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"JÚLIO DE MESQUITA FILHO"
Instituto de Ciência e Tecnologia
Campus de São José dos Campos

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II ODONTO MEETING
VIII CEAJO
PROCEEDINGS

October, 18-21, 2015
São José dos Campos – SP - Brazil

WORD OF THE PRESIDENT

II ODONTOMEETING/ VIII CEAJO

In October 2017, the Institute of Science and Technology/ Campus of São José dos Campos – State University of São Paulo (UNESP) held the II ODONTOMEETING/ VIII CEAJO. This event highlights the importance and the legacy of this institution for the regions of Vale do Paraíba, Litoral Norte and Sul de Minas Gerais.

The Academic Center "XXVIII de Março" of the Faculty of Dentistry of São José dos Campos, by the effort and dedication of under-graduation students used to organize the "Jornada Odontológica Prof. Cervantes Jardim", which annually alternated with the "Congresso de Ex-alunos" (CEAFO), organized by professors and other employees. Each of these events presented its peculiarities, the first one focusing on the development of under-graduation students and the last one on professionals looking for new techniques and materials. In the year of 2003, aiming to attend these two different communities, the I CEAJO was organized. More recently, in 2015, the VII CEAJO received a new name "ODONTOMEETING", incorporating the idea of innovation and technology to the event.

During the 3 days of event in 2017, renowned professionals and researches shared their knowledge and experience with the audience. Academics and professionals could also present their in vitro and clinical research results exchanging experiences and ideas. The opportunity of publishing the abstracts in Brazilian Dental Science emphasizes the importance of the Odontomeeting for the local and scientific communities.

I would like to thank each one who contributed for the event and also thank to the Brazilian Dental Science Editorial Board in the name of the Editor-in-chief Professor Sergio Gonçalves for the publication of this special issue.

Prof. Dr. Rubens Nisie Tango
Presdent of the I Odonto Meeting / VII CEAJO

Summary

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DIGITAL FACIAL RECONSTRUCTION TECHNIQUES IN FORENSIC DENTISTRY
Técnicas de reconstrução facial digital na odontologia forense

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With the advancement of technology, recognition of cadavers and identification of historical artifacts by CAD resources is increasingly accessible. Forensic facial reconstruction is an auxiliary and extremely important method for people recognition in the legal and interpersonal settings. A 3D structure or skull is created from photos, tomographies, resonances and auxiliary data to facilitate forensic identification. The aim of the present study is to identify the current digital forensic facial reconstruction techniques (RFF). For many years reconstructions were performed manually by three different widely used methods and precursors to the digital method: American, Anatomical (Russian) and Manchester (British). The most accepted and used technique is Manchester, which is based on association of American and British techniques considering characteristics such as musculature, soft tissue, skeletal remains and artistic ability of the operator. In digital techniques the final result of creation is proportional in quality and quantity of details and data reported to the software. After the advent of technology embedded in facial reconstruction methods, artistic skills were added to technological innovation and computerized 3D Forensic Reconstruction became the method of choice, less subjective, reversing the need for artistic skills by mastery and knowledge of software.

Keywords: Forensic science; Forensic dentistry; Imaging; Three-dimensional.

02
Case Report

MULTIDISCIPLINARY APPROACH IN THE TREATMENT OF ODONTOGENIC INJURIES IN PATIENT WITH CLEIDOCRANIAL DYSPLASIA
Ação multidisciplinar no tratamento das lesões odontogênicas em paciente com displasia cleidocrani

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Cleidocranial dysplasia is a rare genetic disorder, caused by a cytogenetic abnormality of chromosome 6p21 in the CBFA1 gene. This gene controls the differentiation of osteoblasts precursor cells, which is essential for endochondral and intramembranous ossification. Anomalies in the syndrome may involve not only the clavicle and the skull, but the entire skeleton and there may be a delay in cognitive development. A 49-year-old man sought for stomatology clinic with a complaint of teeth absence. During the extra-buccal physical examination, we observed a short stature, skull with a flattened aspect, prominent forehead, parietal and occipital bosses, broad cranial bones, shortened face, prognathous profile and absence of clavicles, allowing the patient to approach the shoulders in the midline. During the intraoral examination, it was noted an increased volume of buccal and lingual bone in the mandible by the premolar region, bilaterally. Radiographic examination revealed radiolucent, unilocular and well-delimited images associated with impacted teeth. The final diagnosis was cleidocranial dysplasia including multiple supernumerary teeth and dentigerous cysts. The treatment plan was discussed among dental prosthesis, endodontics and stomatology disciplines due to the complexity of the case. Initially, it was proposed marsupialization, endodontics, and partial removable prosthesis. The patient is being treated with satisfactory results.

Keywords: Cleidocranial dysplasia; Diagnosis; Supernumerary tooth; Odontogenic cysts.

03
Case Report

POLYMORPHOUS ADENOCARCINOMA: CASE REPORT
Adenocarcinoma polimorfo: relato de caso

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Polymorphous adenocarcinoma is a malignant salivary gland neoplasm that predominantly affects the minor salivary glands. The aim of this study is to report the case of a 54-year-old woman, who presented a nodule on the right side of buccal mucosa, near the parotid duct. The nodule, with one month of evolution, was movable, firm to the touch, painless, and presented about 1.5 cm in diameter. Cosnidering the clinical hypotheses of salivary gland neoplasm or calculus (sialolithiasis), excisional biopsy was performed. By microscopic analysis, great architectural diversity was observed, as well as relative cellular uniformity, and infiltrative growth pattern. The cells, in general, exhibited polygonal shape and pale cytoplasm with poorly defined limits. The nuclei were ovoid, sometimes fusiform, with finely dispersed chromatin and indistinct nucleolus. Few figures of mitosis were noticed. Cells were organized in islands, solid trabeculae, ductile or microcystic structures or in a cellular whorl pattern. Ductiform or microcystic structures exhibited either single layer of cells or a double cell layer. Oncocytic metaplasia was noticed in luminal cells. Stromal lesion was predominantly hyalinized, with myxoid areas. Perineural invasion by the neoplasm was evident, as well as the infiltration of glandular lobules and adjacent muscle tissue. Immunohistochemical analysis revealed weak

positivity of neoplastic cells for vimentin, focal actin positivity, diffuse positivity for AE1/AE3 and intense and diffuse positivity for S-100. Based on clinical and microscopic findings, the diagnosis was polymorphous adenocarcinoma, and the patient was referred for surgical complementation.

Keywords: Adenocarcinoma; Neoplasm; Salivary glands; Buccal mucosa.

04
Case Report

CLINICAL APPLICATION OF BOLTON ANALYSIS AND REANATOMIZATION OF DENTAL ELEMENTS, ASSOCIATION BETWEEN ORTHODONTICS AND RESTORATIVE DENTISTRY
Aplicação clínica da análise de Bolton e reanatomização dos elementos dentais, associação entre ortodontia e dentística restauradora

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From the determination of malocclusion characteristics and dentofacial deformities through cephalometric, facial, model, X--ray analysis, the diagnosis and treatment plan can be formulated based on the patients' needs. The clinical case presents an adult patient 19-year-old, with anterior open bite and Angle Class I. A self-ligating interactive device, was used associated with intermaxillary elastics for the correction of the open bite, in addition to conjugated ligatures and springs to maintain diastema. The objective of this clinical case report is to highlight the importance of the association between model analysis and restorative treatment of anatomization, aiming a more harmonic orthodontic treatment. The association of Orthodontics with Restorative Dentistry requires an evaluation of the morphology and structure of the upper and lower arches for adequate planning of the clinical case. Thus, Bolton's analysis was used, and careful clinical evaluation was performed since the individual size of each tooth and the harmony between them is important for orthodontic treatment and the indication of dental elements anatomization, aiming the successful treatment accomplishment. In cases where there is disproportion, whether mandibular or maxillary, Bolton's discrepancy must be identified, allowing the required intercuspation, providing a stable and harmonious result, aesthetically and functionally.

Keywords: Orthodontics; Dental esthetic; Open bite.

05
Case Report

APPLICATION OF SKELETAL ANCHORAGE WITH ZYGOMATIC MINI PLATES IN THE TREATMENT OF PREVIOUS OPEN BITE IN ADULT

Aplicação da ancoragem esquelética com miniplacas zigomáticas no tratamento da mordida aberta anterior em adulto

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Clinical situations involving moderate skeletal discrepancies and that would have as a therapeutic option the ortho-surgical treatment, through orthognathic surgery, can benefit from the use of skeletal anchorage seeking satisfactory results and lower morbidity to the patient. Treatment of anterior open bite in an adult patient with absence of labial sealing by the use of mini plates, surgically installed in the zygomatic pillar, combined with extractions of the 1st maxillary premolars. In the present case report, positive results were obtained using miniature T-shaped plates in several aspects, such as intrusion of the maxillary molars, improvement of the inclination of mandibular molars, desired rotation in the anticlockwise direction of the mandible and significant adjustment of labial sealing. The mini plates were also used as an anchoring element for maxillary retraction. The efficacy of skeletal anchorage was observed with the use of mini T-shaped plates in the intrusion of maxillary molars as well as their benefits for the aesthetics of soft profile.

Keyword: Orthodontic anchorage procedure; Bone plates; Open bite.

06
Case Report

CLINICAL AND HISTOPATHOLOGICAL ASPECTS OF A COMPLEX ODONTOMA
Aspectos clínicos e histopatológicos de um odontoma complexo

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Odontoma is a hamartomatous lesion of odontogenic origin, characterized by the presence of all dental tissues. Although it is a common odontogenic lesion, as the radiographic characteristics highly suggest, often it is not sent for histopathological analysis. This report is a well-documented case of a 12-year-old female, leucoderma, with a well delimited intra-osseous radiopaque lesion involving the upper right second molar tooth germ, associated with impacted upper right third molar as observed in panoramic radiography requested for orthodontic planning. There was no facial asymmetry, symptomatology or aesthetic alterations. Considering diagnostic hypothesis of odontoma, an excisional biopsy was performed. The collected material consisted of four fragments of hard tissue, whitish color, irregular shape and rough surface. The fragments were decalcified and sent for microscopic evaluation. Histological sections showed a hamartomatous lesion characterized by conglomerates of tubular dentin, permeated by smaller areas of enamel matrix, pulp-like tissue with odontoblast cells in the periphery and reduced enamel epithelium. In the middle of the conglomerate, it was even observed basophilic tissue

with cement characteristics and by the periphery, islands of epithelium with enamel organ aspect. Fragments of mature lamellar tissue were found, occasionally cortical or trabecular with characteristics of normality. The final diagnosis was complex odontoma, and the patient is under follow up with no signs of recurrence.

Keywords: Odontoma; Odontogenic tumor; Dental radiography.

07
Case Report

RADIOGRAPHIC AND HISTOPATHOLOGICAL ASPECTS OF THE TOOTH PULP IN AN AMELOBLASTOMA AREA
Aspectos radiográficos de dente envolvido na área de ameloblastoma

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Ameloblastoma is a progressive growing locally invasive benign epithelial odontogenic neoplasm characterized by expansion and local recurrence originated from dental lamina. The early manifestation is described as a slow and painless development. As a consequence of progression, it may present some complications such as tooth loss, malocclusion, paresthesia, pain, soft tissue invasion, facial deformity, limited mouth opening and chewing difficulties. Radiographically, multilocular lesion with "soap bubble" or "honeycomb" - like appearance is typical. Generally, the expansion of buccal and lingual is observed. We presented the case of a female patient, 39-year-old, white, who was diagnosed with ameloblastoma, follicular pattern, located in the inferior alveolar ridge of the right side. The patient was referred for endodontic treatment of left lower lateral incisor before surgery. A periapical radiograph revealed a radiolucent, well-defined, oval shape that involved the periapex of the left lower lateral incisor in the lesion area, which presented pulp vitality. The material collected during the endodontic treatment consisted of a darkened soft tissue fragment, elastic consistency, oval-shaped, measuring 0.8mm of diameter. The material was fixed and sent to the Oral Pathology Laboratory. The histological exam revealed a connective tissue with an absence of inflammatory infiltrate, composed of a basophilic granulated material and tubular-shaped dentin fragments, evidencing that the tooth involved in the lesion presented a pulp tissue with a normal aspect. The patient was submitted to surgical excision of ameloblastoma and is under regular follow-up.

Keywords: Ameloblastoma; Endodontics; Dental pulp.

08
Case Report

USE OF DIGITAL SMILE DESIGN (DSD) IN IMMEDIATE PROSTHETIC PROCESSING

Utilização do digital smile design (DSD) na confecção de prótese imediata

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The aim of this study was to report the preparation of immediate prosthesis using the technology of Digital Smile Design (DSD) and the principles of Visagism. By means of digital simulation, the intention was to give the patient a better perspective of the final result in order to increase confidence in the accomplishment of the treatment. After anamnesis and clinical evaluation of a 40-year-old patient, it was verified the need to perform some extractions in the anterior region followed by an immediate temporary removable partial denture. Photographs were taken to use in the Keynote program to perform DSD planning. The case was designed from the models created after the first initial dental impression and also by the final image generated by the program. The DSD planning was presented to the patient so that she could see in advance how she would look with her immediate prosthesis and thus better accept dental losses. Upon becoming aware of the planning, the patient was happy and felt more confident to start the surgical and prosthetic treatment. The use of DSD to aid in provisional and final prosthetic planning is of great validity for the dental practitioner, but it is even more valid to benefit the patient by offering a new option to predict the treatment showing its possible final result. The emotional comfort of the patient tends to be significant, and the trauma of multiple dental loss in the anterior region becomes less since the patient has a notion of his image with the future prosthesis.

Keywords: Three-dimensional imaging; Removable partial denture; Dental esthetics.

09
Case Report

PROSTHETIC ANOPHTHALMIC CAVITY REHABILITATION: A CASE REPORT
Reabilitação protética de cavidade anoftalmica: relato de caso

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The loss of the ocular globe compromises the facial normality because it exposes the ocular cavity to the external environment. Due to the lack of support, the ocular and eyelid muscles can suffer atrophy. The ocular prosthesis aims at alloplastic repair of ocular bulb losses or deformities, with the purpose of supporting the musculature of the ocular mucosa, protecting the anophthalmic cavity against external aggressions, restoring the direction of lacrimal secretion and reestablishing the facial contour, as well as improving psychosocial aspects.al aspects. The present case report shows the case of a 70-year-old male who arrived at the Prosthetic Clinic of the Faculdade de Odontologia do Campus de São José dos Campos da Universidade Estadual Paulista with an eviscerated anophthalmic cavity. This report describes,

by the individualized ocular prosthesis technique, the importance of prosthetic rehabilitation, addressing aesthetic, functional and psychological aspects, as well as the method of dental impression, painting and installing the prosthesis.

Keywords: Ocular prothesis; Rehabilitation; Anophthalmia.

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Case Report

ALVEOLAR BONE REGENERATION IN REHABILITATION WITH UNITARY IMPLANT IN THE AESTHETIC ZONE, CLINICAL FOLLOW-UP OF 10 YEARS
Regeneração óssea alveolar em reabilitação com implante unitário na zona estética, acompanhamento clínico de 10 anos

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The aim of this study is to report a clinical case of Guided Alveolar Bone Regeneration of 10 years follow-up. An 18-year-old woman lost the upper left canine and the vestibular wall of the alveolar bone. The structural losses made tissue regeneration difficult, turning it impossible to use the conventional implant technique. For this, a graft surgery was performed, consisting of the use of PTFE membrane reinforced with titanium to replace the vestibular contour, then the alveolus was filled with an inorganic bone matrix of bovine origin. The healing period proceeded uneventfully so that the Guided Bone Repair (ROG) was successful and after 8 months the re-entry procedure was carried out removing the membrane because it was not resorbable. The defect area was three-dimensionally filled by newly formed bone ensuring a favorable condition for the ideal positioning of the cone-morse implant. After 6 months of implant installation, the reopening was done and from this step, the entire prosthetic implant stage was followed. At the time of installation of the definitive crown, it was observed a perfect vestibular aesthetic condition of the area as well as healthy gingival and papillary tissues. The crown was placed on the implant, and clinical follow-up recalls were planned until at least ten years after the implant insertion, confirming the success of the case and aesthetic condition maintained over the years. Therefore, the high risk of aesthetic loss of a young patient demonstrates that when well planned, ROG brings good predictability conditions to areas of interest.

Keywords: Dental implant; Alveolar bone loss; Bone regeneration; Dental esthetics.

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Case Report

ORTHOKERATINIZED ODONTOGENIC CYST: A CASE REPORT

Cisto odontogênico ortoqueratinizado: relato de caso

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The orthokeratinized odontogenic cyst (OOC) is a developmental cyst of odontogenic origin and a distinct pathological entity of odontogenic keratocysts. It is found predominantly in the posterior region of the mandible and affects mainly men, leucodermas, between the third and fourth decades of life. This is a case report of a 22-year-old man who attended the dental office for extraction of third molars. On the panoramic radiograph, an extensive radiolucent image was observed, circumscribed by a radiopaque halo, involving the second and third lower right molars, extending to the cortical bone of the mandible. Clinically, the mucosa presented regular appearance, third lower right molar was semi-included, painless and without swelling. Considering the clinical hypothesis of odontogenic keratocyst, an incisional biopsy was performed, and the material was sent for microscopic analysis. During surgery, the presence of yellowish-colored granules inside the lesion was noted. Histological examination revealed a fragment of cystic capsule covered by orthokeratinized stratified squamous epithelium. In addition, a significant amount of orthokeratin was also observed. Clinical and histological aspects led to the final diagnosis of the orthokeratinized odontogenic cyst.

Keywords: Biopsy; Diagnosis; Odontogenic cyst; Keratocysts.

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Case Report

ORAL CONDITION OF PATIENTS WITH SYSTEMIC SCLERODERMA: CASE REPORT
Condição bucal e sistêmica de pacientes com esclerodermia sistêmica: relato de caso

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Scleroderma is an autoimmune disease responsible for directly affecting the production of collagen in the connective tissue. The disease affects the internal system of organisms and skin, and may have oral and perioral manifestations. Within the oral manifestations of systemic scleroderma are included: limited capacity to open the mouth; xerostomia; periodontal disease; periodontal ligament thickening; and bone resorption at the angle of the mandible. Two patients diagnosed with systemic scleroderma were referred to the Department of Diagnosis and Surgery (ICT - UNESP) São José dos Campos-SP, Brazil to receive dental treatment. Anamnesis, clinical examination and complementary radiographic examination were carried out to elaborate the diagnosis and dental treatment plan. It was approved by the patients according to the need and possibility of execution, within the oral and systemic limitations. The dental treatments performed included: prevention, periodontics, minor oral surgery and restorative dentistry. In

parallel to the dental treatment the patients, were followed up by physiotherapist and speech therapist. This case report aims to alert the difficulties encountered in promoting dental care in patients with systemic scleroderm. With the disease in moderate to advanced stage, as well as emphasize the importance of a multidisciplinary team working immediately after the diagnosis of the systemic disease. So that the dental treatment brings effective solutions focused on prevention and long-term health promotion, considering the evolutionary picture of the systemic disease.

Keywords: Systemic scleroderma; Oral health; Periodontics; Dental care.

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Case Report

DECOMPRESSION AND ENUCLEATION USING CARNOY'S SOLUTION OF ODONTOGENIC KERATOCYST (OKC): CASE REPORT
Descompressão e enucleação de queratocisto odontogênico com utilização de solução de Carnoy: relato de caso clínico

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A 14-year-old male patient attended the Department of Oral Maxillofacial Surgery and Traumatology presenting facial asymmetry with a complaint of asymptomatic growth in the left side of the jaw, being also noticed in the intra oral clinical examination. Panoramic X-ray and computed tomography (CT) demonstrated that the patient had a bone alteration with cystic aspect related to the element 38. Puncture and incisional biopsy were performed and the histopathological analysis resulted in odontogenic keratocyst (OKC). Patient was submitted to marsupialization with the installation of acrylic resin button during one and a half years. Once achieve the lesion reduction, the element 38 was extracted and the peripheral osteotomy and chemical enucleation were performed with Carnoy's solution, which reduced the recurrence odds. Patient will be closely monitorated during healing period and must return for evaluation and control over the years.

