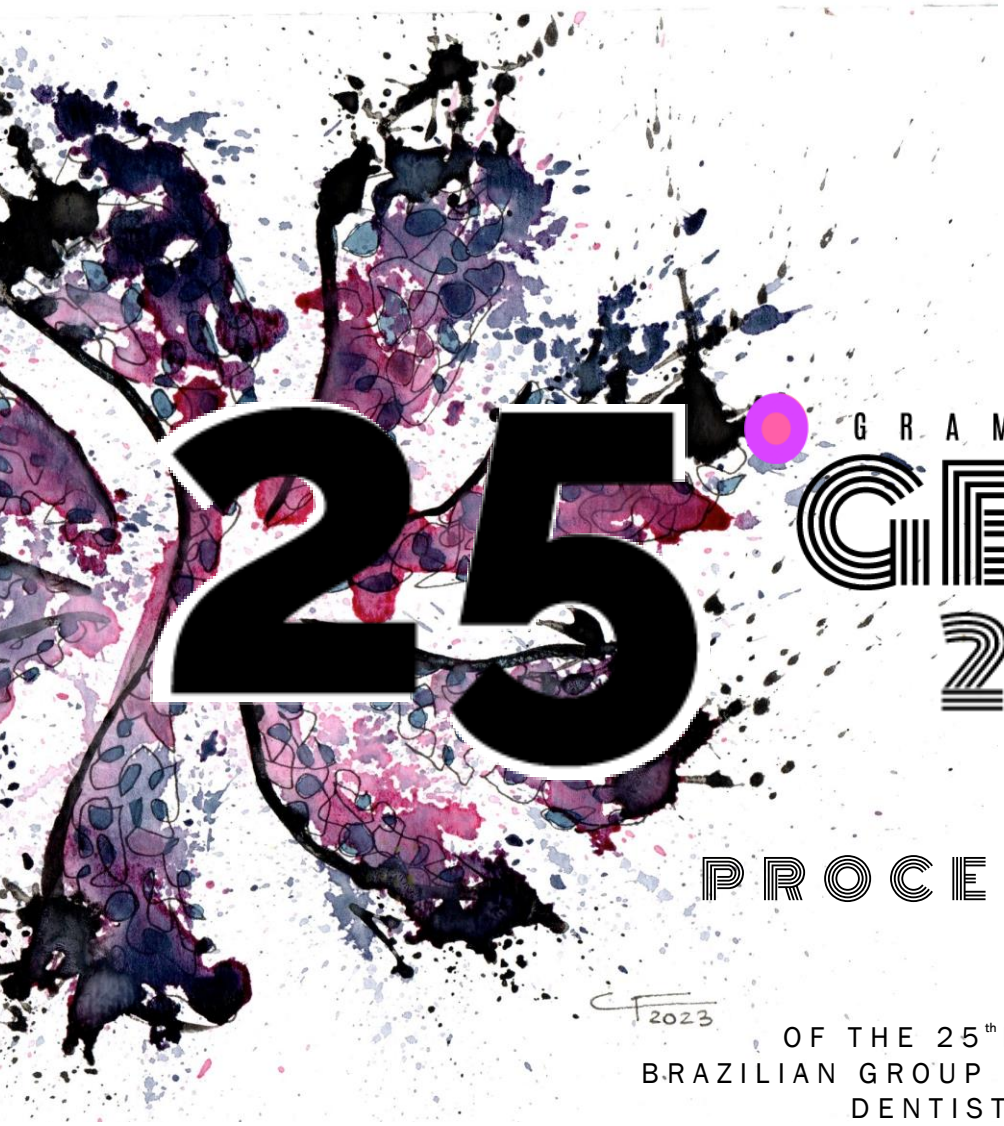
BDS Brazilian Dental Science



GRAMADO - RS

GBPD 2023

PROCEEDINGS

OF THE 25th MEETING OF THE BRAZILIAN GROUP OF RESTORATIVE DENTISTRY PROFESSORS

Grupo Brasileiro de Professores de Dentística

GBPD

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UNIVERSIDADE ESTADUAL PAULISTA
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Instituto de Ciência e Tecnologia
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25° GBPD

June 1-3, 2023

Gramado

WORDS FROM THE PRESIDENTS

Between June 1st and 3rd, 2023, the 25th Meeting of the Brazilian Group of Restorative Dentistry Professors (GBPD) was held in the city of Gramado - RS. After a long period of uncertainty and difficulties, the face-to-face events were reestablished, confirming one of GBPD's greatest differentials: the experience of memorable and traditional moments of reunion, fraternization and welcoming among our members and guests, which filled us with a very latent sense of belonging.

In addition, we were given the responsibility and honor of presiding over an exceptional event: the celebration of a double Jubilee! 25 meetings forged over 50 years of GBPD history. The celebration of such emblematic and remarkable dates allowed us to cherish the past by praising all those who paved the way for us to be where we are today. A milestone that deserves to be recorded for posterity.

It were three intense days of learning and reflection on the current direction of Dentistry. Based on the principles of GBPD, the event brought together science, clinical practice and teaching. But we went further, bringing together little-discussed, unusual topics in different forms of communication - TED was proof of this! We brought together the possibility of technical and scientific improvement in an unprecedented program, with hands-on activities and a lot of discussions of high academic standard.

The GBPD Meeting - which takes place every two years - is a unique event because it brings together undergraduate and postgraduate students, specialists and teachers from all over Brazil. Dentistry enthusiasts can feel "at home", experiencing lectures, symposia and activities that will certainly make a difference to their professional lives.

The Organizing Committee was made up of professors and postgraduate students from various institutions in Rio Grande do Sul and Brazil. We would like to thank each and every one of you for all your affection, knowledge, sympathy, patience, commitment, joy and example, culminating in a congress that has already gone down in GBPD history.

The 25th GBPD Meeting was also a milestone in scientific terms: we had a record number of submissions, with a total of 142 papers presented, divided into 4 categories (Clinical Case, Teaching, Clinical/Laboratory Research and Scientific Initiation). This is a direct reflection of the serious and hard work carried out within the Higher Education Institutions, which are projecting Brazilian Dentistry to a level of worldwide recognition and importance.

The relevance of this production is reflected in the publication of the Meeting's Proceedings in the Brazilian Dental Science. Our most sincere thanks to the journal's editorial board, in the name of its Editor-in-Chief and also President of the Group, Prof. Dr. Sérgio Eduardo de Paiva Gonçalves, for publishing this special issue and for all the support given to the 25th GBPD Meeting.

Prof. Dr. Maria Carolina Guilherme Erhardt

Prof. Dr. Thais Thomé Feldens

Presidents of the 25th Meeting of the Brazilian Group of Restorative Dentistry Professors (GBPD)

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TECHNICAL DATA

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GBPD

PCC

Case Report

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PCC 01

PREVIOUS AESTHETIC REHABILITATION WITH DIGITAL PLANNING AND METAL-FREE CROWNS ON DIFFERENT SUBSTRATES: CASE REPORT

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Aesthetic rehabilitations have always been a challenge for dentists. Cases involving complex anterior rehabilitations, integrating dental implants, metallic cores, prefabricated posts, total crowns in the same smile, require greater attention from the clinician to achieve success. With the evolution of digital reproduction techniques with scanning, metal-free dental ceramics and luting agents, it is possible to obtain aesthetically and functionally suitable results even on different substrates. Good planning with predictability, knowledge of the technique and the materials available on the market are essential to reduce the percentage of errors during an aesthetic rehabilitation. The present clinical case elucidates an anterior rehabilitation in upper teeth using scanning and metal-free ceramic pieces milled in zirconia and confirms that it is possible to achieve natural and functional aesthetics regardless of the substrate. In view of the clinical case presented, it was concluded that aesthetic rehabilitation with zirconia crowns provides a satisfactory result in previous complex rehabilitations, even working on more complex substrates, such as metallic ones.

The ceramic pieces obtained through this system, associated with the intraoral scanning of preparations and adequate cementation of the pieces, met the aesthetic and functional needs of the patient, resulting in a functional, natural and harmonious smile.

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PCC 02

PARTIAL RESTORATION AND STABLE COLLAGEN MATRIX FOR THE TREATMENT OF SINGLE GINGIVAL RECESSION ASSOCIATED WITH NON-CARIOUS CERVICAL LESION

Avila RR*, Kopereck MS, Souza IV, Ribeiro MC, Santamaria MP, Martins TM, Martins TM

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The aim of this study was to report a clinical case of the use of a new stable volume collagen matrix (Geistlich Fibro-Gide®) associated with coronary positioned flap for the treatment of single gingival recession (RT1) associated with partially restored non-carious cervical lesion (LCNC). Patient G.H.H., female, 34 years old, without systemic involvement and with periodontal health, presented with single gingival recession on element 13 associated with NCCL. Prior to the restoration, a bevel was made on the incisal edge of the enamel to obtain a more harmonic contour and a more appropriate emergence profile. The restoration with composite resin (Z350 - 3M) covered the anatomical crown and 1 mm of the root for further finishing and polishing. In the surgical procedure, after making a trapezoidal flap of mixed thickness, the collagen matrix (3 mm thick, 7 mm high and 8 mm wide) was positioned and stabilized at the level of the cemento-enamel junction and the flap was positioned coronally on it, where it was maintained by suspending sutures in the coronary portion and interrupted sutures in the relaxing vertical incisions.

The treatment was effective in terms of root coverage and tissue volume gain. In addition, the volume-stable collagen matrix (Geistlich Fibro-Gide®) avoids a second surgical site, minimizing trans- and postoperative risks. Patient reported satisfaction with the procedure and minimal discomfort, after 6 months, the restoration remains satisfactory and the gingival margin healthy and stable.

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PCC 03

CLASS IV STRATIFIED RESTORATION IN FRACTURED ANTERIOR TOOTH

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Objetive: This case report describes the therapeutic approach in a patient with uncomplicated enamel crown fracture. Case Report: A 11-years-old male patient sought dental care with a fracture of the upper right central incisor (11), due to trauma caused by a fall. On clinical examination, an uncomplicated oblique crown fracture of tooth 11 was noted, with supragingival extension of the middle third along its mesial surface, reaching almost halfway to the incisal edge. There were no reports of painful sensitivity to touch or percussion in both incisors and the periapical radiographic examination of the region did not show changes in the periradicular tissues affected by the trauma. After dental prophylaxis, isolation of the operative field and previous preparation of a silicone guide, a class IV restorative approach was performed on tooth 11 using a stratified restorative technique. The advantage of the direct restorative technique is to obtain immediate aesthetics and functionality in fractured teeth. However, a limitation is that it is not always possible to have a variety of colors of composite resins available immediately. Thus, direct restoration with restorative composites is an excellent clinical alternative.

Conclusion:The morphological and aesthetic restoration was considered satisfactory, restoring masticatory functionality and providing a favorable prognosis.

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PCC 04

AUTOGENOUS TOOTH FRAGMENT REATTACHMENT IN TRAUMATIZED ANTERIOR TOOTH

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Objective: The aim of this case report is to describe a clinical case of crown fracture, in which the tooth fragment was bonded to the fractured crown remnant. Case Report: A 6-year-old female patient sought dental care with a fracture of the upper left central incisor (21), resulting from trauma caused by a fall. On clinical examination, an extensive oblique coronal fracture of tooth 21 was observed, with supragingival extension of the middle third along its mesial surface to the incisal edge. There were no reports of painful sensitivity to touch or percussion in both incisors and the periapical radiographic examination of the region did not show abnormality in the periradicular tissues, nor in the root of the central incisors affected by trauma. After dental prophylaxis, cleaning of the fragment with 2% chlorhexidine digluconate and isolation of the operative field, the coronal fragment and the remaining tooth were juxtaposed after performing an adhesive protocol. The advantage of the tooth fragment bonding technique is the immediate aesthetic and functional resolution of fractured teeth; however, a limitation is that it is not always possible to locate the fragment and, many times, its use becomes impracticable, either because it has been inadequately preserved, or due to the lack of adequate adaptation to the remainder. Conclusion: Through the approach described for the case, the technique used allowed the procedure to be carried out in a conservative way, preserving aesthetics and restoring masticatory functionality.

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PCC 05

3rd Place Honorable Mention

THE USE OF ERBIUM LASER FOR DEBONDING OF CERAMIC VENEERS - CASE REPORT VIDOR MM*, FREITAS PM

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The erbium laser is a technology with many applications in dentistry, and lately they have been used for removal of ceramic veneers. Removing a ceramic is very challenging and the conventional method is done by grinding these restorations with diamond burs, making this procedure time consuming, and also presenting the risk of damaging the underlying tooth structure due to the similarity of colors between the tooth, the resin cement, and the ceramic restoration. In this case report, the patient was seeking for treatment because of tooth sensitivity and jaw pain after the placement of the veneers. The Er:YAG laser (2940nm) was used to remove the ceramics veneers, and the protocol used was 4 W, 20 Hz and 200 mJ, applied until the debonding of the restoration. The patient reported that the experience of using the laser made the treatment less traumatizing. The erbium laser is transmitted through the ceramic and selectively absorbed by water molecules and residual monomers in the resin cement layer, causing a thermal softening that reduces the bond resistance and enables the removal of these restorations. However, understanding the protocols for the use of laser is important in order not to cause thermal damage or interact with the underlying dental tissues.

The erbium laser is a promising alternative for debonding ceramic veneers compared to the traditional method, being less invasive, faster, non-contact approach and causes less sensitivity. Further the most important aspect is the possibility of preserving the remaining tooth.

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PCC 06

CONTROL OF DENTIN HYPERSENSITIVITY IN NON-CARIOUS CERVICAL LESIONS USING A NON-RESTORATIVE PROTOCOL: A CASE REPORT

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Objective: To present a desensitizing protocol for the management and control of dentin hypersensitivity (DH) at short- and midterm. Case Report: A female patient sought dental care reporting pain while eating. The anamnesis revealed an exacerbated presence of extrinsic acid components and unilateral chewing. Clinical examination showed areas of gingival recession in teeth 14, 13, and 12, with symptoms consistent with DH. A visual analog scale (VAS) was used for initial pain quantification and diagnosis. A multiple-session desensitizing protocol was proposed with a neural strategy (NM - 2 applications) and an obliterative strategy (OM - 1 application), using the following products: NM - 3% potassium nitrate (UltraEZ, Ultradent), NM - photobiomodulation (low-level laser therapy, Laser Therapy XT, 1J, 10 seconds) applied in the cervical region and near the root apex; OM - application of glutaraldehyde (Gluma, Kulzer, 20 seconds) and OM - external sealing with 5% fluoride varnish (Enamelast, Ultradent). The patient reported significant immediate pain reduction, and after a 7-month follow-up reported lower levels of pain and improvement in her quality of life. Advantages: Significant reduction in pain symptoms and improvement in quality of life, motivating changes in lifestyle.

Conclusions: The performed protocol was effective for the clinical management of DH symptoms in the short- and medium-term, and patient motivation and education regarding habits and lifestyle contribute to the longevity of the treatment.

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PCC 07

COMPOSITE RESIN VENEERS: COMBINATION OF DIRECT AND DIRECT-INDIRECT RESTORATIVE TECHNIQUES

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Purpose: Dental aesthetic dissatisfaction is strongly related to discolored teeth, stained restorations and poor anatomy. Identifying these factors and associating them with the patient's expectations along with the particularities of the case is the key to the success and longevity of any dental treatment. Case report: A 27 years old, female patient, sought to dental care in a private practice with an aesthetic complaint of a darkened anterior tooth and stains between the posterior teeth. After performing the clinical and radiographic examinations and extra and intraoral photographs, the digital planning and analog wax-up were performed and approved by the mock-up test. The treatment involved restorations in the upper premolars of the class II type, and composite resin veneers, associating two restorative techniques, the direct technique (teeth 13 to 23) and the direct-indirect technique (teeth 14-15, 24-25). Advantages and Limitations: The use of the direct-indirect restorative technique allows a better visualization and precision work and care for the gingival tissues, considering that part of the procedure is performed outside the mouth, on the other hand a greater curve of learning is necessary for the execution and agility in completing the restorative procedure.

Conclusion: Optimizing complex aesthetic cases resolution using combined restorative techniques that are versatile and resolute help a lot in the planning and execution of clinical cases with assertiveness and predictability.

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PCC 08

ENDOCROWN RESTORATIONS AS A REHABILITATIVE SOLUTION FOR WEAKENED NON-VITAL TEETH - A SERIES OF CLINICAL CASES

Mayer CR*, Titton SA, Lazzaretti EL, Martins LA, Fehrenbach J, Machado LS, Miotti LL, Münchow EA

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OBJECTIVE: To demonstrate the effectiveness of the endocrown technique for the rehabilitation of weakened non-vital teeth through clinical case reports. CASE REPORTS: Three female patients searched for a treatment at FO-UFRGS with non-vital teeth with coronary remnants of less than 25%. All teeth presented periapical health. Case 1: The patient had tooth 21 with a ceramic crown and a failed cast metal post/core (short post and enlarged cervical canal). Case 2: Patient had tooth 24 with total and partial absence of the palatal and buccal cusps, respectively. Case 3: Patient had tooth 38 with total absence of the mesial wall and extensive coronal destruction, as well as vertical cracks in the distal wall. The endocrown technique with composite resin was suggested in all cases. After preparing the respective pulp chambers with a diamond bur, obtaining the impressions with polyvinyl siloxane (Scan Putty, Yller), and obtaining cast models in gypsum or elastomeric materials, the restorations were fabricated using Opus Bulk Fill (FGM) or Vittra APS (FGM) resin composites. All restorations were luted with conventional dual-cure resin cement (RelyX ARC; 3M) and followed-up for 3 months. ADVANTAGES AND LIMITATIONS: The endocrown technique does not require retention with an intra-radicular post, proving to be a good option in cases of rehabilitation of non-vital teeth with little crown remnant.

The endocrown technique is a resolutive and satisfactory option for the rehabilitation of largely weakened root canal teeth.

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PCC 09

IS IT POSSIBLE TO WHITEN TEETH DURING ORTHODONTIC TREATMENT? A CASE REPORT WITH 24-MONTH FOLLOW-UP

Costa SAGF*, Barceleiro MO, Sánchez AD, Arrais C, Maucoski C, Calixto A, Loguercio A, Amin IC

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The objective of this report is to present the 24-month follow-up results of a case where dental bleaching was performed while orthodontic braces were still in place, so that the completion of the case with resin restorations could be done immediately after brace removal. The patient was an 18-year-old female with conoid lateral incisors, in the final phase of orthodontic treatment, who needed dental bleaching prior to the reshaping of the lateral incisors. It was decided to carry out the bleaching while the braces were still in position. For this purpose, three in-office bleaching sessions were conducted with a 3-day interval between each session. Simultaneously, wax-up and silicone barrier were performed for restorative planning. Fifteen days after the third bleaching session, the braces were removed and resin restorations were immediately performed, as well as finishing and final polishing. The patient has been under 24-month follow-up, and no changes have been observed in the performed restorations. The advantage of the described technique was the possibility to accelerate subsequent restorative procedures without the risk of relapse in the position of the involved teeth.

It was concluded that in-office bleaching during orthodontic treatment can be performed to expedite the completion with aesthetic restorative procedures without compromising the results of bleaching and restorations.

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PCC II

ANTERIOR AESTHETIC REHABILITATION USING COMPOSITE RESIN ASSOCIATED WITH THE INJECTED RESIN TECHNIQUE: CLINICAL CASE REPORT

Dias VBS*, Campos KPL, Henriques FQ, Araujo AN, Schneider LFJ, Cavalcante LMA

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Aim: The aim of this case report was to describe the anterior esthetic rehabilitation of a patient using the injected resin technique combined with nanohybrid composite resin. Case Report: A patient dissatisfied with the shape and position of their upper anterior teeth sought a conservative and cost-effective treatment. Digital smile design, diagnostic wax-up, and a mock-up trial were performed, and once approved, guided gingivoplasty was carried out on teeth 12 and 22. After healing, a transparent silicone guide was fabricated from the wax-up, and nanohybrid composite resin was placed within the guide while fluid resin was injected through it. Finally, occlusal adjustments, finishing, and polishing were performed. Advantages: This technique proved to be conservative, cost-effective, and required fewer adjustments compared to other treatment options, yielding satisfactory esthetic results. Limitations: The longevity of these restorations is not well-documented in the literature, and further studies are needed to determine the material's behavior over time.

Conclusions: This clinical report successfully described anterior oral rehabilitation using the injected resin technique combined with nanohybrid composite resin, suggesting it to be a technique with predictable outcomes.

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PCC 12

VITALIZED TEETH USING THE TWIST PEN SYSTEM

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Objective: The aim of this case report is to describe the bleaching treatment in vitalized teeth using the Twist Pen bleaching system. Case Report: A 24-year-old female patient sought dental care for aesthetic resolution of the upper and lower teeth, due to dissatisfaction with the appearance of her smile. On clinical examination, a slight yellowing was evident, and bleaching may be indicated. After prophylaxis and initial verification of tooth color, a light-curing gingival barrier contouring the cervical area from premolar to premolar in both arches was applied. The bleaching treatment was performed with 35% hydrogen peroxide, using a twist pen applicator (Mix One Supreme, Villevie, Dentalville). The application of the bleaching agent was carried out using the bristles of its applicator tip, when the back of the pen was rotated, brushing the bleach over the enamel surface, not requiring an activating source of light. A clinical session was performed with three 15-minutes applications, totaling 45 minutes of gel contact with the tooth structure. A favorable chromaticity was observed using the Vitapan 3D-Master scale as a parameter, from 2L 1.5 to 2M 1. The greatest advantage of this technique would be the practicality for its clinical use and the inherent limitation would be the possibility of dentin hypersensitivity.

Conclusion: In-office bleaching is an excellent aesthetic option for the conservative treatment of teeth that are chromatically altered.

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PCC 13

BIOMIMETIC ADHESIVE RESTORATIVE ALTERNATIVES FOR MINIMAL INTERVENTION IN CASE OF REANATOMIZATION OF ANTERIOR TEETH

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Direct adhesive procedures with composite resins are an excellent choice for diastema closure and are aesthetic restorative procedures of great impact for the patient, producing excellent results in restoring the shape, function and aesthetics of the teeth. These procedures are part of Minimally Invasive Dentistry and cover the preservation of healthy dental structure with procedures that maintain its integrity. Objective: To associate conservative techniques that preserve healthy dental structure with small interventions. Case Report: Patient assisted at the Optional Discipline of Biomimetic Restorative Alternatives at PUC Minas Dentistry, had diastemas in the anterior teeth and yellowish discoloration. Dental bleaching was proposed in-office technique and optimizing with home technique. After this period, dental reanatomization with composite resin was performed. Small additions were made to the interproximal ones and the association of minimally invasive techniques had excellent resolution.

Conclusions: Associating techniques to solve cases while preserving dental structures with minimal intervention and maximum resolution should be the objective in teaching aesthetic procedures.

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PCC 14

WHITE SPOT ON CENTRAL INCISOR AND THE NEED FOR RESTORATIVE TREATMENT IN PURSUIT OF AESTHETICS - CASE REPORT

Tambara GB*, Zacouteguy AA, Chaves ET, Münchow EA, Lima FG, Crespo GP, Valente LL

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This report aims to present report a case involving localized enamel hypoplasia in an aesthetic region. It is also our aim to present and discuss the treatment options, associated with patient expectations and preservation of dental substrate. Patient L.F.A., 30 years old, female, sought treatment at the Dental School of UFPel. The main complaint was embarrassment when smiling due to the presence of a white spot on the upper left central incisor (21). After anamnesis and clinical examination, a treatment plan was outlined for the case. Initially, dental bleaching and microabrasion were performed, but the outcome did not provide the expected aesthetic result. Therefore, macroabrasion, a conservative cavity preparation was performed, focused on the stainied spots. The procedure was followed by restoration with composite resin. Minimally invasive approaches should prioritized for enamel alterations. However, invasiveness tends to increase according to the patient's aesthetic demands, as the success of the treatment is directly related to the patient's opinion.

The correct diagnosis and an appropriate treatment plan allowed a minimally invasive approach, achieving a satisfactory outcome. The spot was masked using composite resins, reproducing natural enamel shade and maintained the integrity of the smile, restablishing the desired aesthetics.

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PCC 15

ANTERIOR AESTHETIC REHABILITATION WITH THE IPS E.MAX CAD SYSTEM: CLINICAL CASE REPORT

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The demand for aesthetic treatments has increased thanks to society's awareness of the importance of health and dental aesthetics. Modern ceramic systems have high color stability, wear resistance, aesthetics similar to natural teeth and a high rate of clinical success, if well executed. The treatment plan adopted was the replacement of veneers in resin composed of ceramic laminates, to restore aesthetics, function and return of self-esteem. All treatment, from planning to milling the parts, was carried out in the digital dentistry laboratory of our postgraduate course (COD-UEPG). The objective of this work was to report a clinical case of aesthetic rehabilitation in upper anterior teeth using ceramic veneers through the IPS e.max CAD system (IvoclarVivadent). Keywords: Aesthetics, ceramics, dental prosthesis.

Anterior rehabilitation with the IPS e.max CAD system (IvoclarVivadent) can be an alternative that combines aesthetic qualities with excellent mechanical properties.

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PCC 16

AESTHETIC MATCHING THE SMILE WITH CONTACT LENSES - CLINICAL CASE REPORT

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Aesthetic dentistry is constantly evolving, developing new materials and techniques for oral rehabilitation. With the advancement of adhesive systems and ceramics, it became feasible to confection and luting veneers with minimal thickness, dental contact lenses. Objective: to report a clinical case of a patient assisted at FO-UFRGS. Clinical case report: female patient, 23 years old, who sought care at School of Dentistry of UFRGS with aesthetic complaint regarding the anatomical shape of her anterior teeth and the unwanted gummy smile. With the clinical examination, it was observed several diastemas between the teeth, slight palatine inclination in the canines and upper premolars, large exposure of gingiva and short clinical crowns. After digital planning, the treatment chosen was periodontal surgery to increase crown lengthening from canine to canine and minimally invasive preparation of 8 dental contact lenses from 1st pre-molar to 1 st upper pre-molar using the IPS e.max Press ceramic system with MT insert. Advantages: These extremely thin ceramic facets promote the harmonization of the smile, correcting the changes in shape and color of the tooth structure.

