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22nd Meeting GBPD

of the Brazilian Group
of Restorative Dentistry Professors

22nd Meeting **GBPD**

of the Brazilian Group
of Restorative Dentistry Professors

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Recife



“Honourable Professor Camillo Anauate Netto, President of the Brazilian Group of Restorative Dentistry Professors, I salute you as well as the authorities and participants present here in the Twenty-Second Meeting of the Brazilian Group of Restorative Dentistry Professors, beginning the activities today guided on the following theme: Innovation, technology and education!”

“In the current social-political context of our country, with reflections on all areas, it is challenging to be here to discuss about the restorative dentistry in all its dimensions by thinking upon our speciality as something beyond a cavity preparation.”

“We hope to have a meeting for aggregating knowledge, innovating speeches and transforming our future actions.”

“Everything has been zealously, carefully and dedicatedly prepared and I introduce and highlight the local organising team, here represented by Professor Paulo Fonseca (vice coordinator) and Professor Renata Guimarães (scientific committee co-ordinator), as well as the role played by our academic participants of the restorative dentistry associations of UFPE, UPE and UNINASSAU Recife.”

“We will have excellent network moments and greater interaction between research and teaching groups in order to build knowledge applicable to the daily clinical practice, teach-

ing, research and extension in this specialty which involve us and make us fascinated.”

“We will have a group of companies for you to do good and great businesses!”

“You will have leisure and entertainment during the free time, which will make you fall in love with our culture and our state!”

“The 2017 Meeting of the Brazilian Group of Restorative Dentistry Professors, affectionately known as GBPD2017, is an invitation to see old friends and make new ones, establish partnerships, close deals, update professional skills and enjoy the multicultural capital of Brazil.”

“You are all welcome!”



Professor Claudio Heliomar

Co-ordinator of the 22nd Meeting of the Brazilian Group of Restorative Dentistry Professors



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Mechanical properties of adhesive models under the action of different photoinitiators and leds

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The knowledge of adhesive behavior polymerized through LED and the generation of more effective adhesive models are necessary for the current clinical practice. The aim of this study was to evaluate the mechanical properties of experimental adhesive models with different photoinitiators (FI), polymerized by LED units of different power densities. Three groups of adhesive models based on HEMA/ BisGMA (45/55) were prepared in association with different photoinitiator combinations: GC (control) – 2 FI: 0,5% CQ, 0,5% EDMAB; G3 - 3 FI: 0,5% CQ; 0,5% DMAEMA, 0,5% DPIHP; G4 - 4 FI: 0,5% CQ; 0,5% EDMAB; 0,5% DMAEMA; 0,5% DPIHP. The three formulations were polymerized at two different power densities: 550 and 1200 mW/cm². The degree of conversion (DC) of adhesive monomers was monitored in situ through the FTIR for 600 s. Samples were prepared for each formulation for analysis of flexural strength (RF), modulus of elasticity (ME), sorption (SOR) and solubility (SOL). Data were submitted to two-way ANOVA and Tukey tests (5%). ME and RF: there were significant differences between densities, with the lowest average for 550 mW/cm². DC: there were significant differences among adhesive systems (GC < G3 < G4). SOR and SOL: adhesives polymerized at 1200 mW/cm² presented higher sorption and solubility. It is concluded that the mechanical properties of the adhesive models are directly related to the types of FI and the LED power densities.

Keywords: Dental Curing Lights; Dental Photoinitiators; Composite Resins.



Mechanical properties of composites for posterior teeth polymerized by different densities of led

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One of the main challenges in the use of composites is in combining the mechanical properties with a low curing contraction, since the marginal integrity and fractures are the main reasons of restoration failure. The aim of this study was evaluate the mechanical properties of different composites for posterior teeth, cured by LED units of different power densities. The samples were made for each composite brand: Filtek Bulk Fill (3M ESPE), Filtek P60 (3M ESPE) e Filtek Z350 (3M ESPE), standardized from a bipartited mettalic cylindrical matrix and randomly divided into two groups according to the power density used for LED curing: 550mW/cm² e 1200mW/cm². The samples were submitted to the flexural strenght (FS), modulus of elasticity (ME) and micro-hardness analysis (KHN). The data were evaluated by the tests ANOVA-2 factors and Tukey (5%). For KHN: There was a statistically significant difference between different composites ($p=0.001$), negatively affecting the Bulk Fill values, independente of light intensity. In interaction, Z350 XT showed a significant difference. For RF and ME: ANOVA didn't show significant diferences. It can be concluded that the composites properties may change depending on the intensity of light, moreover is needed to care about the different kind of composites and photoactivating units.

Keywords: Dental Curing Lights; Dental Photoinitiators; Composite Resins.



Effect of sodium fluoride associated or not with low-level light therapy in post-bleaching sensitivity: a randomized, double-blind, controlled trial

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Dentin sensitivity is the most common adverse effect resulting from bleaching treatment. More recently, the sensitivity caused by tooth bleaching has been described as the result of a reversible pulpitis inside pulpal connective tissue. The objective of this clinical study was to evaluate the efficacy of 1.1% sodium fluoride associated or not with low-level light therapy (LLLT) in the control of tooth sensitivity induced by in-office bleaching using 35% hydrogen peroxide during 4 weeks. 25 volunteers were evaluated using the split-mouth model, where the hemiarcs were randomized and later allocated in one of the experimental groups: GLASER - group treated with LLLT + 1.1% sodium fluoride (5,000ppm); and GPLACEBO - placebo-treated group + 1.1% sodium fluoride (5,000ppm). To assess dental sensitivity, a modified visual analog scale (VAS) was used associated to evaporative stimulus and a questionnaire of daily pain perception. Wilcoxon and Friedman tests demonstrated statistical difference in the incidence of pain sensitivity between the groups ($p < 0.05$) in the different evaluation periods. Teeth treated with the combination of prior LLLT and topical use of 1.1% sodium fluoride at each bleaching session, were less sensitive when compared to 1.1% sodium fluoride only.

Keywords: Fluorine; Tooth Bleaching; Hydrogen Peroxide.

Survival of teeth restored with direct composite resin in patients diagnosed with cracked tooth syndrome: a systematic review of clinical trials

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This systematic review aimed to assess the success rate and long-term survival of teeth restored with direct composite resin in patients diagnosed with cracked tooth syndrome (CTS). The review included clinical trials evaluating restoration of cracked teeth with direct composite resin (intervention group) or other restorative material (control group). The following databases were searched: PubMed (MEDLINE), LILACS, Scopus, and The Cochrane Central Register of Controlled Trials. No language restrictions were applied; final date of publication was set to July 30 2015. A total of 304 studies were first identified; of these, 13 were selected for full-text reading, and only three were finally included in the analysis. The findings of the three selected studies suggest that composite restorations are a successful treatment for teeth affected by CTS, even though long-term survival could not be determined. Difficulties involved in diagnosing the condition (i.e., late diagnosis) are the most common causes for tooth extraction. The data reported showed a low level of evidence and a high risk of bias. No evidence was found about the indication, success rate, or long-term survival of cracked teeth restored with composite resin with or without cuspal coverage. Randomized clinical trials with sufficient statistical power and high methodological quality are necessary to compare different groups of teeth and therapies and to generate sound, bias-free evidence about the survival of composite restorations in CTS.

Keywords: Composite Resins; Permanent Dental Restauration; Cracked Tooth Syndrome.



Guide for using esthetic pins in oral rehabilitation of endodontic treated anterior teeth

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The teaching-learning process in dental clinic, require elaborating tools in favor of understanding and making theoretical knowledge easily reproducible, so that contributes to improve academic formation, also reflects in benefits to society. Since the rehabilitation procedures in anterior teeth using esthetic pins involve interdisciplinary skills, the aim of this guide is developing and improving student's cognitive abilities to be able to make diagnosis, planning and executing the rehabilitation treatments according to the necessity, also providing patient's health care. The guide promotes the integration of two areas, operative dentistry and endodontics, intending to integrate health care with planning of clinical cases that presents greater esthetic commitment. Esthetic rehabilitation using prefabricated pins is a procedure that requires to the dentist, knowledge about the diversity of materials and techniques associated to their respective favorable and unfavorable characteristics, so that materials with better properties are indicated for the right specific case, assuring the treatment quality and optimizing the cost benefit to the patient. This manual was intended to collaborate with all students and teachers involved in clinical activities through a clinical protocol and schematic drawings.

Keywords: Nonvital Tooth; Dental Pins; Education.

The use of resinous infiltrate as an alternative to incipient carious lesions treatment

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The resinous infiltrate stands out as a proposal for the treatment of active incipient carious lesions, filling a previously existing porosities between noninvasive and invasive treatment of these lesions. This case report presents a conservative aesthetic resolution for active white spot lesions after orthodontic treatment. 17-year-old female patient sought for esthetic treatment. After the clinical evaluation, incipient carious lesions from tooth 13 to 23 were observed. Resin infiltrant Icon® was then chosen, conciliating conservative functional and esthetic approach. The application of resinous infiltrant was performed according to manufacturer's instructions with some modifications in relation to acid etching time. In first session, it was realized prophylaxis and relative isolation. Two appointments were necessary to reach the final satisfactory result. Patient was guided according to the caries etiologic factors and their management, following the instructions. This case demonstrated that clinical success is attributed to a correct indication of resinous infiltrate as well as follow-up etiological factors

Keywords: Dental Caries; Composite Resins; Tooth Components



Marginal microleakage using bulk fill resins: “in vitro study”

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Marginal microleakage in composite resin restorations is still one of the most common problems in restorative dentistry. The objective of this work is to evaluate the microleakage in class II restorations of three Bulk Fill restorative composites in vitro in the 24 hour, 6 and 12 month periods. Standard and distal cavities will be elaborated on dental elements that will be randomly divided into three groups: G1 (Aura Bulk Fill - SDI); G2 (Filtelk Restorative - 3M ESPE); Tetric N-Ceram Restorative (IVOCLAR); With 05 teeth each group, making a total of 15 teeth for each storage (24 hours, 06 months and 01 year), totaling 45 specimens. After the storage times of 24 hours, 6 months and 1 year, the specimens will be submitted to thermal cycling in a cycling machine (Ethics - Brazil) at a temperature of 5°C (+ 2°C) and 55°C (+ 2 ° C) for 30 seconds totaling 500 cycles. Subsequently they will be waterproofed, immersed in Basic Fucsina (0.5%) and sectioned in the mesio-distal direction for evaluation with stereoscopic 40X magnifier (Coleman), scores will be assigned from 0 to 3 according to the observed microleakage. The data obtained will be submitted to statistical analysis, the Mann-Whitney and Kruskal-Wallis tests will be applied with a significance level of 5%. Conclusion: Studies of this type are essential in dentistry for the best indication of new materials, scientifically backed.

Keywords: Microleakage; Composites Resins; Permanent Dental Restauration.

Direct restoration with bulk-fill composite resin: case report

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Recently, composite resins that have low shrinkage and low polymerization tensions have been released, the so-called Bulk-Fill composites. These are intended to offer the dental surgeon the possibility of inserting increments of up to 4 mm, making the restorative procedure faster. The objective of this study was to present, through a case report, the clinical protocol for restoration of a posterior tooth with darkened substrate using a Bulk-Fill composite resin. In order to do this, the removal of unsatisfactory restoration of silver amalgam from element 16 was carried out. Then, using a self-etching adhesive system of two clinical steps, the adhesive technique was performed to restore the cavity. Due to the darkened dentin substrate, an opacifying agent was applied to the bottom of the cavity and this was then photoactivated. The restoration was performed with a single-increment Bulk-Fill composite resin. Finishing and polishing were performed using abrasive rubbers. At the end, an aesthetically satisfactory restoration was obtained with the aid of the opacifier. In this context, the authors concluded that it is possible to perform restorations more quickly with Bulk-Fill composite resin. However, because it is an essentially translucent material, the use of an opacifying agent in teeth with darkened substrate is recommended in order to obtain an aesthetically satisfactory result.

Keywords: Microleakage; Composites Resins; Permanent Dental Restauration; Case Reports.

Evaluation of the composite resin wear after 14 years by optical coherence tomography

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The technological advances of the restorative materials result from the composite resins an option of choice to restore posterior teeth. However, in the long-term these materials can suffer wear on their structure causing damage to their indication. The objective of the present work is to analyze by Tomography of Optical Coherence or wear of resins in composite resin made 14 years ago. Twenty-one restorations were evaluated in seven patients. Each particle has three dental resins with different resins (FiltekTM resin P60 / 3M / ESPE, Surefil / Dentsply Caulk and Suprafill / SS White). These were evaluated by Optical Coherence Tomography with orientation of the initial gypsum models (after 14 years). These were placed in a device for the standardization of the positioning, filing 6mm of scanning and 512 pixels per image. Measuring the distance between the surface cavity angle and the deepest point of the central fossa (in the buccal and lingual grinding slopes). In the buccal grinding slopes, a great difference was observed between the analyzed materials ($p = 0.047$), with the average wear of FiltekTM P60, 110,60 μ m, Surefil, 180,46 μ m and Suprafill, 279,86 μ m. On the linguistic grinding slopes, mean wear of 287.73 μ m was observed in FiltekTM P60, 122 μ m in Surefil and 154.10 μ m in Suprafill, but without significant differences between the resins. Despite the abrasions presented in the materials, as resins analyzed in this study are viable alternatives to restore posterior teeth.

Approval protocol of the Research Ethics Committee of UFPE: 43327415.3.0000.5208

Keywords: Failure Dental Restauration; Composites Resins; Permanent Dental Restauration.

Evaluation of the interface of tooth bond / ceramic micro laminate by optical coherence tomography

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Ceramic micro laminates can be defined as a restorative treatment of tooth color, shape and position consisting of the application thin sheets (0.2mm to 1.5mm) of ceramic or pre-fabricated composite resin on the vestibular surface of the anterior teeth for Correction of aesthetics and dental function, with minimal wear of dental mineralized tissues. One of the concerns of this restorative modality is associated to the failure of cementation, due to the possibility of formation of air bubbles in the adhesive cementation line. The objective of the present study was to evaluate the quality of adhesive cementation of ceramic microlaminates using Optical Coherence Tomography (OCT) images, verifying the presence of air bubbles in the tooth / ceramic joint area. The cementation line of 28 micro laminates made between the years of 2013 and 2015 was evaluated. The tomographic evaluation was performed with the acquisition of three dimensional images, referring to the cervical, middle and incisal thirds of each dental element. Eighty - four sites were analyzed, of which only 12 presented images suggestive of failure, due to the presence of air bubbles, at the union interface. It can be concluded that 42.8% of the micro laminated ceramic samples showed the presence of air bubbles in the adhesive cementation line.

Approval protocol of the research ethics committee of UFPE: 49742615.0.0000.5208

Keywords: Adhesives; Dental Veneers; Dental Cements.

Characterization of the hybrid layer by confocal laser scanning microscopy

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The clinical success of adhesive restorations depends on the effectiveness and durability of the bond interface, represented by the hybrid layer, which is provided by adhesive systems. These can present different characteristics and modes of application, resulting in different ways of forming the hybrid layer. The purpose of this study was to compare effective techniques used for observation and characterization of the hybrid layer in human dentin, verifying, by the use of fluorescent markers, the microscopic morphological aspects of the hybrid layer and its interaction with the composite restorative material. Two different adhesive systems used in dentistry, Adper™ Scotchbond™ Multi-Purpose and Clearfil™ SE Bond and 2 fluorescent labels, rhodamine B and fluorescein were used. The two markers were effective in the characterization of the adhesive layer in dentin. However, the quality of the images obtained by fluorescein marker was higher than rhodamine B ones.

Keywords: Laser; Dentin-Bonding Agents; Adhesives.



Analysis of the marginal adaptation of composite restorations associated with different types of materials in proximal cavities

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Gaps can compromise the restoration due to infiltration of fluids and bacteria that can lead to the development of secondary caries. To avoid these problems, the placement of cavity liners with low elastic modulus has been indicated. The aim of this study was to evaluate the marginal adaptation, in enamel (E) and dentin (D), of flowable resin composite (flow), bulk fill (bulk) and resin modified glass ionomer cement (RMGIC) by the using the "open sandwich" technique with composite resin (CR). The study was approval Ethics Committee (21148413.4.0000.5417). Forty extracted human molar teeth were randomly assigned in eight experimental groups: E-CR, E-BULK, E-FLOW, E-RMGIC, D-CR, D-BULK, D-FLOW, D-RMGIC. The occlusal surface was planned, two slot preparations with standard sizes were created on a machine for making cavities. The teeth were restored and subjected to 2000 cyclic loading after 24h and sectioned for analysis of marginal adaptation by scanning electron microscopy (SEM). Micrographs were analyzed with the Image J program to measure the size of marginal gaps. The data were transformed into percentages ($\%GAPS = LG \div LM \times 100$) and analyzed by 2-way ANOVA and Tukey test ($p < 0.05$). The groups E-RMGIC ($p=0.001$) and D-RMGIC ($p=0$) had the highest percentage of marginal gap. Others groups showed similar percentage of marginal gap ($p > 0.05$). It was concluded that restorations with flowable composite resin liner or not exhibits the same behavior, but RMGIC increased marginal gap.

Keywords: Failure Dental Restauration; Composites Resins; Permanent Dental Restauration.

Cytotoxic potential of resin cements in murine macrophages cell culture: in vitro study

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The biocompatibility of resin cements is a very important factor, since they remain in contact with the tissues for an extended period of time and should not damage the surrounding tissues. The objective was to evaluate in vitro the direct cytotoxic effect of extracts obtained from resin cements on cultures of macrophages cells, evaluated at different exposure times. Allcem core (FGM), Allcem veneer (FGM), eCement (Bisco) and Panavia Plus (Kuraray) cements were used. Disks measuring 4 mm in diameter by 2 mm thickness were prepared for each material and immersed in culture medium (DMEN) for 24 hours to extract the extracts. The resulting extracts were applied to the macrophage culture for 24h, 48h and 72h. Cell viability was assessed by MTT assay. Data were analyzed using Friedman and Kruskal Wallis tests ($p = 0.05$). All cements presented increasing values of toxicity according to the evaluation times, respectively: 24, 48 and 72 hours. Thus, it can be concluded from this study that all the materials studied have a cytotoxic potential, which has increased with the evaluation period.