Keywords: Odontogenic keratocyst; Enucleation.

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Case Report

ERYTHEMA MULTIFORM CAUSED BY CARBAMAZEPINE
Eritema multiforme causado por carbamazepina

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A 12-year old female patient with painful ulcers in her lips was referred by a clinician after 30 days from onset. During the anamnesis, the person responsible for the patient reported she suffered from cognitive delay, hypothyroidism and seizures. The patient takes 137mg of levothyroxine and 100mg of carbamazepine daily. Extrabuccal clinical examination revealed crusty and bleeding ulcers in the vermilion of her lips, and a vesicle in her lower lip. There were ulceration in the genital region, desquamative areas in the thorax and in the abdomen, and target lesions in the palmar and plantar regions. No lesions were found during intraoral examination. Blood tests for HSV 1 and 2 were requested under a clinical diagnosis of erythema multiform. However, they were not performed due to difficulties in collecting the material. Carbamazepine was suspended by the pediatrician, and the lesions resolved. There have been no signs of relapse after 10 months of follow-up.

Keywords: Erythema multiforme; Target lesions; HSV; Carbamazepine.

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Case Report

SCLEROTIC FIBROMA: A NON-USUAL NEOPLASIA IN ORAL CAVITY
Fibroma esclerótico: uma neoplasia não usual em cavidade oral

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The sclerotic fibroma, also known as storiform collagenoma, is a rare, benign cutaneous neoplasm that can occur in the oral mucosa. It originates from the proliferation of fibroblasts with increased production of type I collagen. It may be solitary or multiple, associated or not with Cowden Syndrome. Since 1973, only 30 papers have been published in PubMed about the subject. We report the case of a 63-year-old patient with an asymptomatic nodule with a smooth surface, with the same color of the adjacent mucosa, firm to palpation, measuring approximately 1 cm in the anterior palate, with approximately 5 years of evolution. With the hypothesis of benign neoplasia, an incisional biopsy was performed. Histologically, a proliferative lesion, characterized by thick hyaline collagenous bundles arranged in several directions, with clefts between them, was observed. The cells in the lesion were spindle-shaped, with thin cytoplasmic extensions and flat, wavy nuclei. Facing these characteristics, the final diagnosis was sclerotic fibroma. In general, the lesion behavior is not aggressive, in view of its slow growth. The complete lesion was removed and the patient is being followed up, without symptomatology or relapse.

Keywords: Sclerotic fibroma; Benign neoplasia; Oral cavity.

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Case Report

EXPANSIVE EXTRACONAL RETROBULBAR HEMATOMA: CASE REPORT
Hematoma retrobulbar extraconal expansivo: relato de caso

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Retrobulbar hematoma is rare and characterized by bleeding into the posterior compartment of the orbital cavity. It can be due to fractures of the middle third of the face, as well as direct trauma to the eyeball. If you are looking for through a weight loss, one can inquire about loss of blood pressure and loss of speed. Diagnosis and surgical treatment should be reported for decompression and drainage of the hematoma, preserving vision. The classic surgical maneuver described in lateral canthotomy, with or without inferior cantolysis and septal deinsertion along the lower eyelid in the medial direction. In addition, a penrose drain and release into position for 24 to 48 hours to ensure drainage and avoid what is needed. The objective of this study is to report the case of a female patient, 61 years old, leucoderma, with hypertension, diabetes and a history of 5 cerebrovascular accidents in the last 4 years. Patient with fall victim of his own height, presented hematemesis and epistaxis, evolving with edema and periorbital ecchymosis, ophthalmoplegia, ocular pain and visual acuity decrease in right eye with little photoreagent pupil. The tomographic examination was observed in the right orbital floor image. A general anesthesia was performed, surgical drainage of the hematoma and installation of a penrose drain. Patient evolved with gradual improvement of visual acuity with total recovery of the same.

Keywords: Hematoma; Retrobulbar; Trauma; Orbit.

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Case Report

DRUG-INDUCED IMMUNOSUPPRESSION ORAL ULCER IN A PATIENT WITH SYSTEMIC LUPUS ERYTHEMATOSUS
Imunossupressão induzida por medicamento causa úlcera oral

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A 43-year-old black woman, diagnosed with systemic lupus erythematosus and a history of cerebral thrombosis, sought care due to an oral lesion. The clinical examination revealed an ulcerated lesion covered by fibrine membrane in the anterior region of the hard palate with a 5-day course, painful symptoms and discomfort. In addition, hematological tests showed that leucocytes and neutrophils were low. The patient used the following drugs Hydroxychloroquine, Azathioprine, Prednisone, Phenytoin, Warfarin, and association of anti-inflammatories and analgesics only in case of pain. The origin of the lesion was due to immunosuppression caused by azathioprine. The patient was immediately referred to the emergency room, with initial diagnosis of febrile neutropenia, where she was hospitalized. Warfarin and Azathioprine were suspended with remission of the lesion. The patient returned to our care one week later, with improvement of the symptoms. It is important to emphasize that it is necessary to known drug interactions before any prescription. In conclusion, it is necessary to know the drug interactions before any prescription, especially when there is association with more than one chemotherapy drug. In addition, patients on immunosuppressive therapy should be monitored because of the risk of local/humoral cytotoxicity and myelosuppression, and therefore, susceptibility to opportunistic infections.

Keywords: Lupus erythematosus, Systemic; Drug-related side effects and adverse reactions; Immunosuppression; Oral ulcer.

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Case Report

CERAMIC LAMINATES FOLLOWING THE ODONTOLOGICAL PRINCIPLES IN THE HARMONIZATION OF THE SMILE
Laminados Cerâmicos seguindo os princípios Odontológicos na Harmonização do Sorriso

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In clinical approach, given the need to harmonize the smile through ceramic laminates are possible various performance techniques and planning. This study presents a case of lateral incisors conoides with fluorosis and diastema. The female patient, 18 years old, reported dissatisfaction with dental esthetics. In the initial consultation it carried out the photographic documentation protocol for mapping and diagnosis of the case. Digital planning was done through Digital Smile Design (DSD) and anatomical molding. In the second consultation, the diagnostic test was performed using the Mock-Up technique, as a control mechanism for the preparation of dental preparations. The molding was performed, the color was taken and a new Mock-Up was performed. The inner surfaces of the laminates were sandblasted with aluminum oxide, application of hydrofluoric acid at 4.6% and silanization. The last stage of the treatment consisted of the wet and dry tests and cementation of the laminates. In the dry test, the seating and adaptation of the restorations were evaluated. The wet proof was performed by try-in. The conditioning was carried out with 37% phosphoric acid and application of the adhesive on the

dental surface. The resin cement was applied on the inner surface of the laminates and its insertion was started. Finally, occlusal and functional adjustment were performed. Through proper planning, it is possible to establish the harmony of the smile following the scientific principles of digital planning, selection of preparation technique and material for aesthetic and functional resolution.

Keywords: Ceramic; Dental prothesis.

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Case Report

INITIAL MANIFESTATION OF LUPUS ERITEMATOSO IN MOUTH: CASE REPORT
Manifestação de lúpus eritematoso em boca: relato de caso

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The purpose of this case report is to reinforce the importance of oral mucosal lesions in the diagnosis of autoimmune diseases. A 28-year-old white female sought treatment with a primary complaint of an erythematous macule on the limit between hard and soft palate. The clinical examination revealed a hard palate erythematous stain, with a regular contour and well-defined borders, with a rough surface of approximately 2cm, with an evolution time of 4 weeks and no lesions on the skin. An incisional biopsy was performed and the histopathological examination revealed atrophic epithelial regions, with hydropic degeneration and lymphocytic exocytosis in the basal and parabasal layers. We also identified thickening of the basal membrane and intense mononuclear lymphocytic inflammatory infiltrate in the subepithelial region and around the blood vessels, compatible with the clinical diagnosis of lupus eryt hematosus. In addition, laboratorial tests were requested with positivity for the ANF (antinuclear factor) test. The patient has been followed for 1 month and is being evaluated by the rheumatologist. The diagnosis of systemic diseases can begin with the detection of their oral manifestations, especially in the cases of autoimmune diseases, and thus favor the early diagnosis, improving the prognosis of these cases.

Keywords: Lupus erythematosus; Cutaneous; Mouth mucosa; Palate; Autoimmune diseases.

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Case Report

PERIODONTAL PLASTIC MICROCIRURGY: STUDY OF THE TECHNIQUE
Microcirugia plástica periodontal: estudo da técnica

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Currently, patients seeking dental treatment seek health and esthetics. Periodontics, increasingly focused on the understanding of biological mechanisms, has achieved advances in understanding the etiology, pathogenesis, treatment and control of periodontal diseases. Isolated aesthetic treatments no longer meet patients' current needs. The expectation for results that are closer to natural has become a challenge for dentistry. Periodontal microsurgery is a minimally invasive technique performed with an operating microscope and microinstruments. For the use of techniques of microsurgery, the professional must present a high number of hours of training and study, therefore this work aims to present the concepts and techniques used in periodontal plastic microsurgery. Because the procedure is more sensitive and demanding than conventional periodontal procedures. The technique should be seen as an evolution of the conventional technique.

Keywords: Gingival recession; Microsurgery.

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Case Report

LIP MELANOCYTIC NEVUS: CASE REPORT
Nevo melanocítico em lábio: relato de caso

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Melanocytic nevus is a benign proliferation of nevus cells, derived from the neural crest. It is one of the most common neoplasms in humans, usually affects skin and rarely the oral mucosa. Histologically, it is classified according to its stage of development nevus - junctional, compound, intramucosal or intradermal nevus. We report a case of a 25 year-old female patient, leucoderma, which presented to the dentist reporting a lesion on the lip since childhood, but with subtle recent growth. The lesion was frequently traumatized by accident, causing bleeding. Clinically, the lesion was a 4 mm papule, slightly brownish, and located at the border between the semimucosa of the upper lip and the skin. An excisional biopsy was performed and the histological examination showed fragments of semimucosa and skin showing benign neoplastic proliferation of nevus cells. In the more superficial region of the lesion, the cells, which were arranged in nests, were large with rounded nuclei, finely dispersed chromatin and hardly evident nucleoli. In this region, there were some multinucleated cells, with nuclei arranged in rosette. Only a few nevus cells had melanin pigments in the cytoplasm. As they deepened, the lesion cells were smaller, with hyperchromatic nuclei, and the deeper ones had a fusiform appearance. The final diagnosis was intramucosal / intradermal melanocytic nevus and the patient is under follow up.

Keywords: Nevus; Nevus cells; Neoplasia.

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Case Report

MULTIDISCIPLINARY DENTISTRY - CERAMIC LAMINATES VENEERS AT THE FINALIZATION OF ORTHODONTIC TREATMENT - CLINICAL CASE REPORT
Odontologia multidisciplinar - laminados cerâmicos na finalização estética de tratamento ortodôntico

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Currently, patients seeking dental treatment are increasingly concerned with the esthetics. Accordingly, the professional must be able to indicate treatment approaches that often include more than one specialty. This concept of integrated dentistry allows achieving excellence in results, which may not be reached one single Dentistry specialty. In addition, the multidisciplinary dentistry enables the solution of cases more conservatively, especially cases where aesthetics is a relevant factor. This study aimed to report a clinical case showing esthetic disharmony of the anterior teeth even after the ending of the orthodontic treatment, causing dissatisfaction for both the patient and the dentist. From a functional point of view, the occlusion was adequate. However, the esthetics prevented a satisfactory outcome. To solve this issue, the case was treated through minimally-invasive ceramic laminates, then reaching the expected result.

Keywords: Laminate veneers; Orthodontic; Esthetic dentistry.

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Case Report

FIBROUS OSTEITIS IN A PATIENT WITH DIAGNOSIS OF MYELOFIBROSIS
Osteíte fibrosa em paciente com diagnóstico de mielofibrose

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The objective of this case report is to emphasize the importance of performing correct diagnosis and treatment of diseases. A 65-year-old female patient was referred with the main complaint of a mandibular growth with two months of evolution. The patient was in treatment for myelofibrosis and anemia. Physical examination revealed asymmetry. Intraorally, there was an asymptomatic exophytic mass, covered by normal mucosa, extending from the right mandibular first premolar to the third molar. A radiolucent image was observed on the panoramic radiograph between the teeth 44 to 48. In addition to alterations in the bone trabecular pattern, bilateral absence of the image of the mandible base and lamina dura in all lower dental

elements, accompanied by an increase in their periodontal spaces. Cone beam computed tomography images showed hypodense lesion with imprecise limits. An incisional biopsy was performed and the histopathological diagnosis was compatible with fibrous osteitis. Radiography imaging and histological reportwere suggestive of hyperparathyroidism and chronic kidney disease (renal osteodystrophy). Laboratory tests showed decreased levels of red blood cells, hemoglobin and hematocrit, hypercalcemia and proteinuria. Further laboratory exams and renal ultrasound were requested. Unfortunately, patient died before the final diagnosis, main the being hypothesis the presence of primary hyperparathyroidism. It is important to perform a correct diagnosis for appropriate treatment.

Keywords: Primary myelofibrosis; Hyperparathyroidism; Osteitis; Mandible.

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Case Report

ODONTOGENIC KERATOCYST: CASE REPORT
Queratocisto odontogênico: relato de caso

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The odontogenic keratocyst is an odontogenic cyst that occurs preferentially in the posterior region and ascending mandibular ramus. It may present aggressive clinical behavior, which causedthis lesion to be classified as an odontogenic tumor for more than 10 years. In 2017, it was reclassified as an odontogenic cyst, as originally described by OMS in 1971. The aim of this study is to report the case of a 50-year-old woman, without symptomatology, who presented a unilocular radiolucent lesion in the left mandibular body. With the hypothesis odontogenic keratocyst, excisional biopsy was performed. During the surgical procedure, yellowish granules were observed inside the lesion. Microscopic analysis revealed fragments of cystic lesion lined by parakeratinized stratified squamous epithelium, with few cell layers, basal layer with cells exhibiting a palisade nucleus arrangement and flat interface with connective tissue. The lumen of the lesion was filled with keratin, and sometimes there was epithelium detachment from the connective tissue. The capsule, of connective tissue, presented areas of chronic inflammation and satellite cysts, also filled by keratin, in addition to some islands of odontogenic epithelium. Based on clinical and histological findings, the diagnosis was odontogenic keratocyst, and the patient is being followed up.

Keywords: Odontogenic keratocyst; Odontogenic cysts; Satellite cysts; Mandible.

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Case Report

AESTHETICAL AND FUNCIONAL RESTABILISHMENT WITH CERAMIC LAMINATES VENEERS IN ELDERLY: CASE REPORT

Reabilitação estético funcional por meio de laminados cerâmicos em idosos: relato de caso

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Ceramic laminate veneers currently stands out in the Dentistry for longevity and excellent optical properties. This procedure it has been used for the most diverse aesthetic cases such as rehabilitation of anterior and posterior teeth, to improve shape, color and positioning. When properly planned within a protected occlusion, it requires minimally invasive preparations, restoring harmony and masticatory function. The media helped to highlight this kind of treatment as an option to rejuvenate. Since the demand by patients increased significantly for this type of treatment, was used the e.max ceramic laminates for two patients over 60 years old in the cases reported. In these cases, it was worth to disguise the laminates having the smiles as natural as possible with their age, instead of looking for rejuvenation at first. As consequence, it has an aesthetic improvement and harmonization with a youthful and healthful aspect to the patients. A careful planning with a study model, diagnostic wax-up and mockup was developed. After the patient's approval, was began with the tooth preparation, impression procedures, aesthetic and functional test, and cementation. Therefore our study suggests that the performance of ceramic veneers denotes high aesthetic acceptability by the patients; presents an easy handling protocol to the professional, it turns out a durable treatment. What remains is to develop and work within the correct indications and with a detailed interview regarding the patient's expectations, making them an eligible alternative in the aesthetic and functional correction of anterior teeth, regardless of age.

Keywords: Ceramic laminates veneers; Smile harmony; Elderly.

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Case Report

GUIDED BONE REGENERATION FOR HORIZONTAL INCREASE IN PRE-MAXILA WITH USE OF EQUINE ORIGIN BIO-MATERIAL

Regeneração óssea guiada para aumento horizontal em pre-maxila com uso de biomaterial de origem equina

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In oral rehabilitation by dental implants the presence of bone volume in the region of the procedure is imperative. When insufficiency of this volume is observed, it is necessary to use tissue grafting techniques that allow the placing of the dental implants in a favorable three-

dimensional position. The aim of this case report is to demonstrate a Guided Bone Regeneration (GBR) technique associated to the use of bio-material from equine origin for the reconstruction of the atrophic maxilla. A 38-year-old female patient, ASA I, presented at "MP Clínica Escola", with partial edentulism and severe atrophy between regions 13 and 22 in premaxilla. The computerized tomography (CT) revealed deficiency in bone crest that made it impossible to place implants in their ideal positioning. In the surgical planning of this case, GBR was chosen as the most appropriate regenerative procedure. In order to reconstruct the bone defect, the bio-material Bio-Gen from Bioteck was added to 40% of the autogenous bone obtained by scraping the external oblique line, "tent format" screws, Bioteck collagen membrane, and L-PRF to potentiate soft tissue healing and for the contribution of growth factors in the process of bone neoformation. Postoperative clinical follow-up was performed. After 6 months a new CT of the region was taken to observe the results. It was concluded that the use of bio-material of equine origin combined with the correct GBR technique promote excellent clinical results with greater predictability of support for the installation of dental implants, becoming an additional option for regenerative techniques with bio-materials.

Keywords: Composite tissue allografts; Bone begeneration; Biocompatible materials; Bone substitutes.

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Case Report

ORAL CANCER CASE REPORT WITH EMPHASIS IN: TRASH DOES NOT GIVE DIAGNOSIS
Relato de caso de carcinoma bucal com ênfase em: lixo não da diagnostico

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The aim of this study is to report a case of a patient diagnosed with squamous cell carcinoma that was attended by dental surgeon previously, which held dental extraction with curettage without histopathological evaluation. Male patient, 63 years, sought a private practice complaining of pain in the tooth region 46. Intraoral clinical examination it was possible to observe the presence of ulcerated lesion, high edges, located in flange region adjacent to the tooth 48. After one year has elapsed, the patient returned complaining that there was no cicatrization of the region in which the procedure had been carried out. The patient presented exulceration, with central necrosis and high edges, measuring approximately 5 cm in its largest diameter, with infiltration into underlying tissues. The patient was referred to the Stomatological Propedeutics of ICT Unesp-SJC. Incisional biopsy was performed. The histopathological exam revealed epithelial neoplasm fragments represented by intense proliferation of islands of cells reaching the depth of specimen. Individually the cells showed intense cellular and nuclear pleomorphism, with occasional presence of atypical mitosis and individual cell keratinization. Neoplastic cell islets were present in the nerve fiber sheath; the

specimen was covered by a pavement stratified epithelium parakeratinized, with an area of ulceration and fibrin-hemorrhagic exudate. The histopathological diagnosis was squamous cell carcinoma. The patient was referred for treatment. The case report is intended to highlight the extreme importance of sending any tissue removed from the patient for histopathological evaluation.

Keywords: Squamous cell carcinoma; Biopsy; Diagnosis oral.

