTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The nociceptive blink reflex is a non-invasive, valid, and reliable electrophysiological technique in the investigation of alterations and/or mechanisms involved in the trigeminal nociceptive pathway. Thus, the objective of this study was to compare the amplitude and latency of the nociceptive blink reflex between the right and left sides of the maxillary branch of the trigeminal nerve (V2).

Method: The amplitude and latency of the nociceptive blink reflex were evaluated in 25 volunteers (18 women and 7 men). Electromyographic records of the R2 response were evaluated from electrical stimuli applied to the infraorbital branch of the trigeminal nerve on the right and left sides, quantified as the root mean square (RMS) (μ V) observed in the window between 27 to 87 ms considering the average of 10 stimuli and an interval time between stimuli of 15 s; and the onset latencies (ms) of the R2 responses. Different intensities (150-300%) of stimulus were applied in a randomized order. ANOVA was applied to the data considering the significance level of 5% ($p < 0.050$).

Results: There was no significant difference between the right and left sides for amplitude and latency values ($p > 0.05$).

Conclusion: The evidence from this preliminary study does not suggest a laterality in the amplitude of the nociceptive blink reflex originating from the maxillary innervation of the trigeminal nerve.

DIMENSIONAL CHANGES AFTER ALVEOLAR RIDGE PRESERVATION TECHNIQUES FOR POSTERIOR REGION: RANDOMIZED CONTROLLED TRIAL

LETICIA SANDOLI ARROTEIA; MATHEUS PASCHOALETTO LOPES, MARCELA TAROSSO RÉA, CAMILA SCHMIDT STOLF, HÉLVIS ENRI DE SOUSA PAZ, MATHEUS LIMA DE OLIVEIRA, MÁRCIO ZAFFALON CASATI; RENATO CORRÊA VIANA CASARIN

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Alveolar ridge preservation (ARP) performed immediately after extraction aims to maintain the alveolar dimension for subsequent implant installation. However, in addition to there being numerous AP protocols, there are few studies evaluating this therapy in the posterior region. Therefore, this study aimed to compare bone changes in alveoli of posterior teeth subjected to extraction and alveolar ridge preservation.

Method: Patients with an indication for extraction of posterior teeth were randomly allocated to the USH, MFGG, MFGG+Bone and TM+Bone groups ($n=22$ /group). Cone beam computed tomography (CBCT) images were taken immediately after atraumatic surgery and after 6 months. Linear measurements of alveolar ridge height and width, alveolar process area, implant placement feasibility, postoperative complications and discomfort were recorded by 3 calibrated examiners.

Results: The TM+Bone group showed a higher final height in the central portion of the ridge than the USH and MFGG groups ($p < 0.05$). The MFGG+Bone group did not differ statistically from the TM+Bone group in any of the parameters assessed ($p > 0.05$). All groups showed dimensional changes in width ($p < 0.05$). The USH group showed a greater need for sinus lift techniques (67%) as well as placement of implants with a length < 8.5 mm (71%). Alveolar preservation techniques are capable of modulating dimensional changes after extraction.

Conclusion: The use of bone grafts proved to have the most relevant role in alveolar dimensional maintenance, with the use of intentional exposure membranes having the lowest frequency of postoperative pain.

DOES HYDROXYAPATITE SURFACE INFLUENCE THE PERI-IMPLANT BIOLOGICAL RESPONSE OF DENTAL IMPLANTS WITH PERI-IMPLANTITIS?

VANESSA FELIPE VARGAS MORENO; GILDA ROCHA DOS REIS-NETA, MICHELE COSTA DE OLIVEIRA RIBEIRO, ANTÔNIO PEDRO RICCOMINI FILHO, RAISSA MICAELLA MARCELLO-MACHADO; ALTAIR ANTONINHA DEL BEL CURY
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated the influence of surface treatment with HA, compared to acid-etched (AE), on the peri-implant biological response of implants with peri-implantitis.

Method: For this, a search in 6 databases (CRD42023380126) was carried out to select preclinical studies conducted in animals, in which implants (HA and AE) submitted to peri-implantitis induction were evaluated at different times regarding marginal bone loss (MBL), probing depth, clinical attachment level, and bone-implant contact area. Three meta-analyses were performed according to the follow-up time for MBL. The risk of bias was determined by SYRCLE, and certainty of evidence by the GRADE approach.

Results: Seven studies were included, in which 130 implants were installed in canine jaws (65 HA and 65 AE). The risk of bias in the studies was: low=1, unclear=2, high risk=4. Meta-analyses for MBL showed no statistical difference at 20 days (MD = 0.07 [-0.27, 0.41], $p=0.68$); 40 days (MD = -0.36 [-0.77, 0.06], $p=0.10$); 2 months (MD = 0.53 [-0.38, 1.44], $p=0.25$).

Conclusion: Thus, the type of implant surface treatment, HA and AE, does not influence the peri-implant bone response in dental implants with peri-implantitis. Qualitatively, HA showed better performance in probing depth, clinical attachment level, and larger bone-implant contact area.

DOES THE MACROGEOMETRY OF DENTAL IMPLANTS INFLUENCE THEIR CLINICAL PERFORMANCE? A SYSTEMATIC REVIEW AND META-ANALYSIS

GILDA ROCHA DOS REIS NETA; GABRIEL FELIPE MARINO CERQUEIRA, MICHELE COSTA OLIVEIRA RIBEIRO, MARCELA BARAÚNA MAGNO, GUIDO ARTEMIO MARANÓN VÁSQUEZ,, LUCIANNE COPLE MAIA, ALTAIR A DEL BEL CURY; RAISSA M MARCELLO-MACHADO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the influence of different macrogeometries (tapered and cylindrical) on the clinical performance of dental implants (PROSPERO CRD42022347436).

Method: Search for clinical studies was conducted in 6 databases. We selected randomized clinical trials that evaluated the effectiveness of tapered and cylindrical implants based on the eligibility criteria. The risk of bias was evaluated using Cochrane Handbook tools. Meta-analyses on implant survival and success, marginal bone loss (MBL), implant stability (ISQ), and torque insertion (TI) were performed, with the certainty of evidence evaluated using GRADE.

Results: Of the 18 included studies. Meta-analyses of survival (RR 0.99 [0.97, 1.01]; $p = 0.38$; $I^2 = 0\%$), implant success (RR 1.06 [0.99, 1.13] $p = 0.08$ $I^2 = 0\%$), 1-month MBL (MD -0.11 [-0.33, 0.10] $p = 0.31$ $I^2 = 98\%$), 3 months MBL (MD -0.21 [-0.27, 0.16] $p = 0.26$ $I^2 = 98\%$), 6 months MBL (MD -0.29 [-0.60, 0.01] $p = 0.06$ $I^2 = 74\%$), 1-year MBL (MD 0.01 [-0.07, 0.09] $p = 0.77$ $I^2 = 98\%$) and after 2 years MBL (MD -0.04 [-0.14, 0.07] $p = 0.52$ $I^2 = 0\%$), ISQ at implant installation (MD 0.35 [-0.72, 1.42] $p = 0.52$ $I^2 = 0\%$), after 2 months (MD 0.90 [-1.08, 2.87] $p = 0.37$ $I^2 = 0\%$) and at 1 year (MD -0.02 [-1.07, 1.03] $p = 0.97$ $I^2 = 0\%$), and insertion torque (MD 3.10 [-1.71, 7.92] $p = 0.21$ $I^2 = 80\%$), showed no statistical difference. However, tapered implants showed higher ISQ after 3 months (MD 1.20 [0.39, 2.01] $p = 0.004$ $I^2 = 17\%$).

Conclusion: It is concluded that both macrogeometries present good clinical performance. Tapered implants showed better secondary stability at 3 months after implant installation, however, with low certainty of evidence.

ECTOPIC ERUPTION OF DIRECT MAXILLARY FIRST PERMANENT MOLAR: A CASE REPORT

ERICK ALEXANDRE SILVA DE ARAÚJO; ISABELA COLÁCIO MOREIRA, LETÍCIA MARTINS PEREIRA, PATRÍCIA VITOR DE SOUZA; REGINA MARIA PUPPIN RONTANI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Considering the multifactorial nature of ectopic eruption, this clinical case report aims to emphasize the importance of understanding and implementing therapeutic interventions by dental surgeons, as well as advocating for prevention alternatives to mitigate the consequences of late diagnosis, which can significantly impact dental occlusion.

Method: An 8-year-old male patient, G.M.M, presented with complaints of pain in the region of teeth 54/55. Clinical examination revealed mesialization and mesial inclination of the upper right permanent first molar. Radiographically, the proximity of the permanent tooth to the distal aspect of the adjacent deciduous tooth was observed, resulting in significant resorption of its distal root. Radiographic findings confirmed ectopic eruption of the permanent tooth, along with carious lesions on teeth 55 and 54. Radiographically, an extensive caries lesion was observed on the occlusal-distal aspect of tooth 54, and the atypical position of the upper right permanent first molar caused extensive resorption of the distal root of tooth 55.

Results: As it was not possible to determine whether the patient's pain originated from the carious lesion on tooth 54 or the resorption caused by the ectopic eruption of tooth 16 on tooth 55, initial treatment involved caries removal and sealing with Glass Ionomer Cement (GIC) on tooth 54.

Conclusion: It was concluded that the root resorption of tooth 55 was due to the ectopic eruption of tooth 16, albeit without painful symptoms. Therefore, ectopic eruption of tooth 16 resulted in complete resorption of the distal root, but, to date, without significant occlusion disturbances.

EDTA AGITATION EFFECT ON THE BLOOD CLOT, ON ENDODONTIC REGENERATIVE PROCEDURE, ASSESSED BY ELECTRONIC MICROSCOPY

RODOLFO FIGUEIREDO DE ALMEIDA; WALBERT VIEIRA DE ANDRADE, GIOVANNA HIROMI KITAMURA, JOSÉ FLÁVIO AFFONSO DE ALMEIDA, MARINA ANGÉLICA MARCIANO, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, TALITA TARTARI; ADRIANA DE JESUS SOARE
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate, using electronic microscopy (MEV), the EDTA agitation effect on the blood clot structure formed during the endodontic regenerative procedure.

Method: There was used 40 bovine upper root incisors prepared as like an immature tooth with open apex, divided into 5 groups: Control (saline solution), CNI (EDTA without agitation), PUI (ultrasonic agitation), EC (reciprocating file agitation), XPF (XP file agitation). After the irrigation, all the roots were longitudinal divided on coronal, medium and apical thirds and filled with blood. The specimens were prepared and analyzed on MEV searching for blood cells, platelets and fibrin web formed. The images were rated from 0 to 3, based on the fibrin web quality formed.

Results: The control group showed a better fibrin web density compared to the another groups. There were not statistically significant differences between the groups with or without agitation.

Conclusion: The EDTA should be a treatment choice without blood clot damage.

EFFECT OF ADDITIONAL MICROWAVE POLYMERIZATION ON THE PROPERTIES OF COMPOSITE RESINS: A SYSTEMATIC REVIEW

MARIA EDUARDA FERREIRA CARVALHO; DANIELLA MONTES SOUZA, LAÍSA ARAÚJO CORTINES LAXE, LUCIANA ANDREA SALVIO; ALINE SPAGNOL FEDOCE-SILVA
JUIZ DE FORA FEDERAL UNIVERSITY - UFJF

Aim: The aim of the study was to review the literature to investigate whether additional microwave polymerization interferes with the physical-mechanical and optical properties of composite resins manufactured for direct use.

Method: This review followed the PRISMA 2020 guidelines and was registered on the Open Science Framework (DOI: 10.17605/OSF.IO/Z4D69). Searches were conducted by two independent reviewers in the Pubmed, Scopus, Web of Science, and Embase databases using terms defined from the PICOS strategy. According to the defined eligibility criteria, out of the total of 448 articles found, 8 were included and a further 4 were selected through manual search in the references of included articles, totaling 12 articles for qualitative analysis and risk of bias assessment.

Results: Among the analyzed studies, 4 conducted flexural strength tests, 1 conducted diametral tensile tests, and 8 conducted microhardness tests. Optical properties were verified in 2 studies and surface roughness in 3. An increase in microhardness was identified in 7 studies, with a decrease in flexural strength observed in only 1. The results of studies that analyzed optical properties were controversial.

Conclusion: It is concluded that additional microwave polymerization may positively interfere with the physical-mechanical properties of composite resins, with uncertain consequences for color stability. The results seem to depend on the interaction between the polymerization method and the composition of the analyzed composite resin, indicating the need for further studies for better understanding.

EFFECT OF AMITRIPTYLINE BASE CREAM ON ACUTE PAIN MODULATION: STUDY ON MICE TAILS

THOMAS BARBIN; GABRIELA SANCHES DE JESUS, VITOR AUGUSTO BENEDICTO DOS SANTOS, SIDNEY FIGUEROBA RAIMUNDO; FRANCISCO CARLOS GROPPA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the analgesic efficacy of Pentravan base cream, associated with amitriptyline, in modulating acute pain through thermal stimulation in the tail of mice.

Method: Eighteen mice were used, which were placed in a Tail Flick device to measure the time required to move their tails in response to the heat from a 150 W lamp, under the influence of the creams being studied and the baseline time (without cream). The formulations tested were the association of Lanette base cream (LN) and Pentravan® cream (P), separately, with different concentrations of amitriptyline (AM) and Sodium Diclofenac (DS), and a commercial formulation of Sodium Diclofenac (DS EMS). The latency time and the duration of the analgesic effect were analyzed, and to quantify the analgesic effect, the maximum possible effect percentage (MPE%) was used.

Results: As for the latency of analgesia, the P+AM5% and P+AM10% exhibited a significant difference from the DS EMS, LN+DS, and P+DS but didn't differ significantly between themselves or with the LN+AM5%. Regarding the duration of analgesia, P+AM5% and P+AM10% showed a significant difference from all others ($p < 0.05$), but not between themselves ($p > 0.05$).

Conclusion: It was observed that the Pentravan® Cream with Amitriptyline (5% and 10%) showed better performance both in terms of latency, duration, and maximum possible effect of the analgesia.

EFFECT OF ANTIFUNGAL DRUGS ON THE GROWTH AND METABOLISM OF CANDIDA ALBICANS

GIULIA TEIXEIRA DE CASTRO; MARLISE INÊZ KLEIN FURLAN
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: *Candida albicans* is a commensal fungus and an opportunistic pathogen on the WHO critical priority list. This study evaluated the effect of different antifungal drugs on the growth and metabolism of *C. albicans*. The drugs (targets) were: fluconazole (cytoplasmic membrane sterol biosynthesis), echinocandins anidulafungin, caspofungin, and mycofungin (cell wall glucan synthesis), and amphotericin B (membrane integrity; bind to ergosterol), with concentrations 512 to 1 µg/mL (2-fold serial dilution).

Method: The strain SC5314 was reactivated on a blood agar plate (37°C, 10% CO₂, 48h). 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 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.

Results: After 24 and 48h, the plates were visually inspected for fungal growth (turbidity), and concentrations with no turbidity were plated on agar. Also, growth was measured via reading at 550nm and metabolism via the addition of resazurin (37°C, 10% CO₂, 2h) and reading at 570nm. The three echinocandins inhibited growth and metabolism at lower concentrations than the other antifungals; anidulafungin and mycofungin were more effective in both periods.

Conclusion: Therefore, echinocandins were more effective than fluconazole and amphotericin B in inhibiting the growth and metabolism of the fungus.

EFFECT OF BLEACHING GELS WITH SUB-MICROPARTICLES AND LED ON TRANSAMELODENTINAL CYTOTOXICITY AND BLEACHING EFFICACY

LARISSA DE JESUS GOMES; MARIANGELA IVETTE GUANIPA ORTIZ, JULLIANA ANDRADE DA SILVA, RAFAEL ANTONIO DE OLIVEIRA RIBEIRO, CARLOS ALBERTO DE SOUZA COSTA, KLAUS RISCHKA; DEBORA ALVES NUNES LEITE LIMA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study had as its objective to evaluate the bleaching effect of hydrogen peroxide (HP10% and HP35%) with sub-microparticles of calcium polyphosphate (CaPP) with or without a violet LED (LED), and the transamelodentinal cytotoxic potential and degradation kinetics of HP.

Method: Seventy-two samples of bovine teeth were divided into 12 groups (n=6): Control Group (without treatment); LED; Commercial 35%HP-Whiteness HP (HP35%C); Commercial 35%HP-Whiteness HP+LED (HP35%CL); Manipulated 35%HP (HP35%M); Manipulated 35%HP+CaPP1.5% w/t (HP35%MP); Manipulated 35%HP+LED (HP35%ML); Manipulated 35%HP+CaPP1.5% w/t + LED (HP35%MPL); Manipulated 10%HP (HP10%M); Manipulated 10%HP+CaPP1.5%w/t (HP10%MP); Manipulated 10%HP+LED (HP10%ML); and Manipulated 10%HP+CaPP1.5%w/t + LED (HP10%MPL). The samples were mounted in artificial pulp chambers with isolated odontoblastic MDPC-23 cells and exposed to treatment. Cell viability, oxidative stress, PH quantification and ΔE_{00} were analyzed using generalized linear models and Kruskal-Wallis and Dunn were applied for WID, adopting a significance level of 5%.

Results: About viability, with the best results observed in those receiving HP10%. Those receiving HP had higher oxidative stress values, with the best results found in the MPL association for both concentrations. Regarding HP diffusion, the best results were found in the MPL association for both concentrations. Regarding color change in ΔE_{00} , HP35%CL, HP35%M, HP35%MP, HP35%ML, and HP35%MPL showed greater variation. Groups showing the highest ΔWID were those using 35% HP gel.

Conclusion: The incorporation of CaPP, associated or not with LED, resulted in lower cytotoxicity.

EFFECT OF DIFFERENT STERILIZATION PROTOCOLS ON THE RELEASE OF DENTIN GROWTH FACTOR TGF- β 1

ANA LUISA THEODORO; YASMIN INÁCIO DE OLIVEIRA, CARLA MARINHO BARRETO GOIS, VICTOR AUGUSTO BENEDICTO DOS SANTOS, REGINA MARIA PUPPIN-RONTANI; FERNANDA MIORI PASCON
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Despite the widespread use of human teeth in dental research, a challenge persists regarding the presence of pathogens in the dental tissues that may lead to contamination during handling in in vitro studies. Therefore, it is advisable to employ a sterilization method that effectively eliminates disease-causing microorganisms without compromising the dental substrate. The study aimed to assess the impact of sterilization methods on dentin substrate in terms of transforming growth factor (TGF- β 1) release.

Method: A total of 115 third molars were selected and divided into 5 groups (n=23): positive control (no sterilization), negative control (dry specimens), autoclave, microwave, and gamma radiation. The teeth were sectioned into slices to obtain the cervical root third and the specimens were sterilized using autoclave (120°C, 1 kgf/cm², 15 min), microwave (3 min/ 650W), and gamma radiation (14.5 kGy). After that, they were treated with 2% chlorhexidine were applied for 5 min and 10% EDTA for 10 min to quantify the TGF- β 1 release in the solution using the ELISA assay. The obtained data were subjected to tests for normality (Shapiro-Wilk), homoscedasticity (Levene), and Kruskal-Wallis analysis ($\alpha=5\%$).

Results: The results indicated no significant difference in TGF- β 1 release among the studied groups ($p=0.870$)

Conclusion: suggesting that the sterilization methods evaluated did not adversely affect the release of TGF- β 1 from the cervical root dentin.

EFFECT OF HIGH IRRADIANCE AND SHORT EXPOSURE TIMES ON THE DEPTH OF CURE OF SIX BULK-FILL RESIN COMPOSITES

DANIELA BANDEIRA DOS SANTOS; BEATRIZ DE CÁSSIA ROMANO, VANESSA GALLEGOS ARIAS PECORARI, RICHARD BENGT PRICE; MARCELO GIANNINI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study examined the effect of high irradiance and short exposure times on the depth of cure of six resin-based composites (RBCs).

Method: Bluephase PowerCure and the Valo X light-curing units (LCUs) were used to photocure bulk-fill RBCs for their recommended exposure times: Admira Fusion x-tra (AFX/20s), Aura Bulk Fill (ABF/20s), Filtek One Bulk Fill (FOB/20s), Opus Bulk Fill APS (OBF/30s), Tetric EvoCeram Bulk Fill (TEC/10s) and Tetric PowerFill (TPF/10s). In addition, all bulk-fill RBCs were tested for depth of cure with one short 3 s exposure time from the Bluephase PowerCure or the Valo X in the Xtra Power mode. The RBCs (n=10 per RBC) were inserted into a 4 mm diameter metal mold and covered by a polyester strip before being photocured. After 24 h of storage, uncured RBC was scraped away to determine the depth of cure of the RBCs.

Results: None of the RBCs achieved a 4 mm depth of cure. The depth of cure of TEC and TPF was unaffected by the exposure times (recommended or short) when using the Valo X. The depth of cure of AFX/20s, AFX/Xtra Power, ABF/Xtra Power, FOB/Xtra Power, and OBF/30s RBCs was greater when using Valo X compared to the Bluephase PowerCure.

Conclusion: It was concluded that short exposure times can reduce depth of cure and should only be used for some RBCs.

EFFECT OF HIGH STORAGE TEMPERATURES OF 10% CARBAMIDE PEROXIDE ON THE WHITENING EFFICACY AND ENAMEL ROUGHNESS

THAMY GARCIA ALVES; LARA PEPITA DE SOUZA OLIVEIRA, JULLIANA ANDRADE DA SILVA, WALDEMIR FRANCISCO VIEIRA JUNIOR; DÉBORA ALVES NUNES LEITE LIMA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of the study was to evaluate the effect of high storage temperatures of a 10% carbamide peroxide (CP) gel on bleaching efficacy and enamel roughness.

Method: The methodology consisted of making fifty bovine incisor specimens measuring 4mm x 4mm wide and 3mm thick (1mm enamel and 2mm dentin), which were bleached for 4 hours a day with the commercial gel Whiteness Perfect 10% for 14 days. The five study groups (n=10) were: whitening gels without prior storage (WP - positive control), gels stored for three months at 25°C (WP3m25°C), 35°C (WP3m35°C), 41°C (WP3m41°C) and specimens kept in artificial saliva (NT - negative control). Color (ΔE , ΔE_{00} and ΔWID) and roughness (Ra) measurements were taken before bleaching treatment and 24 hours after the 14th day of bleaching. The R statistical program was used with a significance level of 5%. Analysis of the color data used non-parametric Kruskal-Wallis and Dunn's tests and Ra was determined using a generalized linear mixed-effects model for repeated measures over time.

Results: The results indicated that there were no significant differences between the groups stored at different temperatures (WP3m25°C, WP3m35°C, WP3m41°C) and the non-stored group (WP) in terms of color variation ($p>0.05$). All the groups showed significantly greater color variation than the NT group. Ra did not differ significantly between the bleached groups and the NT group ($p>0.05$).

Conclusion: It can therefore be concluded that 10% carbamide peroxide showed stability after 3 months of storage at high temperatures in terms of whitening efficacy and enamel roughness.

EFFECT OF TEMPERATURE AND STORAGE TIME ON THE EFFICACY OF WHITENING GELS CONTAINING CARBAMIDE PEROXIDE

BARBARA FELICIANO COSTA; LARA PEPITA DE SOUZA OLIVEIRA, JULLIANA ANDRADE DA SILVA, WALDEMIR FRANCISCO VIEIRA JUNIOR; DÉBORA ALVES NUNES LEITE LIMA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study aimed to assess how temperature and storage time of low-concentration bleaching gels containing carbamide peroxide (CP) on the efficacy of dental whitening.

Method: For this purpose, bleaching gels at concentrations of 10% and 16% CP (Whiteness Simple - FGM) were used to whiten bovine incisor specimens (4mm x 4mm x 3mm) and were distributed into 15 groups (n=10), including: gels without prior storage (WS10% and WS16% - positive control), gels stored for three months at temperatures of 2°C (3M10%2°C and 3M16%2°C), 25°C (3M10%25°C and 3M16%25°C) and 37°C (3M10%37°C and 3M16%37°C), gels stored for twelve months at temperatures of 2°C (12M10%2°C and 12M16%2°C), 25°C (12M10%25°C and 12M16%25°C) and 37°C (12M10%37°C and 12M16%37°C), and specimens maintained in artificial saliva (WT - negative control). Generalized linear models were estimated for color analysis, considering the variables ΔE , ΔE_{00} , ΔWID , using the R program, with a significance level of 5%.

Results: The results showed that all the gels had whitening efficacy. The 12M10%37°C and 12M16%37°C groups exhibited less color variation compared to the WS10% and WS16% groups and the groups stored for three months, regardless of the gel concentration. The 12M10%37°C and 12M16%37°C groups showed lower values of ΔE , ΔE_{00} , ΔWID compared to the 12M10%2°C, 12M16%2°C, 12M10%25°C, and 12M16%25°C groups.

Conclusion: Thus, it was inferred that the bleaching efficacy of the gels was compromised only in the groups stored for 12 months at 37°C, indicating that the product efficiency was preserved when stored within the temperature range recommended by the manufacturer (5°C to 25°C).

EFFECT OF THE APPLICATION OF DESENSITIZERS WITH ADDED CHITOSAN PRIOR TO BLEACHING ON THE PHYSICAL PROPERTIES OF ENAMEL

JÚLIA BARBATO; LUÍS OTÁVIO PASSOS, CAROLINA MENEGHIN BARBOSA, MARCOS ROBERTO DE LIMA BENATI, RENATA SIQUEIRA SCATOLIN; LAURA NOBRE FERRAZ JARDIM
HERMÍNIO OMETTO - UNIARARAS

Aim: The study in vitro assessed the addition of 2% and 5% chitosan to desensitizers on the physical properties of dental enamel prior to bleaching with 35% hydrogen peroxide (HP).

Method: Bovine enamel samples were pigmented and randomized into 7 groups according to the desensitizer (n=12): no desensitizer (negative control); 2% NaF; 2% NaF + 2% Chi; 2% NaF + 5% Chi; 2% NaF + 5% KNO₃; 2% NaF + 5% KNO₃ + 2% Chi; 2% NaF + 5% KNO₃ + 5% Chi. Three dental bleaching sessions with 35% HP were performed. Prior to HP application, desensitizer application was performed. Color analysis (ΔL , Δa , Δb , ΔE^*_{ab} , ΔE_{00}), surface roughness (Ra), and surface microhardness (KHN) analyses were conducted after staining (T0) and after each bleaching session (T1, T2, and T3). Scanning electron microscopy (SEM) analysis was conducted at T3. Data were analyzed by Mixed Linear Model for repeated measures over time and Tukey Kramer post-hoc test for multiple comparisons.

Results: For color analyses, no significant differences were found between groups. All groups showed increased Ra and decreased KHN. Groups with chitosan addition differed from their positive controls, showing higher Ra values at all times. At T2 and T3, groups NaF 2% + 5% Chi and NaF 2% + 5% KNO₃ + 5% Chi differed from their respective positive controls, presenting higher KHN.

Conclusion: Adding chitosan to desensitizers prior to dental bleaching resulted in less surface microhardness loss without interfering with the effectiveness of dental bleaching.

EFFECT OF TREATMENT ON MECHANICAL SOMATOSENSORY PROFILE IN PATIENTS WITH TEMPOROMANDIBULAR DISORDER PAIN

ANA CLARA HECKER DE CARVALHO; PAULO CÉSAR RODRIGUES CONTI, LEONARDO RIGOLDI BONJARDIM; YURI MARTINS COSTA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The present study evaluated whether successful treatment for temporomandibular disorder (TMD) could alter the mechanical somatosensory profile in the region of painful complaint. Thus, fifteen women with myofascial pain were treated using usual strategies, i.e., counseling, occlusal splint, needling and use of pharmacological means.

Method: Follow-ups were carried out monthly, and the success criterion adopted was a minimum treatment time of 4 months and the absence of facial pain complaints for at least 30 consecutive days. The following quantitative sensory tests were measured in the most painful masseter, according to self-report, before and after the successful treatment: mechanical detection threshold (MDT), mechanical pain threshold (MPT), temporal summation ratio (WUR) and pressure pain threshold (PPT). The data is presented as mean and standard deviation and a t-test for independent samples was applied considering a significance level of 5% ($p=0.050$).

Results: There was no difference before and after treatment for MDT, MPT and WUR, respectively, 0.05 (0.03) and 0.04 (0.04) g/mm², 14.2 (27.6) and 23.6 (58.9) g/mm², 2.7 (1.5) and 1.8 (0.9) ($p>0.050$). The PPT showed a significant increase after treatment, with 1.1 (0.3) before and 1.4 (0.3) kgf/cm² after treatment.

Conclusion: These preliminary results suggest that somatosensory changes and clinical pain in patients with TMD do not share completely corresponding fisiopatological mechanisms.

EFFECT OF WHITENING TOOTHPASTES ON TOOTH ENAMEL STAINED WITH RED WINE AND COFFEE

MARINA PAPAROTTO LOPES; IANA MARIA COSTA GONÇALVES, JULLIANA ANDRADE DA SILVA; DÉBORA ALVES NUNES LEITE LIMA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate, in vitro, the effect of two commercial whitening toothpastes on teeth stained with coffee and red wine.

Method: 130 samples of bovine teeth were randomly divided into 13 groups ($n=10$): NC- negative control; CMP- Colgate® Maximum Cavity Protection; CT12- Colgate® Total 12; CT12_C- coffee+CT12; CT12_W- wine+CT12; CMP_C- coffee+CMP; CMP_W- wine+CMP; CLWC- Colgate® Luminous White Lovers Coffee (CLWC); CLWC_C- coffee+CLWC; CLWW- Colgate® Luminous White Lovers Wine (CLWW); CLWW_W- wine+CLWW; NC_C- coffee+distilled water; NC_W- wine+distilled water. Surface roughness (Ra) and color analyzes (ΔE_{ab}^* , ΔE_{00} and ΔWID) were carried out at two times: T0 (initial-baseline) and T1 (24 hours after brushing). The Shapiro-Wilk normality test, Kruskal Wallis and Dunn non-parametric tests (for comparisons between groups) and the Wilcoxon parametric test (for comparisons between T0 and T1 times in the roughness analysis) were used. 5% significance level.

Results: There was a significant difference between groups for ΔE_{ab}^* , ΔE_{00} and ΔWID . There was no significant difference between the groups in relation to surface roughness at T0. In T1, CLWW_W showed significantly higher surface roughness compared to NC and NC_C. CLWW_W presented a SEM (Scanning Electron Microscopy) image significantly different from the other groups.

Conclusion: Brushing with CLWC and CLWW dentifrices on samples stained with coffee and red wine significantly changed the color of the samples, making them lighter and increasing the roughness of the tooth enamel. However, only the association of staining with red wine and brushing with CLWW significantly altered the topography of tooth enamel.

EFFECTIVENESS AND CYTOTOXICITY OF A BLEACHING HYDROGEL CONTAINING BIOSILICATE IN EARLY-STAGE ERODED ENAMEL

RAFAEL DASCANIO; CAMILA SIQUEIRA SILVA COELHO, RAFAEL ANTÔNIO DE OLIVEIRA RIBEIRO, MARCOS ROBERTO DE LIMA BENATI, MARINA SOUZA TREVELIN, EDGARD DUTRA ZANOTTO, CARLOS ALBERTO DE SOUZA COSTA; VANESSA CAVALLI

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study evaluated the biocompatibility, mineral content, and bleaching efficacy of hydrogels containing Biosilicate (BioS) on sound and early-stage eroded enamel.

Method: Enamel and dentin discs underwent erosive cycling with 0.3% citric acid, followed by treatments with ($n=10$): HP_35 (control with commercial 35% hydrogen peroxide); HP_0BioS (35%HP with carboxymethylcellulose [CMC] and no BioS); HP_BioS (35%HP with CMC and 10% BioS); and NC (no treatment). In Phase 1, samples were assessed for mineral content (% surface hardness loss [SHL] and recovery [SHR]), Fourier-transform infrared spectroscopy [FT-IR]), color change (ΔE_{00}), and whiteness index (ΔWID). Bleaching was conducted in three 30-minute sessions every 7 days. In Phase 2, discs were placed in artificial pulp chambers (APCs) to allow gel diffusion into DMEM culture medium, collected post-bleaching and applied to MDPC-23 cells. Cell viability (MTT), oxidative stress (SOx), live/dead fluorescence confocal microscopy, and HP diffusion were evaluated after treatments. Data were analyzed by ANOVA/Tukey tests ($\alpha=0.05$).

Results: NC exhibited lower %SHL than HP_35 on sound enamel ($p>0.05$), with no differences in %SHR among groups ($p<0.05$). HP_10BioS showed greater $\Delta E00$ and ΔWID on early-stage eroded enamel ($p<0.05$), higher cell viability, lower oxidative stress on eroded enamel, and lower HP diffusion among bleached groups.

Conclusion: In conclusion, HP_BioS enhanced HP bleaching efficacy on eroded enamel, maintained mineral content, and promoted lower cytotoxic effects of 35% HP on pulp cells.

EFFECTIVENESS OF 4%LIDOCAINE/4%ARTICAINE WITH SODIUM BICARBONATE IN TOPICAL ANESTHESIA OF PALATAL MUCOSA OF UPPER CANINE

AMANDA DE JESUS MEDEIROS; ANNE CAROLINE GERCINA CARVALHO DANTAS, JÚLIA MORI GOMIDE, DANIEL FELIPE FERNANDES PAIVA, BARBARA FELICIANO COSTA, CAMILA BATISTA DA SILVA DE ARAÚJO CÂNDIDO, KLINGER DE SOUZA AMORIM; FRANCISCO CARLOS GROppo
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the effect of a formulation composed of Lidocaine 4%, Articaine 4% and sodium bicarbonate on topical anesthesia in the palatal mucosa region of upper canines.

Method: This randomized, triple-blind, crossover clinical trial was conducted in line with ethical principles, and approval was granted by the Ethics Committee of the University of Campinas (protocol number 63043722.0.0000.5418). In this study, 37 volunteers received 100 mg of topical anesthesia of two topical formulations: lidocaine 5% (control) and lidocaine 4%/articaine 4% with sodium bicarbonate (test) in the palatal mucosa region of upper canines in two sessions. In the first session, the onset and length of soft tissue were assessed using an esthesiometer. In the second session, the volunteers were anesthetized with one cartridge of lidocaine 2% with epinephrine 1:100,000, and the Visual Analog Scale was used to assess pain during needle puncture and injection.

Results: There was no difference between the two groups in pain during injection (Wilcoxon, $p>0.05$). However, there was a difference between the groups (Wilcoxon) in onset ($p<0.0001$), length ($p<0.0001$), and pain during needle puncture ($p=0.0048$). The test formulation presented a lower pain during needle puncture, lower onset of topical anesthesia, and higher length topical anesthesia. The control formulation failed to provide anesthesia in six volunteers, while the test formulation failed in only one. Moreover, 61% of the volunteers preferred the test formulation.

Conclusion: The test formulation improved the latency and length of topical anesthesia and reduced the pain in needle puncture during local anesthesia.

EFFECTIVENESS OF ACUPUNCTURE IN CONTROLLING GAG REFLEX DURING DENTAL TREATMENT: A SYSTEMATIC REVIEW

DANIELA CRISTINE SILVA MAGALHÃES; LUCIANA ANDREA SALVIO, MARIANA MARCELA OLIVEIRA SILVA; ALINE SPAGNOL FEDOCE-SILVA
JUIZ DE FORA FEDERAL UNIVERSITY

Aim: The aim of this study was to review the literature regarding the use of acupuncture in controlling exacerbated gag reflex during dental treatment.

Method: The systematic review was conducted following the PRISMA recommendations, using the PICOS strategy for searches in the Embase, Pubmed, Scopus, and Web of Science databases, and registered on PROSPERO (CRD 42023459773). Out of a total of 339 articles found, nine were included for qualitative analysis and bias risk assessment, as they met the following eligibility criterion: randomized clinical trials that evaluated the effectiveness of acupuncture in controlling gag reflex during dental treatment.

Results: Traditional acupuncture with needles, electroacupuncture, auricular acupuncture, acupressure, and laser acupuncture were the most commonly used techniques in the studies. The most stimulated acupoints were Pc6 and VC24. The most common dental intervention used to assess the effectiveness of acupoint stimulation was impression taking. Only one study did not observe a significant decrease in gag reflex after the use of one or more acupuncture techniques.

Conclusion: It is concluded that acupuncture point stimulation can be considered an effective technique in controlling gag reflex during dental treatment, in addition to being considered a non-invasive and easily applicable technique.