Conclusion: The technique of oral rehabilitation from dental contact lenses is currently an option for patients with high aesthetic requirements, due to the excellent optical properties of these ultra-thin laminates, which reproduce the natural characteristics of the dental structure, besides, they have high resistance after cementation and durability.

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PCC 17

MULTIDISCIPLINARY APPROACH TO AESTHETIC REHABILITATION AND FUNCTIONAL - CLINICAL CASE REPORT

Crespo GP*, Chaves ET, Munchow EA, Boeira GF, Souza JS, Valente LL

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Report a clinical case with aesthetic and functional needs, related to dentition damaged by dental erosion, altered coloration and anatomy, requiring removal of cause, reestablishment of the vertical dimension of occlusion (DVO), correction of parafunction. Patient B.P.W., male, 25 years old, sought dental care, prior to the removal of the orthodontic appliance, with aesthetic complaint related to wear due to dental erosion and occlusal dysfunction, as well as loss of anatomy and dental dimension. After anamnesis and detailed examinations, clinically, it was found the presence of spaces in the anterior region, purposely maintained, with the aim of a reanatomization and correction of the DVO. The treatment was planned in two stages: In the first, homemade tooth whitening was performed, followed by reanatomization with direct composite resin in the upper anterior sector, reestablishing dental proportions, function, aesthetics and phonetics. Subsequently, the occlusal facets (table tops) will be made for the reestablishment of the DVO, involving the lower teeth.

From the use of composite resin with the appropriate color, thickness and opacities, culminated in harmonic results according to the requirements established by the patient and professional, minimizing discrepancies related to functional and aesthetic discomforts.

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PCC 18

PEG SHAPE LATERAL INCISORS: A MULTIDISCIPLINARY APPROACH FOR THE REESTABLISHMENT OF THE ESTHETICS OF THE SMILE

Vasconcellos MF*, Freitas M, Silva GBP, Durand LB

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Objective: This case report aims to present the approach used to restore the esthetic of the smile of a patient with peg-shaped lateral incisors, unsatisfactory restorations, inadequate shape of the upper central incisors, and asymmetry of the gingival contour. Case Report: A multidisciplinary planning was conducted in order to redistribute the spaces between the central incisors and restore their shape. A direct technique using freehand restorations with resin composites was applied to redefine the form and dimensions of the teeth. The unsatisfactory composite restorations were replaced by ceramic veneers on the peg-shaped incisors. A conservative preparation was performed, followed by addition silicone impression and confection of resin composite provisionals, before the subsequent installation of lithium disilicate veneers. After the ceramic veneer and dental substrate treatment, the veneers were cemented using a light-activated resin cement. Following the completion of the restorative treatment phase, a gengivoplasty was performed to correct the asymmetrical gingival contour in the region of tooth 11. Advantages and Limitations: The case has been monitored for 8 years, and the ceramic veneers remain in perfect condition, while the resin composite restorations were submitted to repolishing. The gingival contour remains stable.

Conclusions: The multidisciplinary approach, along with conservative techniques applied in this clinical case, resulted in the reestablishment of the harmony and esthetics of the appearance of the smile.

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PCC 19

MANAGEMENT OF DENTINOGENESIS IMPERFECTA: REPORT OF THREE CONSANGUINEOUS CLINICAL CASES

Petris LP*, Magalhães AP, Hojo FR, Monteiro L, Lima PLA, Decurcio RA, Cardoso PC

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Objective: To present three clinical cases, from the same family, affected by Dentinogenesis Imperfecta and undergoing complete oral rehabilitation using contemporary implant therapy and adhesive dentistry. Case report: The diagnosis was defined based on anamnesis, physical examination, and family history of these patients. Clinically, Dentinogenesis Imperfecta is characterized by fragile teeth with darkened substrate, prone to fracture, hypersensitivity, and functional problems. The clinical treatment protocol was established individually, according to each patient's needs. The performed treatments included contemporary implant therapy, preparations for total rehabilitation with lithium disilicate crowns aiming at increasing the vertical dimension of occlusion and dentin protection in cases of hypersensitivity. Advantages: Total oral rehabilitation allows the restoration of aesthetics, self-esteem, and quality of life for these patients. Limitations: Due to the absence of dental enamel and the only presence of dentin, adhesive rehabilitation becomes a significant limitation.

Conclusion: Current treatment choices, including adhesive composite restorations and more recently, all-ceramic restorations, are typically suggested to preserve the remaining teeth and dental structure.

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PCC 20

ASSOCIATION OF ORTHODONTIC TREATMENT AND BLACK SPACES RESTORATION USING THE MATRIX SYSTEM BIOCLEAR BT

Amin IC*, Albuquerque EG, Heringer RR, Calazans FS, Barceleiro MO, Costa SAGF

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The aim of this report is to demonstrate a simplified technique for blackspaces restorations using the Bioclear BT (3M) matrix system, allowing better conduction of orthodontic treatment. This is a system that uses clear polycarbonate matrix to fill gaps between teeth and correct irregular shapes. The technique involves using composite resin to fill the space created by the matrix. In this case, the 53-year-old patient, with agenesis of element 12 and absence of element 36, had a deviated midline, ectopic element 13, and a point of contact between elements 11 and 14. In the lower arch, she had crowding of the anterior teeth and elements 37 and 38 mesioangulated. It was decided to perform the treatment with aligners (Invisalign - Align Technology) in stages. The first step consisted of extracting element 22 to create contact between teeth 21 and 23 and for element 13 to come into position. After this stage, it was necessary to fill the blackspaces, with Bioclear BT system and small strategic composite additions for a reanatomization of the canines in laterals and the 1st premolars in canines. The patient continued with the orthodontic and prosthetic treatment to do the implant and finalize the case. As an advantage of the technique, the use of this system facilitated this restoration, allowing a extremely well-adapted restorations.

It is concluded that using the Bioclear BT system improves adaptation, maintains periodontal health and simplifies the restorative technique creating a natural and lasting result.

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PCC 21

ASSOCIATION OF AMALGAM AND COMPOSITE RESIN IN CLASS II DIRECT RESTORATION: LONGEVITY AND AESTHETIC COMBINATION

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Objective: This case report describes a restorative approach to restore posterior teeth in the proximal subgingival area, combining composite resin and silver amalgam. Case Report: A female patient sought dental care due to sensitivity in the lower right first molar (46). There was a slight darkening and the presence of caries on the mesial face of the lower first molar, confirmed by clinical and radiographic examination. After removal of the decayed dentin and cavity preparation, the cavo-superficial margin was configured and a high silver amalgam alloy (Logic+, SDI Ltd) was used to restore the class II cavity and afterwards, the occlusal surface of the amalgam was ground to a depth of 3 mm, keeping the restorative material in the background with its point of contact. An incremental, layered technique was used to restore the cavity created in the amalgam using a nanohybrid composite resin in shade B1 (IPS-Empress, Ivoclar Vivadent). At the end, we radiographically observed an excellent adaptation and satisfactory contours. As an advantage, we have an aesthetically acceptable result and excellent subgingival adaptation of an amalgam restoration and as a disadvantage, the imperative need for absolute isolation of the operative field. Clinical and radiographic follow-up after 8 years showed an excellent functional restoration.

Conclusion: The combination of amalgam and a light-curing composite resin is a viable and low-cost technique, combining the good properties of the two materials employed.

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PCC 22

BIOMIMETIC RECONSTRUCTION OF ENDODONTICLY TREATED TEETH

Silva CHV, Coutinho AVM, Dodoo DA, Falcão MCC*, Silva CHV

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OBJECTIVE: The aim of this study is to report a clinical case of biomimetic recovery of an endodontically treated molar. CASE REPORT: Female patient, 50 years old, presented first permanent molar with endodontic treatment and extensively destroyed. We opted for direct coronary reconstruction using composite resin Vittra APS Unique (FGM)(72 to 80% load by weight) of fluid consistency (62% load by weight), associated with Interlig fiberglass (Angelus) and selective acid etching of the enamel with the universal adhesive system Ambar APS (FGM). ADVANTAGES: Biomimetic approaches preserve the structural integrity of compromised teeth, focus on tooth/restoration adhesion, reduce the occurrence of irreparable failures, and increase the fracture resistance of endodontically treated teeth. CASE REPORT LIMITATIONS: Particularly the difficulties in and handling the fiberglass. CONCLUSIONS: the restorative technique employed can be performed in a single session, with excellent color and functional performance. It thus represents an affordable restorative option, with satisfactory results.

CONCLUSIONS: the restorative technique employed can be performed in a single session, with excellent color and functional performance. It thus represents an affordable restorative option, with satisfactory results.

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PCC 24

MULTI-ASSOCIATED TOOTH WHITENING PROGRAM - CASE REPORT

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OBJECTIVE: The objective of this study is to report a clinical case with a multi-associated tooth whitening program (MATWP). CASE REPORT: Man, 28 yrs old, with yellowish teeth and high translucency incisal enamel. The clinical examination showed vital teeth with natural intrinsic discoloration. A MATWP was used following protocols for the use of 35% hydrogen peroxide and calcium (Whiteness HP Blue / FGM) in the office; 22% carbamide peroxide (Whiteness Perfect / FGM) used in home bleaching home with custom trays; and self care with electric toothbrush (iO 9 Oral B) and low-abrasive toothpaste (Sensodyne True White / GSK). ADVANTAGES: The strategy of associating in-office, home bleaching and oral hygiene self care protocols increase the speed and optimize the result. LIMITATIONS: Patient adherence to treatment; as well as your discipline throughout the program. Commonly, the limitations associated with bleaching treatment are related to the occurrence of tooth sensitivity during the treatment, and possibility of occurrence of gingival irritation. Situations not evidenced in this case. CONCLUSIONS: the applied MATWP showed satisfactory results, with improvement in the aesthetics of the smile color. Also noteworthy is the importance of oral hygiene self-care stimulated by the use of the electric toothbrush.

CONCLUSIONS: The MATWP showed satisfactory results, with improvement in the aesthetics of the smile color. Also noteworthy is the importance of oral hygiene self-care stimulated by the use of the electric toothbrush.

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PCC 25

COLOR STABILITY AND MASKING OF ENAMEL OPACITIES AFTER RESIN INFILTRANT TREATMENT: 4-YEAR FOLLOW-UP

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This case report aimed to evaluate the enamel color stability and the masking of opacities caused by white spot lesions (WSLs) due to early caries and dental fluorosis after 4 years follow-up of treatment with resin infiltrant (RI). A 18-year-old female patient was referred to Dental Clinic reporting complaint with "teeth appearance". During clinical examination, active WSLs were observed both in cervical areas of teeth, associated with gingivitis than around already removed orthodontic brackets. Symmetrical and bilateral white opacities were also observed, diagnosed as moderate fluorosis. Considering the patient's age and and her complaint, a microinvasive treatment approach with RI was indicated. After gingivitis management, the protocol of RI technique (ICON, DMG) was performed according to the manufacturer's instruction. The advantages of RI technique are to prevent caries progression and perform a satisfactory result by masking the white opacities immediately and after a long period of its application. The limitation is related to the yellowish appearance of the teeth immediately after application.

This case report demonstrates that the use of RI technique is an alternative of micro-invasive treatment to improve the esthetic appearance of WSLs and fluorotic opacities and presents color stability after 4 year follow-up period.

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PCC 26

UNIVERSAL SHADE COMPOSITE RESIN: CASE SERIES

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In search simplified restorative procedures, monochromatic universal resins have emerged with the aim of reducing clinical time, minimizing color selection errors and lowering costs in the dental office. Objective: to visually analyze the color mimetism of monochromatic universal resins in anterior and posterior teeth. Case report: class I, II, III, IV and V restorations were performed on patients treated at the School of Dentistry, UFRGS. The resins used were Omnichroma (Tokuyama), Charisma Diamond One (Kulzer) and Vittra (FGM), following the protocol for each material. Advantages and limitations: it was observed that in posterior teeth, monochromatic universal resins exhibited a high color match, providing suitable esthetic properties. In anterior teeth that did not require detailed characterization, monochromatic universal resins proved to be aesthetically convenient, provided that an opacifying agent is used in cases with a lack of a background wall. Conclusions: based on the presented clinical cases, monochromatic universal resins demonstrate to be an aesthetic and functional option for posterior restorations. In the anterior segment, better color mimetism was observed for restorations that did not require layering.

Conclusions: based on the presented clinical cases, monochromatic universal resins demonstrate to be an aesthetic and functional option for posterior restorations. In the anterior segment, better color mimetism was observed for restorations that did not require layering.

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PCC 28

FULL-ARCH IMPLANT-SUPPORTED MONOLITHIC ZIRCONIA FIXED DENTAL PROSTHESES - CASE REPORT

Ferrando LCR*, Bochnia J, Magalhães C, Agostinho-Neto O, Spyrides1 G, Reis KR

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Objective: Emphasize the importance of chosen materials and design of the prosthesis during its planning to achieve clinical longevity with minimal complications. Case report: The present study proposes a case of total fixed rehabilitation of a ceramic maxilla, with yttria-stabilized tetragonal zirconia (Y-TZP) as a selection material for the infrastructure and feldspathic (IPS EMAX CERAM®) as a coating applied only to the buccal surface. As the patient had adequate bone and lip support, only tooth replacement was performed, therefore PF-1. Advantages: Favorable aesthetics and the use of covering ceramics only in areas that do not directly receive masticatory efforts, in addition to reducing chipping, making it the ideal way to manufacture all-ceramic prostheses. Limitations: The feldspathic must present a coefficient of expansion lower than of the ceramic infrastructure to achieve greater shear strength and avoid chipping or microcracking.

Conclusion: It can be concluded that this form of rehabilitation was followed, reaching the aesthetic and fully desired requirements.

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PCC 29

REMOVAL OF HYPOPLASTIC STAIN ON ENAMEL FOLLOWED BY DIRECT RESTORATION WITH FOLLOW-UP OF 4 YEARS - CASE REPORT

Bork DH*, Crespo GP, Souza IV, Chaves ET, Münchow EA, Boeira GF, Valente LL

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Report a clinical case involving white spots in the anterior region, diagnosed as enamel hypoplasia and discuss treatment options reconciling substrate conservation, aesthetic expectation and longevity. Patient J.B., female, 34 years old, sought treatment at a private clinic claiming "stains on her front teeth". During anamnesis, she reported a traumatic episode when she was 4 years old. After clinical examination, white spots were found in the middle and incisal thirds of elements 11 and 21. According to the diagnosis, the order of procedures was from the most conservative to the most invasive. Home tooth whitening had been done recently and was not considered. Through the translumination exam, a certain extension and depth of the stain was observed, and microabrasion was also discarded. According to the patient's requirements, we opted for spot macroabrasion (removal with a diamond tip) of the stain, followed by restoration with composite resin.

The correct diagnosis, treatment plan, indication of the restorative material and correct execution of the procedure, allowed greater preservation of the dental structure, achieving the aesthetic result and expectations of the patient and the professional, as well as the maintenance of the procedure and a 4-year follow-up without the need for interventions.

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PCC 30

TOOTH WHITENING AS ESTHETIC COLOR HOMOGENIZING SOLUTION FOR WHITE SPOT LESIONS AFTER ORTHODONTIC TREATMENT

Suaza-Gonzalez A*, Nuñez A, Ñaupari-Villasante R, Coelho U, Gomes GM, Gomes JC

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The objective of this clinical case was to perform tooth whitening in an adolescent patient with white spot lesions after orthodontic treatment. Case Report: Male patient, 14 years old, finished orthodontic treatment and defects were observed on the enamel surface. One month after orthodontic treatment was completed, whitening treatment was performed to homogenize small stains on the teeth, 4 sessions of 45 minutes with hydrogen peroxide 6%, office whitening (Whiteness HP Automixx 6%). Advantages and limitations: With whitening we were able to decrease the stains on the teeth and whiten the teeth, in the measurements of tooth 13 the color was from C1 and changed to A2 and in the measurement of tooth 23 it was from B3 to B2. There was no sensitivity during and after the sessions. Limitations: Hydrogen peroxide had the greatest effect on tissues unaffected by the white spot lesion, however, as the etiology of the spots differs those of the pigmentations the bleaching had less effect on them.

Conclusion: The perceived esthetics of the teeth was acceptable, according to the reports of the patient and the patient's mother. No significant difference was observed in the risks of tooth sensitivity.

(Apoio: UEF/FUNDO PARANÁ)

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PCC 31

2nd Place
Honorable Mention

INHIBITION OF UNAESTHETIC HALOS IN PROXIMAL ANTERIOR RESTORATIONS USING OPACIFIERS

Machado JB*, Chaves ET, Lund RG, Machado DG, Facenda JC, Marinho MELN, Silva RR, Martos J

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Objective: The aim of this case report is to describe a restorative procedure to minimize the interfering optical effects in the esthetic behavior of proximal composite resin restorations. Case Report: A male patient attended the clinic complaining about the appearance of his smile, where, after clinical examination, a chromatic alteration of the upper right (11) and left (21) central incisors were found in class III restorations with the presence of a darkened halo contouring the tooth-restoration interface and evidenced by the buccal face of element 11. The proposed treatment plan consisted of a minimally invasive approach with removal of the restorative material and masking of the darkened halo using opacifier and subsequent restoration with light-curing composite resin. A photopolymerizable opacifying material was applied to the bottom of the cavity, axial wall and region closest to the buccal surface, so that only the region where the chromatic alteration, visibly similar to a dark halo, received material. As advantages, we list the possibility of obtaining excellent results regarding the mimicry of natural dental structures and as the main disadvantage lies in the fact that such opacifiers are not available.

Conclusions: We conclude that the use of opacifiers minimizes the formation of a dark halo and masks the destructive interaction of light, which is a critical and unaesthetic problem present in some proximal restorations on anterior teeth.

(Apoio: CAPES N° 001 | PPGO-UFPel (Programa de Pós-Graduação em Odontologia da Universidade Federal de Pelotas))

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PCC 32

1st place
MARCELO GALANTE
Award

CAN I OPEN THE KETCHUP PACKET WITH MY TEETH? A 5-YEAR CLINICAL REPORT OF A REATTACHED LAMINATE VENEER FRAGMENT

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The aim of this study is to present the therapeutic approach involving the rehabilitation of a fracture in a ceramic laminate of the central incisor (11), caused by attempting to open a ketchup package. Upon arrival at the dental office, a 34-year-old patient expressed dissatisfaction with the deficient shape of the anterior teeth. During the initial visit, the patient reported incomplete orthodontic treatment and recently underwent at-home teeth whitening using a bleaching technique. Subsequently, the patient was molded with addition silicone, and gypsum models were poured and mounted on an articulator. Diagnostic wax-up was performed on the maxillary anterior teeth. Following approval of the mock-up made with bis-acrylic resin, the proposed treatment was carried out using six ceramic laminates (13 to 23). Three months after the installation of the ceramic laminates, the patient returned with a fractured incisor facet resulting from attempting to open a ketchup package. After clinical examination, the fractured fragment was rebonded. Conservative treatment for ceramic laminate fractures, which can occur in various everyday situations. One limitation of ceramic laminate therapy is its low resistance to tensile forces.

Rebonding is a conservative option for cases of fractures in ceramic laminates. The combined protocol of abrasion, hydrofluoric acid, silane, and adhesive proves to be effective. After 5 years of follow-up, it is possible to observe that rebonding shows excellent results.

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PCC 33

CHALLENGE AND SOLUTION: LAYERING IN COMPOSITE RESIN AND CLINICAL REWORK - CASE REPORT

Sousa PHJA*, Guedes ARB, Rodrigues PSL, Silva RFF, Figueiredo BC, Macêdo JCB

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AIM: Discuss assertive stratification protocols in order to optimize clinical outcome. ABSTRACT: Patient sought care with stains and gingival bleeding after making veneers. After removal, a new schedule was executed. Gingival isolation and retraction in addition to acid etching and adhesive system preceded stratification. the techniqueNatural Layering Concept was applied using achromatic enamel on the palate (Trans, Form), regular opacity dentin layer (DA1 Vittra APS, FGM), effect (Trans, Shape) and high value enamel (Harmonize XLE, Kerr). For finishing, granulating discs followed by a truncated conical tip at low speed for texturing. The sequence of cups and spirals completed the polishing. ADVANTAGES AND LIMITATIONS: As resin veneers mimic the optical and mechanical properties of teeth. Baratieriet al. (2011) and Reis (2021) explain that composites have a wide range of colors and opacities, allowing customizations; but technical sensitivity and lack of mastery over levels of translucency and opacities lead to failure with errors in color, overcontours, pigmentation and fractures that can cause irreversible damage.

CONCLUSIONS: Magne and Belser (2003) state that the planning includes the correct indication, evaluation of the substrate and determination of the aesthetic objective. In addition to the technique, success goes beyond anatomy, including the different optical levels and thickness to provide conservative and long-lasting work, without cervical excesses and avoiding the high rate of rework.

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GBPD

PE

Education

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PE 02

PERSPECTIVE OF UNDERGRADUATE DENTISTRY STUDENTS ON LEARNING AND EDUCATION DURING COVID-19 PANDEMIC

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Objectives: The aim of this study was to understand the perspectives of undergraduate dentistry students regarding remote education during the COVID-19 pandemic. Methods: A cross-sectional study was carried out with 170 students. A semi-structured questionnaire was applied to analyze remote education qualitatively and quantitatively. Inductive analysis was used to interpret qualitative data. Quantitative data were evaluated through descriptive analysis. Results: Most of the 170 participants considered that they were proactive and protagonist of their learning process. Additionally, the students felt that their attitudes contributed to build a constructive learning environment, that the learning process was favored by a positive relationship with teachers and colleagues, that the teaching methodologies applied were satisfactory, and that the theoretical learning requirements were achieved. The average of self-assigned grades was 8.4 (SD 1.02). The main constructive criticism pointed out by the students was the need to standardize the teaching methodologies among the teachers and among the disciplines. The main difficulties pointed out by the students was the extensive workload and the lack of time, motivation, and face-to-face clinical activities.

Conclusions: Most students showed positive perceptions regarding remote education. In addition, the students highlighted the importance of face-to-face clinical activities and self-organization to achieve effective learning.

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PE 03

THE DIGITAL ERA IN DENTISTRY: TRANSFORMATION OF DENTISTRY SERVICES AT THE STATE UNIVERSITY OF PONTA GROSSA BY THE DIGITAL DENTISTRY CENTER

Oliveira GS*, Báez JMD, Meza TGN, Rodrigues RC, López LC, Suaza-Gonzalez A, Gomes GM, Gomes JC

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Proposition: Digital dentistry has gained more and more space in clinical practice. However, the high cost of equipment and software can be a barrier for many professionals and patients. To solve this issue, the Center for Research, Education, and Training in Digital Dentistry of the State University of Ponta Grossa (COD-UEPG) offers student resources and training and serves the community with the digital workflow. Objective: To describe the activities of COD-UEPG with the implementation of equipment for digital dentistry. Experience Report: COD-UEPG was inaugurated on July 24, 2021, to provide students with equipment and resources related to digital dentistry, in addition to giving the community quality care in the dental offices of UEPG. The center has an intraoral scanner, a milling machine, two 3D printers, a dental furnace for ceramics, drawing software, and other materials. With costs below the market, COD-UEPG members perform services such as crowns, laminates, inlay or onlay, digital smile planning, and occlusal splints, among others. Results: The implementation of the digital flow within the university assists in the completion of clinical cases with incredible speed and assertiveness, generating the opportunity for students and patients to experience digital dentistry.

Conclusion: Digital dentistry represents an important advance in the evolution of dentistry, and its implementation should be encouraged in universities and dental clinics.

(Apoio: UEF/FUNDO PARANÁ)

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PE 04

DYNAMIC TEACHING, EXTENSION AND INNOVATION THROUGH THE ACADEMIC LEAGUE OF RESTORATIVE DENTISTRY/UFRN - EXPERIENCE REPORT

Borges BCD*, Souza BBTLC, Dantas JFS, Santos KS, Bessa MS, Cerqueira IKM, Lima RXS, Amorim AG

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Proposition: To report the experience of a project of integrated actions, the Academic League of Restorative Dentistry of the Universidade Federal do Rio Grande do Norte (LAD/UFRN). Methods: Undergraduate and postgraduate students in Dental Sciences (PPGCO) participated in the project under the coordination of a professor. The activities developed involved practices in dental anatomy and resin composite (hands-on), composition of parodies, production and presentation of video-photographic material, systematic reviews, critical reading and presentation of scientific articles. The practice of dental sculpture occurred in Ponta Negra beach (Natal/RN). The hands-on, theoretical class and seminars took place at the faculty. The parodies were presented in June as part of ArraiLAD. The painting "Ciência no mocho" was created on LAD's Instagram and included the publication of applied literature. Results: Twenty one undergraduate and graduate students participated in the project. The following were carried out: a sand sculpture practice, six hands-on procedures in composite resin (Classes I, II, IV and veneer), production of video photographic material on Classes I, II, III, IV, V, and finishing/polishing, three parodies, 20 seminars and 20 posts in the LAD Instagram.

The LAD/UFRN provided improvement of competences and skills in resin composite, development of didactic material of potential use, development of competences on scientific communication, and dissemination of information for absorption and application by Dentistry professionals.