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Case Report

CASE REPORT: OSTEOSARCOMA OF JAW OSTEOSARCOMA OF JAW: CASE REPORT
Relato de caso - osteossarcoma em maxila

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Osteosarcoma is a malignant neoplasm with rare maxillary involvement, being more frequent in long bones. The ideal treatment, if possible, is surgical associated or not to radiotherapy and chemotherapy. In this report, we present the case of a 48-year-old male patient, affected by an inoperable neoplasia in maxilla and submitted to radio and chemotherapy treatment. This neoplasia progressed with destruction of all corresponding maxillary bone, involvement of the right lateral walls and floor of the nasal cavity, hard palate and anterior portion of the left side. Currently the patient is under dental treatment at the Onco Project. Due to the oncological treatment and the progression of the lesion, an oroantral communication was established. In addition, large bone resorption; leaving the teeth 25 and 26 without bone support, acting as the focus of infection, and a bone exposure in the space between the buccal cavity and the maxillary sinus. Patient reported the considerable discomfort that he suffered from communication and dental mobility. Thus, a treatment plan was established, in which we made the extraction of the elements located near the communication, periodontal treatment, restorative treatment for removal of carious lesions and, prosthetic rehabilitation in order to seal the communication to provide greater comfort during feeding and speech; besides repairing the aesthetics.

Keywords: Osteosarcoma; Jaw; Prosthesis.

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Case Report

BIOMECHANICAL IMPACT OF THE ASSOCIATION BETWEEN CONVENTIONAL AND FLEXIBLE REMOVABLE PARTIAL DENTURE: LITERATURE REVIEW AND CASE REPORT
Repercussão biomecânica da associação entre PPR conv e flexível: rl e relato de caso

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Flexible Removable Partial Denture appeared in the dental market as a rehabilitative option for partially dentate patients. The main purpose of this type of prosthesis is to provide more comfort and aesthetics to the patients due to the absence of rigid metallic elements in its structure. However, it goes against one of the fundamental principles of conventional Partial Removable Denture that is the rigidity of its structure. The literature shows that rigidity is required for proper absorption and distribution of masticatory load to the supporting tissues without causing any damage to these structures. Thus, this study aimed to conduct a literature review about the biomechanics of these types of prosthesis and compare it with that of a conventional Removable Partial Denture. In addition, to reviewing and proposing an association between of the dentures, through the report of a clinical case, as an alternative to improve the biomechanics and aesthetic of removable partial dentures.

Keywords: Removable partial denture; Flexible; Prosthetics; Aesthetics.

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Case Report

ODONTOGENIC KERATOCYST: A CASE REPORT WITH EMPHASIS ON ROOT CANAL TREATMENT AFTER SURGERY
Queratocisto odontogênico: relato de um caso clínico com ênfase no tratamento endodôntico após intervenção cirúrgica

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The odontogenic keratocyst is known as keratocystic odontogenic tumor, due to its features compatible with neoplasms, such as its high recurrence rate and differentiated growth mechanism. Despite the unknown etiology, the origin seems to be connected with dental lamina remaining. This lesion is generally benign, with slow progression, asymptomatic, and among the odontogenic tumors, its prevalence is high. It affects mainly males, with predilection for the posterior mandible, in most cases associated with an impacted tooth. This study describes a case report of odontogenic keratocyst with involvement of 36 to 45 teeth. These teeth were treated surgically, followed by root canal treatment associated with apicoectomy of 11 dental elements. The follow-up shows satisfactory progress of the case.

Keywords: Keratocyst odontogenic; Odontogenic tumors; Root canal treatment; Case report.

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Case Report

AMNIOTIC BAND: SYNDROME OR SEQUENCE? ***CASE REPORT***
Brida Amniótica: síndrome ou sequência?

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A 31-year-old male patient, leucoderma, smoker, alcoholic, presented with complaints of increased volume in a hard palate region, without painful symptoms. The patient did not present supernumerary teeth. A marsupialization was performed with incisional biopsy, and the histopathological diagnosis was radicular cyst. In the clinical examination, a malformation of the left auditory pavilion and an ectopic auricular appendix were observed in the posterior region of the cheek on the same side. No changes were found in the hands or shortening of the phalanges. Amniotic Band Syndrome (ABS) is a rare pathology caused by the formation of bands or strands of fibrous tissue derived from the amniotic membrane. These clings, compress and strangulate fetal parts, especially cranioencephalic and limbs. The anomalies observed in ABS have high variability and severity, determined mainly by the embryonic period of development of the lesion and the affected area. The incidence varies between 1/1,200-15,000 live births and it is believed that the cause of this condition is accidental, as there are apparently no genetic or hereditary factors involved. This patient presents an anomaly caused by a series of embryogenic events in the craniofacial region caused by interference extrinsic to normal development. Therefore, should be considered a change in disruptive morphogenesis, which in the absence of other anomalies of hereditary genetic character, should be defined as the Amniotic Band Sequence.

Keywords: Amniotic band; Ectopic auricular appendix (ectopic atrial); Radicular cyst.

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Case Report

MINIMALLY INVASIVE ESTHETIC REHABILITATION: 2-YEAR FOLLOW-UP OF LAMINATES VENEERS
Reabilitação estética minimamente invasiva: follow-up de 2 anos de laminados cerâmicos ultrafinos

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Currently esthetic standards have also focused on functionality and protection of remaining dental structure. Minimally invasive approaches are desirable for preserving dental tissues; and promote great impact on the teeth vitality. Laminate veneers are restorations of 0.3 to 0.7 mm thickness, used to recover anterior esthetics. Knowledge of the technique, selection of restorative material and cementing agent are important factors for the success of the

procedure. This case report describes the technique of laminates, with a lithium disilicate ceramic, used in patients with multiple diastema, irregular shape and contours in the anterior teeth. The restorations were performed at the Postgraduate Esthetic Clinic. The procedures were: diagnostic wax-up, mock-up, periodontal surgeries, selective minimum preparation of the teeth, impression, laboratory preparation and ceramic laminates cementation. Follow-up was carried out for two years. We can conclude that treatment with laminate veneers presents a sensible technique, from the selection and correct indication of the clinical case to the finalization of the restorative procedure. Adhesive cementation is a critical step and is considered a demanding phase of the clinical procedure. The professional should pay attention to the details of the technique and the materials used, in order to achieve adequate adhesion. These two rehabilitations performed with laminate venneers promoted an excellent esthetic result after two year evaluation.

Keywords: Esthetic; Laminates; Ceramic; Rehabilitation.

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Case Report

REPORT OF 3 CASES OF MUCOEPIDERMOID CARCINOMA IN DIFFERENT LOCATIONS
MUCOEPIDERMOID CARCINOMA IN DIFFERENT LOCATIONS: REPORT OF 3 CASES
Relato de 3 casos de carcinoma mucoepidermoide em diferentes localizações

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The mucoepidermoid carcinoma (MEC) is the most common malignant neoplasm of the salivary glands, which can affect the major and minor salivary glands. The most affected gland is the parotid, followed by the smaller glands in the palate and the mouth floor. The aim of this study is to report three clinical cases of patients with MEC in different locations. Case 1: Female patient, 43 years old, presenting an increase in volume on the lateral border of the tongue, with an evolution of three years. At the clinical examination, she had a submucosal nodule, hardened, reddish color. Case 2: Female patient, 60 years old, presenting an increase in volume on the left side, painful to palpation. Clinically it was evidenced a fixed nodule, of firm consistency in left parotid gland region. Case 3: Female patient, 43 years old, presenting painless volume increase in hard palate, with evolution of 1 year. At the examination, there is a softened nodule with grayish color. Incisional biopsies confirmed the diagnosis of MEC. It can be observed, from the reported cases, that malignant neoplasms of salivary glands can affect different regions and it is up to the dentist to know about their clinical characteristics and importance of the early diagnosis of these lesions.

Keywords: Neoplasia; Mucoepidermoid carcinoma; Diagnosis.

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Case Report

LOW-GRADE MYOFIBROBLASTIC SARCOMA: A DIFFICULT DIAGNOSIS
Sarcoma miofibroblástico de baixo grau: um diagnóstico difícil

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Low-grade myofibroblastic sarcoma is a rare malignant neoplasm of cells of mesenchymal origin with myofibroblastic differentiation and slow-growing. It affects mainly head and neck and oral cavity regions, has a low risk of distant metastasis and good prognosis. We report a case of a 30-year-old woman, 5 months pregnant, presenting a nodule in the vestibular region in inserted gingiva, between teeth #16 and #17, with ulcerated regions and pseudomembrane areas, measuring about 17 mm. With the clinical hypothesis of pyogenic granuloma, an excisional biopsy was performed. Histologically, fragments of the mucosa were observed containing, in the lamina propria, malignant neoplasia characterized by the proliferation of spindle cells arranged in intersected fascicles permeated by blood vessels of varied caliber. The cells present pale eosinophilic cytoplasm, with an ill-defined border and fusiform, oval or rounded nucleus, with finely dispersed chromatin. Rare mitotic figures and moderate nuclear pleomorphism were observed. The lesion was poorly delimited, extending to the superficial epithelium, with compromised margins. The diagnostic hypothesis included other fusiform cell lesions, such as leiomyoma, solitary fibrous tumor, myofibroma, neurofibroma, and fibrosarcoma. The material was submitted to immunohistochemistry, in which a positive reaction was obtained for smooth muscle actin and negative for CD34 and S100. The final diagnosis was a low-grade myofibroblastic sarcoma. The patient was referred for complementary surgical excision.

Keywords: Neoplasm; Diagnosis; Fusiform cell lesions; Immunohistochemistry.

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Case Report

PIERRE ROBIN SEQUENCE: REPORT OF TWO CLINICAL CASES
Sequência de Pierre Robin: relato de dois casos clínicos

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Pierre Robin Sequence (PRS) is characterized by a triad of buco-facial anomalies: micrognathia, glossoptosis and cleft palate, caused by a series of embryogenic events initiated by a single malformation. Its prevalence occurs between 1/8500-14000 live births (HRAC-USP) and the cleft

palate, present in most cases, may be absent in some. As a consequence of these characteristics, the patients present clinically obstruction of the airways and alimentary difficulties, being more aggravating in the neonatal period. The patients described are assisted by AAFLAP-SJC. Case 1: HSOC, male, two years old, non-consanguineous parents, normal birth, birth weight of 3,085 g, was diagnosed with PRS with a post-foramen cleft palate. Case 2: YBB, female, 11 months old, non-consanguineous parents, normal birth, birth weight of 3,720 g, was diagnosed with PRS with a post-foramen cleft palate. In both cases, the family history was negative for genetic disorders; although, the PRS has been linked to autosomal dominant inheritance with incomplete penetration and variable expressivity, as well as autosomal recessive inheritance. Micrognathia is characterized by mandibular hypoplasia in relation to the maxilla, however, its growth continues to occur reaching a facial profile close to normal aspect between 5 and 6 years. Glossoptosis is found in about 85% of cases, while macroglossia and ankyloglossia maybe occur in 10-15% of cases. The multidisciplinary treatment should promote the rapid recovery of airway permeability and oral feeding capacity, avoiding, in many cases, surgical procedures and their inherent risks when performed in neonates and infants.

Keywords: Pierre robin syndrome; Treatment outcome; Cleft palate.

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Case Report

COWDEN SYNDROME-CASE REPORT
Síndrome de Cowden-relato de caso

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A 55-year-old female was referred by her periodontist. She was treating a sensitivity that she had while brushing her teeth. She had a background history of papillary thyroid carcinoma and breast cancer and positive family history of papillary thyroid carcinoma. On intraoral examination, the patient presented oral mucosal papillomatosis. Multiple pink nodules, firm and painless to palpation that appear to coalesce were seen bilaterally on the buccal mucosa. Multiple asymptomatic papules with a cobblestone-like appearance were seen in the gingiva. She reported that lesions appeared about five years ago. Excisional biopsy of a right buccal mucosa nodule was performed. Histological examination revealed parakeratinized stratified squamous epithelium, with a discretely corrugated surface, areas of epithelial cones hyperplasia, but without apparent acanthosis, non-neoplastic proliferative lesions of connective tissue with bundles of collagen fibers arranged in several directions and numerous blood vessels sometimes congested. Medical history, clinical examination, and histopathological findings meet criteria for Cowden syndrome diagnosis.

Keywords: Multiple hamartoma syndrome; Oral diagnosis; Hyperplasia.

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Case Report

THE SECKEL'S SYNDROME: CASE REPORT
Síndrome de Seckel: relato de caso

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The Seckel's syndrome or "Bird-headed syndrome" is an autosomal recessive disorder characterized by various abnormalities related to growth, nervous system development, irregularities in the craniofacial and in the upper and lower extremity, thorax and genitalia. Described for the first time as "Bird-headed dwarfism" by Rudolf Virchow in 1892 and Seckel in 1960, who definitely characterized it. Its incidence is less than 01 per 1,000,000 live births with no predilection for gender, ethnicity, and geography. Patient A.A.S., male, 21 years old, leucoderma with consanguineous parents. Premature cesarian birth. The patient presents weight-height deficit; semilobar holoprosencephaly; bifida C1 e hypoplasia 12° costal arch; microcephaly and brachiocephalic; hypertonic muscles (tetraparesis not symmtric); athetosis with more compromise the left semi-bodies; shortening of knees; midfacial hypoplasia, the low set earslow, ephicantic folds, oblique palpberal clefts, saddle nosefilter, long and off lip filter, thin lips, single bilateral palmar crease; microretrognatism; clinodactilia, hiypoplasia of the middle phalanx; expanded interspace between the first and second toe; hypoplasia scrotal; hip dislocation; cataract and hyperopia; bowel constipation; joint problems; facial asimmetry; bruxiteethsm and pain behind the ear. The patient is undergoing dental treatment because of the extreme need for care due to poor oral conditions: dental cavities, periodontal problems, partial anodontia and enamel hypoplasiaenamel. He is being treated as an outpatient basis with physical restraint and support for better patient comfort.

Keywords: Seckel´s syndrome; Odontology.

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Case Report

RESIN INFILTRATION TECHNIQUE FOR AESTHETIC TREATMENT OF FLUOROSIS - CASE REPORT
Técnica de infiltração com resina para tratamento estético de fluorose - caso clínico

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The objective of this study is to report a clinical case using an aesthetic, conservative and minimally invasive treatment of mild lesions of fluorosis present on the vestibular surfaces of the upper and lower teeth extended to the first molars in a young patient. To mask the lesions,

the resin infiltration technique (Icon, DMG, Germany) was chosen. The technique was combined with home bleaching with 10% carbamide peroxide, performed prior to the application of the infiltration technique of the involved teeth to improve the aesthetic appearance of the patient. After the resin infiltration procedure in both arches, the white discolorations of fluorosis were completely masked. This clinical case demonstrates that resin infiltration becomes a viable, conservative and non-invasive option for the aesthetic treatment of this type of enamel alteration. Further studies need to be performed to determine the long-term results of the technique.

Keywords: Fluorosis; Caries infiltration; Enamel defects; Esthetics.

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Case Report

REHABILITATION WITH SHORT AND ANGLED IMPLANTS AND AS AN ALTERNATIVE TO BONE GRAFT SURGERY: A 7 YEAR CLINICAL FOLLOW UP
Reabilitação com implantes curtos e inclinados como uma alternativa aos enxertos ósseos. Análise clínica com 7 anos de acompanhamento

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The installation of implants in atrophic areas of the maxilla are challenging to the surgeon. In general, patients who need such rehabilitation are elderly and has a compromised general health. Several times this condition contraindicates a more invasive surgery such as maxillary sinus surgery, bone grafting or even zygoma implants surgery. Short and angled implants are a clinical way to rehabilitate these atrophic areas. They reduce surgical morbidity, make surgery much less invasive, reduce the time of surgery, and the number of surgical events and the final cost of the rehabilitation. Studies show that short and angled implants are a good alternative to bone grafts and maxillary sinus surgery. This study aims to assess the survival and longevity of short and angled implants through the following clinical case report. The patient R.D., 60 years old, presented an atrophic maxilla and was rehabilitated with a short implant on the region of tooth 14 (Titamax WS Cortical 4,0 X 5mm Neodent, Curitiba, Brasil), and two angled implants, on regions of tooth 13 (Titamax CM Medular 4,0 x 11 mm Neodent, Curitiba, Brasil) and tooth 15 (Titamax CM Medular 4,0 x 11 mm Neodent, Curitiba, Brasil). After 4 months was installed a screw-retained provisional prosthesis. A clinical and radiographic follow up after 7 years was made and no probe bleeding nor bone resorption were present. Regarding the clinical conditions of the atrophic maxilla, the use of short and angled implants may be a good alternative to bone grafting, the use of standard length and axially installed implants.

Keywords: Atrophic maxillary; Dental implants; Alveolar bone-grafting; Short and angled implants.

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Case Report

PROTOTYPING AID IN RECONSTRUCTIVE JAW SURGERIES AFTER AMELOBLASTOMA RESECTION: LITERATURE REVIEW

Auxílio da prototipagem em cirurgias reconstrutivas de mandíbula após a ressecção de ameloblastoma: revisão de literatura

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Ameloblastoma is a locally invasive benign neoplasm, apparently from remnants of the developing dental enamel organ, the epithelial lining of an odontogenic cyst or basal cells of the oral mucosa. These tumors account for about 1% to 2% of all cysts and tumors in the mandibular region and are therefore of great clinical relevance. Its most common location is the posterior region of the mandible and currently studies show that its surgical resection is the treatment with the best results, however, this surgical modality can lead to large defects, which are of great complexity and difficulties to be corrected. Therefore, prototyping appears as an important auxiliary tool for dentists. In this regard and aims to facilitate the surgical process, offering the possibility of previous planning, surgical simulation, the material adaptation before the surgical moment, and a cost reduction. Moreover, reduce risks related to biosafety, shortening the surgical time, reduce fatigue of the osteosynthesis plate, thus making surgery faster and with better results.

Keyworks: Ameloblastoma; Mandibular reconstruction; Rapid prototyping.

41
Case Report

TRANSITION BETWEEN DIRECT RESTORATIONS OF RESIN COMPOSED AND CERAMIC LAMINATES: A CASE REPORT

Transição entre restaurações diretas de resina composta e laminados cerâmicos: caso clínico

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The aim of this study is to report a clinical case about the substitution of unsatisfactory resin composite restorations for ceramic laminates. Ceramic laminates are porcelain veneers of thin thickness, which make possible conservative preparations and aesthetic and biocompatible restorations. Patient WTP, 23, sought dental care for dissatisfaction with the current condition of his smile. The patient complained of a restoration that filled the diastema between elements 11 and 21. In the initial clinical examination, it was possible to observe the presence of resin

composite in the mesial surface of the teeth 11 and 21, with a cervical excess, causing edema and compression in the incisive papilla. Besides marginal infiltration, altering the color and compromising the aesthetics. Photographs were taken, diagnostic waxing and mock-up for planning, with an indication of replacing the composite resin with ceramics. The resin was removed and the preparation was carried out with wear guides from the waxing. The preparations were molded with addition silicon, and the provisional made with bis-acrylic resin. The ceramic laminates were made with the IPS E.max ceramic system. For cementation, the fragments were etched by 10% hydrofluoric acid for 20 seconds, and 37% phosphoric acid to remove impurities. Afterward, silane application and adhesive system were applied. The teeth were etched by 37% phosphoric acid for the adhesive system application. The cementation was done with Variolink N Bleach light-curing resin cement. Proper planning and careful execution of the technique provide an excellent clinical result improving the aesthetics and periodontal health.

Keywords: Ceramic laminates; Adhesive system; Veneer; Porcelain.

42
Case Report

DENTAL REHABILITATION TREATMENT IN CASE OF FACIAL SEPTS FROM POLIOMYELITIS: CLINICAL CASE

Tratamento reabilitador odontológico em caso de sequelas faciais decorrentes de poliomelite: descrição de caso clínico

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Poliomyelitis also called Child Palsy is a disease caused by the poliovirus which affects the nervous system causing sequelae. New cases of Polio after vaccine development have reduced considerably, approaching eradication. However, such sequelae, which are mostly irreversible, compromise the patient neurologically, physically and aesthetically. The intention in this report was to describe a particular clinical situation and to determine treatment behaviors: Male patient, 63 years old, leucoderma, presented at the prosthetic ambulatory (ICT UNESP) with aesthetic and functional complaint due to the absence of the elements, and muscle flaccidity caused by poliomyelitis in his childhood. The clinical examination evidenced the differential development in the maxillary arch, with the right side of the face intensely atrophied. Due to this discrepancy, the facial tissues on the right side, especially in the region lower and lifting jaw muscles, became hypotonic and aesthetically damaging the patient. An upper maxillary complete denture with a ramp-shaped elevation was performed to provide adequate support for flaccid tissue, as well as restoration of dental surfaces of the mandible and speech-language therapy. The result was satisfactory, reestablishing the necessary masticatory function, esthetics and muscle support.