EFFECTIVENESS OF HYALURONIC ACID-BASED BLEACHING GELS WITH LOW-CONCENTRATIONS OF HYDROGEN PEROXIDE AND NIOBIUM PENTOXIDE

MARIANA VITÓRIA DOS PASSOS CELESTINO; IAGO CÉSAR RIBEIRO TELES MATOS, LETÍCIA VASCONCELOS SILVA DE SOUZA; VANESSA CAVALLI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated the stability, color change and surface morphology of enamel submitted to an experimental hyaluronic acid (HA)-based bleaching gel containing 6% hydrogen peroxide (HP) combined with Nb2O5 particles and light irradiated with violet LED

Method: Enamel blocks were submitted to bleaching (3 sessions of 30 min each) with (n=10) experimental HA-based gel containing 6% H₂O₂ and different concentrations of Nb₂O₅ (0, 2.5, 5 and 10 wt%). The gel was light irradiated with LED (or not) and the positive control group was submitted to a 35% H₂O₂ commercial gel. The stability of the gels was evaluated based on pH and H₂O₂ decomposition, color change (ΔE_{00}) and whiteness index change (ΔWID) were determined before (T₀) and after treatments (T₁), while enamel surface morphology was observed at T₁ by means of spectrophotometry and scanning electron microscopy (SEM), respectively. Data was statistically evaluated by one-way (pH values and H₂O₂ decomposition rate) and two-way ANOVA (ΔE_{00} , ΔWID) followed by Tukey post hoc test ($\alpha=5\%$).

Results: The pH of the gels ranged from 6.2 to 7.0, and light-irradiated groups exhibited higher H₂O₂ decomposition rate than the absence of light ($p<0.05$). All groups submitted to LED exhibited higher ΔE_{00} and ΔWID than groups without light, but the gel containing 10wt% Nb₂O₅ displayed superior color results than the other experimental groups ($p<0.05$). No differences in surface morphology were noted among groups.

Conclusion: In conclusion, most gels with Nb₂O₅ exhibited chemically stable and, when irradiated with LED light, exhibited a whitening potential similar to 35% HP, without causing adverse effects on the enamel.

EFFECTIVENESS OF MICROSCOPY IN OPTIMIZING PERIODONTAL AND PERI-IMPLANT SURGERY- LITERATURE REVIEW

PEDRO HENRIQUE BISCARO TONELLO; TIAGO TAIETE
HERMÍNIO OMETTO - UNIARARAS

Aim: The use of the microscope offers several advantages for periodontists. Periodontal microsurgery is an advanced technique that allows a more precise treatment and consists of minimally invasive surgical procedures, with the help of a microscope and microinstruments. Moreover, periodontal microsurgery presents better and more predictable results compared to traditional periodontal surgery techniques. Therefore, periodontal microsurgery has been shown to be an effective and promising option in periodontal treatment and restoration of oral and aesthetic health of patients. In short, the microscope is an essential tool in clinical daily life, contributing to a more modern and efficient dentistry.

Method: This is a review of the narrative literature, in partnership with Dr. Glécio Vaz de Campos (with personal interviews and information from the book he wrote) as well as being based on articles found in several top dentistry journals.

Results: The magnification of the image provided by the microscope allows a detailed and precise view of dental structures, facilitating diagnosis and proposing a more delicate and less invasive procedure, less bleeding during surgery, faster post-surgery recovery, less surgical trauma, less discomfort for the patient, faster healing and improved aesthetics.

Conclusion: It is concluded, that microsurgery improves not only subclinical cure, but also clinical results and all this is possible due to its minimally invasive and accurate approach.

EFFECTS OF POSITIONING ON THE POST-CURING PLATFORM ON MECHANICAL AND OPTICAL PROPERTIES OF 3D PRINTED OBJECTS

ANDRÉ FERREIRA RIOS; VANESSA DIAS BARBOZA MUNHOZ, ISABELLA RIBEIRO DO VALLE DE PAIVA, MAY ANNY ALVES FRAGA, LOURENÇO CORRER-SOBRINHO; AMÉRICO BORTOLAZZO CORRER
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Evaluate the effect of the positioning on the post-curing chamber platform on mechanical properties, surface roughness and color stability of specimens manufactured by 3D printing.

Method: Samples of Prizma 3D Bio Prov printing resin were manufactured with dimensions of 24 x 5 x 2.5 mm and subjected to the post-curing process according to the following groups: Group C – specimens positioned in the center of the rotating platform, Group I – positioned in the intermediate region of the platform and Group B – positioned near the edge of the platform. Twenty-four hours after printing, the specimens were evaluated for fracture toughness (n=10), Knoop microhardness (n=10), surface roughness (n=10) and color stability (n=10). For the surface roughness test, specimens were re-evaluated after 5000 cycles of simulated brushing. For the color measurement, the samples were re-evaluated after 240 hours of accelerated aging under UV light. Statistical analysis was performed considering $\alpha=0.05$.

Results: Regarding microhardness, surface roughness and color stability tests, there was no statistically significant difference between the groups. In the fracture toughness test, group I demonstrated a statistically superior performance when compared to the others, while groups B and C were similar ($p>0.05$).

Conclusion: Positioning 3D printed specimens in the intermediate region of the post-curing platform improved the fracture toughness without changing microhardness, surface roughness and color stability.

EFFECTS OF VEGAN TOOTHPASTES ON ENAMEL MICROHARDNESS AND SURFACE ROUGHNESS

REGINNA VYCTÓRIA DA TRINDADE SOUZA DE MELO CARNEIRO; CAMILA SIQUEIRA SILVA COELHO, CINTHIA PEREIRA MACHADO TABCHOURY, RAISSA MANOEL GARCIA, TAIS SCARAMUCCI; VANESSA CAVALLI GOBBO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated surface roughness (Ra) and microhardness (expressed in percentage of surface hardness loss - %SHL) of enamel brushing with vegan toothpastes (VT).

Method: One hundred bovine enamel blocks (5x5x3mm) were selected and randomly assigned to treatments with (n = 10): AS (Artificial Saliva); (CT) Colgate Total 12 Clean Mint (Colgate); (CC) Extratos de Cúrcuma, Cravo e Melaleuca (Natural); (CU) Extratos de Camomila, Melissa e Uva (Natural); (HC) Hortelã e Cúrcuma (Boni Natural); (ZM) Zero Menta (Colgate); (ZH) Zero Hortelã (Colgate); (ME) Menta Everest (Ultra Action); (CM) Carvão e Menta (Boni Natural); (HA) Herbal Anís, Menta e Melaleuca (Sorriso). The blocks were submitted to 15,000 and 30,000 brushing cycles. The microhardness and Ra were evaluated at baseline (T0), after 15,000 (T1) and after 30,000 (T2) brushing cycles. The pH and potentially available fluoride in VT were analyzed. Data were statistically evaluated ($\alpha = 0.05$).

Results: At T0, no differences in microhardness and Ra were observed among groups ($p > 0.05$). At T1, the %SHL did not show differences ($p > 0.05$). The Ra was higher in CT12 and CC than AS, CH e CM ($p < 0.05$). At T2, a significant increase in Ra in all groups and a higher %SHL were noted in CC group ($p < 0.05$). All toothpastes displayed pH higher than 6.80 and the absence of fluoride was confirmed in groups CC, CU, CH and CM.

Conclusion: Toothbrushing with vegan toothpastes increased the surface roughness but did not cause deleterious effects on enamel microhardness.

EFFETIVENESS OF DMMB-BASED ANTIMICROBIAL PHOTODYNAMIC THERAPY AGAINST STAPHYLOCOCCUS AUREUS

ANILDO ALVES DE BRITO JÚNIOR; PEDRO JORGE LOURO CRUGEIRA, ANDRESSA VOLLONO BARBOSA, WELLINGTON LUIS REIS COSTA, SUSANA CARLA CRISTINA PIRES SAMPAIO DE OLIVEIRA, MARIA CRISTINA TEIXEIRA CANGUSSU, ANTONIO LUIZ BARBOSA PINHEIRO; JULIANA MONTEIRO AZEVEDO
FEDERAL UNIVERSITY OF BAHIA INSTITUTE OF HEALTH SCIENCES

Aim: The overuse and misuse of antibiotics can trigger antimicrobial resistance and it is necessary to develop alternative methods. In this context, antimicrobial photodynamic therapy (aPDT) is a promising selective approach to treat bacterial infections that has shown excellent results. The objective of this study was to evaluate, in vitro and in vivo, the effectiveness of DMMB-based aPDT against Staphylococcus aureus.

Method: It was used as a photosensitizer the 1.9 dimethyl methylene blue dye (DMMB) irradiated with red LED (λ 630 $\pm$ 20 nm, CW, 125 mW, 12 J/ cm², 192 s) in planktonic culture and rat wound infection model of S aureus. The experiment included four groups: Control, LED, DMMB and aPDT. After each procedure colony forming units were counted using the logarithm (CFU/mL log) and statistically analyzed.

Results: The data obtained demonstrates that the aPDT group, compared to the Control, showed a significant microbial reduction in vitro (RD=3) and in vivo (RD=4).

Conclusion: These results presents the aPDT as an alternative therapeutic option that can be better investigated and clinically validated to combat S. aureus infections. It is relevant to highlight that only one application of aPDT was carried out and it can be repeated in attempt to reduce a greater microbial load.

EFFICACY OF PHOTODYNAMIC THERAPY ASSOCIATED WITH CHEMICAL AUXILIARIES AND IRRIGANTS IN A MULTI-SPECIES BIOFILM MODEL

BIANCA CARDOZO; ANA CAROLINA CAMBUÍ PEREIRA, ADRIANA DE JESUS SOARES, MARINA ANGÉLICA MARCIANO DA SILVA, TALITA TARTARII, ERICKA TAVERES PINHEIRO; BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the association of photodynamic therapy (PDT) with the chemical auxiliary substances commonly used in endodontic treatment against a multi-species biofilm model composed of 9 bacteria (Actinomyces oris OMZ 745; Enterococcus faecalis OMZ 422; Fusobacterium nucleatum OMZ 598; Parvimonas micra OMZ 518; Porphyromonas gingivalis OMZ 925; Prevotella intermedia OMZ 278; Streptococcus mutans UA OMZ 159; Streptococcus oralis OMZ 607; Veillonella dispar OMZ 493).

Method: Twelve bovine tooth dentin disks were prepared (dimensions 9 mm $\times$ 4 mm $\times$ 0.5 mm). The biofilms were grown in 24-well polystyrene cell culture plates conditioned in 1 mL of saliva. The samples were divided into 6 groups: (G1) 0.9% Saline (control); (G2) 0.9% Saline + PDT; (G3) 2.5% Sodium hypochlorite + 0.9% Saline; (G4) 2.5% Sodium hypochlorite 2.5% + 17% EDTA 17% + 0.9% Saline+ PDT; (G5) 2% Chlorhexidine (liquid) + 0.9% Saline; (G6) 2% Chlorhexidine (liquid) + 17% EDTA + 0.9% Saline + PDT. The biofilms were analyzed using the microbial culture method of counting colony-forming units (CFU). Data were analyzed using two-way ANOVA and Tukey's multiple comparison tests.

Results: The group (G6) 2% Chlorhexidine (liquid) + 17% EDTA + 0.9% Saline + PDT decreased significantly (4-log10 CFUs/mL $\pm$ 0.5) reaching a reduction of 4 log when compared to the control group (G1) Saline 0.9% (8-log10 CFUs/mL $\pm$ 0.5) ($p < 0.0001$).

Conclusion: The combination of PDT with 2% Chlorhexidine (liquid) achieved higher levels of bacterial load reduction when compared to the other groups tested against a multi-species biofilm model.

ELECTROCHEMICAL/ANTIMICROBIAL COATING: INCREASING THE IONIC CHARGE AS A PREVENTIVE STRATEGY FOR TITANIUM IMPLANTS

DANIELA BUENOS AYRES DE CASTRO; JOÃO PEDRO DOS SANTOS SILVA, MARIA HELENA ROSSY BORGES, MARIANA MIRESKI; VALENTIM ADELINO RICARDO BARÃO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Peri-implant conditions and the electrochemical degradation of titanium (Ti) are reasons for dental implant treatments to failure. Therefore, developing a surface treatment able to overcome this problem is quite challenging. The aim was to produce a cationic coating by increasing the positive charge on the Ti surface, in other words, the ionic charge will enable electrostatic interactions against bacteria (antimicrobial) and increase resistance to corrosion (anticorrosive).

Method: This was carried out by: 1) forming a hydroxyl group (-OH) using electrolytic plasma oxidation (PEO); 2) silanization with tetraethyl-orthosilicate (TEOS) or 3-glycidyloxypropyl-trimethoxysilane (GPTMS). Four groups (untreated Ti, PEO, PEO + TEOS and PEO + GPTMS) were evaluated in relation to surface characterization, electrochemical and antimicrobial assays.

Results: Micrographs were obtained after alkalization and silanization, and different topography and roughness were observed. Silanization polarized the surface to hydrophobic (TEOS) and superhydrophobic (GPTMS), and the elements found by X-ray photoelectron spectroscopy demonstrated an increase in charge. Furthermore, silanization allowed the charged surfaces (cationic coating) to show better electrochemical behavior, which provides anticorrosive potential, as well as antimicrobial potential for biofilm formation (24 hours) in *Streptococcus mitis* strains.

Conclusion: Finally, the positively charged coatings were capable of improving mechanical attachment, as well as increasing the corrosion resistance of the material and having an antimicrobial effect.

ENAMEL EROSION CHALLENGE AFTER BLEACHING GELS CONTAINING CALCIUM POLYPHOSPHATE

CAROLINA MENEGHIN BARBOSA; MARIANGELA IVETTE GUANIPA ORTIZ, FLÁVIO HENRIQUE BAGGIO AGUIAR, KLAUS HEINZ RISCHKA; DÉBORA ALVES NUNES LEITE LIMA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study assessed in vitro the physical properties of enamel submitted to erosive challenge after treatment with bleaching gels containing calcium polyphosphate (CaPP).

Method: Bovine enamel samples (4x4x2mm) were randomized into 8 groups for Carbamide Peroxide 10% (CP) and 8 groups for Hydrogen Peroxide 35% (HP) (n=12): commercial (CPC or HPC), commercial + NaF 2% (CPC+F or HPC+F); manipulated (CPM or HPM); manipulated + NaF 2% (CPM+F or HPM+F); manipulated + 0.5% CaPP (CP+CaPP-0.5% or HP+CaPP-0.5%); manipulated + 1.5% CaPP (CP+CaPP-1.5% or HP+CaPP-1.5%); WCP or WHP (manipulated gel without CP or HP); Without bleaching (WB), performed for 14 days of bleaching treatment for CP and 2 bleaching sessions with a 1-week interval for HP. Samples were stored in artificial saliva. After bleaching, a 5-day erosive challenge was performed (immersion in 1% citric acid with agitation for 120s), twice a day. Contact Profile (PA) and Scanning Electron Microscopy (SEM) analyses were conducted. Homogeneity was analyzed using the Hartley test and normality of errors using Shapiro-Wilk. The effect of the group on profilometry was analyzed using a generalized linear model (R program, $p < 0.05\%$).

Results: For CP, enamel surface loss was greater in CPM, CPC, CPM+F, CPC+F, and CaPP-1.5%, compared to CaPP-0.5%. For HP, enamel surface loss was greater in HPM, HPC, HPM+F, HPC+F, and CaPP-1.5%, compared to CaPP-0.5% ($p < 0.05$).

Conclusion: The incorporation of 0.5% CaPP particles in low and high concentration bleaching gels showed better enamel surface preservation after the erosive challenge compared to conventional bleaching gels.

ENLARGEMENT OF THE APICAL FORAMEN IN ENDODONTIC TREATMENT: A LITERATURE REVIEW

THAIETRO ALLYEHANDRO PORFÍRIO; MATEUS SCOTINI PEREIRA, THIAGO BESSA MARCONATO ANTUNES, MAURO FELIPE RIOS DO NASCIMENTO, WALLYSON ADALBERTO DIAS; SUELLEN DE AZEVEDO MOREIRA
PADRE GERVÁSIO NATIONAL INSTITUTE OF HIGHER EDUCATION AND POSTGRADUATE STUDIES - INAPÓS

Aim: The success of endodontic treatment depends on several factors, with one of the main ones being the cleanliness of the root canal system. For this purpose, treatment is carried out with mechanical and/or manual instrumentation, using auxiliary chemical substances, and can vary depending on the chosen technique. The aim of this study is to evaluate the enlargement of the apical foramen as a treatment option, and to discuss the advantages and disadvantages in relation to symptoms and alteration of root anatomy.

Method: A search was conducted in PubMed, Scielo, and Google Scholar databases, including articles and monographs that assessed the importance of foraminal enlargement in endodontic treatment, regardless of publication year and language.

Results: Foramen apical enlargement increases the canal diameter in its apical portion by 1 to 3 mm beyond the apex, allowing disinfection throughout its length and diameter by removing superficial dentin. However, it is necessary to avoid the irrigation solution from leaking beyond the foramen. As a preventive method for this leakage, endodontists are using chlorhexidine as it presents less cytotoxicity. It was also observed that this enlargement may increase postoperative symptoms and irreversibly alter periapical anatomy.

Conclusion: The application of the technique offers a higher degree of cleanliness and disinfection of the canal but may result in significant deformations and cracks in the apical foramen area. However, it is considered relevant when operated correctly by the dentist, achieving success in periapical tissue repair.

EPIDEMIOLOGICAL PROFILE OF LUXATIONS INJURIES IN PERMANENT TEETH: A 10-YEARS RETROSPECTIVE STUDY

PAULO HENRIQUE GABRIEL; WALBERT DE ANDRADE VIEIRA, RODOLFO FIGUEIREDO DE ALMEIDA, ALINE CRISTINE GOMES MATTA, ARIAN BRAIDO, EDUARDO CÉSAR ALMADA SANTOS, JULIO VARGAS NETO; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study assessed the epidemiology of luxation injuries with or without dental fractures in patients attending the outpatient clinic of a Brazilian dental school over the past decade.

Method: We reviewed clinical records from a specialized center for dental trauma care in Brazil, focusing on patients who experienced at least one traumatic dental injury (TDI) in a permanent tooth between 2012 and 2022. The extracted data included sex, age, etiology, time between trauma occurrence and the search for initial care, TDI classification, and the need for endodontic treatment. The statistical analysis involved Pearson's chi-squared and Fisher's exact tests at a 5% significance level.

Results: The 366 analyzed clinical records included 166 patients (350 teeth) with luxation injuries. Men ($n = 102$) showed a higher prevalence of luxation injuries than women ($n = 64$). Extrusive luxation prevailed ($n = 99$ patients and 208 teeth). Patients with luxation injuries sought care promptly after dental trauma incidents ($p = .02$) and demonstrated a higher incidence of endodontic treatment ($p < .0001$) than those without luxation injuries. Lateral luxation was notably associated with traffic accidents ($p < .0001$). The combination of luxation injuries and tooth fractures did not correlate with a higher need for endodontic treatment ($p > .05$).

Conclusion: Age and trauma etiology seemed to have influenced the epidemiological profile of luxation injuries. Additionally, these injuries affected the time to seek initial care and the need for endodontic treatment.

ESTHETIC TREATMENT OF ANTERIOR TEETH: AN EVIDENCE-BASED APPROACH

GUILHERME SILVA DOS SANTOS; ROBERTA PINTO PEREIRA, MATHEUS KURY; VANESSA CAVALLI

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This case reports the clinical application of evidence-based bleaching protocol using violet LED followed by restoration of central incisors.

Method: Patient L.S.M., 28 years old, male, sought treatment due to dental darkening and misfit of two direct veneers previously performed on teeth 11 and 21. Upon intraoral physical examination, the patient showed dental shade equivalent to A3 (Vita Shade Guide) and the veneers displayed signs of wear, marginal disadaptation and fracture in the midline region. The teeth responded positively and normally to pulp vitality testing and radiographic exams. Three sessions of in-office bleaching were conducted with intervals of 7 days, applying 30 minutes of 35% hydrogen peroxide (Whiteness HP, FGM) and irradiating with violet LED using a protocol consisting of 20 irradiations of 1 minute with consecutive 30-s intervals (Bright Max Whitening, MMOptics). Two weeks after completing the bleaching treatment, restorative procedures were carried out. This included prophylaxis, absolute isolation and the execution of two direct veneers on teeth 11 and 21 using nanohybrid composite resin (Empress Direct, Ivoclar-Vivadent) in different shades, while respecting dental anatomy. Finally, finishing and polishing were performed, leading to the patient's satisfaction.

Results: The patient did not report tooth sensitivity throughout the treatment.

Conclusion: Thus, the combination of in-office bleaching technique with violet LED irradiation, along with the replacement of composite resin restorations resulted in high aesthetic satisfaction and pleasing outcomes.

ESTIMATING SEX IN WET LONG BONES IN THE POPULATION OF SÃO PAULO

VANUEL ALBERTO SANCA; JOÃO SARMENTO PEREIRA NETO, MÔNICA APARECIDA FRANCESQUINI, PATRÍCIA HELENA MODESTO; LUIZ FRANCESQUINI JÚNIOR

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To analyze linear measurements of the length of long bones of the arms and legs in São Paulo residents to verify if they are dimorphic and construct a logistic regression model for sex estimation.

Method: Long bones (femur, tibia, radius, humerus) were used, approved by the CEP/FOP/UNICAMP. CAEE 36729220.5.0000.5418. After studying 216 fresh cadavers, including 116 male and 100 female cadavers, adults (aged between 22 and 80 years), linear measurements of anatomical length were performed along their long axis using a Broca osteometric board. For these bones, knowledge of sex, height, and city of origin was obtained. Data analysis used the Shapiro-Wilke and Levene tests to respectively analyze the distribution and equality of variances (homoscedasticity) of the variables under study. The unpaired t-test and Pearson test were performed, as well as logistic regression (Hachward Stepwise-wald, Homer & Lemeshow test, and Nagelkerke).

Results: The linear measurement of their length was considered parametric data, with $p < 0.05$ in the Kolmogorov-Smirnov normality tests. The Stepwise-Wald logistic regression analysis showed 81.0% sensitivity, 81.0% specificity, and 81.0% accuracy.

Conclusion: The existence of sexual dimorphism in the study was confirmed, as well as the establishment of a logistic regression pattern for sex estimation in wet long bones of Brazilians, through $\text{Logit} = 41.838 + (-0.939 \times \text{femur})$. The logistic regression model obtained can be used as an auxiliary method for sex estimation in the wet bones of Brazilians. Keywords: Forensic Anthropology; arm bones, leg bones.

EVALUATION OF COLOR CHANGE OF THE TOOTH STRUCTURE IN CONTACT WITH DIFFERENT CALCIUM SILICATE-BASED SEALERS

HELLEN CAROLLINY DE SOUZA NICOLAU; DAVID SALDANHA DE BRITO ALENCAR; MARINA ANGÉLICA MARCIANO DA SILVA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate, using spectrophotometric analysis, the change in tooth color induced by different calcium silicate-based sealers over the period of 24 hours and 30 days.

Method: Sixty bovine teeth were sectioned in enamel-dentin blocks. They were filled with AH Plus Bioceramic, AH Plus Jet, Bio-C Sealer and BioRoot RCS and sealed with composite. Triple antibiotic paste and unfilled samples were positive and negative control groups, respectively. Specimens were stored in separate flasks immersed in tap water at 37°C with ambient light block out. Spectrophotometric analysis for color assessment was performed at different periods, before filling, 24 hours, and 30 days after filling. Luminosity (L) and color change (ΔE) were calculated. The statistical analysis was performed by using ANOVA and Tukey's test ($P < 0.05$).

Results: All calcium silicate-based sealers exhibited high color alteration after the evaluated period of 30 days and showed statistically significant difference values of ΔE in relation with the negative control in the period of 30 days ($P < 0.05$). Luminosity was not affected in comparison with negative control, in both evaluated periods ($P < 0.05$).

Conclusion: In conclusion, all tested sealers showed certain levels of tooth discoloration. Calcium silicate-based sealers (AH Plus Bioceramic, Bio-C Sealer, and BioRoot RCS) presented discoloration exceeding acceptable values within a 30-day follow-up. Notwithstanding, these alterations were imperceptible to the human eye.

EVALUATION OF CRACKS ON LAMINATE VENEERS AFTER LUTING USING TRANSILLUMINATION AND SCANNING ELECTRON MICROSCOPY

LUANA DE MELO SOARES; VITALIANO GOMES DE ATRAÚJO NETO, DANIEL KENJI FUNABASHI, BRUNA MARIN FRONZA, ROBERTO RUGGIERO BRAGA, FREDERICK RUEGGEBERG, RONALDO HIRATA; MARCELO GIANNINI

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the effect of different resin-based luting materials on the feldspathic ceramic laminate veneer crack formation using photography transillumination (PT) and scanning electron microscopy (SEM).

Method: 28 human premolar teeth had their buccal surfaces prepped for the luting of laminate veneers, which presented 0.4 to 0.8 mm thickness. Four types of resin-based luting materials were tested: Varionlink Esthetic LC (Ivoclar Vivadent); Surefil SDR (Dentsply Sirona); heated Filtek Z100 (69°C) (3M Oral Care) and heated VisCalor (65°C) (Voco GmbH). A preliminary assessment of the integrity of the feldspathic ceramic laminates (EX-3, Kuraray Noritake) was made through transillumination with a light curing unit (Valo Grand, Ultradent Products Inc.) and "Translume Len" tip (Ultradent Products Inc.). The results were recorded with 100 mm macro lens. After cementation, the teeth with the veneers were molded and epoxy resin replicas were obtained, which were observed in SEM, as well as in a second PT, both performed to assess crack formation.

Results: No signs of fracture or cracking were observed on the laminate veneers post-cementation in the transillumination and SEM images.

Conclusion: Under ideal and controlled luting conditions, the materials can achieve the desired performance. However, during clinical practice, in which the operator is faced with other challenges, the chances of complications during luting procedures are greater.

EVALUATION OF DECONTAMINATION OF DIFFERENT INTRACANAL MEDICAMENTS IN PULP REVASCULARIZATION: SYSTEMATIC REVIEW

CAROLINA MARINO WANDERICO; LETICIA TANK OLIVEIRA, LUCAS PEIXOTO DE ARAÚJO, LEANDRO BUENO GOBBO, JOSÉ FLÁVIO AFFONSO DE ALMEIDA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; CAIO CEZAR RANDI FERRAZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this systematic review was to evaluate the most effective intracanal medication method for root decontamination in teeth with pulp necrosis with an open apex in pulp revascularization procedures.

Method: This study followed the PRISMA 2020 statement, and the protocol was registered at the PROSPERO. Two blinded reviewers searched five databases up to September 20 th , 2023: Web of Science, PubMed, Scopus, Embase, and the Cochrane Library, according to the following key words: regenerative endodontics, revascularization, regenerative endodontic therapy, pulp revascularization, revitalization procedure, pulp regeneration, Adult Dentition, Dentition, Adult, Dentition, Secondary, Permanent Dentition, Secondary Dentition, Immature teeth, Immature tooth, Open apex, Incomplete root development, Canal Irrigants, Root, Irrigant, Root Canal, Irrigants, Root Canal, Root Canal Irrigant, Root Canal Medicament, Root Canal Medicaments, Canal Medicament, Root, Canal Medicaments, Root, Medicament, Root Canal, Medicaments, Root Canal, Chlorhexidine, chlorhexidine digluconate, intracanal medication, DT temporary dressing, antibiotic paste, calcium hydroxide, hydroxide, calcium, intracanal dressing. The eligibility criteria were studies that investigated the success rate of pulp revascularization after using different intracanal medications.

Results: 782 studies were selected, but only 3 were fulfilled the inclusion criteria for the qualitative analysis. All the included studies were randomized clinical trials and evaluated two different intracanal dressings: Triple Antibiotic Paste (TAP) and Calcium Hydroxide Paste (CHP). Both medications showed similar clinical performance, promoting apical repair in all cases.

Conclusion: Either Triple Antibiotic Paste and Calcium Hydroxide Paste similarly promoted reduction size of apical diameter followed by thickening of the root walls, as well as the reduction of pre-operative symptoms, demonstrating good clinical and radiographic results. However, more randomized clinical and laboratory studies are still needed.

EVALUATION OF PHYSICAL-CHEMICAL PROPERTIES AND PENETRATION DEPTH OF EXPERIMENTAL INFILTRANT CONTAINING GRAPHENE OXIDE

ALEXANDRA AMORIM HELFENSTEIN; ANA LAURA ALMEIDA RODRIGUES, JADE LAÍSA GORDILIO ZAGO, HANDIALLY DOS SANTOS VILELA, ROBERTO RUGGIERO BRAGA, GABRIELA ALVES DE CERQUEIRA, FLÁVIO HENRIQUE BAGGIO AGUIAR; GISELLE MARIA MARCHI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated the effect of adding 0.5%wt of graphene oxide (GO) to an experimental infiltrant on physical-chemical properties such as degree of conversion (GC), sorption (So), solubility (Sol), modulus of elasticity, flexural strength, and penetration depth.

Method: The infiltrant containing GO was compared to commercial (I) and experimental (E) controls. GC was analyzed via FTIR (n=5) before and after photoactivation. So and Sol (n=10) were assessed after immersion in distilled water for 7 days. Modulus of elasticity and flexural strength (n=10) were measured through three-point bending tests. For penetration depth (n=3), bovine teeth with caries lesions induced by a demineralization-rem mineralization protocol (DE-RE) were treated and analyzed using Laser Scanning Confocal Microscopy (LSCM). Statistical analysis employed generalized linear models, except for GC where non-parametric Kruskal-Wallis and Dun tests were used.

Results: The GO infiltrant showed values, in $\mu\text{g}/\text{mm}^3$, of So 13.96×10^{-5} ($\sigma 1.20 \times 10^{-5}$) and Sol 6.39×10^{-5} ($\sigma 3.09 \times 10^{-5}$) higher than the commercial control, So 5.39×10^{-5} ($\sigma 2.25 \times 10^{-5}$) and Sol 1.78×10^{-5} ($\sigma 2.13 \times 10^{-5}$). For elasticity and flexural strength, the commercial infiltrant demonstrated superior results compared to the experimental ones (E and GO). GC was higher in the GO infiltrant after 80s of photoactivation. In LSCM, the GO group exhibited infiltration similar to the commercial.

Conclusion: It is concluded that incorporating 0.5% GO in resin infiltrants is feasible, showing physical-chemical properties compatible with dental enamel, necessitating further studies on its mechanism of action.

EVALUATION OF THE ACCURACY OF BOLTON ANALYSIS PERFORMED ON 3D IMAGES

LIVIA NADYLENA DA SILVA LIMA; ALLEFE GABRIEL DA SILVA MELO; VÂNIA CÉLIA VIEIRA DE SIQUEIRA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The present study aimed to assess the accuracy and reliability of the Bolton discrepancy analysis performed on digital models obtained by scanners, and compare it with measurements obtained from traditional plaster models.

Method: A systematic review of the literature was carried out covering the period from 2012 to 2022 using the following databases: Scopus, Lilacs, PubMed, Embase, Cochrane and Medline. Of the 126 articles, only 32 met the criteria established by the proposal and were selected after title evaluation, abstract reading, and comprehensive analytical reading of the text.

Results: The results obtained in this systematic review showed that the observed no clinically significant differences between digital models and CBCT compared to plaster models for measuring the Bolton analysis discrepancies.

Conclusion: It is concluded that Bolton discrepancy analysis, when performed on three-dimensional virtual models proved to be as reliable as when conducted on conventional dental models. The researchers emphasized that digital models are gradually gaining acceptance as an alternative to traditional plaster models in orthodontic practice, providing a valid option for the diagnosis and treatment planning of orthodontic cases.

EVALUATION OF THE EFFECTIVENESS OF A DISINFECTION PROTOCOL FOR THE ENDODONTIC OPERATIVE FIELD THROUGH MICROBIAL CULTURE

SARAH ACKEL MÜLLER FERREIRA; JULIANA DELATORRE BRONZATO, ANA BEATRIZ SAFADY LOPES, PEDRO IVO DA GRAÇA FAGUNDES, ADRIANA DE JESUS SOARES, MARINA ANGÉLICA MARCIANO DA SILVA, TALITA TARTARI; BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Before root canal instrumentation, the operative field must be disinfected to increase treatment success rates and avoid bias in research aimed at analyzing the microbial population present in endodontic infections. The aim of this study was to evaluate, through microbial culture, the effectiveness of a disinfection protocol for the endodontic operative field.

Method: Samples were collected from the operative field (including the external part of the tooth crown, clamp, and portion of the rubber dam delimited by the Ostby arch) during endodontic treatment in 6 patients. The first sample from each patient was collected immediately after rubber dam isolation (G1), and the second sample, after disinfection of the operative field (G2). The disinfection was carried out with a sequence of substances using sterile swabs, according to the following protocol: 30% H₂O₂ (v/v) for 30 seconds, followed by 2.5% NaOCl for 30 seconds, which was neutralized with 5% sodium thiosulfate solution. The samples were inoculated into different culture media, and microbial growth was verified after the incubation period.

Results: There was a decrease in microbial growth in G2 compared to G1.

Conclusion: It was concluded that the tested protocol was effective in reducing or eliminating microorganisms present in the operative field.

EVALUATION OF THE EFFICACY OF PREVENTIVE TREATMENTS IN DENTAL CARIES CONTROL

ANA PAULA LIMA DA SILVA; CESAR PENAZZO LEPRI, RUCHELE DIAS NOGUEIRA, TAYNARA PEREIRA DE OLIVEIRA, MARIA ANGELICA HUEB DE OLIVEIRA; VINICIUS RANGEL GERALDO MARTINS
UNIVERSITY OF UBERABA

Aim: Evaluate the acid resistance of white spot lesions on dental enamel treated by different caries prevention methods

Method: Fifty standardized samples of bovine incisors were randomly distributed into five groups, each treated with a different caries prevention methods: fluoride gel (G1), fluoride varnish (G2), CPP-ACP toothpaste (G3), ICON infiltrant resin (G4), and Er,Cr:YSGG laser (G5). Initial microhardness values were measured, followed by a cariogenic challenge and non-invasive treatments. After these treatments, the microhardness was analyzed, and the specimens underwent a second cariogenic challenge to perform the final evaluation of the enamel microhardness.

Results: Results showed that G1 (457 ± 150) maintained stable microhardness (453 ± 137 after treatment; 428 ± 79 after the second challenge), while G2 (498 ± 37) and G3 (516 ± 51) showed a decrease after the second challenge (G2: 420 ± 63 ; G3: 439 ± 111). G4 (490 ± 76) and G5 (507 ± 85) maintained levels close to the initial values after the challenges (G4: 431 ± 66 ; G5: 443 ± 40)

Conclusion: The fluoride varnish and CPP-ACP toothpaste were relatively less effective. Treatments with fluoride gel, laser, and resin maintained hardness at levels close to the initial ones, suggesting that combining methods might increase effectiveness in preventing dental caries. Further studies are needed to explore this synergy.

EVALUATION OF THE PHYSICOCHEMICAL AND ANTIMICROBIAL PROPERTIES OF BIOCERAMIC SEALERS WITH DIFFERENT PLASTICIZING AGENTS

GABRIEL BISPO CARVALHO; THIAGO BESSA MARCONATO ANTUNES, LARISSA PAVANELLO, JULIANA DELATORRE BRONZATO, MÁRCIA REGINA DE MOURA AOUADA, KARINA COGO MÜLLER, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; MARINA ANGÉLICA MARCIANO DA SILVA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to assess the physicochemical properties of plasticizers such as propylene glycol, polyethylene glycol, natrosol, polyvinylpyrrolidone, and Carboxymethylcellulose in experimental calcium silicate-based sealers with ZrO radiopacifier. For the control group, sealer with distilled water without polymer and BioRoot RCS sealer were included.

Method: For the analysis of physicochemical properties ($n=6$), tests followed the ISO 6876/2012 standard, and for chemical characterization, RAMAN, FTIR, and SEM/EDS tests were performed. pH was evaluated at 1, 7, 14, and 58 days. Antimicrobial activity was determined by the agar diffusion method and the zones of growth inhibition against *Staphylococcus aureus*, *Enterococcus faecalis*, *Escherichia coli*, and *Candida albicans* were measured.