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PE 05

2nd Place
Honorable Mention

USE OF THE OBSERVED STRUCTURED CLINICAL EXAMINATION (OSCE) METHODOLOGY AS AN EVALUATION PROCESS IN THE DISCIPLINE OF RESTORATIVE DENTISTRY

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The objective of this study is to present an experience report on the use of the OSCE (Objective Structured Clinical Examination) as part of the evaluation process of the discipline of Restorative Dentistry at Faculdade Nova Esperança, João Pessoa, Paraíba. The OSCE is an exam focused on clinical competences, being organized in a circuit of stations, which contains standardized patients and specific tasks in each of the situations. The evaluation process can be divided into stages such as anamnesis, clinical examination, communication with the patient, establishment of a treatment plan and guidelines. In addition to assessing clinical skills and knowledge, it also assesses cognitive components and interpersonal skills, such as attitudes and communication, being a universal assessment method for preclinical and clinical disciplines. In Restorative Dentistry, the OSCE is included in one of the components of the evaluation process. During its performance, students are divided into groups, forming part of a rotation, according to the number of stations, composed of mannequins, images, instruments and materials with the purpose of reproducing realistic clinical scenarios. Each situation has a pre-established time for its resolution. Teachers evaluate behavior and expected decision-making, attributing evaluation to verbal resolution of each proposed case.

The OSCE methodology presents itself as an adequate evaluation tool to measure the student's evolution within the discipline and to reach clinical competences during their professional training.

(Apoio: Faculdades Nova Esperança - FACENE João Pessoa)

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PE 06

ACADEMIC MONITORING OF OPERATIVE DENTISTRY IN A GENERAL DENTISTRY SUBJECT: AN EXPERIENCE REPORT

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Abstract Aim: the aim of this study is to report a teaching and learning experience that happen during graduation level course, faculty of Dentistry, at UFRGS: academic monitoring. Experience report: academic monitoring is an especial opportunity in the Faculty of Dentistry, providing a cooperation between student and professor. The academic monitoring was in operative dentistry, and occurred in a general dentistry subject, third year of graduation course at UFRGS. Among all activities, we can highlite: the teaching experience; to be an assistant of the Professor in the dental practice; to assist patients with all kinds of restorative necessities; to learn in partnership with the students; to improve the curriculum vitae and receive some payment as well. The proximity of the academic monitor and the students facilitate the relationship among them and the learning process.

Conclusion: academic monitoring is a great experience in the graduation course, specially in clinical subjects with patients. Through academic monitoring, we could improve a clinical experience, a teaching process, and, mainly, a way to learn Dentistry.

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PE 07

3rd Place Honorable Mention

E.LABORE: LABORATORY EXTENSION OF INDIRECT RESIN RESTORATIONS AND DIAGNOSTIC WAX-UP

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Objective: This paper aims to describe the Elabore extension action, at the UFRGS School of Dentistry. Method: Patients with restorative needs in their teeth compose a very common clinical picture at the Dental Teaching Hospital of School of Dentistry at UFRGS. When there is a need for laboratory procedures, there is a considerable increase in costs for the patient. Two laboratory procedures, diagnostic wax-up and indirect composite resin restorations can be performed at the dental school by the students themselves. For these reasons, the Elabore extension activity offers students this opportunity to perform the laboratory steps under proper guidance, and patients the possibility of these procedures at no additional cost. Results: During the activity and extension, 33 different clinical cases were attended to by undergraduate students. In 12 of these cases, indirect composite resin restorations were performed, with a total of 34 restorations, and in 21 cases diagnostic wax-ups were done.

Conclusion: All students seen stated that Elabore is necessary, as it allows learning to complement that foreseen in the curriculum, promotes a learning environment under supervision of dentistry and dental anatomy teachers, and allows the patients seen to have quality treatments, without additional costs. Keywords: Dentistry, Aesthetic Dentistry, Dental Education, Permanent Dental Restoration.

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PE 08

THE CONCEPTION OF LABORATORY DISCIPLINES IN DENTISTRY FROM THE POINT OF VIEW OF THE STUDENT AND THE MONITOR: AN EXPERIENCE REPORT

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Objectives: To report, based on the perception of a student, the main limitations of the activities carried out in the Dentistry laboratories, seeking to correlate her experiences as a student and monitor, and suggest new tools that approach the dental reality. Methods: This is an experience report, of a descriptive, exploratory nature, having as research scenario the pre-clinical laboratory of the Dentistry course at UFPel-RS during its graduation period. Results: The pre-clinical activity is fundamental for the application of technical-scientific knowledge and the student's psychomotor development, after all, it is at this moment that the student is able to carry out the training and mastery of many requirements necessary for clinical practice, such as time management for a given procedure, planning, organization of instruments, ergonomics and use of PPE. However, these simulators are limited in some attributes, as the hardness of the material that does not resemble enamel, dentin and pulp tissue, the color that reproduces carious tissue and the radiopacity to perform radiographs. In addition to the absence of movement and saliva, factors found in any service.

Conclusions: Alternatives should be implemented in order to reduce pre-clinical limitations, such as, for example, mannequins that are more similar to reality, as the presence of water simulating saliva and the property of different hardnesses present in the teeth, thus narrowing the connection between the training laboratory and the dental routine. (Support: CAPES)

(Apoio: CAPES)

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PE 09

PROJECT AESTHETIC DENTISTRY FOR ALL: ADVANCED MULTIDISCIPLINARY STUDIES AND ACADEMIC TRAINING IN AESTHETIC DENTISTRY

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It is undeniable that the act of smiling is a manifestation of social relevance. Therefore, one cannot underestimate the importance of the appearance of a smile in people's self-confidence, self-esteem, and quality of life. This work aims to present the experiences of a project developed in the discipline of Operative Dentistry at UFSM, full of inspiring stories of satisfaction and gratitude, not only for the transformation of smiles, but also, for transforming the lives of patients, students and teachers involved. In 2012, there was no place or public program in Operative Dentistry specialized in esthetics, for individuals needing improvement of the appearance of their smile, in Santa Maria, RS. Thus, without having options, the community was left unassisted and, the implementation of a project focused on this issue was necessary. For over ten years, the extension project entitled: Aesthetic Dentistry for All: Advanced multidisciplinary studies and academic training in aesthetic dentistry has provided teaching, research and extension actions through theoretical/laboratory training courses and clinical activities to resolve complex situations with multidisciplinary, inclusive, and somewhat innovative approaches in health and education. During this period, 96 students had the opportunity to transform the smiles of 520 patients.

During this period, students had the opportunity to transform the smiles and qualify their scientific, technical, and humanized training.

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PE 10

1st Place
HENRIQUE TEITELBAUM Award

ACTIVE TEACHING-LEARNING METHODOLOGIES AND LUDIC PRATCICES - NEW PEDAGOGICAL APPROACHES IN DENTISTRY COURSES AT PUC MINAS

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Learning fragmented by disciplines and specific areas prevails in higher education, and there is a lack of connection between laboratory and clinical purposes. This experience report presents the pedagogical approaches adopted in the Active Methodologies teaching-learning (AMTL) process in the dental graduation at PUC Minas of a playful nature and student engagement, when there is a transition in the teaching of disciplines, highlighting: the basic cycle; walking through the laboratory environment; at is clinical care for patients, beyond mere technical training. In the preclinical moment, paintings of macromodels with gouache paint were applied to elucidate the nomenclature and classification of cavities class, simulation of carious tissue removal and Active Teaching-Learning Methodologies (AMTL) and PBL (Problem-Based Learning) . In the clinical care stage , a simulation of care was initially proposed, with the students as protagonists, with all the disciplines interrelated and, later, the OSCE (structured objective clinical examination) was applied, as a way of evaluating and standardizing the competences clinics. The use of AMTL showed promising results, interconnecting areas of dentistry teaching , seen as dichotomous, theory and practice , basic and clinical teaching.

Conclusion: The use of ludic pratices, associated with AMTL, awakened students' adherence and/or development of manual skills.

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PE 12

USE OF HYPERCHROMATIC COMPOSITES FOR VISUALIZATION OF ANATOMICAL DETAILS IN POSTERIOR TEETH

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The visualization of dental anatomy can be considered a challenging task, especially for undergraduate students, due to the low chromatic contrast between the restoration and the tooth structure. This experience report aims to describe a teaching technique using hyperchromatic composites through the presentation of the didactic-restorative protocol for tooth 16 (right maxillary first molar). Atos Academic resin (SmartDent, São Carlos, São Paulo, Brazil) is a specialized composite for didactic purposes, which has a palette of vibrant colors (hyperchromatic), enabling the learning of dental anatomy in terms of visualizing the cusps and communicating about them. A Class I cavity in tooth 16 was restored directly using the incremental technique with the mentioned composites. The restorative sequence was as follows: reconstruction of the distopalatal cusp (gray increment), mesiobuccal cusp (red increment), distobuccal cusp (pink increment), and mesiopalatal cusp (yellow increment). Hyperchromatic resins allow the visualization and understanding of the anatomy by distributing and highlighting the cusps. The use of different colors for the cusps makes their visualization in terms of size and shape easier. Moreover, these resins have similarities in handling, viscosity, and activation method when compared to conventional resins.

Hyperchromatic resins are excellent tools for teaching the anatomy of posterior teeth.

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PE 14

EVALUATION OF CARE FOR LIGHT-ACTIVATION DEVICES AND PHOTO-ACTIVATION PROCEDURES

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Objective: To evaluate the photopolymerization practices of dentists working in the state of Espírito Santo. Methods: A virtual recommendation was forwarded to CRO-ES so that it could be sent by direct mail to professionals who were in the state and duly registered. The project was approved by the Research Ethics Committee under number 5,373,188. The test consisted of 33 questions, 8 of which related to demographic data and 25 related to specific knowledge about photopolymerization. In all, 106 passengers were accommodated and answered. A survey of the participants' photopolymerization practices was carried out and a comparison was made between professionals with different accumulated experiences (up to 5, 6-15 and over 15 years). Results: Two questions asked a result with analogue hopper, the first in relation to the type of device that the professional used, in which there was a predominance of 58.1% for professionals trained over 15 years who knew how to answer (p = 0.019) . The second question referred to the use of eye protection, 40.8% of the participants with up to 5 years of graduation revealed that they did not use eye protection during photoactivation procedures (p= 0.032).

Conclusion: Despite the low rate of failure reported by professionals, the rate of correct answers for the questions in the interrogation was low, in addition, there was a relationship between the rate of correct answers and knowledge about the subject of photopolymerization with a longer time of clinical experience.

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GBPD

PPCL

Scientific Research

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PPCL 01

VEGETAL EXTRACT INCORPORATED TO THE GLASS IONOMER CEMENT AS A PHOTOSENSITIZER TO PDT ON STREPTOCOCCUS MUTANS.

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Evaluate the vegetal extract of Dioscorea Altissima (DA) incorporated to the glass ionomer cement (CIV) as a potential photosensitizer to photodynamic therapy (PDT) on Streptococcus mutans (Sm). Samples of CIV and CIV+vegetal extract (CIV/EXTRACT) were divided in (n=24): G1- CIV; G2- CIV + LASER (L); G3- CIV/EXTRACT; G4- CIV/EXTRACT + LASER; G5- CIV + METHYLENE BLUE (AM); G6- CIV + PDT (AM+L); G7- CIV/EXTRACT + AM; G8- CIV/EXTRACT + PDT. Adopted parameters: 660 nm, 100 mW, 5J ,150 J/cm² and 50s. After the test of cell viability with MTT, the antimicrobials effects on Sm were evaluated based on the absorbance in Elisa reader. The data were submitted to normality test of Kolgomorov-Smirnoff, followed by the ANOVA One-way. The Tukey´s test was applied for multiple compilations among the groups ($\alpha<0,05$). G6 revealed largest inhibition followed by G4, G5, G7 and G8, that had similar results ($p>0,05$). G2 and G3 were similar ($p>0,05$) revealed less actives compared to the others. Incorporation of the extract of the vegetal plant Dioscorea altissima enhanced the antimicrobials effects of CIV on Sm. The extract can be a physiotherapeutic alternative of photosensitizer for PDT, replacing methylene blue. Key-words: S.mutans, glass ionomer cement, vegetal extract, Photodynamic therapy.

Incorporation of extract of the vegetal plant Dioscorea altissima enhanced the antimicrobials effects of CIV on Sm. The extract DA can be a physiotherapeutic alternative of photosensitizer for PDT, replacing methylene blue.

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PPCL 02

INFLUENCE OF BRUSHING WITH VEGAN DENTIFRICES WITH AND WITHOUT FLUORIDE ON ENAMEL COLOR CHANGE AND MORPHOLOGY

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This study evaluated the influence of brushing with vegan dentifrices on color change (ΔL, Δa, Δb, ΔE and ΔWI_D) and enamel morphology. Bovine enamel blocks were divided into (n=10): (CT) Colgate Total 12 Clean Mint (controle); (CC) Natural Extratos de Cúrcuma, Cravo e Maleleuca; (CU) Natural Extratos de Camomila, Melissa e Uva; (HC) Boni Natural Hortelã e Cúrcuma; (ZM) Colgate Zero Menta; (ZH) Colgate Zero Hortelã; (ME) Ultra Action Menta Everest; (CM) Boni Natural Carvão e Menta and submitted to 30,000 brushing cycles. Analyzes of pH, quantification of ionic fluoride (FI), total soluble fluoride (FS) and total fluoride (FT) in the dentifrices were carried out. Color change analyzes were performed before (T0) and after brushing (T1) and Scanning Electron Microscopy (SEM) analyzes at T1. The pH, FI, FS, FT data and SEM images were qualitatively analyzed, and the others were analyzed by one-way ANOVA (ΔL, Δa, Δb, ΔE), Kruskal-Wallis (ΔWI_D) and Tukey (α=5%). CT, ZM, ZH and ME showed fluoride values close to reported by the manufacturers. CM had the most basic pH (8.9). At T0, there were no differences between the groups regarding ΔL, Δa, Δb ($p>0.05$), but at T1, CM had the highest ΔL ($p<0.05$), there was a decrease in the reddish (-Δa) and yellowish (-Δb) appearance in enamel and there was no difference in ΔE between groups ($p>0.05$). ZM, ZH, ME and CM had the highest values for ΔWI_D ($p<0.05$). SEM images showed alterations on enamel surface.

It was concluded that vegan dentifrices promoted color change and alterations in enamel morphology.

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PPCL 03

USE OF BIOACTIVE DESENSITIZERS CONTAINING CALCIUM IN DENTAL BLEACHING: A SYSTEMATIC REVIEW AND META-ANALYSIS

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This study addressed the following research question: "Is the risk of tooth sensitivity (TS) lower when bioactive desensitizers containing calcium (BC) are used with dental bleaching in adults compared to bleaching without desensitizers?". Randomized clinical trials comparing the topical application of BC with a placebo or no intervention during bleaching were included. Searches for eligible articles were conducted in MEDLINE via PubMed, Cochrane Library, BBO, LILACS, Scopus, Web of Science, Embase, and grey literature without language and date restrictions, updated until September 2022. Risk of bias was assessed using the Risk of Bias version 2.0. Meta-analyses were performed using a random-effects model. Heterogeneity was assessed using the Cochrane Q test, I_2 statistics, and prediction interval. The Grading of Recommendations Assessment, Development, and Evaluation approach was used to assess the certainty of evidence. After database screening, 22 studies remained, with most having a high risk of bias. No difference in the risk of TS was detected (risk ratio, 0.95; 95% CI, 0.90 to 1.01; $p = 0.08$, low certainty). On a visual analog scale, the intensity of TS was lower for the BC group (mean difference, -0.98; 95% CI, -1.36 to -0.60; $p < 0.0001$, very low certainty). Color change was not affected ($p > 0.08$).

Although dental bleaching with the topical application of BC did not reduce the risk of TS and color change, these agents slightly reduced the intensity of TS, but the certainty of evidence is very low.

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PPCL 04

EVALUATION OF BONDING STRENGTH IN REPAIRS WITH COMPOSITE RESIN IN MILLED INDIRECT RESINS AND CONVENTIONAL COMPOSITE RESIN

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This study aimed to evaluate the bond strength (BS) of composite resin repairs in indirect restorations by comparing the repair with milled resin and conventional composite resin. Twenty blocks were made, 10 in Tetric CAD milled resin (Ivoclar Vivadent) and 10 in Z350XT composite resin (3M ESPE). All blocks were submitted to a repair simulation with Z350XT (3M ESPE) composite resin according to the groups: MR+CR (Milled Resin + Conventional Resin) and CR+CR (Conventional Resin + Conventional Resin), and submitted to a microtensile test in a universal testing machine. The failure pattern was analyzed under an optical microscope with a 40X magnification. BS data were statistically analyzed by ANOVA and Tukey post-hoc test ($p<0.005$). There was a statistically significant difference in the BS values between the different repair methods ($p=0.014$). The group MR+CR (24.8 MPa) showed BS values lower than CR+CR (35.4 MPa). The failure pattern showed a predominance of adhesive failures for MR+CR and mixed failures for CR+CR.

It was concluded that the repair performed with conventional composite resin was more effective than with milled composite resin.

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PPCL 05

LONGEVITY OF DIFFERENT IN-OFFICE TREATMENTS FOR DENTIN HYPERSENSITIVITY: RANDOMIZED AND PARALLEL CLINICAL TRIAL

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Objectives: This randomized and parallel clinical trial aimed to analyze the longevity of different in-office treatments for dentin hypersensitivity (DH). Methods: One-hundred ninety-two teeth with non-cavitated root exposures were treated using different desensitizers: fluoride varnish (Duraphat - FLU); bioactive ceramic solution (Biosilicate - BIOS); universal self-etching adhesive (Single Bond Universal - SBU); bioactive photoactivated varnish (PRG filler - SPRG). The DH was analyzed using visual analogue scale (VAS) and computerized visual scale (CoVAS), before treatments (baseline) and after 7, 15, 30 days, 6 and 12 months. Data were submitted to linear regression model with fixed effects and post-test using orthogonal contrasts ($p \leq 0.05$). Results: All desensitizers were effective in reducing DH, compared with baseline data in both analyzes. A significant reduction of DH was observed from 7 days for BIOS and SBU, from 15 days for SPRG, and from 30 days for FLU, considering VAS scale. All desensitizers were able to significantly reduce DH after 7 days, except for SPRG, which showed this reduction after 15 days, when CoVAS analysis was used. No statistical differences were found among desensitizers for all times of evaluation, for both scales.

Conclusions: All in-office treatments were efficient in the reduction of DH, with similarity levels of pain among desensitizers.

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PPCL 06

A 36-MONTH CLINICAL EVALUATION OF COMPOSITE RESINS WITH DIFFERENT VISCOSITY AND CHEMICAL COMPOSITIONS- A RANDOMIZED CLINICAL TRIAL

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Objective: to compare the clinical performance of two flowable composites based on methacrylate and one based on ormocer in non-carious cervical lesions (NCCLs) after 36 months of evaluation. Methods: 183 restorations were performed in NCCLs, applying the universal adhesive (Futurabond U, Voco) in the selective enamel etching strategy and using one of three flowable composites (n=61): low-viscosity methacrylate- based composite GrandioSO Flow, LV), high-viscosity methacrylate-based composite (GrandioSO Heavy Flow, HV), and na ormocer-based-flowable composite (Admira Fusion Flow, ORM). All restorations were evaluated by FDI criteria after 36 months. Statistical analysis was performed using the Kruskall-Wallis test of variance analysis (α=0.05) and survival analysis. Results: After 36 months of clinical evaluation, 14 restorations were lost (HV=7; ORM=2; LV=5) and the retention rate was 90% for LV, 86% for HV and 96% for ORM, with differences statistics observed between HV and ORM ($p<0.05$). For secondary outcomes, no significant differences were found between groups ($p>0.05$). Only the marginal fit of 2 restorations showed unsatisfactory performance (LV=2), all other FDI criteria showed acceptable behavior. Conclusions: The clinical performance of the evaluated flowable composites was satisfactory after 36 months, but HV showed more failures when compared to ORM. The clinical behavior of flowable composites in LCNCs was dependent on their flowability.

The clinical performance of the tested flowable composites was satisfactory after 36 months.

(Apoio: CNPq N° 304817/2021-0 | CNPq N° 308286/2019-7 | CAPES N° 001)

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PPCL 07

EVALUATION OF COMPOSITE RESIN RESTORATIONS IN POSTERIOR TEETH PERFORMED BY DENTISTRY STUDENTS

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Objective: To characterize and clinically evaluate composite resin restorations in posterior teeth performed by dental students. Methods: Medical records of patients attended at dental clinics by students from the fifth to seventh periods between March 2018 and November 2019 were selected. The causes that led to the restoration, the classification and number of faces were recorded. The patients were called for clinical evaluation of the restorations by two examiners, following the FDI parameters. Data were statistically analyzed (a=5%). Results: 201 records were selected, with 402 restorations. Of these, 135 (34%) were Class I, 227 (56%) Class II composite, and 40 (10%) Class II complex. Students in the fifth period performed more Class I restorations and those in the seventh, more Class II (p=0.001). Of the 215 restorations replaced, 82% were treated with total replacement and 18% with repair. Between periods, there was no significant difference between primary restoration, total replacement, and repair (p=0.304). Complex Class II restorations had a higher rate of failure due to staining (p=0.0027) and marginal adaptation (p=0.0110). The annual average of failure of the restorations was 3.7%.

Conclusions: Students performed more total replacement of restorations than repairs. The complexity of the restorations increased according to the student's period. The more complex the restorations, the greater the number of failures due to staining and marginal adaptation.

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PPCL 08

EFFECT HYDROGEN PEROXIDE BLEACHING ON STAIN REMOVAL IN SINGLE-SHADE COMPOSITE RESIN

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The aim of this study is to evaluate the susceptibility to staining of conventional and single-shade nanohybrid composite resins using different dye solutions and the effect of surface bleaching on stain removal. Materials and Method: Fifty disc-shaped specimens were prepared with a conventional (VT) and a single-shade (VU) nanohybrid composite resin. The specimens were submitted to color analysis with a portable colorimeter using the CIELab system before and after immersion in coloring beverages (coffee, tea, wine, cola-based soft drink, and water as control) for 7, 14, 21, and 28 days. After 28 days, the specimen surfaces were bleached with 35% hydrogen peroxide and again submitted to color analysis. Data were submitted to Mann-Whitney, Kruskal-Wallis, and Dunn U tests (a=5%). Results: When comparing both resins, staining with water, coffee, and soda did not show statistically significant differences between all moments ($p>0.05$). Both evaluated resins showed significant differences in color change with tea and wine at 21 and 28 days, with medians greater than the time of 7 days ($p<0.05$).

It was concluded that both composite resins were more susceptible to staining with coffee, tea, and wine. Bleaching was not able to remove staining caused by coloring drinks in both evaluated resins, with the exception of staining with tea and wine for 21 and 28 days, in the single-shade resin.

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PPCL 09

CYTOTOXICITY EVALUATION AND PULPAL TEMPERATURE CHANGES OF IN-OFFICE BLEACHING GELS ASSOCIATED WITH VIOLET LED

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Objective: The cytotoxicity of 35% or 7.5% hydrogen peroxide (HP) gels for in-office bleaching technique, incorporated with 1% titanium dioxide nanotubes (TiO_2) associated or not with violet light (VL) application, as well as the pulpal temperature changes were evaluated. Methods: PH35 (35% HP); PH35+VL; PH35T (PH35+TiO_2); PH35T+VL; PH7 (7.5% HP); PH7+VL; PH7T (PH7+TiO_2); PH7T+VL were evaluated. Eighty bovine incisors were prepared for temperature measurements (n=10). When violet LED light was applied (Bright Max Whitening, MMOptics), 20 cycles of 60s with an interval of 30s of rest without light was used. A type K thermocouple was positioned in the pulp chamber, and the temperature was evaluated throughout the bleaching session (30 minutes) and measured in degrees Celsius (ºC). Transdentinal cytotoxicity was evaluated with a pulp chamber device using enamel/dentine discs (n=6) and MDPC-23 cells to assess cell viability. Results: Higher temperature increase was observed in the presence of VL at 30 minutes ($p<0.05$) (Mann-Whitney test). PH7 provided higher cell viability than the groups treated with PH35 ($p<0.05$) (generalized linear models). Cell viability was significantly lower for PH7 in the presence of VL ($p<0.05$) (generalized linear models).

Conclusion: Pulpal temperature increased with the use of VL (maximum of 1.9ºC), but did not exceed the critical limit. An agent containing hydrogen peroxide at a lower concentration showed lower cytotoxicity, even when associated with VL.

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PPCL 10

COLOR EVALUATION OF A MONOCHROMATIC RESIN: CLINICAL TRIAL

Miranda AO*, Favoreto MW, Matos TP, Castro AS, Cardoso MA, Reis A, Loguercio AD, Kunz PVM

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A double-blind, split-mouth randomized clinical trial evaluated the color matching of a Vittra Unique monochromatic composite resin and a conventional Vittra in restorations of non-carious cervical lesions (NCLCs) in an immediate period. 120 restorations were performed on LCNCs with two composite materials (n = 60). The teeth were isolated with a rubber dam and the adhesion was carried out in the strategy of selective enamel etching. All restorations were inserted incrementally and photoactivated. Values of ΔEab and ΔE00 in the third Cervical and midsections were evaluated using a digital spectrophotometer (ΔEab and ΔE00) before and after restorations. At baseline and after 7 days, the clinical performance of according to the FDI criteria. Statistical analysis was performed using the chi-square test for all parameters. Color change was analyzed by Student's t test for paired samples (α = 0.05). As for the color measurement, no difference was observed significant between the resins analyzed in the comparisons made (p > 0.05). Already the ΔEab and ΔE00 values in the cervical third before vs. after the restorations they were bigger when compared with ΔEab and ΔE00 observed when comparing cervical third vs. average after the restorations.

The restorations were scored clinically very good (FDI) at the beginning and after 7 days for all results. The composite resin monochromatic obtained the same color correspondence in comparison with the resin conventional composite after 7 days on LCNCs. Keywords: Composite resin; Color; Clinical Trial.