Keywords: Dental Cements; Macrophages; Cell Culture Techniques.



Effect of brushing dentifrices on dental enamel: clarification and microdure analysis

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The incessant search for the perfect smile becomes a focus on the current modernity, favoring the use of bleaching substances outside the professional scope, and it is necessary to evaluate them in order to provide shelter and efficacy to the stomatognathic system. The objective of this study was to analyze in vitro the effect of brushing with bleaching dentifrices, composed of different abrasives or peroxides, on bovine dental enamel, investigating bleaching and microhardness. 120 blocks of bovine enamel were prepared, 60 for color evaluation and 60 for microhardness. They were randomly distributed into 6 groups: G1-ideionized distilled water (negative control); G2-Colgate Total 12 Whitening®; G3-Rembrandt Deeply White®; G4-Rembrant Intense Stain®; G5-PeroxyCare®; G6-CompleteCare®. The color / staining and microhardness evaluations were performed before brushing and afterwards with 5,000 cycles, 10,000 cycles and 15,000 cycles of brushing, in a sham brushing machine. The data were submitted to analysis of variance 1 factor (ANOVA) and any differences were analyzed using the Tukey test with significance of 5%. Groups G3, G4, G5 and G6 presented the highest bleaching potential. Regarding microhardness, the G3 and G6 groups showed higher and lower surface hardness, respectively. Thus, there is an equivalence in the bleaching potential of distinct dentifrices, while there is significant discrepancy about the superficial microhardness of the enamel.

Approval protocol of the research ethics committee: 020/2013

Keywords: Dental Enamel; Toothpastes; Tooth Bleaching.

Analysis of the mechanical properties of insulation resins in bulk assessed after simulated aging

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To attend the demand for faster and easier procedures, a new resin-based composite material class, the bulk-fill resins, has been introduced in the past few years. The aim of this work was to evaluate hardness and roughness of four bulk fill resins. Vickers hardness (VHN) and roughness (Ra) of Aura Bulk Fill (SDI)-AB; Filtek Bulk Fill (3M Espe)-FB; Tetric N-Ceram Bulk Fill (IvoclarVivadent)-TN and X-tra Fill (VOCO)-XF were measured 24 hours after photopolymerization (37 °C, 100% humidity) and after thermal cycling (CT), 500 cycles, 50C / 550C. The data were evaluated using the independent samples t test and ANOVA complemented by the Tukey post hoc test ($p < 0.05$). Thermal cycling significantly increased the roughness of the TN ($p = 0.003$) but did not have a significant effect on the other composites tested ($p > 0.05$). Thermal cycling reduced VHN, but there was no statistically significant difference between the composites analysed ($p > 0.05$). The bulk-fill resin composites analyzed showed satisfactory and similar Ra and VHN values to conventional resins.

Apoio: CNPq N° 116109/2015-7

Keywords: Composites Resins; Permanent Dental Restoration; Failure Dental Restoration.

Evaluation of maintenance protocol and light intensity of light curing units in the city of Recife

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The aim of study is evaluate the intensity of light curing equipment used in the Recife city clinics and maintenance performed on these devices. The professionals participated in the evaluation voluntarily and were not identified in the questionnaires that were answered by them. He was asked about the disinfection methods, the frequency of changing bulbs and the technique often employed maintenance. It also promoted the evaluation of the curing light recording the information on the make, model and date of purchase. Measuring the light intensity using a radiometer it was performed. All light curing units were light intensity with less than 300mW / cm²; 96.7% of professionals performed the servicing of your appliances only when necessary; 100% exchanged the lamp only when it burned, 40% of light curing units found themselves attached to equipo; 86.6% of the debris had apparatus in the optical fiber; 50% of filters had fractures, 86.66% of them had debris; 60% of professionals employed only 70° alcohol as disinfection method; 53% of respondents performed the disinfection method after each patient. All light curing units were evaluated with light intensity below the recommended and and there was no existence of a protocol of periodic preventive maintenance of the lights curing equipment.

Keywords: Dental Cure Light; Light-Curing of Dental Adhesives; Light.



Smile harmonization using btxa

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A pretty smile involves a harmonious relation of tooth, gum, lip and face. Considering this aesthetic smile harmonization, the upper lip should touch the upper central incisors gingival margin's. Gingival exposure's > 3mm is considered an aesthetic problem defined as "gingival smile". It can be related to the upper lip musculature hyperactivity. The use of botulinum toxin A (BTXA) is a simple, non-surgical and minimally invasive treatment alternative. The aim of this study is to report a clinical case of BTXA used for correction of gingival and asymmetric smile due to unilateral muscular hyperactivity. A 25-year-old female patient arrived at the CPO-FACSETE Recife-PE Dentistry Specialist Clinic, complaining of an asymmetrical gingival smile and seeking aesthetic rehabilitation treatment. Anamnesis, clinical examination, radiographic exams, photographs and videos, was done to base the treatment planning. It was proposed to be performed a previous application of BTXA for the control of left unilateral muscular hyperactivity presented and gingival smile correction. The applications were performed in 02 moments: T1 = initial and T2 = 15 days, total of 10U BTXA (Botulift/ Bergamo) unilateral. After 30 days the final positive result obtained could be checked. It was concluded that, the BTXA indication was presented as a valid alternative, with a natural and temporary effect, to correct the gingival and asymmetric smile due to muscular hyperactivity.

Keywords: Esthetics; Botulinum Toxins Type A; Smiling.

Evaluation of the effectiveness of supervised homemade teeth whitening x unsupervised homemade teeth whitening over enamel's microhardness

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This study aims to evaluate the effectiveness of supervised home teeth whitening x unsupervised home teeth whitening over enamel's microhardness. 100 blocks of bovine dental enamel were divided and used to evaluate color and microhardness as well. Each group was subdivided into five groups (n = 10) according to the treatment applied: Artificial Saliva (AS); Whitening gel Whiteness Perfect 22% (WG); Whitening strips 3D White Whitestrips (WS); Whitening toothpaste Rembrandt Deeply White (WT) and Mouthwash Plax Whitening (M). Three color evaluations were carried out through a spectrophotometer in the following times – Initial: before the baseline; Intermediate: after staining and Final: after bleaching. The microhardness was evaluated through a microdurometer before and after bleaching. Regarding color, the results showed that after the experimental stage the WG, WS and M groups differed from the others, but did not present any statistical difference between each other ($p > 0,05$). Regarding microhardness, there was a difference between the experimental groups after bleaching. Based on the data obtained, it can be concluded that the dentifrice presented no bleaching action, whereas the gel, the tape and the mouthwash were effective as bleaching agents. However, gel and tape treatment promoted a significant reduction in surface microhardness.

Approval protocol of the research ethics committee: 028/2014

Keywords: Esthetics; Enamel; Tooth Bleaching.

Thermal stability and description of bulk fill resins' inorganic matrix

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In an attempt to speed up the restoration process by enabling up to 4 or 5 mm thick increments to be cured in only one step and thus skipping the time-consuming layering process, a new resin-based composite material class, the bulk-fill resins, has been introduced in the past few years. Bulk fill resins were studied by thermal analysis (TGA), X-ray spectroscopy by energy dispersion (EDX) and Scanning Electron Microscopy (SEM). Aura Bulk Fill-AB; Filtek Bulk Fill-FB; Tetric N-Ceram Bulk Fill-TN e X-tra Fill-XF were analyzed. Thermal decomposition and filler percentage (cured and uncured resins) were analyzed by thermogravimetry (TGA) heating the resins from 20°C to 900°C at the rate of 20°C/min with a nitrogen flow of 50mL/min. Scanning electron microscopy images and X-ray spectroscopy by energy dispersion were used to identify composition, size and morphology of fillers. Thermogravimetric curves showed that the thermal decomposition temperature was variable and can be ranked as follows: XF>TE>FB>AB. Structural appearance of the fillers by SEM images after the washing technique showed a mix of irregular shaped and small round particles for both AB and XF. FB showed spherical particles and a uniform surface was observed in TN. EDX analysis showed that some chemical elements from organic phase disappear after washing technique and comparing both analyses some other elements were reduced (%). It was possible to find C, O, Ba, and Si in different concentration levels in AB, TN e XF resins. C, O, F, Si, Zr and Yb were identified in FB. It was concluded that XF presented greater resistance to thermal decomposition compared to AB, TN and FB.

Apoio: CNPq N° 116109/2015-7

Keywords: Composites Resins; Permanent Dental Restoration; Failure Dental Restoration.

Influence of solutions with pigmentation potential on the effectiveness of dental clarification with carbamide peroxide 22%

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With increasing demand for aesthetic standards in today's society, odontology advances in minimally invasive therapies, such as tooth whitening, being a conservative alternative for most treatments about dental dyschromia. The objective of this study was to evaluate the influence of solutions with potential of pigmentation on the efficacy of tooth whitening with 22% carbamide peroxide during the bleaching process. 70 fragments of bovine teeth were subjected to whitening with carbamide peroxide 22%, 1 hour / day, and were posteriorly submerged in seven different types of solutions for a period of 5 minutes, 2x / day. G1 - distilled water; G2 - coffee; G3 - cola drink; G4 - black tea; G5 - red wine; G6 - milk chocolate drink; G7 - shoyo sauce. The color coordinates L^* , a^* and b^* of the specimens were measured with the spectrophotometer before and after the treatments (1st and 14th day). The data were annotated and submitted to ANOVA 1 factor and Tukey's test with significance of 5%. The evaluation of the total color change before and after immersion of the specimens showed statistical differences between the G4, G5 and G6 groups when compared to the G7 group ($p < 0.05$). Thus, all solutions with high pigmentation potential were able to stain the specimens during bleaching treatment. The substances used in groups G2, G3 and G7 presented the supreme interference with higher pigmentation.

Approval protocol of the research ethics committee : 018698/2011-21

Keywords: Tooth Bleaching; Esthetic; Tooth Bleaching Agents.

Evaluation of conversion degree and depth of cure of insertion resins in bulk

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This study evaluated degree of conversion (DC) and depth of cure of four bulk-fill composite resins. Degree of conversion of Aura Bulk Fill (AB); X-tra Fill (XF), Filtek Bulk Fill (FB), and Tetric N-Ceram Bulk Fill (TN) resins was assessed by Fourier transform infrared spectroscopy 24 h after light curing. Immediately after light curing, depth of cure was measured (ISO 4049 method). The data were analyzed by ANOVA and Tukey post hoc test ($p \leq 0.05$). For irradiated and non-irradiated surfaces, FB showed the highest DC value compared with the other composites used in this study ($p=0.000$). There was no significant difference between TN and XF ($p=0.506$) or between AB and TN ($p=0.340$). All resin composites showed a depth of curing >5 mm with no significant difference ($p=0.919$). After assessment of depth of cure and DC, we concluded that the performance of four bulk-fill composite resins was satisfactory, equivalent to conventional composite resins, making them suitable for clinical use in cavities up to 6-mm deep.

CNPq N° 116109/2015-7

Keywords: Composites Resins; Permanent Dental Restoration; Failure Dental Restoration.



Spectrophotometric evaluation of dental clarification under orthodontic bracelet found with different materials

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The aim of this study was to evaluate the effectiveness of tooth whitening under orthodontic bracket cemented with different materials. One hundred blocks of bovine enamel were divided into two groups, office bleaching and home bleaching. Office bleaching was subdivided into five (n=10): HP(control-without brackets); SA(t)-brackets bonded with Transbond XT, without bleaching; SA(fm)-brackets bonded with Magic Orthodontic Fill, without bleaching; HP(t)-brackets bonded with Transbond XT subjected to bleaching and HP(fm)-brackets bonded with Magic Orthodontic Fill submitted to bleaching. Home bleaching followed a detailed description for office bleaching by replacing only one bleaching agent. Color evaluations were performed through a spectrophotometer at the following established times: 1) before the baseline; 2) after black tea staining and 3) after bracket cementation and bleaching procedures. Data were submitted to ANOVA (1 criteria) and Tukey's test ($p < 0.05$). It was observed: although the experimental groups did not reach the same color variation as the positive control groups, they provided a bleaching action; the cementation of the Bracket with Transbond XT adhesive allowed a greater dental whitening when compared to the Orthodontic Fill Magic in both the Home bleaching as in the office bleaching. Concluded that the orthodontic bracket fixation impaired the effectiveness of the home and office bleaching treatment, independent of the resin user for bond.

Keywords: Tooth Bleaching; Tooth Bleaching Agents; Adhesives.

Occult caries or fluoride syndrome– clinical case report

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The prevalence and incidence of caries in Brazil has been gradually declining in recent decades, This translates into a significant reduction in the DMFT index. Among the several factors that contributed to this, fluoride should be singled out. As, the fluoride present in the dentifrice and in the water supply contributes significantly to this reduction. However, it has been linked to the emergence of a new type of caries, called occult caries or fluoride syndrome, Which seem to be related to the presence of scarring as well as narrow and deep fissures in the occlusal face of premolars and molars, associated with hypermineralization of the enamel. This paper aims to report on a case of a occult caries, as well as to describe the related characteristics. Patient C. V. N 16 years of age, sought a Dentistry clinic at Paulista University, for a preventive measures exercise. During the clinical examination, no carious lesions were found, but during the radiographic examination the presence of an extensive carious lesion was found in tooth 35, being initiated by the occlusal face, but the occlusal enamel was intact. It was decided to perform a cavity preparation, removing the carious tissue, isolating the tooth absolutely and restoration with composite resin. Due to the difficulty of visualizing this type of carious lesion with only the clinical examination, interproximal radiographs for young patients who are starting a new treatment are necessary.

Keywords: Case reports; Dental Caries; Diagnosis.



Action of clearing agents with and without calcium on dental enamel

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Due to the growth of esthetic procedures involving dental bleaching, it is necessary to evaluate different bleaching agents. This paper aimed to assess the efficacy of bleaching with hydrogen peroxide with and without calcium on the dental enamel, as well as the deposition of the calcium present in the bleaching gel on the dental enamel. 30 blocks of bovine enamel (5.0mm x 5.0mm) were used to form the G1- Control groups; G2- 35% Calcium Hydrogen Peroxide Gel (Whiteness HP Maxx - FGM) and G3- 35% Hydrogen Peroxide Gel with Calcium (Whiteness HP Blue - FGM). Color evaluations were performed at baseline; After staining and after application of bleaching agents. Calcium deposition on dental enamel was evaluated before and after the application of bleaching agents in X-ray Energy Dispersive Spectrometry (EDX). An analysis of the enamel surface was performed in the scanning microscope. Data were submitted to analysis of variance (ANOVA) 1 factor and any differences were analyzed using the Tukey test ($p < 0.05$). The G3 presented higher total color variation after the experiment and there were no significant statistical differences in the calcium and phosphorus concentrations before and after the procedures. Morphological changes were found in G2 and G3. In this way, it can be concluded that the G3 had a higher bleaching potential and the addition of calcium had no efficacy in the reduction of morphological alterations and in the increase of calcium concentrations on the enamel surface.

Keywords: Dental Enamel; Tooth Bleaching; Tooth Bleaching Agents.

Implementation of a blended-learning model for the pre-clinical teaching of dentistry

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The pre-clinical teaching activities of Dentistry at the Faculty of Dentistry of UFMG begin in the discipline Fundamentals of Restorative Dentistry. The practical content is performed in laboratory by using simulators to develop the technical skills prior to clinical care. The aim of this work is to present a new methodology of blended learning (face to face and distance learning) applied on this discipline. To guarantee both the learning and the training of the technical skills, a new methodology of student-centered teaching was implemented aiming at an active, autonomous and permanent learning. For the implementation of the blended-learning model, the use of information and communication technology was necessary. The modernization of the laboratory with TV sets, tablets, interactive whiteboard and the acquisition of audio and video resources enabled the recording of didactic videos. By doing so, the students can watch all the procedures to be performed by them and the videos are available during the practical lesson as well. A virtual learning environment was developed containing interactive material. The student can access the script of practical classes, theoretical content, list of instruments, exercises, bibliography and the didactic videos. The implemented technologies strengthened and consolidated the necessary knowledge for clinical activities, resulting in a better use of the discipline, allowing the student greater autonomy and flexibility in the learning process.

Apoio financeiro: PIQEG

Keywords: Education; Educational Measurement; Learning.



Gamification as a teaching strategy in the discipline of dentistry of the catholic university of Brasilia (UCB-DF): two-year experience report

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In the last decades we have experienced a revolution in communication and information distribution, with direct repercussions on the way we teach and learn. Access to specific information is no longer a privilege of teachers and the students does not learn in the same way. Merely access to information is no longer a source of motivation, since a simple click is enough to achieve it. We are facing a generation that needs new challenges that motivate it to learn, and in this context, the discipline of Operative Dentistry at UCB-DF has been working, in the last two years, with the use of games as didactic strategy in some of its classes. Gamification is a set of methods that bring together some of the characteristics of games, such as the embodiment of the actors, the establishment of rules, short-term goals and concrete rewards. In education, the intention is to arouse interest in content by encouraging collaboration, critical reasoning, research and communication. The objective of this paper is to report the experience of the Operative Dentistry discipline of UCB-DF with the use of gamification as a teaching strategy, with the support of online and offline tools such as Keynote®, Kahoot® and Puzzle-Maker®. Gamification has increased the engagement of our students, has tightened the relationship with teachers and monitors and has directly contributed to a greater meaning of learning, with direct effects on the clinical performance of students in the area of Operative Dentistry.

Keywords: Education; Educational Measurement; Learning.