Results: In the pH test, all groups maintained an alkaline pH; no group had solubility less than 3%; all achieved a radiopacity of at least 3mm Al. All materials set in an appropriate time between 46 and 66 minutes; flow reached 17 mm for all groups; the lowest film thickness was for Bioroot, at 70 μm ($p < 0.05$). Spectroscopy revealed peaks corresponding to the chemical groups of the polymers. In SEM, the crystalline structure of the sealers was observed. No group demonstrated antimicrobial activity.

Conclusion: All plasticizers yielded satisfactory results for use in bioceramic sealers, but none presented antimicrobial activity against the tested microorganisms

EVALUATION OF THE RADIOCAPACITY OF BIOCERAMICS CEMENTS: LITERATURE REVIEW

WALLYSON ADALBERTO DIAS; MAURO FELIPE RIOS DO NASCIMENTO, THIAGO BESSA MARCONATO ANTUNES, MATEUS SCOTINI PEREIRA, THAIETRO ALLYEHANDRO PORFÍRIO; SUELLEN DE AZEVEDO MOREIRA
PADRE GERVÁSIO NATIONAL INSTITUTE OF HIGHER EDUCATION AND POSTGRADUATE STUDIES - INAPÓS

Aim: The ideal bioceramic material should present sufficient radiopacity to be distinguished from dental structures and be evaluated within the cavity. Studies assessing radiopacity employ an aluminum step wedge and, more recently, digital methods that determine grayscale values. In this process, these values are converted into millimeters of equivalent aluminum and related to the radiopacity of the materials.

Method: Radiopacity and flow were evaluated according to ISO 6876/2001 standards. To assess the normality of these data and compare the radiopacity of the three tested cements (MTA Angelus White, MTA Repair HP, and Biodentine), Shapiro-Wilk and Kruskal-Wallis tests were applied, respectively. The SPSS program was used with a significance level of 5% ($p \leq 0.05$). For the analysis of radiopacity of the other 2 cements (AH Plus, Endosequence BC), the radiopacity value was determined according to radiographic density (mmAl).

Results: The BD cement presented statistically lower radiopacity than the other tested cements (MTA B and MTA HP). However, it is worth noting that all three cements have radiopacity equal to or greater than enamel. The bioceramic endodontic cement Endosequence BC presented significantly lower radiopacity (3.84 mm Al) than AH Plus (6.90 mmAl).

Conclusion: The evaluated bioceramic cements showed an adequate degree of radiopacity. However, the radiopacity of BD cement was lower than that of MTA B and MTA HP, and similar to enamel radiopacity, which hinders its identification and distinction from other dental structures.

EVALUATION OF THE ROLE OF THE CCK SIGNALING PATHWAY IN CEMENTOBLAST DIFFERENTIATION

MARIA LUIZA ROCHA FERREIRA SATO; BRUNO CAZOTTI PEREIRA, CATHARINA MARQUES SACRAMENTO, ENILSON ANTONIO SALLUM, MABELLE DE FREITAS MONTEIRO, MÁRCIO ZAFFALON CASATI, RENATO CORRÊA VIANA CASARIN; KARINA GONZALES SILVÉRIO RUIZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Cholecystokinin (CCK), a neuropeptide that regulates physiological processes, also appears to be associated with bone metabolism, because after activation of CCKR receptors, there is an increase in intracellular calcium released by the endoplasmic reticulum. Thus, the aim was to assess if the CCK signaling pathway participates in the differentiation and maturation process of cementoblast cells; Also evaluating the viability of OCCM-30 cells, immortalized cementoblasts, after exposure to lorglumide and whether lorglumide reduces/blocks the production of mineralized matrix.

Method: Initially, the cell viability was assessed with exposure to Lorglumide at concentrations of 0.1µM; 0.5µM; 5µM and 10µM for periods of 1 and 5 days, using the MTT assay. The osteoblastic differentiation potential and mineralized matrix formation of the cells were analyzed using alizarin red staining (AR-S) after 7 days of induction.

Results: MTT assay results showed that cell viability remained stable after all concentrations for 1 day of contact with Lorglumide. OCCM cells exhibited higher metabolic capacity at concentrations of 0.1µM, 0.5µM, and 5µM of Lorglumide after 5 days of induction. To confirm the potential for cementoblast differentiation, OCCM-30 cells were cultured in OM and OM associated with Lorglumide at concentrations of 0.5µM and 5µM, which were the concentrations that did not reduce cell viability. After 7 days, the cells showed less mineral nodule deposition with Lorglumide.

Conclusion: After 7 days, it was possible to observe that Lorglumide reduced cementoblast differentiation of OCCM-30 cells at concentrations of 0.5µM and 5µM.

EVALUATION OF THE TOXICITY OF TOPICAL ANESTHETICS IN THE HET-CAM MODEL USING IMAGEJ SOFTWARE

ALLANA DOMINGUES FERRACIOLI; ARTHUR ANTUNES COSTA BEZERRA, GERSON BARRETO MOURÃO; MICHELLE FRANZ MONTAN BRAGA LEITE

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To determine the feasibility of obtaining a quantitative analysis of irritating effects in the HET-CAM model using software and to compare the toxicity of topical anesthetic formulations for dental use using this developed method.

Method: Commercial formulations (Benzotop®, Lidocaine®, EMLA®, and Labcaína®) and controls (positive – sodium hydroxide; negative – saline solution) were evaluated using protocol DB-ALM No. 96 - Hen's Egg Test on the Chorioallantoic Membrane (HET-CAM), from the European Centre for the Validation of Alternative Methods (ECVAM). Eight post-treatment images of the CAM were obtained for each test substance and subsequently processed using ImageJ, involving: 1) calibration; 2) selection of the area for analysis; 3) conversion of image format and analysis using the IsoPhotContour2 plug-in; and 4) measurement of the number of extravascular clots. An examiner performed visual clot counting on the same images. Simple linear regression analysis was conducted to compare the number of clots identified by the operator with the quantity measured by ImageJ. Generalized linear mixed models analysis was employed to compare the mean number of clots identified by ImageJ after treatments.

Results: The number of clots quantified by ImageJ was a good predictor of visually identified clots (coefficient of determination $R^2=0.81$). The positive control and EMLA® exhibited a higher number of clots compared to other formulations ($p<0.05$), indicating higher toxicity.

Conclusion: Image processing of CAM images by ImageJ enabled quantitative analysis of extravascular clots, facilitating better differentiation of the toxicity of the evaluated substances.

EXPLORING HOW TELEODONTOLOGY HAS BEEN USED BY DENTAL SURGEONS

MIGUEL CAIXETA RIBEIRO E CUNHA; BEATRIZ CRISTINA DE FREITAS; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To analyze how teledentistry has been used by dentists.

Method: A literature review was carried out in December 2023 in the Web of Science database over the last 10 years. The guiding research question was: How has teledentistry been used by dentists?

Results: The period of greatest publication on the topic corresponded to the years 2021-2023, with the majority of articles being published in 2022 ($n=94$; 23.15%). The main countries identified were the USA ($n=86$; 24.64%), Australia ($n=46$; 13.18%), Brazil ($n=32$; 9.16%). The use of teledentistry was increased by the COVID-19 pandemic, being used in preventive and educational actions to promote oral health, prescribing medications, monitoring treatments already started, improving access to dental care, especially for needy populations, such as rural communities, the elderly and people with limited mobility. Limitations and challenges in the use of teledentistry stand out in terms of access to technology and the internet, unfamiliarity with technological tools, protection of patient data, and professional resistance. Through teledentistry platforms, patients can access educational materials, track their progress, and communicate with their dental providers more easily, leading to greater engagement and better oral health outcomes.

Conclusion: Teledentistry has been used and researched in several countries; his practice has helped dentists through teleassistance, telemonitoring, and teleeducation.

EXPLORING THE EFFICACY OF CITRIC ACID IN DENTAL IMPLANT DECONTAMINATION: AN IN VITRO STUDY

JOÃO VITOR SUZANO TEIXEIRA; LUANY DE OLIVEIRA SALIN, BRUNA EGUMI NAGAY, SAMUEL SANTANA MALHEIROS, RICARDO ARMINI CALDAS, MARIA HELENA ROSSY BORGES, JAIRO MATOZINHO CORDEIRO; VALENTIM ADELINO RICARDO BARÃO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The present study aims to evaluate the citric acid (AC) potential, applied by means of friction and irrigation, to decontaminate a polymicrobial biofilm formed on dental implant surfaces.

Method: A polymicrobial biofilm was formed on dental implants and subsequently removed by 10% citric acid solution applied via friction with a cotton swab (friction) for 4 minutes and irrigation with an electric jet device (irrigation) for 2 minutes. The colony forming units (CFU) were quantified and the structural analysis of the biofilm was performed using scanning electron microscopy. The discs were rubbed and irrigated with 0.9% NaCl solution as control groups.

Results: Citric acid was efficient in reducing the CFU when compared to the control group (~4 logs). In addition, MEV images showed a decreased quantity of bacterial biofilm on the surface treated with AC solution when compared to the other groups (0,9% NaCl, non treated).

Conclusion: It is concluded that the best way to apply AC is by irrigation with an oral irrigator, as it completely removed the biofilm from the surfaces of the dental implants.

EXPRESSION OF ANTI-PORPHYROMONAS GINGIVALIS IMMUNOGLOBULIN G IN INDIVIDUALS WITH LEPROSY REACTIONS: A CASE-CONTROL STUDY

VINICIUS DA SILVA MORAIS; SORAYA CASTRO TRINDADE, JOHELLE SANTANA PASSOS-SOARES, FRANCIELE CELESTINO BRUNO PEREIRA, GISLENE REGINA BATISTA CARVALHO, PATRÍCIA MARES DE MIRANDA; MICHELLE MIRANDA LOPES FALCÃO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To analyze the serum levels of anti-Porphyromonas gingivalis Immunoglobulin G in individuals with and without leprosy reactions.

Method: This is an observational, analytical, case-control study that used the supernatant from peripheral blood mononuclear cells of individuals aged 18 and older, with or without leprosy reactions, who were under follow-up at the leprosy outpatient clinic of Professor Edgar Santos University Hospital. Indirect measurement by Enzyme-Linked Immunosorbent Assay was employed to evaluate the serum levels of Immunoglobulin G against antigens present in sonicated Porphyromonas gingivalis extract, recombinant HmuY protein, and K-gingipain 12 peptide. Descriptive and multivariate analyses were performed, with logistic regression to obtain the odds ratio, and a 95% confidence interval.

Results: The study included 202 individuals, with 106 cases and 96 controls. The highest mean optical density values for anti-Porphyromonas gingivalis and anti-HmuY Immunoglobulin G were observed in the case group, however, there were no statistically significant differences between the groups.

Conclusion: There was a trend of higher levels of anti-Porphyromonas gingivalis and anti-HmuY Immunoglobulin G in the group with leprosy reactions. Longitudinal studies are suggested to explore the biological plausibility between periodontitis and leprosy reactions.

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

NICOLE ALVES DA SILVA; GIULIA MARCHIORETO PAGOTTO, ANA LAURA VALENÇA BIZELI, AMANDA RAMOS MAZZARO, IARA GONÇALVES AQUINO, RICARDO DELLA COLETTA, DÉBORA CAMPANELLA BASTOS; EDGARD GRANER

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The enzyme fatty acid synthase (FASN) is important for cell survival, proliferation, and metastatic spread in several human cancers, including oral squamous cell carcinoma (OSCC). Despite autophagy, an intracellular catabolic process, has been suggested relevant in malignant neoplasms, its role in OSCC remains controversial. Here we investigate the influence of the FASN knockdown on autophagy-related gene expression in OSCC cells (SCC9 and SCC9 shFASN, genetically modified to inhibit FASN expression).

Method: Total RNA from SCC9 shFASN cells was extracted for analysis in a qRT-PCR array (Qiagen) containing primers associated with autophagy. Additionally, SCC9 in silico data of the same autophagy-related genes expression were extracted from a repository of biological data (DepMap). Based on these results, we created a Heatmap to compare the expression of this set of genes and selected those at the opposite extremes with recognized roles for the main autophagy pathway. Western blotting assays were also conducted to evaluate the expression of the autophagy marker LC3B.

Results: From the Heatmap, we selected 6 genes: ATG4A, ATG5, ATG9A, ATG10 and MAP1LC3B, upregulated in SCC9 shFASN cells and downregulated in SCC9, and SQSTM1, upregulated in SCC9 cells and downregulated in SCC9 shFASN. From these genes, specific primers were designed for validation qRT-PCR reactions with both lines. Additionally, western blotting assays showed higher LC3B expression in SCC9 shFASN compared to SCC9 cells.

Conclusion: Our findings suggest that FASN silencing impacts the autophagy pathway, since high expression of important autophagy markers were shown in SCC9 shFASN cells.

FIBROUS DYSPLASIA OF THE BONE: CURRENT CONCEPTS IN SURGICAL VIRTUAL PLANNING FOR CRANIOFACIAL LESIONS

MARÍLIA PINHEIRO DE CARVALHO; LEVI SAULO RODRIGUES DE JESUS, MARIA JÚLIA ASSIS VICENTIN CALORI; MÁRCIO DE MORAES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to collect data regarding the use of virtual surgical planning in treatment of fibrous dysplasia in the cranio-maxillo-facial region.

Method: A literature review of studies from the last 5 years was conducted in the PubMed database, including case reports of external surgical treatment, using virtual planning, of fibrous dysplasia in the cranio-maxillo-facial region, in the English language.

Results: 35 studies were found, with 5 articles that met the inclusion criteria for the review. A total of 9 patients, including 5 males and 4 females, were evaluated. The locations found included the cranium, frontal bone, paranasal sinuses, zygoma, maxilla and mandible. The CT was the sole imaging form used in all of the studies. The treatment modalities included surgical excision and reconstruction and recontouring and shaving. Types of accesses included bicoronal, hemicoronal and intraoral maxillary access.

Conclusion: The surgical treatment of fibrous dysplasia benefits from the use of cutting guides and stereolithographic models, allowing less complications and risks, and aiding in determining precise thickness and length of the lesions.

FORENSIC FACIAL RECONSTITUTION (TRADITIONAL AND DIGITAL): APPLICATIONS AND METHODOLOGICAL LIMITATIONS

LUANA BEATRIZ LINS DA SILVA; VANUEL ALBERTO SANCA, MÁRCIO ALBERTO DE LUCCA JÚNIOR, MÔNICA APARECIDA FRANCESQUINI, PAULO ALCARDE, JOÃO SARMENTO PEREIRA NETO, LUAN COUTO RAYMUNDO DA SILVA; LUIZ FRANCESQUINI JÚNIOR

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: which sought to identify the anthropological profile and reconstruct the face of two bones from the FOP/UNICAMP Biobank, using the manual method (American technique and Russian technique) and digitally.

Method: This is an observational, cross-sectional and analytical study, approved by CEP/FOP/UNICAMP. CAEE 77121224.7.0000.5418, After bibliographical surveys, theoretical classes on photographs, human identification, and skull molding and facial reconstruction practices, the anthropological profile was identified, the molding was carried out and the reconstruction of the two sides of the bones began.

Results: It was possible to estimate that one bone is male, black, approximately 20-30 years old and approximately 1.70 m tall + or - 5 cm tall. The other bone is female, brown, aged between 40 and 50 years old, and approximately 1.60m tall + or - 5cm. The molding began with molding material (blue silicone rubber) and once it was verified that the models obtained maintained the real dimensions compared to the original skulls, the reconstruction began using the American technique and the Russian reconstruction technique with putty modeling material (plasticine).

Conclusion: It has been concluded so far that both techniques are viable, but there are different degrees of difficulty, as well as different execution times. The facial reconstruction of the skulls/jaws obtained, using manual techniques (with plasticine or clay) and/or digital, allows/enables family members to partially recognize their loved ones, facilitating the search for dental documentation and/or genetic material for their positive identification through dental and/or DNA examination.

FROM PROTOCOL TO CLINICAL PRACTICE: QUALITATIVE STUDY OF MEANINGS OF THE WORDS "SPECIAL PATIENT" TO THE DENTIST

NORMA SUELI GONÇALVES RECHE; LUCIANE MIRANDA GUERRA, JAQUELINE VILELA BULGARELI, BRUNNA VERNA CASTRO GONDINHO, JÚLIA VITÓRIO OCTAVIANI; RODRIGO ALMEIDA BASTOS

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this study was to explore the perception of dentists about patients who need special care in a primary health care service.

Method: This study was designed using the Clinical-Qualitative Method and was carried out in a municipality in the southeastern region of Brazil. The dentists were interviewed individually and in depth by an interviewer, a dental surgeon, previously acculturated to the research environment.

Results: After analysis, two categories were consolidated: 'detachment of the concept of Person with Special Needs (PSN) between the instituted protocol and clinical practice' and 'between professional supports and demands in attending the PSN'. The dentists' perceptions revealed diverse and sometimes antagonistic emotions experienced by these professionals in their daily work.

Conclusion: Knowing and identifying these feelings can optimize clinical decision-making and patient transit through the health service network.

GENETIC VARIANTS IN AXIN2 PREDICT THE RISK OF NON-SYNDROMIC CLEFT LIP WITH OR WITHOUT CLEFT PALATE AND TOOTH AGENESIS

SARA GARCIA AZEVEDO; RENATO ASSIS MACHADO; RICARDO DELLA COLETTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to investigate the association between common genetic variants in AXIN2 and the risk of non-syndromic cleft lip with or without cleft palate (NSCL±P) and tooth agenesis.

Method: Six single nucleotide polymorphisms in AXIN2 (rs7591, rs7210356, rs4791171, rs11079571, rs3923087, and rs2240308) were examined in 312 samples. These samples included patients with NSCL±P and tooth agenesis outside the cleft area, patients with NSCL±P without tooth agenesis, patients with tooth agenesis only, and healthy patients without orofacial cleft and tooth agenesis. Genotyping was conducted using the TaqMan® system from Applied Biosystems, USA, and association tests were performed, accounting for differences in genomic ancestry.

Results: The rs11079571 GA genotype was associated with an increased risk of NSCL±P, both with (OR: 7.31, 95% CI: 1.53-34.90, $p=0.003$) and without tooth agenesis (OR: 4.41, 95% CI: 1.61-12.08, $p=0.002$). Conversely, the presence of the rs4791171 G allele demonstrated a protective effect against NSCL±P, regardless the presence of tooth agenesis (OR: 0.27, 95% CI: 0.17-0.42, $p=0.0001$ in the presence of tooth agenesis, and OR: 0.22, 95% CI: 0.14-0.34, $p=0.0001$ in the absence of tooth agenesis). No significant associations were found for rs7591, rs7210356, rs3923087, and rs2240308.

Conclusion: Our study suggests that genetic polymorphisms in AXIN2 are associated with susceptibility of NSCL±P and tooth agenesis, warranting further investigation into underlying mechanisms for potential future interventions.

GLUCANASES DEGRADE EXOPOLYSACCHARIDES AND SENSITIZE POLYMICROBIAL BIOFILM TO ANTIBIOTIC TREATMENT

MATEUS XAVIER; DARIA ZAYTSEVA-ZOTOVA, ANELYSE ABREU CORTEZ, VANESSA DE OLIVEIRA ARNOLDI PELLEGRINI, HANNA TIAINEN, IGOR POLIKARPOV, ANTÔNIO PEDRO RICOMINI-FILHO; FERNANDA CRISTINA PETERSEN
UNIVERSITY OF OSLO

Aim: Exopolysaccharides (EPS) contribute to the pathogenicity of oral biofilm by providing protection against antimicrobials. Therefore, we evaluated the in vitro effect of glucanohydrolases on EPS degradation and sensitization of polymicrobial biofilm to ciprofloxacin.

Method: Using an in vitro model capable of recovering 60-80% of the microbial diversity present in the salivary inoculum, biofilms ($n=3$) were cultivated on titanium discs in SHI medium containing 0.01 M sucrose or glucose + fructose for 24 h under anaerobic conditions at 37°C. Then, the biofilms grew in a 3-day cycle: 8 h exposure to SHI medium containing 0.03 M sucrose (EPS+) or glucose + fructose (EPS-); and 16 h in SHI medium containing 0.01 M glucose + 0.125 mg/ml mutanase and dextranase (EPS+→MD) or not. The media were supplemented with ciprofloxacin at 8.0, 2.5, 0.125, or 0 µg/ml. The biofilms were collected by sonication to evaluate colony-forming units (CFU) and quantification of proteins and EPS. Data were evaluated by two-way ANOVA and Tukey ($\alpha=5\%$), considering type of biofilm and ciprofloxacin treatment as factors. Additional biofilms ($n=2$) were formed for analysis of structure by CLSM and SEM.

Results: The EPS+ biofilm presented more EPS, as well as an increase in CFU against ciprofloxacin. Conversely, the EPS+→MD biofilm presented less EPS, as well as a reduction in CFU against ciprofloxacin, behaving similarly to the EPS- biofilm.

Conclusion: Thus, glucanohydrolases were capable of degrading exopolysaccharides leading to the sensitization of polymicrobial biofilm to ciprofloxacin.

GREEN PROPOLIS EXTRACT AS A DISINFECTION AGENT: ELECTROCHEMICAL EVALUATION OF ITS IMPACT ON CO-CR INFRASTRUCTURES OF REMOVABLE PARTIAL DENTURES

THAIS TERUMI SADAMITSU TAKEDA; MARIA HELENA ROSSY BORGES, RAPHAEL CAVALCANTE COSTA, BIANCA MORAIS AMARAL CAMPOS, ISADORA FRANÇA VIEIRA DA SILVA, CLÁUDIA LOPES BRILHANTE BHERING, AMÁLIA MORENO; VALENTIM ADELINO RICARDO BARÃO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The Brazilian green propolis extract shows promise as an antimicrobial agent for disinfecting the Co-Cr infrastructures of removable partial dentures. However, its effects on the metallic structures of prosthetic materials are still unclear. This in vitro study aims to assess the corrosion stability of such infrastructures when exposed to various solutions, including different concentrations of green propolis extract, through electrochemical analyses.

Method: For this, Co-Cr discs were fabricated and randomly divided into groups: control (sodium chloride), 2% chlorhexidine (CHX), Corega Tabs (CG), Daro Anti-Microbial Agent solution (AA), green propolis extract solutions (11% aqueous (PA11%), 11% glycolic (PG11%), 16% (PG16%), and 20% (PG20%)), each subjected to a 15-minute immersion period. Electrochemical behavior was assessed using a potentiostat, including open circuit potential, electrochemical impedance spectroscopy, and cyclic polarization tests. After the corrosion test, the surface morphology and topography were evaluated by Scanning Electron Microscopy (SEM) and Confocal Laser Scanning Microscopy (CLSM).

Results: Regarding electrochemical performance, the 16% and 20% glycolic propolis groups exhibited superior behavior and higher resistance to corrosion compared to other groups. Additionally, the 16% glycolic propolis group showed a lower corrosion rate than the other groups. After corrosion analysis, all groups evidenced unique morphological and topographic changes.

Conclusion: Therefore, glycolic propolis solutions demonstrated greater electrochemical stability, suggesting they do not induce corrosion in metal infrastructures, and positioning them as a safe alternative for chemically disinfecting these devices.

HEAT-SHOCK PROTEIN 47 CONTRIBUTES TO AGGRESSIVENESS AND POOR PROGNOSIS OF ORAL SQUAMOUS CELL CARCINOMA

BRUNO CESAR DA COSTA; EVERTON FREITAS DE MORAES, LUANA MARÍ PANINI, LILIANNY QUERINO ROCHA DE OLIVEIRA, FÁBIO HAACH TEO, RENATO ASSIS MACHADO; RICARDO DELLA COLETTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Oral squamous cell carcinoma (OSCC) poses an important public health problem due to its rising incidence and mortality rates, and the lack of prognostic markers. This study explored the prognostic impact of heat-shock protein 47 (HSP47), a multifunctional protein initially implicated in collagen synthesis, in OSCC and determined the in vitro effects of its loss-of-function on proliferation, migration, and invasion of OSCC cells.

Method: The HSP47 expression in tumor samples was assessed by immunohistochemistry in two independent cohorts totaling 339 patients with OSCC, and protein levels were associated with clinicopathological features and survival outcomes. The OSCC cell lines HSC3 and SCC9 were transduced with lentivirus expressing short hairpin RNA to stably silence HSP47 and used in assays to measure cellular proliferation, migration, and invasion.

Results: Our results demonstrated that HSP47 was overexpressed in OSCC samples, and its overexpression was significantly and independently associated with poor disease-specific survival and shortened disease-free survival in both OSCC cohorts. The knockdown of HSP47 impaired significantly proliferation, migration, and invasion of OSCC cells, with stronger effects on SCC9 cells.

Conclusion: This study underscores the significance of HSP47 as a prognostic marker for OSCC, with increased expression exercising control over proliferation, migration, and invasion of OSCC cells.

HETEROCONTROL OF FLUORIDATION OF WATER SUPPLY IN LIMEIRA-SP

GIOVANNA RODRIGUES; BÁRBARA ASSUNÇÃO; CINTHIA PEREIRA MACHADO TABCHOURY
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Fluoride, an important and widely acknowledged anti-caries agent, is added to the public water supply at appropriate concentrations in all cities equipped with Water Treatment Stations (WTS), as mandated by Brazilian legislation, ensuring universal access to this ion. To optimize the anti-caries benefit and minimize the risk of fluorosis, the concentration should ideally be within the range of 0.55 and 0.84 ppm F. To monitor and ensure compliance with these concentrations, heterocontrol can be carried out, which was the aim of this study conducted in Limeira-SP.

Method: Samples were collected from 5 different sites, strategically selected and numbered from 1 to 5. Site 1 represented an artesian well not supplied by WTS, while the other four sites were sourced from water supplied by the responsible company, sampled monthly, for two consecutive months. These samples were analyzed in duplicate using an ion-specific electrode for fluoride, calibrated with standards ranging from 0.125 to 8 µg F/mL; the data was recorded in Excel spreadsheet.

Results: The results indicated that at the artesian well site, both the anti-caries benefit and the risk for fluorosis were insignificant, with an average of 0.17 ppm F. On the other hand, at the other sites, the risk for fluorosis was minimal and the anti-caries benefit was maximum. Specifically, sites 2, 3 and 5 showed an average fluoride concentration of 0.79 ppm F, while site 4 registered 0.77 ppm F.

Conclusion: Therefore, we can conclude that the fluoride levels of water public supply in the city of Limeira presents maximum anti-caries benefit and minimum risk for fluorosis.

HETEROCONTROL OF WATER FLUORIDATION IN PIRACICABA AND ITS RISKS AND BENEFITS FOR CARIES AND DENTAL FLUOROSIS

MARIA EDUARDA FERREIRA DOS SANTOS; BÁRBARA ASSUNÇÃO; CÍNTIA TABCHOURY
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Heterocontrol of water fluoridation is a crucial measure to ensure the efficiency of this public health initiative for the prevention of caries disease. A new classification for the concentration of fluoride (F) in water the supply, based on the anticaries benefit and risk of fluorosis (CECOL/USP, 2011), establishes that the F concentration from 0.55 to 0.84 µg F/mL would provide maximum anticaries benefit with a low risk of fluorosis. Therefore, the present study aimed to analyze the F levels in the water supply of the city of Piracicaba, SP.

Method: Monthly samples were collected over February, March and April 2024 from specified locations. As the city has two water treatment plants (WTP), samples were collected from a total of 8 sites, spread across 4 neighborhoods, two near and two distant from the WTPs. The samples were analyzed in duplicate, using an ion-specific electrode, calibrated with standards ranging from 0.0125 to 8 µg F/mL and the data were recorded in an Excel spreadsheet.

Results: The three-month average F concentration at each site were: 1: 0.70; 2: 0.68; 3: 0.69; 4: 0.69; 5: 0.69; 6: 0.69; 7: 0.71 and 8: 0.71 µg F/mL.

Conclusion: Based on the new classification of water F concentrations, the quality of water fluoridation in Piracicaba is adequate and is within the range of the best balance between fluorosis risk and caries benefit.

HHIGHLY-POSITIVE LOADING OF TITANIUM SURFACES: EFFECT OF DIFFERENT SILANE CONCENTRATIONS ON MICROBIOLOGICAL PROPERTIES

MARIANA MIRESKI; JOÃO PEDRO DOS SANTOS SILVA, DANIELA BUENOS AYRES DE CASTRO; VALENTIM ADELINO RICARDO BARÃO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Accumulations of biofilm and the occurrence of peri-implant infections can affect rehabilitation with biomedical implants. Thus, surface treatments have emerged intending to control this problem. In this sense, this study aimed to develop a cationic coating using two steps: 1- plasma electrolytic oxidation (PEO) to form OH and 2- silanization with different concentrations of aminopropyl-triethoxysilane (APTES), which bonds to alkalized surfaces.

Method: A total of 5 groups (untreated Ti, PEO, PEO + 0.3 g/mL APTES, PEO + 0.6 g/mL APTES, and PEO + 0.9 g/mL APTES) were evaluated concerning surface characterization and microbiological assay.

Results: Micrographs showed different morphology in the groups after PEO treatment, with the appearance of highly porous surfaces, which allowed higher roughness values to be obtained. Silanization with APTES changed the wettability to hydrophobic (PEO + 0.3 g/mL and 0.6 g/mL APTES) and superhydrophobic (PEO + 0.9 g/mL APTES), and the elements found by X-ray photoelectron spectroscopy suggested an increase in protons. Finally, microbiological assays were carried out on monospecies biofilm models in terms of adhesion and biofilm formation (1h and 24h) on strains of *Escherichia coli* and *Staphylococcus aureus*, which had an antimicrobial effect at both times ($p < 0.0001$).

Conclusion: As such, the treatments obtained offered unique advantages for biomedical implants, with improved topography, physicochemical and antimicrobial properties, all of which are important for controlling peri-implant diseases.

HIGH CONSUMPTION OF AN ADDED SUGAR INCREASES INFLAMMATION AND ALVEOLAR BONE LOSS IN RAT LIGATURE-INDUCED PERIODONTITIS

EDUARDO BANDEIRA SOUSA SILVA; HELOIZA V. F. DE MELO, CAROLINE DA C. CÔRREA, REBECA B. MENDONÇA, FLÁVIA C. B. VIDAL, EMMANUEL J. N. L. SILVA, CECÍLIA C. C. RIBEIRO; LUCIANA SALLES BRANCO-DE-ALMEIDA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the influence of an added sugar consumption (corn syrup) on the rat ligature-induced periodontitis model.

Method: Wistar rats were divided into three groups: (1) Control: water consumption, without periodontitis; (2) Ligature: water consumption, with periodontitis; and (3) Ligature+added sugar (AS): consumption of corn syrup and periodontitis. Drinking water or AS (30%) were administered ad libitum for 30 days in a drinking fountain, for 15 days before periodontitis induction and then for another 15 days. The Ligature+AS group also received oral gavage with the AS (1g/kg) for the last 15 days. Hemimandibles were used for alveolar bone evaluations using morphometric and microcomputed tomography analyses. Gingival IL-1 β , MMP-9, and iNOS expressions were determined using RT-qPCR. Plasma total protein and nitric oxide levels were determined using the Bradford or Griess methods.

Results: The ligature+AS group had a lower feed and higher drink consumption than the other groups ($P < 0.05$). It also showed greater alveolar bone resorption in the mesial region of the first molar. Micro-CT analyses revealed that ligature+HFCS group had higher bone volume/bone surface ratio and lower trabecular thickness than the other groups. IL-1 β and iNOS expressions were higher in the ligature+HFCS group. No differences among groups were observed for plasma parameters

Conclusion: In conclusion, added sugar consumption led to increased alveolar bone resorption and negatively influenced local (but not systemic) inflammation parameters in the rat ligature-induced periodontitis model.

HOSPITAL DENTISTRY: ACHIEVEMENT FOR BRAZILIAN DENTISTRY

MANUELLA VITORIA DE FREITAS; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Provide education on Hospital Dentistry as a Dental Specialty and the standardization of Resolution CFO-262, dated 01/25/2024.

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

Results: Hospital Dentistry comprises a set of preventive, diagnostic and therapeutic actions for orofacial diseases and oral manifestations of patients in hospital environments, whether hospitalized or not, or in home care, in the context of multidisciplinary team work. Hospital dentistry gained a significant space in the health of the entire population and made a huge contribution to the fight against COVID, once again putting Dental Surgeons (DC) and Dentistry in the spotlight. Understanding the importance for patients in the Intensive Care Unit - ICU, the dental council joined forces to transform the specialty into reality, standardizing it in January 2024. According to studies, the work of the DC in ICUs reduces by up to 60% the chances of developing respiratory infections in hospitalized

patients. In practice, the insertion of the DC in the ICU brought a series of benefits to the health of patients. The main protocols of a DC within an ICU are Oral Hygiene and Laser Therapy. DCs who have a qualification in Hospital Dentistry will automatically become specialists.

Conclusion: This new specialty meets the quality of life of patients, who are aware of how important it is to maintain adequate oral health conditions, especially in hospitalized patients.

HYPOMINERALIZED SECOND PRIMARY MOLARS REHABILITATION: A TWELVE MONTHS FOLLOW-UP CASE REPORT

PATRÍCIA VITOR DE SOUZA; LEONARDO BORTOLOSO FAVA, SAMUELL CASSIO GALDINO RODRIGUES, LETICIA MARTINS PEREIRA, WILIAN SEGATTO ZANELLI, ULYSSES DE TOLEDO MONTEIRO, REGINA MARIA PUPPIN RONTANI; CAROLINA STEINER OLIVEIRA ALARCON
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Hypomineralized Second Primary Molars (HSPM) have a qualitative defect in the enamel, which alters the mechanical properties of this tissue and makes the rehabilitation of patients with this diagnosis challenging. This case report described the effectiveness of second molars rehabilitation with indirect resin restoration obtained by 3D printing, presenting twelve months of follow-up.

Method: A six-year-old patient, treated at the children's dentistry clinic at the Faculdade Odontologia de Piracicaba UNICAMP, diagnosed with HSPM, presented post-eruptive breakage and caries in all second primary molars. Direct restoration was performed with composite resin in lower left second primary molar. Indirect overlay restorations of the upper second deciduous molars and the lower right second primary molar were obtained by scanning the plaster model and planned by digital workflow. The restorations were printed with resin with the addition of ceramic filler and cemented with resin cement. After treatment, the patient was followed-up for 12 months to maintain these restorations.

Results: At six months, direct restoration failure was observed, requiring adjustment. At 12 months, an experienced pediatric dentist examined these restorations using the modified USPSH, observing an ideal clinical situation for the criteria of marginal discoloration, marginal integrity, surface texture, wear, postoperative sensitivity, and recurrent caries in all dental elements.

Conclusion: Therefore, indirect resin restorations, obtained by 3D printing, proved to be more effective for the rehabilitation of HSPM during twelve months of follow-up.

IMPACT OF HEATING ON MECHANICAL PROPERTIES OF 3D PRINTED PROVISIONAL CROWNS

MARINA DE MORAES NOBRE; MAY ANNY FRAGA, NATHALIA FINCK, RAFAEL MORAES, JOAO MARCOS NASCIMENTO BATISTA, MARIO SINHORETI, MARINA ANGÉLICA MARCIANO; AMÉRICO BORTOLAZZO CORRER
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated the effect of heating during the 3D printing process of resins for provisional crowns on fracture toughness and microhardness.

Method: Two types of resin (PrintaX Temp and ResiLab 3D temp) were printed using the Anycubic Photon Mono X printer with a custom accessory employed to heat the material between 45°C and 50 °C during printing. After printing, specimens were post-cured in a curing chamber for 20 minutes (Crealty 3D UW-02). Fracture toughness was evaluated after 24 hours using the single-edge notch method (ASTM E399-90). Knoop microhardness analysis was performed using a static load of 50 gF for 10 seconds. Data were analyzed using two- way ANOVA and Tukey post-hoc test ($\alpha=0.05$).

Results: Results indicate a significant interaction between resin type and heating for microhardness ($p=0.0001$). Heating improved surface microhardness for both resin types, with ResiLab 3D exhibiting higher microhardness. Heating significantly enhanced fracture toughness for the Printa X group but had no effect on ResiLab 3D. With heating, the performance of Printa X was statistically comparable to ResiLab 3D in terms of fracture toughness.

Conclusion: In conclusion, the heating during the 3D printing process positively impacts mechanical properties of resin for provisional crowns.

IMPACT OF THE COVID-19 PANDEMIC ON PSYCHOLOGICAL ASPECTS AND BRUXISM IN UNIVERSITY STUDENTS

LIGIA MARQUES DE OLIVEIRA DA SILVA; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To discuss the impact of the COVID-19 pandemic on psychological aspects and its relationship with bruxism in university students.