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PPCL II

EFFECTS OF THE APPLICATION OF SODIUM ASCORBATE AFTER IN-OFFICE BLEACHING

Cardoso MA*, Mena-Serrano A, Favoreto MW, Loguercio AD, Reis A, Matos TP

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This study aimed to evaluate the effects of the application of 10% sodium ascorbate (SA) after in-office bleaching on the penetration of hydrogen peroxide (HP) into the pulp chamber, color change and microtensile bond strength (μTBS) to the resin-enamel interface. Thirty premolars and thirty molars were randomly divided into three groups (n = 20 each). One group was exposed to deionized water (negative control). The other two groups were bleached with 35% HP in a single session for 3x15 minutes for each application. However, in only one of them, SA was applied for 10 minutes after bleaching. After, the concentration (μg/mL) of HP in each pulp chamber was evaluated by UV-Vis spectrophotometry. Color changes (ΔEab, ΔE00 and ΔWID) were evaluated with a digital spectrophotometer before and in the first week after bleaching. After treatment, molars were restored and sectioned to obtain resin-enamel interface sticks for μTBS at a crosshead speed of 1 mm/min until failure. The HP concentration and μTBS data were analyzed using one-way ANOVA and Tukey tests, and color changes were analyzed by t tests ($\alpha = 0.05$). SA application significantly improved the μTBS values and reduced the HP concentrations within the pulp chambers ($p < 0.0001$). The application of SA significantly interfered with the color changes after bleaching when compared to the control group ($p < 0.05$).

Application of 10% SA after in-office bleaching successfully reduced the penetration of HP into the pulp chamber; however, it decreases color change.

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PPCL 12

EVALUATION OF THE INFLUENCE OF PATIENTS' CHARACTERISTICS AND HABITS ON DENTIN HYPERSENSITIVITY

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Objectives: This clinical study aims to evaluate the influence of patients' characteristics and habits on the degree of dentin hypersensitivity (DH). Methods: One hundred and ninety-two teeth with root exposures from forty-two patients were selected. The following patient-related data were collected: age, gender, presence of gastric reflux, consumption of acidic foods, teeth clenching, bruxism, periodontal treatment, oral hygiene. Regarding teeth with root exposures, data were collected regarding height and depth of exposure, presence of antagonist, disocclusion guide and group of teeth. Data were submitted to a linear regression model with fixed effects and post-test with orthogonal contrasts ($p \leq 0.05$). The degree of DH was analyzed using a visual analogue scale (VAS). Results: Only three factors influenced the degree of DH, and the greater the depth of exposure, the greater the DH. The presence of antagonist influenced the increase in the degree of DH; as well as, the premolars were more sensitive than the other groups of teeth. Conclusion: The degree of DH is associated with the depth of root exposure and the presence of an antagonistic tooth, being higher in premolars.

The degree of DH is associated with the depth of root exposure and the presence of an antagonistic tooth, being higher in premolars.

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PPCL 13

DO MODELING LIQUIDS AFFECT SURFACE PROPERTIES OF BULK-FILL RESIN COMPOSITES? AN IN VITRO STUDY

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The aim of this study was to evaluate the surface roughness in bulk-fill resin composites containing modeling liquids. Sixty disc-shaped specimens (4mm x 4mm) were made using three commercial brands of Bulk-Fill composite resins (Opus Bulk-Fill APS, FGM; Tetric N Ceram Bulk-Fill, Ivoclar Vivadent; and Filtek Bulk-Fill One, 3M Oral Care) and 3 products were used as modelers (Ambar Universal APS, FGM; Optibond FL, Kerr Dental; and Wetting Resin, Ultradent Products Inc.) The modelers were applied on the surface of the specimens and light cured (Bluephase 20i, Ivoclar Vivadent). Five measures were performed on each specimen to evaluate their surface roughness obtained from simulated tooth-brushing (baseline, 50,000 cycles, 100,000 cycles), using a digital roughness meter and through a scanning electron microscope with electron emission (FEG-SEM). The values were submitted to a two-way repeated measures ANOVA followed by Bonferroni's post hoc test (pre-set α= 5%). All groups presented a higher surface roughness after simulated tooth-brushing of 50,000 and 100,000 cycles ($p<0.05$). The Tetric N-Ceram Bulk-Fill resin group combined with Wetting Resin exhibited significantly lower surface roughness when compared to the other groups ($p<0.05$). In the FEG-SEM test, during baseline, all specimens showed a smoother surface, and after 100.000 cycles specimens showed surface voids.

The use of modeling liquids does not jeopardize superficial roughness of bulk-fill composite resins.

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PPCL 14

ACIDIC POTENTIAL OF UNIVERSAL ADHESIVES APPLIED TO ENAMEL USING THE SELF-ETCHING STRATEGY

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Objective: To evaluate the effect of different acidic compositions on enamel topography and surface wettability after application of universal adhesives. Methodology: Bovine enamel samples were prepared with #1200 SiC sandpaper. Half of the buccal surface received the application of a universal adhesive (n=3): All Bond Universal, Ambar Universal, Gluma Bond Universal, Optibond Universal, Peak Universal, Prime&Bond Universal, Single Bond Universal or Tetric N-Bond Universal. The samples were analyzed with optical profilometry (Sq and Sz parameters) and 2D/3D topographic evaluation. The wettability was evaluated by the contact angle method after 0, 30 and 60s. Data were analyzed with ANOVA for repeated measures and Tukey as post hoc and Pearson's correlation test ($p<0.05$). Results: The topographies Sq and Sz did not differ in the untreated portion of the tooth (Sq = 0.430±0.057 µm; Sz = 10.36±3.73 µm), whereas the surface treated with adhesive varied according to the material, with the Gluma Bond adhesive producing the greatest change (Sq = 1.031±0.343 µm; Sz = 37.02±9.33 µm). Gluma Bond and Tetric N-Bond adhesives resulted in the best (21.2±0.6°) and worst (58.6±6.6°) enamel wetting, respectively, which increased with the application time of the adhesives. A significant correlation was identified between immediate wettability and the Sz parameter ($R^2 = -0.771$; $p=0.025$).

The surface interaction of universal adhesives applied in the self-etching mode influences enamel topography, varying according to the type and acidic composition of the adhesive.

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PPCL 15

EVALUATION OF THE EFFECT OF ABRASION ON NON-CARIOUS CERVICAL LESIONS RESTORED WITH COMPOSITE RESIN: A RANDOMIZED CLINICAL TRIAL

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The aim of the present study was to clinically evaluate the composite resin restorations in non-carious cervical lesions with and without air abrasion of cavity dentin. For this, a randomized clinical trial was carried out, with a paired and double-blind design (participant and the evaluator). The study was conducted within a university setting on participants who had at least two non-carious cervical lesions (NCCLs). The randomization process was performed by a staff member who is not involved in the implementing interventions, and the randomization sequence was kept confidential until implementation. All restorations were performed under absolute isolation and in accordance with the objective of the clinical trial. The restorations were evaluated using two criteria: the FDI and the USPHS criteria immediately. The evaluated outcomes were: marginal fit and postoperative sensitivity. Postoperative sensitivity was evaluated up to one week after the restorative procedure, applying an air jet from a dental syringe for 10 s at 2 cm from the tooth surface. Differences between groups were compared using the McNemar test ($\alpha = 0.05$).

There was no difference between the groups evaluated in the immediate time. New assessments over time should be performed ($p < 0.001$).

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PPCL 16

EVALUATION OF THE CHARACTERISTICS OF CRACKED MOLARS AND PREMOLARS FROM A HUMAN TOOTH BANK

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Objectives: analyze the presence of cracks in molars and premolars from the Human Teeth Bank of UFSM. The teeth were classified according to the extent of the crown-root cracks, the tooth group (molars or premolars) and the existence of restorations. Methods: 1010 posterior teeth were examined with magnification and transillumination, and 591 were included in the study. The teeth without cracks, with carious cavities, with non-carious lesions, incomplete rhizogenesis, fusion and, fractures were excluded from the study (419). Each tooth was examined for the presence and number of visible cracks. The largest visible crack was identified and evaluated. In the restored teeth, the restorative material and the type of cavity were registered. Chi-square tests analyzed the relationship between the dental group and the main crack extension and the relationship between the number of surfaces affected by the crack and its extension. Results: all teeth included in the study had multiple cracks, most of which were restricted to the dental crown. The majority of cracked teeth did not have restorations (77%). In cracked teeth with restorations, there was a higher prevalence of amalgam restorations involving one surface. Cracks that involved one or two surfaces were associated with crown extension (p=0.000), while cracks involving three surfaces were associated with root extension (p=0.000).

Conclusion: Most of the evaluated teeth had cracks restricted to the dental crown. The greater the number of surfaces involved by the crack, the greater its coronoradicular extension.

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PPCL 18

ANALYSIS OF DEMINERALIZATION AND WHITENING POTENTIAL OF 15% CARBAMIDE PEROXIDE EXPERIMENTAL GELS ADDED WITH NANOHYDROXYAPATITE

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One of the main side effects of tooth whitening is sensitivity, which can be caused by demineralization, by reactive oxygen species generation in the pulp and by interprismatic region degradation, facilitating dentinal tubules stimulation. Objective: This research evaluated demineralization and bleaching potential of experimental bleaching gels based on 15% carbamide peroxide (PC), added with 5% and 10% hydroxyapatite nanoparticles (n-Hap). Methods: For the chromatic evaluation, 36 bovine incisors were divided into 3 groups: Group 1 PC 15%, Group 2 PC 15% added 5% n-Hap and group 3 PC 15% with 10% n-Hap, measuring the color before and after the whitening therapeutic procedure with the aid of a spectrophotometer. Mineral content analysis was performed by energy dispersion X-ray fluorescence, which required the use of 15 bovine teeth. Results: The CIELAB coordinates were analyzed to verify color differences (ΔE) obtained between groups and within the group itself (L*) and, after statistical analysis, it was verified that all gels were able to bleach and there was no differences between groups. It was also verified that the experimental gels presented less loss of Ca and P, without statistical differences between groups 2 and 3.

Conclusion: Given the limitations of the present in vitro study, it was possible to conclude that the gels containing n-Hap were effective in reducing demineralization without losing the bleaching therapy effectiveness.

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PPCL 19

GINGIVAL IRRITATION IN PATIENTS SUBMITTED TO AT-HOME BLEACHING WITH DIFFERENT CUTOUTS OF THE TRAY: RANDOMIZED SINGLE-BLIND CLINICAL TRIAL

Freitas IM*, Carneiro TS, Favoreto MW, Bernardi LG, Sutil E, Wendlinger M, Reis A, Loguercio AD

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The objective of this blind, split-mouth, randomized clinical trial was to evaluate gingival irritation (GI) in at-home bleaching with individualized trays of different cutouts, as well as tooth sensitivity (TS) and bleaching efficacy. 120 patients were randomized according to the side that would receive the type of tray cutout: cutout at the gingival level (slightly below the gingival margin) and cutout above the gingival level (extended 2 mm above the cervical region of the canine [horizontally]). In both groups, at-home bleaching was performed for a period of 30 minutes with 10% hydrogen peroxide (HP), once a day for 2 weeks. The absolute risk and intensity of GI and TS were assessed using a visual analogue scale (VAS). Color was evaluated using a digital spectrophotometer and color guide. McNemar test, TOST-P test and paired t test were used for data analysis (α=5%). For GI, there was no significant difference between groups ($p = 0.66$), as well as for TS ($p = 1.0$). There was equivalence between groups for GI intensity ($p < 0.01$). Both groups resulted in significant bleaching. Although differences between groups were observed (CIELab and CIEDE00; $p < 0.02$), these were not considered clinically noticeable.

The different cutouts of the individualized trays proved to be equivalent in relation to GI and TS with significant bleaching in both groups, thus, the choice of cutout is at the discretion of the clinician.

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PPCL 20

INFLUENCE OF FLUORIDE VARNISHES ON PERMEABILITY DENTINARY AFTER EROSIVE/ABRASIVE CHALLENGE

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The objective is to study different varnishes in terms of dentin permeability in the face of erosive/abrasive challenge through untreated dentin discs and with Duraphat(Colgate), PRG Barrier Coat(Shofu), Clinpro XT(3M ESPE), Profluorid(Voco) and Protector S(Ivoclar), valuated after acid etching, product application and abrasive/erosive challenge, and electron microscopy images. It indicated that all groups reduced permeability after its application. Clinpro XT(3M ESPE) exhibited the greatest reduction, while Protector S(Ivoclar) the least. After the challenge, only PRG Barrier Coat(Shofu) exhibited reduction, differing from Duraphat (Colgate) and Profluorid(Voco). Microscopy shows obliterated dentin tubules with smaller diameter after using Duraphat(Colgate), PRG Barrier Coat(Shofu), Clinpro XT(3M ESPE) and Profluorid(Voco). Between conditioning and post challenge data, PRG Barrier Coat(Shofu) and Clinpro XT(3M ESPE) exhibited greater reduction than Protector S(Ivoclar) and Duraphat(Colgate) groups. No treatment promoted a difference in reduction compared to the control group. After the challenge, there is an increase in the diameter of the tubules and deposits of precipitates, except for Profluorid(Voco), with an inter and intratubular demineralized surface.

Clinpro XT(3M ESPE) has greater reduction after application, while, after the challenge, only PRG Barrier Coat (Shofu) showed reduction, and compared with the control, none of the groups showed significant difference.

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PPCL 21

INFLUENCE OF THE WAVELENGTHS OF A POLIWAVE CURING LIGHT ON THE CEMENTATION OF INDIRECT RESTORATIONS

Meza TGN*, Nuñez A, Cochinski G, Ñaupari R, Wendlinger M, Gomes GM, Loguercio A, Gomes JC

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The aim of this in vitro study was to evaluate the effect of the wavelengths of a photopolymerizer on the cementation of veneers, the bond strength (μTBS) in immediate time (IT), and after one year in thermocycling (TC). Methods: A veneer cement (Allcem Veneer APS, FGM) and a feldspar ceramic (VITABLOCS Mark II, VITA Zahnfabrik) were used for the cementation of veneers on 40 sound bovine teeth. The teeth were randomized according to the cementation protocol: Total Etch (TE), Self Etch (SE); the Ambar Universal APS adhesive (FGM) was light cured with a Bluephase N (BN) device [Ivoclar Vivadent] with wavelength identification (460/410 nm). Photopolymerization times were 1200 mW/cm2 according to the manufacturer's instructions. After 24 hours, the specimens were cut to obtain sticks and evaluated in μTBS (n=8), and the specimens were tested in immediate time (IT) and after thermocycling (CT). The results were subjected to ANOVA test and Tukey's post hoc test (p=0.05). For μTBS, there was no difference when comparing the adhesive strategy, as well as no difference when comparing each wavelength in the immediate time and after thermocycling. Conclusion: Light curing of the adhesive for the cementation of indirect restorations with a Poliwave device keeps the values of μTBS similar in the immediate time and after thermocycling.

Light curing of the adhesive for the cementation of indirect restorations with a Poliwave device keeps the values of μTBS similar in the immediate time and after thermocycling.

(Apoio: UEF/Fundo Paraná | CAPES)

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PPCL 22

A 36- MONTHS RANDOMIZED CLINICAL TRIAL EVALUATION OF POSTERIOR RESTORATIONS WITH AN ETCH AND RINSE ADHESIVE OVER WET AND DRY DENTIN

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Objective: The objective of the study is to evaluate the influence of dentin humidity in the clinical performance of posterior restorations, with an etch and rinse adhesive, following the FDI criteria after 36 months. Methods: Forty-five participants were selected, were each one of them had two molars to be restored. A total of 90 posterior restorations Class I or Class II were randomized and allocated for the experimental groups: wet dentin (WD) and dry dentin (DD) (n=45). All cavities were restored with an etch and rinse adhesive (Adper Single Bond 2 - 3M ESPE), that was applied over WD and DD, and afterwards restored with Bulk Fill composite (Filtek One Bulk Fill - 3M ESPE). All restorations were evaluated immediately, after 6, 12, and 36 months by two blinded examiners, using the FDI criteria. Results: After 36 months of clinical performance, 37 restorations of the DD group and 37 restorations of the WD were evaluated. The retention rate (95% of confidence interval) was of 94,9% (83,1 - 98,6) for DD and 94,9% (83,1 - 98,6) for WD, without significant difference between the groups ($p > 0,05$). Minimum discrepancies were observed for marginal discoloration and adaptation for both groups, they were clinically satisfactory and without statistical significance ($p > 0,05$). The other secondary criteria did not have a statistical significance ($p > 0,05$). Ñ

Conclusion: The level of dentinal humidity did not influence the clinical performance of posterior restorations when restored with an etch and rinse adhesive after 36 months.

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PPCL 23

PERFORMANCE OF GLASS IONOMER CEMENTS FOR RESTORATION IN CARIES-AFFECTED DENTIN

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The aim of this study was to evaluate the antimicrobial activity and bond strength of glass ionomer cements (GICs) indicated for restoration in caries affected dentin. Ketac Molar®, Vitro Molar®, Fuji Gold Label® and Ion Z® were submitted to agar diffusion (AD) and microshear (MS) test on two substrates (sound dentin and caries affected dentin), with two evaluation times (24h and after thermal cycling). For AD, Streptococcus mutans were inoculated in petri dishes. The GICs were placed on the plates and stored for 48h with 5% CO2 at 37°C. After this time, inhibition zone was measured. For MS, 80 permanent teeth were used and 40 of these were immersed in a solution with Streptococcus mutans for 14d to induce artificial caries lesions. All teeth were prepared and restored with GICs. Half of the teeth were stored in distilled water for 24 hours at 37°C and the other half, in thermal cycling. Data were analyzed using ANOVA and Tukey tests ($p \geq 0.05$). In DA, Ion Z® showed the highest antimicrobial activity. In MS on sound dentin, Ketac Molar®, Fuji Gold Label® and Ion Z® showed higher values, with no difference between them and the values decreased after thermal cycling. In caries affected dentin, GICs decreased values; Ion Z®, Fuji Gold Label® and Vitro Molar® performed better, with no difference between them; in thermal cycling there was no difference between materials.

The composition of GICs influences antimicrobial activity and adhesion to caries-affected dentin immediately and after thermal cycling.

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PPCL 24

PROTECTIVE EFFECT OF A FLUORIDE SOLUTION USED BEFORE EROSIVE/ABRASIVE EVENTS ON ENAMEL AND DENTIN

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Objectives: To evaluate whether the use of a solution containing a combination of stannous fluoride and sodium fluoride (SnCl2/NaF, 800 ppm Sn2) applied prior to erosive challenges has a protective effect on enamel and dentin. Methods: Enamel and dentin samples were obtained from the crown and root of bovine incisors, respectively. They were divided into 2 groups (n=10) according to the tested solution: SnCl2/NaF, 800 ppm Sn2+; and control (distilled water). The samples were flattened, polished, and submitted to an erosive/abrasive cycle (immersion in lemon-flavored soda, 5 min/day, 4 times/day, for 5 days), with remineralization in artificial saliva (60 min between cycles and overnight). Abrasion was performed with a toothpaste slurry (Elmex anticaries) diluted in distilled water (1:3 ratio), 2 times/day, using an electric toothbrush (200 g/force) before the first and last erosive challenge. Structure loss was obtained through optical profilometry (μm). Data were analyzed using one-way analysis of variance (ANOVA) for enamel and Kruskal-Wallis for dentin, followed by multiple comparisons for each substrate separately. Results: For enamel, there was no difference between the groups ($p = 0.114$), with the Control group (2.87 ± 0.88) showing similar values to the fluoride group (2.32 ± 0.58). For dentin, there was a difference between the groups ($p = 0.025$).

The tested fluoride solution had a protective effect when applied before an erosive/abrasive event only in dentin.

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PPCL 25

EFFECT OF POST-BLEACHING ANTIOXIDANT APPLICATION ON ENAMEL BOND STRENGTH: THREE-YEAR EVALUATION

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This work aims to evaluate the effect of antioxidant application on the bond strength of bleached enamel after 24 h and 3 years of storage in water. Eighty-four bovine teeth were bleached with 35% hydrogen peroxide in a single session for three cycles of 15 min. Then, the specimens were divided into groups (n=7): control (no bleaching); no use of antioxidant (NO); application of 10% sodium ascorbate gel (SA), grape seed extract (GS) and aloe vera (AV). The restorative procedure was performed immediately, 7 and 14 days after bleaching. The sectioned specimens were evaluated by microtensile bond strength (μTBS). Half were tested after 24 hours and the other half after 3 years of water storage. μTBS data were analyzed using a three-way analysis of variance, Tukey's test, and Dunnett's test. Lower μTBS values were observed when the restoration was performed immediately after bleaching in the AV, GS and NO groups when compared to the SA group ($p < 0.005$).

However, no significant differences were observed between all groups after 3 years of storage in water ($p < 0.001$). 10% SA was the most effective antioxidant agent to improve immediate bond strength. Regardless of the antioxidant agent used, the bond strength values were maintained or recovered after 3 years of storage in water. 10% SA can be used to avoid late bonding procedures after in-office bleaching without compromising bond strength over time. Keywords: Tooth whitening; Hydrogen peroxide; Dental adhesion; Antioxidant.

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PPCL 26 2nd Place Honorable Mention

EXPERIMENTAL ENAMEL RESIN INFILTRANT MODIFIED BY ANTIMICROBIAL AND REMINERALIZING AGENTS

Souza AF*, Fraga MAA, Zago JLG, Correr AB, Aguiar FHB, Marchi GM, Marchi GM

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This study evaluated the influence of incorporating the quaternary ammonium monomer dimethylaminohexadecyl methacrylate (DMAHDM) and amorphous calcium phosphate nanoparticles (NACP) on the physical and antimicrobial properties of an experimental resin infiltrate (IRE). Pure IRE (G1; TEGDMA + BisEMA 75:25% by weight), IRE + 2.5% DMAHDM (G2), IRE + 5% DMAHDM (G3), IRE + 2% NACP (G4), IRE + 2.5% DMAHDM + 2% NACP (G5), IRE + 5% DMAHDM + 2% NACP (G6), and commercial infiltrate Icon® (G7) were used. Sorption and solubility tests (SO/SOL; n=8), contact angle (CA; n=10), and quantification of biofilm biomass after 48 h of Streptococcus mutans (UA159) cultivation on samples from each group (BM; n=6) were performed. The results showed normal distribution and were subjected to one-way ANOVA and Tukey or Games-Howell post-hoc tests ($p<0.05$) (SPSS Statistics, 20.0.0). G7 had the lowest mean CA, differing from all others, while G3 had the highest. For SO, G7 had the lowest mean, followed by G1. G5 had the highest mean SO, followed by G6. For SOL, G1 had the lowest mean, with no difference from G7. G4 had the highest SOL mean. G4 had the highest accumulation of bacterial biomass, followed by G1 and G7. G6 had the lowest mean.

The addition of agents increased CA, SO, and SOL. DMAHDM at 2.5% or 5%, with or without NACP, reduced bacterial growth on the materials.

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PPCL 27

CLINICAL EVALUATION AND PATIENT SATISFACTION ABOUT PROVISIONAL CROWNS MADE OR NOT BY 3D PRINTING: RANDOMIZED CONTROLLED CLINICAL TRIAL

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The aim of this study was to compare provisional unit crowns on conventional implants and 3D printing implants considering the frequency of failures, clinical evaluation, time of realization and patient satisfaction with the treatment. This study is a randomized blinded clinical trial for evaluators designed according to the SPIRIT and CONSORT guidelines. The sample consisted of 42 individual provisional crowns (n=21) randomly allocated into 2 groups (conventional and 3D printing). The clinical characteristics in the installation of the definitive crown were evaluated according to the FDI criteria. The time taken to perform was measured in minutes and patient satisfaction was assessed by a visual analog scale. Statistical analysis considered a significance level of 95% using the STATA 14 software. Only one FDI criterion showed a statistically significant difference, and provisional printed ones presented a higher percentage of catastrophic failures ($p=0.05$). There was a statistically significant difference for the clinical time of execution ($p<0.001$), with shorter time for the digital flow, however, there was no statistical difference in patient satisfaction regarding aesthetics ($p=0.66$), phonetics ($p=0.32$), chewing ($p=0.97$) and comfort ($p=1$).

Printed and conventional provisional presented similar clinical performance, except for the frequency of catastrophic failures. Although provisional printed cases presented shorter clinical execution time, the satisfaction of patients with them was not affected.

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PPCL 28

IN-OFFICE DENTAL BLEACHING IN ADOLESCENTS USING 6% HYDROGEN PEROXIDE WITH AND WITHOUT GINGIVAL BARRIER: RANDOMIZED CLINICAL TRIAL

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The aim of this double-blind, split-mouth randomized clinical trial was to evaluate gingival irritation (GI) in in-office tooth bleaching using 6% hydrogen peroxide (HP) in adolescents, with and without gingival barrier, as well as the color change and the impact on oral health-related quality of life. Sixty participants were randomized to receive or not receive the gingival barrier on one side. In-office bleaching was performed for 50 minutes with 6% HP (Whiteness HP Automixx 6%) in 3 sessions. The absolute risk and intensity of GI were assessed using a visual analog scale (VAS). Color change was evaluated using a digital spectrophotometer and subjective scales. The impact of oral health on quality of life was assessed using the Brazilian version of the Oral Health Impact Profile. Data were analyzed using paired t-tests and McNemar's test (α=5%). The proportion of patients who presented GI in the barrier group was 31.6%, while in the non-barrier group it was 30% ($p = 1.0$). There was equivalence between the groups regarding the intensity of GI ($p < 0.01$). Significant bleaching was observed without statistical difference ($p > 0.29$). There was a significant impact of oral health on quality of life after bleaching ($p < 0.001$).

The use or non-use of a gingival barrier for in-office bleaching with 6% HP was equivalent in terms of GI, demonstrating bleaching efficacy and improvement in the impact of oral health on quality of life. Therefore, the step of applying the gingival barrier for 6% HP can be disregarded.