INVERTED CLASSROOM - USE OF VIDEO LESSONS IN THE DISCIPLINE OF DENTISTRY OF THE CATHOLIC UNIVERSITY OF BRASILIA (UCB-DF): FOUR-YEAR EXPERIENCE REPORT

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The access to a large amount of information associated with the intense communication speed, characteristics of the internet, had a definite influence on the learning process of this current generation of students. The university professor, to our understanding, should migrate from the condition of transmitter of knowledge to moderator of discussions. However, for effective discussions to take place within the classroom, it is necessary for the student to bring prior knowledge about the subject, which has raised doubts and, consequently, aroused their interest in solving them. A video resource that can meet this demand is video, YouTube (Google Inc.) being the main tool of this modality on the internet. In this context, the team of Operative Dentistry of the Catholic University of Brasília (UCB-DF) adopted, in February 2013, the strategy of producing and publishing short video lessons about the topics covered in the graduation, whose visualization is indicated before each classroom. The classroom has turned into a debate environment, becoming the standard for the discipline. The objectives of this study are to share this experience and present possibilities of working with this tool in the sphere of graduation and with the dental community. The use of YouTube has shown to be a resource of simple use and able to modify the dynamics of the theoretical classes, increasing the motivation and the involvement of the students.

Keywords: Education; Educational Measurement; Learning.



Glass-fiber post effect in the biomechanical behavior of teeth with composite resin direct veneers

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Endodontically treated teeth with restorative treatment have fracture risk increased. Glass-fiber post (GFP) can reduce this risk, improving tooth properties. Despite this, there is no consensus in literature related to the use or not of GFP. Finite element analysis (FEA) allows to evaluate biomechanical behavior of structures by numerical models. The aim of this study was to analyze through FEA the biomechanical behavior of teeth with endodontic treatment (ET), and resin composite veneer (RCV), presenting or not GFP. A previously validated tridimensional model of endodontically treated maxillary central incisor constituted by enamel, dentin, periodontal ligament, medullar bone, cortical bone, resin cement, glass-fiber post, gutta-percha and composite resin veneer was used. Six models were designed, 3 presenting ET, RCV in 3 different thickness (0.5mm, 0.7mm and 1mm), and no GFP. The other 3 models presented GFP, ET and RCV in thickness previously described. Solids were exported to ANSYS software and received a load of 100N on the lingual surface. Contacts were bonded, and the structures were considered isotropic, linear elastic, and homogeneous. Models with GFP had better stress distribution in the veneers. 0.5mm and 1mm veneers had higher stress concentration. Stress concentration was similar in the other assessed structures, regardless tested models. It was concluded GFP use and veneer thickness can influence the stress concentrating on veneer structure.

Keywords: Nonvital Tooth; Dental Pins; Composite Resins.

Microabrasion and dental whitening for aesthetic restoration of the smile

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The search for dental cosmetic procedures associated with the incidence of changes in enamel surface contributed to the emergence of minimally invasive techniques in order to solve these cases. Objective: To present a clinical resolution by associating the bleach treatment with microabrasion for removal of staining caused by fluorosis. Case report: To reverse cosmetic changes caused by staining of enamel, was chosen by the association of microabrasion, where we used a pumice paste and 37% phosphoric acid gel (three sessions of eight ten seconds applications each) with office bleaching (two sessions), wherein hydrogen peroxide Whiteness HPMaxx (FGM) at 35% was the choice agent. Results: We observed successful combination of the techniques mentioned in restoring the smile esthetics. Conclusion: Since well planned, according to the etiology, intensity of discoloration and depth of the lesion, the application of microabrasion and tooth whitening is a viable option in the treatment of enamel stains.

Keywords: Esthetics; Tooth Bleaching; Enamel Microabrasion.



Clinical techniques for smile mock-up

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While planning aesthetic smile treatments the possibility of predicting the final result have a great relevance both for professional and patient. In this scenario, the mock-up (full-scale planned smile model) is essential for the communication with patients and the ceramist, during the elaboration of the final work. Such as well as facilitate the Dentist to predicting the dental wear pattern in aesthetic smile rehabilitations with ceramic laminates. The aim of this work is to describe in a comparative way, 03 techniques for performing mock-up, from the diagnostic waxing, emphasizing its advantages and limitations. Three patients who had smile aesthetic rehabilitation with ceramic laminates had their mock-ups made with bisacryl resins, by different types of guides: 1) Heavy condensation silicone guide; 2) Heavy and lightweight condensation silicone guide; 3) Acetate guide. After accomplishment of these, a parallel can be drawn to the time spent, practicality, reproducibility of the planned waxing, excesses removal, cervical adaptation and superficial smoothness. Technique 3 allowed a better excesses removal, but it spent more time to make the guide; Technique 2 allowed a better cervical definition and better smoothness appearance. In conclusion, all of the techniques employed, successfully achieved the purpose of the smile model, allowing the patient to choose the any of the proposed treatment.

Keywords: Esthetic; Smiling; Case Reports.

Can violet led whitening without gel obtain satisfactory results? clinical case report

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Popularity in dental bleaching has influenced many patients to search for this esthetic treatment. However, not everyone can benefit from this treatment due to contraindications in the use of whitening gels, such as with patients with a history of cancer, young patients, and when erosion and/ or dental abrasion are present. Bright Max Whitening (MMOptics) is a light source based on 4 violet LEDs and has the advantage of use without whitening gels. The present clinical case report presents a young male patient, 12 years old, who attended the clinic of Operative Dentistry of the Bauru School of Dentistry, USP, complaining of darkened teeth, inspite of presenting coloration B1. After evaluating the orofacial composition based on skin color, the decision to proceed with dental bleaching was made. Therefore, the use of the Bright Max Whitening without bleaching gel was performed with the following protocol: 2 consecutive cycles of 30 minutes each in the same session (10x2 minutes of light activation and 10x1 minute of interval), obtaining the color M1. After 24 hours, the patient was evaluated and the color was M1.5. After 7 days, a second session was proposed following the same protocol performed as the first session, obtaining the final color of M1.0. In conclusion, the patient reported no sensitivity, any hard and soft tissue damage and was satisfied with the results. This device can be quite promising, especially for cases of contraindications for the use of bleaching gels.

Keywords: Tooth Bleaching; Esthetic; Light.

Use of digital applications in favoring the teaching-learning process

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According with new profile of students in classroom, who are connected to different types of digital media, it is important to break the traditional lectures and seek new ways to access current students with use of these technologies. The aim of digital application use is to provide the student a complement of learning using digital media. From the teacher's class, an application was developed containing information in video about the class taught, guidelines in form of figures or photographs, and at the end, the student should apply the knowledge acquired by performing some exercises that bring him closer to clinical practice. In the application to be presented, there is a video demonstration of Class IV restoration using silicone guide, applied in discipline of Preclinical Operative Dentistry, and some information regarding the topic in question and then the student is led to simulate and perform situations related to the lesson. When performing the exercises, feedback is presented to the student; with this he will fix the content through the simulations, beside the possibility to watch the procedure again, from any place and time him wish. The knowledge acquired only in theoretical class is not sufficient for the student to reach a level of excellence, thus use of digital media facilitates this process, since the digital applications are a learning tool that can also reduce the distance between teacher/student/classroom.

Keywords: Education; Educational Measurement; Learning.

Effect of saliva contamination on the bond strength to dentin

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Evaluate the effect of saliva contamination on the dentin/composite resin interface treated with 0.2% chlorhexidine after 24 hours, 6 months and 12 months. The teeth (n=80) were randomly divided into 8 groups: Adper Single Bond - SB or Scotchbond Multipurpose - MP (control): no contamination, no chlorhexidine; SB-S or MP-S: saliva contamination, no chlorhexidine; SB-Chx or MP-Chx: no contamination, with chlorhexidine; SB-S-Chx or MP-S-Chx: with contamination, with chlorhexidine. After restorative procedures with Filtek Z250, the teeth were stored in water at 37°C for 24 hours prior to be cut into beams for the microtensile test performed. The microtensile bond strength was subjected to 4-way analysis of variance (ANOVA) with significance level of 5%. The bond strength mean values (MPa±sd: Immediate/6 months/1 year) were: SB (17.6±3.61; 19.5±5.46; 26.5±5.4); SB-S (15.9±5.71; 17.7±2.46; 21.8±4.1); SB-Chx (13.6±3.35; 18.7±3.89; 23.6±7.7); SB-S-Chx (15.8±3.47; 19.6±5.31; 24.1±5.0); MP (13.3±4.42; 20.7±4.09; 23.7±8.0); MP-S (12.4±3.34; 16.4±4.58; 22.2±6.2); MP-Chx (14.1±4.43; 18.9±4.33; 22.6±8.3); MP-S-Chx (11.9±2.16; 15.0±4.01; 20.9±4.9). Saliva contamination did not affect the bond strength of the dentin/composite resin interface (treated or not with 0.2% chlorhexidine) for both adhesive systems tested after 24 hours. However after 6 months and 1 year the bond strength of the contaminated specimens decreased.

Approval protocol of the research ethics committee Faculdade de Odontologia de Bauru -USP: CAAE 06726812.8.0000.5417

Keywords: Adhesives; Dentin-Bonding Agents; Composites Resins.

Restoring the smile - clinical case

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Currently, the demand for dental treatment isn't limited to painful situations or functional rehabilitation. The restoration of oral health also implies returning an aesthetically harmonious smile. Changes such as dental trauma, ranging from a simple enamel fracture to tooth loss, can alter the patient's well-being. Considering the teeth in general, the upper central incisors are those that dominate the patient's appearance, and are responsible for the first impression caused by an individual. Patient, KSC, female, 26 years old, sought the Integrated Clinic 1 of the UFPE Dentistry Course, for aesthetic restorative treatment, where the clinical examination showed the presence of a class IV restoration that was poorly adapted in element 21. The periodontal procedures and prophylaxis were performed, followed by a guide with silicone of addition that allowed the preparation of a restoration in a composite resin similar to the previous one, allowing a better acceptance by the patient. The objective of this study was to demonstrate the indications, contraindications, sequencing and benefits provided by direct aesthetic restorations through a clinical case. The use of composite resins has become one of the alternatives most used by dentists because they are simpler, more conservative and less costly.

Keywords: Esthetics; Adhesives; Composite Resins.

Effect of dentin moisture and application mode of universal adhesives on the adhesion of glass fiber posts to root canal

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The cementation of glass fiber posts is a highly complex process. To prevent bonding failures, some strategies have been proposed, such as the vigorous application of the adhesive systems and the management of dentin moisture. The objective of this study was to evaluate the effect of the dentin moisture and application mode of adhesives on bond strength (BS) and nanoleakage (NL) of fiber posts bonded to root dentin. Ninety-six fiber posts were cemented according to the combination of the following factors: dentin moisture [dry (D) and wet (W)], cementation system [Single Bond Universal/RelyX ARC (SB) and Prime&Bond elect/Enforce (PB)] and adhesive application [active (A) and passive (P)]. The specimens were transversely sectioned into six 1-mm thick discs. From each group, 8 specimens were subjected to the push-out BS test and the others 4 to the NL test. For both tests the data were subjected to 3-way repeated measures ANOVA and Tukey's tests ($p < 0.05$). For BS and NL, the cross-product interaction of all factors was significant ($p < 0.05$). Lower BS was observed under P application independent of the dentin moisture; for A application, SB showed higher BS values than the PB in both moisture conditions. The NL was present in all groups. The active application of universal adhesive systems improves the adhesion, independent of dentin moisture condition.

This project was approved by the protocol 773.119 from the Research Ethics Committee.

Keywords: Adhesives; Dental Pins; Nonvital Tooth.

Restorations with bulk-fill resin-based composite in non-collaborative patients: case report

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The odontological materials have suffered innovations for enable procedures restorers with better aesthetic results, speed in service and longevity clinic. In this context, the composites bulk-fill suffered modifications in their monomers, reducing the voltage of contraction without causing wear and reduced resistance. Have the same technology of nanoparticles resins, but, with the addition of the monomers methacrylate, which reduce the factor C and allows its use in a single increment, becoming a simple technique, accessible and innovative. The objective of this study is, by means of case reports, denote the clinical relevance and practicality of the technique of composite bulk-fill of increment unique in non-collaborative patients in pediatric dentistry (NCPPD). The patients were randomly selected at the clinic-school of the Tiradentes University Center (UNIT/AL). After history taking, clinical examination and radiographic, ran the protocol restorer, with cavitory preparation and removal of carious tissue, conditioning acid the cavity, adhesive system simplified, application of increment single of 4mm of the resin (Filtek Bulk Fill Flow - 3M ESPE), photopolymerization during 20' and the application of composite resin conventional how last layer, according to the manufacturer. The use of composite Bulk-Fill in NCPPD proved to be an option of excellence, since allowed celerity restorative, contributing to the execution and efficiency of clinical technique.

Keywords: Case Reports; Composite Resins; Permanente Dental Restauration.



Technique semi-direct in rehabilitation aesthetics-functional of posterior teeth with composite resin: clinical case

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The cosmetic dentistry has advanced considerably through its materials and techniques, showing remarkable evolution of physico-optics of composite resins direct, enabling restorations with a high degree of naturalness. The restorative technique semi-direct was developed as a method intermediary of indirect restorations, especially in posterior teeth, allowing prepare conservative, higher dimensional stability, reducing the factor C, better adaptation to marginal and lower cost, by deleting the steps laboratory, allowing excellent prognosis. The objective of this study is to demonstrate through a case report, the efficiency rehabilitation of restorations semi-direct (onlay) on the element dental 46, featuring wide destruction coronary artery. Patient R.B.H.T., 24 years old, male gender, sought dental care reporting pulpitis irreversible in the tooth 46. Performed the endodontics. After preparation cavity and stabilize of the cavity, molding with alginate (Zhermack), obtaining model semi-rigid with the silicone of adding fluida (Express-3M), soon after the confection (extra oral) of the workpiece with composite resin (Empress Direct-Ivoclar), being post-cured in microwave and subsequently submitted to finishing, polishing and cementation (Multilink N-Ivoclar). In this way, it is recommended stability an occlusal and aesthetic-functional, with maximum efficiency, minimum damage and reinforcement the structures remaining.

Keywords: Esthetic; Composite Resins; Permanent dental Restoration.

Quality analysys of andragogical teaching methodology applied in dentistry undergraduate students from UFPA

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The human being is always acquiring new knowledge, but at different ages there are differences in the learning manner. Without attention there is no learning, and inattention should be reduced by more appropriate strategies to make a greater use of the content that one wishes to learn. Thinking about an innovative concept in teaching technique, the "Laboratory / Clinical Integration Project - A Teaching Methodology" used Andragogy, defined as the art of guiding the adult to learn. The monitor students followed as helpers in the procedures performed by the students of the 7th semester, helping in the clinical care, manipulating material, assisting in the treatment protocol. The aim of this study was to evaluate the quality of the teaching methodology employed at the Dentistry School at UFPA (Federal University of Para). To evaluate the quality of the employed teaching method, a descriptive cross-sectional study was carried out through two semi structured questionnaires with closed-ended questions for monitor students and non-monitors from the fifth semester project. The monitors felt more confident (54% GOOD confidence level) to face the integrated clinic in the 7th semester than non-monitor students (64% REGULAR confidence level). In this study we verified relationships between the teaching method employed by the project and the increase in learning, level of confidence and its consequences.

Funding source: UFPA

Keywords: Education; Educational Measurement; Learning.

Round table discussion about dental amalgam: awareness of its use can prevent its prohibition

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Progressive decrease in the use of dental amalgam emerged because of search for aesthetics, although the controversy about mercury toxicity that actually raised the discussion about abolition of its use. The objective of this round table meeting, held at a Higher Education Institution (HEI) in Teresina-PI, was to raise discussion among professionals and academics about the prohibition of the use of dental amalgam, pointing out potential advantages and disadvantages of this action and its impact on the dental routine in Brazil. Therefore, there was participation of professors from the different HEI of the city and a federal deputy, who is also a dentist, that acted as reporter in a bill that aims to prohibit the use of this material. Each professional reported his experience in different sectors of Dentistry, from the public service to the private practice, through teaching issues and professional experience in other countries. The deputy presented the points related to the bill. Questions about mercury toxicity, environmental protection, occupational risk and the possibility of substitute materials in the clinical routine were addressed, counting on the active participation of academics through their questions and opinions. While there is no consensus on this issue, everyone was invited to reflect on conscious attitudes that would effectively decrease the occupational and environmental risks of this practice.

Keywords: Education; Educational Measurement; Learning.



Marginal adaptation of bulk fill resins in class II cavities

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The performance and clinical longevity of the restorations are closely related to their marginal integrity. The aim of the present study was to evaluate in vitro the marginal integrity of bulk-fill composites in class II cavities. Twelve sound human molars were selected and randomly divided into 2 experimental groups (n=6) according to the adhesive strategy. Etch-and-rinse: G1- Filtek Z350 XT (3M ESPE/Control) G2 – Filtek Bulk Fill (3M ESPE), G3- Surefill (Dentsply), G4 - Xtra base (Voco) and self-etch: (G5) Filtek Z350 XT (3M ESPE/Control); (G6) – Filtek Bulk Fill (3M ESPE); (G7) – Surefill (Dentsply). (G8) – Xtra base (Voco). The samples were stored in 37°C distilled water for 24 h. The marginal integrity of the coronal dentin was analyzed using SEM at magnification of 200, 500, 1000 and 3000 x and data were subjected to kruskal-wallis test ($p < 0.05$). Bulk-fill composites showed satisfactory marginal integrity under etch-and-rinse technique when compared with Filtek Z350 XT (control group). When self-etch technique was used, there was statistically significant difference with regard to marginal integrity. In both techniques, the bulk-fill and conventional composites showed gap formation.

Keywords: Composite Resins; Adhesives; Permanent Dental Restoration.