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

Results: Bruxism, marked by the repetitive habit of grinding teeth, may become more common (or more intense) as a result of the COVID-19 pandemic. Research and experts indicate that stress is behind the association. Bruxism is considered a multifactorial and complex pathology that affects adults and children. The causes of bruxism are related to emotional factors, such as anxiety and stress; in addition to physical factors, such as dental occlusion and misalignment of the teeth, which, naturally, move in search of their place of origin. Presence of various bruxism symptoms at high frequency in university students during the pandemic era, such as clenching and grinding of teeth, and emotional symptoms, such as fatigue and muscle pain, headache, neck, shoulder and facial pain.

Conclusion: According to the literature, the COVID-19 pandemic has brought to light the importance of understanding and addressing bruxism as a manifestation of the psychological effects of this challenging period. The interaction between bruxism, stress, anxiety and temporomandibular disorders highlights the need for holistic interventions that consider both the oral and mental health of university students. Promoting emotional well-being and implementing preventative strategies are essential to mitigate the negative impacts of bruxism and its triggers during public health crises such as the COVID-19 pandemic.

IMPACT OF THE USE OF SMARTPHONE ON THE LIVES OF ADOLESCENTS

LAVINIA GRISOTTO RIBEIRO; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To discuss the impact of cell smartphone use on the lives of adolescents.

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

Results: 1830 articles were selected, and after the criteria, 8 articles remained. The use of smartphone has become a globally popular social communication phenomenon. It is well established that excessive smartphone use has been linked to a variety of health and developmental problems in adolescents. Excessive use can compromise daily routines and habits, which are associated with sleep disorders, stress, anxiety, and pain; therefore, adolescents stand out, as they have a lifestyle in which it is necessary to reconcile daily activities with curricular activities, aggravating psychosocial factors. In Brazil, it was found, in the Continuous National Household Sample Survey at the end of 2022, that the proportion of people aged 10 or over who used the Internet in the country increased from 84.7% in 2021 to 87.2% in 2022. Dependence on smartphone use in adolescents is a growing public health problem, which is closely linked to technological development and can compromise their health.

Conclusion: It is necessary to teach adolescents that the possibility of accessing information via smartphone wherever and whenever they want does not mean that they should do this all the time. Work with adolescents is necessary so that the conscious use of technology can create the basis for a more collaborative, intelligent and creative society.

IMPLANT REHABILITATION, PERI-IMPLANT AESTHETIC RESTORATION AFTER DENTAL TRAUMA IN ANTERIOR MAXILLARY REGION: CASE REPORT

MATHEUS PASCHOALETTO LOPES; FELIPE THIBES GALVÃO, THAYANE CERQUIARE BUSINARI CERÂNTOLA, LETICIA SANDOLI ARROTEIA, RAISSA MICAELLA MARCELLO MACHADO, RENATO CÔRREA VIANA CASARIN; MARCIO ZAFFALON CASATI

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dental trauma is an frequently occurrence in dental clinical practice. Its extremely important know how to manage this cases in order to maintenance this tooth in oral cavity. When its not possible, dental implants can be an effective and durable solution. However, some appointments about the surgical area must be considered, these include bone disponibility, quality of gingival tissue, implant positioning and size. In this context, discussions about reverse planning has been increasing in challenging cases.

Method: Patient male, 43 years, came to Periodontics Area of Piracicaba Dental School, reporting previously dental trauma in elements 11 and 21. Teeth has previous endodontic treatment, bone loss and mobility level 2. So it was performed minimally traumatic exodontia and after socket healing, dental implants were installed. After osseointegration, implant healing and prosthodontic phase started.

Results:

Conclusion: In conclusion this case report shows that an interdisciplinary plan should be performed to reestablish the aesthetic aspects of peri-implants, and with the correct diagnosis a guided bone and tissue regeneration surgery can establish a better esthetics outcome.

IN SILICO PREDICTION OF AMYLOID-FORMING PROTEINS OF STREPTOCOCCUS SANGUINIS

FELIPE ROMANO PIRES LOPES; EDUARDO MARTINELLI FRANCO, LÍVIA ARAÚJO ALVES; RENATA DE OLIVEIRA MATTOS-GRANER

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Streptococcus sanguinis is a primary colonizer of teeth, which is commonly involved in opportunistic cardiovascular infections. A particular trait of this species is the large number of genes encoding putative cell wall-anchored proteins (n=33). Bacterial cell wall proteins are often self-assembled into surface-associated amyloid fibrils for biofilm formation and immune evasion. The aim of this study was to predict the potential of amyloid formation by the putative cell wall-anchored proteins of S. sanguinis using bioinformatic analyses.

Method: Briefly, the amino acid sequences of the 33 predicted proteins were retrieved (as FASTA format) from the genome of strain SK36 available at the GenBank. The FASTA sequences were then tested using five amyloid-predictive models, AMYPred-FRL, iAMY-SCM, AGGRESCAN, PASTA 2.0 and FoldAmyloid. A total of ten proteins showed high scores for amyloid formation, based on two or more models.

Results: These include proteins annotated as immunoglobulin-like protein (SSA_0805), fimbrial protein sub-units (SSA_1631, SSA_1632, SSA_1633), hypothetical proteins (SSA_0167; SSA_1065), fibrillar adhesion protein (SSA_0904), C69 family dipeptidase (SSA_1591) and the sortase A and C enzymes (SSA_1219; SSA_1631).

Conclusion: These results indicate that *S. sanguinis* expresses multiple proteins with significant potential to form amyloid fibrils and thus, to contribute to systemic virulence and biofilm formation. Supported by FAPESP (proc. 2021/13074-9) and CNPq (proc. 303896/2022-1).

IN VITRO EVALUATION OF CELL VIABILITY AND ADHESION OF DIFFERENT ENDODONTIC FILLING MATERIALS

ANNA CAROLINA NEVES LEUTZ; VICTOR AUGUSTO BENEDICTO DOS SANTOS, ANA CRISTINA PADILHA JANINI, AMANDA NOWICKI DE SALLES, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, ADRIANA DE JESUS SOARES, TALITA TARTARI; MARINA ANGÉLICA MARCIANO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This in vitro study assessed cell viability and adhesion associated with calcium silicate-based sealers: BioRoot Flow and AHPlusBioceramic (premixed), MTApeX and BioRootRCS (powder/liquid), compared to the epoxy resin-based AHPlus Jet.

Method: The sealers were prepared in accordance with ISO 10993-5. Cell viability (MTT test) was evaluated using fibroblasts (NIH/3T3) (5x10³ cells/well) after 24h, 48h, and 72h of treatment with the eluents. Absorbance was measured using a spectrophotometer at a wavelength of 540 nm, and cell viability was calculated as a percentage relative to the control group. Cellular adhesion (n=5) was assessed using the direct contact technique. Surface analyses and chemical characterization were performed using SEM/EDS, revealing the presence of calcium, silicate, and their respective radiopacifiers.

Results: The results of the factorial ANOVA on the viability test did not demonstrate a significant effect for the times but showed significant effects for the sealers (p<0.001) and the interaction between the variables. BioRootRCS exhibited the highest viability across times and groups, while MTApeX demonstrated the lowest. Cell adhesion results supported those obtained in the viability assay.

Conclusion: It can be concluded that BioRootRCS demonstrates superior cell viability and adhesion compared to other tested sealers.

INCIDENCE OF CRANIOFACIAL CONGENITAL ANOMALIES AT A BRAZILIAN REFERENCE CENTER PRÓ SORRISO CENTER: DATA UPDATE

CINTIA ELIZA MARQUES; DANIELLA REIS BARBOSA MARTELLI FABRÍCIO EMANUEL S. DE OLIVEIRA KÉLISSON DUARTE REIS LETÍZIA MONTEIRO DE BARROS SAMUEL TREZENA; HERCÍLIO MARTELLI JÚNIOR
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study analyzed the incidence of congenital anomalies (CA) in patients treated at a Reference Center for craniofacial deformities, updating the data from a previous study.

Method: The necessary information for conducting the study was collected from the anamnesis section records and recorded in a predetermined table, with data collected from between 2009 and 2022.

Results: A grand total of 817 individuals with CA were included in the study, the majority being male. Cleft lip and/or palate (CL/P) were the most common CA, with 710 cases found, with cleft lip and palate (CLP) being the most prevalent subtype. Identified 131 cases of unique or multiple CA without CL/P, with the most frequent being ear, ocular, and musculoskeletal anomalies. They observed 23 cases of syndromes or sequences without CL/P, highlighting Goldenhar syndrome, Treacher Collins, and Ectodermal Dysplasia. Additionally, 46 patients with FL/P associated with syndromes were identified. Palatal cleft (PC) was the FL/P most frequently associated with syndromes, with the most prevalent syndromes associated with FL/P being Pierre Robin sequence and Van der Woude syndrome. Of the 113 cases collected with CA associated with FL/P, the most common were those of the cardiovascular system, musculoskeletal system, and uvula. PC was the FL/P most associated with congenital malformations.

Conclusion: In general, it was noted that the most common congenital anomalies were FL/P, especially PC, which showed the highest incidence of associations with congenital malformations and syndromes or sequences. It is essential to conduct further studies to improve understanding of CA and their associations.

INCLUSION OF PEOPLE WITH DISABILITIES IN THE CONTEXT OF HEALTH AND RESCUING CITIZENSHIP

GABRIELLA MACEDO DE MOURA; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To describe an extension project with people with disabilities (PwD) in the context of reclaiming citizenship, social inclusion, and knowledge of preventive measures and healthy oral hygiene habits.

Method: This is an experience report of an extension project at the Piracicaba Dental School - UNICAMP, developed by the partnership between UNICAMP and the Military Police.

Results: In November 2023, the project "BOP - Barracks Open to the Public 2023" included the participation of undergraduate and high school students, in actions developed by the Military Police at the Piracicaba Aviation Base, and partners. UNICAMP has been a partner since the first BOP in 2010. Around a thousand people participated in this 2023 action, including PwD from Social Institutions in Piracicaba and companions. The program consisted of musical presentations, Civil Guard Kennel, the arrival of Santa Claus in the Fire Department truck, the presentation of the aerial show with acrobatics, etc. UNICAMP developed the activities: theater, clinical table and poster presentation. The theater about health promotion was a way to raise awareness about health care. The clinical table allowed people to see, feel and hear information about preventive measures and healthy oral hygiene habits.

Conclusion: The extension project was successful, as it creates integration between the university and the PwD community. Social inclusion brings with it the equalization of opportunities, the mutual interaction of people with and without disabilities and full access to society's resources. Therefore, fighting for social inclusion must be the responsibility of each and everyone.

INEQUALITY IN ORAL HEALTH: IMPACT OF PERIODONTAL DISEASE IN THE ELDERLY

RAYANE CAMARGO DA SILVA; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To discuss inequality in oral health, addressing the impact of periodontal disease in the elderly.

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

Results: Oral health is a fundamental component of an individual's general well-being, directly influencing their quality of life and their ability to eat, speak and interact socially. Oral health inequality is a complex and multifaceted phenomenon that affects millions of people around the world, with particular impacts on the elderly. Many elderly do not receive the preventative dental care needed to maintain good oral health and prevent the spread of periodontal disease. Elderly often have higher levels of gingival inflammation, gingival retraction and bone loss compared to other age groups, increasing their vulnerability to periodontal disease due to decreased saliva production, the use of medications that cause dry mouth, the presence of chronic medical conditions such as diabetes and cardiovascular disease, the physical inability to perform adequate oral hygiene. In addition to individual factors, inequality in the oral health of older people is also influenced by broader social and economic determinants. For example, elderly living in poverty or social isolation may face additional difficulties accessing dental care, increasing their risk of developing untreated periodontal disease.

Conclusion: The complexity of factors that influence inequality in oral health, such as lack of access to quality dental care, especially among the elderly; it is crucial to recognize that there is a need for actions and resources aimed at tackling this problem.

INFLUENCE OF A PORTABLE X-RAY DEVICE IN THE DIAGNOSIS OF PROXIMAL CARIES LESIONS

DÉBORA COSTA RUIZ; ROCHARLES CAVALCANTE FONTENELE, AMANDA FARIAS GOMES, MATHEUS LIMA DE OLIVEIRA, FRANCISCO HAITER NETO; DEBORAH QUEIROZ FREITAS
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the influence of a portable X-ray device in the diagnosis of proximal caries lesions.

Method: Radiographs of 20 phantoms composed by teeth with characteristics suggestive of proximal caries lesions were acquired using the Eagle X-ray portable device (Alliage, São Paulo, Brazil) set at 60 kVp, 2.5 mA and an exposure time of 0.5 s. Then, new radiographs of the phantoms were acquired using the Focus X-ray wall-mounted device (Instrumentarium, Tuusula, Finland) set at 7 mA, 70 kVp, and exposure time of 0.16 s. Area under the receiver operating characteristic curve (AUC), sensitivity, and specificity were calculated and compared between the devices tested by Student's t test. Significance level was set at 5% ($p < 0.05$). The weighted Kappa test evaluated the intra- and inter-examiner agreements for caries lesions diagnosis.

Results: The use of a portable X-ray device did not influence on AUC, sensitivity and specificity metrics for the diagnosis of caries lesions ($p > 0.05$). The intra- and inter-examiner agreements for the caries lesions diagnosis ranged from substantial to almost perfect (0.646 – 0.859) and moderate to substantial (0.491 – 0.617), respectively.

Conclusion: The diagnostic accuracy for proximal caries lesions detection is not impaired by the use of a portable X-ray device.

INFLUENCE OF ANALGESIA EXPECTANCY ON CONDITIONED PAIN MODULATION

LARISSA FUCHS BARRETO; ALLEN MATHEUS DA SILVA NASCIMENTO, SORAYA SALMANZADEH ARDESTANI, ISABELA COELHO NOVAES; YURI MARTINS COSTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to measure the effect of the expectation of analgesia through verbal suggestion on the magnitude of conditioned pain modulation in healthy individuals.

Method: The magnitude of conditioned pain modulation was estimated in 42 individuals in two sessions using two test stimuli, the 4Kg Palpeter and the pressure pain threshold. The test stimuli were applied before and together with the conditioning stimulus - immersion of the non-dominant hand in a bucket of ice water - to the anterior temporal and tenar muscles on the dominant side. In the baseline session, the subjects received no suggestions about expectations and in the second session they were verbally suggested that the conditioning stimulus would reduce the pain of the test stimulus. The standard error of measurement of the baseline session was used to determine the responsive and non-responsive individuals to the conditioned pain modulation test and an analysis of covariance was applied ($\alpha = 5\%$).

Results: Responsive individuals showed a greater magnitude of pain modulation only in the baseline session ($p < 0.050$). Furthermore, the proportions of responsive subjects were higher in the analgesia expectancy session (83%-90%) compared to the baseline session (46-51%).

Conclusion: These results suggest that the expectation of analgesia is one of the clinically relevant activation pathways of the descending inhibitory pain system.

INFLUENCE OF PERACETIC ACID ON PHOTOSTIMULABLE PHOSPHOR PLATES DISINFECTION

THAÍS SANTOS CERQUEIRA OCAMPO; DEBORA COSTA RUIZ, IAGO FILIPE CORREIA-DANTAS, FRANCISCO HAITER-NETO; DEBORAH QUEIROZ FREITAS

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to evaluate the quality of radiographs acquired with photostimulable phosphor (PSP) plates disinfected with peracetic acid.

Method: Two PSPs were wiped with a tissue impregnated with peracetic acid. Before disinfection and after every five disinfections, two radiographs of an acrylic block and two others of an aluminum step-wedge were acquired for each PSP. A dentomaxillofacial radiologist with four years of experience assessed the image quality objectively calculating density, noise, uniformity, and contrast of radiographs. Density, noise, and uniformity were assessed using ROIs placed centrally and symmetrically around the image. The contrast was evaluated using ROIs on step 1 and step 6 of the step-wedges. Additionally, three oral radiologists evaluated the possible presence and size of artifacts. The assessment was repeated to calculate intra- and inter-examiner agreement. One-way Analysis of Variance compared changes in gray values among the number of disinfections ($\alpha=0.05$). Weighted Kappa calculated the examiners agreement for the presence of artifacts.

Results: Density and uniformity decreased after 100 disinfections; while contrast changed without a pattern during disinfections ($p \leq 0.05$). No statistical difference was observed for noise ($p > 0.05$). Small artifacts were observed after 30 disinfections. Intra- and inter-examiner agreements were almost perfect.

Conclusion: Disinfection with peracetic acid affected the density, uniformity, and contrast of radiographs and formed small artifacts on the PSP plates.

INFLUENCE OF PHOTODYNAMIC THERAPY WITH POTASSIUM IODIDE ON THE BOND STRENGTH OF CARIOUS DENTIN TO COMPOSITE RESIN

FELIPE FABRICIO FARIAS-DA-SILVA; LAIS DA COSTA FERNANDES; CAROLINA STEINER-OLIVEIRA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To assess the influence of the antimicrobial photodynamic therapy (aPDT), mediated by the photosensitizer methylene blue (MB) associated with potassium iodide (KI), on the bond strength of carious dentin, produced in situ, to composite resin restoration.

Method: Caries lesions induction on dentin blocks was carried out, in situ, by volunteers who used palatal devices for 14 days and dripped 20% sucrose on the blocks to simulate a high cariogenic challenge. After this period, the carious dentin blocks were divided into two groups ($n = 18$), with the following treatment protocols: C (control), selective caries removal, treatment with 0.9% NaCl, followed by resin restoration; aPDT (antimicrobial photodynamic therapy), selective caries removal, treatment with 0.005% MB + 75 mM KI + 18J red laser irradiation, followed by resin restoration. One millimeter stick specimens were made from the restored blocks and used to determine bond strength using the microtensile test, 48 h after the restorations. The data was analyzed using One-way ANOVA and Tukey's post-hoc test ($\alpha = 0.05$).

Results: There was no significant difference ($p > 0.05$) between the 2 analyzed groups.

Conclusion: The result suggests that the association of potassium iodide with methylene blue in aPDT did not interfere with the bond strength of caries-affected dentin to the restorative material.

INFLUENCE OF ROOT CANAL MOISTURE ON THE SETTING AND HYDRATION OF CALCIUM SILICATE-BASED SEALERS BIO-C SEALER AND BIOROOT

ISIS HINNEBUSCH; THIAGO BESSA MARCONATO ANTUNES, ANA CRISTINA PADILHA JANINI, NILVAM ALVES DA SILVA; MARINA ANGELICA MARCIANO DA SILVA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Setting is necessary for a root canal sealer to exert its properties and dimensional stability within the root canal, and the $\text{Ca}(\text{OH})_2$ formed after the hydration reaction is the compound that ensures the bioactivity of these cements. However, this process is uncertain for ready-to-use calcium silicate-based root canal sealers, which require moisture for this reaction to occur. Therefore, the objective of this study was to evaluate the setting of the ready-to-use bioceramic sealer, Bio-C Sealer, compared to the powder/liquid form, BioRoot RCS, in the cervical, middle, and apical thirds of 32 human teeth, in dry and moist canals.

Method: Raman and FTIR analyses evaluated chemical bonds at 1 and 28 days and immediately after mixing. XRD analysis assessed the components of the sealers after 1 and 28 days of obturation. Setting was evaluated with a Gilmore needle of 50g. Canals were instrumented up to a diameter of 2 mm and obturated. Repeated measures ANOVA and Tukey tests were used for statistical analysis.

Results: Bio-C Sealer showed a shorter setting time in moist canals ($p < 0.05$). Conversely, BioRoot RCS did not show a difference between moist and dry canals ($p > 0.05$). There was no difference between thirds for the same sealer group and treatment ($p > 0.05$). In FT-IR, large peaks of O-H, corresponding to water, were observed at 3400 cm^{-1} at 28 days. Raman analysis showed peaks of calcium carbonate at 1500 cm^{-1} . XRD analysis revealed $\text{Ca}(\text{OH})_2$ only in moist Bio-C Sealer at 28 days.

Conclusion: Maintaining canal moisture is important for the setting of Bio-C Sealer but irrelevant for BioRoot RCS. The compound portlandite was only found in Bio-C Sealer.

INFLUENCE OF SCOUT PROJECTION ON PATIENT RADIATION DOSE IN MAXILLOFACIAL CONE BEAM COMPUTED TOMOGRAPHY

MATHEUS BARROS COSTA; JACK BRITTEN, COLIN JONES, DEIVI CASCANTE-SEQUEIRA, GUSTAVO SANTAELLA, WILLIAM SCARFE, DEBORAH QUEIROZ FREITAS; CHRISTIANO OLIVEIRA-SANTOS
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the effective and equivalent radiation doses of different scout projection protocols across four Cone Beam Computed Tomography (CBCT) units.

Method: Twenty-four dosimeters were placed in different anatomical positions in a RANDO average-man phantom. These positions represent vital organs known for their sensitivity to radiation, and they are areas frequently exposed during dental imaging. Ten successive scout images were acquired using four different maxillofacial CBCT units (Midmark EIOS, 3D Accuitomo F170, Veraviewepocs 3D R100, and Veraview X800), employing twelve distinct scout protocols among the units based on common clinical applications. Each dosimeter reading was divided by the number of exposures to calculate the equivalent doses for various organs or tissues. The equivalent doses for each organ or tissue were determined by multiplying them by their estimated fraction irradiated. Effective doses were calculated using the weighting factor of each related organ.

Results: Effective doses varied from 0.7 μ Sv (Accuitomo F170 60 x 60 mm – anterior maxilla) to 6.9 μ Sv (Midmark 50 x 50 mm – anterior maxilla). The salivary glands exhibited the highest organ doses (mean 72.4 μ Sv; range 7.9-114.6 μ Sv), while the oesophagus showed the lowest (mean 2.3 μ Sv; range 0.2-5.6 μ Sv).

Conclusion: Although effective doses from scout projections vary significantly across different machines, their utilization is greatly favored, especially in small field of view scans, to precisely center and thoroughly encompass the area of interest. This is because they contribute minimally to the final CBCT patient dose.

INFLUENCE OF SURFACE SEALANTS ON THE FLUORESCENCE OF A NANOHYBRID COMPOSITE AFTER THERMOCYCLING OR BRUSHING ABRASION

ANA PAULA AYRES OLIVEIRA; MARCELLA BESSA PALHARES, ISABELA TORRES RESENDE, JOÃO VITOR DA SILVA DUARTE, RAFAEL MARTINS CHAGAS, ISABELA VALENTIM SALGE; ANALIA GABRIELLA BORGES FERRAZ FACURY
UNIVERSITY OF UBERABA- UNIUBE

Aim: The aim of this study was to evaluate the influence of surface sealants on the fluorescence of a nanohybrid composite after thermocycling or brushing.

Method: Sixty cylindrical specimens (n=10) were built using composite resin Forma (Ultradent), with or without (control groups) application of the surface sealants Wetting resin (WR, Ultradent) or Modeling resin (MR, BISCO). Digital photographs of all samples were taken using a black light source (Black Light, VALO) to evaluate surface fluorescence, before and after artificial aging. Half of the specimens were subjected to aging by thermocycling (MSCT-3, Marcelo Nucci ME; 10.000 cycles) and the other half to brushing abrasion (electric brush Oral-B Pro-Saude Power; Colgate Total 12; 90 min; 1.96 N). After these in vitro challenges, new fluorescence image readings were registered.

Results: 2-way ANOVA (Tukey $p < 0.05$) revealed that mean grayscale levels detected from converted fluorescence images showed no significant differences between evaluation times. At baseline in thermocycled groups, WR showed greater fluorescence than MR ($p = .007$), not differing from the control group ($p = 1$). However, after thermocycling there was no more difference among groups ($p > .001$). In brushed groups, WR showed greater fluorescence after artificial aging ($p < .001$).

Conclusion: The surface sealant application influences the fluorescence of a nanohybrid composite and the results are sealant dependent. Artificial aging by thermocycling and brushing affected particularly the surface sealant WR.

INFLUENCE OF TOOTH EXTRACTION AND DIET ON MAXILLARY ALVEOLAR BONE OF OVARECTOMIZED RATS

BEATRIZ CARMONA FERREIRA-PILEGGI; ALEXANDRE RODRIGUES FREIRE, CAMILA CARRILLO FURLAN, LUCIANE NAOMI OGUMA WATANABE, YARA VIEIRA LEMOS; ANA CLÁUDIA ROSSI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to analyze the effect of ovariectomy-induced osteopenia on the alveolar bone of Wistar rats submitted to tooth extraction and diet change.

Method: Eighty female rats (Wistar lineage) were used. Bilateral ovariectomy was performed in the rats of the OVX group and surgical simulation in the rats of the SHAM group. Followed 30 days after the day of surgery, extraction of the upper right incisor was performed, and a soft diet was introduced for half of the animals. In vivo measurement of the bite force on the incisors was performed in all animals after the day of tooth extraction. Euthanasia occurred on days 30 and 60 after extraction. The jaws were dissected and submitted to microcomputed tomography to analyze the bone microarchitecture. Statistical tests were performed to verify whether there were differences between the groups.

Results: For bite force, the Kruskal-Wallis test showed that there was a statistically significant difference between the groups ($P < 0.0001$). The highest bite force was detected in the group with OVX, tooth extraction and hard diet ingestion and the lowest bite force was detected in SHAM group with soft diet without tooth extraction. For the bone microarchitecture, in the right maxilla the Two-Way ANOVA test detected a difference between the groups. For the left maxilla, the Two-Way ANOVA test detected differences between groups and periods.

Conclusion: In conclusion, tooth extraction tended to increase the force required for the bite to be executed, and the diet change associated with tooth extraction induced changes in bone microarchitectural parameters.

INFLUENCE OF ZrO₂ PASTE ON SURFACE ROUGHNESS AND CONTACT ANGLE OF 3Y-TZP ZIRCONIA

JADE MARQUES DA SILVA; EVALDO PINHEIRO BESERRA NETO, MARIA DA GLÓRIA BELLOTTI, AMÉRICO BORTOLAZZO CORRER, ANA ROSA COSTA; LOURENÇO CORRER SOBRINHO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to evaluate the influence of surface treatment on the surface roughness and contact angle of 3Y-TZP zirconia after the application of ZrO₂ paste and paste associated with blasting with 50µm aluminum oxide (Al₂O₃) particles.

Method: Thirty samples measuring (7.2mm x 7.8mm x 2mm thickness) were fabricated with 3Y-TZP zirconia and divided into 3 groups (n=10): G1: Control - blasting with Al₂O₃ particles after sintering; G2: ZIR - application of ZrO₂ paste - Zirlink; and G3: JZIR - Al₂O₃ blasting + ZrO₂ paste (Zirlink) on the surface of zirconia in the pre-sintered phase. Surface roughness was measured using a surface roughness tester (Surf-Corder - Ra-µm). Three measurements were taken on each sample before and after sintering. The surface contact angle was evaluated with a goniometer (DSA25E). Data were subjected to ANOVA and Tukey test (α=0.05).

Results: For the contact angle, the JZIR (104±6.4) and ZIR (82.3±31.2) groups were statistically higher than the Control (29.9±8.5). In surface roughness, after sintering, the JZIR group (0.996±0.294µm) showed statistically higher roughness than the ZIR group (0.639±0.113 µm) and control (0.486±0.097µm) (p<0.05). The ZIR group was statistically higher than control (p<0.05). No statistical difference was observed between the JZIR (0.2436±0.059µm), ZIR (0.2709±0.046µm), and control (0.2658±0.056µm) groups (p>0.05) before sintering.

Conclusion: In conclusion, the use of ZrO₂ paste in the surface treatment of zirconia showed promising effects related to surface roughness and the ability to significantly alter the angle.

INSIGHTS INTO TECHNIQUE ERRORS AND IMAGE RECEPTOR HOLDING DEVICES IN INTRAORAL RADIOGRAPHY: A LITERATURE REVIEW

MARIA LUIZA SANTOS DE OLIVEIRA; THAÍS SANTOS CERQUEIRA OCAMPO, CAIO DE ALENCAR PALHA DA SILVA, DEBORAH QUEIROZ FREITAS; FRANCISCO HAITER NETO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Intraoral radiographs serve a fundamental role in diagnosis by providing supplementary insights alongside clinical examinations. Periapical and bitewing radiographs are the main intraoral techniques and can be performed with or without image receptor-holding devices (IRHDs). Despite IRHDs being developed to simplify the technique execution, different factors can affect the performance to achieve an ideal diagnostic image. These encompass the complex anatomy of dental arches, patient cooperation and the operator's proficiency with IRHDs. These challenges present obstacles, particularly for student practitioners. Moreover, meticulous technique execution is imperative to mitigate unnecessary radiation exposure, given the inherent risks associated with radiation. This study aimed to evaluate the literature on the causes and frequencies of intraoral technique errors through qualitative analysis across three databases.

Method: Eleven articles published between 2007 and 2021 were scrutinized.

Results: Commonly observed errors included inadequate vertical angulation resulting in elongated or shortened radiographs, inadequate horizontal angulation causing proximal surface overlap, and inadvertent cutting of the root apex or dental crowns. While literature attributes IRHDs to improved performance and decreased technical error rates, careful consideration is necessary due to potential misclassifications.

Conclusion: Nevertheless, the literature on this topic remains scarce, underscoring the need for further studies to address technical errors, particularly in IRHD-utilizing scenarios.

INTERNAL FIT AND MAXIMUM LOAD OF CROWNS PRINTED AT DIFFERENT POSITIONS ON A 3D PRINTER COMPARED WITH CAD/CAM RESIN

BEATRIZ DE CÁSSIA ROMANO; VICTOR DE PAULA XAVIER, PATRÍCIA MAKISHI; MARCELO GIANNINI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated the effect of different positions on the construction platform of a 3D printer on the internal fit (IF), marginal discrepancy (MD), and maximum load for fracture (ML) of crowns printed with three 3D resins (Nanolab, Wilcos; Prizma Bio Crown, Makertech and VarseoSmile Crown, BEGO).

Method: Crowns of each resin were produced in 3 different locations on the platform (center, horizontal edge and vertical edge), resulting in 12 crowns for each position of the 3D printer platform and 3D resin. Resin crowns (Cerasmart, GC) milled in CAD/CAM machine were used as the Control. IF and MD were analyzed using the cementation method with addition silicone of light consistency (Variotime, Kulzer) and digital visualization of material thickness (Hirox), which was measured by image processing software (ImageJ). For evaluation of the ML, the crowns were cemented into composite replicas of the preparation and subjected to ML testing in a universal testing machine. The data for IF, MD, and ML were subjected to generalized linear models' analysis followed by Bonferroni test (α = 0.05).

Results: IF and MD varied depending on the printing position on the platform and the 3D printing resin used. The 3D resin may exhibit better IF and MD compared to CAD/CAM resin, depending on the commercial material. However, the different positions on the printing platform did not influence the results for ML, regardless the 3D resins.

Conclusion: Indirect printed restorations present a promising alternative to CAD/CAM resins. Although, careful consideration should be given to both the positioning on the platform and the selection of materials.

INTERPERSONAL RELATIONSHIP AND LEVEL OF SATISFACTION IN THE SCHOOL BY HIGH SCHOOL STUDENTS: AN EXPLORATORY STUDY

BEATRIZ ROCHA RIBEIRO; TAINA RONDINI DOS SANTOS, JULIA MURAMOTO DOS SANTOS, MARCELA YAMADA DA SILVA, GUILHERME DA SILVA OCTAVIANO, JOÃO PAULO SANTANA DA SILVA, CÁSSIA CRISTINA ARAUJO VIEIRA; FABIO LUIZ MIALHE

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this exploratory study was to evaluate interpersonal relationships and the level of satisfaction in the school environment among a sample of high school students in the city of Piracicaba, São Paulo, Brazil.

Method: Initially, the project was approved by the Research Ethics Committee of FOP/UNICAMP (CAAE - 67456017.2.0000.5418). The study included a convenience sample of 101 high school students from Piracicaba, SP, Brazil. They were invited to answer a questionnaire with questions about interpersonal relationships with peers and teachers, and their level of satisfaction with the school environment, in addition to a sociodemographic questionnaire.

Results: The results of the sociodemographic questionnaire showed that the average age of the adolescents was 15.82 (± 0.87), with the majority being female (56.4%). Students rated their relationship with school peers as good and very good (40.6% and 39.6% respectively). Regarding their relationship with teachers, students reported it as good (56.4%). The majority of students (37.6%) reported being satisfied with the school environment.

Conclusion: It is concluded that students in this sample have a good interpersonal relationship with their peers and teachers, and they also show satisfaction with the school environment.

IS HISTOLOGICAL ANALYSIS OF THE CHORIOALLANTOIC MEMBRANE NECESSARY TO ASSESS THE TOXICITY OF DENTAL TOPICAL ANESTHETICS

ISABELLA FRANÇA QUADRADO; ARTHUR ANTUNES COSTA BEZERRA; MICHELLE FRANZ MONTAN BRAGA LEITE

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to determine if histological effects induced in the chorioallantoic membrane (CAM) by dental topical anesthetics are necessary to evaluate their potential toxicity, as assessed by protocol DB-ALM No. 96 - Hen's Egg Test on the Chorioallantoic Membrane (HET-CAM), established by the European Centre for the Validation of Alternative Methods (ECVAM).

Method: Commercially available formulations (Benzotop®, Lidocaine®, EMLA®, and Labcaína®) and positive (sodium hydroxide) and negative (saline solution) controls were evaluated following protocol DB-ALM No. 96. After the embryos euthanasia, histological slides stained with hematoxylin and eosin were prepared from three CAMs subjected to each treatment. Descriptive analysis of the histological slides evaluated factors such as the number and integrity of blood vessels, presence of inflammatory cells, and integrity of the CAM epithelium.

Results: The negative control showed no changes in membrane morphology, while Benzotop®, Lidocaine®, and Labcaína® caused slight extravasation of red blood cells. However, the positive control and EMLA® induced membrane epithelium discontinuity and vessel rupture, resulting in extensive hemorrhage and tissue necrosis.

Conclusion: Histological analysis of the CAM emerged as a crucial complementary tool to the protocol used, effectively distinguishing between the tested formulations.

ISOLATION AND CHARACTERIZATION OF CANCER STEM CELL SUBPOPULATIONS IN AN ORAL SQUAMOUS CELL CARCINOMA CELL LINE

ANA LAURA VALENÇA BIZELI; IARA GONÇALVES AQUINO, FLORENCE JUANA MARIA CUADRA-ZELAYA, ISADORA FERRARI TEIXEIRA, DÉBORA CAMPANELLA BASTOS; EDGARD GRANER

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To isolate cancer stem cells (CSCs) from an oral squamous cell carcinoma (OSCC) cell line and investigate their phenotypic characteristics in vitro.

Method: Subpopulations with varying staining intensities for CD44 and CD326 were isolated from the SCC-9 ZsGreen cell line using FACS: CD44+/CD326- (SCC-9 CSC M) and CD44Low/CD326High (SCC-9 CSC E). Proliferative properties, clonogenic potential, cellular adhesion and migration, and protein production associated with epithelial-mesenchymal transition (EMT) and fatty acid synthase (FASN) were evaluated via western blotting. Sensitivity to antineoplastic drugs was assessed using cell viability assays in the parental SCC-9 ZsGreen line and its two CSC subpopulations.

Results: The SCC-9 CSC M phenotype demonstrated higher proliferative, adhesive, and migratory potential, as well as a more mesenchymal profile and greater sensitivity to cisplatin and TVB-3166 compared to the parental SCC-9 ZsG cell line and the SCC-9 CSC E phenotype. The SCC-9 CSC E phenotype, despite lower rates of proliferation, adhesion, and migration, showed greater resistance to the studied drugs and possessed an epithelial nature.

Conclusion: The CSC subpopulations described exhibit enhanced cancer capabilities in vitro and may be targeted for novel therapeutic interventions in OSCC.

JAW OSTEONECROSIS AND THE USE OF DENOSUMAB

SAMARA CAROLINE FERNANDES GALVANI; LARISSA CONSTANTINO FRANÇA, ELISA BIZETTI PELAI; LUCIANA ASPRINO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Drug-related osteonecrosis of the jaw (MRONJ) can be defined as exposed bone or bone that can be probed through an intraoral fistula or extraoral fistula, lasting more than 8 weeks and without a history of radiotherapy or evident metastatic disease in the gnathic bones. This study aimed to carry out a bibliographical survey on the mechanism of action of denosumab (DMB) on bone tissue and highlight the importance of the dentist in the prevention, diagnosis and management of osteonecrosis of the jaw.