Keywords: Poliomyelitis; Childhood paralysis; Total prosthesis; Muscle hypotonia.

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Case Report

BUCCAL FAT PAD IN THE TREATMENT OF MUCOSAL PERI-IMPLANT DEFECTS - CASE REPORT
Utilização do corpo adiposo da bochecha no tratamento de defeito mucoso periimplantar - relato de caso

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The present study aims to present a clinical case in which the buccal fat pad (BFP) was applied to improve the contour of the mucosal peri-implant tissue. A female, 58-year-old patient, reported the absence of 16 and 17 teeth, and indication for a extraction of the tooth 15. After the clinical examination and CBCT analysis, an immediate implant was placed in the region of 15 and another implant in the region of the tooth 1, prosthetic rehabilitation with three elements fixed partial denture. In the region of tooth 16 there was an extensive mucosal defect with an alteration of the contour in the vertical and horizontal directions. As an alternative to the use of subepithelial connective tissue, BFP displacement and accommodation on the crest in the region of tooth 16 were chosen in order to improve the vestibular tissue contour. The clinical and radiographic follow-up of 3 years presented the maintenance of the tissue volume obtained and the improvement of the buccal contour. In the case described, BFP was shown to be a viable alternative for the filling and treatment of peri-implant mucosal defects.

Keywords: Dental implant; Adipose tissue; Periodontal atrophy; Dental aesthetics.

44
Case Report

ROLE OF ENDOTOXINS IN ROOT CANAL INFECTIONS: A SYSTEMATIC REVIEW AND META-ANALYSIS
Papel de endotoxinas nas infecções dos canais radiculares: revisão sistemática e meta-análise

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This systematic review and meta-analysis aimed to evaluate the relationship between endotoxin levels and presence of clinical signs/symptoms and radiographic features in patients with endodontic infection. Electronic searches were performed on Medline/ PubMed, Embase, Cochrane Library, Scielo, Science Direct, Web of Knowledge and Scopus databases for identification of relevant studies published up to December 2016. Grey literature was searched

in Google Scholar. The selected literature was reviewed independently by two authors. Clinical studies evaluating the levels of endotoxin and the presence of clinical and radiographic features were included in this review. In order to determine the relationship between endotoxin levels and presence of clinical signs/symptoms and radiographic features meta‐analyses were performed. Among the 385 articles identified in the initial search, 30 were included for full‐text appraisal and only eight studies met the inclusion criteria for this systematic review. Meta-analysis revealed that individuals having teeth with tenderness to percussion (TTP) (P = 0.04; I2 57%) and previous episode of pain (PEP) (P = 0.001; I2 81%) had higher levels of endotoxin than their counterparts. Size of radiographic lesion >2 mm (P = 0.02; I2 68%) and presence of root canal exudation (EX) (P = 0.0007; I2 0%) were associated with higher levels of endotoxin. This systematic review and meta-analyses provided a strong evidence that endotoxin is related to the presence of clinical signs/symptoms and radiographic features in patients with endodontic infection.

Keywords: Endodontic treatment; Endotoxins; Meta-analysis; Systematic review.

01
Laboratory Assays - Undergraduate Students

ANALYSIS OF DEGREE OF CONVERSION, MICROHARDNESS AND ROUGHNESS OF CONVENTIONAL AND BULK-FILL RESIN COMPOSITES

Análise do grau de conversão, microdureza e rugosidade de resinas compostas convencionais e bulk-fill

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The present study aimed to evaluate the degree of conversion, microhardness, and roughness of conventional and bulk-fill resin composites. To assess the degree of conversion, five cylindrical samples were prepared for each resin composite: Filtek™ Z350 XT (FXT), GrandioSO (GSO), Admira Fusion x-tra (AFX), Filtek™ Bulk Fill (FBF), Tetric N-Ceram Bulk Fill (TBF). For this, a silicon matrix with 6 mm diameter was used. The samples of conventional resin were 2 mm thickness, while bulk-fill resin samples were 4 mm thickness. The degree of conversion was analyzed by FTIR (Perkin-Elmer FTIR Spectrometer, Wellesley, PA, USA) initially, and 15 minutes after light curing. In order to evaluate the surface roughness (Optical profilometer, WYKO NT1100-Veeco) and Knoop hardness (Microhardness FM 700) cylindrical samples (6 x 1 mm) of each resin were prepared. The results were analyzed using One-way ANOVA test and Tukey's test, with a significance level of 5%. There was no statistically significant difference in the degree of conversion of the tested resins (p = 0.44). Bulk-fill resins exhibited the lower microhardness values. Among them, AFX resins (55.65) and TBF (50.31) showed no significant difference. The GSO and AFX composites showed higher surface roughness than the other materials tested. Within the limitations of this study, it can be concluded that the degree of conversion was similar among all the tested materials, although the microhardness was different. Concerning the surface roughness, the FXT and FBF composites showed the best results.

Keywords: Composite resins; Spectroscopy Fourier transform infrared; Hardness; Dental polishing.

02
Laboratory Assays - Undergraduate Students

EVALUATION OF CHROMATIC LEVELS IN TEETH EXPOSED TO BLEACHING AGENTS AND SOLUTION OF NICOTIN TABLETS

Avaliação cromática de dentes expostos a clareadores e a solução de pastilhas de nicotina

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Cigarette smoking has many harmful effects on health and also promotes extrinsic stains on teeth. Nicotine tablets are often used as means of auxiliary treatment in this process. The aim of this study was to compare the degree of color saturation in teeth exposed to bleaching agents (e.g. 10% carbamide peroxide and 35% hydrogen peroxide) and exposed to a solution of nicotine tablets and artificial saliva solution. Twenty incisors of rats exposed to cigarette smoking were divided in 2 groups: G1- teeth submitted to bleaching and G2- teeth exposed to nicotine tablets and artificial saliva solution. The groups were submitted to the treatment for 10 hours a day and then immersed in artificial saliva solution. The pigmentation levels were analyzed using Adobe® Photoshop® (Adobe Systems Inc.) at different moments: before the application of either nicotine tablets or bleaching agents to the teeth and 30 days after both protocols. The results were submitted to ANOVA statistical analysis, followed by Tukey Test, considering *p=0.05*. There was a statistically significant decrease of the percentage of pigments in G1, which was promoted by the bleaching agents. On the specimens belonging to G2, which were exposed to the nicotine tablets, there was also a *statistically significant difference* on the pigmentation. It was concluded that nicotine tablets were capable of lowering the color saturation levels on darkened teeth by cigarette smoking.

Keywords: Nicotine; Tooth bleaching; Tobacco use cessation.

03

Laboratory Assays - Undergraduate Students

EVALUATION OF COLOR STABILITY AND MICROHARDNESS OF INDIRECT RESTORATIVE MATERIALS AFTER ARTIFICIAL AGING

Avaliação da estabilidade de cor e microdureza de materiais restauradores indiretos após serem submetidos ao envelhecimento artificial

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The objective of this study was to evaluate color stability and microhardness of two indirect restorative materials: Vitablocs Mark II (Vita Zahnfabrik, Baden Württemberg, Germany) and Resin Nano Ceramic (RNC) Lava™ Ultimate (3M ESPE, Saint Paul, Minnesota, USA). Forty discs were obtained from blocks of each restorative material and divided into three different groups: accelerated artificial aging (EAA); immersion in coffee solution (ICS) and immersion in 90% ethanol (IES). The specimens were submitted to two measurements: initial and after *treatment finalization*. A *reflectance spectrophotometry* was used to conduct color measurement and the FM-700 microdurometer (Future-Tech, Japan) for microhardness test. The equipment Suntest CPS + (Atlas Material Testing Technology GmbH, Linsengericht, Hesse, Germany) was used for EAA, with parameters corresponding to a one-year oral aging. The ISC and IES groups were immersed in the solutions for 14 days. Statistical analysis included two-way ANOVA, Wilcoxon-Mann-Whitney and Tukey's test (5%). The results showed that after EAA: RNC presented greater

color change (ΔE = 7.03) and yellowing (Δb = 6.65); none of the materials presented a statistically significant difference in weight and microhardness. It was observed that after storage in coffee solution color the difference between the tested materials was not significant, and the storage in ethanol RNC presented greater changes in color (ΔE = 27.39) compared to feldspathic ceramics. It was concluded that within the tested conditions, feldspathic ceramics showed greater color stability than the RNC and both materials presented no statistically significant differences regarding microhardness.

Keywords: Ceramics; Color; Hardness; Aging.

04
Laboratory Assays - Undergraduate Students

IN VITRO EVALUATION OF DENTIN COLLAGEN DEGRADATION SUBMITTED TO ND:YAG LASER TREATMENT

Avaliação in vitro da degradação do colágeno dentinário frente ao tratamento com Nd:YAG laser

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The aim of this study was to evaluate the degradation of root dentin collagen submitted to *surface treatment with Nd:YAG* laser, using polarized light microscopy. Ten different root dentin blocks were obtained and randomly divided into two groups, according to the surface treatment: C - control (without treatment) and L - irradiation with Nd:YAG laser (60mJ/10Hz). After the treatment, the samples were waterproofed and submitted to the demineralization process for 14 days at 37°C. Subsequently, the samples were exposed to degradation by the collagenase enzyme. Longitudinal sections were performed in order to obtain dentin slices and promote their evaluation under polarized light microscopy. The *depth* of *collagen degradation* was performed using Image J software in the demineralized area. Data were submitted to t-Student test ($p<0.05$). According to the t-Student test (t-value=2.09) it was observed that the surface *treatment using Nd:YAG* laser showed no statistically significant differences when compared to the control group ($p=0.055$). Nd:YAG laser treatment promoted changes in the root dentin surface with no difference with the control, what suggests short effectiveness in the prevention of collagen degradation.

Keywords: Collagen; Dental caries; Dentin; Lasers; Microscopy.

05
Laboratory Assays - Undergraduate Students

ANTI-EROSIVE EFFECT OF SOLUTIONS CONTAINING BIOADHESIVE POLYMERS ASSOCIATED WITH SODIUM FLUORIDE

Efeito antierosivo de soluções contendo polímeros bioadesivos associados ao fluoreto de sódio

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The prevalence of dental erosion has increased over the last few years, mainly due to changes in dietary and behavioral habits of populations in general. Considering the irreversible nature of this condition, the early diagnosis and the adoption of preventive and therapeutic measures are very important. The ability of bioadhesive polymers in reducing dental erosion has been evaluated recently. The anti-erosive potential of the polymers is due to their compatibility with dental structures and capacity to form a protective film. This study investigated the effectiveness of the addition of polymers to solutions simulating mouthrinses, as well as the effect of the association of these with sodium fluoride (NaF) in order to protect the dental structures against erosive challenges. Hydroxyapatite crystals were pre-treated with solutions containing NaF, polyethylene oxide, hydroxypropyl methylcellulose, pectin and some combination thereof. Deionized water was used as a control. The pH-stabilization method (pH-stat) was used to evaluate hydroxyapatite dissolution. One-way ANOVA (α=5%) showed a significant difference for the experimental solutions. The solutions containing only polymers did not reduce the amount of hydroxyapatite dissolution. The solutions containing sodium fluoride significantly reduced the amount of hydroxyapatite dissolution. Pectin was able to potentiate the anti-erosive effect of sodium fluoride against erosion.

Keywords: Tooth erosion; Dental enamel; Polymers; Sodium fluoride.

06
Laboratory Assays - Undergraduate Students

WHITENING EFFECT OF OVER-THE-COUNTER WHITENING PRODUCTS ASSOCIATED WITH 10% CARBAMIDE PEROXIDE AT-HOME BLEACHING

Efeito clareador de agentes clareadores de venda livre associados ao clareamento com peróxido de carbamida a 10%

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This study aimed to evaluate whitening effect of over-the-counter whitening produtcs associated or not to 10% carbamide peroxide (PC). One hundred and twenty specimens of bovine teeth were previously stained for 14 days. They were divided into 2 groups according to the association or not to PC and subdivided into 8 subgroups according to the over-the-counter product (n=15): PC-AG e AG - water; PC-Lis e Lis- whitening mouthwash; PC-EConv e EConv-conventional toothpaste, PC-EClar e EClar- whitening toothpaste. The group which had

association with PC was submitted to a whitening cycle: PC application for 8h, imersion in staining broth for 5min, brushing or washing with each subgroup product and storage in artificial saliva until complete 24 hours. This cycle was repeated daily for 14 days. Subsequently, a new daily cycle period started and lasted for 12 weeks, in a similar way to the initial cycle, in all subgroups, however without PC association. The color measure was performed after staining, after 14 days of whitening (to PC group) and after 12 weeks of the second cycle period. For PC group, results showed that after PC bleaching, ΔEab* and Δb values were similar to each other and significantly different to the initial measure. After 12 weeks, PC-Lis e PC-Ag presented higher values to Δb, indicating staining effect. Lis, EConv and EClar presented negative values to Δb, indicating whitening effect. It was concluded that the evaluated toothpastes are capable of preserving the effect obtained with PC. However, the mouthwash was not effective. Over-the-counter whitening agents promote whitening a similar effect to each other, but not the same effect than PC.

Keywords: Tooth bleaching; Toothpastes; Mouthwashes.

07

Laboratory Assays - Undergraduate Students

EFFECT OF FELDSPATHIC CERAMIC CONCENTRATION ON THE SYNTHESIS, RESISTANCE AND TRANSLUCENCY OF LITHIUM DISILICATE GLASS-CERAMICS

Efeito da concentração da cerâmica feldspática na síntese, resistência e translucidez de vitrocerâmicas de dissilicato de lítio

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The present study aimed to evaluate the addition of different amounts of feldspathic ceramic in lithium disilicate glass-ceramic. First, the composition glass (33.33 mol% Li_2O and 66.67 mol% SiO_2) was obtained by the melting/cooling method. Samples with homogeneous *lithium disilicate-based* glass were prepared in order to determine the best sintering parameter. The heat treatment of 950 ºC/3h obtained the best results, being the one chosen to carry out this stage of the study. In order to optimize the aesthetics, VITAVM®9 (VM9) was added to the $SAiO_2$-Li_2O glass in the proportion of 10%, 15% and 20%. Analysis of X-ray diffraction (XRD), scanning electron microscopy (SEM), determination of density and apparent porosity, measurement of translucency, determination of hardness and biaxial flexural strength were performed. Through the DRX it was possible to observe that all groups formed a lithium disilicate phase. In the micrographs, it was observed the presence of the lithium disilicate grains, which were intrinsic to this phase. The group with 10% of VM9 presented the highest densification and therefore the lowest porosity. The translucency was higher in the group with 20% of VM9. It was observed that the addition of 10% of VM9 did not alter the resistance of the material when compared to the control group (without VM9), but with the increase of VM9, the biaxial flexural strength decreased, as did the hardness. Through this work we obtained an experimental lithium

dissilicate glass-ceramic and it was concluded that the amount of glass matrix directly influences the values of translucency and inversely in the mechanical resistance.

Keywords: Dental materials; Ceramics.

08
Laboratory Assays - Undergraduate Students

EVALUATION OF SILICON HYDRIDE DEPOSITION AT DIFFERENT PERIODS ON THE ZIRCONIA'S SURFACE AND THE FLEXURAL STRENGHT TO THE RESIN CEMENT
Efeito de diferentes tempos de deposição de hidreto de silício sobre a superfície de zircônia na resistência de união ao cimento resinoso

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The aim of this study were: a) to evaluate the shear bond strength of zirconia and resin cement after the deposition of silicon hydride film at different periods and b)to analyze the chemical bonds and the zirconia's surface composition. Three pre-sintered zirconia blocks YZ HT (Vita) were cut (Isomet) to obtain 15 samples (16x16x3) mm. All samples were polished with sandpaper (#400, #600, #1200) and sintered. Then, they were divided into 5 groups (n=3) according to different timepoints (0s, 30s, 60s, 120s and 300s). The blocks's surfaces were submitted to the *chemical* vapor *deposition* (CVD). One sample of each group was chosen for Fourier Transform Infrared (FTIR) spectroscopy analysis and the remaining blocks were embedded in acrylic resin placed in a PVC (25x10) mm tube. Five cylinders of resin cement (Rely X Ultimate, 3M ESPE) (3x3) mm were manufactured above each zirconia block and polymerized for 20 s on each side, totalizing 10 samples per group (n=50). The samples were stored in distilled water in an incubator during 24 hours. The shear strength was performed with a universal test machine (EMIC). Non-parametric Kruskal-Wallis and Dunn tests were performed for statistical analysis. The FTIR showed that silicon is not only present on the zirconia surface, but also connected to its structure. Regarding the control group, the shear strength increased with a deposition at the periods of 30s, 60s and 120s (120> 30> 60> Ctrl> 300). There was no statistically significant difference between the experimental groups, except for the group of 300s. The deposition of silicon hydride improved adhesion to resin cement at times of 30 and 120s.

Keywords: Ceramics; Silicon; Shear strength.

09
Laboratory Assays - Undergraduate Students

EFFECT OF PRE-BRUSHING WHITENING MOUTHWASHES IN ABRASIVE WEAR OF THE DENTAL

ENAMEL

Efeito de enxaguatórios bucais clareadores pré-escovação no desgaste abrasivo do esmalte dental

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The aim of this study was to evaluate the effect of whitening mouthwashes used before toothbrushing on abrasive wear on enamel. Eighty bovine enamel specimens were obtained. The Initial Knoop microharness and the profile of each surface specimen were measured. The specimens were randomly distributed among 4 groups (n=20): PW: Plax Whitening; LW: Listerine Whitening before toothbrushing; U: Ultradex; C: Control. The specimens were immersed in mouthwashes for 1 min and brushed in a toothbrushing machine with 10 strokes, using a slurry composed of diluted dentifrice in artificial saliva (3:1). The specimens were washed with ultrapure water and immersed in artificial saliva for 30 min. A total of 540 cycles were performed. The final microhardness and surface roughness were reassessed and the tooth surface loss in micrometers was measured. The specimens were immersed in saliva for additional 30 days and microhardness was conducted. One-way ANOVA and Tukey tests were performed to analyze data (5%). Significant differences were observed for microhardness after treatment (p= 0.000045) and enamel loss (p=0.00001). For Tukey test: Microhardness: U (320.08±13.86)a, PW (323.58±32.75)a, LW (331.66±24.74)a, C (354.24±16.40)b. Wear (µm): PW (10.03±0.94)a, LW (9.92±0.81)a, U (8.88±1.02)b, C (6.56±0.91)c. After the immersion in saliva for 30 days, no *statistically significant* differences among the groups for microhardness were found. In conclusion, the use of mouthwashes reduced the enamel microhardness and increased enamel loss in comparison with control group; and the chlorine dioxide-based mouthwashes promoted the highest enamel loss compared to the peroxide-based ones.

Keywords: Mouthwashes; Dental enamel; Bleaching agents; Tooth abrasion.