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PPCL 29

3rd Place Honorable Mention

CLINICAL EVALUATION OF A UNIVERSAL ADHESIVE APPLIED IN DIFFERENT BONDING TECHNIQUES: A 5-YEAR RANDOMIZED MULTICENTER CLINICAL TRIAL

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Objectives: To evaluate the clinical performance of a universal adhesive system (Futurabond U, Voco) when applied using different adhesive strategies in non-carious cervical lesions (NCCLs) after five years. Methods: Fifty participants were included in the study. Futurabond U (Voco) was applied to NCCLs using four adhesive strategies (n = 50): self-etch (SE); selective enamel etching + self-etch (SET+SE); etch-and-rinse in dry dentin (ERD); and etch-and-rinse in wet dentin (ERW). All cavities were restored with Admira Fusion composite resin (Voco). The restorations were evaluated after 1, 3, and 5 years following FDI criteria. Results: After five years, the retention rates were 81% (65.8 - 90.5) for SE, 87% (73.2 - 94.4) for SET+SE, 84% (69.6 - 92.6) for ERD, and 78% (63.6 - 88.9) for ERW ($p > 0.05$). Thirty-five restorations showed minor discrepancies in marginal adaptation but were clinically satisfactory (14 for SE, 9 for SET+SE, 6 for ERD, and 6 for ERW; $p > 0.05$). Sixteen restorations exhibited slight marginal discoloration but were clinically satisfactory (6 for SE, 4 for SET+SE, 1 for ERD, and 5 for ERW; $p > 0.05$), and one restoration showed recurrent caries (1 for ERW; $p > 0.05$). No restorations presented postoperative sensitivity after five years.

Conclusions: The restorations in NCCLs with the universal adhesive demonstrated satisfactory clinical performance after five years, regardless of the adhesive strategy used.

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PPCL 30

CLINICAL EVALUATION OF A PREHEATED RESIN COMPARED TO ONE WITHOUT HEATING IN NON-CARIOUS CERVICAL LESIONS - RANDOMIZED CLINICAL TRIAL

Bosco LD*, Favoreto MW, Carneiro TS, Ñaupari-Villasante R, Matos TP, Kunz PM, Loguercio AD, Calixto AL

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To evaluate the clinical performance of a new pre-heated bulk-fill (PA) thermoviscous resin compared to an unheated (SA) thermoviscous resin in non-carious cervical lesions (NCLCs) over 12 months. 120 restorations were performed in NCLCs with two restorative materials (n = 60). After prophylaxis, the teeth were isolated and a universal adhesive was applied in the selective enamel etching strategy. For the PA group, heating was performed at 68°C using a bench heater for 3 minutes. For the SA group, no warm-up was Applied. Both restorative materials were placed in the capsule dispenser and inserted into the NCLCs. Restorations were evaluated after 12 months of clinical performance according to FDI criteria. Statistical analysis was performed using the Chi-square test for all FDI parameters (a = 0.05). Some restorations in the SA group only were lost/fractured after twelve months of follow-up. Retention rates (95% CI) were 97% (89% - 99%) for the SA group and 100% (94% - 100%) for the PA group ($p > 0.05$). Twenty-two restorations (8 for SA and 14 for PA) showed a small marginal misfit at the twelve-month follow-up ($p > 0.05$). Twenty-six restorations have biofilm retention at the twelve-month recall (11 for SA and 15 for PA; $p > 0.05$). With regard to all other evaluated FDI parameters, all restorations were considered clinically acceptable.

The clinical performance of PA resin is similar to SA after 12 months of clinical evaluation when applied to NCLCs.

(Apoio: CNPq N° 308286/2019-7)

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PPCL 31

HYBRID LIGHT APPLIED WITH 37% CARBAMIDE PEROXIDE BLEACHING AGENT INCORPORATED OR NOT WITH TITANIUM DIOXIDE POTENTIALIZES COLOR CHANGE

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Background: The effectiveness of dental color change by incorporating titanium dioxide (TiO_2) to a 37% carbamide peroxide bleaching agent associated with hybrid light was evaluated. Methodology: Fifty bovine incisors selected to receive the bleaching treatment were separated into five groups (n=10): 35% hydrogen peroxide (Whiteness HP, FGM/HP); 37% carbamide peroxide (Whiteness SuperEndo, FGM/CP); CP + hybrid light (CP HL); CP with 1% TiO_2 (CP TiO_2); CP TiO_2 + hybrid light (CP TiO_2 HL). The bleaching gels were applied for 30 minutes on the dental surface. The hybrid light (Whitening Plus, DMC/ infrared laser diodes + blue LEDs + violet LEDs) was applied with 1 minute of active light interspersed with 1 minute of pause. The spectrophotometer (VITA Easyshade® Advance, Vita) was used to determine the dental color at baseline, after 1st, 2nd and 3rd bleaching sessions. The effectiveness of the color change was evaluated using Vita Classical, CIEL*a*b*, WID and ΔEab, ΔE_{00} and ΔWID parameters. Results: Generalized mixed linear models for repeated measures (α = 5%) showed significant decrease in Vita Classical scores, a* and b* values for all groups, as well as an increase in L* and ΔWID values. Higher color change scores for ΔEab occurred for CP HL and CP TiO_2 HL, while ΔE_{00} and ΔWID were higher for CP TiO_2 HL at the end of the bleaching treatment.

Conclusion: Hybrid light potentiated the effectiveness of the color change of carbamide peroxide incorporated with TiO_2.

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PPCL 32

TWO PREHEATING METHODS FOR A THERMOVISCOUS BULK-FILL RESIN PLACED IN NON-CARIOUS CERVICAL LESIONS: 12-MONTHS RANDOMIZED CLINICAL TRIAL

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Objective: To compare two preheat methods: Caps Warmer (CD) or VisCalor Caps dispenser/warmer (VD) on clinical performance for restorations placed on non-carious cervical lesions (NCCLs) using a thermoviscous bulk-fill composite resin after 12-month clinical evaluation. Methods: 120 restorations were distributed in two groups (n=60) according to the pre-heating way of thermoviscous bulk-fill composite resin. For the CD group, preheating was carried at 68°C for 3 minutes using a heating bench. For the VD group, pre-heating was performed at 68°C using a heating gun for 30 seconds. After that, pre-heated bulk-fill composites were directly inserted in the NCCLs. The total working time was recorded. The restorations were evaluated after 6 and 12 months of clinical performance according to the FDI criteria. Statistical analysis was performed using Chi-square test for restoration clinical performance and test-t Student for different working times (α=0.05). Results: Working time was shorter for VD with a statistically significant difference compared to CD (p=0,01). No restorations were lost or fractured after 12 months of clinical evaluation (p>0,05). The retentions rates were 98.7% (88.6%-99.1%) for CD and 98.3% (91.1%-99.7%) for VD. The other FDI parameters were considered clinically acceptable.

Conclusions: The different pre-heating ways did not influence the clinical performance of thermoviscous bulk-fill composite restorations in NCCLs after 12 months.

(Apoio: CAPES | CNPq)

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PPCL 33

EXPOSURE TO CIGARETTE SMOKE IN AESTHETIC BRACKETS: ANALYSIS OF COLOR AND SURFACE DEGRADATION AFTER DIFFERENT CLEANING METHODS

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Proposition: The color change and surface texture of aesthetic brackets exposed to cigarette smoke were evaluated, as well as the effects of different prophylaxis methods. Methods: Brackets (n=10) made of polycarbonate (Composite), polycrystalline ceramic (Iceram), and monocrystalline ceramic (Iceram-S) were exposed to cigarette smoke (Marlboro) for 5 days and subsequently subjected to prophylaxis using either a sodium bicarbonate jet or a Robinson brush. Color analysis (CIEL*a*b*, WI_D, ΔE_{ab}, ΔE_{00}, and ΔWI_D) and surface micromorphology analysis (500x magnification) were performed before exposure to smoke, after smoke exposure, and after prophylaxis. Results: Generalized mixed linear models (α=5%) showed that after smoke exposure, all brackets exhibited a significant decrease in L* and WI_D, and a significant increase in a* and b*, with polycarbonate brackets showing more pronounced discoloration. After prophylaxis, L* values were statistically similar to the baseline, but the use of the Robinson brush did not allow the polycarbonate brackets to achieve the same initial color. Monocrystalline ceramic brackets exhibited smoother surfaces, while polycarbonate brackets showed greater wear with prophylaxis, especially with the sodium bicarbonate jet.

Conclusions: Brackets present color changes when exposed to cigarette smoke. Although prophylaxis minimizes or removes surface staining, polycarbonate brackets experience greater surface degradation, especially with the use of sodium bicarbonate jet.

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PPCL 34

COLOR MATCH OF A UNIVERSAL SHADE COMPOSITE RESIN FOR RESTORATION OF NON-CARIOUS CERVICAL LESIONS: A RANDOMIZED CLINICAL TRIAL

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A randomized, double-blind, split-mouth clinical trial evaluated the color matching of an Admira Fusion X-tra composite resin with a conventional Admira Fusion in restorations of non-carious cervical lesions (NCCLs). 120 restorations were performed on NCCLs with two restorative materials (n = 60). The teeth were isolated with a rubber dam and bonding was performed using the selective enamel etching strategy. All restorations were incrementally inserted and light cured. ΔEab and ΔE00 values in the cervical and middle thirds were evaluated using a digital spectrophotometer (ΔEab and ΔE00) before and after restorations. Clinical performance was evaluated at baseline and after 7 days according to the FDI criteria. Statistical analysis was performed using the Chi-square test for all parameters. Color change was analyzed by Student's t test for paired samples ($\alpha = 0.05$). As for the color measurement, no significant difference was observed between the resins analyzed in the comparisons made ($p > 0.05$). The values of ΔEab and ΔE00 in the cervical third before vs. after restorations were higher when compared with ΔEab and ΔE00 observed when comparing cervical third vs. average after the restorations.

Restorations were scored clinically very good (FDI) after 7 days on all outcomes including color matching. Monochromatic resin achieved the same color match compared to conventional composite resin after 7 days in NCCLs.

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PPCL 35

24-MONTH CLINICAL EVALUATION OF COMPOSITE RESINS: RANDOMIZED CLINICAL TRIAL

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The objective of this work was to evaluate the clinical performance of two flowable composite resins based on methacrylate and a flowable resin based on ormocer in non-carious cervical lesions (NCCLs). 183 restorations were performed, the cavities were filled using a universal adhesive (Futurabond U, Voco) with selective enamel etching and with one of the three flowable composite resins evaluated (n=61): low viscosity (GrandioSo Flow, LV), high viscosity (GrandioSO Heavy Flow, HV) and ormocer fluid resin (Admira Fusion Flow, ORM). All restorations were evaluated using FDI and USPHS criteria after 24 months. Kruskall-Wallis variance analysis (α=.05) was used for statistical analysis. After 24 months of clinical evaluation, 16 restorations were lost (LV=3, HV=10, ORM=3) and the retention rate (95% confidence interval) was 95% for LV, 82% for HV and 95% % for ORM, with no statistical difference observed between HV and LV groups as well as HV and ORM (P<.05). When secondary parameters were assessed, there was no statistically significant difference between observed groups (P>.05). 33 restorations (LV=8, HV=13, ORM=12) showed minimal marginal discoloration, 71 restorations (LV=26, HV=20, ORM=25) showed minor marginal misfit, and one restoration for HV showed caries recurrence .

Universal adhesives associated with ormocer and methacrylate fluid resins showed promising clinical performance after 24 months. However, restorations with the HV fluid resin showed significant failures.

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PPCL 36

COMPARISON OF THE PHYSICAL PROPERTIES OF UNIVERSAL AND POLYCHROMATIC COMPOSITE RESINS: AN IN VITRO STUDY

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This study compared the physical properties of a universal shade composite resin (Vittra APS Unique, FGM) with a polychromatic resin (Vittra APS, FGM). Methodology: Specimens of each resin were fabricated (n=5) and subjected to Knoop hardness, surface roughness, color stability (CIEDE2000), and surface wettability tests before and after immersion in distilled water for 7 days. Water sorption (SO) and solubility (SL) properties were also evaluated. Data were statistically analyzed using T-tests and two-way ANOVA, when appropriate ($p<0.05$). Results: The polychromatic resin showed higher SO (14.4±1.3 µg/mm3) and SL (3.3±1.0 µg/mm3) in water compared to the universal shade resin (SO=0±0.4 µg/mm3 and SL=3.3±1.0 µg/mm3). The universal shade resin demonstrated less hydrophilicity than the polychromatic resin after water immersion. There were no statistical differences between the groups in terms of hardness ($p=0.131$), color change ($p=0.06$), and roughness ($p=0.595$) tests. Regarding the L*, a*, and b* color parameters, the resins did not differ in terms of luminosity (L*), although the universal shade resin exhibited more reddish hue (a*=5.3±0.1) and fewer yellow hue (b*=5.5±0.3) compared to the polychromatic resin (a*=0.2±0.1 and b*=31.1±0.5).

Conclusion: Universal shade resins demonstrated greater physical stability compared to polychromatic resins. Both materials performed similarly in terms of surface characteristics and color change.

(Apoio: CAPES N° 001)

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PPCL 37

EVALUATION OF THE ACCURACY OF DIFFERENT 3D PRINTERS IN DIGITAL DENTISTRY

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Objective: This study evaluated the accuracy of two DLP (Digital Light Processing) 3D printers commonly used in digital dentistry: Flashforge Hunter-DLP and MiiCraft Ultra 125-DLP. Methods: Six prosthetic preparations were made on a mannequin (three preparations for a metal-free crown and three for a metal-free veneer). These preparations were transferred to models using digital scanning with a 3Shape scanner and conventional impressions using addition silicone. As a result, 16 printed models and 8 analog models were obtained for evaluation, constituting the following experimental groups (n=8): digital scanning + 3D printing with Flashforge Hunter, digital scanning + 3D printing with MiiCraft Ultra 125, and silicone molding + plaster model. The obtained models were digitally scanned and analyzed using Ceramill® Mind software. Two calibrated evaluators measured the mesiodistal, cervicoincisal, and buccolingual distances of the preparations. The measurements were compared to the initial scan and the models obtained using one-way ANOVA and Tukey's post-hoc tests (α=0.05). Results: Statistically significant differences were observed in the mesiodistal and buccolingual measurements between the groups, but the cervicoincisal measurement was similar. There was less distortion in the cervicoincisal distance and more distortion in the mesiodistal distance.

Conclusion: The preparations obtained with the plaster model and the Flashforge printer showed less distortion compared to the Miicraft, demonstrating that the fidelity of the model depends on the 3D printer.

(Apoio: UEF/Fundo Parana)

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PPCL 39

ANALYSIS OF BOND STRENGTH OF UNIVERSAL ADHESIVES CONTAINING FLAVONOIDS ON CARIES AFFECTED DENTIN

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The objective was to evaluate the effect of universal adhesives containing nano-encapsulated (NE) flavonoids on bond strength in caries affected dentin (CAD). After approval of the ethics committee (Statement No. 5,507,845), the occlusal dentin surface of 42 healthy permanent third molars (N=42) were exposed and immersed in a BHI/Saccharose/Leaven solution (pH 4.0) with Streptococcus mutans strains for 14 days to induce artificial caries lesions on dentin. The teeth were randomly allocated into 6 experimental groups. NE flavonoids in the Single Bond Universal [SBU] and Prime&Bond Universal [PBU] universal adhesives, originating the groups 1) SBUC [without flavonoids], 2) SBUQ with quercetin, 3) SBUN with naringin, 4) PBUC [without flavonoids], 5) PBEQ with quercetin, and 6) PBEN with naringin. After the surfaces were restored (TPH Spectrum, Dentsply Sirona) to CAD, the teeth were sectioned into toothpicks (0.8 mm^2) and stored in distilled water for 24h. Afterward, the toothpicks were tested under traction at 0.5 mm/min (n=7) in the immediate 24h time frame. The fracture type was evaluated with an optical microscope at 40x magnification. The data were analyzed in ANOVA followed by Bonferroni's test ($p<0.05$). There was no statistical difference in bond strength values when comparing the adhesives with NE flavonoids to the control adhesive without flavonoids ($p>0.05$).

The bond strength on CAD was not compromised after restoration with universal adhesives containing NE flavonoids.

(Apoio: CNPq | CAPES - UEF / Fundo Parana)

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PPCL 40

ROOT CARIES LESIONS: HOW TO MANAGE THEM? DEVELOPMENT OF A GUIDELINE FOR CLINICAL PRACTICE

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Objective: To develop a guideline on the management of root caries lesions to assist dentists in decision-making, based on high-level evidence studies. Methodology: The organizing committee (GODeC-UFPel) formed a panel of experts consisting of dentists, researchers, and professionals with experience in SUS-oriented management. In March 2021, an unrestricted search for guidelines and systematic reviews was conducted on PubMed, Web of Science, Cochrane, Scopus, Embase, and guideline websites, without language, date, or country restrictions. Guidelines authored by a single author, lacking external reviews, based solely on expert opinions, or without references were excluded. The GRADE approach was used to assess the certainty of evidence and develop recommendations. For each question, the panel was presented with the results of evidence synthesis and evaluated them according to 12 dimensions. Results: Only one systematic review was found after evaluating 996 articles. For each of the 10 interventions, a systematic review (and if possible, a meta-analysis) following PRISMA guidelines was conducted or updated. Based on the reviews, the panel made recommendations for each intervention, thus constructing the guideline.

Conclusion: The guideline on the management of root caries lesions contributes to evidence-based clinical practice, as knowledge based on high-level scientific evidence is essential for the quality and safety of population care.

(Apoio: CNPq | Ministério da Saúde)

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PPCL 41

36-MONTH EVALUATION OF POSTERIOR RESTORATIONS USING UNIVERSAL ADHESIVE APPLIED TO WET AND DRY DENTIN: A RANDOMIZED CLINICAL TRIAL

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This randomized, split-mouth, double-blind clinical trial aimed to evaluate the influence of dentin moisture on the clinical behavior of a universal adhesive on posterior teeth after 36 months of follow-up. Forty-five participants were selected, where two posterior teeth with Class I or II cavities were randomized into two groups: dry dentin (DS)(n=45) or wet dentin (DU)(n=45). The restorative protocol used was a universal adhesive (Single Bond Universal - 3M ESPE) applied in the etch-and-rinse strategy over DS and DU. Subsequently, the teeth were restored using Bulk Fill resin (Filtek One Bulk Fill - 3M ESPE). The restorations were evaluated immediately and after 6, 12, and 36 months by two blinded examiners, following the FDI criteria. After 36 months of clinical evaluation, 38 restorations from the DS group and 38 restorations from the DU group were evaluated. The retention rate (95% confidence interval) was 97.7% (86.5 - 99.5) for DS and 97.7% (86.5 - 99.5) for DU, with no significant difference between groups ($p > 0.05$). Minimal discrepancies were observed in discoloration and marginal adaptation in both groups, however they were considered clinically satisfactory and with no significant difference, as well as the others criteria ($p > 0.05$).

Dentin moisture did not influence the clinical performance of posterior restorations using a universal adhesive in the etch-and-rinse strategy after 36 months.

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PPCL 42

EFFECT OF RADIOTHERAPY ON THE STRUCTURAL COMPOSITION OF HUMAN DENTIN

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Radiotherapy is the least invasive method with the possibility of disease regression and prevention of recurrences. However, it promotes structural and morphological changes in dental tissues. The objective of this study was to evaluate, from irradiated samples, the influence of radiotherapy for the treatment of head and neck cancer on the structure of human dentin "in vitro". Twelve teeth were collected for periodontal reasons and/or susceptible to serious infectious processes, from healthy patients and the same amount from those who underwent radiotherapy, forming two groups: Control (n=12); Irradiated (n=12). The teeth were sectioned in half, obtaining two halves (n=24) for each group. The groups were analyzed by: Surface Microhardness (SDM), Scanning Electron Microscopy (SEM) and Energy Dispersive X-Ray Spectroscopy (EDS). MDS found no significant differences between groups; SEM images showed significant differences between groups, where microcracks and degradation of the collagen matrix were evident in the irradiated group; the EDS found significant differences in the comparisons between Calcium (p=0.000) and Phosphorus (p=0.037), showing a reduction in Ca and an increase in P in the irradiated group.

The methodology used in the study was crucial to verify and explain the causes of structural failures in dentin tissue exposed to radiation, routinely observed in the clinic in the form of delamination, and may be crucial for the development of materials that can be effective in reversing these deleterious effects.

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PPCL 44

EVALUATION OF COLOR, TRANSLUCENCY, AND WHITENESS INDEX OF TWO RESIN COMPOSITES

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Objectives. To evaluate the coordinates L*, C*, and hº, translucency and whiteness of two resin composites. Methods. Two resin composites, F- Forma (Ultradent) and ED- Empress Direct (Ivoclar Vivadent), in the shades A1E, A2E, A3E, A1B, A2B, A3B, A1D, A2D, and A3D for F, and A1E, A2E, A3E, A1D, A2D, and A3D for ED were evaluated. The samples (n=5) were made with a metal matrix (1 mm thick) and light cured with VALO Cordless (1050±0.00 mW/cm^2) at 0 mm. The irradiance was measured (3x) with the Bluephase Meter II (Ivoclar Vivadent) radiometer. CIELAB coordinates were obtained from the spectral reflectance using a spectroradiometer under two D65 illuminant and 0° diffuse illumination geometry) over black and white backgrounds. The translucency parameter (TP_{00}) and whiteness index (W_{ID}) were calculated. The corresponding perceptibility (PT and WPT) and acceptability (AT and WAT) thresholds were used to evaluate the ΔTP_{00} and ΔW_{ID} values. Descriptive statistics, Kruskal-Wallis and Dwass-Steel-Critchlow-Fligner multiple comparisons were performed (α=0.05). Results. E-ED showed higher chroma than E-F and D-ED showed lower chroma than D-F. In general, TP_{00} values were in the following order: E-ED > E-F > B-F > D-ED > D-F ($p \leq 0.05$). A2E-F and A2B-F showed similar TP_{00} values ($p > 0.05$). W_{ID} values were in the following order: E-ED > E-F > D-ED > B-F > D-F ($p \leq 0.05$). Only A1E showed higher W_{ID} values for F when compared to ED ($p \leq 0.05$).

The resin composites Forma and Empress Direct showed different colorimetric and translucency behavior.

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PPCL 45

EVALUATION OF MODEL TYPE IN THE PERFORMANCE OF EVA IN THE MAKING OF MOUTHGUARDS

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This study evaluated the effect of the type of plaster or 3D printed resin (PR3D) model on the mechanical and physical properties of thermoplasticized EVA for making mouth guards. EVA sheets (Bioart) were laminated onto 4 models: GtIV, gypsum type IV (Zhermak); GtIVRs, resin type IV gypsum (Zero Stone); PR3D-WST, 45° printed model without surface treatment; PR3D-ST, 45° printed model with water-soluble gel coating during post-curing. The samples were cut following ISO 37 - II (n=30). Shore A hardness (ShoA) was measured before and after thermoplasticization on the contact surface or opposite the model. The maximum breaking force (F, N), elongation (El, mm), and maximum breaking strength (BS, MPa) were measured in an EMIC universal machine. Visual analysis of the EVA was performed by photography with a 105 mm macro lens and SEM classifying the pattern of alteration into 3 levels: 1 no alteration, 2 minimum alteration, 3 severe alteration. Data were analyzed by one-way ANOVA and one-way with repeated measures, and Tukey's test ($\alpha = 0.05$). Plasticization significantly decreased ShoA values. PR3D-WST resulted in an even greater reduction on the surface in contact with the model. PR3D-ST and GtIV showed the highest values of F, AI, and BS. GtIVR and especially PR3D-WST resulted in a significant ($p < 0.05$) reduction in F, AI. PR3D-WST results in severe alteration of the EVA surface.

The interaction of untreated impression resin and resinous type IV gypsum significantly altered the physical and mechanical characteristics of the EVA plate, impacting its use for making mouthguards.

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PPCL 46

EFFECT OF APPLICATION TIP IN IN-OFFICE BLEACHING GELS COUPLED: COLOR CHANGE, AMOUNT OF BLEACHING GEL USED AND PENETRATION

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Objectives: Evaluate the color change, amount of bleaching gel used and penetration of hydrogen peroxide (HP) into the pulp chamber during in-office bleaching using an applicator brush or conventional tip in bleaching gels coupled of different commercial brands. Methods: 78 healthy premolars were randomly distributed into thirteen groups (n = 6) according to the commercial brand used: HP 35% DSP White, DSP; HP 35% Nano White, DMC; HP 35% Total Blanc, DFL; HP 35% Whiteness HP Blue, FGM; HP 38% Potenza Bianco, PHS; HP 40% Opalescence Boost, Ultradent, and application method: applicator brush or conventional tip. A group not exposed to bleaching agents was the negative control. Color change (ΔWID) was evaluated with a digital spectrophotometer. The amount of the bleaching gel used was evaluated with a precision analytical digital scale and the concentration (μg/mL) of PH inside the pulp chamber was measured using UV-Vis spectrophotometry. Results: The use of the applicator brush resulted in a lower amount of PH in the pulp chamber and less gel was spent when compared with the conventional tip, regardless of the HP concentration ($p < 0.05$). Regarding the color change, the applicator brush had a similar result to the conventional tip ($p < 0.05$), but differences were observed between the commercial brands.

Conclusion: The use of a tip with an applicator brush showed less penetration and a lower volume of gel spent. In addition, it presented a bleaching efficacy similar to the conventional tip.