Method: This is an integrative review carried out in two stages. Initially, a search was carried out for articles published between 2010 and 2023, on osteonecrosis in patients using BMD on the EMBASE, Web of Science, SCOPUS, Cochrane Library and PubMed platforms. Subsequently, a selection of the relevant parts for the objective was made, and an analytical reading and organization of the information collected pertinent to each study theme was carried out.

Results: DMB is a human monoclonal antibody (IgG2), its mechanism of action acts by activating the receptor for nuclear factor kappa-B ligand (RANK-L), acting against the RANK ligand and inhibiting the function of osteoclasts, reducing bone resorption associated.

Conclusion: The management of patients with MRONJ aims to control the infection, minimize the progression of necrosis and promote tissue healing. This study contains reviews of diagnostic and management strategies that should be known by all dental surgeons.

LATE DIAGNOSIS OF COWDEN SYNDROME THROUGH ORAL MANIFESTATIONS: A RARE CASE REPORT

LAURA APARECIDA TAVARES; JOSÉ ALCIDES DE ALMEIDA ARRUDA, JOÃO ADOLFO COSTA HANEMANN, CARINE ERVOLINO DE OLIVEIRA, SARA FERREIRA DOS SANTOS COSTA, HELEN KALINE FARIAS BEZERRA, PABLO AGUSTIN VARGAS; LEONARDO AMARAL DOS REIS

ALFENAS DENTAL SCHOOL - UNIFAL

Aim: The aim of this case report is to describe a case of late diagnosis of a rare syndrome known as Cowden Syndrome.

Method: A 64-year-old black female patient presented to our department whose main complaint was a burning sensation in the mouth and difficulty adapting to the upper removable complete denture. Extraoral examination revealed warty lesions distributed on the labial commissures bilaterally, macrocephaly, facial trichilemmomas, and acral keratosis on hands and feet. The intraoral examination showed multiple confluent papules on the gums, upper and lower lips and back of the tongue with overlapping candidiasis. Endoscopy and colonoscopy exams were requested and revealed gastrointestinal polyposis and breast nodules. An excisional biopsy was performed on the alveolar ridge, tongue and lip commissure and the collected material was sent for microscopic analysis at the pathological anatomy laboratory at UNIFAL. Histopathological analysis revealed fibroepithelial papillomatous hyperplasia, The connective tissue was of the densely collagenized fibrous type, presenting dilated and hyperemic vessels, in addition to foci of intense mononuclear inflammatory infiltrate. The final diagnosis was performed based on the major and minor criteria proposed by the Cowden Syndrome Consortium (ICSC).

Results: The patient continues under observation at the Stomatology Clinic of UNIFAL and is currently undergoing oral rehabilitation treatment at the prosthodontics clinic of the same institution.

Conclusion: There is a lack of awareness among dentists regarding Cowden Syndrome; however, oral lesions can be easily recognized, allowing for an early diagnosis.

LEARNING "ECOLOGICAL RELATIONSHIPS" WITH EDUCATIONAL GAME: PERCEPTION OF HIGH SCHOOL STUDENTS

PEDRO HENRIQUE FRANCO BENTO; AMANDHA CHRISTINE DA SILVA SOUZA, PIETRA SOARES DE SOUSA, DIANNE ALMEIDA DA SILVA MUNIZ; FERNANDA KLEIN MARCONDES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Lack of interest and attention from students have been observed in traditional classes. Learning through games is a methodology that promotes their active participation in knowledge construction through interaction among peers and challenge resolution. The objective of this study is to analyze students' perception of the game "Ecological Relationships," which consists of 12 images illustrating ecological relationships and cards with their respective names.

Method: After approval by the Research Ethics Committee of the Piracicaba Dental School/UNICAMP, the educational game was used in high school classes at a public school in Piracicaba - SP. In class 1, students, in groups, identified the images and, after teacher's explanation, they identified the corresponding cards and images. In lesson 2, this identification was done after the cards were turned face down, as a memory game. In lesson 3, students were asked to evaluate whether the educational game had been useful for learning about Ecological Relationships, on a scale from 0 (not useful) to 10 (very useful), justifying their evaluation.

Results: The average of the responses from the 25 students who signed the assent form, and whose guardians signed the informed consent form, was 8.0 ± 1.43 . In the justifications, the students stated that associating the photos with the cards made it easier to understand the subject (72%), it was a fun way to learn (68%) and through interaction with peers, they clarified their doubts (56%).

Conclusion: These partial data suggest that the educational game contributed to learning about ecological relationships, according to students' opinion.

LINGUAL FRENECTOMY USING LOW AND HIGH-POWER LASERS: TWO CASE REPORTS

DAVI LORETE SANTOS; ISABELA COLÁCIO MOREIRA, JULIANA BENINE-WARLET; CAROLINA STEINER-OLIVEIRA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Lingual frenectomy is a surgical procedure designed to correct the insertion and shape of the frenulum, aiming to allow adequate mobility of the tongue to perform its essential functions such as phonetics and swallowing. The objective of these case reports was to highlight the effectiveness and benefits of using lasers in lingual frenectomy surgery in pediatric patients diagnosed with ankyloglossia.

Method: Two male patients, 8 and 6-years-old, both diagnosed with changes in the insertion of the lingual frenulum, compatible with ankyloglossia score 4 (Bristol Protocol), associated with phonetic difficulties, underwent the surgical frenectomy procedure, which was explained and consented by the children and guardians. Superficial analgesia was performed using a low-power infrared laser ($\lambda = 808$ nm, 6 J), followed by bilateral infiltrative anesthesia of the lingual frenulum. Afterwards, a high-power diode laser ($\lambda = 980$ nm, 2 W) was used to remove the tissue and detach the lingual frenum fibers and, finally, the surgical wound was irradiated with a low-power red laser ($\lambda = 660$ nm, 1 J) for tissue photobiomodulation.

Results: Postoperative instructions were explained, and continuous monitoring was carried out at the undergraduate clinic.

Conclusion: Frenectomy performed with a high-power laser offers a more effective and comfortable treatment for pediatric patients once it has a hemostatic effect, by sealing the microvessels, which results in less bleeding. Also, the use of low-power laser, both pre and post-operatively, brought comfort to patients due to its analgesic and anti-inflammatory action, helping in the tissue regeneration process.

LITERATURE REVIEW ON THE KNOWLEDGE AND ATTITUDE OF DENTISTS AND DENTAL STUDENTS TOWARDS DOMESTIC VIOLENCE

THAYNARA CRISTINA FERREIRA ROSALEM; ANA BEATRIZ BECCA DADARIO, VINICIUS HUMBERTO NUNES; LETICIA CERRI MAZZA

SCHOOL OF DENTISTRY AT THE UNIVERSITY CENTER OF SOUTHWEST SÃO PAULO - UNIFSP, AVARÉ/SP

Aim: Analysis of the literature on the knowledge and attitude of dental surgeons and dentistry students towards domestic violence and understanding the importance of adequately using compulsory notification in cases of violence against women.

Method: Narrative literature review, articles with the key words: dental surgeon, forensic dentistry and domestic violence; in Portuguese and English. The database of choice was: PubMed. The descriptors were: ("domestic violence") OR (intimate partner violence) OR (violence against women) AND (dentistry) OR (dental surgeon) OR (dentist) OR (dentist's role).

Results: The majority of dental surgeons and dentistry students (70.4%) do not know how to act in cases of violence, and (32.2%) do not understand the difference between compulsory notification and reporting. There is also hesitation in reporting cases, due to fear of revenge (33.3%) and lack of knowledge (20.8%). However, there is a consensus that this topic should be taught at undergraduate level (99.1%). Only a minority of healthcare professionals (61 out of 221) are able to correctly deal with these cases. Compulsory notification is seen as an essential tool in the fight against violence against women.

Conclusion: There is an urgent need for training health professionals, with an emphasis on dental surgeons, to welcome, identify and correctly report cases and also the need for preventive and corrective actions to combat violence against women.

LOCAL ANESTHESIA REDUCES MASSETER HYPERALGESIA INDUCED BY NERVE GROWTH FACTOR

RHAYANE DA CONCEIÇÃO MONTEIRO; FERNANDO GUSTAVO EXPOSTO, EDUARDO ENRIQUE CASTRILLON, PAULO CÉSAR RODRIGUES CONTI, PETER SVENSSON; YURI MARTINS COSTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Local anesthetics can be applied to investigate the role of peripheral afferents in experimental pain models and clinical conditions. The main objective of this investigation was to evaluate the effects of local anesthesia on masseter hyperalgesia induced by nerve growth factor (NGF).

Method: Thus, 45 healthy participants received a single intramuscular injection of isotonic saline solution (IS group) or NGF, and a second injection of lidocaine (NGF + lidocaine group) or IS (NGF + IS group) into the right masseter muscle in a randomized manner. The parameters evaluated were the mechanical sensitivity scores of the right and left masseter and the clinical evaluation of muscle pain intensity and mandibular function. Assessments were conducted at baseline, 48 hours after the first injection, immediately after the second lidocaine or IS injection (except for the IS group), and 72 hours after the first injection. ANOVA, Cochran Q, and χ tests were applied to the data.

Results: NGF caused muscle pain during chewing at 48 and 72 hours after the first injection when compared to the IS group, but with no differences between the NGF + lidocaine and NGF + IS groups. However, the mechanical sensitivity of the right masseter immediately after the second injection in the NGF + lidocaine group was significantly lower than that of the NGF + IS group and similar to the IS group.

Conclusion: Intramuscular injections of local anesthetics can provide relevant information regarding the contribution of peripheral mechanisms to the maintenance of persistent musculoskeletal painful conditions.

LONGITUDINALITY OF CARE FOR USERS OF THE ORAL EMERGENCY SERVICE (SUB) IN THE CITY OF PIRACICABA – SP

LETÍCIA SILVA MADEIRA; MARIANA JOSINA PEREIRA, VÍTOR RAFAEL GOMES; KARINE LAURA CORTELLAZZI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: In the organizational context of public health, the application of the concept of integrality care is important in order to guarantee the quality and access of services offered by the SUS. The objective of the study was to evaluate the longitudinality of oral health care for users of the Oral Emergency Service (SUB) in the city of Piracicaba-SP.

Method: A cross-sectional study was carried out using secondary data from the Oral Emergency Service (SUB) during the period from January to December 2022, totaling a sample of approximately 1668 users. Data were extracted using the OLOSTECH software, an online Public Health computerization system adopted by the county.

Results: The results demonstrated that 71.64% of users did not have a record of dental care in Primary Health Care in the last 3 years. Among the 28.35% of users who received dental care at APS, 60.47% did not have a record of completed dental treatment, while 39.53% of users completed the treatment. The specialty with the highest number of referrals was endodontics, with 62.91% of successful accesses at the Dental Specialty Center, against 37.09% of unsuccessful accesses, followed by surgery with 69.30% of successful accesses and 30.70% of unsuccessful accesses.

Conclusion: With this, it is concluded that the longitudinality of oral health care is not yet the reality for many users who use the oral emergency service and that it is necessary to formulate public policies to better integrate these users into the health care network.

LSTR A THERAPEUTIC APPROACH FOR PRIMARY TEETH WITH UNFAVORABLE PROGNOSIS: CASE REPORT

ISABELA COLÁCIO MOREIRA; ERICK ALEXANDRE SILVA DE ARAÚJO, WILIAN SEGATTO ZANELLI, PATRICIA VITOR DE SOUZA, CARLA MARINHO BARRETO GOIS, LETÍCIA MARTINS PEREIRA, FERNANDA M PASCON; REGINA MARIA PUPPIN RONTANI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Episodes of urgency and emergency in pediatric patients may be due to early childhood caries (ECC), as in cases of progression it can lead to an intra-oral and/or extra-oral abscess, requiring intervention to resolve this episode. Cases that present an unfavorable prognosis for conventional endodontic treatment may have wound lesion sterilization and tissue repair therapy (LSTR) of the dental element as an alternative. Therefore, the objective of this case report is to demonstrate that LSTR is an alternative pulp therapy for primary teeth with endodontic involvement and root resorption.

Method: Female patient, 6 years old, treated at the Faculdade de Odontologia de Piracicaba (FOP) came for treatment with a history of extra-oral abscess and main complaint of spontaneous pain associated with dental element 74. During the intra-oral examination, the presence of an increase in volume, erythematous, with a purulent collection located in the vestibular of dental elements 74 and 75, which presented an extensive carious lesion. On the periapical radiograph, a radiolucent image was observed close to the dental pulp in teeth 74 and 75, with extensive root resorption in tooth 74, associated with a periapical lesion in both teeth, contraindicating conventional endodontic treatment. Therefore, the treatment plan drawn up was the LSTR of these teeth, using CTZ antibiotic paste.

Results: After this session, signs and symptoms resolved and definitive restoration was performed.

Conclusion: Therefore, LSTR is a viable technique for endodontic treatment of primary teeth with an unfavorable prognosis.

MACHINE LEARNING FOR PROGNOSTICATION OF RECURRENCE AND MALIGNANT TRANSFORMATION IN ORAL LEUKOPLAKIA

CAIQUE MARIANO PEDROSO; RAFAEL VASCONCELOS COSTA MACHADO, ANNA LUIZA DAMACENO ARAÚJO, CRISTINIA SALDIVIA-SIRACUSA, PABLO AGUSTIN VARGAS, MÁRCIO AJUDARTE LOPES, MATHEUS CARDOSO MORAES; ALAN ROGER SANTOS-SILVA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to develop and evaluate an artificial neural network model for predicting the recurrence and malignant transformation of oral leukoplakia.

Method: Data from 97 leukoplakia patients were retrospectively enrolled and underwent preprocessing to ensure uniformity and reliability. The neural network architecture was constructed and the data were split into training (80%) and test (20%) sets for model development and assessment, utilising a dynamic cross-validation strategy. Performance metrics were computed. A logistic regression model was performed to identify factors associated with malignant transformation of leukoplakia.

Results: The sample predominantly consisted of middle-aged male smokers with tongue lesions, including 64 cases with epithelial dysplasia. Twenty-one recurrences and eleven malignant transformations were observed. Across cross-validation, the results were: (i) for recurrence - Accuracy: 0.74; Sensitivity: 0.85; Specificity: 0.63; Precision: 0.69; F1-score: 0.76, and AUC: 0.73, and (ii) for malignant transformation - Accuracy: 0.85; Sensitivity: 0.92; Specificity: 0.77; Precision: 0.80; F1-score: 0.86, and AUC: 0.85. Logistic regression highlighted a significant correlation between severe epithelial dysplasia, tongue localization, and recurrence with the likelihood of malignant transformation.

Conclusion: The findings suggest the neural network model has potential for predicting recurrence and malignant transformation of oral leukoplakia. Identified variables from logistic regression could guide interventions to mitigate malignant transformation in high-risk cases.

MAGNETIC TREATMENT IMPROVES THE DURABILITY OF CONVENTIONAL DENTIN ADHESIVES

SABRINA CANDIDO DA COSTA; CAROLINE DE OLIVEIRA TEXEIRA, GISELLE MARIA MARCHI; VICTOR PINHEIRO FEITOSA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The performance of dental adhesives depend on the degree of infiltration into the etched substrate. The aim was to evaluate the efficacy of a new magnetic treatment on the infiltration and adhesion of etch-and-rinse adhesives to demineralized dentin.

Method: A 2wt% Fe₃O₄ (ferrite) nanoparticles was incorporated into two-step etch-and-rinse adhesives Adper Single Bond 2 - 3M (SB) and OptiBond S - Kerr (OB). Thirty bovine molars were sectioned to expose mid-coronal dentin and bonded with SB and OB adhesives (controls without magnetic nanoparticles), SB-Mag and OB-Mag (adhesives with magnetic nanoparticles with magnet application below the adhesive layer), and OB-No Mag and SB-No Mag (adhesives with nanoparticles but without the use of magnet). Specimens were bonded (n=5) and evaluated by microtensile bond strength (μ TBS) test immediately or after aging in bacterial collagenase (Sigma Aldrich) challenge. To evaluate the quality of the interface formed, nanoleakage survey was performed on SEM. The data were statistically analyzed by two-way ANOVA and Tukey's test ($p < 0.05$).

Results: There was a decrease on bond strength in the aged SB and OB control and SB-No Mag groups. Further groups that associated nanoparticles with the magnet kept stable μ TBS after aging (SB Mag and OB-Mag). Notable nanoleakage in the hybrid layer was seen in general in all groups. T

Conclusion: The addition of nanoparticles and their association with magnet as an innovative magnetic treatment improved the adhesion of etch-and-rinse adhesives to dentin.

MANAGEMENT OF SECOND PRIMARY MOLARS INFRAOCCLUSION IN A DOWN SYNDROME PATIENT USING 3D PRINTING: A CASE REPORT

CAROLINE DAL'BÓ HONÓRIO; ANA JULIA PUPPIN DE CAMPOS TOLEDO, ANNA CECÍLIA FARIAS DA SILVA, ANA LUISA THEODORO, ULYSSES DE TOLEDO MONTEIRO, JOÃO SARMENTO PEREIRA NETO; MARINÊS NOBRE DOS SANTOS UCHÔA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Patients with Down Syndrome may present oral manifestations such as periodontal disease, malocclusion, dental agenesis, fissured tongue, and microdontia. Dental care for individuals with disabilities may require adjustments regarding the behavioral management and chair time. The aim of this case report was to demonstrate the effectiveness of planned and fabricated indirect restorations using digital workflow for rehabilitating deciduous second molars in infraocclusion in a pediatric patient with Down Syndrome.

Method: An 11-year-old male patient diagnosed with prolonged retention of the second upper right and left primary molars, which were in infraocclusion. Indirect restorations were performed on these teeth using digital workflow, including intraoral scanning using the Heron IOS scanner (3DISC, Herndon, USA), digital design of occlusal restorations, 3D printing in hybrid resin (SmartDent, São Carlos, Brasil), and cementation with Dual Allcem resin cement (FGM Dental Group, Joinville, Brazil).

Results: After 6 months follow-up, the indirect restorations remained well-fitting on the second upper right and left primary molars, fulfilling their objective of improving the patient's masticatory function.

Conclusion: Therefore, indirect restorations obtained using digital workflow and 3D printing in hybrid resin with ceramic load proved to be effective for rehabilitating primary second molars in infraocclusion in patients with additional sensitivities.

MANDIBULAR ARCH EXPANSION IN THE MIXED DENTITION A PROPOSAL TO MODIFY OF THE EXPANSION SCREW AND THE WILLIAMS APPLIANCE

JÚLIO VARGAS NETO; VÂNIA CÉLIA VIEIRA DE SIQUEIRA, JOÃO SARMENTO PEREIRA NETO; EDUARDO CÉSAR ALMADA SANTOS

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Report two techniques associated to mandibular dental arch expansion. One of them is related to the modification of the expansion screw itself making a maxillary dental arch expansion screw properly adapted to be used in the lower dental arch. Reduction of costs was the main objective of this modification. The second technique report refers to a modification of the mandibular dental arch expansion fixed appliance (Williams Appliance) and was concerned to turn its effect as similar as the one promoted by removable plates.

Method: Laboratorial technique of constructing orthodontic appliances and photographic registering of implemented modifications as well as the installation of the mandibular dental expansion appliance and its effects.

Results: Both proposed laboratorial techniques showed to be viable. The expansion effect of the appliance was clinically observed and confirmed its functionality.

Conclusion: The modification technique of the expansion screw as well as the one concerning the mandibular dental arch fixed expansion appliance reached its own objectives. Therefore, costs reduction and changing expansion effect turning it like removable expansion appliances both were achieved.

MAXILLOFACIAL INJURIES IN DOMESTIC VIOLENCE AGAINST WOMEN VICTIMS: SYSTEMATIC REVIEW

GABRIELLA FERREIRA SANTOS; STEFANIE DEL CARMEN PEREZ PUELLO; LUCIANE MIRANDA GUERRA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective was to analyze the evidence on maxillofacial injuries identified in women who were victims of domestic violence.

Method: The systematic review was considering the PRISMA guideline. Searches were in Pubmed/Medline, Science Direct, ESCOHost and Scopus databases Nov/2023-Mar/2024 using the search strategy ("Facial injuries" OR "maxillofacial injuries") AND ("Domestic Violence" OR "Abused Women" OR "Women, Abused" OR "intimate partner violence") AND "dentistry"). Cross-sectional or retrospective longitudinal studies that reported maxillofacial injuries identified in medical-legal or dental consult in women victims were included. The Newcastle-Ottawa Scale was used to assess the risk of bias.

Results: In total, 88 articles were found, of which 11 were selected for qualitative synthesis. Most of studies published between 2009 and 2024 by Brazilian researchers (n=7,63%). The sample were women between 78 and 7,132 records, x-rays and clinical reports. The sample were between 16 and 40 years and were mostly from urban areas. The incidence of maxillofacial injuries generated by DV varied between 2.7% and 52.6%. The most observed violence type was physical, generating maxillofacial injuries to the face (middle third, zygomatic region and jaw), bruises and lacerations of soft tissues, most of which were generated by partners or ex-partners.

Conclusion: Scientific evidence suggests that maxillofacial injuries, mainly on the face (middle third, zygomatic region and jaw) as well as soft tissue lacerations, are incidents in women victims who were rate through medical-legal or dental consult.

MEASUREMENT PROPERTIES OF THE METHODS THAT EVALUATE PERICRANIAL MUSCLE SENSITIVITY

SORAYA SALMANZADEH ARDESTANI; SARA ALVES DA SILVA DE OLIVEIRA, DÉBORA NASCIMENTO CINTRA, LEONARDO RIGOLDI BONJARDIM, FERNANDO GUSTAVO EXPOSTO, PETER SVENSSON, RIGMOR HØJLAND JENSEN; YURI MARTINS COSTA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of the present study was to compare the absolute and relative reliability, and to evaluate the correlation between the following methods of assessing pericranial muscle sensitivity in healthy participants: manual palpation, palpation with the aid of the mechanical device Palpeter® (device-guided palpation), and pressure pain threshold (PPT).

Method: Fifty healthy participants were evaluated in two sessions by one examiner. The primary outcome was the values of pericranial sensitivity assessed by manual palpation and calculation of the total sensitivity score (TTS); palpation with the Palpeter® calibrated to exert loads of 0.5, 1, 2, and 4 kg; and PPT. The intraclass correlation coefficient (ICC) and its 95% confidence interval (CI), standard error of measurement (SEM), minimum detectable change (SDC), and correlation coefficients were calculated ($\alpha=5\%$).

Results: The TTS showed acceptable values of relative reliability considering the 95% CI of ICC from 0.41 to 0.76. In addition, the SEM and SDC were moderate considering the maximum value of TTS. Overall, palpation guided by the mechanical device Palpeter® and PPT showed good to excellent relative reliability considering the 95% CIs of the ICCs (0.66 to 0.94). Positive and moderate linear correlations were observed between TTS and all loads of palpation guided by Palpeter®.

Conclusion: Thus, TTS is an appropriate technique to be used in clinical practice and research. Furthermore, palpation guided by the Palpeter® device may be considered an appropriate reference standard due to its excellent reliability.

MENTAL HEALTH OF HEALTH PROFESSIONALS: HOW IS IT?

CAROLINE ZAMBANINI; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To reflect on the mental health of health professionals, considering the sociopolitical elements, working conditions and issues inherent to contemporary times that are present in the context experienced by these actors.

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

Results: It is estimated that mental disorders have a significant impact on public health and result in high rates of disability and mortality among people living with these conditions (WHO, 2015). It is indisputable that mental health is an inseparable part of our health and that issues related to mental health have been attracting the attention of the population, institutions and managers. It is also true that the daily lives of health professionals in their care activities are permeated by concerns, uncertainties, tensions and anguish. These workers have shown themselves to be susceptible to psychological suffering, as they face their professional tasks with countless difficulties, combined with their own emotional destabilization in the face of their fears and the pain and consternation of the people they are caring for. Based on this scenario, there are growing statistics on depression, various anxiety syndromes, suicidal behavior, burnout syndrome, psychotic episodes, problematic use of alcohol and other drugs, stress, fatigue and professional burnout. All these situations demonstrate the process of suffering and mental illness among these workers. Health professionals spare their workforce to care for people, often beyond their means.

Conclusion: Need for a strategy aimed at resources to promote mental health and the well-being of health professionals.

MENTAL HEALTH, A CHALLENGE FOR PUBLIC HEALTH: INTEGRATIVE REVIEW

PAOLA FERNANDES DO NASCIMENTO; ANTONIO CARLOS PEREIRA, MARCELO DE CASTRO MENEGHIM, CAROLINE NOGUEIRA DE MORAES, ANDREZA MARIA LUZIA BALDO DE SOUZA, STÉFANY DE LIMA GOMES; ENOQUE FERNANDES DE ARAÚJO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Mental health care is a challenge for Collective Health, as well as for health services that must ensure quality and equity of care for users. This study aims to analyze the main emotional imbalances of today and their relationship with mental health in the context of collective health.

Method: This study used an integrative literature review approach, which included the identification, synthesis and comprehensive analysis of relevant studies. The theme was defined, the research question was formulated; the eligibility, inclusion and exclusion criteria for the studies were established; the search for publications in the selected databases was carried out; the information found in the selected studies was categorized and analyzed; the included studies were evaluated; the results were presented with a critical analysis of the findings and the review was synthesized.

Results: A higher prevalence of emotional dysregulation, depressive symptoms, anxiety, exhaustion, loneliness, stress and burnout, schizophrenia, bipolar disorder, attempted suicide, drug abuse and, above all, depressive disorder was identified, influenced by sociodemographic and other factors that impact the public service.

Conclusion: This study contributes to the care of psychosocial needs, as well as pointing to the growing demand for patients with mental illness in public health services and for promotion and protection actions.

MHEALTH TECHNOLOGIES IN DENTISTRY

LÍVIA RIBEIRO SIMÕES; BEATRIZ CRISTINA DE FREITAS; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To describe the advances and challenges of mHealth Technologies in Dentistry.

Method: Literature review carried out in December 2023 in the SciELO, LILACS and PubMed databases, in the last 10 years.

Results: 1457 articles were selected, and after the criteria, 21 articles remained. Technological development, especially mobile platforms, is transforming and revolutionizing healthcare, including dentistry. Oral health interventions based on verbal guidance, without teaching materials, did not prove to be as effective due to the lack of objectivity, clarity and materialization of information, while new resources such as Telegram, WhatsApp, apps and pamphlets proved to be effective in improving behavior, knowledge, adherence to treatment and oral health practices in different age groups. Text messaging has been found to be an effective means of providing oral health education to parents, and using brushing apps and reminders has resulted in lower rates of cavities and plaque. Suggesting that the incorporation of mobile applications can be a viable and effective approach to promoting oral health among adolescents and children. However, on the other hand, there are some challenges to the use of these technologies, such as accessibility and acceptability, resistance to change, integration into health systems and training of professionals.

Conclusion: mHealth technologies have the potential to transform dental practice, offering significant benefits for both patients and dentists, proving to be a promising tool for behavior modification and adherence for health promotion and prevention.

MICROBIOLOGICAL ANALYSIS OF TEETH INDICATED FOR ENDODONTIC RETREATMENT FOR PROSTHETIC REASONS OR APICAL PERIODONTITIS

PEDRO IVO DA GRAÇA FAGUNDES*; JULIANA DELATORRE BRONZATO, ERICA MENDES LOPES, EDERALDO PIETRAFES DE GODOI-JR, ANA BEATRIZ SAFADY LOPES ABS, ADRIANA DE JESUS SOARES, MARINA ANGELICA MARCIANO; BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Chronic apical periodontitis (CAP) can be caused by failures in the various stages of endodontic treatment, but mainly by reinfection (RE) of the root canal (RC). The objective of this research was to identify in CRs with failed endodontic treatment, using the PCR method, the presence of *Candida albicans*, *C. glabrata*, *C. tropicalis*, *C. parapsilosis*, *C. krusei*, *C. dubliniensis*, *Enterococcus faecalis* and *Streptococcus mutans*

Method: Microbiological samples were collected from 10 CRs with CAP, and from 10 CRs in need of retreatment for prosthetic reasons (MP), with an absorbent paper cone, and had their DNA extracted. Specific primers were used to detect target species by PCR

Results: The data were tabulated in Excel and analyzed. *C. albicans* was the fungal species detected most frequently (100% of CAP cases) and *C. dubliniensis* in 90% of MP cases, with a reduction after 30 days of intracanal medication (MIC). *Enterococcus faecalis* and *S. mutans* had a detection rate in initial collections of 90% and 70% in CAP cases, and 60% and 70% in MP cases, with a reduction after MIC.

Conclusion: It is concluded that the microbial community associated with the two groups presents a diverse microbiota of bacteria and fungi. Although the microbiological profiles of both conditions are similar, the number of species detected per canal varies, being higher in teeth with CAP. Endodontic retreatment was able to reduce specific bacteria and fungi in both groups.

MICROBIOLOGICAL AND MOLECULAR EVALUATION OF ENDODONTIC RETREATMENT IN TEETH WITH APICAL PERIODONTITIS

LARISSA DE SOUZA OLIVEIRA; EDERALDO PIETRAFESA DE GODOI JR, PEDRO IVO DA GRAÇA FAGUNDES, ANA BEATRIZ SAFADY LOPES, PRISCILA AMANDA FRANCISCO, ÉRICA MENDES LOPES; BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was: A) evaluate the microbiological profile of root canals with Secondary/Persistent Endodontic Infection (SEI); B) monitor the efficiency of the chemo-mechanical preparation (CMP) and the use of intracanal medication (ICM) for 30 days through the molecular checkerboard DNA-DNA hybridization method and the counting of colony forming units (CFU).

Method: Twenty teeth with the presence of periapical lesions and the need for endodontic retreatment (ER) were selected. Root canal (RC) samplings were performed before and after CMP, and after using ICM for 30 days. The samples were subjected to serial dilution and plating in FAA + blood medium and incubated in an anaerobic chamber to perform the CFU count. DNA from these samples was extracted and subjected to checkerboard with probes for 40 bacterial species. The Shapiro-Wilk and Friedman statistical tests were applied.

Results: The most prevalent species in the 3 sample moments was *Enterococcus hirae*. After CMP and ICM, six and three samples, respectively, did not show bacterial DNA. The mean CFU count values obtained in the initial, post-CMP and post-ICM collections were respectively 130 (40-2600); 0 (0-59); 0 (0-25).

Conclusion: The microbiota of root canals with Secondary/Persistent Endodontic Infection is mixed and heterogeneous, with endodontic retreatment being effective in reducing the associated microbiological load. Furthermore, the simultaneous use of classical microbiology and molecular biology methods enables a thorough examination of the bacteria associated to failed root canal treatments, as well as the impact of ER on the bacterial community in cases of SEI.

MINIMALLY INVASIVE APPROACH FOR AESTHETIC RESTORATIONS OF INACTIVE WHITE SPOT LESIONS: A CASE REPORT

MILAGROS FALCON AGUILAR; JOYCE FIGUEREIDO DE LIMA MARQUES, ISABELA GUERRA GONTIJO; FLÁVIO HENRIQUE BAGGIO AGUIAR
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This clinical case report proposed an aesthetic intervention for inactive white spot lesions by employing a tandem approach of supervised at home dental bleaching (SHDB) and Enamel Microabrasion (EM).

Method: A 48-year-old patient, discontented with the color and appearance of her smile, sought dental care, where she was diagnosed with inactive white spot lesions on the lateral incisors, canines, and upper and lower premolars. Initially, it was advised to perform a supervised at home dental bleaching (SHDB) utilizing a 10% carbamide peroxide-based gel (Whiteness Perfect, FGM) to mitigate the disparity between the stains and the tooth surface.

Results: Subsequently, the affected upper teeth underwent enamel microabrasion (ME) with Whiteness RM (FGM), adhering strictly to the manufacturer's guidelines for both products.

Conclusion: In conclusion, the combination of SHDW and ME techniques demonstrated efficacy in addressing inactive white spot lesions, offering a safe and minimally invasive therapeutic approach.

MORPHOMETRIC ANALYSIS OF THE FORAMEN SPINOSUM AND THE FORAMEN OVALE AND THEIR VARIATIONS AND MORPHOLOGICAL RELATIONSHIPS

MARIA LUIZA LIMA DE OLIVEIRA; ALEXANDRE RODRIGUES FREIRE, BEATRIZ CARMONA FERREIRA-PILEGGI, FELIPPE BEVILACQUA PRADO; ANA CLÁUDIA ROSSI
PIRACICABA DENTAL SCHOOL - UNICAMP

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

Method: Fifty dried human skulls of both sexes, aged between 18 and 80 years, were used. The anteroposterior and transverse diameters of the foramina were evaluated, on both sides, using a digital caliper. The data obtained in the measurements, the area was calculated by the formula $= (\pi \times L \times B) / 4$, where L: Anteroposterior diameters; B: Transverse diameters and were submitted to statistical analysis using the software GraphPAD Prism v.8 (San Diego, CA, USA). The distribution of the data was verified by Shapiro-Wilk test and was considered normal. The mean and standard deviation of each dimension was computed. Sex differences were analyzed for each dimension using the ANOVA test with a p-value < 0.05.

Results: For the foramen ovale area, the ANOVA test showed significant difference when compared the sexes and sides ($P < 0,001$). The male sex present higher values of the diameter in relation to the female on both sides. For the foramen spinosum area, the test revealed that there were no significant differences when compared the sexes and sides ($P = 0.3397$).

Conclusion: In conclusion, the morphometric analysis of the foramen ovale is sexually dimorphic, which has variability in terms of side. While foramen spinosum does not differ between sexes or sides, and this showed anatomical significance for the medical and dental procedures in cases of trigeminal neuralgia and in diagnostic detection of tumors.

MULTIDISCIPLINARY APPROACH TO EARLY CHILDHOOD CARIES OVER 9 YEARS: A CASE REPORT

LETÍCIA MARTINS PEREIRA; PATRÍCIA VITOR DE SOUZA, ALEXA NICOLE GUERRERO, CÍNTIA MOREIRA GONÇALVES, EDUARDO CÉSAR ALMADA SANTOS; REGINA MARIA PUPPIN RONTANI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This case report aims to underscore the significance of a multidisciplinary approach in managing early childhood caries over a 9-year period.

Method: The case involves a 4-year-old patient, C.V.C., referred to Piracicaba Dental School (FOP-Unicamp), in 2015, due to complaints of cavities and dental fistulas. Upon evaluation, the patient was diagnosed with early childhood caries. The treatment plan comprised oral hygiene motivation and instruction, carious tissue removal from affected teeth, removal of carious tissue, and restorations. Additionally, more invasive procedures, such as pulpectomy and extraction were performed.

Results: By age 5, the patient underwent oral rehabilitation, including the use of space maintainers to address early primary teeth loss. Subsequent follow-ups revealed occlusion development and permanent teeth eruption, alongside the identification of atypical swallowing necessitating a new interceptive orthodontic plan for correction. Following the pandemic hiatus, the patient returned for continued follow-up, displaying retained primary teeth and new active caries lesions. A revised treatment plan was devised, incorporating topical fluoride application, tooth extraction, and corrective orthodontic treatment using self-ligating fixed appliances.

Conclusion: This case report underscores how a multidisciplinary approach spanning pediatric dentistry and orthodontics not only managed early childhood caries over 9 years but also rectified sequela and facilitate proper occlusion development.

MULTIDISCIPLINARY CLINICAL APPROACH FOR THE DIAGNOSIS AND TREATMENT OF SUPERNUMERARY TEETH IN CHILDREN: A CASE REPORT

CINTHYA JEANETTE ARIAS GUILLÉN; CARLA MARINHO BARRETO GOIS, BRUNO DEZEN VIEIRA, ALEXANDER TADEU SVERZUT, MARIA BEATRIZ DUARTE GAVIÃO, CAROLINA STEINER OLIVEIRA ALARCON, EDUARDO CÉSAR ALMADA SANTOS; FERNANDA MIORI PASCON
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Therefore, the objective of this clinical case report is to address the complexities related to diagnosis, planning, and execution of treatment with a multidisciplinary approach in a patient with supernumerary teeth.

Method: A 10-year-old female patient was referred to the Pediatric Dentistry at FOP-UNICAMP, to treat supernumerary teeth in upper anterior region. After obtaining authorization for treatment, a detailed anamnesis was carried out, followed by a clinical examination, panoramic radiography and computed tomography analysis. Five supernumerary teeth were located in the maxilla and mandible. Multidisciplinary planning was carried out involving pediatric dentistry, surgery, and orthodontics. The surgical stage was divided into three sessions, starting with the maxilla and, subsequently, with the right and left sides of the mandible. After the post-surgical healing period, orthodontic treatment began with applying an upper fixed appliance using the Roth prescription, with archwire and NITI superelastic wire of 0.012" and 0.014", respectively.