Aesthetic resolution of single center incisor darkened-the big challenge of dentist

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Darkening dental, especially single, it represents a great challenge for aesthetic restoration of the tooth's optical characteristics. For satisfactory results, in these cases, often the dentist chooses to wear several teeth, a more conservative approach is needed. This case report presents conservative aesthetic resolution of center incisor with endodontic treatment and severe darkening. 23-year-old male patient sought for esthetic treatment, and complaint was the appearance of the upper center incisor. The esthetic treatment includes dental bleaching using mixed technique and laminate veneer of lithium disilicate. It was done a conventional veneer preparation with incisal removal and after molding with addition silicone (Express XT, 3M ESPE) and obtaining a 1,6mm thick lithium disilicate veneer. Previously cementation realized the choice of the cement's color with try-in (Light+, Variolink Esthetic, Ivoclar Vivadent). Preparing veneer used fluoridric acid for 20s, silane and bonding agent (Tetric N-Bond Universal, Ivoclar Vivadent). In dental structure used fosforic acid 37%, bonding agent (Scotchbond Multipurpose, 3M ESPE). Subsequently cementation, excesses have been removed and polymerization made for 40s on each face. This case showed that success is possible in aesthetic restorative challenge, but factors as planning and a good communication and team work between dentist and the prosthetic laboratory are essential.

Keywords: Esthetics; Case Reports; Dental Veneers.

Evaluation of the superficial and deep vickers microhardness of composite resins using different photopolymerizing devices

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The objective of this study was to compare in vitro, the Vickers microhardness superficial and deep between two composite resins, using two different lights appliances. Eighty bodies were made-of-proof, distributed in eight groups according to the surface and the type of resin: Filtek Z350 XT™ Premium™ and NT nanohíbrida nanofilled material-both in color. The bodies-of-evidence of groups G1S, G2P, G7S and G8P were the appliance light Coltulux LED curing light (Coltene) and the bodies-of-evidence of the beige G3S, G4P groups G5S G6P were light, and with the appliance Optilight Max curing light (Automotive). In each quadrant, three measurements were carried out, applying a load of 50gf during 45s, using the microhardness Tester (HMV-2T, Shimadzu, Japan). The calculation of Vickers microhardness was obtained considering the average of 12 held indents. For statistical analysis of the data obtained were carried out the statistical measures: mean standard deviation and coefficient of variation (descriptive statistical techniques) and used the techniques of inferential statistics through the F-test, ANOVA model with a factor, with a significance level of 5%. In all combinations of lights and resins, averages evaluated in surface area were correspondingly higher than in deep area. It is concluded that statistically significant values were obtained on surface microhardness in relation to deep composite resin microhardness Filtek Z350 XT™ and in relation to composite NT™ Premium.

Keywords: Composite Resins; Dental Curing Light; Esthetics.

Anterior aesthetic rehabilitation with the use of an all-ceramic system

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Currently, the use of all-ceramic materials in anterior teeth, mainly lithium disilicate (E-max), allows for a return to harmonious aesthetics contributing to the psychosocial well-being of individuals. Thus, the present study aims to report a clinical case where indirect facets of the E-max system were performed, going from the first premolar (14) to the first premolar on the opposite side (24). The upper central incisors showed a change in the width / length ratio practically equal to a square, and less than the recommended minimum ratio which is width x 1.25 equal to the minimum required length. In addition, there were small diastemas between the laterals and canines that compromised the harmony of the smile even more. These factors added up to leaving the patient unsatisfied with their smile.

Keywords: Esthetics; Dental Veneers; Adhesives.



Dental adhesion: comparative study the copaiba oil base in microtration in healthy and carious dentin

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Emulsions of copaiba oil (CO) have shown good adhesion results. The objective of this study was to evaluate the adhesive strength of different concentrations of CO in healthy and carious dentin. Sixty-four healthy human teeth were randomly divided in sixteen groups (n=4). In the teeth of 8 groups the artificial induction process of caries was carried out to remove the infected dentin. The remaining groups, constituted by the healthy teeth, received additional dentin wear to compensate for the removal of the carious tissue. Restorative procedures were performed utilizing the conventional adhesive method (Adper Single Bond® 2) and the self-conditioning method (Clearfil SE Bond®). Each group was submitted to the test of micro traction using the EMIC machine. The bond strength was higher when using the 10% CO emulsion and X% preservative in healthy dentin and affected with Adper Single Bond® 2 adhesive system. When tested on the Clearfil SE® system in affected dentin there was no significant difference between the CO at X%, 2% chlorhexidine ® digluconate and distilled water. The use of CO has the potential to be used after acid etching in the adhesive system Adper Single Bond® 2 and in the self-etching system, as it did not interfere in the adhesion strength, being predominant the type of adhesive fracture. Being the CO to X% that presented high adhesive resistance

Keywords: Adhesives; Dentin-Bonding Agents; Dental Caries.



GAME IN THE PROCESS OF TEACHING LEARNING IN DENTISTRY

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The training and formation of professionals have gone through a change and innovation in the teaching process, aiming at an active, student-centered learning. Thus, it is the teacher's role as facilitator in this process of knowledge construction, giving conditions to the student to develop a thoughtful and a reflexive capacity about real problems. This way, this report aims to evaluate the learning of the students of the course of Dentistry applying active methodologies of learning based on problems. After the presentation of the theoretical class, the students were divided into groups and the teacher distributed clinical cases related to the topic taught. Then the answers were discussed and the teacher presented the answer to the groups. In a second moment, the game was carried out, and the groups were distributed by color, so that the learning process became more dynamic and fun. Then after six rounds of questions and answers the group that answered the most questions was the winner. After the application of active methodologies, it was possible to observe that the learning of the students improved greatly, since it allowed all of them to reflect under a given clinical situation and together they learned to point out ways to do so. At last, the use of active methodologies has awakened the student's interest in thinking, questioning, which has quite contributed to the innovation of teaching practices and student learning.

Keywords: Education; Educational Measurement; Learning.



Transformation of a smile with reanatomization in composite resin and increase of clinical crown. clinical case

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The appearance of the teeth and the gingival tissue that surround them has a great importance in the aesthetics of the anterior region of the maxilla, seeing that abnormalities in symmetry, contour and volume can significantly affect the harmony of the natural dentition. Due to the increase in the demand for a smile with color, shape and harmonized size, the patients are seeking aesthetic rehabilitation. Dental reanatomization can be a resolution for some of these complaints, bringing aesthetic results quite favorable. With the advancement of cosmetic restorative dentistry, teeth can be refurbished, redefined, resculpted and return to their natural color, meeting the needs of the patient. The increase of clinical crown with esthetic purpose is indicated when anterior teeth are short or have excessive exposure of the gingival tissue and when the gingival contour is irregular. This case report aims to show the oral rehabilitation of a patient who was dissatisfied with the irregular shape and size of her anterior teeth. It was observed the need for a composite resin reanatomization with a discreet increase of clinical crown from lateral incisor to lateral incisor for a better harmonization of esthetic and functional form providing a patient satisfaction on his smile. In order to obtain a satisfactory result, a planning was carried out using photographs of the patient and a gypsum model, which was submitted to a resin process and then a mold was made in condensing silicone, which allowed the clinical trial to be carried out with Composite resin thus providing a preview of the final result. In the following sessions the previously established procedures were performed.

Keywords: Esthetics; Composite Resins; Case Reports.

Dystrophic calcification of pulp: diagnosis and treatment - case report

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Considered as a response of the pulp tissue to the traumatic lesion, the dystrophic calcification of the pulp is usually followed by chromatic alterations, making the teeth more saturated by the intense deposition of mineralized tissue causing a disharmony in the aesthetics of the smile. Thereby, the objective of this work is to report a case of dystrophic calcification of the pulp presenting its diagnosis and a form of conservative treatment. The present case shows a patient with color alteration in the upper right central incisor, who did not suffer any trauma, accident or injury in the cited element, only performed orthodontic treatment for 3 years. After periapical radiographic examination and computed tomography, a slight narrowing of the root canal light of the cited element and absence of periapical lesion were observed. The procedure chosen was to perform supervised home dental whitening for four weeks, from the use of the impression tray with the 15% carbamide peroxide gel only on the darkened tooth, 2 hours a day. The treatment allowed the aesthetic resolution of the darkening of the dental element, coming close to the coloration of the others, proving to be a simple and conservative technique.

Keywords: Esthetics; Case Reports; Dental Pulp Calcification.

Cavity cleaning emulsion based on copaifera multijuga hayne: ph adjustment and antimicrobial activity

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Phytotherapy uses plants and its extracts as medicines to treat diseases. In dentistry this is yet a field to be unveiled. Some solutions have been tested recently and its active ingredients have showed promising results. The objective of this research aims to adjust the pH of an emulsion formulation based on copaiba oil to clean dental cavities, and also to evaluate its antimicrobial activity. Parameters followed the guidelines of standardization and norms of the good practices of manufacture of the Brazilian pharmacopoeia and of the National Health Surveillance Agency (ANVISA). The *Copaifera multijuga* Hayne oil-resin used in this research was extracted from the Ducke reserve, at Km 17 of the Manaus-Itacoatiara Highway, cataloged under No. 69 by the National Institute of Amazonian Research. The collection was performed following the Institute's protocol. The pH adjustment was done by varying the concentration of the preservative in the emulsion and was obtained by averaging three successive pH meter readings with a pH of 8.3. The antimicrobial activity was carried out and proved by the minimum inhibitory concentration test and minimum bactericidal concentration under the microorganisms *Streptococcus mutans*, *Streptococcus oralis*, *Streptococcus salivarius* and *Lactobacillus casei*. Therefore, changing the Copaiba emulsion pH resulted to its biocompatibility with the dental structures and continued to demonstrate antimicrobial efficacy against the microorganisms tested.

Keywords: Dental Caries; Bacteria; Dental Cavity Preparation.



Analysis of the effectiveness of different protective agents to glass ionomer cement

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Glass ionomer cement (GIC) has excellent properties, such as fluoride release, biocompatibility and adhesion, however requires some care as the surface protecting during its setting reaction in order to avoid the water loss and water gain. The aim of this study was to evaluate the efficacy of nail varnish (N), petrolleum jelly (P), dental adhesive (A) and water soluble gel (G) as protective materials to GIC restorations. Fifty specimens of GIC were prepared and distributed in the experimental groups (n=10) according to the superficial protection – GN, GP, GA, GG, GC (control, un-protected). After protection the specimens were immersed in 0,5% methylene blue for 24h, including the control group. Then, they were sectioned, evaluated and classified according to the scores: 0 – no infiltration, 1 – infiltration of 1-25%, 2 – infiltration of 26-50%, 3 – infiltration of 51-75%, 4 – infiltration of 76-100%. All tested groups showed penetration, however GA and GN groups obtained Score 0 in 40 and 50% of cases, respectively. Data were analyzed by ANOVA test and Tukey (5%). There was a significant statistical difference between the GC and GA groups, however no difference was observed between other groups. It can be concluded that the nail varnish and the adhesive showed better surface protection of the GIC.

Keywords: Glass Ionomer Cements; Esthetics; Fluorine.

The effects of two adhesives on shear bond strength and ari of orthodontic brackets bonded bovine incisors subject to previous whitening treatment

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The effect of tooth whitening on bonding of orthodontic brackets is controversial. This study compare the effects of two adhesives (Prime&Bond 2.1 acetone-based and Optibond S ethanol-based) on shear bond strength (SBS) and Adhesive Remnant Index (ARI) of orthodontic brackets bonded bovine incisors subject to previous whitening treatment with carbamide peroxide at 10%. Eighty-two bovine incisors divided into 4 groups: group 1 - non-bleached with adhesive Prime&Bond 2.1; group 2 - non-bleached with adhesive Optibond S; group 3 - bleached with adhesive Prime&Bond 2.1; and group 4 - bleached with adhesive Optibond S. ANOVA and Student-Newman-Keuls tests were used to assess SBS, and Kruskal-Wallis and Dunn tests were performed to analyze the ARI. The correlation between SBS and ARI was calculated by Spearman correlation coefficient and its respective statistical significance was calculated with Student-t-test. The average SBS values were 8.48 MPa \pm 1.53 for group 1; 12.21 MPa \pm 2.37 for group 2; 8.89 MPa \pm 2.16 for group 3; and 10.41 MPa \pm 2.73 for group 4. ARI index scores differed significantly between the two bleached groups. All the groups had SBS values higher than the minimally acceptable clinical standard. The 24-hour interval between the completion of home dental bleaching with carbamide peroxide at 10% and bracket bonding was sufficient. The groups that used adhesive Optibond S had higher SBS compared to the groups with adhesive Prime&Bond 2.1.

Keywords: Adhesives; Dentin-Bonding Agents; Tooth Bleaching.

Anterior aesthetic rehabilitation based on the concepts of natural harmonization with free metal ceramics

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The facial aesthetics associated with a smile that matches the profile of the individual contributes to the non-psychosocial well-being. Currently, oral rehabilitation from the use of ceramic materials with aesthetically and physically improved properties, allow the biomimetic reproduction of anatomical - dental details. This study aims to report a clinical case in which the patient sought a dental harmonization closer to the natural one matching his profile, preparing for traditional and atypical facets, in elements 11, 13, 21, and 23; And total crowns in elements 12 and 22. This type of variation in thickness and type of preparation is made possible by the choice of the use of lithium disilicate (IPS e.max, Ivoclar Vivadent) as a ceramic material. The conclusion of the cases ensured patient and professional satisfaction, besides paying attention to the importance of material evolution, allowing us to observe that the correct choice of material and technical conduit can lead to highly satisfactory results and excellent predictability.

Keywords: Esthetics; Ceramics; Case Reports.



Evaluation of the dimensional amendment of the conventional glass ionomer cement using during the handling glass plate and paper block

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The objective of this work was to evaluate the dimensional change using, during the manipulation, the glass and paper board of the conventional glass ionomer cement. Ten specimens of conventional glass ionomer cement (DFL) were used, divided into two groups of ten samples, with ten measurements each, according to the following storage protocols: S1 - (Control) - Glass Plate; S2- Paper Block. The size analysis machine (profilometer) of the Mitutoyo brand was used to evaluate the size change of each specimen according to the factors involved. Then, the data were analyzed statistically, obtaining the results and, consequently, the tables and graphs. The results showed that there was no statistically significant difference between the two groups, considering the roughness test. The averages (mm) and standard deviation of the glass plate and paper block group, respectively, were 9.2 ± 0.24 and 9.0 ± 0.60 . However in this study it was observed that the handling surface in the glass plate exhibits better behavior of the material in front of the properties of fluidity, consistency and flow and in a less time of manipulation, independently of the statistically based final results.

Keywords: Glass Ionomer Cements; Esthetics; Fluorine.

Clinical efficacy and practice in previous restorations using the Bertholdo / Ricci / Barrotte matrix (BRB)

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Beyond the possibilities of effective morphofunctional and aesthetic reconstruction of traumatized teeth, agility becomes something of great positivity in contemporary dentistry. The application of the BRB matrix consists of the exclusion of the waxing, allowing the restoration in a single session, simplifying the use of palatal guides. The objective of this work is to present the viability of the Bertholdo/Ricci/Barrotte matrix (BRB) technique through a clinical case, with the preparation of a palatal guide without the need for waxing. Patient D.B.M., female, 19 years old, sought dental care reporting dissatisfaction with the restoration present in element 21, accidentally traumatized 12 years ago. After radiographic analysis, the necessity for endodontic therapy was disregarded. Office bleaching was performed prior to restoration. Subsequently, the manufacture of the BRB matrix with condensation silicone, after hardening of the material, there was previously delimited dental morphology and cut of the vestibular volume, serving as a palatal guide, facilitating the stratification of the restorative material and confection of the morphofunctional characteristics of the dental element in question. Therefore, in anterior teeth that present the need for direct restoration, the use of the BRB matrix is of great clinical relevance, due to the practicality and efficiency, bringing the balance of the stomatognathic system in an agile and harmonious way.

Keywords: Case Reports; Esthetics; Smiling.



Cross-sectional approach of pre-clinic content through internship in clinic 1 as assistants: experience report

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The clinical internship is known as an instrument for the improvement of undergraduate education, through the establishment of new pedagogical experiences aiming to strength the mutual cooperation between students and teachers. This extension project has as objectives: improve the teaching-learning process of the student in the discipline of Clinic1 so that there will be a better use in the following semester; assist students who are without a partner in the dental practice, making feasible the application of the concepts of ergonomics and biosafety; produce didactic material in partnership with other students, such as clinical case discussion, taking advantage of their experiences to improve the discipline in the semester; guide the student at the beginning of the dental clinic, offering conditions for diagnosis, prevention and treatment of pathological conditions of less complexity. This clinical internship allows a previous contact with the procedures of less complexity performed in Clinic 1, providing a greater understanding of the practice in parallel to the theoretical classes of Pre-clinic. The importance of participation in the internship is linked to an enriching experience capable of preparing students for Clinic 1.

Keywords: Education; Educational Measurement; Learning.



Epidemiological survey of caries disease risk in the municipality of Penedo – AL

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The dental surgeon should be based on the new concepts of caries disease in order to elaborate adequate prevention strategies and restorative treatments in the public health service, inasmuch as it is inherent in the stabilization and minimization of caries disease. This study intended to verify the prevalence of caries among different age groups and to assess the preventive care and restorative treatments needs of two teams of the Family Health Strategy of Penedo-AL. The cross-sectional study was carried out with 868 rural dwellers and 1013 urban dwellers ($n = 1885$), aged 0-2 to +60 years old, who were classified by 9 dentists, previously trained and calibrated, regarding to caries risk: low (1), medium (2) and high (3). Intra and inter-examiner agreement was 100% and 95%, respectively. The data were submitted to a descriptive analysis and Kappa's analysis. In general, a greater number of risk individuals 1 and 2 were observed in the urban area (392 and 439, respectively) than in the rural area (262 and 234). However, the rural area (373) presented twice as much risk 3 as the urban area (186). In the 0-2 years age group, no inter-zone differences were observed. Preventive therapies, such as oral hygiene guidance and fluterapy, suggest effectiveness and low cost, as well as atraumatic restorative treatments, expectant treatments and definitive restorers should be inserted to control and minimize caries severity.

Keywords: Dental Caries; Epidemiology; Health Service Research.