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PPCL 47

EFFECT OF SILVER DIAMINE FLUORIDE ON THE LONGEVITY OF THE BONDING PROPERTIES TO CARIES-AFFECTED DENTINE

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Objectives: This study aimed to evaluate the adhesive properties in dentine after the application of silver diamine fluoride on carious dentine lesions immediately and after 2 years of water storage. Methods: Human molars were randomly divided into 12 experimental groups according to 1. application of a silver diamine fluoride solution (carious dentine lesion without silver diamine fluoride treatment [control], with 12% silver diamine fluoride [diamine 12%] or 38% silver diamine fluoride [diamine 38%]); 2. adhesives (Clearfil Universal Bond Quick [CUQ] and Scotchbond Universal [SBU]); 3. adhesive strategy (etch-and-rinse [ER] and self-etch [SE]). After restoration, the specimens were sectioned and submitted to the μTBS test. Sticks from each tooth were used for chemical characterization by Micro-Raman. To examine the changes induced by diamine, SEM/EDX analysis was performed. All test was performed immediately and after 2 years of water storage. Data from the μTBS and test were analyzed using four-way ANOVA and Tukey's test (α = 0.05). Regarding the interaction of 2 factors, only 'DFP' vs 'time' was significant (p = 0.03). After 2 years of storage, the groups where DFP was applied showed higher μTBS values compared to the control group. However, while no significant decrease in μTBS values was observed for SBU when comparing immediate and 2-year results, a significant drop in μTBS values was observed after 2 years for CUQ.

The use of diamine may be a promising alternative to increase μTBS without jeopardizing the DC of the two adhesives in carious dentinal lesions.

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PPCL 48

TIME PROTOCOLS OF 40% HYDROGEN PEROXIDE ASSOCIATED WITH OZONE THERAPY APPLIED FOR DENTAL BLEACHING

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Proposition: Protocols for the application time of 40% hydrogen peroxide (PH) associated with gaseous ozone therapy for in-office dental bleaching were evaluated regarding bleaching effectiveness. Methods: Fifty bovine incisors were separated into five groups (n=10): PH - 40% PH (Opalescence Boost 40%) for 40 minutes, PHO5 - PH + gaseous ozone therapy (O) for 5 minutes, PHO10 - PH + O for 10 minutes, PHO20 - PH + O for 20 minutes and PHO40 - PH + O for 40 minutes. Treatments were applied according to the groups in three clinical sessions. Ozone therapy was performed with 60 mcg/mL and oxygen flow of 1 L/min (Medplus V Philozon) according to different times. Color was determined at baseline, after 1st, 2nd. and 3rd bleaching sessions. Color change was evaluated using the Vita Classical, CIEL*a*b*, WID and ΔEab, ΔE00 and ΔWID parameters. Results: Mixed generalized linear models for repeated measures and Kruskall Wallis and Dunn tests (α = 5%) showed that for L*, there was a significant increase over the sessions, regardless of the group ($p<0.05$), and without differences between treatments ($p>0.05$). PH and PHO40 showed a higher ΔWID value than the groups with PHO5 and PHO20 at the end of treatment ($p<0.05$), while the PH and PHO40 groups showed a higher ΔEab and ΔE00 compared to PHO5 ($p<0.05$).

Conclusions: The use of 40% hydrogen peroxide associated with ozone therapy leads to dental chromatic change at different times of application, showing the same effectiveness as conventional in-office bleaching treatment.

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PPCL 49

IN-OFFICE BLEACHING IN ADOLESCENTS USING 6% HYDROGEN PEROXIDE WITH DIFFERENT TIPS: RANDOMIZED CLINICAL TRIAL

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The objective of this double-blind, split-mouth, randomized clinical trial was to clinically evaluate the efficacy of in-office bleaching with 6% hydrogen peroxide (HP) gel in adolescents using different application tips, as well as tooth sensitivity (TS) and aesthetic self-perception (AS). 60 participants were selected who received bleaching gel in an upper hemi-arch with the tip without brush (WTB) and in the other tip with brush (WB). The bleaching procedure was carried out with PH 6% (Whiteness HP Automixx 6%) in 3 sessions of 50 minutes each. Color was assessed initially, weekly for 3 weeks and 1 month after completion, with subjective scales and a digital spectrophotometer. The intensity and risk of TS were recorded using the Visual Analog Scale (VAS 0-10) and the AS was assessed before and after the procedure using the Orofacial Aesthetic Scale (OAS). Data were analyzed using paired t-test and McNemar (α=5%). The groups showed statistical differences only when evaluating the color for ΔWI_D ($p < 0.03$), favoring the WTB tip. Significant bleaching was observed in all evaluated parameters. The absolute risk of TS favored the WB tip, but it was of low intensity in both groups ($p = 0.36$). When the aesthetic self-perception was evaluated, there was a difference in all evaluated parameters ($p < 0.001$).

Although the use of the WTB tip demonstrated a better bleaching pattern only detected by ΔWI_D, the WB tip should be considered the first option, since it presented a lower risk and intensity of TS in adolescents. There was an improvement in the AS after bleaching, regardless of the tip.

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PPCL 50

1st Place
LINCOLN STEAGALL Award

EFFECT OF DENTIN PRETREATMENT WITH A REMINERALIZING BIOPARTICLE ON THE LONGITUDINAL PROPERTIES OF THE ADHESIVE INTERFACE

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The aim of this study was to evaluate the remineralizing action of the bioparticle α-wollastonite (BP), its effects on longitudinal bond strength and adhesive interface characteristics, when applied as a solution after dentin conditioning with 37% phosphoric acid and prior to the universal adhesive system (SU). Two hundred healthy bovine incisor crowns had their dentin exposed, polished and divided into 2 groups (n=100), with or withou the application of BP: Group A - Control (ER+SU); Group WAS - Experimental (ER+BP+SU). For microtensile test (n=120) (10kgf, 0.5 mm/min), 4 mm composite resin blocks were built over the treated areas, followed by sectioning on sticks (1 mm^2), storage in deionized water at 4°C and division into 2 subgroups: 24h (immediate) and 12 months (longitudinal). Data were subjected to 2-way ANOVA ($p < 0.05$) and 2-parameter Weibull tests. Samples of the adhesive interfaces were also analyzed by scanning electron microscopy (SEM n=20) and FTIR spectroscopy (n=60). The highest bond strength values (MPa) were observed for the 24 h WAS group (37.39 ± 7.48 B) compared to the 24h A group (27.58 ± 6.43 A); and, for the 12 month WAS group (32.05 ± 10.64 B) compared to the 12 month A group (22.84 ± 5.76 A). FTIR data evidenced the positive effect of BP on collagen preservation, while SEM evidenced better hybridization quality in the WAS group compared to the control.

The α-wollastonite BP showed to be promising in longitudinally maintenance of the quality of the adhesive interface, in vitro.

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PPCL 51

MINIMALLY INVASIVE DENTISTRY: CLINICAL CRITERIA FOR REPAIRING AGED COMPOSITE RESIN RESTORATIONS

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Objective: To evaluate different bonding strategies for repairing aged composite resin restorations (CRs). Materials and Methods: This study comprises a systematic review and meta-analysis reported according to PRISMA 2020 and registered on the Open Science Framework. It was conducted by two independent reviewers in the databases PubMed (1244), Embase (758), The Cochrane Library (128), Web of Science (2538), and Scopus (4300) until July 2022. Bias risk was assessed according to generation of random sequence, blinding of outcome assessment, incomplete outcome data, selective reporting, coefficient of variation, and other biases. Among the surface treatments, 16 different procedures were found. The most frequent treatments were diamond bur, air abrasion (aluminum oxide/silica), followed by phosphoric acid and hydrofluoric acid. The meta-analysis showed significantly greater effect for diamond bur (shear bond strength; $p = 0.02$), air abrasion (shear: $p = 0.009$; flexure: $p = 0.003$; tensile: $p = 0.004$ tests), and phosphoric acid (tensile test, $p < 0.00001$).

Conclusions: The results confirm that conditioning with phosphoric acid prior to adhesive application should always be performed. Additionally, the bond strength between CR and the new increment was higher when preceded by surface roughening, either by aluminum oxide blasting or diamond bur, while the use of silane proved favorable when either of these surface roughening methods was employed.

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PPCL 52

STRESS ANALYSIS THROUGH FEA OF ROOTS REHABILITATED WITH DIFFERENT RETAINERS

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The objective of the study was to evaluate the stresses, through finite element analysis, of roots rehabilitated with retainers made of different materials. Scanning of an incisor tooth was performed. It was prepared to receive an intra-radicular retainer. A prefabricated glass fiber post was customized to fit snugly into the root canal. Afterwards, the post was scanned to generate the model for FEA. FEA was performed using ANSYS software with 3 materials: glass fiber post + composite resin filling core; custom-made CAD/CAM glass fiber core, and CAD/CAM custom-made PICN core. A load of 100N was applied to the palatal surface of the crown, and the results were presented in terms of Von Mises stress. The glass fiber post generated stress in the apical third of the root with a maximum stress of 8618.5 MPa. The custom-made glass fiber core absorbed the stresses within the retainer itself, and when it dissipated, the stress occurred in the cervical third of the root with a maximum force of 91429 MPa. The custom-made PICN core concentrated stress in the apical third of the root, with a maximum stress of 7091.6 MPa.

The FEA behavior of the single-body glass fiber core was the most beneficial for the dental remnant, as the retainer absorbed the stress and when it dissipated, it was only in the cervical third. The prefabricated glass fiber posts rebased with composite resin and the single-body PICN core did not absorb stress and dissipated the tension towards the apical third of the root.

(Apoio: CNPq)

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PPCL 53

PHYSICAL CHARACTERIZATION OF CONTEMPORARY RESIN COMPOSITES: EFFECT OF THE MATERIAL AND THE LIGHT-CURING EQUIPMENT

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Objective: To evaluate the effect of the type of light-curing equipment on the physical properties of different resin composites (RC). Methodology: Specimens were fabricated with Vittra APS (shade BL3), Vittra APS Unique (monochromatic resin), Opus Bulk Fill (shade A1), and Vittra APS (shade DA1), all RC from FGM. The specimens were light-cured with singlewave (Emitter Now Duo; Schuster) and poliwave (Emitter Now Black; Schuster) equipment. The specimens (n=5) were charcaterized before and after immersion in water for 7 days, with hardness, roughness (Ra), physical stability (sorption/WS, solubility/SL, and hydrophilic level) and color alteration (CIEDE2000). The data were analyzed using two-way ANOVA and Tukey ($p<0.05$). Results: The RC did not differ regarding hardness and Ra, although the bulk-fill RC significantly increased the Ra in the poliwave group. The WS was lower for the monochromatic RC (monowave: 9.8±0.7 μg/mm³; poliwave: 11.0±0.7 μg/mm³); the type of light-curing equipment influenced the WS and SL of the conventional RC shade DA1 (higher values in the poliwave group). The RC light-cured with poliwave equipment showed lower alteration of hydrophilicity after water storage, except Vittra APS shade BL3. The bulk-fill RC resulted in the highest color alteration of the study, regardless the light-curing equipment.

Conclusion: The properties investigated in the study were influenced differently relying on the type of RC and light-curing equipment, with the foregoing aspects deserving attention during the choice for the best restorative protocol.

(Apoio: CAPES N° 001)

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PPCL 54

Influence on the bond strength of the association of different adhesive luting systems and glass fiber posts: A pilot study

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The cementation of glass fiber retainers is a primordial step during the rehabilitation of teeth with extensive coronal structure loss. Therefore, the aim of the present pilot study was to evaluate the influence on the bond strength of different adhesive luting systems and glass fiber posts. Bovine teeth were separated into 3 groups (n=2) according to the resin cement used: Group 1 (RelyX U200, 3M Oral Care); Group 2 (RelyX Universal, 3M Oral Care); Group 3 (RelyX ARC, 3M Oral Care). The teeth were endodontically treated and the intracanal preparation was carried out, in the conduits with drill number #2 (White Post DC System, FGM, Joinville, SC, Brazil), all with 11 mm in length for the cementation of post #2 of the same manufacturer. The posts and conduits were treated as recommended in the package inserts for each resin cement and after cementation, they were sectioned into 1mm thick samples and submitted to the Push-out test. The results were submitted to statistical analysis by ANOVA and no statistical differences were found between the groups in the cervical third (p=0.0941) and in the apical third (p=0.0940), whereas in the middle third, statistical differences were found between groups 2 and 3 (p=0.0138355) in the paired analysis using Tukey's test. A significant difference was found between the groups, where group 2 had the highest adhesive strength, followed by group 1 and group 3, respectively.

A significant difference was found between the groups, where group 2 had the highest adhesive strength, followed by group 1 and group 3, respectively.

(Apoio: FAPERJ | FAPERJ | FAPERJ)

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PPCL 55

TO LIGHT-CURE OR NOT TO LIGHT-CURE THE ADHESIVE FOR CEMENTATION OF INDIRECT RESTORATIONS

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The aim of this in vitro study was to evaluate the effect of light-curing or non-light-cure the adhesive on the cementation of indirect restorations (IR) in the Microtensil bond strength (μTBS) and the degree of conversion (GC). Methods: were used a veneer cement (Allcem Veneer APS, FGM) and a feldspar ceramic (VITABLOCS Mark II, VITA Zahnfabrik) for the cementation of IR in 80 healthy bovine teeth. The teeth were randomly distributed according to the adhesive protocol: Total-etch (TE), Self-etch (SE); light-cured (LC) Ambar Universal APS adhesive (FGM), and the non-light-cured adhesive (NLC); light-curing agents used were Bluephase N (BN) [Ivoclar Vivadent] and Raddi Cal (RC) [SDI]. After 24h the teeth were cut to obtain specimens for the evaluation of μTBS (n=8), and GC (n=3). The specimens were tested immediately (IT) and after thermocycling (TC). The results were submitted to ANOVA and Tukey's test, p=0.05. For the μTBS with the BN, there was a difference in the SE group with the NLC (p= 0.001). For the RC group, there was a difference in the TE groups of NLC, SE of LC, and NLC after CT (p=0.001). There was a difference in the LC and NLC groups for the BN in the CG.

Not light-curing the adhesive for the cementation of indirect restorations reduces the values of μTBS after thermocycling.

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PPCL 56

CAN ALL HIGHLY CONCENTRATED IN-OFFICE BLEACHING GELS BE USED AS A SINGLE-APPLICATION?

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OBJECTIVE: The study evaluated the diffusion of hydrogen peroxide (HP) in the pulp chamber, the bleaching efficacy (BE), and the pH stability of highly concentrated single-application in-office bleaching gels. MATERIALS AND METHODS: 88 sound premolars were randomized into 11 groups (n = 8) according to the gel used: DSP White Clinic 35% Calcium (DW), Nano White 35% (NW), Opalescence XTra Boost 40% (OB), Pola Office+ 37.5% (PO), Potenza Bianco Pro SS 38% (PB), Total Blanc 35% (TB), Total Blanc One-Step 35% (TO), Whiteness Automixx 35% (WA), Whiteness Automixx Plus 35% (WP), and Whiteness HP Blue 35% (WB). All gels were applied once, and a non-bleached group was used as a control (CG). After bleaching, the HP concentration (μg/mL) in the pulp chamber was evaluated by UV-Vis spectrophotometry. Color was assessed before and 1 week after using a digital spectrophotometer. The gel pH values were measured using a digital pH meter. Data were analyzed using ANOVA and Tukey's test ($\alpha = 0.05$). RESULTS: The diffusion of HP into the pulp chamber was higher in all groups compared to CG ($p < 0.0000001$), with significant differences among them ($p = 0.0001$). Significant BE was observed in all groups ($p < 0.0001$), with higher values in the PO, OB, TB, WP, and WB groups ($p < 0.0001$). Most gels exhibited acidic or alkaline behavior throughout the application, with the most acidic pH values found in the DW, PB, TB, and WA groups.

A single application of the bleaching gel yielded satisfactory BE, with reduced HP diffusion observed in gels with less acidic or alkaline pH values.

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PPCL 57

BASE EFFECT IN FLUID COMPOSITE RESIN ON FRACTURE RESISTANCE OF MOLARS RESTORED WITH BULK-FILL AND CONVENTIONAL COMPOSITE RESIN

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This study aimed to evaluate the fracture resistance of molars with Class I preparations with cusp-weakening restored with bulk-fill and conventional resins with and without flowable base. Sixty extracted human third molars were prepared with extended Class I cavities and restored with diferent techniques being: FFS, flowable bulk-fill resin composite (Filtek bulk-fill flow, 3M) as a base and a 1mm-thick conventional composite layer (Filtek Supreme Ultra, 3M); FBF, restored with bulk-fill resin composite (Filtek Bulk-Fill, 3M); FSU, restored incrementally with conventional resin composite (Filtek Supreme Ultra, 3M); GXF, flowable bulk-fill resin composite (X-tra base, VOCO) as a base and a 1mm-thick conventional composite layer (GrandioSO, VOCO); AFB, restored with bulk-fill resin composite (Admira Fusion X-tra, VOCO); GDS, restored incrementally with conventional resin composite (GrandioSO, VOCO). Sound extracted teeth (n=10) were used as a control group (CTL). All teeth were subjected to thermocycling (20,000 cycles, 5°C and 55°C) and to compressive axial load. Mean (SD) fracture resistance in N were: CTL: 1,531.09 (452.64); FFS: 1,428.23 (326.10); FBF: 1,494.85 (386.81); FSU: 1,183.33 (334.99); GXF: 1,615.70 (188.82); AFB: 1,138.38 (286.94) and GDS: 1,340.66 (97.50). Statistically significant differences were found between Group GXF and Groups FSU, ATB and GDS ($p<0.05$).

In conclusion the association of fluid composite resin as the base of a conventional composite resin was able to recover resistance to fracture of molars with weakened cusps.

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PPCL 59

EVALUATION OF MECHANICAL PROPERTIES BEFORE AND AFTER AGING

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This study evaluated the mechanical properties and color stability of biocompatible resins for 3D additive manufacturing, PMMA blocks for CAD/CAM system, and conventional acrylic resin before and after accelerated aging. Disc-shaped specimens with a diameter of 10 mm and a thickness of 3 mm were made from PMMA blocks for the CAD/CAM system, resin for 3D printers with dental coloring and conventional acrylic resin. After being made, they were polished and allocated into groups: milled, printed and conventional (n=18). The color of the disks was evaluated before and after accelerated aging using a spectrophotometer. Microhardness was evaluated using a microhardness tester using a Vickers tip before and after accelerated aging. Images of the surface were obtained through scanning electron microscopy. Data were analyzed using one-way ANOVA and Tukey's post test (α = 0.05). The Milled group had a higher microhardness compared to the other groups. After accelerated aging, there was a change in the microhardness of the conventional group. The Printed group obtained the lowest microhardness values. There was a color change in the printed group after accelerated aging.

The milled group has better stability of mechanical properties and color before and after aging. The printed group was less stable after aging.

(Apoio: CAPES | UEF / Fundo Paraná)

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PPCL 60

EFFECT OF DIFFERENT SURFACE TREATMENTS ON MILLED GLASS FIBER POSTS (CAD/CAM) ON ROOT CANAL ADHESION

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Objective: Compare the use of anatomical glass fiber post with the milled glass fiber post in CAD CAM in enlarged root canals, through bond strength (BS) and fracture resistance (FR) tests. Methods: Roots of 48 single-rooted mandibular premolars were endodontically treated. After one week, the standardized preparation of the canals was carried out and the roots were divided into 3 groups (n=16): Control - pre-fabricated glass fiber post, customized glass fiber post with composite resin and milled glass fiber post. After cementation of the posts, for 8 roots of each group, six slices were obtained, resulting in slices from coronal, middle and apical root regions. For the remaining 8 roots of each group, standardized preparations were performed for metal-free crowns, milling of indirect crowns and cementation of these. Then, for each group, all slices were evaluated in BS through the push-out test and the 8 roots with cemented crowns were evaluated in FR under compression. BS data were submitted to two-way ANOVA and Tukey (α=0.05), and from FR to one-way ANOVA and Tukey (α=0.05). Results: For BS, the milled post group was statistically superior to the pre-fabricated group in all root regions and was statistically superior to the anatomical post group only in the cervical region. For FR, the milled post group was statistically superior to the pre-fabricated and anatomical groups.

Conclusion: The milled fiber post technique can be a great alternative in restoring weakened roots with enlarged root canals.

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PPCL 61

DEVELOPMENT AND COLOR ANALYSIS OF EXPERIMENTAL BLEACHING AGENTS BASED ON HYALURONIC ACID CONTAINING NF_TIO$_2$ NPS

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The aim of this study was to evaluate the effectiveness of a bleaching agent containing hyaluronic acid (HA) and titanium dioxide nanoparticles (NPs) co-doped with fluorine and nitrogen (NF_TiO$_2$) associated or not with a violet LED and to characterize it with analysis of pH and decomposition. Bovine enamel samples were stained with black tea and submitted to bleaching according to the groups (n=10): HA + HP 35% without light, HA + HP 35% with light, HA + HP 35% + 5NPs without light, HA + HP 35% + 5NPs with light, HA + HP 6% without light, HA + HP 6% with light, HA + HP 6% + 5NPs without light, HA + HP 6% + 5NPs with light, and negative control (NC), without treatment. Bleaching was performed in 3 sessions of 30 min with an interval of 7d. The whitening index (ΔWID) was determined before and after 14 days of bleaching. The data showed normality ($p>0.05$) and homoscedasticity. A 3-way ANOVA was performed with a Bonferroni post-test and a significance level of 5%. The results indicate that there was no drop in the pH concentration of the gels over 30 min of application, and the pH of the gels remained stable (pH>6.0). ΔWID increased with a violet LED irradiation ($p\leq0.05$). There was no difference in ΔWID between PH 6% and PH 35% groups containing NF_TiO$_2$ and irradiated with LED ($p>0.05$).

Thus, it is concluded that the bleaching agents containing HA and NPs had a pH close to neutrality and maintained the bleaching efficacy when irradiated with violet LED, even after reducing the HP concentration.

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PPCL 62

IN VITRO EVALUATION OF PULP TEMPERATURE INCREASE WITH DIFFERENT PHOTOACTIVATION STRATEGIES OF BULK-FILL COMPOSITES IN CLASS I RESTORATION

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The increase in pulp temperature during the photoactivation of bulk-fill composites is a concern in dental procedures. This study compared different light exposure strategies in relation to pulp temperature in vitro. A Class I cavity preparation was performed on a sound third molar, and a T-type thermocouple connected to a temperature measuring system (Thermes, Phisytemp) was inserted into the pulp chamber to measure temperature in real-time. Tetric N-Ceram Bulk Fill (TBF - Ivoclar Vivadent) and Surefill SDR flow (SDR - Dentsply Sirona) composite resins were used, along with different photoactivation strategies (technique 1: 40 seconds per occlusal surface; technique 2: 20 seconds per occlusal surface followed by 10 seconds per buccal and 10 seconds per lingual surfaces; technique 3: 10 seconds per buccal surface followed by 10 seconds per lingual and 20 seconds per occlusal surfaces). The temperature increase results were analyzed using two-way ANOVA followed by Bonferroni test (alpha = 0.05), and the peak temperature results were analyzed using two-way ANOVA followed by the Dunnet test. SDR composite showed a higher peak temperature and a greater temperature increase than the TBF resin. Furthermore, technique 3 resulted in higher temperature values for SDR composite.

None of the techniques caused a temperature increase greater than the reference threshold of 5.5 °C.

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PPCL 63

INFLUENCE OF DIFFERENT PHOTOPOLYMERIZATION STRATEGIES ON THE FORMATION OF INTERNAL GAPS AND HARDNESS OF BULK-FILL RESINS

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The aim of this in vitro study was to assess gap length at the adhesive interface (CFI) and the hardness of bulk-fill resin restorations using various photoactivation strategies. Class I preparations were conducted on 80 third molars (n=5), and Tetric N-Ceram Bulk Fill (TNC) from Ivoclar Vivadent and SureFill SDR Plus (SDR) from Dentsply Sirona were utilized for restoration. Four photoactivation techniques were employed, varying the duration and location of the light exposure. After 72 hours or thermocycling, the teeth were longitudinally sectioned and the internal surface was polished. CFI was measured as a percentage of the total length, and three indentations were made on the top and bottom of the internal surface. Statistical analysis showed no significant differences among the photoactivation techniques. However, after thermocycling, Techniques 1 and 2 resulted in larger gap lengths compared to the 72-hour interval for both TNC and SDR resins. There were no notable differences in hardness between the evaluated regions for Techniques 2, 3, and 4, as well as in the comparison between different prolonged photoactivation methods.

The techniques involving higher levels of irradiation exposure did not influence the formation of interface gaps. However, the effects of thermocycling on gap formation are related to the photoactivation technique.

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PPCL 64

AESTHETIC RESTORATION REPAIR USING SELF-ADHESIVE FLOWABLE COMPOSITE RESIN

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PURPOSE: To evaluate shear bond strength (SBS) between self-adhesive flowable composite resin and aged composite resin restorations. MATERIALS AND METHODS: One hundred and forty-three (n=143) cylindrical shaped specimens were prepared with Filtek Z350 XT (3M ESPE) composite resin. Cohesive resistance of non-aged composite resins was evaluated and determined as reference group (n=11). The other specimens (n=132) were aged, etched with 37% phosphoric acid and randomized in 12 groups according to the following factors: silane coupling agent application, adhesive system application and repair using flowable composite resins (Yflow, Dyad Flow, and Filtek Supreme Flowable Restorative). The composite resins were light cured (Valo, 1450mW/cm²) according to the manufacturer instructions. The SBS test was performed in a universal testing machine (EMIC) using 1mm/min until failure occurs. The failures were analyzed using a stereomicroscope (40X) and classified as: adhesive, cohesive and mixed. Statistical analysis was performed through three-way ANOVA and Tukey post hoc tests (α=0.05). RESULTS: All groups showed similarity irrespective of silane coupling agent usage (p=0,315). However, previous adhesive system application before repair procedure showed greatest SBS values (p<0.001) in most groups, except for Yflow self-adhesive flowable composite resin (p=0.888). There was adhesive failures predominance for all groups.