Results: The patient has been under regular follow-up for 11 months and the next stage will be the corrective phase of treatment.

Conclusion: It can be concluded that care with a multidisciplinary team aims to provide adequate treatment, prioritizing the patient's well-being with a focus on aesthetics, functionality, and the patient's general quality of life.

NANOPARTICULATE BLEACHING GELS COMPOSED OF HYALURONIC ACID ASSOCIATED WITH VIOLET LED LIGHT: EFFICACY AND CITOTOXICITY

MARCOS ROBERTO DE LIMA BENATI; PRISCILA BORGES GOBBO DE MELO, MATHEUS KURY, RAFAEL DASCÂNIO, RAFAEL ANTÔNIO DE OLIVEIRA RIBEIRO, CARLOS ALBERTO DE SOUZA COSTA; VANESSA CAVALLI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated the efficacy, mineral content and citotoxicity of experimental bleaching gels composed of hyaluronic acid (HA) containing titanium dioxide nanoparticles (NPs) co-doped with N and F (NF_TiO₂) combined with low concentrations of hydrogen peroxide (HP).

Method: Sound bovine enamel specimens were treated with (n=10): Carbomer 940 + HP (1.5 and 6%) + NF_TiO₂ (5%); HA + HP (1.5 and 6%) + NF_TiO₂ (5%), with and without violet LED light; Commercial control (HP 35%) and negative control (no treatment). The bleaching protocol was conducted in 3 sessions of 30 minutes each with a 7-day interval, and the analyses performed were: whitening index (Δ WID), color change (Δ E00), surface microhardness (KHN), energy dispersive spectroscopy (EDS), surface roughness change (Δ Ra), scanning electron microscopy (SEM) after 14 days of the last bleaching session, and cell viability analysis (MTT assay). Data were analyzed by 3-way ANOVA and Bonferroni post-hoc test ($\alpha=5\%$).

Results: The gels showed higher Δ E00 and Δ WID when irradiated with LED, especially in the HA-groups ($p<0.05$). A significant microhardness increase was noted in HA-groups irradiated with LED ($p<0.05$). No significant roughness change, Ca and P concentration and enamel morphology was found after treatments ($p>0.05$). Cell viability was higher in groups submitted to HP 1.5% ($p<0.05$).

Conclusion: It is concluded that the experimental HA-based bleaching gels containing NPs exhibited bleaching effectiveness even with low HP concentrations, did not promote adverse effects on enamel and exhibited low cytotoxicity.

NECK EXERCISE FOR PAIN IN INDIVIDUALS WITH TEMPOROMANDIBULAR DISORDER: A RANDOMIZED CLINICAL TRIAL

NICOLE FORNARI SÍGOLO; DELAINE RODRIGUES BIGATON, MARCIO DE MORAES, LUCIANA ASPRINO; ELISA BIZETTI PELAI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study aimed to determine the effect of a neck exercise protocol using visual feedback on cervical muscle pain of individuals diagnosed with TMD according to DC/TMD.

Method: The sample was divided into: the Exercise Group (EG), which performed neck exercises (extension and flexion), and the Placebo Group (GP), which received placebo transcutaneous electrical stimulation (TENS). The treatment, supervised by a physiotherapist, lasted for 8 weeks with a total of 12 sessions, each lasting 45 minutes, conducted twice a week during the first month and once a week during the second month, along with home exercises. All volunteers were assessed for pain intensity pre- and post-treatment, and with a follow-up of 24 weeks, using the VAS (Visual Analogue Scale) and algometry to measure the PPT (Pressure Pain Threshold) in the temporal, masseter, sternocleidomastoid, and upper trapezius muscles.

Results: For pain there was a difference between groups ($p=0.013$ time group) and a large clinical effect size for EG, at follow-up, there was no difference between groups. Algometry showed a significant time-group difference for the right anterior and lower masseter ($p=0.025$ and $p=0.007$, respectively) and a clinically important increase for the three fibers of the right masseter in the EG. Late evaluation showed no significant difference between the groups, but the clinical effect was great for the temporal muscles, bilaterally, and left masseter in the case of the EG.

Conclusion: The protocol of cervical neck exercises with the use of visual feedback promoted a significant improvement in the variables of pain in the cervical muscles of individuals diagnosed with TMD.

NEOVESTITOL AND VESTITOL MODIFIES THE PROFILE OF A MATURE SUBGINGIVAL MULTISPECIES BIOFILM

NATHÁLIA ROHWEDDER DOS SANTOS; URSULA MODESTO SANDI, LARISSA MATIAS MALAVAZI, GUSTAVO QUILLES VARGAS, TATIANE TIEMI MACEDO, MANUELA ROCHA-BUENO; BRUNO BUENO-SILVA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the effect of the combination of neovestitol-vestitol (CNV) compounds obtained from Brazilian red propolis on the microbiological profile of a mature multispecies subgingival biofilm.

Method: The biofilm with 32 bacterial species associated with periodontitis was formed for seven days using a Calgary device. Treatment with CNV (1600, 800, 400, and 200 μ g/mL), amoxicillin (54 μ g/mL), and vehicle control was performed for 24 hours on the last day of biofilm formation. Biofilm metabolic activity and DNA-DNA hybridization (checkerboard) assays were performed.

Results: The groups treated with CNV 1600 and amoxicillin reduced 25 and 13 species, respectively, compared to the control vehicle treatment ($p\leq0.05$), both reduced *P. gingivalis*, while only CNV reduced *T. forsythia*. When the data from the two treatments (CNV and AMOXI) were compared, a statistically significant difference was observed in 13 species, particularly members of Socransky's orange complex. Our results showed that CNV at 1600 μ g/mL showed the best results regarding the metabolic activity of mature biofilms and obtained a reduction in species associated with the disease, such as *T. forsythia*, showing a better reduction than amoxicillin.

Conclusion: Therefore, CNV seems to be a promising alternative to eradicate biofilms and reduce their pathogenicity.

ODONTOGENIC MAXILLARY SINUSITIS AND ITS COMPLICATIONS

LEONARDO GONZAGA DE LIMA VARGAS; ANGÉLICA MENEGUCI PETRARCA, THALES FABRO VANZELA
SVERZUT, ALEXANDER TADEU SVERZUT; ALEXANDER TADEU SVERZUT
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The purpose of this study was to review the literature on the etiology, complications, and treatment of sinusitis of odontogenic origin.

Method: A literature review was conducted through the PubMed database using the keywords "(Odontogenic maxillary sinusitis) AND (Complications)", without language restrictions, limiting the search to the period from 2019 to 2024. Sixty-one articles were found, which were subjected to the process of reading titles, abstracts, and full text, those that did not cover the proposed topic were excluded.

Results: Odontogenic Maxillary Sinusitis (OMS) is defined as a symptomatic maxillary sinus inflammation, and its etiology usually results from molar extractions, tuberosity reduction, displacement of the dental root, and sinus lift with the placement of implants and grafts. Regarding the treatment of these conditions, pharmacological regimens and endoscopic sinus surgery are possibilities in management; however, the surgical treatment for OMS is often indicated. Some complications originating from OMS have been related in the literature, such as orbital, including preseptal or postseptal cellulitis or abscess, and cavernous sinus thrombosis. Bone complications refer to osteomyelitis of the sinus wall that can cause subcutaneous subperiosteal abscess or orbital or intracranial spread. Intracranial complications include meningitis, abscesses, or cerebral venous sinus thrombosis.

Conclusion: Therefore, sinusitis of odontogenic origin and its possible complications require attention regarding its early diagnosis, and effective and multidisciplinary management, when necessary, must be considered to resolve this condition.

OVARECTOMY-INDUCED OSTEOPENIA IN RATS: THE MECHANICAL EFFECTS OF DIET AND TOOTH EXTRACTION ON THE MANDIBULAR BONE

CAMILA CARRILLO FURLAN; ALEXANDRE RODRIGUES FREIRE, FELIPPE BEVILACQUA PRADO, BEATRIZ CARMONA FERREIRA-PILEGGI; NA CLÁUDIA ROSSI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to evaluate the mechanical effect of ovariectomy-induced osteopenia, diet and tooth extraction on the bone structure of the mandible of Wistar rats.

Method: Mandibles from 40 female Wistar rats were used, divided into rats with ovariectomy surgery and rats with ovariectomy surgical simulation. Among these groups, half of the rats had the right upper incisor extracted and a soft diet was introduced for half of the animals for 30 days. After euthanasia, microtomography of the mandibles was performed for bone segmentation to construct three-dimensional models using the Materialise Mimics Research v software. 18 (Materialise, Leuven, Belgium). Each mandible was subjected to a three-point bending test to obtain mechanical properties and the rupture force. In silico analyzes were carried out using the Finite Element Method in the Ansys v software. 17.2 (Ansys Inc., Canonsburg, USA). The simulation was configured according to the protocol for positioning the part on the support and force action by the load cell defined in the mechanical tests (median fracture force for each group). Stress dissipation was described qualitatively on a color scale distributed in ranges of stress values in megapascals (MPa).

Results: All models showed a higher concentration of stresses in the regions of force action and in the support regions, with differences in stress values and locations.

Conclusion: Diet and tooth extraction interfered with stress distribution, with the lateral surface of the mandible being more influenced by diet and the medial surface of the mandible by diet and tooth extraction.

PERCEPTIONS ON THE ORAL HEALTH OF PATIENTS WITH SEVERE MENTAL DISORDERS BY OUTPATIENT SERVICE RESIDENT PHYSICIANS

MICHELLI CAROLINY DE OLIVEIRA; EGBERTO RIBEIRO TURATO, RODRIGO ALMEIDA BASTOS, CAIO VIEIRA DE BARROS ARATO; LUCIANE MIRANDA GUERRA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this study was to explore the meaning and the practice or not of oral health guidelines by resident psychiatrists who care for patients with severe mental disorder in the psychiatric outpatient clinic of the University State of Campinas.

Method: The sample was constructed intentionally and sequentially by psychiatric residents working in the referred clinic and closed by saturation. 06 semi-directed interviews of open-ended questions were carried out. The interview material was treated by the Clinical-Qualitative Content analysis.

Results: Based on the results, it was possible to understand symbolic representations that exist in the relationship between the psychiatry resident and the patient with severe mental disorders in the outpatient environment. Thus, it was clear that the doctor is very concerned about the patient's general health and also the oral health. However, the appropriation of the patient's oral health as a therapeutic conduct is beyond its domains - both perceptual, formative and conceptual.

Conclusion: Thus, it was clear that the doctor is very concerned about the patient's general health and also the oral health. However, the appropriation of the patient's oral health as a therapeutic conduct is beyond its domains - both perceptual, formative and conceptual. By revealing the symbolic contained in the doctor - patient relationship, the results may guide changes in professional conduct and in medical training programs.

PERSPECTIVES OF GRADUATE STUDENTS' PARTICIPATION AT HOME VISITS OF FAMILIES MEMBERS FROM PUBLIC SCHOOLS

AMANDA ALVES LEÃO; MARIANA FARIA MILITANI, TAINÁ LORENA SILVA, ISADORA ABDALLA FERREIRA, LARA EVANGELISTA ORLANDI, LEANDRO ARAÚJO FERNANDES, HELOÍSA DE SOUSA GOMES; DANIELA COELHO DE LIMA
FEDERAL UNIVERSITY OF ALFENAS

Aim: The objective of the study was to identify the expectations of Dentistry graduate students from UNIFAL-MG prior to carrying out home visits proposed by the Public Health college subject.

Method: Previously the visitation, the academics filled out a form prepared on the "Google Forms" platform about their expectations for this meeting.

Results: Twenty-seven students answered the form, being 59.3% women and 40.7% men. Firstly, they were asked what would be their expectations regarding the visit and 34.6% expected to contribute knowledge by raising awareness of the parents and giving information about the public service offered by the University. Furthermore, 34.6% sought to experience regarding the economic and social reality of the student and his family, while 19.2% expected to meet the family structure and to be well received, and 11.54% wanted it to be a peaceful experience and different from what they had been experienced in the academic environment. The second question was regarding the difficulties from the students and 33.3% believed that they would be able to change the family's habits due to lack of interest or due to socioeconomic condition, 29.6% because fear of not being welcomed, 14.8 % who faced resistance from the family in receiving the information and 7.41% difficulty to go to the place.

Conclusion: Therefore, it was possible to identify that students have good expectations regarding the home visit experience; however, they are afraid of not being welcomed in this practical learning scenario or of not being able to assist in the health care of the actors that make up the familiar context.

PHYSICAL ACTIVITY AND MENTAL HEALTH: PROMOTING A MORE ACTIVE LIFE IS THE BEST FORM OF PREVENTION

RENAN DA CRUZ FAVARIN; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To discuss physical activity and mental health in adolescents: promoting a more active life is the best form of prevention.

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

Results: Adolescence is comprised between the chronological period from 10 to 19 years old (WHO). It is conceptualized as a phase of various structural and behavioral transformations, especially in psychological, physical, biological and social aspects. Practice has proven that physical activity can enhance people's will, improve mental outlook, and positively influence the prevention and treatment of some psychological disorders. In adolescents, knowledge alone does not result in behavioral transformation or changes in habits or lifestyle. Interventions in health education must consider the individuality and social context of adolescents, with the function of stimulating behaviors, values, attitudes, creativity and reflection in adolescents. Currently, the search for improvement in physical conditioning is high, aiming to improve athletic performance or with aesthetic objectives. To achieve this, only physical activity and training techniques are not always used, with the use of illicit agents being increasing, such as anabolic hormones and stimulant substances. Its indiscriminate use has serious consequences.

Conclusion: Adolescents' knowledge about the benefits of physical activity on mental health provides opportunities and encourages regular physical exercise, regardless of social class. The results suggest that knowledge can be a protective factor against a sedentary lifestyle and physical inactivity.

PHYSICOCHEMICAL PROPERTIES OF AN EXPERIMENTAL ENDODONTIC SEALER WITH CHITOSAN BIOPOLYMER

HEITOR MURILO CARNIO; THIAGO BESSA MARCONATO ANTUNES, LARISSA PAVANELLO, JULIANA DELATORRE BRONZATO, MÁRCIA REGINA DE MOURA AOUADA, KARINA COGO MÜLLER, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; MARINA ANGÉLICA MARCIANO DA SILVA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Chitosan, a natural biopolymer derived from the exoskeletons of arthropods, exhibits a wide range of applications owing to its antimicrobial, healing, reparative, and bioactive properties. This study investigates the incorporation of chitosan into an experimental calcium silicate-based sealer. Additionally, the study compares this experimental sealer with Bio-C Sealer, a bioceramic material, and a control group without chitosan

Method: The evaluation of the biopolymer's impact on the sealer's properties was conducted using physicochemical tests according to ISO 6876/2012 standards (n = 6). Characterization was carried out using scanning electron microscopy (SEM) combined with energy dispersive X-ray spectroscopy (EDS).

Results: The flowability of Bio-C Sealer was significantly higher compared to both the experimental and control sealers ($p < 0.05$). However, the setting time of the experimental sealer was similar to that of the control and Bio-C sealers ($p > 0.05$). The experimental sealer exhibited lower solubility compared to Bio-C ($p < 0.05$). Bio-C demonstrated higher radiopacity compared to both the experimental and control sealers ($p < 0.05$). The pH of the control sealer shifted from acidic to alkaline, while the pH remained stable and alkaline for both Bio-C and the experimental sealer throughout the evaluation period. SEM analysis revealed smaller particle size in Bio-C and higher calcium content, as observed by EDS, compared to the other sealers.

Conclusion: The experimental sealer demonstrated solubility below 3%, adequate radiopacity, setting time similar to Bio-C Sealer, and maintained an alkaline pH throughout the evaluation period.

PHYTOTHERAPEUTICS AS ENDODONTIC IRRIGANTS: A LITERATURE REVIEW

MAURO FELIPE RIOS DO NASCIMENTO; THIAGO BESSA MARCONATO ANTUNES, WALLYSON ADALBERTO DIAS, THAIETRO ALLYEHANDRO PORFÍRIO, MATEUS SCOTINI PEREIRA; BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES
PADRE GERVÁSIO NATIONAL INSTITUTE OF HIGHER EDUCATION AND POSTGRADUATE STUDIES - INAPÓS

Aim: Studies aim to effectively combine biocompatibility and antimicrobial capacity in endodontic irrigants, seeking to use phytotherapeutics for this purpose. The objective of this work was to analyze the antimicrobial capacity of phytotherapeutics through a bibliographic review.

Method: A search was conducted in the Scielo and PubMed databases including 75 articles published from 1941 to 2023 in English and Portuguese related to the study of endodontic irrigants.

Results: Irrigants made with potato peel have antimicrobial effects similar to sodium hypochlorite (NaOCl), but are less effective than chlorhexidine (CLX). Grape seed extract at 6% had a comparable effect to CLX against *E. faecalis*. Moringa seed was superior to 5.25% NaOCl, as well as 3% cinnamon extract, demonstrating efficacy against *S. mutans* and *E. faecalis*, with a broad spectrum of action against gram-negative and gram-positive bacteria.

Conclusion: The use of phytotherapeutics as irrigants is promising, but further research is needed to ensure their clinical safety. The main candidates include potato peel extract, cinnamon, and moringa seed.

POLYMORPHISMS IN VICR AND COVR REGULATORY PROTEINS AMONG S. SANGUINIS STRAINS DIFFERING IN SENSITIVITY TO ANTIBIOTICS

LÚCIA AIKO YASUMURA TENGAN; TSUTE CHEN, EDUARDO MARTINELLI FRANCO, HASSAN NAVEED; RENATA DE OLIVEIRA MATTOS-GRANER
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: *Streptococcus sanguinis*, an oral bacteria frequently associated with infective endocarditis, applies the regulatory proteins VicR, VicK and CovR to regulate the expression of genes modulating antibiotic resistance functions. The aim of this study was to investigate associations between VicR, VicK and CovR polymorphisms with antibiotic-resistance phenotypes in *S. sanguinis* strains.

Method: Nine publicly available strains previously characterized regarding sensitivities to penicillin (PG), amoxicillin (AM), methicillin (MT), vancomycin (VC), dalbavancin (DB), daptomycin (DT), erythromycin (ER), doxycycline (DO) were studied. The genomes of these strains were retrieved from the GenBank database (NCBI) and the FASTA sequences of VicR, VicK and CovR were aligned using ClustalW, for identification of protein polymorphisms.

Results: Although not detected in VicR, polymorphisms were found in VicK, including an absence of the C-terminal amino acid in strains SK115 and SK160, which were sensitive to most antibiotics. An amino acid change within a VicK functional domain was also found in a strain resistant to antibiotics affecting the cell wall (VC, AM, MT, DB), SK353. Eighteen amino acid changes were detected in CovR, some exclusive to a multidrug-resistant strain.

Conclusion: These findings indicate that VicK and CovR polymorphisms might underlie antibiotic sensitivity phenotypes in *S. sanguinis*, and thus, could be useful targets for molecular detection of antibiotic resistance strains. Supported by FAPESP (proc. 2021/13074-9 e 2022/13831-8) and CNPq (grant 303896/2022-1).

POSSIBLE CO-PARTICIPATION OF TRP CHANNELS FAMILY IN PAIN PARCEPTION AND ANXIETY-LIKE BEHAVIOUR

ANA JULIA PUPPIN DE CAMPOS TOLEDO; GUSTAVO HENRIQUE NOGUEIRA NEIMAN, ANDRESSA DE OLIVEIRA ROCHA, CAROLINE DAL'BÓ HONÓRIO, DANIEL FELIPE FERNANDES PAIVA, BRUNA BENSO, FRANCISCO CARLOS GROPPPO; CAMILA BATISTA DA SILVA DE ARAUJO CANDIDO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study aims to explore the relationship between pain perception, mediated by TRPV channels, and anxiety.

Method: An integrative literature review was conducted using the search strategy: "(Pain) AND (anxiety) OR "dental anxiety" OR "Benzodiazepines" OR "Receptors, GABA-A") AND ("TRPV Cation Channels)". Searches were executed across Pubmed, Embase, Web of Science, Cochrane Library, and Scopus databases, without language or publication year restrictions. Inclusion criteria encompassed studies correlating anxiolytic effects with TRPV channels, commonly associated with pain perception. Among 47 retrieved studies, 5 met the criteria.

Results: Pain, an individual's sensory and emotional experience, is neurologically perceived and modulated by pathways including TRPV channels. However, primary investigations have primarily focused on TRPV1's role in anxiety modulation, suggesting its action in the prefrontal cortex. Notably, no studies have explored the impact of anxiolytics on TRPV channels. This suggests a potential modulation of anxiety via pain perception control, though this link remains incompletely understood and quantified.

Conclusion: Moreover, investigating the influence of anxiolytics on TRPV channels could provide crucial insights into this correlation.

POTENTIAL OF BLEACHING GELS WITH DIFFERENT PARTICLES ASSOCIATED WITH VIOLET LIGHT

IAGO CÉSAR RIBEIRO TELES MATOS; MATHEUS KURY, PRISCILA BORGES DE GOBBO MELO, LETÍCIA VASCONCELOS SILVA DE SOUZA, FERNANDO LUIS ESTEBAN-FLOREZ; VANESSA CAVALLI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study evaluated the chemical stability, bleaching potential, mineral content, and morphology of experimental bleaching gels containing hydrogen peroxide (HP), NF₂TiO₂, and/or Nb₂O₅, either with or without violet LED light

Method: The stability of the gels was evaluated based on pH and H₂O₂ decomposition, and the color variation (ΔE_{00}), whitening index (ΔWID), microhardness (SH), average roughness (ΔRa), the chemical content (EDS), and morphology (SEM) were determined on the enamel samples. Enamel blocks were submitted to bleaching (3 sessions of 30 min each) with 6% HP containing (n=10): 5% NF₂TiO₂, 5% Nb₂O₅, 2.5% NF₂TiO₂ + 2.5% Nb₂O₅, or without particles, irradiated or not with LED, and with 35% HP (positive control). Data were subjected to two-way ANOVA (pH, titration, ΔE_{00} , and ΔWID) and three-factor ANOVA (SH) / Tukey post-hoc, and Kruskal-Wallis (ΔRa) test ($\alpha = 0.05$).

Results: The average pH values ranged from 6 to 6.5. The concentration of H₂O₂ increased in groups irradiated with LED. Gels containing NF₂TiO₂ and/or Nb₂O₅ showed higher ΔE_{00} and ΔWID when irradiated with LED ($p < 0.05$), with no color differences compared to 35% HP. SH decreased after treatment with Nb₂O₅ and Nb₂O₅ + TiO₂, without LED ($p < 0.05$), but without differences in comparison to other groups ($p > 0.05$). No differences in ΔRa , Ca and P content ($p > 0.05$), and enamel morphology were noted among groups.

Conclusion: Experimental gels containing NF₂TiO₂ or Nb₂O₅, and irradiated with LED light, were chemically stable and exhibited a whitening potential similar to 35% HP, without causing adverse effects on the enamel.

PREBIOTIC ARGININE INHIBITS GTFB ACTIVITY ENZYME FROM STREPTOCOCCUS MUTANS ADSORBED ON HYDROXYAPATITE BEADS

VINÍCIUS SAMPAIO ALVES DE FIGUEIREDO; PEDRO CANTO BUENO; MARLISE INÊZ KLEIN FURLAN
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study investigated the effect of putative prebiotics on the activity of GtfB adsorbed on saliva-coated hydroxyapatite (HA) beads.

Method: The tested putative prebiotics were N-acetylglucosamine, proline, urea, and sodium nitrate. Arginine is a prebiotic already present in some oral health care products and was used as the prebiotic control and the other assay control was without a supplement. GtfB exoenzyme was purified and stored (-75°C). The GtfB activity assay included the following sequential steps: HA beads were incubated with saliva for acquired pellicle formation (40 min, 37°C); the beads were washed, and the enzyme was added (40 min, 37°C); the beads were washed, and the potential prebiotics (or controls) were added (30 min, 37°C); the beads were washed, and the enzyme-substrate sucrose was added (37°C for 4 hours); the reaction was stopped, and the glucans were precipitated with ethanol (18 h, -20°C). The samples were washed and dried, and NaOH was added to solubilize the glucans. Three aliquots from each sample were used to determine the glucan quantity by the phenol-sulfuric acid method, using a glucose curve (490 nm). Three assays were performed in triplicate for tubes with GtfB and in duplicate for tubes without the enzyme (reaction background control).

Results: Among the substances tested, only arginine inhibited GtfB activity.

Conclusion: Thus, arginine was the only prebiotic effective against the synthesis of water-insoluble glucans; the other substances did not exert this effect.

PROGRESSIVE RADIATION CARIES: CASE REPORT

CAMILA BARCELLOS CALDERIPE; CAIQUE MARIANO PEDROSO, CRISTINA SALDIVIA SIRACUSA, ROGÉRIO DE ANDRADE ELIAS, MÁRCIO AJUDARTE LOPES; ALAN ROGER SANTOS-SILVA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This case report aims to describe the clinical course of radiation caries when the patient does not adhere to follow-up

Method: A 62-year-old male patient was referred to the Dental School in October 2018 for pre-radiotherapy evaluation. His medical history revealed a diagnosis of oropharyngeal cancer and one month of chemotherapy. Following clinical and radiographic examination, oral adequacy was performed. Subsequent to completing radiotherapy in December 2018, the patient was referred to the Service, reporting xerostomia, dysgeusia, and dietary alterations. Orientation, fluoride application, and prescription of artificial saliva were provided. Subsequently, the patient experienced significant loss to follow-up, attributed to personal reasons. In October 2019, the patient returned with enamel delamination, diagnosed as radiation caries. In June 2021, the patient presented with notable disease progression. Subsequent appointments involved restorations and endodontic treatment, with limited success. By June 2022, the patient presented with cervical caries, blackened dentin, and amputated incisors in all teeth.

Results: Based on the clinical and radiographic findings, extractions were considered and partially performed.

Conclusion: This case exemplifies the progression of radiation caries in a patient who does not adhere to follow-up, highlighting potentially serious consequences. The importance of regular consultations to monitor and intervene in the early stages of the disease is emphasized, in order to preserve oral health and the patient's quality of life.

PULP REVITALIZATION OF NECROTIC IMMATURE TEETH: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

ARIAN BRAIDO; WALBERT DE ANDRADE VIEIRA, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES, MARINA ANGÉLICA MARCIANO, JOSÉ FLÁVIO AFFONSO DE ALMEIDA, CAIO CEZAR RANDI FERRAZ, OSÉ FLÁVIO AFFONSO DE ALMEIDA, JULIO VARGAS NETO; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To compare various interventions for pulp revitalization in terms of success rate, root development, pulp sensitivity, and adverse effects.

Method: A comprehensive search of electronic databases was conducted up to July 14, 2023, to retrieve randomized controlled trials (RCTs) that compared the clinical effectiveness of pulp revitalization in immature necrotic teeth using different interventions with a minimum follow-up period of 12 months. Two independent authors selected the studies, extracted relevant data, and assessed the individual risk of bias. Meta-analysis of the overall success rate of pulp revitalization was reported as a percentage.

Results: A total of fifteen trials involving 528 teeth and 436 participants were included. Among eligible studies, fourteen different intervention comparisons were identified. The revitalization procedure exhibited a success rate of 95% with a minimum follow-up of 12 months. None of the interventions comparisons showed significant differences in terms of success rate, complete apical closure, decrease in apical diameter, or pulp sensitivity. Platelet-Rich Fibrin demonstrated a significant increase in root length compared to blood clot, with a very low certainty of evidence. Biodentine and calcium hydroxide paste reduced the risk of crown discoloration when compared to white MTA and triple antibiotic paste, respectively.

Conclusion: Pulp revitalization of necrotic immature teeth has shown a high success rate. However, evidence comparing the different clinical approaches remains limited, and more RCTs are required for further evaluation.

QUANTIFICATION OF BACTERIAL SPECIES AND VIRULENCE FACTORS IN SYMPTOMATIC IRREVERSIBLE PULPITIS AND NORMAL PULP

ANA BEATRIZ SAFADY LOPES; RODRIGO ARRUDA-VASCONCELOS, LIDIANE MENDES LOUZADA, VITO MADIO CHIRELLI NETO, EDERALDO PIETRAFESA JUNIOR, PEDRO IVO DA GRAÇA FAGUNDES, ERICA MENDES LOPES; BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Deep caries lesions can result in pulpal inflammation and irreversible pulpitis (IP). Gram-positive bacteria are found in the root canal and has a component in their cell wall known as lipoteichoic acid - LTA. In the case of Gram-negative bacteria, their main cellular component is lipopolysaccharide (LPS). This study aimed to evaluate the presence of bacterial species in symptomatic irreversible pulpitis and normal pulp (control group); quantify the levels of virulence factors (LTA and LPS).

Method: Ten samples of caries (C1), initial (C2), post-chemical-mechanical preparation (C3), and post-intracanal medication (C4) were collected from patients with IP. Ten samples of C2, C3, and C4 were collected from patients with normal pulp (NVP) undergoing endodontic treatment due to prosthetic indication. The quantification LTA and LPS was performed respectively by enzyme-linked immunosorbent assay (ELISA) and turbidimetric method (LAL Pyrogent 5000). Statistical analysis was performed with a significance level of 5% ($p < 0.05$).

Results: The most found species in C1 samples were *Porphyromonas gingivalis* and *Prevotella nigrescens*. In C2 samples, the most prevalent species were *Enterococcus faecalis* and *Prevotella nigrescens*. In C3 and C4 samples, no bacterial species were found. Regarding LTA and LPS levels, a significant difference ($p < 0.05$) was observed between C2 and C3. In the case of teeth with NVP, specific bacteria were not identified, however, lower levels of LPS and LTA were detected when compared to IP.

Conclusion: It was concluded that teeth with IP present a diversified microbiota with reduced levels of LPS and LTA post chemo- mechanical preparation.

RECENT ADVANCES AND PROSPECTS IN BETA-TYPE TITANIUM ALLOYS FOR DENTAL IMPLANTS APPLICATIONS

JOÃO VICENTE CALAZANS NETO; CÍCERO ANDRADE SIGILIAO CELLES, CATIA SUFIA ALVES FREIRE DE ANDRADE, CONRADO RAMOS MOREIRA AFONSO, BRUNA EGUMI NAGAY; VALENTIM ADELINO RICARDO BRÃO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Titanium has been extensively researched in Implant Dentistry due to its favorable characteristics, but it encounters challenges such as a high elastic modulus and concerns regarding cytotoxicity. To address these limitations, studies have focused on exploring β -type titanium alloys by incorporating β -stabilizing to enhance corrosion resistance and achieve a lower elastic modulus more compatible with bone. This review aims to provide a comprehensive examination of the currently developed β titanium alloys, assessing their mechanical properties, particularly the elastic modulus, and corrosion resistance. We also explored the formation of the alloy and its physical, mechanical, electrochemical, tribological, and biological characteristics.

Method: To do this, a systematic search was carried out in the PubMed, Scopus, Web of Science, and EMBASE databases, using MeSH terms with adjustments made to adhere to the rules of each database.

Results: Our search resulted in Nb being the element most associated with Ti to produce β alloys, followed by Mo, Zr, and Ta. Furthermore, β -Ti alloys with body-centered cubic crystalline structure (bcc phase) tended to exhibit positive results regarding elastic modulus, with most studies also indicating promising outcomes concerning corrosion resistance, mechanical strength combined with suitable elongation, and hardness.

Conclusion: Based on the articles reviewed, it is possible to conclude that β alloys promise to improve biomedical implants. They offer lower elasticity modulus, reducing bone stress, and corrosion resistance. Depending on alloy composition, they may enhance antimicrobial properties and biological safety.

RECONSTRUCTIONS FOR CORRECTION OF MAXILLOFACIAL DEFECTS AND DEFORMITIES: PRELIMINARY RESULTS OF SYSTEMATIC REVIEW

MARIA JÚLIA ASSIS VICENTIN CALORI*; LEVI SAULO RODRIGUES DE JESUS, MARILIA PINHEIRO CARVALHO, LUCIANA ASPRINO, MÁRCIO DE MORAES; ELISA BIZETTI PELAI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Large facial and cranial defects resulting from resections due to cerebral insults, traumas or tumors create functional and aesthetic disturbances for the patient, and, therefore, reconstruction with a personalized prosthesis in these cases is an alternative. Compare different types of reconstructions of maxillofacial defects or deformities by resection of pathology or sequelae of maxillofacial trauma, that is, maxillofacial defects.

Method: A systematic review was conducted according to the PRISMA statement and applied to the PROSPERO platform. The database searches were performed in PubMed, Scopus, Web of Science, EMBASE, and The Cochrane Library. No restrictions were used for language or year of publication. Selection criteria included clinical studies in humans with maxillofacial defects and/or deformities due to trauma or pathologies.

Results: 8 articles met the inclusion criteria and were selected for review. In 4 studies, the etiology of the deformity and/or defect is pathology only, 3 both (trauma and pathology), and 1 study results from trauma. In 4 studies, the patients were reconstructed with vascularized autogenous grafts, 2 with non-vascularized autogenous grafts, and 2 with titanium prostheses.

Conclusion: Based on the conclusions found in this review, for patients with maxillofacial defects and/or deformities, there was success with different types of grafts for reconstruction, including vascularized or non-vascularized autogenous grafts and titanium prostheses.

REFERRED PAIN IS ASSOCIATED WITH GREATER ODONTOGENIC SPONTANEOUS PAIN

ALTIVINO GABRIEL PAVANELI CALISTO; SORAYA SALMANZADEH ARDESTANI, PAULO ROBERTO JARA DE SOUZA, LEONARDO RIGOLDI BONJARDIM; YURI MARTINS COSTA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Symptomatic irreversible pulpitis often results in heightened reactions to thermal stimuli such as pain evoked by a cold stimulus, and spontaneous odontogenic pain (unprovoked pain). This study primarily compared the clinical manifestations of odontogenic spontaneous pain and pain provoked by cold stimulus specifically between symptomatic irreversible pulpitis patients with and without referred pain.

Method: Twenty-three patients with symptomatic irreversible pulpitis with referred pain and 12 patients without referred pain were included in this cross-sectional study.

Results: The following outcomes were assessed: odontogenic spontaneous pain; pain evoked by cold stimuli and qualitative sensory testing before and after local anesthesia; referred pain location; use of analgesic medication; complementary anesthesia efficacy. T-test, Chi-square and McNemar tests were applied to the data ($p < 0.50$). Patients with referred pain presented a greater odontogenic pain intensity ($p < 0.05$). Intensity and duration of the pain evoked by cold stimuli in the non-affected contralateral tooth at baseline were higher for patients with referred pain ($p < 0.05$). Symptomatic irreversible pulpitis patients with referred pain present greater odontogenic spontaneous pain and a heightened pain sensitivity.

Conclusion: Therefore, patients with referred pain seem more complex from a pain severity perspective, supporting the clinical utility of discriminating symptomatic irreversible pulpitis with and without referred pain.

REGENERATIVE ENDODONTICS: DIFFERENT APPROACHES AND TREATMENT PROTOCOLS - A LITERATURE REVIEW

CARLOS DANIEL SENO BIZARRO; ANDRÉ LUIZ ALMEIDA DE ABREU, DAVID SALDANHA DE BRITO ALENCAR, ARIAN BRAIDO, JOSÉ FLÁVIO AFFONSO DE ALMEIDA, CAIO CEZAR RANDI FERRAZ, BRENDA PAULA FIGUEIREDO DE ALMEIDA GOMES; ADRIANA DE JESUS SOARES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to review the literature on regenerative endodontics, differentiating regenerative endodontic procedures (REPs) from guided pulp regeneration in terms of concepts, protocols and recommended techniques

Method: This narrative literature review was carried out using the database PUBMED (Medline). The keywords used were: regenerative endodontics; stem cells; regenerative endodontic procedures; guided pulp regeneration. A total of 69 scientific articles were selected without a date filter.

Results: Regenerative endodontics aims to restore lost or damaged tissues and structures through biological replacement, with mesenchymal stem cells playing a crucial role in this biological function. This field can be divided into regenerative endodontic procedures (REP), involving bleeding and clot formation inside the tooth to achieve apical closure, and guided pulpal regeneration, which aims to form a new pulpal tissue through cell culture, forming a dentin-pulp complex similar to a normal tooth. In REP, the technique involves excessive instrumentation beyond the apical foramen, the use of chemical substances such as hypochlorite or chlorhexidine and EDTA, and closure with a fibrin sponge and composite resin. Guided pulp regeneration involves the extraction of normal pulp, the expansion of cells through cell culture, cryopreservation and the implantation of these cells inside the root canal.