10
Laboratory Assays - Undergraduate Students

AGING PROTOCOLS ON FELDSPHATIC CERAMIC RESISTANCE

Efeito de protocolos de envelhecimento na resistência de uma cerâmica feldspática

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With a high demand for esthetics, the use of ceramics has increased. Nevertheless, the intraoral environment limits its durability and efficiency. Consequently, research is needed in order to achieve the reduction of these limitations. This study aims to evaluate the effect of the storage medium and the thermocycling time on the mechanical properties of a feldspathic ceramic, by 3 - point bending flexural strength test. A total of 90 samples of

feldspathic ceramic (14x4x1.2mm) were randomly divided into 9 groups (n=10). The specimens were stored at 37 ° C in distilled water or mineral oil for 9 hours, 4 days or 8 days or thermocycled in distilled water to 500, 5000 and 10000 cycles, respectively. After the aging protocol, flexural strength test was performed in a universal test machine. The flexural strength data (MPa) were submitted to 2-way ANOVA and to Tukey's test, both with α = 0.05. It was observed that time, storage medium and interaction influenced on flexural strength. In the Tukey's test, it was verified that the flexural strength was lower in 4 and 8 days compared to 9 hours. In the samples stored in oil no significant change in flexural strength was observed. It was also observed that storage in distilled water for 9 hours did not result in significant hydrolytic degradation, since there was no difference when compared to group stored for 9 hours in mineral oil. The results obtained from thermocycling showed a decrease in the strength of all the groups when compared to those stored in distilled water and mineral oil, being quite similar to each other. It was concluded that the time and storage medium influenced on the flexural strength values of the feldspathic ceramics.

Keywords: Dental materials; Ceramics; Dental Materials.

11
Laboratory Assays - Undergraduate Students

EFFECT OF DENTIFRICES OVER THE PROTECTION AND CONTROL OF ENAMEL AGAINST ABRASION/EROSION CHALLENGES
Efeito protetor de diferentes dentifrícios no controle do desafio erosivo-abrasivo do esmalte

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The aim of this study was to evaluate the protective effect of toothpastes against the initial erosion and erosive wear of enamel. Bovine enamel specimens were submitted to an erosive/abrasive cycling model (1% citric acid (2min - pH 3.9), artificial saliva (60 min), 4x/day, 5 days. Treatment with the dentifrice slurries was performed for 60 s (10 s abrasion), 2x/day. Groups tested were: *Cont* (non-fluoride dentifrice); *NaF* (sodium fluoride);*NaF/PN*(NaF and potassium nitrate); *MPF/Arg* (sodium monofluorphosphate and arginine); *MPF/CSSP* (monofluorphosphate, calcium silicate, sodium phosphate); and *MPF/CSSP/BS* (*MPF/CSSP* associated with a dual fluoride serum). Initial erosion was defined by microhardness (SMH) measured after the first abrasion treatment (rehardening) and after the second acid challenge (protection). Enamel loss was assessed by profilometry at the end of the cycle. Data were submitted to RM ANOVA (SMH) and One-way ANOVA (Profilometry) followed by Tukey's tests (5%). For the initial erosion, *NaF*, *NaF/PN* and*MPF/Arg* promoted enamel rehardening, but only *NaF/PN* and *MPF/CSSP/BS* protect it. Regarding surface loss, all dentifrices promoted similar loss (except *NaF/PN*, which presented higher values). It can be concluded that *NaF/PN* and *MPF/CSSP/BS* exhibited the highest protective effect against initial erosion, but they were not

able to maintain a greater protective potential in the presence of erosive/abrasive challenges compared to the other products.

Keywords: Dental erosion; Dental enamel; Hardness; Sodium fluoride.

12
Laboratory Assays - Undergraduate Students

EFFECTS OF *ROSMARINUS OFFICINALIS L.* ADDITION IN CHITOSAN SOLUTION ELECTROSPUN NANOFIBERS

Efeitos da adição de rosamarinus officinalis em nanofibras eletrofiadas via solução de quitosana

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Chitosan, a biocompatible and antimicrobial biopolymer, is widely used in the synthesis of biomaterials. In addition, the use of herbal medicine in health care, such as rosemary (Rosmarinus officinalis l.), has increased in the last decades mainly because of its antimicrobial activity. Thus, the objective of this study was to characterize morphologically the electrospun fibers by chitosan solution with rosemary inclusion and analyze their properties for further studies regarding tissue regeneration and drug delivery. For this, a solution of 0.7 g of chitosan dissolved in 7 mL of Trifluoroacetic Acid and 3 mL of Dichloromethane with 50 µg of rosemary extract was prepared. The solutions were submitted to electro-spinning, under three different parameters: flow rate, distance, and electric voltage. Micrographs of the membranes with fiber formation (ChAl1, ChAl2, and ChAl3) were obtained using Scanning Electron Microscope in order to verify the presence of granules and measure the mean diameter of fibers. The micrographs were analyzed by the ImageJ software. It was possible to observe a statistically significant difference regarding the mean diameter ($p<0.0001$); being ChAl1 (0.641 ± 0.31µm) in relation to ChAl2 (2.04 ± 0.80µm) and ChAl3 (2.03 ± 0.52µm). Regarding the formation of granules, there was a significant difference ($p<0.0001$) only in ChAl3, which presented a lower number of granules. It was concluded that the results obtained showed a strong dependence on the synthesis parameters. In addition, the lower electric voltage, distance and flow rate formed smaller the diameter of fibers and larger the amount of granules.

Keywords: Electrochemistry; Quitosan; Rosmarinus.

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Laboratory Assays - Undergraduate Students

STUDY OF THE SINTERING OF A GLASS CERAMIC OF LITHIUM DISILICATE
Estudo da sinterização de uma vitrocerâmica de dissilicato de lítio

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The aim of this study was to determine the sintering parameters of a glass-ceramic formed by lithium disilicate for dental applications. In this study, glass was based on silica and lithium oxide obtained by a melting/frit process. The ceramic was obtained from a glass composed of 33.33 mol% Li2O and 66.67 mol% SiO2. Subsequently, this glass was submitted to heat treatment at the temperatures of: (1) 300 ºC/1h + 580 °C/1h + 850 °C/3h; (2) 300 °C / 1h + 580 °C/1h + 900 °C/3h and (3) 300 °C/1h + 580 °C/1h + 950 °C/3h. The first temperature baseline was used to exit the binders; the second was used to favor the nucleation and crystallization process, and the third allowed the densification process. The glass-ceramics were characterized by the following techniques: X-ray diffraction (XRD) and Scanning Electron Microscopy (SEM). The developed ceramics were also characterized by Archimedes method and Biaxial bending test to analyze its mechanical properties. In the XRD it was observed that all the treatments formed lithium disilicate mainly. In SEM it was possible to observe the needled grain with greater predominance in group 3. This group also presented higher density and greater resistance when compared to the other groups evaluated. It is possible to conclude that in group 3 higher densification occurred and consequently the improvement of its mechanical properties. Therefore, the use of adequate temperature is essential for materials sintering, as it directly affects the mechanical strength and microstructure of the same.

Keywords: Bioceramics; Glass ceramics; Restoration of teeth; Lithium Disilicate.

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Laboratory Assays - Undergraduate Students

OBTAINING AND MORPHOLOGICAL CHARACTERIZATION OF POLYCAPROLACTONE (PCL) AND CHITOSAN ASSOCIATED ELECTROSPUN FIBERS
Obtenção e caracterização morfológica de fibras eletrofiadas de policaprolactona (pcl) associadas a fibras de quitosana

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Studies of biomaterials are usually integrated into medicine, pharmacology and dentistry Polymers often appear as materials of choice for the synthesis of biomaterials due to its biocompatible characteristics for several applications such as tissue regeneration. Thus, this study aimed to synthesize, by the electrophilling method, layers of two types of polymer fibers, already commonly used in biomedicine: Chitosan (Ch) and Polycaprolactone (PCL). In addition, its morphological characteristics were evaluated according to the variation of the synthesis

parameters (electric voltage, flow rate and the distance between metallic collector and capillary). For this, initially, two solutions were prepared: one containing 0.7 g chitosan diluted in a mixture of Trifluoroacetic Acid (TFA) (7mL) and Dichloromethane (DCM) (3mL) and another containing 3g of PCL, diluted in 2mL of Acetone. The solutions were electrophiles under different electrowinning process parameters. Both layers were analyzed by Scanning Electron Microscope and micrographs were taken were submitted to an image software in order to analyze fiber diameter and detect the presence of granules. The results were submitted to statistical analysis using one-way ANOVA. The presence of granules was similar in ChP 1 and ChP 3, which did not show any statistical difference ($p > 0.0001$). ChP 2 showed a significant decrease in the formation of granules ($p < 0.0001$). Regarding the mean fiber diameter, all samples showed a statistical difference between them, and ChP 2 was the one with the smallest mean diameter. The distance parameter significantly influences the formation of granules and diameter of fibers, which are important characteristics to consider in a material studied for biological applications.

Keywords: Chitosan; Electrochemistry; Fibers; Polymers.

15
Laboratory Assays - Undergraduate Students

PHYSICAL-MECHANICAL PROPERTIES OF UNIVERSAL ADHESIVE SYSTEMS THROUGH DIFFERENT LED DENSITIES

Propriedades físico-mecânicas de sistemas adesivos universdais mediante diferentes densidades LEDs

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The aim of this study was to evaluate the physical-mechanical properties, such as flexural strength (RF), elastic modulus (EM), sorption (SOR) and solubility (SOL) of Universal adhesive systems, using different LED power densities. Ten samples for each brand of the adhesive system were prepared: SBU-Single Bond Universal (3M ESPE) and TN-Tetric N-Ceram (Ivoclar Vivadent), standardized from a Teflon matrix, and randomly divided into two groups, according to power density used for light-curing: 750 mW/cm2 and 1200 mW/cm2. Samples were submitted to flexural strength (RF) assay and modulus of elasticity (ME) test by the three-point flexural test. Sorption (SOR) and solubility (SOL) analyses were evaluated according to ISO 4049. Data were analyzed by ANOVA 2-way and Sidak tests (5%). For ME: the densities, adhesives, and interaction between the factors showed statistically significant differences which SBU presented the highest mean values. RF: the adhesive factor showed a statistically significant difference ($p <0.0001$) and SBU presented the greater result. SOR and SOL: TN presented higher sorption and solubility, regardless of densities. The physical-mechanical properties are directly related to the types of universal adhesive systems and to the LED power densities used.

Keywords: Adhesive system; Light-curing; Properties.

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Laboratory Assays - Undergraduate Students

COMPARATIVE STUDY OF ELECTROSPUN ULTRAFINE FIBER VIA CHITOSAN SOLUTION WITH PHYTOTHERAPIC INCLUSION (BETULA PENDULA)

Obtenção comparativa de fibras ultrafinas eletrofiadas via solução de quitosana com inclusão de fitoterápico (Bentula pendula)

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In the last decades, the use of biopolymers has been remarkable, due to its versatility, generating many possibilities for biomedical applications. Chitosan, a polymeric material obtained through the chitin deacetylation of crustacean's exoskeletons, presents antimicrobial and regenerative properties. The aim of the present study was to synthesize and characterize ultrafine chitosan fibers and chitosan with the inclusion of Betula (Betula pendula), a herbal medicine that presents anti-inflammatory and cicatrizing potential. Firstly, two solutions were made, one of pure chitosan (Ch) and another of chitosan with Betula (ChB). Both solutions were processed by electrospinning under different parameters (flow rate, distance, and electrical voltage). Subsequently, the analysis was performed in Scanning Electron Microscopy (SEM) and image software (ImageJ) for morphological characterization. ChB (0.60 ± 0.03μm) had a lower average fiber diameter than Ch (1.11 ± 0.051μm), with a statistical difference ($p < 0.0001$). In addition, ChB exhibited granule formation with significant difference among combinations of synthetic parameters ($p < 0.0001$). Therefore, it is concluded that the inclusion of Betula pendula phytotherapy influences the morphology of chitosan fibers, characterizing the conformation of this material for possible future applications in the clinical area related to drug delivery and tissue regeneration.

Keywords: Electrochemistry; Chitosan; Betula.

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Laboratory Assays - Undergraduate Students

INFLUENCE OF TRANSLUCENCY AND COLOR ON THE SURFACE GLOSS OF COMPOSITE RESINS

Influência da translucidez e da cor no brilho superficial de resinas compostas

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The aim of this study was to evaluate the influence of translucency, using enamel or dentin resin, and color (A1, A2, and A3 shades) on the surface gloss of resin composites. The resin specimens

(Z350 – 3M ESPE) were manufactured using stainless steel matrix, presenting 1 mm thickness and 6 mm diameter. Specimens were polished sequentially with silicon carbide sandpaper. The surface gloss was assessed using a glossmeter (Novo-Curve), with 60º geometry and 2 x 2 mm reading area, with values expressed in gloss unity (GU). Three measurements were performed and the mean value obtained represented the final gloss value. Data were submitted to two-way ANOVA and Tukey's test (5%). There was an interaction between the two factors ($p<0.001$), and dentin opacity of Z350 on A3 shade in dentin presented higher gloss (86.8GU) compared to A3 in enamel (81.5GU), ($p=0.028$). The surface gloss of nanofilled resin composite is influenced by the association of shade and translucency, in which higher gloss values were detected for shade A3 in dentin opacity.

Keywords: Composite resins; Gloss; Opacity.

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Laboratory Assays - Undergraduate Students

ANALYSIS OF BEADS FORMATION IN CHITOSAN ELECTROSPUN FIBERS WITH INCLUSIO OF HYDROXYAPATITE AND THYMUS VULGARIS

Análise da formação de grânulos em fibras eletrofiadas via solução de quitosana com inclusão de difroxiapatita e Thymus vulgaris

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Electrospinning is a method used to manufacture polymeric fibers. These have broad applicability in biomedical areas. Thus, electrospun chitosan appears associated with other substances, such as nanohydroxyapatite (nHAp), an important component of bones mineral phase, and thyme (Thymus vulgaris) which present a remarkable antimicrobial potential. Thus, the purpose of this study was to evaluate the influence of the electrospinning parameters on the formation of granules in chitosan fibers associated with nHAp and thyme. Two solutions were prepared: (1) ChHa solution containing 0.7 g of chitosan dissolved in 7 ml of Trifluoroacetic Acid (TFA) and, after that, a dispersion of 0.05 g of nHAp in 3mL of dichloromethane (DCM) was added; (2) ChT solution containing Ch with inclusion of 0.05g of thyme essential oil (Thymus vulgaris) in 3mL of DCM dispersion. After that, the solutions were processed by electrospinning under different parameters. Thus, underflow rate 0.8 mL / h, ChHa presented effective fiber formation under 10cm / 10kV; 10cm / 12kV; 10cm / 15kV. ChT presented 12cm / 10kV; 12cm / 12kv and 10cm / 14k. ChHa exhibited a higher effective fiber formation and larger average amount of granules (75 ± 0.27) compared to ChT (50.5 ± 1.5). In addition, ChHa presented a significant decrease ($p = 0.0128$) information of granules under tension of 12kV. ChT, however, presented samples with a lower success rate of fiber formation, with a significant decrease under voltage 12kV ($p <0.0001$). Thus, it was found that ChT resulted in the lower formation of granules, and ChHa and ChT had a decrease in the formation of granules when electrospun was set at 12kV voltage.

Keywords: Chitosan; Nanofibers; Herbal medicine.

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Laboratory Assays - Undergraduate Students

SYNTHESIS AND CHARACTERIZATION OF NANOFIBERS OF POLYETERYMID BY ELECTROSPINNING

Síntese e caracterização de nanofibras de polieterimida através da técnica de eletrofiação

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Resin-based materials such as resin composites are widely used as tooth restorative materials. However, it still presents unfavorable features such as shrink polymerization and strain wear as a consequence of repetitive physiological behavior. Therefore, polymeric fibers have been added to resin-based materials in order to improve the mechanical properties of tooth restoration. The aim of this study was to synthesize and morphologically characterize nanofibers (NF) of polyetherimide (PEI) since this polymer presents excellent mechanical resistance and chemical and thermal stability. The NF were synthesized using a solution of PEI (3.75g) dissolved in 10ml of chloroform which was electrospun using a high voltage source (0 to 25KV), a syringe infusion pump and a straight-edge needle (Ø 0.4mm²), a flow rate of 1ml/h and a flat collector apparatus. Three different voltages (10, 15 and 20 kV) and three distances (10, 15 and 18 cm) between the needle tip and the flat collector apparatus were combined, producing 9 distinct groups. The NF were analyzed by scanning electron microscopy (SEM), and the mean diameter of each group was obtained from 30 measures collected through ImageJ software. For the characterization of the NF it was considered the following parameters: absence of defects (beads), the smaller diameter of the fibers, lower coefficient of variation, lesser tension and lesser distance used. The NF groups presented an average diameter of 5,718 µm and average standard deviation of 2134.69 µm. Considering these aspects it was concluded that the technique associated with the polymer used did not result in nanoscale fibers. The NF synthesis associated with the 15kV and 10cm parameters was the most efficient for NF production with the absence of defects.

Keywords: Nanofibers; Polyetherymide; Scanning electron microscopy.

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Laboratory Assays - Undergraduate Students

SYNTHESIS AND MORPHOLOGICAL CHARACTERIZATION OF POLYETHYPROPYLATED MEMBRANES OF POLYCAPROLACTONE (PCL) INCORPORATED WITH TANINO

Síntese e caracterização morfológica de membranas eletrofiadas de policaprolactona (pcl) incorporadas com tanino

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Caesalpinia Spinosa, Tara, is a legume native to Peru, which presents a high concentration of tannins, phenolic compounds with astringent and antibacterial properties. The tannins incorporation into polymeric fibers allows the phytotherapeutic availability and delivery control, improving the therapeutic efficacy reducing the toxicity since there is an efficient evaporation by this technique. The synthesis and characterization of electrophilic membranes of these associated materials may indicate a therapeutic application aiming to assist the treatment of lesions, such as prosthetic stomatitis. Polycaprolactone (PCL) is a synthetic polymer widely used in medicine. Thus, the present study aimed to synthesize membranes of PCL electrophilic fibers incorporated of tare extract, characterizing its morphology. The synthesis of the extract was initially performed adding 10g of the Tara leaf in 300mL of chloroform PA (11.75% yield). Subsequently, a solution was prepared by dissolving 3 g of PCL in 2 ml of Acetone and 0.4 ml of extract under constant stirring (300 rpm) at room temperature for 12 h. Then, solutions were processed by electrospinning, under different parameters, and scanning electron micrographs were taken to analyze the synthesized membranes. It was possible to observe the fiber formation (constant flow rate of 0.8mL / h) under 12 and 15kV and the 12cm distance between the metallic capillary and bulkhead collector, with little significant discontinuity formation in the fibers. It was possible to conclude that PCL fibers associated with tannins have effective fiber formation without significant defects, ensuring the potential of union with acrylic resins of removable complete dentures.

Keywords: Electrochemistry; Polycaprolactone; Tannin.

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Laboratory Assays - Undergraduate Students

ANALYSIS OF ADHESION STRENGTH BETWEEN A REINFORCEMENT STRUCTURE IN NYLON AND DENTISTRY RESINS

Análise da resistência de união entre uma estrutura de reforço em nylon e resinas odontológicas

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The aim of this study was to analyze the adhesion strength between a tooth restorative resin and a reinforcement composite material made of nylon and silica. Firstly, samples were divided into two groups (n=10): nylon and acrylic resin (with or not silica), nylon and composite resin (with or not silica) which were then subdivided into four groups where nylon surface treatment

was carried out with aluminum oxide. Cylindrical nylon bases were made in the dimensions of 13 x 23 mm where the dental resins were applied. Shear test in the universal testing machine was performed (EMIC DL 1000, São José dos Pinhais, PR), where a load of 50Kgf was applied in the interface region of the materials and load was registered in MPa. The analysis in scanning electron microscope (SEM) and stereomicroscope of nylon surface area in were performed in some specimens of all groups. After the shear test, descriptive statistics were applied using ANOVA and Tukey's test (5%). It was verified that surface treatment groups achieved better results and there was no statistical significance regarding the presence of silica. In this study, by results obtained, although the main proposal was to verify the influence of silica on adhesion strength, it was verified that surface treatment was a preponderant factor in relation to the other factors. Therefore, it may be suggested a surface treatment with aluminum oxide blasting on nylon reinforcement systems containing silica, regardless of the dental polymer used, in order to obtain better results of adhesion strength.