Adhesive system previous application improved self-adhesive flowable composite resin performance, for restoration repair.

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PPCL 65

INFLUENCE OF THE USE OF BIOPOLYMERS AND VIOLET LED ON THE ESTHETIC EFFICACY, CYTOTOXICITY AND DEGRADATION KINETICS OF WHITENING GELS

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The influence of enamel coating with a nanofibrillar (SN) scaffold and a polymeric catalyst primer (PPC) containing 10 mg/mL of manganese oxide was evaluated on the esthetic efficacy (EE), cytotoxicity (CT) and degradation kinetics (DK) of bleaching gels applied for 45 min and irradiated with LED violet (LEDv). The following groups were proposed (n=8): G1- No treatment (negative control); G2- SN/PPC+LEDv; G3- 35%H_2O_2 (positive control); G4- 20%H_2O_2; G5- 10%H_2O_2; G6- SN/PPC+LEDv+35%H_2O_2; G7- SN/PPC+LEDv+20%H_2O_2; G8- SN/PPC+LEDv+H_2O_2. Stained enamel/dentin discs were fitted with artificial pulp chambers. After treatments, EE (ΔE00 and ΔWI) and trans-enamel-dentin diffusion of free-H_2O_2 (DTH_2O_2) were evaluated. For CT analysis, the extracts (culture medium + components of the diffused gels) were applied on MDPC-23 cells, which were evaluated for viability (Vi) and oxidative stress (EOx). The DK was determined through the quantification of free radicals (RL) and hydroxyl radical (OH-) produced (ANOVA/Tukey; $p<0.05$). Higher EE occurred in G6 compared to G3 ($p<0.05$), and groups G3, G7 and G8 did not differ from each other ($p>0.05$). The lowest DTH_2O_2 occurred in G8, where the cells exhibited the highest Vi and lowest EOx compared to the other experimental groups ($p<0.05$). G6, G7 and G8 had the highest production of RL and OH- ($p<0.05$).

It is concluded that the use of SN+PPC, followed by the application and irradiation (LEDv) of a bleaching gel with 10%H_2O_2, increases the H_2O_2 DK, which reduces the CT and promotes EE similar to in-office bleaching.

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PPCL 66

ABSOLUTE ISOLATION, BIOMECHANICAL ASPECTS AND PHYSICAL CHARACTERISTICS OF RUBBER DAM SHEETS

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This study aimed to evaluate the biomechanical performance through ultimate tensile strength (UTS, MPa), Rupture force (RF, N) and elongation (%) of 20 rubber dam sheets available at the international market for absolute isolation. Medium thickness rubber dam: All Prime; Madeitex; Sanctuary Black, Gree n, Blue, Non látex; Nic tone Blue, Black; Mk life; Elastidam; Bassi; Pribanic; Care; OK; MDC dental; Keystone; Dura Dam. And thick from Sanctuary Blue; Nictone Blue; Ehros; USE. The dental rubber sheets n = 15 were prepared cutting the samples following the ISO 9001 standard, with measures of (80 × 10) mm, with a 1.74 mm hole made in the center of the sample. The specimens were tested with a universal testing machine (Emic) with a load cell of 500 N and tensile load at a 500 mm/min speed until rupture. MEV and EDS analyses were performed. The thickness and radiopacity were also measured. Data were analyzed by One-way ANOVA and Tukey test (α = 0.05). Nictone had the highest thickness, 0.4 mm for thick sheet and 0.3 mm for medium sheet, and also the higher RF value (41.3 N), for thick sheet. The others tested had the UTS values ranging between 19N - 30 N. The highest elongation value was obtained for (Non-latex Sanctuary) rubber dam (600 mm). Bassi rubber dam had the high er UTS values (15 MPa). Medium and small particles was observed in most of the gums. A loss of continuity was detected in the structure of two sheets. The most predominant elements in sheets were C, Mg, S, Si, and Ca

Most of the rubber dams studied present mechanical properties and physical characteristics suitable for clinical use.

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PPCL 67

EFFECT OF MODIFICATION OF A UNIVERSAL ADHESIVE WITH FIBROUS PARTICLES ON THE BOND STRENGTH TO DENTIN

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Objective: To evaluate the effect of the type and concentration of fibrous particles on the physical and adhesive properties of a universal adhesive. Methodology: Fibrous particles with two compositions (polycaprolactone/PCL or PCL+doxycycline/DOX) were synthesized by electrospinning and cryogenic milling methods. Next, the particles were characterized according to morphology and chemical composition, and they were then added in some aliquots of Ambar Universal Adhesive (FGM) at two concentration levels: 5 or 10 wt.%. One aliquot without the particles served as a control. The adhesives were analyzed for degree of conversion, surface wettability, water sorption and solubility, adhesion to dentin and work of fracture analyses. Data were analyzed with ANOVA and Tukey as post hoc and Weibull analysis ($p<0.05$). Results: The addition of particles did not alter the physical properties of the adhesive, but it improved its hydrophilicity level. None of the fiber-containing adhesives altered water sorption compared to the control, although solubility was statistically lower in adhesives containing 5 wt.% of the particles. All adhesives resulted in similar bond strength and work of fracture ($p>0.05$). Concerning the Weibull analysis, the incorporation of fibers seemed to increase the structural reliability of the adhesives, especially from the addition of PCL+DOX particles at 10 wt.%.

The modification of a universal adhesive with fibers did not change the material's properties, but it seemed to positively influence the structural mechanics of the adhesive.

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PPCL 68

THREE-DIMENSIONAL ANALYSIS OF THE BUCCAL ENAMEL SURFACE AFTER DIFFERENT COMPOSITE RESIN RESTORATION REMOVAL PROTOCOLS

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This study aimed to quantify the enamel loss after different composite resin restoration removal protocols, evaluated with 3D optical scanner. Initially, 21 human maxillary central incisors were selected, and the buccal surfaces of all teeth were scanned (T_0) with 3 different 3D optical scanners: iTero/Element 5D, Virtuo/Vivo, 3shape/3Shape A/S. Then, the adhesive restorative protocol was performed on a central area limited by a matrix (4mm X 1mm), inserting a single layer of composite resin. Afterwards, the teeth were randomly distributed among the 3 experimental groups (n=7) for the restoration removal protocol: DIA (diamond bur 4138F); MUL (12-blade multiblade drill) and LAS (Er:YAG laser; 150mJ, 20 Hz, 3.0W). After removal, teeth surfaces were scanned again (T_1) to evaluate the enamel surface. Data were analyzed using the Kruskal-Wallis test, followed by the Mann-Whitney test ($p<0.01$). For the 3 scanners used, a statistically significant difference was found between the experimental groups ($p<0.01$), where the LAS group had the highest mean values of enamel loss, differing from the DIA and MUL groups ($p<0.016$). DIA and MUL groups did not differ statistically from each other ($p>0.01$). The Er:YAG laser caused irreversible enamel damage during composite resin removal compared to diamond bur and carbide bur.

The Er:YAG laser caused irreversible enamel damage during composite resin removal compared to diamond bur and carbide bur.

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PPCL 69

DOES THE ABSENCE OF HEMA ON UNIVERSAL ADHESIVE SYSTEMS CONTAINING 10-MDP AFFECT THE BONDING PROPERTIES? A ONE-YEAR EVALUATION

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112 third molars were used to evaluate bonding to dentin (n=64) and enamel (n=48). The teeth were divided into 8 experimental groups, according to: 1) Adhesive: Scotchbond Universal (SBU); Gluma Bond Universal (GBU); Solare Universal Bond (SUB) and Zipbond Universal (ZIP). 2) Strategies: etch-and-rinse (ER) and self-etch (SE). For dentin tests the restoration was then performed with a composite resin and the specimens were sectioned into resin-dentin bonded sticks. The sticks were tested for microtensile bond strength or used to assess nanoleakage of resin-dentin interface (NLD) immediately and after one year. For enamel tests, teeth were restored and the specimens were tested for microshear bond strength (μSBS). For evaluation of nanoleakage of resin-enamel interface (NLE), the specimens were evaluated as described for dentin. The evaluation of μSBS and NLE was performed immediately and after one year. The data were subjected to three-way ANOVA and Tukey's test (α = 0.05). The SBU and ZIP showed highest μTBS, μSBS, and lower NL values on dentine when compared to GBU and SUB for both strategies and time evaluation (p=0.001). ER showed higher values of μTBS and μSBS when compared to SE strategy (p=0.001) for both time evaluation, except for SBU. For all adhesives and strategies evaluated, lower NL values to dentin were observed in the immediate time compared to 1 year (p = 0.0002).

The absence of HEMA in commercial universal adhesive systems containing 10-MDP on the longevity of the adhesive properties of enamel and dentine appears to be material-dependent.

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PPCL 10

IN VITRO EVALUATION OF DIFFERENT TECHNIQUES FOR AESTHETIC TREATMENT OF WHITE ENAMEL SPOT AFTER ORTHODONTIC THERAPY

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This study aimed to evaluate microabrasion and resin infiltration methods for the aesthetic treatment of white spot lesions (WSL) on enamel after orthodontic treatment. Color, roughness, mineral content (MC), and enamel surface micromorphology were analyzed. Forty healthy human teeth were divided into two groups: Microabrasion (GMicro) (n=20) and Resin Infiltrating (GInf) (n=20). For color analysis, a spectrophotometer (ΔE) was used, for roughness (Ra) a contact rugosimeter was used, micro-Raman spectroscopy and EDS were used to investigate MC on the enamel surface. For surface topography analysis, 3 random samples from each group were separated and taken to the scanning electron microscope. After measurements, orthodontic brackets were bonded to the teeth and subjected to demineralization-remineralization cycles for WSL induction. The microabrasion technique used Whiteness RM (FGM) and ICON Resin Infiltration (DMG). After the treatments, the tests were redone. The GInf and GMicro groups returned to initial values of ΔE and Ra ($p>0.05$).

Decrease in MC values obtained by EDS after LMB induction in GInf and GMicro for calcium and phosphorus but returned to values similar to sound enamel with GMicro. The surface micromorphology with GMicro and GInf showed differences (GMicro exhibited a smooth and polished surface and GInf a dense and irregular surface). The use of microabrasion and resinous infiltration appears to be efficient for reestablishing the enamel surface in the analyzed properties.

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PPCL 71

EVALUATION OF IN VITRO PULP TEMPERATURE CHANGES IN LOWER INCISOR WITH CLASS V PREPARATION: INFLUENCE OF DIFFERENT LIGHT-CURING UNITS

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The objective of this study was to evaluate whether different light-curing units increase the pulp temperature in vitro in a similar manner. A Class V cavity preparation (3 mm width, 1 mm depth in the buccolingual direction, and 2 mm height) was performed on a sound lower central incisor donated by Banco de Dentes Humanos da UEPG. After approval by the Ethics Committee, the root canals of the incisor were enlarged. The tooth was fixed on an acrylic plate with perforations in the center and attached to a temperature analysis device (Thermes, Phisytemp) using T-type thermocouples. The system was connected to an infusion pump programmed to provide a water flow rate of 0.0017 ml/min inside the pulp chamber. The temperature inside the pulp chamber was evaluated in real-time during the photoactivation using the following devices: RDI - Radii Xpert (SDI), VALOG - Valo Grand (Ultradent), BP20i - Bluephase 20i (Ivoclar Vivadent). The results were subjected to normality analysis using the Shapiro-Wilk test and homoscedasticity analysis using the Levene's test (alpha=5%). The data on temperature variation (ΔT) and peak temperature were analyzed using a 2-factor ANOVA followed by the Bonferroni test. VALOG exhibited the highest observed ΔT (ΔT= 18.8 °C). RDI showed the lowest ΔT values in all exposure modes compared to the other two light-curing units. In the 10-second mode, none of the devices showed an increase greater than 5.5 °C.

The increase in ΔT was proportional to the increase in radiant exposure, that is, longer exposure time.

(Apoio: CAPES)

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PPIC 01

EVALUATION OF SORPTION, SOLUBILITY AND KNOOP MICROHARDNESS OF RESINOUS MATERIALS USED FOR CEMENTATION OF CERAMIC VENEERS

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Objective: to evaluate in vitro sorption (Sp), solubility (Sl) and Knoop microhardness (KHN) of 4 photopolymerizable resinous materials used for cementation of ceramic veneers. Methods: specimens (6mm x 1mm) were made with Filtek Supreme Flow resin, Z100 composite resin preheated to 69ºC, RelyX Veener resin cement and Filtek Bulk Fill Flow, all in A1 color (n=10). The materials were inserted into a Teflon matrix and photoactivated for 20 seconds using the Grand Valo apparatus, with the interposition of a ceramic disc reinforced with lithium disilicate. The KHN test was carried out using a microdurometer with a load of 0.5 kg for 10s, obtaining 5 indentations on each specimen. For the Sp and Sl tests, the samples were initially weighed (m1), immersed in distilled water (H_2O) for 7 days (m2), stored in an oven at 37ºC and then placed in a glass desiccator containing silica until the masses stabilize with a variation of ± 0.1 mg (m3). Results: Sp and Sl data were submitted to the Kruskal Wallis and Dunn tests and it can be seen that Sp was significantly higher for Filtek Flowable than Z100 resin ($p<0.05$). Regarding Sl, there was no difference between the materials tested ($p=0.0688$). The KHN data were submitted to ANOVA and Tukey's test and showed that all materials differed from each other, with the highest hardness rates being obtained by the preheated Z100 resin.

The preheated resin Z100 showed excellent results in relation to the KHN, Sp and Sl tests, when compared to the other tested materials.

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PIC 02

IN-OFFICE DENTAL BLEACHING WITH 35% HYDROGEN PEROXIDE WITH DIFFERENT APPLICATION TIPS: RANDOMIZED CLINICAL TRIAL

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The objective of this double-blind, split-mouth, randomized clinical trial was to evaluate the efficacy of tooth bleaching using hydrogen peroxide (HP) in high concentration with different application tips: conventional tip (CT) and tip with attached brush (TB). 48 participants were randomized to receive dental bleaching with HP 35% (Whiteness HP Automixx Plus, FGM, Brazil). Bleaching gel with TC was applied to one hemiarch and TB to the other, with 2 sessions of 50 minutes with an interval of 7 days. Bleaching efficacy was evaluated initially and 1 month after bleaching, with the Vita Easyshade spectrophotometer (ΔE_{ab}, ΔE_{00}, and ΔWI_D), and with the Vita Classical and Vita Bleachedguide (ΔSGU) scales. Absolute risk and intensity of tooth sensitivity (TS) were recorded using the Visual Analog Scale (0-10). McNemar test, TOST-P test, and paired t-test were used for data analysis (α=5%). For both groups, the bleaching efficacy was significant and equivalent for all color assessment tools ($p > 0.57$). For the absolute risk of TS, 58% of participants reported TS for TB and 81% for CT. A significant difference was detected favoring TB for absolute risk of TS ($p = 0.003$) as well as for intensity ($p < 0.04$).

The use of the tip with attached brush showed similar bleaching efficacy to the conventional tip. However, lower TS was observed for the tip with attached brush.

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PPIC 03

EFFECT OF SURFACE POLISHING ON STAIN REMOVAL OF MONOCHROMATIC COMPOSITES

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Composite resins must exhibit color stability for clinically aesthetic reasons. Objective: The aim of the study was to evaluate the staining susceptibility of conventional and monochromatic nanohybrid composites using various dye solutions and the impact of polishing on stain removal. Method: Fifty disc-shaped specimens were prepared with a conventional (VT) and a monochromatic (VU) nanohybrid composite resins. Specimens' color was measured before and after immersion in staining beverages (coffee, tea, wine, cola, water) for 7, 14, 21, and 28 days. After 28 days, surfaces were polished with abrasive discs. The color was measured after each interval time. Data was analized by Mann-Whitney, Kruskal-Wallis, and Dunn U tests (α=5%). Results: VU showed no significant color change with beverages and after polishing ($p>0.05$). VT exhibited significant color differences between 28 days and post-polishing with coffee, and between 14 and 28 days with tea ($p<0.05$). VT displayed greater color change with coffee, tea, and wine staining; VU showed more change with wine and coffee ($p<0.05$). Conclusions: VT and VU were more susceptible to coffee and wine staining. Polishing failed to remove staining caused by beverages in both composites.

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PIC 04

INFLUENCE OF THE INCORPORATION OF FIBROUS PARTICLES ON THE ADHESION STABILITY AND PHYSICAL PROPERTIES OF AN ETCH-AND-RINSE ADHESIVE SYSTEM

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Objective: To evaluate whether the addition of fibrous particles into a two-step etch-and-rinse (ER) adhesive system influences on the physical properties and adhesion stability do dentin. Methodology: Fibrous particles were synthesized with two compositions: only polymer (PCL) and polymer+doxyclycline (PCL+DOX). The particles were characterized with morphological, chemical, and antibacterial analyses. Next, they were added (20 wt.%) in a ER adhesive (One-Step, Bisco); one aliquot without particles served as control. All adhesives were analyzed with degree of conversion (DC), optical properties, wettability to dentin, and bond strength to dentin after 24 h and one-year of aging. The data were analyzed using ANOVA and Tukey ($p<0.05$). Results: The mean diameter was similar between the PCL (32.2±23.0 µm) and PCL+DOX (30.1±19.7 µm) particles. The particles based on DOX showed antibacterial activity against Streptococcus mutans and Lactobacillus. The incorporation of particles did not change the DC and the refractive index of the adhesives, although the PCL group presented a lower translucency than the control. The PCL+DOX adhesive improved the surface wettability to dentin as compared with the control. The bond strength to dentin decreased 25.6%, 5.9% and 1% in the control, PCL and PCL+DOX groups, respectively, after one-year of water storage.

The adhesives loaded with fibrous particles contributed to the adhesion stability to dentin, especially the adhesive modified with the PCL+DOX fibers, without jeopardizing the other properties of the material.

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PPIC 05

COLOR STABILITY AND SURFACE ROUGHNESS OF RESIN COMPOSITES WITH COLOR ADJUSTMENT POTENCIAL

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Objective: The purpose of this study was to evaluate color stability and surface roughness of resin composites after 6 months aging. Materials and Methods: Disc specimens of five resin composites (Omnichroma, Vittra APS, Harmonize, Filtek Universal, Filtek Z350XT) were prepared (n=5) and stored in distilled water for 6 months. The CIELab coordinates were analyzed with ANOVA followed by Tukey's post hoc test ($p<0.05$) and Bonferroni's post hoc test ($p<0.05$). Color differences were analyzed using comparisons with 50:50% perceptibility and acceptability thresholds ($PT_{00}=0.8\Delta E_{00}$ e $AT_{00}=1.8\Delta E_{00}$). Surface roughness was analyzed with ANOVA followed by Tukey´s post hoc test and repeated-measures ANOVA and interpreted using the roughness parameter for plaque retention ($R_a=0.2\mu m$). The correlation between ΔE_{00} and surface roughness was analyzed by Pearson correlation's test. Results: The resins showed significant differences in L*, a* e b* at all time points. HAR was the only resin composite that presented stability within the L*, a* and b*over time. The resin composites presented mean color difference values above the PT limit, and UNI and FIL showed mean values above the AT. At T0, all resins, except HAR, presented mean surface roughness values below $R_a=0.2\mu m$. At 6 months, only FIL resin presented values below $R_a=0.2\mu m$. There was no correlation between color and surface roughness ($R=0.057$, $P=0.788$).

The color difference of all resins was within the AT limits for a period of 3 months. After 6 months, only FIL resin showed surface roughness below the plaque retention limit.

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PPIC 06

REPLICATION CAPABILITY OF THE DENTAL TOPOGRAPHY BY COMBINING DIFFERENT IMPRESSION AND CAST MODEL MATERIALS

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Objective: To analyze the topographic reproducibility and wettability of different impression and cast model materials compared to the tooth. Methodology: The buccal surface of bovine incisors was prepared until mid dentin exposure, followed by impression using alginate (Algi-Gel) or polyvinyl siloxane material (Scan Putty). Cast models were obtained using gypsum (Durone IV) and elastomeric die material (Scan Die). All samples (tooth, impression, and model; n=3) were evaluated for topographic analysis using Sq and Sz parameters (optical profilometry) and wettability (water contact angle). Data were analyzed using two-way ANOVA and Tukey's test ($p<0.05$). Results: Alginate showed similar wettability to dentin (23.7±5.4° × 29.9±1.4°), whereas the elastomeric material exhibited higher hydrophobicity (95.7±11.5°). The wettability of the gypsum model (29.5±10.4°) was similar to the tooth, whereas the elastomeric model differed (93.4±5.1°). Regarding topographic reproducibility, the alginate+gypsum combination resulted in rougher models (Sq = 7.01±1.68 µm) with apparent high porosity (Sz = 114.6±17.7 µm) compared to the alginate+elastomer combination (Sq = 2.78±0.11 µm; Sz = 67.1±38.5 µm), which provided a more similar copy of the tooth topography (Sq = 3.67±0.68 µm; Sz = 61.0±5.3 µm). Impression with polyvinyl siloxane material yielded cast models with topography similar to the tooth, regardless of the type of die material.

The combination of impression and model materials influences the replication capability of dental topography.

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PPIC 08

EFFECT OF VIOLET OR BLUE LED LIGHT ASSOCIATED WITH 6% HYDROGEN PEROXIDE

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The objective of this in vitro study was to evaluate the color change and hydrogen peroxide penetration in human teeth subjected to in-office bleaching with 6% hydrogen peroxide associated or not with violet LED or blue LED light sources. Forty sound premolars (n = 10) were subjected to bleaching with 6% hydrogen peroxide in a 50-minute session, with or without irradiation using violet LED or blue LED light. One group was not subjected to the bleaching treatment (control group). Color change (ΔWID, ΔEab, and ΔE00) was evaluated before and after bleaching using a digital spectrophotometer (EasyShade). Hydrogen peroxide penetration (μg/mL) into the pulp chamber was quantified using UV-Vis spectrophotometry. Color change and penetration data were statistically analyzed using one-way ANOVA and Tukey's test (α=0.05). Color change was similar among the groups for all evaluation instruments: ΔWID ($p = 0.20$), ΔEab ($p = 0.06$), and ΔE00 ($p = 0.09$). Only the control group was different from the intervention groups ($p < 0.05$).

Irradiation with violet LED or blue LED light sources did not interfere with hydrogen peroxide diffusion ($p = 0.06$). Irradiation with violet LED and blue LED light sources did not interfere with the color change and hydrogen peroxide penetration into the pulp chamber.

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PPIC 09

3rd Place Honorable Mention

DOES THE APPLICATION OF DIMETHYL SULFOXIDE IMPROVE THE BONDING PROPERTIES OF ERODED DENTINE? FOUR YEARS IN VITRO EVALUATION

Bicudo CW*, Wendlinger M, Stape THS, Tezvergil-Mutluay A, Cardenas AFM, Moreira PHA, Cordeiro DCF, Loguercio A

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Objective: To evaluate the effect of dimethyl sulfoxide (DMSO) on microtensile bond strength (μTBS) and nanoleakage (NL) of a universal adhesive on eroded dentine, immediately and after four years of water storage. Methods: Sixty-four human molars were distributed into 16 groups according to 1) dentin substrate (sound and eroded); 2) Dimethyl Sulfoxide application (with or without DMSO application); 3) Method of application (etch-and-rinse or self-etch) and 4) Time (baseline and four years). One universal adhesive (Scotchbond Universal) was used. The restoration was then performed and the teeth sectioned into resin-dentine sticks. Sticks were tested (immediately and after four years) for μTBS (0.5 mm/min) and to assess NL. Data on μTBS and NL were analyzed using four-way ANOVA and Tukey's test (α = 0.05). Results: Only the 3-way interaction "substrate vs DMSO vs time" was significant (p = 0.007). Although, eroded dentin had lower μTBS values and higher NL values when compared to sound dentine. When DMSO was applied, there was no significant decrease in μTBS or NL values after four years of storage in water, regardless of the adhesive strategies, or dentine evaluated when compared with immediate results.

Conclusion: Pre-treatment with DMSO was effective in improving and maintaining adhesion in healthy and eroded dentine, even after 4 years of water storage.

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PPIC 10

COMPARISON OF TWO PARAMETERS FOR EVALUATING THE OPALESCENCE OF COMPOSITE RESINS

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Objective. To compare two opalescence parameters and correlate with the translucency of opalescent composite resins. Methods. Discs (n=3; 1.0 mm thick) of opalescent resins: IN- Incisal (Forma, Ultradent); TR-Trans (Estelite Omega, Tokuyama); TO-Trans Opal (Empress Direct, Ivoclar Vivadent); AT- Amber Translucent, BT- Blue Translucent, CT- Clear Translucent, and GT- Gray Translucent (Filtek Supreme XTE, 3M ESPE); and two opaque resins: OP-Opaquer (Forma, Ultradent); and PO- Pink Opaquer (Filtek Universal, 3M ESPE) were evaluated. Two opalescence parameters were used: OP_{RT}, which was obtained from reflectance and transmittance using a vertical spectrophotometer (Konica Minolta), and OP_{BW}, which was obtained from reflectance over black and white backgrounds using a PR670 spectroradiometer (SpectraScan). The translucency parameter based on the CIEDE2000 color difference formula (TP_{00}) was used to evaluate the translucency of all composite resins. Descriptive statistics, Kruskal-Wallis and Dwass-Steel-Critchlow-Fligner multiple comparisons statistical tests were used (α=0.05). The determination coefficient was used to compare OP_{RT}/TP_{00} and OP_{BW}/TP_{00} values. Results. PO and OP had lower TP_{00} and OP_{BW} values, but OP had high OP_{RT} values ($p \leq 0.05$). OP_{BW}/TP_{00} showed a strong correlation ($r^2 = 0.95$; $p \leq 0.05$) and OP_{RT}/TP_{00} a weak correlation ($r^2 = 0.19$; $p > 0.05$).