Conclusion: It is worth noting that among the two techniques, REP has well-established clinical approaches and widely favorable results, whereas guided pulpal regeneration studies show advances in the laboratory and pre-clinical stages without a date filter

RELATIONSHIP BETWEEN THE FACIAL VERTICAL GROWTH PATTERN AND THE PALATAL RUGAE MORPHOLOGY

*FÁBIO AURÉLIO RAMOS NEGRI; MARCEL PEDRA NUNES, ÁDRIA DALIZE BUENO; MILTON SANTAMARIA JÚNIOR
HERMÍNIO OMETTO - UNIARARAS*

Aim: This study aimed to investigate whether palatal rugae have different morphological characteristics among patients with different vertical growth patterns.

Method: The sample consisted of 15 superior plaster models from patients who were not orthodontically treated and divided into 3 groups, distributed in equal proportions regarding the variable sex and their respective facial patterns: mesofacial, severe dolichofacial and severe brachyfacial. After delineating the palatal rugae, they were classified metric and morphologically based on bilateral roughness orientation. For the metric classification, the first three rugae on each side were measured using a digital pachymeter. For the morphological evaluation, the orientation of the direction of the rugae was observed for anterior (Type I), horizontal (Type II), posterior (Type III) and orientation in varied directions (Type IV). The data with symmetric distribution were analyzed by analysis of variance (ANOVA) and Tukey's test. The data with asymmetric distribution were analyzed by generalized linear models.

Results: It was observed that the brachyfacial individuals of both sexes presented rugae measures significantly larger than the other two groups ($p < 0.05$). There was no significant association between morphological classification and facial pattern in either sex.

Conclusion: It is concluded that the measures evaluated in the palatal rugae of brachyfacial patients showed significant differences when compared with the other facial patterns.

RESTORING ESTHETICS OF TRAUMATIZED PERMANENT MAXILLARY CENTRAL INCISOR IN PRIMARY DENTITION: CLINICAL CASE REPORT

*ISADORA CEZAR RODRIGUES; GABRIELA ALVES DE CERQUEIRA, JÉSSICA DIAS THEOBALDO, DIOGO DRESSANO,
FLÁVIO HENRIQUE BAGGIO AGUIAR; GISELLE MARIA MARCHI
PIRACICABA DENTAL SCHOOL - UNICAMP*

Aim: The present work describes a case report involving a single permanent maxillary central incisor, which underwent restorative treatment, as it was affected by trauma to the primary dentition.

Method: In consensus with the patient, we initiated treatment by performing supervised at-home bleaching of the upper and lower teeth, followed by the subsequent replacement of the restoration of tooth 11, which was affected by trauma to tooth 51. After bleaching, restorative treatment began, preceded by diagnostic wax-up and addition silicone guides based on the study model. Subsequently, absolute isolation and conditioning of tooth 11 were performed, following pre-established protocols, and using an incremental technique, nanoparticulate resin was inserted. High-value resins were used for proper restoration color matching and fidelity.

Results:

Conclusion: It is concluded that proper planning, combined with bleaching and restorative treatment with composite resins, are capable of conservatively and cost-effectively restoring the color and shape of teeth with aesthetic alterations.

RIO DE SORRISOS 2024: EXTENSION AND SOCIAL PROJECT, AIMING AT THE ORAL HEALTH OF CHILDREN AND ADOLESCENTS

DAGMAR DE PAULA QUELUZ; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To socialize the experience of dentistry students in practicing social actions.

Method: This is an experience report of an extension and social project "Rio de Sorrisos 2024", developed through a partnership between the Piracicaba Dental School - UNICAMP and the Municipality of Capivari.

Results: In March 2024, the "RIO DE SORRISOS 2024" project involved the participation of 84 undergraduate and postgraduate professionals/students in oral health promotion and prevention actions in the city of Capivari - SP. The activities at the "Rio de Sorrisos 2024" project school consist of a cycle of stages: reception/registration, educational activities (lecture, painting, theater, recreational activities, recreation), supervised brushing, clinical dental examination/screening, and dental care. Around 660 children and adolescents underwent supervised toothbrushing, with delivery oral hygiene kits. The following procedures were carried out in the schools' dental offices: restorations with composite resin, bonding of tooth fragments, etc., depending on the demand of the child or adolescent. In school classrooms, dental procedures were carried out on 402 children and adolescents: atraumatic restorative treatment - CIV/ART, etc. At the Dental Specialties Center, molar root canal treatment (endodontics) was carried out in adults: 30 appointments, 29 consultations, 28 completed.

Conclusion: Coexistence between the community and academia strengthens the teaching-practice-research triad, which can boost the development of studies in other areas of academic training.

ROLES OF H2O2 PRODUCTION IN S. SANGUINIS INTERACTIONS WITH NEUTROPHILS FROM HUMAN PERIPHERAL BLOOD

EMANOELI DANIEL BESSA; EDUARDO MARTINELLI FRANCO, LÍVIA ARAÚJO ALVES; RENATA DE OLIVEIRA MATTOS-GRANER

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Streptococcus sanguinis is a primary colonizer of teeth and a potential pathogen of infective endocarditis. This species expresses spxB to produce H2O2, which inhibits competitor species of the oral cavity. Roles of H2O2 production on S. sanguinis interactions with neutrophils (PMN), major phagocytes of the bloodstream, remains to be examined. The aim of this study was to investigate the effect of spxB deletion on S. sanguinis interactions with PMN from human peripheral blood.

Method: To this end, equal numbers of a deletion mutant of spxB (SKspxB) and of the parental wild-type strain (SK36) were mixed to samples of fresh peripheral blood and incubated at 37°C for 5 min. Blood smears of these samples were then stained using May-Grunwald Giemsa, and analyzed using a light microscope (1,000 x total magnification). Different profiles of PMN-bacteria interactions (without bacteria, phagocytosis or NETosis) were visually determined in a total of 85 PMN analyzed per strain. Non-inoculated blood samples were used as negative controls.

Results: Non-inoculated blood samples were used as negative controls. Bacterial phagocytosis was detected in 78.8 and 81.2% of the PMN exposed to SKspxB and SK36, respectively. However, PMN exposed to SK36 more frequently showed NETosis (21.2%) as compared to SKspxB (7.5%) (chi-square, $p < 0.001$).

Conclusion: These findings suggest that H2O2 production through the expression of spxB promotes NETosis on PMN of the bloodstream, which likely contributes to the pathogenesis of cardiovascular infections. Supported by FAPESP (proc. 2021/130794-9; 2023/16788-8) and CNPq (grant 303896/2022-1).

ROOT PERFORATIONS SEALING USING READY-TO-USE AND POWDER/LIQUID CALCIUM SILICATE-BASED REPAIR CEMENTS: CASE SERIES

THIAGO BESSA MARCONATO ANTUNES; GABRIEL BISPO CARVALHO, TALITA TARTARI; MARINA ANGÉLICA MARCIANO DA SILVA

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Root perforations are accidents and complications that can occur during endodontic treatment. With the advent of calcium silicate-based repair cements, there is a possibility to effectively seal and preserve the affected tooth. Considering the availability of two types of these cements on the market: ready-to-use and powder/liquid forms, this case reports aimed to evaluate the success and preservation over one year of teeth with perforations sealed with these two types of cements.

Method: Two cases of perforations in two healthy female patients without systemic diseases were selected. One palatal root perforation in tooth 24, with periradicular radiolucency, was sealed with MTA HP powder/liquid repair cement, with the respective canals obturated with BioRoot RCS powder/liquid sealer. Additionally, two pulp chamber floor perforation in tooth 46, presenting periradicular radiolucency, was sealed with Bio-C Repair ready-to-use cement, and the canals of the respective tooth were obturated with Bio-C Sealer ready-to-use. The canals were instrumented to the apex using mechanized systems and irrigated with 2.5% NaOCl, with a final protocol of passive ultrasonic agitation (PUI) with E1-Irrisonic insert using NaOCl and EDTA 17%.

Results: Follow-up was performed after one year, and the patients showed no painful symptoms upon horizontal and vertical percussion tests, with X-rays showing regression of the periapical lesion and normal periodontal ligament space for both teeth.

Conclusion: Absence of signs and symptoms of periradicular pathologies indicate treatment success for both cements used.

SELECTION PROCESS FROM UNIFAL GRADUATE STUDENTS FOR A SCHOLARSHIP FOR THE METAMORFOSE PROJECT

ALISSA TAMARA SILVA; HEVELLYN CAROLINE FERREIRA DE SOUZA, AMANDA ALVES LEÃO, JENIFER BENTO ARAÚJO, DANIELA SILVA BARROSO DE OLIVEIRA, LEANDRO ARAÚJO FERNANDES, HELOÍSA DE SOUSA GOMES; DANIELA COELHO DE LIMA

FEDERAL UNIVERSITY OF ALFENAS - UNIFAL

Aim: To select a scholarship holder to develop outreach with adolescents and to work on an interdisciplinary project at public schools in the city Alfenas/MG.

Method: The selection process took place face to face and lasted two hours. A theoretical test was administered, containing four investigative and discursive questions on topics related to the work about the future scholarship holder. Eighteen students from health courses (biomedicine, biological sciences, nursing, pharmacy, physiotherapy, medicine and dentistry) took part in the selection process.

Results: Regarding the framework of the course's Political Pedagogical Project, they were asked what contributions the Metamorfose project can make for their professional, academic and humanistic training. Only 22.22% of the students listed the contributions, 55.55% of whom reported being able to understand the context in which the adolescent is inserted, working in an empathetic and individualized way. As for the essential points for dealing with adolescents, 90% said they were communication, empathy and patience. Among the innovative activities proposed, the most cited were lectures (33.33%), the most frequent topics being teenage pregnancy (11.11%), mental health (5.55%) and drug use (5.55%), and the other was career fairs (22.22%). Finally, 83.22% of the students answered that there is a difference between group work and teamwork.

Conclusion: The selection process was therefore essential for recognizing the candidates' expectations of the project. It was also an opportunity to discuss ideas and gain a better understanding of the profile of the future scholarship student.

SEMIDIRECT TECHNIQUE USING SINGLE-SHADE RESIN COMPOSITE FOR RESTORATIVE TREATMENT OF POSTERIOR TEETH: A CASE REPORT

THAIS BULZONI BRANCO; LAURA CALDANA SCARMEL, ADRIANA MARIA RIBEIRO JUNQUEIRA, CLAUDIA CRISTINA DA COSTA TELLES, GIOVANA RODRIGUES PERIN CARNAÚBA, FLÁVIO HENRIQUE BAGGIO AGUIAR; WALDEMIR FRANCISCO VIEIRA JUNIOR*

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Resins composites have stood out in dentistry for their versatility, being used in direct, indirect, and semidirect techniques. Semidirect restorations, being performed outside the mouth, offer advantages like improvement in the physical and mechanical properties of the material, allowing moisture control and favorable creation of anatomical details for extensively destroyed teeth. The aim was to report a clinical case of restorative treatment using the semidirect technique with a single-shade resin composite.

Method: A 30-year-old female patient presented to the dental clinic unsatisfied with her posterior teeth. After diagnosis and planning, it was decided to perform a semidirect restoration with single-shade resin composite on teeth 15 and 16. In a single session, after fabricating a core buildup with conventional resin composite and dental preparation, silicone models (Die silicone, Voco®) were acquired. On the model, semidirect pieces made of single-shade resin composite (Palfique Ominichroma, Tokuyama®) were created. This material doesn't require a prior color selection step and, according to the manufacturer, it has technology for mimicking the color of the remaining dental structure. The treatment of the piece was done with 37% phosphoric acid (Ultraetch, Ultradent®) and silane (Silane, Ultradent®). After isolation, the tooth was prepared for adhesion, and the pieces were cemented with resin cement (NX3 Dual Cure Clear, Kerr®).

Results:

Conclusion: Thus, it was concluded that the semidirect restorative technique for posterior teeth using single-shade resin composite provided satisfactory results for the treatment of extensively destroyed teeth.

SEX ESTIMATION IN DRY LONG BONES IN THE POPULATION OF CUIABÁ

PATRICIA HELENA MODESTO; VANUEL ALBERTO SANCA, MÔNICA APARECIDA FRANCESQUINI, JOÃO SARMENTO PEREIRA NETO, LUIZ FRANCESQUINI JÚNIOR; EDUARDO DARUGE JÚNIOR

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim was to analyze linear measurements of the length of long bones from dry arms and legs from Cuiabá, in order to verify whether they are dimorphic, as well as to build a logistic regression model of estimating sex.

Method: The methods utilized was 100 long bones were used (femur, tibia, fibula, radius, ulna, humerus), 50 coming from bones of male individuals and 50 coming from bones of female individuals. In these, linear measurements of the anatomical length were carried out, in its long axis using a Broca osteometric table. The sex, height and city of origin of these bones were known. Data analysis used the Shapiro-Wilke and Levene tests to respectively analyze the distribution and equality of variances (homocedasticity) of the variables under study. The unpaired t test and the Pearson test and a logistic regression (Hachward Stepwire-wald, Homer & Lemeshow and Nagelkerke test) were performed.

Results: To obtain the results, the linear measurement of their length was considered as parametric data, with $p < 0.05$ in the Kolmogorov-Smirnov normality tests. The Stepwise-Wald logistic regression analysis showed 76.0% sensitivity, 84.0% specificity and 80.0% accuracy.

Conclusion: The conclusion was the existence of sexual dimorphism in the study carried out can be confirmed, as well as a logistic regression standard can be established for estimating sex in dry long bones of Brazilians, using $\text{Logito} = 20.150 + (-0.857 \times \text{Radio})$. The logistic regression model obtained can be used as an auxiliary method in estimating sex in dry bones of Brazilians.

SLEEP QUALITY, HEALTH AND WELL-BEING IN ADOLESCENTS

EVELLY OLIVEIRA DA SILVA; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To educate about sleep quality, health and well-being in adolescents.

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

Results: Experts point out that sleep quality (SQ) is crucial for general well-being. Sleep is necessary for life and corresponds to a stage of repair of the body's physiological activities. Having SQ is important for health, as some toxin clearance mechanisms occur during this period, which is crucial for immunological, cardiovascular, reproductive, endocrine functions and pain control. Sleep acts on cognitive functions, memory consolidation and information storage, being essential for the balance of the human organism. SQ and its duration can be considered important indicators of quality of life, meaning that sleep must be restorative, with adequate duration, depth and quality, encouraging the person to wake up in a good mood. However, poor SQ compromises body homeostasis mechanisms. Extrinsic factors can influence SQ, such as environment, climate, exposure to light and electronic equipment before bed, etc. Intrinsic factors also influence, such as health status and sedentary lifestyle. Adolescents represent a vulnerable group who face significant challenges regarding SQ, especially due to their extensive use of electronic equipments.

Conclusion: The vital importance of sleep quality for health and well-being stands out, especially among adolescents. The urgency of addressing the specific challenges faced by adolescents, such as the excessive use of electronic equipment, is emphasized, with the aim of improving their quality of life and general health.

SOCIAL ACTION "PATHS TO GROW": EXPERIENCE OF GRADUATE STUDENTS

SOFIA SILVA CAMBUHY; DAGMAR DE PAULA QUELUZ

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To socialize the experience of undergraduate dentistry students in the practice of social actions at the interface between health and education.

Method: This is an experience report of an extension project "PATHS TO GROW", developed through a partnership between UNICAMP and the Piracicaba Municipal Department of Education.

Results: In September 2023, the "PATHS TO GROW" project made it possible for around 500 public school children aged 10 to visit the Piracicaba Dental School - UNICAMP, through an interactive route. The activities carried out were: visit to the anatomy laboratory; pedagogical activities (lectures, theater, videos, clinical tables and posters, capoeira presentation). Undergraduate students/monitors always accompanied visitors. In the laboratory, monitors provided guidance on what was studied and the importance of the content. The theater about health promotion was a way to raise awareness about self-care and oral health. The lecture addressed the impact of the internet and social media on health education, an extremely important topic in the current context, due to the dissemination of Fake News; as well as a career in Dentistry.

Conclusion: The social action was successful, as it generates integration between the university and the community, providing social well-being and multiplying knowledge for everyone involved. The results indicate that motivation and awareness of the professional career must be carried out, providing better opportunities in the future.

STEM CELLS FROM THE APICAL PAPILLA (SCAPS) FOR TISSUE ENGINEERING: A SCIENTOMETRIC STUDY

RANAM MOREIRA REIS; REGINA MARIA PUPPIN-RONTANI; FERNANDA MIORI PASCON

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study aimed to perform a scientometric analysis of laboratory and clinical research in SCAPs related to tissue engineering worldwide, verifying the year of publication, country and institution of origin, most cited studies and published authors, Impact Factor and CiteScore of the journals.

Method: A literature search was conducted in the Web of ScienceTM database in April 2024 using the keywords (SCAPs OR "Stem Cells from the Apical Papilla" OR "Stem Cells of the Apical Papilla" OR "Apical Papilla Stem Cells") AND (tissue engineering OR regenerative medicine), without delimitation of year of publication or language. A hundred and twelve studies were initially identified and after the inclusion and exclusion criteria analysis, 110 articles were considered. The data were submitted to scientometric analysis by VOSviewer version 1.6.20.

Results: It was observed that the year 2022 had the highest number of publications, with 19. The University of Texas Health Science Center at San Antonio in the US was the institution and China the country that published the most, with 11 and 47 studies, respectively. The author with the highest number of studies was Diogenes, A., with 11. The most cited article had 224 citations. The 110 studies were cited 2.777 times, altogether. The journal with more publications was the Journal of Endodontics, with 18, had a 4.2 impact factor and 8.5 CiteScore in 2022.

Conclusion: Based on the results of scientometric analysis it was possible to obtain important information about the current status of SCAPs related to tissue engineering studies worldwide.

STREPTOCOCCUS MUTANS BIOFILM ARCHITECTURE IS AFFECTED BY THE DELETION OF GTFB AND DLTG GENES

EMILIO A. PONCE FUENTES; MARLISE I. KLEIN
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study analyzed the 3D architecture of biofilms formed by *S. mutans* UA159 parental strain and deletion strains Δ gtfB (water-insoluble glucan synthesis; exopolysaccharides—EPS) and Δ dltD (D-alanization of lipoteichoic acid).

Method: The strains were grown as planktonic cultures (TY+1% glucose, pH 7.0; 37°C; 10% CO₂). The cells at the mid-log growth phase were used to form biofilms on saliva-coated hydroxyapatite discs using TY+0.1% sucrose (37°C; 10% CO₂). The culture medium was changed twice daily: at 19 h and 43 h to TY+0.1% sucrose and 27 h and 51 h to TY+1% sucrose. At 67 h, the biofilms were removed for confocal microscopy. The EPS were labeled with dextran conjugated with AlexaFluor 647 by adding this fluorophore into the culture media during the experimental period because dextran serves as a primer for glucan synthesis. The bacteria cells were labeled at the end of the experiment with SYTO9.

Results: The architecture of each biofilm was different. The biofilm of the Δ gtfB strain presented small microcolonies (i.e., bacterial cells structured agglomerates with EPS), sparsely distributed with a non-complex architecture, while the biofilm of strain Δ dltD showed fewer microcolonies than the parental strain. The EPS and bacteria biovolumes (μ m³/ μ m²) were quantified via COMSTAT2. The biofilm formed by Δ gtfB presented less biovolume for bacteria and EPS than the parental strain, and Δ dltD presented similar biovolume to those of the parental strain for both biofilm components.

Conclusion: Thus, *S. mutans* biofilm architecture is affected by the deletion of gtfB and dltD genes. FAPESP 2021/06801-1 e 2023/09612-0; CNPq: 305305/2023-9

SUPERFICIAL QUANTITATIVE ANALYSIS OF CANINE MAXILLARY FOSSA IN HUMAN SKULLS AND ITS RELATIONSHIP WITH THE AGING

ISABELA LESSE DE PAULA; ALEXANDRE RODRIGUES FREIRE, FELIPPE BEVILACQUA PRADO; PROFA. DRA. ANA CLÁUDIA ROSSI
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Investigate whether canine fossa concavity can change with age using surface morphometric analysis in virtual stereolithography of human skulls.

Method: The study included 123 skull computed tomographs were divided into three groups based on age categories. Mimics 18.0 software was used for image segmentation, and MeshLab software for evaluating the canine fossa surface in STL format. The analysis measured concavity degree and area (mm²) of the canine fossa, with a significance level of 5%. T-tests were conducted to identify trends between age groups within each maxilla.

Results: There was no statistical difference in the degree of concavity between male (p-value=0.6124) and female (p-value=0.6792) sexes in the canine fossa. However, a significant difference was found for the middle-aged category (p-value=0.0103), where males exhibited greater concavity compared to females. Similarly, in the area, no statistical difference was observed overall between male (p-value=0.3395) and female (p-value=0.5988) sexes. Nonetheless, a significant difference was detected for the young category (p-value=0.0025), with males having a larger area compared to females. Multiple comparisons by Dunn's test did not reveal significant differences in both sexes between the means of each age category.

Conclusion: In conclusion neither age nor sex influenced the parameters evaluated in the canine fossa. However, although not significant, it was observed that the canine fossa became flatter with advancing age.

SURVEY OF FLUORIDATED TOOTHPASTES COMMERCIALY AVAILABLE IN PHARMACIES IN PIRACICABA, SP

DAVI FRANCISCO TERRA LEITE; GABRIEL SILVA QUEIROZ, GILDENILSON OLIVEIRA JÚNIOR, ANA JÚLIA RUIZ, LUIZ FELIPE DE AGUIAR TRIPOLI, MIGUEL MARQUES DE CARVALHO, LETÍCIA ANDRADE DE FREITAS; CÍNTIA PEREIRA MACHADO TABCHOURY
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Fluoridated toothpaste is the main responsible for the decrease in dental caries. Thus, the objective of this study was to conduct a survey of fluoridated toothpastes sold in pharmacies in Piracicaba, SP.

Method: This field survey was carried out in two pharmacies (Drogas), located in the Taquaral and Jardim Glória neighborhoods of Piracicaba – SP, chosen for their convenience. Fluoridated toothpastes were verified based on the manufacturing company, type of fluoridated salt, abrasive, and fluoride concentration (ppm F) as indicated on the packaging. The data collected were tabulated using Excel and analyzed descriptively.

Results: A total of 53 different types of toothpastes were identified. Concerning the manufacturing company, 32% (n=17) of the toothpastes belonged to the Procter & Gamble brand and 30% (n=16) to Colgate-Palmolive. However, toothpastes from Unilever and GlaxoSmithKline were also found. Regarding the type of fluoridated salt, 64% (n=34) of the toothpastes contained sodium fluoride (NaF), while toothpastes containing sodium monofluorophosphate (Na₂PO₃F) and stannous fluoride (SnF₂) were also found. In terms of abrasive type, 79% of the toothpastes (n=42) contained silica (SiO₃), and 4% (n=2) contained both calcium carbonate (CaCO₃) and SiO₃. As for fluoride concentration, toothpastes with a concentration of 1450 ppm F were the most common, representing 68% of the total (n=36), although a toothpaste with 5000 ppm was also found.

Conclusion: Therefore, it can be concluded that there is a wide range of toothpastes available in pharmacies to the population of Piracicaba.

SURVEY OF FLUORIDATED TOOTHPASTES COMMERCIALY AVAILABLE IN SUPERMARKETS IN PIRACICABA, SP

ANA JULIA RUIZ; MIGUEL MARQUES DE CARVALHO, LUIZ FELIPE DE AGUIAR TRIPOLI, LETÍCIA ANDRADE DE FREITAS, DAVI FRANCISCO TERRA LEITE, GABRIEL SILVA QUEIROZ, GILDENILSON OLIVEIRA JÚNIOR; CÍNTIA PEREIRA MACHADO TABCHOURY
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Fluoridated toothpastes are the main responsible for dental caries decline throughout the world and the Brazilian legislation states that they must contain at maximum 1500 ppm of fluoride (F). Thus, the present study aimed to conduct a survey about fluoridated toothpastes sold in supermarkets at Piracicaba – SP.

Method: As a convenience sample, four supermarkets were selected: Arena Atacadista (Piracicamirim and Vila Industrial neighborhoods), Supermercado São Francisco (São Jorge), and Jaú Serve (Campestre). The data from 91 toothpastes, found in the supermarkets, were tabulated, with regard to manufacturer, fluoridated salt type, declared F concentration, and abrasive type.

Results: A descriptive analysis revealed that 45% (n=41) were Colgate Palmolive products; other manufacturers included Procter&Gamble, GSK, Unilever, IceFresh and Lima&Pergher. Fifty-four toothpastes (59%) contained sodium fluoride (NaF), while 4% (n=4) had no fluoride. Fluoride concentrations varied (1000, 1040, 1100, 1426, 1450, and 1500 ppm F), with 70% (n=64) at 1450 ppm. Abrasive types included 59% (n=54) silica, 32% (n=31) calcium carbonate and 9% (n=8) a combination of hydrated silica and calcium carbonate.

Conclusion: Thus, according to the results found, a great diversity of toothpastes are available in the supermarkets to the population of Piracicaba (SP).

TECHNOLOGICAL ADVANCES IN DENTISTRY

ISA AZEVEDO DE ALMEIDA MAROTE; DAGMAR DE PAULA QUELUZ
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Bringing science and technology closer to Piracicaba's society during the National Science and Technology Week 2023(NSTW), addressing the advances of technology in dentistry.

Method: This is an experience report of a project with the Piracicaba Dental School - UNICAMP (PDS/UNICAMP), promoted by the PECEGE Institute and other institutions, with support from CNPq.

Results: The Dentistry, being a dynamic and constantly evolving Science, follows the technological advances that are directly transforming the reality of the dental professional. PDS/UNICAMP for being part of this evolution, participated in October 2023 of NSTW, with High school students, postgraduate and teaching with presentation of panels and clinical table that could demonstrate that the technological advances present in the stages of prevention, diagnosis, treatment and identification used in PDS/UNICAMP. Exemplifying: electronic dental records, digital radiographs, intra-oral scanner, intra-oral camera, 3D printers, ultrasound, CAD/CAM, low and high power laser, electric/electronic dental motors, apical locators, microscopes and use of bio-organic materials innovators

Conclusion: The technological tools used in dentistry contribute effectively bringing better results, predictability and risk reduction and that the institution has always been ahead of scientific and technological advances, being a pillar in education and technological evolution.

TENT POLE TECHNIQUE FOR REHABILITATION OF ATROPHIC MANDIBLE

LEVI SAULO RODRIGUES DE JESUS; MARIA JÚLIA ASSIS VICENTIN CALORI, TIAGO RIBEIRO PECEGUEIRO, MARÍLIA PINHEIRO DE CARVALHO, MÁRCIO DE MORAES; MÁRCIO DE MORAES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dental implant rehabilitation of edentulous patients with resorbed mandible presents significant challenges for both the prosthodontist and surgeon. Marx et al. 2002 presented a technique called Soft Tissue Matrix Expansion, in which 4 to 6 dental implants were used as "tent poles" with a concomitant autogenous bone graft from the iliac crest, through a transcutaneous submental approach, but this technique can cause improper angulation of dental implants. A traditional intraoral surgical guide for dental implant placement cannot be used once the surgery is performed completely outside the oral cavity

Method: This review was developed in PUBMED, searching the following keywords: Surgery computed-assisted; illiums; mandibular reconstruction; implants, dental

Results: 127 studies were found, 96 were excluded after title reading. A total of 31 titles and abstracts were read, 20 studies were excluded, then 11 studies were included. A total of 148 patients, 125 females, and 23 males, with mean age from 37.5 to 69.5 years, all underwent maxilla (n=9) and mandible (139 patients) reconstruction with the tent pole technique. This study brought a case report that exemplifies a Tent Pole technique as described by Marx in 2002, however with a specific surgical guide

Conclusion: All of the studies showed bone gain with the biggest gain ranging from 10,2mm of height. Using the presented technique provided a more accurate planning for implant placement, concerning the position, distance, and angulation of dental implants.

THE ANTIBACTERIAL ACTION OF 2% CHLORHEXIDINE ON GLASS AND PLASTIC ANESTHETIC CARTRIDGES

CLARA UNGARATTI CARDOSO; VINICIUS RAFAEL DE AMORIM FELICISSIMO, LARISSA CRISTIANE RODRIGUES SILVA, ANA JULIA DOS SANTOS, DANIEL FELIPE FERNANDES PAIVA; CAMILA BATISTA DA SILVA DE ARAUJO CANDIDO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The study aims to assess the disinfectant efficacy of submerging anesthetic cartridges in 2% chlorhexidine.

Method: Twenty-four cartridges, comprising 12 glass and 12 plastic variants, underwent exposure within the undergraduate dental clinic for a full service day. Subsequently, the cartridges were divided into two groups: one subjected to immersion in 2% chlorhexidine, while the other remained untreated. Immersion durations were set at 30 and 60 minutes. Following the designated immersion periods, each cartridge underwent comprehensive surface swabbing with sterile swabs moistened with saline solution. These swabs were subsequently cultured on Brain Heart Infusion (BHI) agar plates and placed within a CO2 incubator for 48 hours. After incubation, colony quantification was performed.

Results: Chlorhexidine-treated groups exhibited complete inhibition of bacterial growth for all treatment times, with no colony formation detected in the treated cartridges. Conversely, negative control cartridges displayed colony counts ranging from 7 to 22, with slightly higher colony detection in plastic cartridges.

Conclusion: In conclusion, chlorhexidine demonstrated excellent potential as a disinfectant material, irrespective of immersion time, serving as an effective alternative for disinfecting potentially contaminated surfaces in dental offices.

THE APPLICABILITY OF CALCIUM HYDROXIDE AS AN INTRACANAL MEDICATION

MARIA SARONY ARAÚJO SILVA; DANIELE MARIA DA SILVA; LUCIANA ABREU SOUSA
IEDUCARE COLLEGE- UNINTA

Aim: Calcium hydroxide is a biocompatible, alkaline substance used as an intracanal medication, its antimicrobial and anti-inflammatory activity induces tissue components. It can be associated with auxiliary substances, inert, water-soluble, biologically active, oily, viscous vehicles, this determines the speed of dissociation and its effects, which can benefit various biological, chemical and physical activities.

Method: A literature review of 79 articles was carried out, using inclusion criteria articles published in the last 5 years in English and Portuguese, of which 12 articles were selected and after thorough reading they met the research axis. 68 articles were excluded that after reading did not meet the research.

Results: When in contact with affected tissue, calcium hydroxide can absorb the exudate, reducing tissue hydrostatic pressure, due to the difference in hypertonicity, phospholipase inhibitor, while the antimicrobial action is dependent on the release of hydroxyl ions. The pH of CaOH₂ is around 12.8, which allows the alkalization of the medium, inhibiting the survival of microorganisms, which are around 11.5. The choice of medication and vehicle depends on the patient's initial diagnosis, generally having as criteria the presence of a periapical lesion, necrotic or vital pulp, this will directly influence therapeutic success.

Conclusion: Due to its physicochemical properties, calcium hydroxide is the intracanal medication of first choice in endodontics, considered the gold standard for having high antimicrobial activity and when associated with certain vehicles, calcium hydroxide can have its effect enhanced.

THE EFFECT OF DIFFERENT CLEANING PROTOCOLS OVER MINI FLEXURE STRENGTH, WATER SORPTION AND SOLUBILITY OF PRINTABLE RESINS

LEONARDO JUNJI KAJIYA CHAGAS; DANIEL KENJI FUNABASHI, MILLENE HIKARI WATANABE; LOURENÇO CORRER SOBRINHO

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the mini flexure strength, maximum load, Young's modulus, water sorption and solubility of four different printable resins submitted to different ethanol cleaning protocols

Method: Tree printable resins (a model, a temporary restoration and two definitive restoration resins) were selected and submitted to four rinsing time exposures: 1 min (G1), 3 min (G2) and 5 min rinsing (G3). Mini flexure strength, maximum load, Young's modulus, water sorption and solubility were evaluated.

Results: MPa values significantly decreased for 3 and 5 min compared to 1 min of rinsing.

Conclusion: The higher rinsing time exposure promoted the removal of uncured monomers, decreasing the mini flexure strength and increasing the sorption.

THE EFFECT OF FINISHING AND POLISHING STEPS ON ROUGHNESS AND GLOSS OF THREE DIFFERENT RESIN COMPOSITES

MILLENE HIKARI WATANABE; DANIEL KENJI FUNABASHI, LEONARDO JUNJI KAJIYA; LOURENÇO CORRER SOBRINHO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To evaluate the roughness, gloss, and surface characteristics of 3 different composites after finishing and polishing steps.

Method: Three resin composites were selected: a microhybrid (ED / Empress Direct A2 enamel, Ivoclar Vivadent AG, Schaan, Lichtenstein), a nanohybrid (FO / Forma A2E, Ultradent, Indaiatuba, Sao Paulo, Brazil) and a nanofilled composite (FZ / Filtek Z350XT A2E, 3M Oral Care, Saint Paul, MN, US). Materials were polished using a flexible disc, rubber cups, and swivel. Roughness (Rv and Ra) and Gloss (GU) were measured after each finishing and polishing step. Representative images were acquired using a 3D Confocal Laser Microscopy (CLM). Data were analyzed using two-way ANOVA, followed by Tukey's test ($\alpha = 0.05$).

Results: Polishing steps differently improved the roughness and gloss for all composites. Images from CLM show that composite fillers and polishing tools' abrasive characteristics affected the roughness and gloss outcomes. After all steps, nanofilled composite FZ presented the lower Rv and Ra and the highest gloss.

Conclusion: Composite roughness and surface gloss were affected by finishing and polishing steps, mainly depending on the composites' fillers characteristics, finishing and polishing tools abrasive size, and composition.

THE EFFICIENCY OF PROTOCOLS FOR REDUCING HYPERSENSITIVITY AFTER DENTAL BLEACHING: LITERATURE REVIEW

RENAN ALVES E CAVALHEIRO; CAROLINA MENEGHIN BARBOSA, JULLIANA ANDRADE DA SILVA, FLÁVIO HENRIQUE BAGGIO AGUIAR, WALDEMIR FRANCISCO VIEIRA JUNIOR; DÉBORA ALVES NUNES LEITE LIMA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study conducted a literature review gathering protocols available to reduce dental sensitivity resulting from dental bleaching.

Method: The search was conducted in the PubMed and Scielo databases selecting articles from the last 5 years, and a total of 38 articles met the established criteria.

Results: Dentin sensitivity arises when dentin tubules are exposed, allowing communication between the external environment and dentin tissue. Low-concentration bleaching gel used for at-home bleaching showed lower sensitivity when compared to office bleaching with high-concentration gels. The most used strategy to control this sensitivity during or after bleaching treatment is the use of potassium nitrate desensitizers, whose main function is to obliterate dentin tubules. Low-power laser presented satisfactory results in reducing the inflammatory process, but further studies are needed.

Conclusion: Thus, post-bleaching hypersensitivity remains a challenge, highlighting the need for additional studies to better understand its causes and find more effective prevention methods.

THE IMPACT OF ALCOHOLIC BEVERAGES ON THE MICROHARDNESS AND SURFACE ROUGHNESS OF COMPOSITE RESINS: A SYSTEMATIC REVIEW

VICTOR PASSAMANI MARQUES; CRISTHIAN MADRID TROCONIS; MARIO FERNANDO DE GOES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim was to analyze the evidence on the effect of different alcoholic beverages on the microhardness and surface roughness of composite resins.

Method: The PRISMA guidelines was followed on this systematic review. Systematic searches were carried out in Pubmed, Scopus and EbscoHost databases until March 2024. In vitro studies published in English that evaluated microhardness and/or surface roughness of composite resins after immersion in alcoholic beverages were selected. The search results were exported to Rayyan Systems Inc for duplicate removal, abstract reading and initial classification. The main methodological data extracted were author, publication year, composite resin, type of alcoholic beverage, alcohol percentage and pH, immersion protocol and property evaluated. Also, methodological quality assessment was carried out with an adapted instrument for in vitro studies. In total, 14 articles were included and they were published between 2005 and 2023, mainly by researchers from Brazil, India, Thailand, Turkey and Egypt.

Results: The main alcoholic beverages evaluated were wine (n=7), whiskey (n=5), beer (n=5), Vodka (n=2) and Brandy (n=2). The composite resins evaluated were Filtek Z350 XT (n=4), Filtek Z250 (n=3), Tetric-N-Ceram Bulk-fill (n=3) and Omnicroma (n=2). Overall, hardness showed a significant decrease in 5 of 6 studies. Surface roughness showed variable results; increased in 5 of 12 studies, increased depending on composite resin (n=2), increased depending on alcoholic beverage (n=3), and no negative effect (n=2).