Keywords: Dentistry resins; Adhesion strength; Nylon

01
Laboratory Assays - Graduate Students

CYCLIC FATIGUE, TORSIONAL FAILURE AND FLEXURAL RESISTANCE OF ROTARY AND RECIPROCATING INSTRUMENTS

Análise compartiva da resistência a fadiga ciclica, a torção, e a flexão dos instrumentos waveone gold, protaper, hyflex cm e genius

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The aim of this study was to compare cyclic fatigue, torsional failure and flexural resistance of NiTi endodontic files: Hyflex CM (HYF), Genius files (GEN), WaveOne Gold (WOG) and ProTaper Universal (PTU). Fifteen instruments of each brand were used in flexural test and the same instruments were used in cyclic fatigue test. Other fifteen were used to torsional failure test. To cyclic fatigue test, no torque limit was applied and revolutions per minute (rpm) used were set according to the respective manufacturer guidelines. The tests were made under deionized water at 36°C and all instruments were tested in a 3-mm radius of curvature with an angle of curvature of 60°, time of the fracture was recorded. Torsional fatigue test was made in a universal testing machine (Instrom MT, USA), recording the fractured time and torque data by the machine software; flexural fatigue test was made in 60° of curvature. All data were statistically analyzed by one-way ANOVA, Dun and Kruskall Wallis tests. Mean values of the results are following present (p<001): Cyclic fatigue = HYF:744,1±231.9 / GEN:477,3±220.5 / WO:278,4±57.0 / PTU:152,4±65.2; Torsion failure = HYF:6,85±1.484 / GEN:6,55±0.828 / WOG:5,73±0.360 / PTU:4,43±0.900; Flexural resistance = HYF:0,33±0.294 / GEN:0,19±0.136 / WOG:0,98±0.216 / PTU:1,85±0.276. To all tests, HYF showed the best results, but it was not statistically different from GEN, followed by WOG and PTU respectively. HYF and GEN showed the best results for cyclic fatigue, torsional failure and flexural resistance, followed by WOG and PTU.

Keywords: Aging; Device failure medical; Hardness.

02
Laboratory Assays - Graduate Students

EVALUATION OF BOND STRENGTH OF GLASS IONOMER CEMENTS MODIFIED BY RESIN IN ENAMEL AND DENTIN

Avaliação da resistência de união de cimentos de ionomero de vidro modificados por resina em esmalte e dentina

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The aim of this study was to evaluate the bond strength (BS) of resin-modified glass ionomer cements (RM GIC) in enamel and dentin. 120 crowns of bovine incisor teeth were divided into two groups, according to substrate type, enamel (E) and dentin (D) (n = 60 each). The specimens were embedded in acrylic resin and the surface was polished with abrasive paper (#600 SiC). For each substrate, the samples were divided into five groups (n = 12), according to the restorative material: Riva Light Cure - SDI (RIVA); Fuji II LC-GC (FUJI); Experimental RM GIC - Voco (Exp V); Conventional glass ionomer cement Gold Label - GC (GIC) and Composite Resin Grandioso - Voco (CR) - control. Silicone tubes were used as matrix for the restorations, which were stored in ultrapure water, 37ºC / 24h. The tubes were removed and the samples subjected to a micro-shear stress in the universal testing machine (EMIC). The data were analyzed using one-way ANOVA and Tukey's test (5%). There was a significant difference for all groups ($p < 0.05$). The Tukey test showed that CR/E group had the highest mean bond strength (27.42 ± 3.54), followed by the CR/D groups (16.39 ± 3.98)^{d}; Fuji/E (14.57 ± 1.84)^{d}; RIVA/E (11.33 ± 2.64)^{c}; RIVA/D (9.18 ± 1.90)^{bc}; Fuji/D (8.22 ± 2.21)^{b}; Exp. V/E (7.03 ± 1.40)^{b}; Exp. V/D (3.73 ± 1.87)^{a}; GIC/E (3.24 ± 1.07)^{a}; GIC/D (1.26 ± 1.13)^{a}. It was concluded that the majority of RM GICs had a higher BS than conventional (GIC), however, all showed lower performance than composite resin.

Keywords: Glass ionomer cements; Composite resins; Bond strength.

03
Laboratory Assays - Graduate Students

EVALUATION OF DIFFERENT INDIVIDUAL AND INDUSTRIAL MOUGHTGUARDS ON THE PREVENTION OF STRESS GENERATED DURING SIMULATED IMPACT
Avaliação de diferentes protetores bucais individualizados e industriais na prevenção das tensões geradas durante impacto simulado

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This study evaluated the stress distribution generated in the base of the cranium, teeth and jaw in 8 different situations: individualized (PI) and stock (PE) mouth guards in different thicknesses (1, 2 or 4 mm); direct impact situation with closed and opened mouth. Using the software Rhinoceros (version 4.0 SR8, McNeel), a human skull was modeled containing the bones of the base of the cranium and calvarias united in a single structure. Next, a human mandible was created with the condylar process located inside the articular fossa. After completion of 3D skull, the upper and lower teeth were inserted into the respective alveolus. The geometries were exported to the software analysis and materials were considered ideal. The fixation occurred at the base of the foramen magnum. The applied load was 500 N on the canine tooth with a tennis

ball. Maximum principal stress (MPa) was obtained. Without any protection, the tensile generated was of greater magnitude, and keeping the mouth opened was more damaging. The use of mouth guards significantly reduced the stresses generated in all structures, and PI were more efficient than PE. It was concluded that in extreme situations of impossibility of using a mouth guard, keeping the teeth in maximum intercuspal position is less harmful. Despite this, the use of any mouth guard is beneficial and assists in damping the generated stress. The thicker the mouth guard, the greater the capacity of decrease the damages in all the structures. The use of individual protectors for each patient is even more beneficial for the prevention of trauma during activities at risk of impact.

Keywords: Finite element analysis; Mouth guard; Dental stress analysis.

04
Laboratory Assays - Graduate Students

EFFICACY OF PROTAPER NEXT AND WAVEONE GOLD SYSTEMS DURING ENDODONTIC RETREATMENT WITH OR WITHOUT THE USE OF SOLVENT
Avaliação dos sistemas protaper, next e waveone gold durante o retratamento endodontico com ou sem o uso de solvente

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The purpose of this study was to evaluate, *in vitro*, the efficacy of ProTaper Next and WaveOne Gold Systems in the removal of AH Plus cement from root canals. Forty-eight single-rooted human teeth were prepared by using nickel-titanium rotary files and randomly allocated into 4 groups (n=12). The root canals were filled with gutta-percha and AH Plus. After obturation, the teeth were stored for 30 days at 100% relative humidity at 37°C and root canal fillings were removed using G1- ProTaper Next without solvent use; G2- ProTaper Next with solvent use; G3- WaveOne Gold without solvent use; G4- WaveOne Gold with solvent use. Computed tomography images were made with the technique of cone beam and were analyzed using the software itk-SNAP 3.4.0 to assess the amount of remaining filling material in the root canals. During the retreatment, the time required for endodontic filling removal was evaluated. The data on the amount of remaining filling material and time of removal produced were statistical analyzed by ANOVA test with a significance level of 5%. The ProTaper Next and WaveOne Gold systems were considered effective in removing canal filling material, but neither of them completely removed the filling material of the root canals. The groups that used solvent had its effectiveness decreased, where it was found statistically significant differences when compared to the groups that did not used solvent.

Keywords: Retreatment; Gutta-percha; Tooth root; Cone-beam computed tomography.

05
Laboratory Assays - Graduate Students

FATIGUE FAILURE LOAD OF TWO RESIN-BONDED ZIRCONIA-REINFORCED LITHIUM SILICATE CERAMICS WITH DIFFERENT THICKNESSES

Carga de falha em fadiga de duas cerâmicas de silicato de lítio reforçadas por zirconia com diferentes espessuras

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This *in vitro* study evaluated the fatigue failure load (FFL) of two zirconia-reinforced lithium silicate ceramics, with different thicknesses, adhesively cemented to a dentine analogue material. Two hundred disc-shaped specimens were produced (⌀= 10 mm) and allocated into 8 groups (n= 25), considering two factors: brand (Vita Suprinity – VS, and Celtra Duo - CD) and ceramic thickness (1.0; 1.5; 2.0 and 2.5 mm). A bilayer specimen assembly (final thickness= 3.5 mm) was designed to mimic a monolithic restoration of a posterior tooth. The ceramic discs were etched, silanized and luted with dual cure resin cement (Variolink N) into a dentine analogue material (Carbotec GmbH). The FFL was determined using the Staircase Method (100,000 cycles at 20 Hz; initial fatigue load ~60 % of the mean load-to-failure; step size ~5% of the initial fatigue load) with a stainless-steel piston (⌀= 40 mm) applied the load in the center of the specimens. Fractographic analysis and Finite Element Analysis (FEA) were also performed to better understand and explain the ceramic behavior under fatigue load. It was noticed that the ceramic thickness influenced the fatigue failure load for both ceramic materials (CD: 1.0 < 1.5 = 2.0 < 2.5; VS: 1.0 < 1.5 = 2.0 = 2.5 > 1.5), while, comparing different materials, VS had shown higher fatigue failure loads on thinner thicknesses (VS 1.0 > CD 1.0; VS 1.5 > CD 1.5; VS 2.0 > CD 2.0; VS 2.5 = CD 2.5). All failures started from the cementation surface, as radial cracks. FEA depicts that a decreased ceramic thickness leads to higher stress concentration on the cementing interface for both ceramic materials. Vita Suprinity showed to be the best choice for thinner ceramic restorations in terms of fatigue failure load.

Keywords: Ceramics; Fractures stress; Finite element analysis.

06
Laboratory Assays - Graduate Students

CYTOTOXIC, ANTIMICROBIAL AND ADHESIVE PROPERTIES OF AH PLUS CEMENT ASSOCIATED TO N-ACETYLCYSTEIN OR TRI--CALCIUM PHOSPHATE

Citotoxicidade, ação antimicrobiana e adesividade do cimento ah plus associado a n-acetilcisteina ou tricalcio fosfato

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The aim of this study was to evaluate in vitro biocompatibility, adhesiveness and antimicrobial activity of AH Plus endodontic cement associated with N-Acetylcysteine (NAC) or with tri-calcium phosphate nanoparticles (TCF) in the ratio of 1:4; as a retrograde filling cement. Cytotoxicity was evaluated by XTT and SRB assays after exposure of the periodontal ligament fibroblast cells (PLF) to the cement extracts for 1, 3 and 7 days. The MTA FILLAPEX cement was the control group. For the microbiological analysis, agar diffusion test was used, measuring the inhibition halo formed by the direct contact of the extracts with the media containing *E. faecalis, E. coli* and *C. albicans*, for 24 hours. For adhesive properties analysis, Push-out test was used. The roots of 48 unirradicular human teeth were instrumented with Reciproc #40 files and filled with gutta-percha and AH Plus. After 7 days, the apices were retro-filling with the proposed cements and a 2mm thickness slice was obtained for the test. Data were statistically analyzed by ANOVA followed by Tukey and Dunn's tests ($p < 0.05$). The AH Plus + TCF was the least cytotoxic, followed by the FILLAPEX MTA; AH Plus was the most cytotoxic. MTA FILLAPEX showed higher antimicrobial capacity for *E. faecalis* and *E. coli.* The addition of NAC improved the antimicrobial action of AH Plus on E. faecalis. Regarding adhesive strength, AH Plus associated with TCF or NAC presented the best results and FILLAPEX MTA showed the lowest resistance being statistically significant in relation to the other cements. The addition of TCF or NAC to AH Plus cement improves its adhesiveness and biocompatibility.

Keywords: Retro-filling; N-Acetylcysteine; Cytotoxicity.

07
Laboratory Assays - Graduate Students

EFFECT OF CAVITY GEOMETRY AT STRESS DISTRIBUTION OF POLYMERIZATION SHRINKAGE OF RESIN COMPOSITE

Efeito da geometria cavitaria na distribuição de tensão da contração de polimerização de resina composta

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Resin composite restorations use to fail due to secondary caries, microleakage and degraded margins. The polymerization shrinkage can result in stress of adhesive interface and thus gaps at the edge of restoration. Objective: This study evaluated the influence of surfaces geometry in relation to stress distribution created by polymerization shrinkage of resin composite (PSRC). Methods: We performed *in vitro* and *in silico* studies, finite element analysis, on cantilever-beam based tensiometer for 3 different adhesive interfaces (Flat, 87º and 85º concave). *In silico*: The specimen/rod of 6.0 mm diameter with 3 surfaces were modeled through the CAD software Rhinoceros 4.0, distant 2.3 mm and exported to CAE software Ansys 16.0. All geometries were

considered isotropic, linearly elastic, homogeneous and all contacts were considered perfectly bonded. The rods were fixed at 3 axes with 2.3mm between them and it were filled with resin composite. PSRC were simulated to thermal analogy. The maximum principal stress was measured at adhesive interface and the edge angle. *In vitro*: It was conducted a test of PSRC through 5 samples of Z350 flow with tensiometer, according to experimental set up. C factor obtained was 1.5 and the samples were polymerized for 60s. Results: Stress pattern of PSRC is modified according to geometry. For the same surface, the greater the volume and the lower the C factor, higher is the PSRC stress. However, for different surfaces presenting the same C factor, it was possible to raise in 50% the resin volume, maintaining the same PSRC stress, besides pulling it away from the interface, when concave. Conclusion: Geometry and composite volume influence more than the C factor and higher the surface concave, higher is the resin volume to result in the same PSRC.

Keywords: Resin composite; Polymerization shrinkage; Finite element analysis.

08

Laboratory Assays - Graduate Students

EFFECT OF THE INTRARADICULAR TREATMENT IN THE UNION RESISTANCE BETWEEN DENTIN-RESIN CEMENT

Efeito do tratamento intra-radicular na resistência de união dentina-cimento resinoso

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This study evaluated the bond strength between a resin cement and cervical and middle thirds of intraradicular dentin for different protocols of root canal cleaning to remove the acid used for conditioning. A total of 30 single-rooted bovine teeth were endodontically treated and divided into three groups (n=10) according to the type of canal cleaning: Group 1 - root canals cleaning with a triple syringe jet and air/water for 15 seconds; Group 2 - root canals cleaning with tips Endo Eze Irrigator (Navitip – Ultradent) for 15 seconds; Group 3 - root canals cleaning with syringe jet and air/water associated with the use of microbrush for 15 seconds. After endodontic filling, the teeth were prepared, and pins were cemented with composite resin cement Relyx ARC (3M-ESPE, St. Paul, MN, USA) according to the groups described above. All specimens were sectioned in slices for test mechanical shear by extrusion (push-out). The data obtained were statistically analyzed using ANOVA and Tukey test with a *p* value set at 5%. The results showed that the bond strength was higher in group 3. Groups 1 and 2 showed no significant differences. It was concluded that root canals cleaning procedures to remove the acid used for conditioning influence the adhesive strength, whereas the use of jet air/water associated with the use of microbrush for 15 seconds showed a significant increase in bond strength.

Keywords: Root canal preparation; Post and core technique; Push-out test; Root dentin.

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Laboratory Assays - Graduate Students

STUDY OF DENTAL DENSITY VARIATION CONSIDERING MECHANICAL STIMULUS
Estudo da variação da densidade óssea dental considerando estímulos mecanicos

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The aim of present study was to evaluate the increase of bone mineral density (BMD) to the maxilla and jaw areas to develop bone remodeling. The behavior analysis of bone tissue during remodeling process will evaluate applying mechanics stimulus and overload in dental implant. The analysis process will use a computer tools and mathematics models simulation to get the mathematical description of bone tissue behavior. The results did in the remodeling studies are not specific to the maxilla and mandible bones, therefore, not representthe specific behavior the bone mineral density (BMD) increase that bone regions, these amounts are used like reference, however not represent a significant correlations between studies areas and mandibular region, in view of the bone density can reflect directly in answers to the orthodontics movements. Develop the study to behavior analysis of bone to maxilla andmandible with computer tools to get suitable parameters and reference amounts that represent the mandibular regions, whose bone density is variable in the same element and big difference between maxilla and mandible density bones areas. The use of reference suitable amounts of bone regions can get better behavior understanding the tissue bone behavior in mandibular regions.

Keywords: Bone remodeling; Bone density; Mathematic models; Maxilla; Mandible.

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Laboratory Assays - Graduate Students

INFLUENCE OF THICKNESS AND MATERIAL ON STRESS DISTRIBUTION IN MONOLITHIC CROWNS
Influência da espessura e do material na distribuição de tensões em coroas monolíticas

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This study evaluated the biomechanical behavior (BB) and single load to failure (SLF) of posterior monolithic crowns (PMC) in different materials and minimum thicknesses (MT). In the modeling software, two 26 elements were designed: one containing standard "s" crown preparation and the other, 0.5 mm more conservative "c" in all regions. The crowns were modeled on the

preparations with cementation line of 0.3 mm and identical anatomy; being the MT (1 or 0.5 mm) the only difference between them. The geometries were exported to the analysis software where the materials were considered isotropic, homogeneous and linearly elastic with their respective properties. The groups were divided according to "MT" and "crown material": hybrid ceramic (HC), zirconia reinforced lithium silicate (ZLS) and high translucency zirconia (YZHT), all Vita Zhanfabrick, Germany. An axial load on tripoidism (300 N) was applied and fixation occurred on the cortical bone. The stress was analyzed using the finite element analysis method (FEA) with the criterion of Maximum Principal Stress. The six sets were reproduced and tested by SLF assay (in vitro) for data comparison (n = 3; N = 12). The preparations were made in G10 resin and the crowns were cemented adhesively. FEA showed that the lower the MT and the greater the elastic modulus (E) of the material, the higher is the stress concentration in tensile zones. SLF showed that the groups failed in the order CHc <CHs <ZLSc <ZLSs <YZHTc <YZHTs and that the failure mode coincided with the regions with the highest stress concentration in FEA. It can be concluded that YZHTs showed the best BB, all crowns had SLF values higher than masticatory forces and that the evaluated materials with MT of 0.5 mm could be indicated for PMC.
Acknowledgement: The authors thank the support from São Paulo Research Foundation (FAPESP) through the scholarship support (#2017/11535-3) that enabled the development of this study.

Keywords: Ceramic; Finite element analysis; Dental restoration failure; Tensile strength.

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Laboratory Assays - Graduate Students

INFLUENCE OF TITANIUM SURFACE TOPOGRAPHY ON THE OSTEOGENIC POTENTIAL OF HUMAN MESENCHYMAL STEM CELLS
Influência da topografia de superfície de titânio no potencial osteogênico de células-tronco mesenquimais humanas

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An improvement in tissue response around implants can be achieved by chemical and mechanical changes on material properties. The aim of this study was to evaluate the effects of titanium surface topography, chemical composition and surface structure on the osteogenic potential of human mesenchymal stem cells (hMSCs). For this purpose, smooth surfaces and rough topography in micro and nanoscale were characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM), light interferometry (IFM), atomic force microscopy (AFM). Disks were submitted to the osteogenic tests of alkaline phosphatase activity (APL); mineralization and qPCR. For all statistical analysis, significance level was set at 5%. Crystalline structure of titanium and TiO_2 layer as: Tiα, rutile and anatase were identified by XRD; characteristics of different surface topographies were analyzed by MEV, PF and MFA. Higher

activity APL was found in hMSCs grown on the nano surface after 14 days, with no significant difference in relation to others surfaces. Greater mineralization was observed in the hMSCs on the nano surface compared to the micro one (p=0.0191) after 28 days. Higher expression of the *APL* genes (p> 0.005), *BMP2* (p=0.006 - micro, p=0.004 - nano), *OSX* (p=0.005 - micro), *SPP1* (p=0.000013 - micro) when compared to the control group, after 7 days. There was a trend of greater osteogenic activity demonstrated by biological tests in hMSCs grown on samples with micro and nano texturized surfaces when compared to the smooth ones.

Keywords: Stem cells; Implants; Nanotechnology; Titanium; Materials testing; Osteogenesis.