Conclusion. The OP_{BW} parameter better represented the opalescence of the evaluated composite resins, when compared with their translucency values.

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PPIC II

INFLUENCE OF LIGHT-CURING UNIT AND LIGHT-CURING DISTANCE ON THE COLOR OF TWO COMPOSITE RESINS

Bordignon V*, Carniel K, Tejada-Casado M, Cardona JC, Pérez MM, Pecho OE

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Objective. To evaluate the color changes of two composite resins using different light-curing units at 0 and 8mm. Methods. The composite resin Forma (Ultradent), in two different shades (A3.5B and WB) was used. The samples (n=5) were made with a metallic matrix (2mm thick and 5mm diameter) and light cured with four different light-curing units: B- Bluephase Power Cure (High); V- Valo Cordless (Standard); EN- Emitter Now (Continuous); END- Emitter Now Duo (Continuous) at 0 and 8mm. Irradiance was measured (3x) at 0 and 8mm with a Bluephase Meter II radiometer (Ivoclar Vivadent). The spectral reflectance of the samples was obtained using a spectroradiometer (SpectraScan PR-704, Photo Research Inc.) under D65 illuminant with diffuse/0° illumination geometry. Three measurements were performed per sample and the L*, C*, and h° coordinates were calculated. CIEDE2000 color differences (ΔE_{00}) between samples at 0 and 8mm were obtained. Descriptive statistics, two-way repeated measures ANOVA and the Tukey test were performed (α=0.05). Perceptibility (PT) and acceptability (AT) thresholds were used to analyze ΔE_{00} values. Results. The light-curing unit and distance factors influenced the values of L* and C* for WB and h° for A3.5B ($p \leq 0.05$). C* and h° values were higher at 8mm for all light-curing units ($p \leq 0.05$), but not for V. ΔE_{00} values for 0 and 8mm samples were above PT for EN (WB and A3.5B) and END (WB).

Conclusions. B and V showed the best color stability between the different light-curing distances (0 and 8mm) for both composite resins.

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PPIC 12

SPECTRAL BEHAVIOR AND IRRADIANCE OF DIFFERENT LIGHT-CURING UNITS AT DIFFERENT LIGHT-CURING MODES AND DISTANCES

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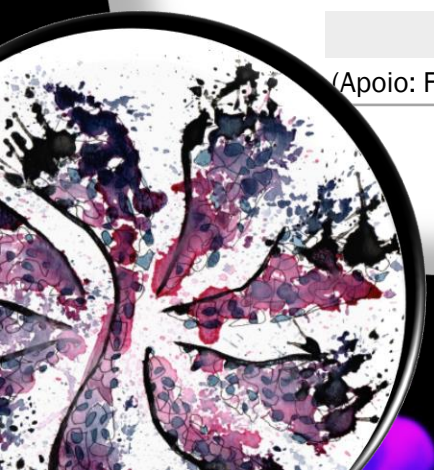
Objective. To evaluate the spectral behavior and irradiance of four different light-curing units (LCU) at 0 and 8mm using their corresponding light-curing modes. Methods. The irradiances (mW/cm2) of all modes from each LCU: B- Bluephase Power Cure (PreCure: 950; High: 1200; Turbo: 2000; and 3s: 3000); V- Valo Cordless (Standard: 1000; High Power: 1400; and Power Xtra: 3200); EN- Emitter Now and END- Emitter Now Duo (Continuous: 1250; Ortho 2300; and High: 2500) were evaluated at 0mm and 8mm of distance. Matrices for each LCU were manufactured with 3D printing composite to get a photoactivation distance of 8mm. Irradiance was measured (n=3) for each of the modes of the different LCU with the Bluephase Meter II radiometer (Ivoclar Vivadent). The spectral emission of the LCU was obtained with an integrating sphere and a detector of the illumination source. Descriptive statistics were used for the analysis and the percentage of reduction of irradiance to 8mm was obtained. Results. The irradiance measured for the different modes of the LCU at 0mm was B: 800±0.00 mW/cm2; 1013.33±4.44 mW/cm2; 1800±4.44 mW/cm2; and 2596.67±4.44 mW/cm2; V: 1050±0.00 mW/cm2; 1510±6.67 mW/cm2; 2433.33±8.89 mW/cm2; EN: 1383,33±4,44 mW/cm2; 1926.67±4.44 mW/cm2; 2533.33±11.11 mW/cm2; END: 1226.67±8.89 mW/cm2; 1800±0.00 mW/cm2; 2516.67±4.44 mW/cm2. The reduction of irradiance at 8mm of distance was 17.22-22.85% for B; 9.21-12.41% for V; 30.45-32.53% for EN; and 18.15-20.19% for END. The spectral behavior of V and B were similar.

Conclusions. Valo Cordless showed better behavior.

(Apoio: FAPERGS)



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PPIC 13

CLINICAL PERFORMANCE AND FAILURES OF RESTORATIVE TREATMENT WITH CERAMIC LAMINATES: A LITERATURE REVIEW

Padoin Y*, Corrêa GG, Pereira ICVF, Gauger ALS, Jung LB, Pellegrin S, Valduga AP, Gonçalves LS

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Ceramic laminates are a widely used treatment alternative due to the possibility of conservative preparations and satisfactory clinical results. With the objective of evaluating the clinical success and the main causes of failure, the present study reviewed the literature on ceramic laminates between 2015 and 2020. A search was carried out in PubMed, with the descriptors: Laminate Veneers, Porcelain Laminate Veneers and Ceramic Laminate Veneers , added to the case reports, clinical trials, meta-analysis, randomized controlled trial and review filters. 35 articles were located. Of these, those that did not use feldspar ceramic laminates or ceramic glass were excluded, resulting in the inclusion of 26 articles. The review of the studies showed survival rates of 100% after 2 years of cementation, up to 80% after 14 years. The three main causes of failures pointed out were: maladaptation of marginal (37%), margin pigmentation (30%), and fracture or chipping of restorations (3%).

It can be concluded that the treatment using ceramic laminates has high clinical performance and longevity, being a safe approach.

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PPIC 14

1st Place
MARIA SALETE CÂNDIDO Award

EVALUATION OF THE MICROBIOLOGICAL SUSCEPTIBILITY AND ADHESIVE PROPERTIES TO DENTIN OF PRIMERS WITH TERMINALIA CATAPPA LINN

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Objectives: Evaluate the application of a primer based on the n-butanol fraction of Terminalia catappa Linn (TCL) on the microbiological and adhesive properties of two universal adhesives. Methods: The antimicrobial and bactericidal Streptococcus mutans activities of TCL were assessed in microdilution assays by the minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC). 112 human molars were randomly assigned to 16 experimental groups (n = 7) according to the variables: (1) Treatment: Control - untreated surface, Primer contend 1xMIC, 5xMIC and 10xMIC; (2) Adhesive systems: Scotchbond Universal (SBU); and Futura Bond Universal (FBU), and (3) Adhesive strategy: Etch-and-Rinse or self-etching. Primers were applied for 60s, restaured and sectioned to evaluate the bond strength (μTBS). Three-way ANOVA and Tukey's test were used for statistical analysis (5%). Results: The application of the TCL primer at all concentrations demonstrated bactericidal action, also significantly increasing the μTBS values, regardless of adhesives and adhesive strategies when compared to the control group ($p = 0.0001$); SBU showed higher μTBS values when compared to FBU, regardless of the adhesive strategies. The addition of TCL primer did not affect the NI values for both adhesives and strategies ($p>0.42$).

Conclusion: Primers containing TCL have bactericidal action and promote improvements in the adhesive properties of the dental substrate

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PPIC 15

ENDOCROWNS AS AN ALTERNATIVE FOR REHABILITATION OF NON-VITAL ANTERIOR TEETH - A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVE: To compare through a systematic review and meta-analysis on the resistance of endocrown restorations (ENDO) to alternative techniques applied in non-vital anterior teeth. METHODOLOGY: A search in PubMed, Scopus, Web of Science, Embase, LILACS and SciELO databases was conducted using specific search strategies. The selection of articles was carried out by two independent reviewers. In vitro studies that compared the load-to-fracture of ENDO restorations with that of restorations involving alternative techniques (control) were included. Data were extracted and assessed for risk of bias (RoBDEMAT) and with meta-analysis (RevMan 5.4). RESULTS: From a total of 1237 possible titles, 7 studies were included in the review. The global meta-analysis indicated that there was no significant difference between ENDO and fiberglass post restoration ($p=0.37$), whereas in the subgroup meta-analyses, the following factors were identified relevant to favoring the ENDO technique: presence of ferrule in the tooth cavity ($p<0.001$), a minimum distance of 2 mm between the preparation cervical edge and the cement-enamel junction ($p<0.001$), type of tooth (central incisors; $p<0.001$), type of restorative material (lithium disilicate based ceramic and nanoceramic composite resin; $p\leq0.03$) and the pulp-chamber extension of the ENDO group (up to 4 mm; $p<0.001$).

Endocrown restorations have similar or better mechanical strength than other restorative systems, depending on factors related to the characteristics of the coronary remnant and the restoration itself.

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PPIC 16

Influence of light-curing unit and light-curing distance on translucency and whiteness index of two composite resins

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Objectives. To evaluate differences in translucency and whiteness of two composite resins using different light-curing units (LCU) at 0 and 8mm. Methods. The composite resin Forma (Ultradent) in two different shades (A3.5B and WB) was used. The samples (n=5) were made with a metallic matrix (2mm thick) and light cured with four different LCU: B- Bluephase Power Cure (High); V- Valo Cordless (Standard); EN- Emitter Now (Continuous); END- Emitter Now Duo (Continuous) at 0 and 8mm. Irradiance was measured (3x) at 0 and 8mm with a Bluephase Meter II radiometer (Ivoclar Vivadent). CIELAB coordinates were obtained from spectral reflectance (spectroradiometer under D65 illumination and 0° diffuse illumination geometry) and calculated over black and white backgrounds. Three measurements per sample were obtained. Differences in translucency (ΔTP_{00}) and whiteness index (ΔWI_D) between samples at 0 and 8mm were obtained. The corresponding perceptibility (PT) and acceptability (AT) thresholds were used to assess the ΔTP_{00} and ΔWI_D values. Descriptive statistics, two-way repeated measures ANOVA and the Tukey test were performed (α=0.05). Results. The LCU and distance factors influenced the WI_D values for WB and A3.5B ($p \leq 0.05$). TP_{00} values were always similar between 0 and 8mm ($p > 0.05$). ΔWI_D values were different between 0 and 8mm for WB (EN and END) and for A3.5B (EN). All differences were under corresponding PT.

Conclusions. Despite the small differences in translucency and whiteness of both resins, under the conditions of the present study, these were not perceptible.

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PIC 17

CAN SECOND AND THIRD GENERATION LEDS INFLUENCE THE HARDNESS OF RESTORED COMPOSITES? A LITERATURE REVIEW

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Hardness is an important property of restorative composites and is influenced by the polymerization process of the restorative material and is referred to as an indirect parameter of the degree of conversion of these materials. Thus, the aim of this literature review was to evaluate the influence of second and third generation light-emitting diode sources on the hardness of restorative composites. A review was carried out in the PubMed and Google Scholar databases, with the descriptors light curing, LED light sources and dental LEDs, obtaining 239 articles between the years 2010 and 2020, of which 37 articles by inclusion/exclusion criteria are part of the study. Important differences were reported in the hardness of the restorative composites tested, both at the top surface and at the bottom. However, this is related to the characteristics of the state of conservation of the LED, irradiance, activation time, emission spectrum of the devices, and compatibility with the photoinitiator present in composites. Second-generation LEDs continue to be a great option for the photoactivation of resins with high concentrations of camphorquinone in their photoinitiator system. The third-generation LEDs are effective for a wider range of photoinitiators, such as phenyl propanedione and 2,4,6-trimethylbenzoyl diphenylphosphine oxide.

Therefore, it was concluded that the monitoring of the conditions of the device and the choice of the light source with the photoinitiator of the composite to be used are essential factors to maximize the hardness of restorative composites.

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PPIC 18

IN-OFFICE BLEACHING EFFICACY VARYING APPLICATION REGIMEN: BLINDED EQUIVALENCE RANDOMIZED CLINICAL TRIAL

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This study evaluated whether there is equivalence in whitening efficacy (CE), risk and intensity of tooth sensitivity (SD) and gingival irritation (GI), aesthetic self-perception (APE) and impact of oral condition (ICB) of participants submitted to different regimens in-office bleaching by varying the number and time of application. 165 participants were randomized for this blind randomized clinical trial. Bleaching was performed with 35% hydrogen peroxide gel (Total Blanc Office One-Step, DFL) in the following regimens: two 20-min applications (2x20); one application of 40 min and (1x40); a 30 min application (1x30). EC was evaluated with a Vita Easyshade spectrophotometer and Vita Classical and Bleachedguide scales. The intensity and risk of SD and GA were recorded using the Visual Analog Scale. The APE was evaluated with the Orofacial Aesthetic Scale and the ICB with the Oral Health Impact Profile-14. Similar and equivalent EC was observed ($p > 0.48$), with no significant difference between groups when compared weekly ($p > 0.06$). The 2x20 group had a higher risk of DS (76%) than the other groups (58%). For SD intensity, no significant difference was observed ($p > 0.46$). GA was reported by 47% with no significant difference ($p > 0.44$). SD and IG were of low intensity for all groups. Significant improvement was observed for all EPA and ICB items ($p < 0.02$), with no difference between them ($p = 0.32$).

The use of a 30-min application should be considered the best technique, as it promotes EC equivalent to other interventions and reduces the risk of DS.

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PIC 19

SINGLE-SHADE RESINS: A SYSTEMATIC REVIEW FROM THE LABORATORY TO THE CLINIC

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Objectives: To present an overview of the physical and optical properties of single-shade resins (SSR). Methods: A systematic review was performed in 8 databases (Pubmed, Embase, Scopus, The Cochrane Library, Web of Sciences, BBO, LILACS, IBECS) up to February 2023. Only laboratory or clinical studies evaluating SSR were included. Data were extracted by two independent reviewers and the risk of bias analyzed using the RoBDEMAT tool. Results: Initially 5,149 studies were identified, of which 40 were included (37 laboratory, 3 clinical) with low risk of bias. Overall, shade matching was influenced by SSR composition, translucency, shade, size and depth of the restoration. SSR adapted better to different shades of substrates than conventional resins. However, when considering the limits of acceptability CIEDE and CIELab, the SSR showed a low capacity for color matching and would be more indicated for cases without great esthetic demands, such as posterior teeth.

Conclusions: Considering the heterogeneity of the included studies, SSR showed better color matching for different shades of substrates than conventional resins and could simplify the restorative technique, reduce clinical time and cost.

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PPIC 20

BONDING PERFORMANCE OF UNIVERSAL ADHESIVES TO ERODED DENTINE: A SIX-YEAR EVALUATION

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Objective: To evaluate the bond strength to microtensile (μTBS) and nanoleakage (NI) of universal adhesives on eroded dentin (DE), applied in etching and washing (ER) and self-etching (SE) strategies, immediately and after 6 years. Methods: 480 human molars were distributed into 60 groups according to the substrate (sound, eroded with coca-cola, and citric acid), adhesive protocol (ER and SE), and adhesive used: 1. All-Bond Universal (ABU); 2. Universal Ambar (AMB) ; 3. Clearfil Universal (CFU); 4. Futurabond U (FBU); 5. One Coat 7 Universal (OCU); 6. Peak Universal Bond; 7. Prime&Bond Elect (PBE); 8. Universal Scotchbond (SBU); 9. Tetric n- bond Universal (TBU), and 10. Xeno Select (XEN). Soon after, they were restored and sectioned, and tested for μTBS and NL (immediately and after 6 years). Data were subjected to 4-way ANOVA and Tukey 's test (a = 0.05), NL data were analyzed by Kruskal -Wallis and Wilcoxon Signed Rank Sum (a= 0.05). Results: There was no difference regarding μTBS and NI between the CL and AC strategies ($p>0.05$), DE presented lower values when compared to sound dentin ($p<0.005$), being worse for DE by citric acid ($p<0.007$). After 6 years μTBS values were lower and NI higher for all substrates, adhesives, and strategies ($p<0.05$), except for SBU and AMB in dentin eroded with citric acid. OCU, PUB, PBE, and XEN showed the worst results in both types of ND and assessment times ($p<0.002$).

Conclusion: The presence of 10-MDP seems to be essential for the preservation of adhesive properties in eroded dentin.

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PPIC 21

2nd Place
Honorable Mention

BLEACHING GELS USED AFTER ONE WEEK OF MANIPULATION: BLEACHING EFFICACY, HYDROGEN PEROXIDE PENETRATION AND PHYSICAL-CHEMICAL PROPERTIES

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The aim of the study was to evaluate the bleaching efficacy, the permeability of hydrogen peroxide in the pulp chamber and the physicochemical properties (concentration in the syringe, pH and viscosity) of in-office bleaching gels applied immediately and after one week of manipulation. For this, 49 premolars were divided into seven groups: control (no bleaching) and according to the bleaching gel (HP Blue 35%; Opalescence Boost 40% and Total Blanc One Step 35%) and application time (immediately and after one week of manipulation). The efficacy (ΔEab and ΔE00) was evaluated by digital spectrophotometer and permeability by UV-Vis spectroscopy. The initial concentration, pH and viscosity were measured by titration, digital pHmeter and rheometer, respectively. Tukey and Dunnet two-way ANOVA and post-hoc tests (control comparator) were applied ($\alpha = 0.05$). Higher efficacy and permeability for Opalescence Boost and Total Blanc were observed after one week of manipulation when compared to HP Blue ($p < 0.001$). The concentration of hydrogen peroxide in the syringe was lower only for HP Blue one week after manipulation ($p = 0.00001$). All bleaching gels showed a decrease in pH after one week of manipulation ($p = 0.00003$), however the Total Blanc gel showed a lower pH compared to the others for both evaluation times ($p < 0.001$).

Opalescence Boost was the only bleaching gel capable of maintaining bleaching efficacy, permeability of hydrogen peroxide and physical-chemical properties after one week of manipulation.

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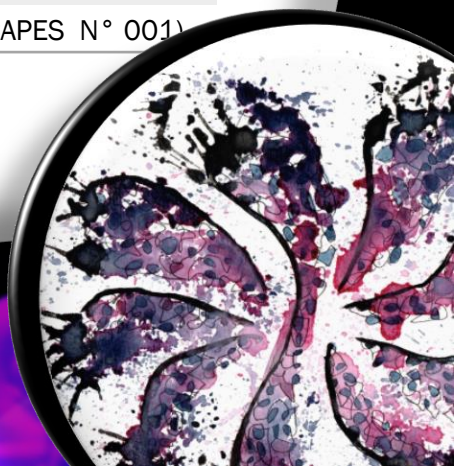

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PPIC 22

EFFECTS OF DIFFERENT BLEACHING VARNISHES: PENETRATION OF HYDROGEN PEROXIDE INTO THE PULP CHAMBER AND COLOR CHANGE

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This in vitro study aimed to evaluate the penetration of hydrogen peroxide in the pulp chamber and color change of different low concentration bleaching varnishes for home bleaching. Methods: We used 90 healthy premolars, randomized into nine groups: control (without bleaching), PolaLuminate (PL)(10 minutes), PolaLuminate (30 minutes), Viva Style Paint On Plus (VS)(10 minutes), Viva Style Paint On Plus (30 minutes), Cavex Bite&White (CA)(10 minutes), Cavex Bite&White (30 minutes) and AligerWhite (AW)(10 minutes) and AligerWhite (30 minutes). Hydrogen peroxide penetration was evaluated using UV-Vis spectroscopy and color change (ΔEab, ΔE00, ΔWID) using digital spectrophotometer (before and after 14 days of bleaching). Statistical analysis was performed using two-factor ANOVA and Tukey's post-hoc test, and Dunnet's post-hoc test (control)(α = 0.05). Results: The AW varnish (10 minutes) showed lower penetration of hydrogen peroxid compared to the other groups. SV and AC (30 minutes) showed higher penetration of hydrogen peroxide. Regarding color change, SV and AC (30 minutes) and AC (10 minutes) resulted in higher values (ΔEab and ΔE00) compared to the other groups. For the ΔWID, in all varnishes, higher values were found at 30 minutes (p = 0.04).

All bleaching varnishes showed low penetration of hydrogen peroxide and bleaching efficacy, however the responses are dependent on the time and varnish used.

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PPIC 23

CLINICAL-RETROSPECTIVE EVALUATION OF CERAMIC LAMINATES

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Objectives: The objective of this study was to carry out a retrospective clinical evaluation of ceramic veneers performed in the Undergraduate and Postgraduate Clinics of the Faculty of Dentistry of the Federal University of Rio Grande do Sul (UFRGS), using the FDI method. Methods: A survey was carried out in undergraduate and graduate dental records, resulting in 19 patients to be examined, with 76 ceramic laminates evaluated. The FDI method was used to perform the clinical evaluation. The evaluation was carried out at the Dental Hospital of the Faculty of Dentistry of UFRGS, by an examiner who was blind to the objectives of the study. Data were analyzed descriptively. Results: Of the 76 ceramic laminates evaluated, six of them failed, resulting in a failure rate of 7.89%. Failures occurred in the criteria of fracture and retention, marginal adaptation and marginal staining. The average cementation time of the evaluated laminates was 5.37 years.

Conclusion: It was concluded that ceramic laminates have a satisfactory clinical performance over time; being a safe and effective treatment when there is an indication for its realization.

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PPIC 24

ARE UNIVERSAL ADHESIVES IN ETCH-AND-RINSE MODE BETTER THAN OLD 2-STEP ETCH-AND-RINSE ADHESIVES? ONE-YEAR EVALUATION

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Objective: This study compared the bonding properties to dentin of three 2-step etch-and-rinse adhesives (2-ERAs) to those of three universal adhesives (UAs) applied with an etch-and-rinse strategy (ER), immediately and after 1 year of water storage. Methods: Sixty caries-free molars were divided into 6 groups according to the adhesive systems used (n = 10). The 2-ERA systems included 1) Adper Single Bond 2 (SB), 2) Tetric N-Bond (TB), and 3) Ambar (AM); the UAs systems were 4) Single Bond Universal (SBU) 5) Tetric N-Bond Universal (TBU), and 6) Ambar Universal (AMU). The occlusal third of each tooth was removed and the adhesives were applied. The occlusal third of each tooth was removed and adhesives were applied. After composite construction, the specimens were sectioned and tested for microtensile bond strength (μTBS) and nanoleakage (NL) immediately and after 1 year of storage in water. Results: Universal adhesives showed higher microtensile values and lower nanoleakage than etching and washing adhesives after 1 year of storage in water.

Conclusion: When compared with the previous generation, the use of UA applied with the ER strategy was more effective in maintaining adhesion to the dentin substrate.

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PIC 25

PENETRATION OF HYDROGEN PEROXIDE INTO THE PULP CHAMBER AND COLOR CHANGE OF ANTERIOR MAXILLARY TEETH SUBMITTED TO IN-OFFICE BLEACHING

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To evaluate hydrogen peroxide penetration, color change, and thickness of different groups of human anterosuperior teeth (central incisors, lateral incisors, and canines) after in-office bleaching. Thirty upper anterior teeth (n=10) were whitened with 35% hydrogen peroxide gel in a 3x15 min session. Buccal thickness (mm) was measured using radiographs. The hydrogen peroxide concentration (µg/mL) inside the pulp chamber was quantified by UV-Vis spectrophotometry. The color change (ΔWI_D, ΔE_{ab}, and ΔE_{00}) was evaluated before and after bleaching with an EasyShade digital spectrophotometer. Thickness, penetration, and color change data were statistically analyzed using one-way ANOVA and Tukey's test (α=0,05). The comparison between thickness vs hydrogen peroxide penetration was performed with Person's correlation. Thicker teeth, such as canines, showed less hydrogen peroxide within the pulp chamber than the central and lateral incisors. Although buccal thickness significantly affects hydrogen peroxide penetration ($p<0,05$), no correlations were found between the two factors. The color change was similar regardless of tooth type ($p>0,05$).

The difference in buccal thickness of the anterosuperior teeth does not interfere with the color change. However, the thinner the thickness of the buccal wall, the greater the penetration of hydrogen peroxide into the pulp chamber after in-office bleaching.

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PPIC 26

INFLUENCE OF MONOWAVE AND POLIWAVE LIGHT-CURING UNITS ON THE MICROHARDNESS AND COLOR STABILITY OF DIFFERENT COMPOSITE RESINS

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OBJECTIVES The objective of this study was to evaluate the influence OF Monowave (MW) and Poliwave (PW) light-curing units on the microhardness and color stability of composite resins containing different photoinitiators in their composition (Camphoroquinone-CQ and Lucirin-TPO) and subjected to thermal challenge. METHODS Four experimental groups (N=10) were created, standardized using a metallic matrix with a diameter of 10 mm and a thickness of 2 mm, made with resins containing different photoinitiators (CQ-Z350 3M ESPE and TPO- Direct Empress Ivoclar) and submitted to photoactivation by 20 seconds with two different light-curing units (MW-Elipar-3M/ESPE and PW-Valo-Ultradent). An evaluation of microhardness and color stability (CIE Lab) was carried out in two different locations (Top and Base) and before thermocycling. The results found were subjected to statistical analysis at a significance level of 5%. RESULTS With regard to microhardness, there was no difference between the photoinitiators, regardless of the type of photoactivator unit used and the measurement region; after thermocycling there was a significant difference, greater change for MW; the base presented lower microhardness than the top. With regard to color stability: PW allowed changing the color score of the Vita Classical scale after thermocilling.

The photoinitiator did not influence the evaluated characteristics, but the light-curing units did. The MW showed greater change in hardness (greater after cycling) and greater color stability.

25° GBPD 2023

GRAMADO - RS

01, 02 e 03 de Junho

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