Evaluation of surface roughness and color alteration of bovine dental enamel submitted to brushing with bleaching dentifrices

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An increasing demand on aesthetic procedures is observed nowadays in Dentistry. In order to respond to such demand, the dentistry industry has provided the option of dental bleaching materials, to be used over the supervision of a dentist, or the so-called over-the-counter materials, incorporated into dentifrice formulations, or in other presentation methods. A large number of dentifrices were released containing additional ingredients, aiming to increase cleaning effectiveness and promote tooth whitening. These dentifrices may contain hydrogen peroxide, carbamide peroxide, sodium bicarbonate, hydrated silica or aluminum oxide, or even nanohydroxyapatite. It is suggested that nanohydroxyapatite has the ability to fill microcracks in enamel and, as it is naturally white, it modifies the surface appearance by promoting bleaching. The objective of this study was to evaluate the surface roughness and color change of bovine tooth enamel submitted to brushing with nanohydroxyapatite containing dentifrices. Four discs of bovine incisors with 8 mm diameter and 2 mm thickness were used, which were randomly divided into 4 experimental groups (distilled water, Colgate Total 12, Megasonex, Black is White). These discs were sanded and polished (granulation 600 to 2500) for standardization of surface smoothness. Initial roughness data of each specimen was obtained by means of 4 bench rugosimeter readings, and initial shade data ($L^* a^* b^*$ values) from each specimen was obtained by means of colorimeter readings. The specimens were submitted to the simulated brushing test for 840 cycles, simulating 15 days. The dentifrices were diluted 1: 1 (dentifrice / distilled water), inserted into the device of the equipment and changed at each brushing. At the end, new readings were performed on a rugosimeter and colorimeter. In the statistical analysis of the results, the Tukey test showed that there was no statistically significant difference between the groups with respect to Luminosity and the groups that were brushed with distilled water, Colgate Total 12 (conventional fluoride dentifrice) and Megasonex (nanohydroxyapatite dentifrice) had a statistically significant surface roughness decrease ($p < 0.05$). The group brushed with Black is White (nanohydroxyapatite and Fluoride) had no statistical difference with respect to the initial / final roughness. All groups presented a Delta E mean of less than 3.7, therefore, no visible color change was observed. The authors concluded that the used dentifrices didn't promote clinically visible color changes after the 15-days period of evaluation. It was also concluded that the Black is White dentifrice didn't promote a smoother surface after the evaluated period.

Keywords: Toothpastes; Tooth Bleaching; Enamel.

Bacterial adhesion and surface roughness in nanocomposites after different finishing and polishing techniques

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The decrease of size of filler particles of composite resins through nanotechnology has improved composite polishing, which avoid biofilm buildup on the surface of the restoration, prevent caries and gingivitis, and improve the aesthetics and longevity of restorations. This study aimed to evaluate, *in vitro*, the effects of 2 different finishing and polishing techniques on the surface roughness and bacterial adhesion of nanofilled and nanohybrid composite resins. Sixty-six specimens were prepared ($n=10$) and subjected to finishing and polishing with: Sof-Lex Pop-On disks (SP) and the Astropol system (A). The control groups received no finishing and polishing. The average roughness (Ra) was measured using a cut off value of 0,25 mm and surface images of six extras specimens were obtained from the SEM photomicrographs magnified 500x. Bacterial adherence (BA) was determined by the optical density at 570 nm of a suspension of adhered cells using a spectrophotometer. The results were analyzed with 2-way ANOVA at $\alpha=0,05$ and Tukey multiple comparison tests. For the Ra, the lowest results were obtained by SP ($0,346 \pm 0,076 \mu\text{m}$) for Filtek Z350 XT (XT); and by A ($0,176 \pm 0,05 \mu\text{m}$) for IPS Empress Direct (ED). For the BA, the lowest optical density were obtained by SP ($0,145 \pm 0,033 \text{ nm}$) for XT; and by A ($0,168 \pm 0,020 \text{ nm}$) for the ED resin. The SP finishing and polishing system is more suitable for the nanoparticulate XT resin and the A system is more suitable for the nanohybrid ED resin.

Keywords: Composite resins; Dental restorations; Polimento dentário.

Ceramic laminates: from digital planning to foundation

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The use of ceramic laminates for the restoration of anterior teeth is increasingly visible within aesthetic dentistry. The restorative or mockup test is a simulation method of planning that will be executed in the near future of the real. The mockup presents as a great advantage this simulation of the aesthetic result and the previous acceptance of the treatment by the patient. The objective of this work is to report on the planning and execution stages of aesthetic and functional rehabilitation with ceramic veneers in a patient with dental alterations. Case report: A 40-year-old male patient presented at the FOP-UPE clinic, complaining of successive fractures in the incisal edge of the teeth 11 and 21, and that their central incisors were short. Mockup, preparation for ceramic laminates, functional molding, provisional restorations with bisacrylic resin, dry and wet proofs, and cementation of three ceramic laminates were used for this study. The teeth 11, 21 and 22, restoring the esthetics, self-esteem and protusive guidance of this patient. Therefore, the use of ceramic laminates, when well indicated, allows the aesthetic and functional rehabilitation of the smile in an extremely conservative way

Keywords: Case Reports; Dental Veneers; Patient Care Planning.



My best restoration competition. unveiling the dentistry: science, technology and art

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Due to the technical, scientific and artistic challenges required for the development of biomimetic restorations to the stomatognathic system, dentistry students are often frustrated with their difficulties in traditional practical classes. Therefore, the purpose of this resource is to motivate students in their personal improvement, through a competition, where they could develop the necessary technical and artistic skills to make restorations that meet the aesthetic and functional requirements. All graduates of Dentistry school of Unoeste were invited to participate in the competition. During the competition, direct anterior and posterior restorations were made in composite resin or amalgam, respecting the level of learning and the discipline that the student was enrolled in. An examination bank, without the identification of their operator, evaluated the restorations. The best restorations of each class were chosen, according to the criteria established in the Discipline of Aesthetic Dentistry and certificates were emitted to the best students. The ability to apply the knowledge acquired in the classroom using non-traditional resources that stimulate the development of the student's abilities leads to a higher level of learning. Proposing challenges is a way to encourage the student to reach a level of excellence. It is an extensive action that happened articulated with the teaching in the graduation since it directly involves the students of the course of Dentistry and its responsibilities as future dentists surgeons. The evaluation took place before the competition itself, with the active participation of the students during the event.

Keywords: Education; Educational Measurement; Learning.



Determination of the ideal concentration camphorquinone in experimental resin: characteristics of polymerization and mechanical properties

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The aim of this study is to determine the ideal concentration of camphorquinone (CQ) in experimental flowable composites. Model composites based on BISGMA/TEGDMA with 70% filler-loading were prepared containing different concentrations of CQ on resin matrix (0.25%, 0.50%, 1%, 1.50%, 2%). Degree of conversion was determined by FTIR Spectroscopy. Surface hardness was assessed before and after 24h ethanol storage and softening rate was determined. Polymerization depth was determined by knoop hardness evaluation at different depths. Color was assessed by reflectance spectrophotometer, employing the CIE-Lab system. Flexural strength and elastic modulus was determined by a three-point bending test. Shrinkage stress was determined in a Universal Testing Machine in a high compliance system. Data were submitted to ANOVA and Tukey's test ($\alpha = 0.05$). The increase in CQ concentration caused a significant increase on Degree of conversion and yellowing and reduction on softening rate, Flexural strength and luminosity of composites. Surface hardness was not affected by the concentration of CQ. Composite containing 0.25% CQ showed lower Flexural strength and Shrinkage stress when compared to others. Polymerization depth was 3 mm for composite containing 1% CQ, and 2 mm for the other tested composites. In Conclusion, composite containing 1% CQ showed the best polymerization and mechanical behavior.

Keywords: Dental Photoinitiators; Composite Resins; Hardness Tests.

Evaluation of the influence of antimicrobials in dentin treatment on bond strength of adhesive systems

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New adhesives tend to become bioactive, with antibacterial action, of great importance in the control of dental caries. The objective of this work is to evaluate the bond strength of conventional and self-etching adhesive systems applied in 70% alcohol-treated dentin and 2% chlorhexidine using the micro-shear test. The 30 samples were divided into 3 groups (n = 10) according to the dentin surface treatment: without dentin treatment, with chlorhexidine 2% and alcohol 70%. The samples were conditioned with 37% phosphoric acid and then the adhesive systems were applied in the different samples: Single Bond Universal (3M / ESPE); Adper Single Bond 2 (3M / ESPE); Adper Scotchbond Multipurpose (3M / ESPE) and Clearfil SE BOND (KURARAY). The nanoparticulate composite resin Z350 XT (3M ESPE) was applied by increment in the central of the tygon matrix, in three layers, each photoactivated for 40 seconds. The micro-shear test was performed in an Instron machine for mechanical tests, and the values obtained were analyzed through the SPSS Statistical Program, ANOVA and the post hoc Bonferroni test. The results showed that the average bond strength was higher in the samples that used chlorhexidine (162,907 MPa) and among the adhesive systems studied the highest values were for Adper Scotchbond Multipurpose adhesive (63.3390 MPa). It can be concluded that dentinal surface treatment with 2% Chlorhexidine can interfere in bond strength in adhesive procedures.

Keywords: Adhesives; Dental Restorations; Tensile Strength.

Use of digital applications and virtual reality in the enhancement of the teaching-learning process in restorative dentistry

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Blended learning has showed significant results in improving learning, and Internet access is fundamental in this process. The use of new technologies proposes to develop applications that complement the learning of dental instruments used in Operative Dentistry, using interactive digital activity. At first, the web class will be available to students using Moodle platform, and they have access to it at any time. During the lecture, at certain times, the digital application will be used by students to capture a code with a cell phone camera, generating a three-dimensional image (3D) of instrument that is being showed by the professor. At the end of lecture, for knowledge fixation, a game in drag and drop format is presented for instruments recognition used in the attended in Operative Dentistry. In a pictures frame, students can select the instruments of interest, getting their name and function. Finally, for immersion and fixation of knowledge acquired, the students interacted with the instruments in real size, using a virtual reality glasses. Since the use of the Internet is increasingly becoming a tool for obtaining information from the students, the use of active methodologies would be able to enrich the relationship between professor and student, inside and outside the classroom, enhancing the student learning.

Keywords: Education; Educational Measurement; Learning.



The bank of human teeth and research in restorative dentistry - evaluation of the cleaning of the teeth collected, using ultrasonic washers

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The supply of teeth by the Bank of Human Teeth (BHT) contributes directly to a professional formation of Dentistry with regard to teaching and research in Restorative Dentistry. Ultrasonic cleaning makes it possible for the professional to be more efficient and safe, as well as minimizing the risks of sharp accidents and cross infection. This study aimed to evaluate the performance of the cleaning of the teeth stored in the BHT, using the ultrasound. Thirty-six human molars, divided into three groups ($n = 12$), were placed in containers with different liquids: distilled water (control group); 2% chlorhexidine digluconate and enzymatic detergent. Each recipient was positioned in the ultrasonic vessel for 4 cycles, lasting 8 minutes each cycle, and initial temperature of 44 ° C and final of 51 ° C. After each cycle, 3 teeth were removed from each container and distributed among three calibrated evaluators, and it was verified whether or not it was easy to remove organic tissues adhered to the teeth. The results showed that, after the first cycle, the mechanical removal of the organic matter adhered to the teeth was difficult (100% cases); and after the second cycle this removal was moderate (100%). However, after the third and fourth cycles, 100% of the evaluators reported that this removal was easy. It was concluded that the use of ultrasound in teeth cleaning was effective, independent of the solution, but a liquid temperature and time of application are factors that potentiate cleaning.

Keywords: Ultrasonic; Dental Prophylaxis; In vitro Techniques.

Photodynamic effects of curcumin in biofilms and carious dentine

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Photodynamic therapy (PDT) is a technique that involves the activation of photosensitizers by light in the presence of oxygen, resulting in the cell death. The present study evaluated the susceptibility of *Streptococcus mutans* and *Lactobacillus acidophilus* to photodynamic therapy grown as multi-species in the biofilm phase versus in dentine carious lesions. Five different concentrations of curcumin (0.75 g/L, 1.5 g/L, 3.0 g/L, 4.0 g/L, and 5.0 g/L) were used. The photosensitizer was activated with exposure to blue light with central wavelength of 450 nm, intensity of 19mW/cm² and fluency of 5.7 J/cm². Four different groups were analyzed: L-D- (control group), L-D+ (drug group), L+D- (light group) and L+D+ (photodynamic therapy group). ANOVA/Tukey tests were utilized to compare groups ($\alpha = 5\%$). A significant reduction ($p < 0.05$) in cell viability was observed for the biofilm phase following photosensitization with all curcumin concentrations tested. For significant bacterial reduction ($p < 0.05$) in carious dentine, it was necessary to utilize 5.0 g/L of curcumin in association with blue light. No significant reduction was found for L-D+, proving the absence of dark toxicity of the drug. *S. mutans* and *L. acidophilus* were susceptible to curcumin in the presence of blue light. However, due to blue light penetration and drug diffusion difficulties, these microorganisms within dentine carious lesions are less affected than in the biofilm phase.

Keywords: Photochemotherapy; Biofilms; Dental caries.



Functional and aesthetic rehabilitation with ceramic veneers and all-ceramic crowns: case report

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Attrition, increasingly more common in the present days, is a non-carious cervical lesion caused by intense contact of teeth, with nothing lodged between them. In cases of bruxism or clenching, stress, considered by many as the main disease of the modern man, is a potential agent of the effects of attrition, which even causes the loss of anterior and lateral occlusion guidance, besides a serious aesthetical damage for patient's smile. Bruxism is defined as a non-functional habit of the stomatognathic system and many consequences are connected to this para-function. Among them are the losses of anterior and side occlusion. Nowadays, the effectiveness of oral rehabilitation with ceramic veneer is well-shown by clinic studies done in Odontology. Literature offers protocols, indications and restrictions to the correct diagnosis and individualized planning of cases according to the aesthetic appeal and functional rehabilitation needs of each patient, in order to guarantee clinical performance. In patients who bear para-function, oral rehabilitation must be rigorously planned and, this way, ensure the longitudinal prognosis favourable in treatment of this singular type. Thus, much more than just bringing back aesthetics, this work reports a clinical case in which the function of anterior and lateral occlusion guidance was successfully re-established in a patient with bruxism through the execution of ceramic veneers on teeth 13, 11, 21, 22 and all-ceramic crowns on teeth 14, 12 e 23.

Keywords: Case Reports; Dental Veneers; Esthetics.

In-vitro study of the release and captation of fluoride of conventional glass ionomer cements

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Glass Ionomers Cements (GICs) have been widely used in dentistry due to their properties, making it the preferred material for the control and prevention of disease by its fluoride releasing ability. The study evaluated in vitro the fluoride release capacity of the conventional GICs Vidrion R, Vitro Fil and Maxxion R, before and after immersion of the samples in a 2% sodium fluoride solution. A total of 42 proof bodies were made, 14 for each type of GICs, where half of the samples from each group received protection with cavity varnish. The manipulated GICs were placed in vaseline-impermeable matrices and placed in containers with distilled water for fluoride release measurements in two periods: before (after 1 and 24 hours; 3, 7, 14, 21 and 28 days) and after recharge with sodium fluoride (after 24 and 48 hours). The amount of fluoride released in the solutions was measured by the fluorine ion sensitive electrode coupled to a digital pH / F- equipment analyzer. All samples had a high potential for fluoride release in the first 24 hours, compared to 1 hour, and the materials examined at different immersion times showed an increasing pattern of fluoride release. The capacity of recharge of fluoride release was higher in the first 24 hours of the Vidrion R and Vitro Fil GICs; the GIC Maxxion R showed better results after 48 hours. The protection of the samples with the cavity varnish did not prevent the release and recharge of fluoride.

Keywords: Dental Cements; Fluoride; In vitro Techniques.

The use of marketing techniques on the teaching-learning process

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Contemporaneous dental students experience compromised focus on traditional classes, obtaining poor scholarly performance as a result. One of the hypotheses that justify this behavior is the great amount of information they are exposed everyday, especially during classes. So as to compete for the students' natural attention and curiosity, professors may take some advantages when using marketing techniques, since most of them are employed to get consumers attention and create the desire to buy a product. The objective of this presentation is to report the experience of an operative dentistry professor employing some marketing techniques, such as the mental triggers, during expositive and laboratorial classes so as to grab the students' attention. The results obtained were not evaluated through a methodology, however students were clearly more motivated and their scholarly performance was pretty higher. In conclusion, marketing techniques may be helpful in the teaching-learning process since they are able to attract students' attention, however method-based evaluations are still necessary to verify if there are evidences to support this conclusion.

Keywords: Education; Educational Measurement; Learning.



Optical coherence tomography applied to polymerization shrinkage measurement of flowable bulk fill composite resin

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Optical Coherence Tomography (OCT) is a noninvasive optical imaging technique able to provide high-resolution information about materials and biological systems. This study aimed to evaluate the linear polymerization shrinkage suffered by flowable bulk fill composite resins through OCT and to compare their results with a conventional resin. Three groups were selected (n=10) according to the restorative material: (G1) SDR Smart Dentin Replacement (Dentsply), (G2) Filtek Bulk Fill Flowable Restoracion (3M ESPE), (G3) control, Filtek Z 100 (3M ESPE). The OCT system used (Callisto, Thorlabs) operates in the spectral domain, 930 nm central wavelength and axial resolution of 7/5.3µm in air/water. The specimens were manufactured from a 500µm thick and 7mm diameter teflon mold. OCT images were captured prior light curing and 15 minutes after light curing of the specimens. The polymerization shrinkage measurement was carried out using the Image J software, from three predetermined points in the images. Then the differences of these measurements between the images captured before and 15 minutes after the curing were calculated. Two-way ANOVA (post hoc Tukey) test was used, considering $p < 0.05$. G2 presented the highest percentual linear shrinkage values (0.15%), followed by G1 (0,10%). The control group G3, in turn, had the best performance (0,08%). In conclusion, the bulk fill resin composites presented the worst linear polymerization shrinkage rates, if compared to the control group.