Conclusion: Most alcoholic beverages decrease microhardness and increase surface roughness of composite resins.

THE IMPACT OF BRIGHTNESS AND CONTRAST VARIATIONS ON CEPHALOMETRIC IDENTIFICATION PERFORMED BY AI-DRIVEN SOFTWARE

BRUNA NOGUEROL BOMBO; THAÍSA PINHEIRO SILVA, MARIA FERNANDA DA SILVA ANDRADE BORTOLETTO, MARIA CLARA RODRIGUES PINHEIRO, CHRISTIANO DE OLIVEIRA-SANTOS; DEBORAH QUEIROZ DE FREITAS
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to assess the accuracy and reproducibility of cephalometric point identification performed by the Cfaz AI software and how variations in brightness and contrast influence its performance.

Method: Thirty lateral cephalometric telerradiographs were selected to locate 20 cephalometric landmarks. Two examiners identified the cephalometric points to obtain the reference standard. The images had their brightness and contrast varied in four protocols. The cephalometric points were identified automatically by the AI-driven software CFaz for all protocols (A1, A2, A4, and A5) and the original images (A3). The X and Y coordinate values of the cephalometric points identified by the software and the reference standard images were compared using one-way Analysis of Variance and Dunnet's post-hoc test. For reproducibility, the Intraclass Correlation Coefficient was used ($\alpha=5\%$).

Results: The software was accurate in the original images (A3), except for the Supramentoniano point. In A1 adjustment, there were significant differences in various points, primarily along the x-axis. In A2-A5 there weren't significant differences, except for the Mentonian L point, which continued to show significant differences along the x-axis.

Conclusion: In conclusion, the AI-driven software was generally accurate in identifying cephalometric points for A2-A5 protocols. However, A1 protocol resulted in significant differences for most points. Overall, the study highlights the potential of AI software like Cfaz in cephalometric analysis.

THE IMPACT OF RADIOTHERAPY ON THE PUSH-OUT BOND STRENGTH OF ENDODONTIC SEALERS AND FIBER POSTS: SYSTEMATIC REVIEW

PATRICIA AKEMI NISHITANI SHIBASAKI; CRISTHIAN CAMILO MADRID TROCONIS; MARIO FERNANDO DE GOES
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim was to analyze the evidence on the impact of head and neck radiotherapy (HNRT) on the push-out bond strength (POBS) of endodontic sealers and fiber posts.

Method: This systematic review followed the PRISMA checklist. Systematic searches were conducted on PubMed, Scopus and EbscoHost databases until march 2024. Later, the results were exported to Rayyan System for excluding duplicates and initial selection process. Main inclusion criteria were articles on the impact of HNRT on the POBS of endodontic sealers and fiber post (glass or quartz), using human teeth subjected to fractionated radiotherapy protocol until achieving a total radiation dose between 50 and 80 Gy. Main methodological data, means and standard deviations were extracted from individual studies. The risk of bias of included studies was evaluated by using QUIN tool. In total, 11 studies met inclusion criteria, from which 5 articles evaluated the impact of simulated HNRT on POBS of endodontic sealers and 6 articles assessed the impact on POBS of fiber posts.

Results: All studies showed that HNRT decreased the POBS of most endodontic sealers and produced more gaps in the dentin interface. HNRT reduced the POBS of fiber posts/resin cements, especially when post placement was done after radiation. Deficient interaction between resin cements and radicular dentin was observed, especially in irradiated teeth. In conclusion, HNRT decreased the POBS of most endodontic sealers and fiber posts to radicular dentin compared to non-irradiated teeth.

Conclusion: Also, this cancer treatment jeopardizes the interaction between radicular dentin and endodontic sealers or resin cements

THE IMPORTANCE OF ASSERTIVE COMMUNICATION IN ORTHODONTICS

VÍTOR FONSECA DE LIMA; VÂNIA CELIA VIEIRA DE SIQUEIRA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The present study verified the communication processes used in Orthodontics, the positive points and the strategies to adapt and enhance the patient/professional relationship.

Method: A literature review was made based of publications included in the Scopus and PubMed/Medline virtual database platforms over the last 10 years using the descriptors: Communication in Orthodontics; Patient/Orthodontist Relationship; Health Communication; Patient Perception and Satisfaction; Patient-Centered Care. Only original research was considered by initially reading the titles and their abstracts and after reading each article in full. Only those articles that evaluated communication processes in health, Dentistry and mainly in Orthodontics remained in the research.

Results: It was observed the growing attention of orthodontists to carry out efficient communication, increasing the quality of care and consequently patient adherence to the treatment.

Conclusion: Effective assertive communication adapts to and respects the patient's individual needs and expectations, considering their cultural aspects and the different age groups, contributing to the humanization of treatment and improving the quality of life of everyone involved.

THE IMPORTANCE OF CONE-BEAM COMPUTED TOMOGRAPHY IN DIAGNOSIS OF ASSOCIATED MANDIBULAR OSTEONECROSIS: CASE REPORT

RAUL DE SOUZA GOMES; EMANUELLE MACHADO FARIAS, ELLEN NUNES SANTOS AGUIAR, FELLIPE REALE SANTANA, SAMYA LEAL PEIXOTO PINTO, RITA DE CÁSSIA DIAS VIANA ANDRADE, TAÍS DE LIMA E FRAGA; MARIA DA CONCEIÇÃO ANDRADE DE FREITAS

STATE UNIVERSITY OF SOUTHWEST BAHIA - UESB

Aim: The Cone-Beam Computed Tomography (CBCT) is very useful in diagnosis and treatment planning, as well as in the prognosis of osteonecrosis of the jaws. The study aimed to report a clinical case of Bisphosphonate-Associated Mandibular Osteonecrosis from the perspective of CBCT.

Method: The patient, female, 83 years old, presented painful symptoms in the posterior region of the right mandible and reported Bisphosphonate medication for more than five years to treat osteoporosis and osteopenia. Based on clinical and CBCT imaging characteristics, the patient was diagnosed with Bisphosphonate-Associated Mandibular Osteonecrosis. The treatment consisted of oral antibiotic therapy, pain control, hyperbaric oxygenation and oral hygiene (mouthwashes). After 11 months of clinical therapy, CBCT revealed bone reconstruction of the buccal cortex, but also a hypodense imaging in the lingual cortex compatible with bone lysis and bone sequestration. The patient was referred for bone debridement and sequestrectomy. The histopathological diagnosis consisted of osteonecrosis with secondary acute osteomyelitis. After 60 days of the surgical procedure and hyperbaric sessions/systemic antibiotic therapy, an oral healthy mucosa in the region of the right mandibular body was evidenced in the intraoral examination.

Results: Cortical bone regeneration was observed on CBCT.

Conclusion: Concluded that the use of CBCT, in this case report, it allowed to estimate the extent of the lesion and the post-treatment outcome, assessing bone density, the presence of bone sequestration and the involvement of the involved areas.

THE IMPORTANCE OF THE MULTIDISCIPLINARY TEAM IN CARE FOR DENTAL INJURIES: A CLINICAL CASE REPORT

CYNTHIA LUIZA LOPES DE OLIVEIRA; LAÍSA MADEIRA MATEUS, RODOLFO FIGUEIREDO DE ALMEIDA, ALINE CRISTINE GOMES MATTA, RENATO CORRÊA VIANA CASARIN, EDUARDO CÉSAR ALMADA SANTOS, FERNANDA MIORI PASCON; ADRIANA DE JESUS SOARES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Dental injuries are emergencies that require quick and thorough care from the professional. Furthermore, most of the time it is necessary to monitor the patient for a long period where varied needs arise in different areas of dentistry. The objective of this case report was to describe the clinical case of a patient (17 years old) who arrived at the emergency care at Dental Trauma Care Service (FOP-UNICAMP-Brazil), after 3 days of a fall during football game.

Method: The teeth involved (11, 12, 21, 22) presented enamel fracture injuries, crown-root fracture with periodontal involvement, subluxation and extrusive luxation. No root or bone plate fractures were detected on control periapical radiographs. During the first dental appointment, teeth with extrusive luxation (11 and 21) were repositioned and maintained with a semi-rigid splinting for three weeks. In addition, it was necessary to perform an endodontic treatment and temporary crown (12) and restoration with composite resin (22).

Results: The patient was followed for the next two years, where periodontics, orthodontics and prosthesis procedures were required for oral rehabilitation.

Conclusion: We can conclude that the treatment of dental trauma is quite complex, requiring the integration of the multidisciplinary team for successful treatment with restoration of oral function and aesthetics.

THE INFLUENCE OF ORTHOGNATHIC SURGERY IN TREATING OBSTRUCTIVE SLEEP APNEA. PRELIMINARY RESULTS OF A LITERATURE REVIEW

THALES FABRO VANZELA SVERZUT; LARISSA CONSTANTINO FRANÇA, GABRIEL CONCEIÇÃO BRITO, PAULO HENRIQUE DE BRITO; MÁRCIO DE MORAES

PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The purpose of this literature review was to evaluate the effectiveness of maxillomandibular advancement (MMA) orthognathic surgery in treating obstructive sleep apnea (OSA) in class II patients.

Method: A search in the PubMed database, without language restrictions, limiting publications from the last five years and using the search query "(Apnea AND Orthognathic)" was carried out.

Results: A total of 105 articles were found in the initial search, which were submitted to initial screening and subsequently to the process of full-text reading, 85 articles were excluded, and 20 reports were included in the final sample of this review. Patients with dentoskeletal deformities, specifically class II malocclusion, commonly suffer from OSA, which can be classified as mild, moderate, or severe (based on the apnea-hypopnea index, or, AHI). The use of continuous positive airways pressure (CPAP) machines is an option for such patients. But many don't adjust, tolerate, or desire the long-term use of the machine. Soft tissue surgery, such as Uvulopalatopharyngoplasty, is an alternative. But, it should be noted that both options mentioned exclusively treat OSA. Orthognathic surgery involving MMA, on the other hand, treats both malocclusion and OSA in such patients.

Conclusion: It is overall accepted in scientific literature as functionally beneficial and effective in the treatment of mild OSA, and can improve moderate and severe cases, by decreasing the average number of apnea-hypopnea

events per hour. However, the aesthetic results of MMA surgery should be considered and discussed with the patient during presurgical planning.

THE ROLE OF SOCIAL CONTROL IN ORAL HEALTH POLICY: AN INTEGRATIVE REVIEW

MARIANA NERY DOS SANTOS MACHADO; ENOQUE FERNANDES DE ARAÚJO; MARCELO DE CASTRO MENEGHIM
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: To assess the role of social control in oral health policies in Brazil's public health system.

Method: This study used an integrative literature review approach, which involved identifying, synthesizing and comprehensively analyzing relevant studies. The theme was defined, the research question was formulated; the eligibility criteria for the studies were established; the search for publications in the selected databases was carried out; the information found in the selected studies was categorized and analyzed; the included studies were evaluated; the results were presented with a critical analysis of the findings and a synthesis of the review.

Results: Of the articles selected, all were published in international journals. As for the methodological nature of the work, the articles were classified as: community action report (=1), qualitative research (=2), qualitative focus group research (=1).

Conclusion: It can be seen that Health Councils are fundamental institutions for interaction between the state, the community, health services and non-profit organizations, enabling participation and social control in the formulation of public health policies. These entities must intensify their participation in order to improve and guarantee more universal, integrated and equitable policies.

THE ROLE OF SORTASE A IN STREPTOCOCCUS SANGUINIS INVASIVENESS INTO ENDOTHELIAL CELLS AND IN SYSTEMIC VIRULENCE

EDUARDO MARTINELLI FRANCO; LÍVIA ARAUJO ALVES, MAÍRA TERRA GARCIA, DÉBORA CAMPANELLA
BASTOS, JULIANA CAMPOS JUNQUEIRA; RENATA DE OLIVEIRA MATTOS-GRANER
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Streptococcus sanguinis is a commensal species of the oral cavity frequently associated with infective endocarditis. This bacterium expresses sortase A to anchor thirty-three proteins to its cell wall, which are might be collectively involved in host cell invasiveness and/or systemic virulence. This study aimed to investigate the role of sortase A in the S. sanguinis invasiveness into human endothelial cells and in virulence in vivo.

Method: A deletion mutant of sortase A-encoding gene (srtA), SKsrtA, was compared to SK36 parent strain regarding its invasiveness into human coronary artery endothelial cells (HCAEC) and virulence in a Galleria mellonella infection model. Briefly, HCAEC were challenged with each strain pre-treated with human serum (HS), heat-inactivated serum (HIS) or PBS (2h, 37°C, 5% CO₂), incubated with antibiotics to kill extracellular bacteria and lysed to recover viable intracellular bacteria on BHI agar cultures. G. mellonella larvae were inoculated with each strain (n = 108 per strain) and daily analyzed during seven days for determination of the survival curves.

Results: The HS-treated SKsrtA showed impaired capacity to invade HCAEC as compared to SK36 (p<0.05), whereas strains were not able to invade HCAEC when treated with HIS or PBS. The SKsrtA also showed reduced capacity to kill G. mellonella larvae, as compared to SK36.

Conclusion: These findings indicate the important role of sortase A in S. sanguinis invasiveness into endothelial cell and in systemic virulence. Supported by FAPESP (2021/13074-9); CAPES 001; CNPq (303896/2022-1).

THE ULTRASTRUCTURE OF CELLS AND EXTRACELLULAR POLYMERIC SUBSTANCES PRODUCED BY STREPTOCOCCUS MUTANS STRAINS

FERNANDA SOARES ANDRADE; EMILIO ALBERTO PONCE FUENTES, FLÁVIA SAMMARTINO MARIANO; MARLISE INÊZ KLEIN
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Streptococcus mutans is an oral bacterium associated with dental caries occurrence. When dietary sucrose is present, S. mutans produces extracellular polymeric substances (EPS), especially exopolysaccharides (glucans), which protect the cells and allow biofilm build-up. The study aimed to evaluate how the deletion of genes associated with the cell wall and cytoplasmatic membrane remodeling affects the formation of EPS.

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 cytoplasmatic 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, samples were used for transmission electronic microscopy (CMI-FOP) to analyze their ultrastructure (cell morphology and the presence of EPS). The pH of the spent medium was verified.

Results: All strains presented cells with defined cell walls and cytoplasmatic membranes for both sugars. The sucrose pulse yielded EPS; abundant EPS was expected for the parental strain, Δ dlta, Δ dltd, Δ lytT, and Δ lytS, and EPS should be scarce for Δ gtfB, Δ gtfC, and, especially Δ gtfBC. The EPS profile was distinct for Δ lytS. However, the glucose pulse also yielded EPS to a lesser extent than the sucrose pulse, with more EPS for the parental strain and much less for the other strains.

Conclusion: Therefore, there are non-identified EPS when glucose is the sugar available during S. mutans growth.

THIRTY-FIVE YEARS OF INTRAORAL DIGITAL RADIOGRAPHY: AN OVERVIEW OF THE SYSTEMS

THAMILES GONZALEZ-PASSOS; MATHEUS SAMPAIO-OLIVEIRA, HUGO GAËTA-ARAUJO, DOROTHEA DAGASSAN-BERNDT, MICHAEL M BORNSTEIN, DEBORAH QUEIROZ FREITAS, FRANCISCO HAITER-NETO; MATHEUS L OLIVEIRA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim was to evaluate and consolidate information on intraoral digital radiographic systems and their technical specifications, and to offer recommendations for standardized reporting to manufacturers.

Method: Official manuals, catalogues, and websites of manufacturers, archived documents and scientific literature were retrieved and experienced radiologists, and manufacturers at radiology conferences were consulted.

Results: Eighty-nine intraoral digital radiographic systems were identified, with 53 being sensor-based systems (60%) and 36 phosphor plate (PSP)-based systems (40%). These systems originated from 40 manufacturers, with 14 producing both sensor and PSP-based systems, 20 exclusively producing sensor-based systems, and 6 solely PSP-based systems. Sensors were manufactured in 11 countries, while PSP plates in 8 countries. The United States is the main producer (43%), followed by Finland and Germany (12%). Sensor systems predominantly utilized complementary metal-oxide-semiconductor technology (79%) with various sensor sizes and resolutions, whereas PSP systems featured six different plate sizes, along with diverse resolutions and scanning times. Recommendations for standardized reporting were put forth to manufacturers. Digital systems exhibited considerable variability in technical specifications.

Conclusion: Therefore, it is essential for clinicians to have a comprehensive understanding of the inherent attributes of each digital system to make informed purchasing decisions. Additionally, manufacturers are encouraged to adopt standardized reporting of technical specifications to facilitate comparative assessments.

THREE-DIMENSIONAL ANALYSIS OF ZYGOMATIC ARCH FROM THE GENUS CEBUS

LUCIANE NAOMI OGUMA WATANABE; JADIR DONIZETTI DA SILVA, ANA CLÁUDIA ROSSI, BEATRIZ CARMONA FERREIRA-PILEGGI, YARA VIEIRA LEMOS, PAULO ROBERTO BOTACIN, FELIPPE BEVILACQUA PRADO; ALEXANDRE RODRIGUES FREIRE
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The present study evaluated the three-dimensional morphology of the zygomatic arch of Cebus monkeys using microcomputed tomography.

Method: 13 dry skulls of Cebus apella from Southeastern Brazil were used. The microcomputed tomography scans were obtained and images were imported into the NRecon software (Bruker, Belgium) and converted to gray scale. The images were segmented in Mimics 18.0 (Materialise, NV, Belgium) and exported in stereolithography (STL) so that the surface of the zygomatic arches could be evaluated in Rhinoceros 5.0 (McNeel & Associates, Seattle, USA). Measurements of the maximum and minimum diameter of the transversal area and the anteroposterior distance of the zygomatic arch were obtained. Using transversal measurements, it was classified as cylindrical (C), elliptical (E) or laminar (Bl). Statistical analysis was performed by GraphPAD Prism v.8 software (San Diego, CA, USA) for measurements in relation to types and sex. The Two-way ANOVA test with multiple comparisons using the Sidak test was chosen to verify the relationship between sexes and types. The significance level was 5%.

Results: In males, there was an incidence on the left side of 25% of type E and 25% of type Bl and on the right side of 33% of type E and 17% of type Bl. In females, there was an incidence of 14% on the left side of type E and 36% of type Bl and on the right side of 14% of type E and 36% of type Bl.

Conclusion: The behavior of the masticatory muscles of Cebus apella may be related to the different shapes of the zygomatic arch found, as they have a direct relationship with this anatomical structure.

TOO CONNECTED? TRENDS IN CELL PHONE UTILIZATION AMONG HIGH SCHOOL STUDENTS: AN EXPLORATORY STUDY

GUILHERME DA SILVA OCTAVIANO; BEATRIZ ROCHA RIBEIRO, TAINA RONDINI DOS SANTOS, JULIA MURAMOTO DOS SANTOS, MARCELA YAMADA DA SILVA, JOÃO PAULO SANTANA DA SILVA, CÁSSIA CRISTINA ARAUJO VIEIRA; FÁBIO LUIZ MIALHE
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this exploratory study was to assess how adolescents use their cell phones, by a sample of high school students in the city of Piracicaba, São Paulo, Brazil.

Method: Initially, the project was approved by the Research Ethics Committee of FOP/UNICAMP (CAAE - 67456017.2.0000.5418). The study included a convenience sample of 101 high school students from Piracicaba, SP, Brazil. They were invited to answer a questionnaire with questions about cell phone usage, frequency and purpose of use, and their handling of it in the school environment, in addition to a sociodemographic questionnaire.

Results: The results of the sociodemographic questionnaire showed that the average age of the adolescents was 15.82 (± 0.87), with the majority being female (56.4%). The average hours of cell phone use per day were 7.59 (± 4.75), and the frequency of checking every 10 to 20 minutes was 27.7%. They also reported using the cell phone to check social media, search for information, and play games (95.04%, 53.64%, 42.57% respectively). The majority (63.60%) reported using cell phones in the school environment sometimes, with 52.1% of these using them for school activities. Additionally, 62.50% of students reported handling their cell phones while the teacher is giving the lesson.

Conclusion: It is concluded that adolescents reporting using cell phones both in the school environment and in the classroom, and many use them for their activities, including leisure, such as social media and games.

TREATMENT OF ODONTOGENIC KERATOCYST: CURRENT EVIDENCE

ANGÉLICA MENEGUCI PETRARCA; LEONARDO GONZAGA DE LIMA VARGAS, TIAGO RIBEIRO PECEGUEIRO, ALEXANDER TADEU SVERZUT; LUCIANA ASPRINO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: This study presents a literature review listing current experiences regarding various types of treatments of the Odontogenic keratocyst (OK) cited in the literature, and discuss the efficacy of each.

Method: A search was conducted in the PubMed database using the algorithm "Keratocyst AND surgical therapy", limiting the search to articles published in the last five years. Forty-one articles were found, of which titles and abstracts were read, and those that did not fit the theme were excluded.

Results: OK is an intraosseous pathology. Its thin and friable capsule confers a high recurrence potential. Treatment of OK involves enucleation, enucleation followed by curettage, and adjuvant therapy methods. The use of Carnoy's Solution shows a low recurrence rate; however, due to its carcinogenic potential, its use has been debated. A new adjuvant therapy was proposed for the treatment of OK, 5-Fluorouracil, an antimetabolite, has shown promising results.

Conclusion: Therefore, conservative approaches to this lesion demonstrate satisfactory results in addressing the aesthetic, functional, and psychological impairments caused by radical treatment methods. Although it is the subject of numerous publications, there is no consensus regarding the ideal treatment. Therefore, it is important to update knowledge about the diagnosis and treatment of this entity.

TREATMENT OF ORAL PARESTHESIA WITH INJECTABLE PLATELET-RICH FIBRIN (I-PRF): A CASE REPORT WITH A TWO-YEAR FOLLOW-UP

EVLA GABRIELA DE SOUSA RAMOS*; NATHALIA BARCARO DE SOUZA, GILBERTO LEAL GRADE; WILLIAM CUSTODIO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The use of platelet-rich fibrin therapy (i-PRF) for peripheral nerve regeneration is increasing due to the regenerative capacity of autologous blood aggregates. This study aims to report a clinical case of permanent neuropraxia of the inferior alveolar and lingual nerves caused by surgical removal of the mandibular third molar (M3) treated with injectable platelet-rich fibrin (i-PRF) with a two-year follow-up.

Method: Blood was collected in 9 mL plastic tubes without anticoagulant for the injectable platelet-rich fibrin (i-PRF) protocol and centrifuged for 3 minutes at 700 rpm (60 g). The supernatant was aspirated from the tubes after centrifugation using a 1 mL syringe equipped with a 22G needle. Subsequently, under local anesthesia, i-PRF was injected into the retromolar space, mental foramen, pterygomandibular space, and lateral border of the tongue. The procedure was repeated seven times with a 60-day interval between each repetition. Local pain and numbness/tingling of the affected structures of the lower face were evaluated using a visual analog scale (VAS) before the first injection and after 60 days and 2 years of the last injection. In the first follow-up session. Numbness/tingling diminished 50% on the VAS scale, and pain symptomatology diminished by 37.5%.

Results: The results were maintained over a follow-up period of 2 years.

Conclusion: In conclusion, it may be suggested that injectable i-PRF therapy improved peripheral numbness/tingling and pain, and these improvements were maintained over a two-year follow-up period.

TRIBOCORROSION BEHAVIOR AND CYTOCOMPATIBILITY OF POLYPYRROLE ZINC-DOPED FILM DEPOSITED ON A PLASMA-TREATED SURFACE

JÚLIA MARIA TEIXEIRA TEODORO; MARIA HELENA ROSSY BORGES, HEMALATHA KANNIYAPPAN, YANI SUN, BRUNA EGUMI NAGAY, NILSON CRISTINO DA CRUZ, MATHEW T. MATHEW; VALENTIM ADELINO RICARDO BARÃO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Polypyrrole (PPy) films have shown attractive promising implant applications when electrodeposited on plasma electrolytic oxidation (PEO) surfaces. Although the PEO + PPy surface demonstrates excellent mechanical and electrochemical performance, there are no reports on the effects of combined corrosion and mechanical interactions, which simulates the oral environment. In addition, the electrodeposition of zinc (Zn) on the coating can promote an osteogenic substrate. Therefore, we investigated tribocorrosion behavior of PEO-treated surfaces with PPy films with/without zinc (Zn), and their impact on MG-63 human osteoblast-like cells.

Method: Titanium discs with machined and PEO-modified surfaces were considered as controls. The experimental groups used PEO surfaces followed by electrodeposition of PPy (PEO + PPy) and PPy and Zn (PEO + PPy/Zn). The surfaces' physical-chemical properties were assessed. The tribocorrosion tests were run under free potential and potentiostatic (anodic and cathodic potentials) conditions using a pin-on-disk tribosystem simulating the oral environment. Electrochemical impedance spectroscopy was performed before and after tribocorrosion to analyze the changes in corrosion kinetics. Surface wear was evaluated by white-light-interferometry and scanning electron microscopy. In vitro cell experiments assessed viability, adhesion, and mineralization.

Results: The outcomes showed that PPy films improved tribocorrosion resistance, with PEO + PPy/Zn surface being cytocompatible, enhancing cell adhesion and proliferation.

Conclusion: Overall, PPy films represent a promising coating to improve the lifetime of biomedical implants.

UNIVERSAL COMPOSITE RESINS: A COMPREHENSIVE LITERATURE REVIEW

DANIELA MOREIRA DOS SANTOS; JULLIANA ANDRADE DA SILVA, IANA MARIA COSTA GONÇALVES, FLÁVIO HENRIQUE BAGGIO AGUIAR; DÉBORA ALVES NUNES LEITE LIMA
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The introduction of "group-shaded" and "monochromatic" composites has simplified shade selection, aiming for universal correspondence with the surrounding dentition. Therefore, the objective of this literature review is to examine advances, obstacles, and clinical guidelines related to the use of composite resins in restorative dentistry, focusing on universal resins and their indications.

Method: A comprehensive literature search was conducted using the MEDLINE (PubMed) electronic database, analyzing articles published between 2015 and 2024. Relevant articles were selected, including clinical case reports in humans and literature or systematic reviews. The following scientific descriptors (keywords) were applied: "Composite Resin", "Esthetic Dentistry", "Composite Veneers", "Bonding", "Polymerization". All the keywords were listed in the Medical Subject Headings (MeSH/DeCS).

Results: The study examined the color match of composite resins, highlighting that universal resins are not dependent on shade, offering universal translucency and opacity. It was observed that material luminosity has more relevance than hue and chroma in color determination. It is important to take into consideration the threshold of perceptibility and clinical acceptability of color differences, such as the influence of optical behavior on anterior and posterior restorations.

Conclusion: Thus, universal composite resins provide consistent and stable color match in several clinical situations, although further analyses are needed to validate their effectiveness in posterior restorations.

USE OF VIRTUAL SURGICAL PLANNING TO CORRECT SKELETAL DEFORMITIES

PAULO HENRIQUE DE BRITO; LARISSA CONSTANTINO FRANÇA, GABRIEL CONCEIÇÃO BRITO, THALES FABRO VANZELA SVERZUT; ALEXANDER TADEU SVERZUT
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The objective of this study was to carry out an integrative review of the main advantages, disadvantages and predictability of using virtual surgical planning in orthognathic surgeries.

Method: A search was carried out in the PubMed database using the following algorithm: "orthognathic surgery AND surgical planning AND prediction AND computer assisted surgical planning", without language restrictions, published in the last five years.

Results: A total of 40 papers were found, which were subjected to the process of excluding duplicates and reading titles and abstracts, excluding those that were not consistent with the proposed theme. Virtual planning for orthognathic surgeries was initially proposed in 2000, and since then it has stood out in planning treatments for facial deformities as a result of its greater precision, providing predictability of bone and soft tissue changes and less time required and less time needed to execute planning, the creation of models that represent the facial skeleton, soft tissues, airway, occlusion, and the creation and printing of surgical guides. The biggest limitation is related to the high cost of software.

Conclusion: Therefore, the use of virtual planning allows the surgeon to better visualize surgical movements and predict aesthetic results and possible bone interference, ensuring shorter surgical time and the safety of the surgical technique during surgery, contributing to greater effectiveness and results in the treatment of dentofacial deformities.

VALUATION OF THE CELL VIABILITY OF PENTRAVAN AND LANETTE BASE CREAMS ASSOCIATED WITH AMITRIPTYLINE AND SODIUM DICLOFENAC

HUGO ABRITTA REIS; THOMAS BARBIN, VICTOR AUGUSTO BENEDICTO DOS SANTOS, SIDNEY FIGUEROBA RAIMUNDO; FRANCISCO CARLOS GROppo
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Evaluate the cell viability of immortalized human keratinocytes exposed to Pentravan (PEN), a liposomal cream with transdermal action, and Lanette (LAN), a traditionally used magistral base, with amitriptyline (AM) and sodium diclofenac (DS), used in the treatment of orofacial pain, through the MTT reduction assay.

Method: Cell density was standardized in culture media, and these cells were subjected to treatments with different concentrations of active ingredients AM and DS in PEN and LAN bases for the MTT reduction assay.

Results: A two-way ANOVA (Tukey test) showed that overall, there were no statistically significant differences ($p > 0.05$) between PEN+DS concentrations in the number of cells, although the concentration of 800 µg reduced cells compared to the 0 µg concentration ($p < 0.0001$) and 200 µg concentration ($p = 0.0271$). When it came to LAN+DS, the 800 µg concentration also reduced cells compared to all other concentrations. AM caused a drastic reduction ($p < 0.0001$) in cells, in both formulations almost identically, for concentrations greater than 100 µg.

Conclusion: There was no notable reduction in cell viability regardless of the base the drugs were in. Pentravan base, despite its transdermal action, yielded results consistent with the traditional Lanette base.

VASCULAR LESIONS AFTER PERFORMING BILATERAL SAGITTAL SPLIT OSTEOTOMY - PRELIMINARY RESULTS OF A SYSTEMATIC REVIEW

GABRIEL CONCEIÇÃO BRITO; ANDRÉ DI SPAGNA, ELISA BIZETTI PELAI, MÁRCIO DE MORAES; LUCIANA ASPRINO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Complications in orthognathic surgery have been studied over time. Although bilateral sagittal split osteotomy (BSSO) is considered safe, some complications can occur and are described in the literature. Vascular complications are considered less frequent in the mandible, and few publications have been carried out. This study presents preliminary results of a systematic review of the current literature to examine the vascular injuries after performing a bilateral sagittal split osteotomy. In this way, discovering which vascular complications are most frequently mentioned and whether these injuries are relevant and deserve attention in the clinical routine of the oral and maxillofacial surgeon in orthognathic surgeries

Method: The databases for research Pubmed, Embase, Lillacs, and Scopus were carried out to identify the studies that directly associated vascular complications with BSSO, what the type was, and how it was treated

Results: The results were initially 3704, removing duplicates, of which 14 were chosen for data collection. Cases of pseudoaneurysms, aneurysms, bleeding/hemorrhage, and arteriovenous fistulas have been reported. Retrospective studies showed a low incidence of vascular complications compared to other complications

Conclusion: Therefore, although infrequent, vascular complications exist and must be known by the surgeon. When present, it must be identified and treated as soon as possible due to its potential risk to the patient.

VIRTUAL PLANNING IN IMPLANT DENTISTRY: INDICATIONS AND ADVANTAGES OF GUIDED SURGERY

TIAGO RIBEIRO PECEGUEIRO; LEONARDO GONZAGA DE LIMA VARGAS, ANGELICA MENEGUCI PETRARCA;
ALEXANDER TADEU SVERZUT
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: The aim of this study was to review the current literature regarding the indications and advantages of guided implant surgery.

Method: A search was conducted in the PubMed database using the terms "Dental Implants", "Computer Guided Surgery", and "Virtual Planning" without any language restrictions for the last five years. A total of 39 articles were found. After reading the titles, 27 articles were excluded and 12 English articles were included in a literature review.

Results: Osseointegrated dental implant surgery is a routine procedure for an oral and maxillofacial surgeon. Treatment is determined by each patient's restorative, technical, and functional needs, but it can be restricted by anatomical limitations. Therefore, proper placement of the implants is crucial to achieving a satisfactory aesthetic and functional appearance. In addition, implant positioning should consider the critical anatomical structures surrounding the site. When placing dental implants, the traditional method involves creating a full-thickness flap to expose the bone, followed by implant placement and closing the flap. However, a flapless approach for implant placement has numerous benefits, including being less invasive, causing less pain, improving blood flow, and preventing damage to the periosteum.

Conclusion: Thus, guided implant surgery refers to the process of digital planning, custom-guide fabrication, and implant placement using a custom guide, with the aim of carrying out precise installation of the implant at the exact location planned based on the patient's tomography, aligned with the prosthetic planning.

VITAMIN D3 INCREASES OSTEOGENIC POTENTIAL OF HUMAN PERIODONTAL LIGAMENT CELLS THROUGH BMP-2 AND ASPN MODULATION

BRUNO CAZOTTI PEREIRA; CATHARINA MARQUES SACRAMENTO, ENILSON ANTONIO SALLUM, MABELLE DE FREITAS MONTEIRO, RENATO CORRÊA VIANA CASARIN, MÁRCIO ZAFFALON CASATI; KARINA GONZALES SILVÉRIO
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: Periodontal ligament mesenchymal stem cells (PDLMSCs) play a major role in the regeneration of periodontal tissue. ASPN was identified as a negative regulator that suppresses BMP-2-induced osteoblast/cementoblast (O/C) differentiation. This study aimed to investigate whether vitamin D3 could stimulate the O/C differentiation of PDLMSCs characterized as low osteoblast potential (LOP), through ASPN and BMP-2 modulation.

Method: Three LOP cell populations were culture in standard medium (CONTROL), osteogenic medium (OM) and osteogenic medium associated to 1 nM of vitamin D3 (OM + VD). The following assays were performed: 1) MTT to evaluate metabolic activity, 2) gene expression for asporin, bone morphogenetic protein-2 (BMP-2), runt-related transcription factor 2 (RUNX2), alkaline phosphatase (ALP), osteocalcin (OCN), and vitamin D receptor (VDR) using qRT-PCR, 3) BMP-2 extracellular expression, and 4) quantification of mineralized nodule deposition by alizarin red staining.

Results: The results showed that the vitamin D3 treatment did not affect the cell viability as demonstrated by increasing of metabolic activity over the 10-day period in culture. After 14 days of vitamin D3 treatment, the mRNA levels for ASPN and VDR decreased, while BMP-2 transcripts and extracellular expression increased. In parallel, RUNX2, ALP and OCN gene expression was upregulated by vitamin D3 treatment, resulting an increase of mineral nodule deposition in vitro.

Conclusion: These data show that vitamin D3 improves osteoblast/cementoblast differentiation of low osteoblast potential cells through an inhibitory effect on ASPN expression and stimulatory effect on BMP-2 expression.

YOUNG UNIVERSITY STUDENTS WITH ANXIETY FROM THE PERSPECTIVE OF THE SALUTOGENIC THEORY

RAFAELA ANDRADE; LARISSA SCHULTZE POSSENTI; ROSANA DE FÁTIMA POSSOBON
PIRACICABA DENTAL SCHOOL - UNICAMP

Aim: In recent years, there has been a significant increase in the prevalence of anxiety among university students, especially those in health-related fields. Research has focused on identifying factors that may reduce anxiety or mitigate its effects. Among these factors, the sense of coherence stands out, a central concept of the Salutogenic Theory, which reflects how people deal with stressful life events and is described as protective against anxiety. The aim of this study was to verify if there is an association between anxiety and sense of coherence among young university students.

Method: Data from 270 undergraduate Dentistry students at FOP-Unicamp were evaluated regarding the level of sense of coherence (using the Antonovsky Sense of Coherence Questionnaire) and anxiety (State-Trait Anxiety Inventory - Spielberger) as well as socio-economic and demographic variables (gender, age, year of study, number of siblings and birth order, parents' education level, and monthly family income).

Results: The results showed that students in the 2nd ($p=0.0058$) and 4th year ($p=0.0001$) compared to those in the 5th year, females ($p=0.0552$), and students with lower sense of coherence ($p=0.0001$) were more likely to present with higher levels of anxiety.

Conclusion: It is important to consider that while the sense of coherence tends to increase with age, on the other hand, these university students, in a few years, will be in the workforce, facing potentially more anxiety-inducing situations than those inherent in the academic world, and this may have a significant impact on the quality of life of these professionals.