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Laboratory Assays - Graduate Students

THE INFLUENCE OF ILLUMINATES ON PERCEPTION OF SURFACE GLOSS OF RESIN COMPOSITE BY DIFFERENT OBSERVERS

Influência de iluminantes na percepção do brilho superficial de resina composta por diferentes observadores

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The aim of this study was to evaluate the visual perception of eyewitness (lay person, undergraduate students and dental professionals) on the surface gloss of resin composite, under different illuminants. For this, twelve cylindrical specimens (S), with 6mm diameter and 1mm thickness, were fabricated in nanofilled resin composite (Filtek Z350) in A2E color. The polishing of S was performed for division into 6 groups, with surface gloss values at 10, 25, 40, 55, 70 or 85. The polishing protocol and gloss values for each group was determined by pilot tests. A gloss meter for flat and curved surfaces - NOVOCURVE (TM RHOPOINT, East Sussex, England) was used to determine the specimens surface gloss. Fifteen subjects from ICT - UNESP were selected, 5 lay people, 5 undergraduate students, and 5 dental professionals. The participants observed each S comparing it with a standard bovine enamel inside a light box (MM-2e / UV Konica Minolta), under different illuminants (D65 - natural light, A – incandescent light, and F – fluorescent light). Each observer performed 18 readings. Observers classified the degree of S surface gloss according to the standard, following the parameters: a – S presents less surface gloss than the standard, b- S presents similar surface gloss as the standard, and c – S presents greater surface gloss than the standard. Observations were also made in comparison between ES and in this case the comparison criteria were: 1 - the two specimens have the same brightness or not? 2 - If not, which one has the highest brightness? Data were tabulated and analyzed by non-parametric tests at 5% significance level. Results/Conclusion: Illuminant influenced the perception of gloss, with lower percentage of perceptibility for the fluorescent light (p=0.042), when compared to the incandescent light. The observers do not influence the perception of resin composites surface gloss (p=0.598). The perceptibility limit was 17.6 ΔUB.

Keywords: Resin composite; Surface gloss; Illuminants.

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Laboratory Assays - Graduate Students

FLUORIDE RELEASE OF GLASS-IONOMER CEMENTS RECOMMENDED TO ATRAUMATIC RESTORATIVE TECHNIQUE

Liberação de flúor de cimentos de ionômero de vidro indicados para tratamento restaurador atraumático

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Fluoride release (F- release) is one of the most important properties of glass ionomer cements (GICs). New GICs emerged in market with better mechanic properties and indicated for the ART technique. The aim of this study was to evaluate the F- release of nine Brazilian conventional restorative GIC, which were divided as indicated for ART (Maxxion-FGM (MA), Ion Z-FGM (IZ), Ionglass-Maquira (IG), Bioglass R-Biodinâmica (BG), Vitro Molar-Nova DFL (VM)) or not indicated for ART treatment (Vidrion-SSWhite (VD), Ionomaster-Wilcos (IM), Magic Glass-FGM (MG), Vitro Fil-Nova DFL (VF)). Specimens (n=10) of the nine brands of GICs were manipulated in accordance to the manufacturer's instructions. Those were immersed in falcon recipients containing 20ml of artificial saliva, closed at 37ºC in a laboratory oven and fluoride concentrations were measured up to 336 hours. Fluoride concentration was measured in duplicate, using a micro analytical technique with an inverted fluoride ion selective electrode united to a potentiometer (Procyon, model 720). The results were submitted to ANOVA and Tukey Test for multiple comparisons ($p<0.05$). In each evaluation time, significant statistical difference for amount and pattern of fluoride release was observed among the GICs ($p<0.05$), presenting MA the highest fluoride release in all times, with a total of 7.7 µg/mm² ($p<0.05$), and VM the lowest in all times, with a total of 1.14 µg/mm². There was statistically significant difference pf cumulative F- release of GICs indicated for ART and not indicated for ART ($p<0.05$). Instead, most of GICs indicated for ART showed higher amount of fluoride release in comparison to those that are not indicated for ART.

Keywords: Glass ionomer cements; Fluorides; Dental atraumatic restorative treatment.

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Laboratory Assays - Graduate Students

POTENTIAL OF NANOHYDROXYAPATITE LOADING ON ELECTROSPUN CHITOSAN FIBERS: BIOLOGICAL AND MORPHOLOGICAL STUDIES

Potencial de inclusão de nanohidroxiapatita em fibras eletrofiadas de quitosana: estudos moroflógicos e biológicos

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Electrospinning is a technique for synthesis of polymeric structures, such as ultrathin fibers, which presents compatible structural characteristics with applications in biological systems. Thus, from biopolymers, such as chitosan, with antimicrobial action, this study aimed to fabricate fiber scaffolds from chitosan solution (Ch), and chitosan with addition of nanohydroxyapatite crystals (ChHa), to join their properties in development of biomimetic materials for tissue regeneration. Both solutions were prepared, electrospun and characterized according to the morphological, physical and biological characteristics. Ch presented higher homogeneity and fibers mean diameter (690,3±102,5nm) in comparison to ChHa (358,7±49,2nm). Ch and ChHa presented similar stages of thermal degradation. There was no significant difference between the experimental groups and the control group for total protein ($p = 0.4470$) and alkaline phosphatase ($p = 0.7210$) tests, however, a higher cell differentiation stimulus was observed in ChHa. In this sense, cell viability showed significant improvement between the experimental and control groups ($p = 0.0042$), with no statistical difference between Ch and ChHa. Thus, it was concluded that morphological and biological properties of chitosan fiber membranes are influenced by the inclusion of nanohydroxyapatite, without changing their physical properties, identifying biocompatible scaffolds for cell proliferation and differentiation.

Keywords: Electrochemistry; Chitosan; Hydroxyapatite.

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Laboratory Assays - Graduate Students

INFLUENCE OF LIGHT CURING MODE ON DEGREE OF CONVERSION AND MARGINAL ADAPTATION OF CLASS II BULK FILL RESIN RESTORATION
Influência do modo de foto ativação no grau de conversão, e adaptação marginal em de restaurações classe ii com resinas compostas de inserção em bloco

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The aim of this study was to evaluate the influence of different light curing modes on irradiance, degree of conversion (DC) and formation of external gaps in class II restorations using bulk fill resins. 160 bovine incisors were cut and worn to simulate posterior teeth, in which class II preparations were performed. Teeth were divided into 4 groups: Tetric N Ceram Bulk Fill (TB), Admira fusion X-tra (AB), Tetric N-Ceram (TC), Grandioso (GO). Bulk fill resins were inserted in a single increment of 4 mm, and in the other groups, the incremental oblique technique was used. The light curing was performed with the Monowave (3M ESPE LED) and Polywave (Bluephase N)

devices, selecting two modes: high continuous intensity (AIC) and soft start (R). The irradiance measurement was performed using Spectroradiometer (MARC-PS) at 0 mm distance and 4 mm in the AIC and soft start R modes, for 20 s. The DC was determined by FTIR-ATR spectroscopy, 2 mm and 4 mm high molds were prepared for resin insertion. The samples were irradiated in situ for 20 s with the light curing apparatus in the modes AIC and R. For the evaluation of the external gap, Stereomicroscope (Discovery V20) was used using a 100x magnification. The TB resin showed the lowest DC, with a statistical difference between GO and AB. For the marginal gap, a significant difference was found for the type of light curing device and the interaction of the light curing device X resin ($p<0.05$). TB resin light cured with polywave LED showed the highest mean marginal gap (13,027µm). The techniques of activation and insertion of the composite resin did not affect the DC and, a greater light intensity is more effective for the DC. The restorations plight-cured with the Polywave presented the highest external gaps.

Keywords: Marginal gap; Resin composite; Polymerization.

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Laboratory Assays - Graduate Students

EVALUATION OF ADHESIVE SYSTEM INFLUENCE ON BOND STRENGTH BETWEEN FLOW RESINS UNIQUE INCREMENT AND COATING RESINS

Avaliação da influência do sistema adesivo na resistência de união entre resinas flow de incremento unico e as resinas de recobrimento

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This study aimed to evaluate adhesive system influence on bond strength between low shrinkage Bulk flow resins, indicated for filling in layers of 4mm, and a coating resin. Half of the specimens received one adhesive system: Adper Scothbond Multipurpose Plus, 3M ESPE. 60 specimens were prepared with the flowable resins Filtek Bulk fill resin (30) and X-base (30), made from a teflon split device. The specimens were trunk conic shaped with the smaller base measuring 2mm, the larger base measuring 4mm and 4mm lenght. Half specimens received no adhesives on its surface. 60 specimes total divided in to two groups and two subgroups: B (Bulk Fill Flow), BA (Bulk with adhesive), X (X-base), XA (X-base with adhesive). All specimes were completed with Filtek Z350 at the smaller face (2mm). After 24h the specimens now in hourglass shaped were subjected to tensile test at Emic 2000, to evaluate bond strength between the cones at the interface contact. The results were submitted to Anova two factors analysis and Tukey test at 5%. There was statistical significance ($p<0.05$) to the adhesive variable regard to Filtek bulk fill flow that presented better performance (24.99 ± 4.3) when compared to B group that received no adhesive (18.20 ± 5.31 Mpa). For X-base the adhesive system made no difference. Voco´s presented better performance without adhesive system (26.99 Mpa). There was a statistical significance performance between the two composite flow resins.

Keywords: Bond strength; Methacrylate-based resin; Fill flow resin; Adhesive system.

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Laboratory Assays - Graduate Students

BIAXIAL FLEXURAL STRENGTH, ROUGHNESS AND HARDNESS OF MONOLITHIC ZIRCONIAS: EFFECT OF SILICA INFILTRATION AND WEAR SIMULATION

Resistência à flexão biaxial, rugosidade e dureza de zircônias: efeito da infiltração de sílica e da simulação do desgaste fisiológico

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This study evaluated the mechanical and surface properties of silica infiltrated, glazed and polished monolithic zirconia. One hundred ninety-eight zirconia discs were divided into three groups: infiltrated with silica, glazed and polished. Half of each group (n=33) was then subjected to wear with steatite in order to simulate the physiological wear. The specimens underwent roughness, hardness and biaxial bending tests. The groups were evaluated by X-ray diffraction (XRD) and scanning electron microscopy (SEM). After the biaxial flexural strength test, Weibull analysis was used to determine the Weibull modulus (m) and characteristic strength (σ0). The means of the biaxial flexural strength were analyzed with Anova 2-way and Tukey's tests. Roughness and hardness results were analyzed using Kruskal-Wallis test and Dunn test (5%). The glaze group showed higher roughness and hardness values, with a significant difference compared to the other treatments in the control (non-worn) groups (p=0.01). The worn groups showed no significant difference for these analyses (p=0.734). While the highest average biaxial flexural strength was found for the polished group without wear, Weibull analysis showed no significant difference among the groups. XRD results showed that the treatments did not induce a phase transformation. SEM showed the grooves on the polished group samples, and zirconium silicate and irregularities on the infiltrated and glazed samples, respectively. With this, we conclude that the zirconia infiltrated by silica is less rough and shows lower hardness compared to glazed zirconia and the samples polished or infiltrated by silica show less potential to wearing the antagonist than the glazed zirconia.

Keywords: Dental Material; Ceramics; Zirconia.

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Laboratory Assays - Graduate Students

EVALUATION OF ROOT DENTIN COLLAGEN DEGRADATION AGAINST DIFFERENT PREVENTIVE METHODS OF ROOT CARIES: "IN VITRO STUDY"

Avaliaçao da degradaçao do colageno radicular submetido `a diferentes metodos de prevençao de carie: estudo "in vitro"

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Quantification of collagen degradation is an important parameter to evaluate dentin caries progression. The aim of this study was to evaluate root collagen degradation after preventive methods using the hydroxyproline assay technique. Forty root dentin blocks were obtained with 1.5x6 mm (depth x diameter) from bovine incisors, which were submitted to preventive treatment of root caries: 1) Deionized Water (control) 1 min, 2) Nd:YAG Laser- 60 mJ 10s, 3) Chlorhexidine 0.12% 1 min and 3) Fluoride 2% 4 min. Then, the samples were induced to the carious lesion. After that, the samples were exposed to degradation by the collagenase enzyme (Type VII, Product No. C0773, Sigma-Aldrich, St. Louis, MO, USA) for 5 days. Following the collagenase challenge, the enzyme solution was collected for assaying hydroxyproline (released from collagen matrix), to measure the amount of degraded collagen by colorimetry in spectrophotometer. Descriptive analysis of the data was performed to determine the statistical test to be applied. Assumptions of normal distribution and equality of variances were checked for all the variables tested, by Kolmogorov-Smirnov and Levene respectively. Since the assumptions were satisfied, ANOVA and Tukey's test were used. Results: There was no statistically significant difference ($p = 0.09$) between avarages; CHX (3.99 ± 0.85), F (3.24 ± 0.66), Laser (3.52 ± 0.96) and control (3.13 ± 0.64). Conclusion: Chlorhexidine (0,12%), fluoride (2%) and Nd:YAG laser do not present potential of prevention the exposed collagen degradation in lesions of artificial root caries.

Keywords: Dentin; Collagen; Hydroxyproline; Root caries.

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Laboratory Assays - Graduate Students

EXPRESSION OF RASSF1A AND K-RAS PROTEIN IN PRIMARY MOUTH CELL CARCINOMA IN YOUNG PATIENTS

Expressão da proteína rassf1a e k-ras no carcinoma de células escamosas primário de boca em pacientes jovens

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Squamous cell carcinoma of the mouth (SCC) affects mainly smokers and chronic alcoholics from the 5th to 6th decades of life, being relatively rare in young patients (40 years old). In the literature, there is no report regarding the protein expression RASSF1A and K-ras in SSC in this age group. The objective of this study was to evaluate the expression of the RASSF1A and K-ras proteins and to correlate the results with the clinical and prognostic characteristics. Immunoexpression of 40 (test group: ≤ 40 years of age) and 60 cases (control group: ≥ 50 years old) of primary squamous cell carcinoma of the mouth were evaluated by Tissue Microarray

technique. Hyperexpression of K-ras protein was statistically associated with the advanced clinical staging variable (p = 0.033) in the test group, whilst well differentiated tumors (p = 0.005) and free surgical margin (p = 0.012) were significantly related to the control group. Hyperexpression of K-ras was related to disease-specific survival (p = 0.044), independent of the group and overall survival (p = 0.033) in the test group. These results revealed the relationship between hyperexpression of K-ras protein and the advanced clinical stage in young patients. This hyperexpression may also be associated with a bleak prognosis.

Keywords: Cell cycle; Prognosis.

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Laboratory Assays - Graduate Students

SYNTHESIS, PROCESSING AND CHARACTERIZATION OF GLASS-CERAMICS WITH FUNCTIONAL GRADIENT
Síntese, processamento e caracterização de vitrocerâmicas com gradiente funcional

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The present study developed glass-ceramic of $Li_2Si_2O_5$ with density functional gradient, inspired by the natural gradient between enamel and dentin. First, the composition glass: 33.33 mol% Li_2O and 66.67 mol% SiO_2 was obtained by the melting/cooling method. Samples were prepared with homogeneous glass structures based on $Li_2Si_2O_5$ to determine the best sintering parameters. Three different heat treatments, based on the result of differential calorimetry analysis, were used: 850, 900 and 950 ° C/3h. Characterization of these materials was accomplished through X-ray diffraction, scanning electron microscopy, Archimedes method and biaxial bending test. Heat treatment of 950 ºC/3h showed the best results, being chosen for the next stages of the study. To optimize aesthetics and decrease the porosity of the material, VITAVM®9 (VM9) was added to the SiO_2-Li_2O in the proportion of 10, 15 and 20%. It was observed that the addition of 10% of VM9 did not change the resistance of the material, and with the increase the translucency. Thus, bioinspired glass-ceramic with density functional gradients were prepared in the following layer sequences: 10%, 15% and 20% of VM9. The results showed that there was no difference in the biaxial flexural strength of $Li_2Si_2O_5$ with 10% of VM9 with homogeneous structure when compared to $Li_2Si_2O_5$ with different amounts of VM9, but the translucency was higher in the gradient samples. It was concluded that in the group with density functional gradient is possible to combine the higher mechanical strength and translucency in comparison with the homogeneous.

Keywords: Dental materials; Gradient; Ceramics.

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Laboratory Assays - Graduate Students

SYNTHESIS, CHARACTERIZATION AND ANTIMICROBIAL ACTIVITY OF POLYMETHYLMETHACRYLATE/NYSTATIN NANOFIBER PRODUCED BY ELECTROSPINNING
Síntese, caracterização e atividade antimicrobiana de nanofibras de polietilmetacrilato/nistatina produzidas por eletrofiação

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The objective of this study was to synthesize nanofibers (NFs) of Polyethylmethacrylate (PEMA) with addition of Nystatin (NYS) and evaluate the antimicrobial activity in rigid and soft resins. Microbiological testing of NYS MIC for inactivation of C. albicans was performed. NFs were synthesized using the electrochemical technique using pure PEMA and NYS and PEMA solutions. For a synthesis of PEMA NFs, a solution of PEMA dissolved in Dimethylformamide (DMF) and 1,1,2,2 Tetrachloroethane (TCE) was produced, following doses of NYS concentrations (10 and 20 mg / ml) obtained from the CIM. As samples were analyzed in Scanning Electron Microscopy (SEM), Goniometer, X-ray Diffraction Analysis (XRD) and Fourier Transform Infrared Spectroscopy (FTIR). After SEM analysis, a mean of the fiber diameters was calculated with ImageJ Software. Antimicrobial activities were evaluated by means of the agar diffusion test. As the PEMA NFs presented smaller diameter, the NF / PEMA standard showed 0.42 µm whereas NF / 20 1.14µm and the NF / 10 was 0.87µm. Fibers were considered hydrophobic by wettability analysis. DRX and the FTIR proved a presence of PEMA and suggested a presence of NYS. Diffusion test on agar demonstrated that as fibers failed to inhibit a proliferation of C. albicans.

Keywords: Electrospinning; Polyethylmethacrylate; Acrylic resins; Candida albicans.

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Laboratory Assays - Graduate Students

EFFECT OF HYDROTHERMAL AGING ON THE PROPERTIES OF YTTRIA-STABILIZED ZIRCONIA (Y-TZP)
Efeito do envelhecimento hidrotérmico nas propriedades de zircônias estabilizadas por ítria (y-tzp)

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The objective of this study was to evaluate the effect of hydrothermal aging on yttria-stabilized zirconia (Y-TZP) properties. Thirty-six ceramic discs (YZ®) - ISO 6872, 36 Cercon®Zirconia ceramics and 36 ceramic discs (Transluzent -Zirkonzahn®) were prepared and separated according to aging in a hydrothermal reactor (control, 6 and 24 hours). Resulting in 3 study

groups, according to the type of ceramic used to make the sample and 3 Sub groups, according to the performance or not of Hydrothermal aging, (n = 6). The specimens were evaluated by XRD to verify T-M phase transformation. Analysis of the control group, there were predominant peaks corresponding to the Tetragonal and Cubic phases, characterizing these samples as zirconia in the tetragonal phase, which was in fact expected for this moment. The YZ group (VITA®), in which the samples were aged for 6 hours, was analyzed and the results showed that there was an increase of characteristic peaks of monoclinic phase, evidencing the strong correlation between hydrothermal aging and phase transformation of the material. The ZT group was aged for 6 and 24 hours and analyzed by XRD and we observed that: with increasing aging time, there is also an increase in the intensity of characteristic monoclinic phase peaks, confirming the conclusion made by (Chevalier, 1999) that the transformation from tetragonal to monoclinic phase is a process dependent on the time of exposure. It is concluded that the longer the exposure time to aging, the greater the amount of tetragonal to monoclinic phase transformation.

Keywords: Hydrothermal aging; Y-TZP ceramic.