Financial support: PRONEX FACEPE/CNPq

Keywords: Optical Coherence Tomography; Composite Resins; Polymerization.

Evaluation of the adaptation of bulk fill composite resins restorations to the pulpal wall through optical coherence tomography

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Bulk fill composite resins constitute a new category of restorative materials, but there is few information about its performance regarding the polymerization shrinkage. This study evaluated the adaptation of bulk fill composite resins restorations to the pulpal wall through optical coherence tomography (OCT). 50 human healthy third molars were selected and Class I Black cavities with 4mm depth and 4x4mm from buccal to lingual and mesial to distal surfaces were prepared. The teeth were randomly divided into 5 groups (n=10) according to the restorative material: G1, SDR Smart Dentin Replacement (Dentsply); G2, Filtek Bulk Fill Flowable Restoration (3M); G3, Tetric N-Ceram Bulk Fill (Ivoclar Vivadent); G4, Filtek Bulk Fill (3M); G5, control, Filtek Z 100 (3M). After thermal cycling, the teeth were sectioned on the axial axis, 1 mm beyond the pulpal wall of the restorations for OCT evaluation. The system used was the Callisto (Thorlabs Inc.), operating in the spectral domain with 930 nm of central wavelength and axial resolution of 7/5.3 μm air/water. The teeth were scanned by OCT and the images captured with 2000 columns x 512 lines, for processing by Image J. All groups presented failures in the dentin-restoration interface; G2 presented higher incidence of defects (77.8%), followed by G1/G5, and G3/G4 (11%). It was concluded that high viscosity bulk fill composites presented better adaptation to the pulpal wall if compared to low viscosity and control groups.

Financial support: PRONEX FACEPE/CNPq

Ethics Committee: CAAE 49569215.8.0000.5203

Keywords: Composite Resins; Optical Coherence Tomography; Permanent Dental Restoration.

Evaluation of ph value of whitening toothpastes on the dental structure

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Nowadays, there is a strong appeal by the media encouraging the use of toothpaste with whitening substances that promises tooth whitening only with the regular brushing of the teeth. Bleaching is an important step for esthetics. These toothpastes present in their composition, besides abrasive agents, whitening substances that interfere in the oxidation of the dark spots. Therefore, the objective of the study was to evaluate six toothpastes and their respective pH to correlate their acid action with possible erosive effects. Each group was composed by three samples (G-I: G-7d; G-14d) and for each sample, three other samples were taken for pH verification, considering the average pH. Each sample consisted of 5g of toothpaste and 10 ml of deionized water, in a well-sanitized bottle washed with running water, distilled water and deionized water, then hermetically sealed. All solid substances were weighed on an analytical balance. The initial pH value was established through a pH meter previously calibrated. The identified flasks were stored at room temperature for a total period of 14 days. The pH readings were performed at the initial time, then after 7 days and again after 14 days. The results pointed out that the Sensodyne tooth whitening toothpaste had the highest pH and the lowest was found on the Oral-B Pro-Health® toothpaste. The toothpastes studied with the pHs closest to neutrality were: Close-Up White Now®, Sorriso Whitening Explosion® and Colgate Total 12 Whitening

Keywords: Toothpastes; Tooth Bleaching; Tooth Bleaching Agents.

Assessment of enamel wear after use of bleaching dentifrices by optical coherence tomography

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The objective of this research was to evaluate by optical coherence tomography (OCT), the wear of tooth enamel after using different toothpastes for bleaching. Fifty specimens were obtained from bovine teeth, and distributed in 5 groups (n = 10) according to the toothpaste used for the test: G1-Oral-B 3D white; G2-Colgate Total 12 Whitening; G3-Colgate bright white; G4-Closeup white now; G5-distilled water. The OCT images were taken before brushing cycling, with a system operating in the spectral domain, with a center wavelength of 930nm. The simulated tooth brushing (5000 cycles) was performed with linear movements, under static axial load of 200g and speed of 4.5 cycles per second. New OCT analysis was then performed, and the images were compared for surface changes. Data were analyzed through Fisher exact test and it was possible to observe wear on the surface of the enamel of all groups, but the G5 showed less wear of the samples, equivalent to 22.2%. The G2 presented greater quantity of samples with surface wear around of 90%. All toothpastes evaluated presented potential of abrasive wear.

Keywords: Toothpastes; Tooth Bleaching; Optical Coherence Tomography.

Analysis of microhardness of bulk fill compound resins by vickers test

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The aim is to improve the chemical composition, mechanical properties of restorative materials, increasing the technique success. The study evaluates the superficial microhardness and deep microhardness by the Vickers test. There were made twenty samples: Filtek™ Z350 XT - G1, Filtek™ Bulk Fill 3M - G2, Aura Bulk Fill - G3, Tetric®EvoCeram Bulk Fill - G4. Photopolymerized by Photopolymerizer VALO® Cordless, being the time counted by the manufacturers. Were realized twenty measurements with 50gf, for 45s, Micro durometers (DuraScan 70). The data were analyzed descriptively through average statistics, standard deviation and coefficient of variation, analyzed inferentially through the Paired Student's test in the comparison between faces and F (ANOVA) and Tukey. Error margin of 5%. The highest averages were G1, followed by G2, and, through Turkey tests of multiple comparisons it was proved significant difference: Except between G3 and G4 in the superficial surface and between G1 and G2 in the superficial surface and except between G2 and G3 in the deep surface. G1 that was used through incremental technique presented high values of microhardness; G2 and G3 without significant difference between surfaces; G4 presented discrepancy between superficial surfaces and deep surfaces and also lower average in deep surface. All bulk fill resins analyzed presented low values of microhardness comparisons to incremental resin.

Keywords: Composite Resins; Hardness Tests; Dentistry.

Self-adhesive or conventional resin cement : which is the best clinical option

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Cementation Materials play a central role in indirect restorative procedures. In order to simplify the technique and make it less susceptible to operator errors, materials that do not require procedure steps have been proposed. Following this trend, the self-adhesive, aesthetic and easy-to-apply cement was introduced on the market, giving a similar bond strength to multi-step resin cements without the need to use acid, primer or adhesive. Adhesive cementation provides prosthetic procedures with greater retention of the dental remnant and reduces the risk of fractures, since it distributes better the forces exerted on the tooth-restoration set. However, research has shown that resinous materials are indicated for the cementation of ceramic restorations, but they have been shown to be sensitive to technical use, so the development of self-adhesive resin cements is aimed at overcoming difficulties during fixation of prosthetic parts. Based on this information, this paper presents as a proposal to present the pertinent knowledge to the subject, existing in the literature, in order to contribute to the correct choice of a material that suits certain situations and presents satisfactory physical properties, thus providing an appropriate sealing Of dental tissue, a fact that is fundamental for the clinical success of prosthetic rehabilitations.

Keywords: Education; Dental profilaxis; Ultrasonic.



Replacement of class iv restoration associated with the in-office whitening previously: case report

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Satisfactory results constitute a major challenge for professionals. Different restorative approaches may be considered for substitution of unsatisfactory class IV restorations, associated with this aesthetic restorative treatment, the tooth whitening has been fairly used. In this context, this study's objective to describe clinical case, with direct restorative procedures, with composite resins (Opallis- FGM in colors EA1, DA1, DA2, T-Blue, Opaque White- OW and T-neutral) through the technique with silicone Guide, associated with the dental bleaching of Office (prior) with Hydrogen peroxide at 35%, Whiteness HP (FGM). 23-years-old patient, female, reporting dissatisfaction of the smile, due to unsatisfactory restoration in the 11 and yellowish teeth. After bleaching in session only, with three applications of 15 minutes each, waited-if 20 days period, to replace the restoration, restoring form, function and aesthetics desired by the patient. It is very important that the professional knowledge of the substrate, of the selected material, minimally invasive restorative technique and an excellent finishing and polishing. Thereby we achieve success in the final result and increased longevity.

Keywords: Case Reports; Permanent Dental Restauration; Tooth Bleaching.



Coffee staining effect on color stability and microhardness of different resin cements

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Resin cements are the material of choice for cementing ceramic restorations, due to their esthetics and good mechanical properties. However, they may undergo color changes over time, affecting esthetics. The objective of this study was to evaluate the color stability and microhardness of three types of resin cements after immersion in coffee and water. A total of 120 specimens of three cements, RelyX ARC, RelyX Ultimate and RelyX Vener (3M / ESPE) were subdivided into 12 groups (n = 10), where each type of cement was immersed in coffee or distilled water (control) and polymerized with or without ceramic veneer (0.7mm). Microhardness and color evaluations (CIELab system) were performed. Data were submitted to ANOVA at three criteria and Tukey's test at a significance level of 5%. Regarding the color change data (E), the interaction between cement type and stain solution was statistically significant ($p > 0.001$). In coffee, the color change of RelyX Ultimate was lower than that found for other cements, but for all materials, the changes were visually detectable. The analysis of variance applied to microhardness change data showed that the interaction between the three factors in study was not statistically significant ($p = 0.312$). It is concludes that the immersion in coffee solution changes the color of different resin cements, but there was no influence between the solution staining and the presence of the ceramic veneers in the microhardness of the resin cements.

Keywords: Hardness; Resin Cements; Esthetics.

Clinical results of non vital tooth bleaching technique using crystal of ureia

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The presence of darkened teeth, especially the anterior ones, affects the life in society, since it diminishes the individual's self-esteem. The causes for chromatic alterations vary and they can be due to pulpar necrosis, hemorrhages, traumas, pulpectomy or bad cavity toilet. Thus, tooth whitening of non-vital teeth appears as an accessible and conservative alternative for reversal of these changes and often becomes an adjunct to other aesthetic restorative techniques. This work aims to show the treatment of a 45-year-old patient who presented a discoloured and endodontically treated tooth, for which the mixed technique with 35% hydrogen peroxide (PH) and urea crystal was selected. Temporary or existing restorations were removed, along with a 3 mm gutta-percha and a resin-modified glass ionomer barrier was placed. Five weekly sessions of whitening were carried out with PH 35% and mediate technique with urea crystal in a total of seven weekly product exchanges. Fifteen days after the conclusion of the bleaching treatment, a direct restoration with composite resin was performed, associated with intraradicular retention with glass fiber pin. The benefits of the selected technique were notorious for the excellent result of non-vital whitening on intensely darkened teeth as well as for the final aesthetic result after restoration.

Keywords: Case Reports; Tooth Bleaching; Nonvital Tooth.

Clinical solutions with bulk fill composites in posterior teeth: case report

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One of the biggest stimuli for the scientific and technological advances in dentistry is the aesthetic requirement. Although this requirement in posterior teeth is not so carefully, the composite resins has been widely employed in class I and II cavities. All this due to the advancement of its properties, development of different monomers and particles of different load types and dimensions. We currently have bulk fill composite as an option, presented in two categories: Flowable, indicated as base. And of medium viscosity, similar to conventional resins. The presentation of this clinical case aims to describe the restorative technique performed with Filtek Bulk Fill-3M addressing conduct compared to incremental technique restorative of the conventional resins composites in posterior teeth. Patient, female, 43 years, performed with primary occlusal caries in tooth 46. In order to restore form, function and aesthetic Filtek bulk fill-3M show very satisfactory clinical results, through single-increment technique easy to perform and a shorter timeframe, allowing also a great polishing the restoration, providing crucial requirements for greater longevity.

Keywords: Case Reports; Composite Resins; Permanent Dental Restauration.



Amelogenesis imperfecta of a young patient: a case report of conservative approach using direct composite combined with resin infiltration

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Amelogenesis imperfecta (AI) is a hereditary condition characterized by a dental enamel development disorder that affects both primary and permanent dentition. The main complications related to AI is tooth sensitivity, loss of vertical dimension and alterations in enamel thickness, color and shape, which also brings an aesthetic commitment. This case report aims to describe a treatment with minimal intervention for AI in permanent dentition of a young patient. A 15-year-old male patient was forwarded to treatment on Pediatric Clinic of Cruzeiro do Sul University. The written informed consent was obtained from his parents authorizing the case publication. During anamnesis, his mother reported that a similar alteration was noted in primary dentition. The clinical examination revealed a generalized enamel alteration, rough and some yellow-brown pits. Patient complaints were about great sensitivity and a discontent appearance of his teeth. For anterior teeth, a conservative rehabilitation was performed with composite resin direct veneers, and minimal wear of superficial enamel. For lower anterior teeth, a low-density resin infiltration technology (Icon) was used to mask the stains on smooth surfaces, combined with composite layers, only in the persistent defects. Treatment plan based on patient's age, type of defects and individual complaints is essential due to functional and aesthetic reasons, and to improve the psychological condition on young patients.

Keywords: Case Reports; Amelogenesis Imperfecta; Dental Enamel.

Correction of diastema and cosmetic remodeling with composite resin

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The presence of diastema in the region of upper central and lateral incisors is considered a highly detrimental unaesthetic factor from the social point of view. However, the professional needs to keep in mind that beyond aesthetics, should be concerned primarily the maintenance of the structural integrity and phonetics and masticatory function. Currently, the solution of this problem has been given through various restorative techniques with or without orthodontic movement. The possibility of an interdisciplinary way performance largely favors the results achieved, providing patients with a pleasant and lasting aesthetic result. This work describes, through a clinical case report, the diastema closure technique between central incisors and upper lateral, beyond the aesthetic remodeling in lateral teeth and canines, through the use of direct composite resin direct. The aesthetic result showed the power of minimally invasive restorative techniques and the ability of current composites in play with excellent optical characteristics of the tooth structure, providing the patient a treatment affordable and great aesthetic and functional effectiveness.

Keywords: Case Reports; Diastema; Composite Resins.



Dental fluorosis: minimally invasive approach to aesthetic recovery

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Dental fluorosis is a tooth enamel disorder caused by excessive fluoride in the body and it is clinically manifested as white or brownish stains throughout the tooth structure. For cosmetic correction, minimally invasive aesthetic procedures such as dental bleaching and microabrasion deserve attention due to the fact that its concept is based on the prevention of healthy dental tissue. The purpose of this study is to present an aesthetic solution of fluorosis stains treated with dental bleaching and micro abrasion. Patient T.S.S, male, 19 years old, attended the Dentistry clinic of the Federal University of Pernambuco complaining about the presence of white spots on several dental elements due to fluorosis. Treatment was based on the association of in-office dental bleaching with hydrogen peroxide 35% (Whiteness HP Maxx, FMG) interspersed by one week use of At-home tooth whitening with carbamide peroxide 16% (Whiteness perfect, FGM) used 4 hours a day. Then at last microabrasion was carried out with the aid of abrasive paste (Whiteness RM, FGM). It was possible to observe considerable attenuation of the fluorosis stains which contributes to the improvement of the patient smile's aesthetics and thus elevation of his self-esteem.

Keywords: Tooth Bleaching; Dental Fluorosis; Enamel Microabrasion.



Effect of finishing and polishing protocols on the surface roughness of two bulk fill composite resins

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Finishing and polishing protocols of composite resin restorations are critical procedures, important for their aesthetics and stability in the oral cavity. Smooth surfaces and margins reduce the risk of biofilm adhesion and maturation, recurrent caries, gingival irritation and staining. Recently introduced, bulk fill composites have been studied for their properties and clinical longevity. The aim of this study was to evaluate the influence of finishing and polishing protocols on the surface roughness of two bulk fill composite resins. 45 specimens of each Filtek Bulk Fill (3M ESPE) and Tetric N-Ceram Bulk Fill (IvoclarVivadent) composite resins were prepared, divided into three groups, which were submitted to finishing and polishing protocols by different systems (Sof-Lex Pop On/3M ESPE; Jiffy/Ultradent; and Spiral Sof-Lex/3M ESPE). The initial and final surface roughness (Ra) was measured with a surface roughness tester. Data were submitted to the Kruskal-Wallis test and the Wilcoxon test was used to compare the same polishing system, considering a significance level of 5%. The initial roughness values of the two composite resins presented similar values for the three polishing systems, while the final roughness values presented statistical significant difference. The decrease of the surface roughness of the composite resins after the three polishing systems presented statistical difference. The study showed acceptable polishing performance, admitted in the literature.

Keywords: Composite Resins; Dental Polishing; Esthetics.

Characterization of direct and indirect restorations in composite resin

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The versatility of the composites resins allows them to be indicated to many restorative techniques and their combinations. Indirect restorations in resin allow a better reproduction of the anatomical shape, stratification, texturing and polishing, considering that they are made on plaster models, while direct restorations allow a better marginal adaptation because don't need for cementing agents. This study aims to show a clinical case with replacement of three unsatisfactory restoration by using both restorative techniques. In two teeth, the indirect technique using pigments and in other, the direct restoration to compare both techniques. After removal the unsatisfactory restorations, two cavities were filled with Bulk Fill resin composites (3M/ESPE) and it was made the inlay kind preparations in teeth 46 and 47, followed by precision molding, occlusal registration, and assembly of models in articulator. In laboratory phase, the resins restorations Filtek Z350 XT (3M/ESPE) were sculpted incrementally and characterization with pigments for composite (IPS Empress Direct Color / Ivoclar Vivadent). Then, the restoration were submitted to an autoclave sterilization cycle. Lastly, it was accomplished the polishing and cementation. The other teeth (45) were restored by using the same restorative materials, however by direct incremental way. The restorative treatments used in this study are viable alternatives to refund the shape, the function and the aesthetics of dental tissue.

Keywords: Case Reports; Composite Resins; Permanent Dental Restauration.

Digital smile planning and its clinical predictability: case report

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Digital smile planning (DSP) is a virtual technique in which an overlap of lines and digital drawings is performed on face and intraoral individual's photos. The DSP is an initial step of the patient's treatment planning and allows a better predictability of the anterior tooth aesthetic treatment. The aim of this work is to detail a clinical case report in which a digital smile planning was performed as an initial step for smile design. A 24-year-old female patient sought care at the Dentistry Specialization Clinic at CPO Recife-PE complaining of generalized anterior tooth diastemas. As a proposal of treatment, a dental laminate placement was indicated, basing the whole treatment on the digital smile planning previously performed. After two facial photographs, a facial and dental analysis was done from templates of PowerPoint program (Microsoft inc. US version 2016), evaluating the proportionality of the dental and facial structures looking for a harmonic and aesthetic smile. Subsequently, the tooth forms are given virtually at the patient's facial and dental photographs. DSP was a fundamental tool for the diagnosis and planning of this case report, being a technique that allows a better clinical predictability.

Keywords: Case Reports; Esthetics; Diastema.



Ceramic laminates for smile transformation

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Oral aesthetics procedures are common requests at the dental office. It can be leading to the development of new restorative materials that seek the naturalness of the smile and the greater conservation of dental structure. Ceramic laminates are shown as a conservative option, presenting durability, biological compatibility, color stability, strength and promising aesthetic results, thus allowing the mimicking of colors and shapes of a natural dental element. Reports in the literature shows a low failure rate, making this material one of the main choices when it comes to indirect adhesive restorations. The present work aims to report the use of ceramic laminates in the transformation of the smile, taking into account the steps for clinical success, from the planning to the execution of the adhesive procedure. A 24-year-old female patient sought care at the Post-Graduation Center in Dentistry of Recife/FACSETE, complaining of generalized diastema in the anterior teeth. As a treatment proposal, dental contact lenses were indicated associated with gingival surgery to smile harmonization. The use of ceramic laminates was efficient in the aesthetic results, corroborating with the susceptibility rate of this material in adhesive restorative procedures.

Keywords: Case Reports; Dental Veneers; Esthetics.



Pharmacotherapeutic guide to the basic attention clinics of the dentistry course accessed through qr code

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The importance of medication prescription in Dentistry is well established in the literature, although there are few publications regarding pharmacological protocols. The great amount of drugs offered to the dental professional, with their respective indications, dosages, contraindications and adverse effects, adds insecurities when choosing the most appropriate medicine. This work reports the experience of the elaboration and application of a pharmacotherapeutic protocol, using a QR CODE, accessed through mobile electronic devices. After a previous study on the incidence of drug use in the areas of Minor Oral Surgery, Endodontics, Periodontics, Pediatric Dentistry, General Clinic and Antibiotic Prophylaxis, through ANVISA articles, books and drugs leaflets published between the years 2006 and 2016, a protocol for adult and child use was disclosed and accessed by QR CODE. It was concluded that the use of a digital / electronic method with easy access to teachers and students of Dentistry, collaborates for both in the decision making at the moment of prescription of a drug and stimulates group discussions as well as the assimilation of knowledge about the most frequently used drugs, as well as promote constant updating.

Keywords: Education; Educational Measurement; Learning.



TOOTH whitening: patient self-referred need x professional indication

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The incidence of self-referred need by patients was compared to professional indications for tooth whitening. It was also intended to evaluate if there was disagreement between the dental color scale indicated by the patients and the one registered with the spectrophotometer; and whether there would be differences in the incidence of professional indication for tooth bleaching depending on the surgeon's specialty. Initially, 58 individuals responded to a form, which highlighted the question: "Do you think you need to have your teeth whitened?". Ten individuals of this sample, among those who responded positively to the previous question, had the smile photographed. In addition, they were asked to indicate, in the Vita 3D-Master scale, which coloration they believed their teeth had, which was compared to the actual color obtained by spectrophotometer. The photographs were submitted to dental professionals, who were asked about the indication or not for the bleaching treatment. Most of the interviewees (63.8%) self-reported need for bleaching, as well, there was a higher incidence of a positive indication among professionals (53.9%). The results showed that professionals and patients share the aesthetic ideal directly related to clear teeth. Most patients self-perceive the coloration of their teeth darker than this actually was. The opinion about the color of the teeth has an extremely subjective character and varies greatly between one professional and another.

Keywords: Tooth bleaching; Esthetics; Tooth bleaching agents.



Indirect onlay restoration: effective alternative in extensive restorations of elderly patients

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Indirect onlay restorations with composite resin have been used in cases of extensive cavities involving cusp regions. They present a reliable option, capable of offering aesthetics and longevity, due to the higher degree of polymer conversion, reduction of polymerization contraction tensions on the adhesive interface, and excellence in anatomical contour and final polishing. The aim of this work is to report a clinical case performed at the elderly's Clinic of UFPE, in which an indirect onlay restoration was performed with composite resin to the tooth 26, highlighting indications, advantages and sequence of technique. The patient M.D.S, 64 years old, presented a fractured amalgam restoration with secondary caries. Considering the age of the patient and the difficulty in keeping an open mouth for a long time, it was opted for an indirect technique. Expulsive preparation on the tooth and molding of the upper and lower arcs with silicones were performed, followed by the bite registration, for assembly in articulator. The restoration was carried out at the plaster model with a nanohybrid composite resin, photoactivated at each increment and being autoclaved for final polymerization. In the next appointment, it was cemented after total conditioning technique. It was possible to verify that indirect restorations in composite resin present an excellent alternative for extensive rehabilitations, without causing trauma, with low cost and offering long term resistance.

Keywords: Case Reports; Composite Resins; Permanent Dental Restoration.

Diastemas closures with prefabricated resin contact lenses after orthodontic treatment

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It is very common to find patients with reduced lateral incisor dimensions complaining about their dental esthetics, however, the combined malocclusions do not allow an increase in the width of these teeth, requiring a previous orthodontic treatment to bring back the spaces between them. The closure of diastemas with composite resin is a very conservative technique, however it presents as disadvantages a long time for execution and possibility of staining. In order to avoid these disadvantages and still obtain great results without the need for molding and laboratory steps, prepolymerized and prepolished resin facets were developed. The objective of this work is to report a clinical case of diastema closure after orthodontic treatment that combined the use of pre-fabricated facets with direct composite resin, highlighting its indications, advantages and limitations. The patient C.S.S, 32 years old, underwent orthodontic treatment for unilateral class II correction and overbite. After re-establishment of dental inclinations, diastemas between frontal teeth became evident, making it possible to reanatomize lateral incisors, which required a greater increase of restorative material, with prefabricated facets, while the central incisors and canine were reanatomized with nanohybrid composites with the direct technique. It was possible to rehabilitate the patient aesthetically in a single session and at low cost, generating satisfaction and restoring his self-esteem.

Keywords: Case Reports; Diastema; Composite Resins.

Color and form naturalness in aesthetic rehabilitation with ceramic veneers

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Nowadays a big fashion subject invades the Dentistry with the indication, often exaggerated, of smile transformations with ceramics laminates. Despite the undeniable aesthetic results, it is necessary to evaluate the actual indication of this therapy, since most of the times it is necessary to perform dental preparations, which, once initiated are irreversible, even conservative. Another important aspect, directly linked to planning, is the evaluation of the patient's expectation, combined with the planning of treatment costs to avoid future frustrations with the end result. The present paper will report a clinical case of anterior aesthetic rehabilitation through the association between metal free crown retained by an anatomical pin and ceramic laminates on the upper incisors. Patient FLLA, 55 years old, asked for aesthetic restorative treatment due to the presence of a deficient metal-ceramic in crown of element 22 and complaining of color disharmony between the other upper incisors. After waxing diagnosis and discussion of the mock up, three sessions of whitening were performed, followed by cementation of a total crown with a zirconia coping in element 22, which was faceted with the other incisors by ceramic laminates in IPS E-maxx, cemented with Variolink Esthetic LC/Ivoclar. It could be observed that naturalness of color and shape of ceramic laminates are fundamental aspects for a harmonized and individualized smile.

Keywords: Case Reports; Esthetics; Denral veneers.



Restoration of the aesthetic of the central incisors. Clinical case

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Modern society is looking more and more to present a balanced smile and aesthetic this being very important in the patient's self-esteem, the change of color and the fractures are one of the most frequent issues complaints of the patients. The patient, K.M.S, 21 year old, male gender, looked for the Integrated Clinical course of dentistry 1 of UFPE, for an aesthetic restorative treatment, which through the clinical exam was observed the presence of a third stage fracture with dentin exposure element 21, caused by a motorcycle accident. Upon questioning it was seen that in addition to the aesthetic factors the same complained of sensitivity caused by the dentin exposure. It was detected that the 11 th tooth needed a restoration replacement, because it presented color alteration and surface roughness, before the diagnosis established, it was defined the treatment plan, following procedure of the adjustment of the oral environment and relevant restorations, with help of a silicone guide for reestablishment of the facial palatine, finalizing with finishing and polishing. The result of the clinical case, led to the patient's personal satisfaction with a beautiful, clear and harmonious smile and consequently self-esteem

Keywords: Case Reports; Esthetics; Permanent Dental Restauration.



Teledentistry: tele-education and telecare. a review of the literature

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Teledentistry is defined as the synergetic combination of information technology, internet and dental practice aiming to exchange data and knowledge to provide health service when dealing with time, geographic, cultural and social barriers. It was used for the first time by the US Army in 1994, since then many other institutions and organizations have been using Teledentistry with variable success rates. This study carried out a literature review where published Teledentistry scientific papers in Portuguese, English and Spanish were selected. The databases used were PubMed, SciELO, MEDLINE e LILAC between 1993 and 2013. The study used as references various books, dissertations, thesis. Teledentistry is in line with cutting edge technology and providing current knowledge and opportunities. Once existing barriers are dealt with and removed Teledentistry will probably meet standards previously established by its predecessor Telemedicine. Teledentistry should not be only seen as a tool to help local dentists but also as a potential component to help dentists in general.

Keywords: Education; Educational Measurement; Learning.



Prevalence and clinical considerations of non-carious cervical lesions on patients treated at the dentistry clinic of UFPB

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Non-Cariou Cervical Lesions are characterized by the loss of hard tissue at the level of the cemento-enamel junction, which, when promoting the exposure of the dentin, can cause dentin hypersensitivity. The presence of these lesions does not come from the bacterial involvement and they present themselves in three ways: abrasion, erosion and abfraction. To evaluate the prevalence of NCCLs in the clinical files of the patients treated at the Dentistry II clinic of the UFPB. This scientific research was carried out at the Dentistry Clinic II of the Federal University of Paraíba. The research sample consisted of 76 clinical files of the patients treated at the clinic with the presence of NCCL. Data collection was done through the use of a form, prepared by the researcher herself. The collection form consisted of types of NCCLs, the dental faces involved and whether or not there was presence of dentin hypersensitivity. 249 NCCLs were found. The abfraction lesion was the most prevalent with 34.1%, the most affected dental face was the vestibular with 52.1% and the dentin hypersensitivity was observed in 52% of the reported cases. The abfraction lesion was the one with the highest prevalence in the patients, followed by abrasion and erosion lesions; The dental face most affected by NCCLs was the vestibular face, followed by the lingual and distal face; Dentin hypersensitivity is significantly related to NCCLs and was observed in 52% of the evaluated cases.

Keywords: Tooth Cervix; Dentistry; Dentin Sensitivity.

Evaluation of the cytotoxic potential of adhesive systems

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Dental materials applied onto dentin interface directly with pulp tissue, and can thus exert cytotoxic effects on the pulp. Within this context, this study sought to assess the direct cytotoxic potential of different categories of adhesive systems on macrophage cultures over different time periods. The tested adhesive systems were Single Bond (3M ESPE), Gluma (Heraeus), Clearfil SE Bond (Kuraray), All Bond Universal (Bisco), Clearfil Universal (Kuraray), and Single Bond Universal (3M ESPE). Using a mold, discs (4mm diameter x 2mm thickness) were cast in each material, cured, and submerged in Dulbecco's Modified Eagle's Minimal Essential Medium (DMEM) for 24h at 37°C in a 5% CO₂ atmosphere to obtain extracts. DMEM served as control. The resulting extracts were applied to murine macrophage cultures for 24h, 48h, and 72h. Cell viability was assessed by the MTT assay. Data were analyzed by Friedman's test and the Kruskal-Wallis test ($p=0.05$). Except for Clearfil Universal, which had stable cytotoxic potential throughout the assessment time points, the other adhesive systems and the control medium exhibited growing cytotoxicity during the second period and stable toxicity in the last period. Compared to the negative control, all bonding agents performed similarly or were inferior; Clearfil was always inferior. We conclude that the tested adhesive systems all exhibited cytotoxic potential, which nevertheless tended to stabilize over time.

Keywords: Adhesives; Toxicity; Macrophages.

Re-establishment of aesthetic harmonization of upper anterior element by ceramic crown

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As result of the constant evolution of adhesive materials and techniques, more patients are emerging with aesthetic requirements, looking for treatments that can correct and harmonize the smile in a natural way. The purpose of this study is to report a clinical sequence for upper anterior elements aesthetic rebalancing. A 40-year-old patient sought dental care complaining of the darkened color in element 11, which was endodontically treated and presented recurrent history of internal bleaching. At the clinical examination there was also a small discrepancy in the gingival parabolic. After smile analysis, the proposed planning was to initially perform aesthetic periodontal procedure in order to provide a greater gingival harmony through clinical crown increase, having previously been performed a diagnostic waxing and mock-up of the smile. Then, after tissue healing, the patient was submitted to 2 sessions of In-office dental bleaching using 35% hydrogen peroxide (Total Blanc - DFL) associated with the 2 - hour supervised/At-home bleaching during 14 days with 16% carbamide peroxide (Total Blanc - DFL). In element 11, preparation for total crown, molding, preparation of provisional with bisacrylic resin and in the next session the ceramic crown (E.Max - Ivoclar) made by the maquillaje technique was tested with the Try-in paste of the All Cem veneer - FGM cement. The crown was internally conditioned, positioned with the resin cement, and the excesses were removed prior to photopolymerization. It can be concluded that the application of different associated techniques allowed the restoration of the aesthetic harmony sought by the patient with excellent results.

Keywords: Case Reports; Esthetics; Dental Crowns.

Anterior aesthetic rehabilitation: indication with predictability- a case report

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The color of the teeth, despite being only one of many factors that compete for the balance of aesthetic smile, constitutes the most important factor to be the disharmony of color soon perceived than other changes. The growing appreciation of the aesthetic dental care has motivated users in search of a smile more harmonious. The present work aims to report the case of a female patient, 38 years old, came to Dental Clinic of UFPE complaining about color and shape of hers anterior teeth. It was conducted the in-office whitening technique associated with mediated technique for devitalized teeth with urea crystal. After the bleaching treatment, poor restorations were replaced with the use of prefabricated glass fiber posts, in the upper left incisor, and in sequence, the making of direct veneers in composite resin. Finally it was carried out the finish, with characterization of the labial surface by texturing and polishing of restorations, giving them similarity to natural teeth as well as color harmony with each other. In this sense, it was observed that through an integral treatment planning, selecting correctly technical and operative sequences, it is possible to restore the aesthetics of a smile. Tooth bleaching and direct restorations are shown as conservative alternatives and relatively low cost, interfering directly in the well-being, motivation and overall health of the patient.

Keywords: Case Reports; Esthetics; Dental Permanent Restauration.



Construction and evaluation of educational cd-rom as a pedagogical resource in the graduation of dentistry

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The aim of this study was to present a software CD-ROM model developed as a adjunctive educational tool for 40 University of Pernambuco Dentistry School (FOP/UPE) students. This pilot mode activity was implemented by the Operative Dentistry discipline over March and April 2017. Four topics were selected to develop this programme aided by an specific software, which would allow the introduction of a "self-executable file" providing the user a non-linear hypermedia function once inserted in the computer's hard disk. The study content memorization method developed for each selected topic presents itself in motivational and playful manner. The statistic results corroborated with existing scientific articles, confirming that this kind of educational tool encouraged a smooth teaching and learning process and with more autonomy from the students' perspective. Furthermore it is relevant to highlight that this model is replicable to any other dental school subject. It was noticed that as the students concluded every task they remained motivated to seek new abilities and skills. This study concluded that innovative practices could contribute to the students learning process by increasing their sense of achievement and improving their aptitude to confidently deal with future learning challenges.

Keywords: Education; Educational Measurement; Learning.



Aesthetic resolution of peg-shaped lateral incisors: case report

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Aesthetics has always been a major concern in dentistry. Nowadays, with increasing information and awareness, patients demand aesthetic solutions to correct changes in color, shape, size and position, in order to obtain a natural result. The peg-shaped lateral incisor is a developmental change relates to the size of the teeth, and is classified as isolated microdontia. The article describes a clinical case of esthetic correction of peg-shaped lateral incisor, with alteration of color, shape and size; through the use of the direct technique associated to dental bleaching, that used to contribute to a harmonious smile. In the clinical case report, FNM, 29 years old patient, female, sought the dental service complaining of dissatisfaction with her smile due to the presence of a "dark and ugly" tooth (sic), which harmed the aesthetics in the anterior region. The case, despite other possible alternatives, was solved only with dentistry resources. Though the use of ceroplasty and photopolymerizable composite resins, cosmetic remodeling was accomplished as promised, achieving the aesthetic resolution of the problem.

Keywords: Case Reports; Esthetics; Tooth.



Advanced hands on esthetic dentistry: improving initial experience for academics

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We will present a pedagogical experience developed at the University of Pernambuco, in the course of dentistry in 2016 and 2017. 56 students participated in this experience called "Immersion in dentistry surgery". The main objective of this activity was to introduce the contents of the discipline of dentistry of the fourth period to the students before starting the semester, being presented by students tutors previously oriented by the teachers of the discipline, where they were also established in five meetings, a week before Of the beginning of the academic year, 56 students who never had practical classes - "hands on" - on dummy were introduced in the practical activities of manipulation of composites in artificial tooth cavities and some basic concepts. With the supervision of a teacher, 20 tutors (advanced academics who already had these classes) established the topics, and also led the hands-on activities. In an evaluation after three months of class, the results were satisfactory, the students had more profitable classes. The teachers perceived greater autonomy of the students and with this a greater satisfaction with the learning. The "hands on" being undertaken by their fellow students before the semester, provided a pleasurable learning and relief from the initial stress and anxiety of any learning.

Keywords: Education; Educational Measurement; Learning.

Excellence in dental aesthetics with direct composite veneer

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Conservative aesthetic recovery of endodontically treated roots and chromatically altered teeth has been possible due to the evolution of restorative materials, in particular adhesive restorative materials, such as adhesive systems and composite resins, thus serving as an alternative to more complete procedures, such as crowns. The aesthetics of the smile can be restored through direct restorations in composite resin. This allows for the conservation of the tooth structure in preparation for total crown, as well as preserving the color and translucency of natural teeth with great success. Then, the purpose of this study is to present and discuss the indications of the direct composite veneers.

Keywords: Case Reports; Esthetics; Dental Veneers.



Evaluation of the cytotoxic potential of resins in macrophagus culture

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Owing to the direct relation between the dentin and the pulp organ it is imperative to measure the cytotoxic potential of restorative materials, such as composed resins. The goal of this study Was to evaluate the cytotoxic potential of extracts obtained from composite resins on macrophages culture, in different avaluation periods. The composite resins evaluated were: Aura DC and Aura Bulk fill (SDI); BealtifilFlow (SHOFU) and Z350 (3M ESPE). Discs from each resin were prepared measuring 4mm in diameter and 2mm in thickness, polymerized and maintained through DMEN culture, during 24 hours to obtain resin extracts. The resulting extracts were applied to the macrophages culture during 24h, 48h and 72h. The control group was through DMEM. Cell viability was assessed by MTT assay. The data were analyzed using Friedman and Kruskal Wallis tests (α = 0.05). The Z 350 obtained similar results in the three evaluation periods, the Bealtfil showed higher cytotoxicity in 72h, for the other resins and the control group, the result was stable in the last two evaluation periods. Comparing the resins, the beatifiltevea had lower cytotoxicity in both initial periods and the Aura DC at the end. All materials showed potential cytotoxic, but all were similar or even lower than the control.

Keywords: Composite Resins; Toxicity; Cultured Cells.

Planning and clinical management to increase the predictability of indirect esthetic restorative treatment

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The incessant search for aesthetic has devalued the aesthetic principles and treatment planning to accelerate the procedure. This work reports the planning steps and possible failures related to indirect aesthetic restorations, through a clinical case of minimally invasive veneers from 13 to 23. 30-year-old female patient sought aesthetic treatment. After clinical examination, the planning was done through extra and intraoral photographs for digital smile design and molding for diagnostic wax-up. After mock-up with bis-acryl resin (Structur 2, Voco) and patient approval, preparations were totally guided by mock-up with condensation silicone guided. In the first test of the veneers, it was observed overcontoured and lack of sealing and marginal adaptation. In the second test, the first failures were solved, but an unsatisfactory anatomy was observed, causing an effect of larger and wider teeth, requiring refinement. The veneers were cemented with Variolink Veneer (low value -2), with six-month control clinical. This case showed that the clinical success of aesthetic restorations depends on the professional's knowledge of the correct planning and clinical conduct that should be taken during treatment.

Keywords: Case Reports; Esthetics; Veneers.



Heterocontrol and quality of fluoridation of public water supply in Pelotas, RS, Brazil

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Public water supply fluoridation is one of the most important measures of population reach in order to prevent the occurrence of dental caries. However, for this goal to be achieved, it is necessary to maintain adequate levels of fluoride in a constant manner. The aim of this study was to conduct monthly monitoring of fluoride levels in public water supply in the city of Pelotas, Rio Grande do Sul, Brazil. The collections were carried out in 16 representative places of the municipality, including the three Water Treatment Stations for 12 months, from July 2013 to June 2014, in duplicate. Analysis of the fluorine content were conducted using an electrode coupled to an Orion EA-940 ion analyzer (Thermo Scientific Inc., Waltham, USA). Monthly frequencies of fluoride levels were obtained. There was homogeneity on fluoride concentration at collection points. In 15 collection points, fluoride concentration was located within the indicated values as the greatest benefit against tooth decay and lower risk of fluorosis. Our data indicate that control of fluoride levels in the city of Pelotas has been well performed and that the population is receiving water within adequate fluoride concentrations.

Keywords: Fluoride; Dental Caries; Oral health.



Fluoride analysis in bottled water available in Pelotas, RS, Brazil

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Brazil is the fifth largest consumer market for bottled water in the world with year on year growth, according to data from the Beverage Marketing Corporation (BMC). In this context, it is necessary to maintain adequate levels of fluoride in this beverage, in a constant manner to prevent tooth decay and the risk of fluorosis. The aim of this study was to perform monthly monitoring of fluoride levels in bottled mineral waters commercially available in Pelotas, Rio Grande do Sul, Brazil. Samples of bottled water available in the main Pelotas establishments were acquired monthly, in duplicate, by selecting five brands, carbonated or not. The measurements were performed for 12 months, in duplicate. Fluoride content analyzes were performed using a Orion 96-09 electrode coupled to an Orion EA-940 ion analyzer (Thermo Scientific Inc., Waltham, USA). Monthly frequencies of fluoride levels were obtained. The results showed inconstancy of the fluoride concentration in the waters examined, and in four commercial brands, the concentration was located within the indicated values as an benefit against tooth decay and insufficient risk of fluorosis. In the other waters, a questionable benefit and a high risk of fluorosis were observed. There was disagreement regarding to fluoride content reported by manufacturers and our results. In addition, the on water labels did not correspond to the values found in our study. Our data indicate that the control of fluoride levels in mineral waters, available in Pelotas, should be monitored with greater accuracy in order to guarantee adequate concentrations of fluoride to the population.

Keywords: Fluoride; Mineral waters; Oral health.

Importance of junior enterprises in the dentistry students' academic formation of the university of Pernambuco

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The emergence of a new area of interest, the academic entrepreneurship, allowed students to expand their skills and competences during graduation, and since then, the Junior Enterprise Movement has been attracting interest from Brazilian Universities. A review of the literature with national and international articles published between 2001 and 2016 was carried out to substantiate the importance of the Junior Enterprises in the dentistry students' academic formation of the University of Pernambuco. This Junior Enterprise Movement offers the students opportunities and experiences that aim to enhance the ability to undertake through experiences in management, marketing and idealization of projects focused on solutioning problems. In addition, it allows the development of leadership and innovation skills and competences that facilitate professional insertion in business. The movement needs to be more widespread in the health area, since it is already established in the areas of exact and human sciences, and become a reference for new professionals. In face of what has been seen, it is urgent and indispensable the debate, implementation and dissemination of the numerous benefits of a dentistry junior enterprise, reason why this study purposes to learn and develop an innovative project to implement the first Dentistry Junior Enterprise of the State of Pernambuco.

Keywords: Education; Educational Measurement; Learning.



Optimizing clinical time using bulk fill technique: a case report

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One of the biggest challenges of clinic is the domination of restoring technique with composites and reconstruction of anatomic occlusal. The incremental technics turns the procedure longer and, in contemporaneous society, time is scarce and very precious. The resins composed by bulk fill are indicated for posteriors teeth with insertion in unique increments between 4 and 5mm, depending on the manufacturer. This case report intends to describe a recovering protocol using Aura bulk fill composite resin (SDI). Patient of female gender, 43 years old whose main complaint was to substitute an old restauration, which was poorly adapted on tooth occlusal 16. After radiographic exam, the old restauration was removed, as well as the existent carious tissue, and it was applied Ambar self-etching adhesive system, with enamel's selective acid conditioning. To reestablish form, function and, in some way, aesthetics, it was used Aura Bulk fill resin, inserted in unique increment of 4mm. After full adaptation on the cavity, it was accomplished occlusal sculpture and photopolymerization for 30 seconds and after 24h, finishing and polishing. Besides excellent final result, it's important to emphasize that the technique is straightforward and fast execution, allowing adequate reproduction of occlusal anatomy.

Keywords: Case Reports; Composite Resins; Dental Permanent Restauration.



Evaluation of the influence of mdp on glass fiber pin cementation

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The suitable pin cementation is directly linked to the physical and longevity suitable properties, but cementation is related to many failures. The goal of the study was evaluate in vitro the adhesive bond strength to the extrusion shearing – push-out – of glass fiber pins, in the different root thirds, of resinous cements and adhesive systems containing or not phosphates monomers (MDP). It were used thirty-two (32) roots of bovine incisors, divided into 4 groups (n=08) according to the materials: G1- Relyx Ultimate (RU) + Single Bond Universal; G2 – Clear Fill Luting AS + Single Bond Adhesive; G3 - Clear Fill Luting AS (self-adhesive); G4 – Relyx ARC +Scoth Bond Multi Purpose. All groups, except G3 (self-adhesive), were performed with the phosphoric acid conditioning to 37%. After the pins cementation, the roots were stored in distilled water at 37°C, for 24 hours, and then sectioned into six slices of 1 mm thickness, two per third (cervical, medium and apical), and submitted to the Push-out test in Universal Testing Machine (KRATOS). There was a significant statistical difference between the coronal thirds, except for G4 group ($p > 0,05$). Among the cements, G1 and G4 groups had higher bond strengths than the G2 and G3 groups ($p < 0,05$). There is a difference adhesive bond strength decreasing in the coronary thirds in the apical sense. There wasn't improvement in the bond strength of the materials that have MDP.

Keywords: Cementation; Adhesive; Dental pin.



Aesthetic reconstruction with fiberglass retainer: an alternative for diastema closure

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The recovery of form, function and aesthetics of anterior teeth with extensive coronal destruction is a major challenge in dentistry. In such cases, the use of intra-radicular fiberglass retainers associated with composite restorations is a viable option, which has good aesthetic result, in addition to being a quick solution, because it eliminates the laboratory step without presenting high cost. This article presents a case report performed at odontology specialties center of the UFPE with the use of this material. The procedure was realized in order to generate retain to the restorative material definitive and reinforcing the remaining coronal portion of the teeth, thus minimizing the likelihood of fracture. It was realized a reconstruction in coronal portion of the upper central right incisor tooth with a purpose of to rectify diastema, with material and technic that offer longevity to the restoration procedure, where the material chosen to the reinforce was fiberglass retainer considering indication, advantage and steps clinical. Patient, C.J.S 28 years old, presented extensive coronal damage caused by caries lesion. The aesthetic negative impact was evident such as the necessity of offering support to the dental structure lost. In this case aesthetic reconstruction with stratification technic of composite resin by direct technic and fiberglass retainer anchorage must offer resistance against traction strength and compression resulting more longevity for restoration.

Keywords: Case Reports; Esthetics; Diastema.

Oral rehabilitation and cosmetic with implants in the maxillary central incisors

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The growing development of implant dentistry offers dental professionals an excellent possibility to establish a gingival and dental esthetic architecture, as well as to restore oral health that satisfies the professional's goals by optimizing the final result within the planned and also the result expected by the patient who is subjected to this type of treatment. When using the implant, as a means of rehabilitation, it is possible to demonstrate success in the recovery of anterior areas such as the maxillary region, which is a great challenge for oral remodeling, since it is a region where what prevails is the cosmetic result. For this, care in the preservation of the hard tissues and soft post extraction, if any, as well as, the surgical technique and the positioning of the implants have become crucial for good aesthetic results to happen. Thereby, this study reports a clinical case of maxillary central incisors rehabilitation in a 48-year-old male patient, using the System Arcsys 3.3 x 11 mm frictional implant in elements 11 and 21, considering the limited space caused by the mesialization of the lateral incisors, in conjunction with all top arcade, beyond verification of the absence of elements 18 and 28. In order to be well executed in suitably selected patients, implantology in aesthetic areas is capable of obtaining satisfactory and long-lasting results in respect to functionality, personal satisfaction and as a consequence improvement of the patient's quality of life.

Keywords: Case Reports; Esthetics; Dental implantation.



Cariology at integrated dynamics: from disease's determination model to use of atraumatic restorative treatment

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Traditionally Cariology has been offered like a disciplinary way, isolated and through lectures where teachers are the center of pedagogical activities. On the other hand, the New Guidelines for Dentistry's Curriculum have proposed the integration of contents with active teaching and learning methodologies. In this perspective, this work aims to present the Cariology in an integrated curricular dynamics. This component is included in the third period of the course, with dental materials, crossing the Preclinical Multidisciplinary I Axis, which also includes professional orientation, propaedeutics, radiology, oral tissues histology. For Cariology, 16 hours are allocated, divided into 8, each one with 2 hour meetings, which theoretical and practical work are carried out: etiology and determinants, risk and activity, clinical and radiographic diagnosis, prevention and use of cariostats, and Atraumatic Restorative Treatment. The positive results of this approach come from resolution of problem situations involving the occurrence of caries within the Unified Health System. It was concluded that learning from this perspective should be seen as a process and not as a simple measure, quantification of concepts or classification of notes, through theoretical and practical classes, the character of attitudinal and procedural evaluation was fundamental.

Keywords: Education; Educational Measurement; Learning.



Dental caries in adolescents from Caruaru - PE

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The aim of this study was to estimate the prevalence of caries prevalence in adolescents and their associated factors, including sex, age and socioeconomic conditions, as well as to identify the self-perceived reasons and consequences of dental caries. This research was delineated by means of a cross-sectional, descriptive and analytical study, being developed at Caruaru, located in the rural state of Pernambuco. The data were collected through intrabuccal examinations conducted by two previously trained and calibrated examiners (with the objective of minimizing variances and ensuring a kappa concordance > 0.60) in the private and public schools of the city, Having as target audience the adolescents previously selected and with an informed consent signed by the parents / guardians. The margin of error used in the statistical test decisions was 5% and the intervals obtained with 95.0% confidence. The results were obtained from the data collection of 143 adolescents, with mean DMFT of 4.97 with prevalence of caries in 65% of the sample. When considering the caries experience, this percentage was 79% (113 patients). It was concluded that the estimated prevalence of caries prevalence in adolescents was high and was strongly related to unfavorable socio-economic conditions, in the last age bracket considered the DMFT increased considerably, which justifies the need for further studies to identify the reasons and consequences of Tooth decay in adolescents.

Keywords: Oral health; Adolescent health; Dental Caries.



Restoration in posterior teeth with double increment related to dentines in resin bulk fill and bulk fill flow, a case report

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The composite resins are used a lot in the field of Odontology as the first material of choice for direct restoration, especially because of the aesthetic necessity. Recently, a new category of materials it's been utilized, called Bulk Fill resin. They are resins used as base and/or for total restoration that can be applied in layers of a maximum of 4 mm of thickness, Presenting a contraction of polymerization and tension control, thus being able to minimize damages to the bonding layer with a dental structure. This way, it's clear that the goal of this work is to show a clinic case of restoration with composite resin in posterior teeth utilizing Bulk Fill e Bulk Fill Flow. It was used the Bulk Fill Flow as a single increment as a base of the restoration, with previous selective acid etching and a self etching system for dentin and enamel, above the increase of employed Bulk Fill resin, also in the form of a single increment, as material finishing of the restoration and reanatomization of the element, realization in a subsequent session, finishing and polishing procedures. Male patient, P.H.S., 18 years old, searched for treatment of the Odontology integral clinic 1 of the University Federal of Pernambuco, complaining about stains on the occlusal surfaces of posterior teeth. A clinical exam was made and caries on the occlusal surface of the element 46 (Class I simple) on the occlusal-buccal surface of the element 47 (class I composite) was observed and hereafter restored with Bulk Fill resin the carious elements. The possibility of using large increments, facilitator or procedure restored due to the practicality and the reduction of the time, bringing restoring results in an efficient and effective way.

Keywords: Case Reports; Composite Resins; Dental Permanent Restauration.

Report of dentistry's evaluation on the axis health discussions in integrated curriculum

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Dentistry's new curricular guidelines for graduation advocates a course whose structure allows an active participation of the students, thus the method of evaluation must be consistent with the integration of conceptual (theoretical) with procedural (clinical) and attitudinal (autonomy) knowledge. The present study aimed analyzes the evaluation format applied to Dentistry in the Health Discussions axis. It was an teaching experience with students enrolled in the sixth period of Dentistry, which consisted in the proposition of a clinical case, where a patient referred complaints of involvement aesthetic and multiple active caries cavities, as well as social vulnerabilities, and therefore difficulties to access and be included in the actions of the Oral Health Team in the Family Health Program. Two groups of students propose an outcome for this situation, and at the chosen time, one is drawn to present critical nodes and solutions, while the other group discusses and analyzes the scenarios and the feasibility of the proposed behaviors. The topics addressed were collective health, professional orientation, biosafety, and approach beyond effects of caries disease, restorative techniques and dental materials to public's health context. It was concluded that students were able to relate theoretical and laboratory content to a clinical situation with a high degree of success in terms of curricular integration.

Keywords: Education; Educational Measurement; Learning.



Analysis of the chemical modification of dental enamel submitted to 35% hydrogen peroxide whitening, with or without calcium

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The purpose of this study is to evaluate changes in calcium and phosphorus content in dental enamel when subjected to “in-office” whitening for an extended period, by using a 35% hydrogen peroxide solution, with and without calcium. Ten human teeth were embedded in epoxy resin, and their crown surfaces were smoothed. The specimens were divided into two groups: G1 – 35% hydrogen peroxide; G2 – 35% hydrogen peroxide with calcium. Each specimen was evaluated at 6 different points before the bleaching treatment, and these points were reassessed after each of the five sessions. Concentrations of calcium and phosphorus were measured by using the technique of X-ray fluorescence. During the whitening treatment, no statistically significant loss of calcium and phosphorus was found, and the groups showed no statistical differences. This study therefore concludes that the excessive use of hydrogen peroxide, with or without calcium, causes no loss of calcium and phosphorus. This work was developed with the financial support of FAPERJ and CNPq, and was approved by the Committee of Ethics in Research (CEP) of the Pedro Ernesto University Hospital (HUPE) (16076913.3.0000.5259).

Keywords: Dental Enamel; Hydrogen Peroxid; Tooth Bleaching Agents.



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