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Laboratory Assays - Graduate Students

BIOMECHANICAL BEHAVIOR OF TEETH WITH COMPOSITE RESIN DIRECT VENEERS AND GLASS-FIBER POST
Efeito do pino de fibra de vidro no comportamento biomecânico de dentes com facetas diretas de resina composta

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Esthetic of anterior teeth is primordial to the wellness of the patient, and one alternative is the use of composite resin direct veneers. Teeth that have an indication for veneers several times also present endodontic treatment. There is no consensus on literature about the requirement of glass fiber post (GFP) to improve teeth strength. These teeth present higher chances to fracture due to preparation of crown by endodontic treatment, pulp removal, and veneers preparation. This study aimed to evaluate the biomechanical behavior of endodontically treated maxillary central incisors, which present direct veneers with and without GFP, by finite element analysis (FEA). Six groups were designed: with and without GFP and 3 different thickness of composite resin veneers (0.5, 0.7 and 1mm). A three-dimensional model of maxillary central incisors was obtained by modeling software and exported to analysis software. A load of 100N, at 45° on the palatal face was applied to simulate the functional movements. All contacts were considered perfectly bonded, and fixation occurred at the cortical bone. Solids were considered isotropic, linearly elastic and homogeneous. For cement, dentin, and GFP, the Maximum principal stress was similar with and without GFP, regardless thickness of veneers. However, models with GFP presented better stress distribution, and lower values of stress for veneers.

The veneers of 0.5mm presented larger areas of stress concentration. It is concluded that GFP can influence the stress distribution on composite resin direct veneers.

Keywords: Post and glass technique; Dental veneers; Finite element analysis.

24
Laboratory Assays - Graduate Students

EFFECT OF CHEMICAL ATTACK TEMPERATURE ON THE TI6AL4V ALLOY SURFACE USED IN BIOMEDICAL APPLICATIONS

Efeito da temperatura de ataque químico na superfície da liga ti6al4v usada em aplicações biomédicas

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Different methods have been used to modify surfaces to improve tissue repair events, such as chemical corrosion. Nanopits can be created on Ti6Al4V implants by engraving with a mixture of H2SO4 and H2O2 and have shown beneficial effects on osteogenic events. The treatment time may affect the morphological and physicochemical characteristics of the nanoporous surface created by this oxidative chemical standard, but it is not yet known if the temperature of the treatment can also affect these properties. In this study was demonstrated the feasibility of creating surfaces with a microtexture and a nanotexture, showing that their properties can be adapted by controlling temperature and time of exposure to a mixture of H2SO4 and H2O2. SEM analysis indicated that β phase grains, which involve large grains of α phase, were preferentially engraved. The increase in the oxidation temperature causes the nanometric morphologies of α and β grains to become similar, with all surfaces covered by nanopes and nanopeaks evenly distributed. X-ray diffraction measurements for all conditions and controlled sample showed similar characteristics and no anatase or rutile related peak was recorded in the range of 20-30°, respectively, at 25,281° and 27,507°, indicating that the oxide layer is mainly composed of amorphous TiO2.

Keywords: Ti6Al4; Titanium oxide; Oxidation; Nanotopography.

Clinical / Epidemiologic study - Undergraduate Students

01
Clinical / Epidemiologic study - Undergraduate Students

DRUG ADDICTS IN RECOVERY PROCESS: SELF-PERCEPTION OF THE ORAL CONDITION, QUALITY OF LIFE AND DEPRESSION

Adictos em processo de recuperação: autopercepção da condição bucal, qualidade de vida geral e depressão

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The aim of this study was to describe the socio-psycho-demographic profile of addicts in illicit drugs in the rehabilitation of the therapeutic community Nova Esperança of São José dos Campos; evaluate the self-perception of oral health, general quality of life and depression. Independent questionnaires were used to analyze the oral self-perception and profile; WHOQOL-abbreviated (Quality of Life of the World Health Organization) for the quality of life and SRQ-20 (Self-Report Questionnaire 20) for depression, applied as an interview. A descriptive statistical analysis showed that the 171 respondents were males, of whom 77.98% used crack, 61.98% cocaine, 59.06% marijuana; aged between 18 and 59 years (mean of 35.03 years); self-declared white (41.52%), brown (39.77%), and black (13.45%); 57.89% with less than nine years of study; mean dependence time 19.26 years, prevailing in the period of 11 to 16 years (53.21%). Regarding the SQR-20, 30.78% answered affirmatively seven or more questions of the scale, suggesting depression for 52 respondents. In a range of 0 to 100, a general quality of life scored 66.82; the highest score was for the physical domain (72.75), and lower for social relations (61.81). For 92.98% the use of drugs made them more careless with oral hygiene; to 94.15%, oral health deteriorated; to 40.94% the last dental appointment was over 36 months; 50.88% believed that their oral health was poor, 32.75% regular, 14.04% good, and 1.75% very good. It was concluded that they are young adults with high dependency time, low education, use more than a kind of drug, the need for oral care is perceived, and depression is present for part of the addicts, and social relations may be an indicator domain of negative impact on overall quality of life.

Keywords: Substance-related disorders; Quality of life; Oral health.

02
Clinical / Epidemiologic study - Undergraduate Students

EVALUATION OF HYDROGEN PEROXIDE DEGRADATION IN CUSTOMIZED OR PREFILLED TRAYS: RANDOMIZED CLINICAL TRIAL

Avaliação da degradação do peróxido de hidrogênio em moldeiras individualizadas ou pré-carregadas: estudo clínico randomizado

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The aim of this study was to evaluate the hydrogen (HP) and carbamide (CP) peroxide degradation in prefilled trays (PT) and customized trays (CT), in different times, in a randomized clinical trial. Volunteers (n=10) were submitted to bleaching gels treatments: CT-HP: White Class10% FGM; CT-CP: Opalescence PF10% Ultradent and PT-HP: Opalescence Go10% Ultradent. The bleaching gels samples were collected from the trays in each period (initial, 15, 30, 50 and 120 min) and the HP concentration was determined with potassium permanganate (KMnO4) titration. The degradation was calculated based on initial concentration (IC) of bleaching gels. Repeated measurement ANOVA and Tukey test (5%) were performed. Significant differences for bleaching/tray (p=0.0399) and time (p=0.0000) were detected, but there was no difference for interaction (p=0.2704). Comparing the percentage degradation values obtained by the difference between initial and final concentrations of bleaching gels (IC= 100%), it was observed that CT-CP presented lower degradation values (42.43±12.41)a when compared with PT-HP (54.24±10.16)b, and CT-HP presented intermediary values (47.50±15.44)ab. The bleaching gels presented, in general, continuous degradation and significantly different in times 15min (27.91%), 30min (42.01%), 60min (56.19%) and 120min (66.16%). In conclusion, the bleaching gels presented progressive degradation over time and there was no interference of type of the trays in degradation, considering bleaching gels hydrogen peroxide-based.

Keywords: Tooth bleaching; Hydrogen peroxide; Titrimetry.

03
Clinical / Epidemiologic study - Undergraduate Students

IMMUNOHISTOCHEMICAL EVALUATION OF NEURAL INTRAORAL LESIONS
Avaliação imuno-histoquímica de lesões intraorais de origem neural

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Peripheral nerve sheath lesions (PNSL) present similar histopathological features, mainly due to the proliferation of spindle cells, causing diagnosis difficulty. PNSL more frequently observed in the mouth are neurofibroma (NF), neurilemoma (NL), solitary circumscribed neuroma (SCN), granular cell tumor (GCT) and traumatic neuroma (TN). Objective: analyze PNSL by immunohistochemistry aiming at improving differential diagnosis. Study Design: 53 PNSLs: NF (21), TN (16), GCT (6), NL (5) SCN (5) were identified in an oral pathology laboratory, from 1962 to 2016. Immunohistochemical detection of S-100, EMA, Claudin-1, GLUT-1, and GFAP was performed. Results: Strong S-100 positivity was found in all lesions, except in perineural and/or

capsule that showed non-homogeneous positivity. GLUT-1 stained the capsule of NF and NL, the perineurium of SCN and lesion cells of NF, NL, SCN. Staining was observed in most cases of GCT. Four of 16 cases originally diagnosed as TN showed staining around the axon/Schwann cell units, in a pattern of perineurial pseudo-onion bulbs and were reclassified as Pseudoperineurioma (PSP). Claudin- 1, EMA and GFAP also stained perineurium, but weaklier than GLUT-1. Conclusion: GLUT-1 highlighted perineurium better than Claudin-1, EMA, and GFAP in PNSL. Therefore, S-100 and GLUT-1 are the most useful immunohistochemical markers for PNSL.

Keywords: Immunohistochemistry; Cell proliferation; Mouth.

04
Clinical / Epidemiologic study - Undergraduate Students

SMOKING CESSATION TREATMENTE AND QUALITY OF LIFE
Cessação tabágica e qualidade de vida

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The objective of this study was to treat and evaluate smoker´s quality of life (QoL) before and after the smoking cessation treatment. Fifteen smokers were evaluated in the first day and after three months of participation in a smoking cessation program for anxiety and depression through the following tests: SF 36, Questionnaire of Fantastic Life Style, SRQ-20, IDATE t / e. The treatment was performed by a pneumologist with a cognitive behavioral approach. It was provided courseware and prescribed support medication, that includes nicotine replacement therapy, if necessary. In the period of nine months, ten men and five women, from 52 to 81 years old, participated in the study; nine stopped smoking and six decreased the consumption. At the beginning of the treatment, QoL indicators had committed social and emotional aspects, some cases indicating depression and tendency to react with more anxiety; after three months, in average, there was an improvement in the social and emotional aspects indicators, but little improvement in the depression, anxiety, and fantastic lifestyle. Five patients reported having relapsed and started to smoke again. The treatment made possible the gradual reduction of the smoking cessation with improvement in the descriptive analysis in the comparison of QoL indicators, in the statistical analysis there were no significant improvements.

Keywords: Smoking; Smoking cessation; Quality of life.

05
Clinical / Epidemiologic study - Undergraduate Students

DETERMINATION OF LIMIT OF ACCEPTABILITY: INFLUENCE OF ILLUMINANT ON SURFACE GLOSS ACCEPTANCE OF RESIN COMPOSITES

Determinação do limite de aceitabilidade: influência do iluminante na aceitabilidade do brilho superficial de resinas compostas

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The aim of the present study was to assess the influence of different illuminants on acceptance of gloss differences in resin composites. Eight specimens presenting 6 mm in diameter and 1.5 mm thick (0.5mm in A2E shade and 1mm in A2D shade) were fabricated and a human tooth specimen (1 mm dentin and 0.5 mm enamel) was also obtained. Specimens were polished to obtain surface gloss, in gloss units (GU), at 10GU, 20GU, 30GU, 40GU, 50GU, 60GU, 70GU, or 80GU, while human tooth specimen presented 80GU. Sixty observers were selected for the analyses (20 laypersons, 20 students, and 20 dentists). The study was submitted to the Institutional Review Board. Subjects individually compared the surface gloss of resin specimens with the human enamel sample in a light booth (Gti-Newburgh, NJ). Specimens were randomly placed, in the light booth with light incidence set at 60°. All analyses were performed under two illuminant conditions, being D65 and fluorescent light. Observers answered to specific questions to determine the acceptability limit of surface gloss variations. Data were submitted to General linear/non-linear model PROBIT and non-linear regression estimation PROBIT (5%). The acceptance of ΔUB was influenced by the illuminant exposures (p=0.045), which the fluorescent light resulted in greater acceptance variation of gloss. The limit of acceptance in ΔGU was 34 for D65 and 37 for fluorescent light. The results showed that the acceptance in ΔGU was influenced by illuminant type, with greater acceptance level for the fluorescent light.

Keywords: Composite resins; Optical phenomena; Visual perception.

06
Clinical / Epidemiologic study - Undergraduate Students

TMJ DIMENSIONS IN VIRTUAL THREE-DIMENSIONAL MODELS ACQUIRED THROUGH CONE-BEAM COMPUTED TOMOGRAPHY AS DETERMINANTS OF SEXUAL DIMORPHISM
Dimensões das atm em modelos virtuais obtidos por tomografia computadorizada de feixe cônico como determinantes do dimorfismo sexual

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The objective of this study was to relate the dimensions of the mandibular condyle with sex and age using three-dimensional models obtained by cone-beam computed tomography images (CBCT). CBCT examinations of 120 patients belonging to the archives of the ICT-UNESP Clinic of Radiology were selected. They were divided into five age range groups, each group containing 12 individuals of each sex. Virtual three-dimensional models were created and two measurements from each mandibular condyle were obtained: anteroposterior (AP) and

mediolateral (ML). The t-test was used to compare the measurements among the independent samples. The AP measurements only of the left side, between 31 to 40 years of age, showed a significant difference between genders; ML measurements, significant difference was detected between genders in all age groups on both sides, except in the age range above 60 years. The ML measurements of the mandibular condyles, regardless of side, showed significant difference between genders and age, with a tendency to greater values in males, and may be a determinant factor of sexual dimorphism.

Keywords: Tomography; X-Ray Computed; Radiology; Sex characteristics; Forensic anthropology; Forensic dentistry.

07

Clinical / Epidemiologic study - Undergraduate Students

EFFICIENCY OF DIFFERENT TEACHING METHODS ON HYGIENE AND CONSERVATION OF DENTAL PROSTHESES

Eficiência de diferentes métodos de ensino sobre higienização e conservação de peróteses dentarias

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The objective of this study was to compare the efficiency of different orientation methods on hygiene and preservation of prostheses for patients of the Dental Prosthesis clinics of the Institute of Science and Technology of São José dos Campos. Forty-eight patients answered a questionnaire in the first visit, about expectations for the end of treatment and other questionnaire about knowledge, feeding, maintenance and hygiene for users of dental prostheses. The patients were randomly and divided into 4 groups according to the strategy orientation used: Control Group; Booklets Group (distribution of orientation booklets); Kit Group (distribution of kits containing all the necessary devices to perform hygiene of the mouth and prosthesis); Audiovisual Group (audiovisual presentation with all the necessary information for the hygiene of the mouth and prosthesis). After applying one of these strategies, the patients answered again to the questionnaire about knowledge, feeding, maintenance and hygiene for users of dental prostheses. Eighteen months after receiving the prostheses, all patients were asked to respond for the third time to the same questionnaire in order to establish the long-term fixation of the information. Data comparing the teaching methods in each time period (initial, immediately after orientation and after 18 months), and data regarding the knowledge of each group (after 18 months) were submitted to Friedman's analysis of variance and Dunn's test ($\alpha = 5\%$). The results showed that the control group did not present differences among the three evaluation periods. The other groups presented significant differences according to the Friedman test ($p < 5\%$), between the initial and immediate periods after receiving the orientation. Eighteen months after receiving the orientation, the patients in the Control group presented lower knowledge when compared to patients oriented through the Audiovisual

Presentation method. It was concluded that the amount of information fixed by the groups after 18 months was similar to the initial moment, there was only difference between the Audiovisual group and other methods after a long date.

Keywords: Hygiene; Dental prosthesis; Oral health.

08

Clinical / Epidemiologic study - Undergraduate Students

PANORAMIC RADIOGRAPHS AS AN INSTRUMENT FOR AGE ESTIMATION
Radiografias panorâmicas como instrumento para estimativa de idade

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From the moment of fertilization until death, the body goes through numerous transformations that can be evaluated for different purposes, such as to estimate the age of an individual. The study of the teeth is considered reliable to estimate a person's age due to its typical chronological model beginning from intra-uterine life until the complete formation of third molars at identified stages and with distinct characteristics. The present study, using a small sample, compares the known chronological age of an individual with the age obtained using two estimation methods proposed in the literature. For this, the panoramic radiograph of six individuals of both genders with ages between 5 and 20 years were evaluated, randomly selected from the ICT-UNESP archives. The methods recommended by Nicodemo, Moraes, Médici Filho (1973) and Demirjian (1974) were applied to estimate age. It was found that the association between the age recorded in the examination with the age estimated by the Demirjian method was slightly higher than the known chronological age; however, with the method from Nicodemo, Moraes, and Médici Filho, the result obtained remained within the age tolerance forecasted by that method. It was concluded that the two methods to estimate age presented results close to the known chronological age. The Nicodemo, Moraes, and Médici Filho method was the more accurate and reliable for the sample used.

Keywords: Tooth; Radiology; Radiography; Forensic dentistry.

09

Clinical / Epidemiologic study - Undergraduate Students

STUDY OF THE RELATIONSHIP BETWEEN THE POSITION AND DIMENSIONS OF THE MAXILLARY SINUS DRAINAGE COMPLEX AND THE PRESENCE OF SINUSES CONTENT ALTERATIONS: A CBCT STUDY
Estudo da relação entre o posicionamento e dimensões do complexo de drenagem do seio maxilar e a presença de sinusopatias: estudo tcfc

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Imaging modalities have been used for assessment of paranasal sinus, with emphasis to the Cone-Beam Computed Tomography (CBCT). The aim of this study was to analyze the dimensions of two structures of the maxillary sinus (MS) - the infundibulum length (IL) and the distance between the lowest point of the maxillary sinus floor and its ostium (FOD), and their relationship with its contents: Normal (I); Mucous thickening (II), Retention pseudocyst (III), Partial opacification (IV) and Total opacification (V).To this purpose, 300 exams (600 MS) of CBCT from the Institute of Science and Technology - UNESP archive were analyzed, with ages ranging from 18 to 80 years, 105 male and 195 female. The exams were previously acquired in I-CAT Next Generation (Imaging Science International, Hatfield, PA, USA), CBCT tomograph all with the same protocol (voxel of 0.25mm and FOV of 8.0cm, scanning the middle third of the face). Descriptive statistics and the paired t-test were performed to compare the measurements between the right (R) and left (L) sides in the genders, separately, indicating only difference in the male ($p < 0.05$). Sinus findings and different measures of IL and FOD were related. The results showed that (II) was the most frequent alteration in both genders and (V) was less frequent. The IL values between 10.0 and 13.0 mm were related to a higher incidence of maxillary sinus content alterations in both genders. In male, FOD between the values of 32.0 and 39.0 mm were related to a higher incidence of (II).

Keywords: Cone-beam computed tomography; Paranasal sinuses; Sinusitis.

10
Clinical / Epidemiologic study - Undergraduate Students

IDENTIFICATION OF THE MOST USED HANDLING TECHNIQUES IN THE CARE OF CHILDREN IN DENTISTRY

Identificação das técnicas de condicionamento mais utilizadas no manejo de crianças em odontologia

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The oral cavity has a fundamental role in the emotional and behavioral balance of the human being. By sensitivity, intimacy and as an important way to make the baby get in touch with the outside world, and Pediatric Dentistry carries an important emotional characteristic. This is a differentiated speciality in the professional-patient and adult-child relationship. It is necessary a proper management of the patient for a good behavior during the sessions and to perform a treatment. The patient management aims to build a relationship, marked by trust between the patient and the professional, to relieve fear and anxiety. The management techniques are: pharmacological (use of anxiolytics, conscious sedation, deep sedation and general anesthesia)

and non-pharmacological (talk-show-do, positive reinforcement, distraction, verbal communication, nonverbal communication and voice control, physical restraint, hand over mouth). The objective of this study was to know which management techniques have being used by professionals in the care of children. For this research, 115 answers about the graduated time were used, the average number of children's care per week, the management techniques used and the most effective technique for each age group in the interviewees' opinion. We observed that 85.22% of the interviewees preferred non-pharmacological techniques and among these the most used techniques in the three age groups were talk-show-do, verbal communication and positive reinforcement. The aversive technique of hand over mouth is the most rejected and the least used. Among professionals who use the pharmacological techniques, conscious sedation was preferred.

Keywords: Pediatric dentistry; Psychology; Dental care for children.

11
Clinical / Epidemiologic study - Undergraduate Students

INFLUENCE OF THE VISUALIZATION FIELD ON THE PERCEPTION OF SURFACE GLOSS OF RESIN COMPOSITES

Influência do ângulo de visualização na perceptibilidade do brilho superficial de resinas compostas

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The aim of this study was to assess the influence of the viewing angle on the perceptibility of surface gloss of resin composites. Eight specimens presenting 6mm in diameter and 1.5mm thick were fabricated, being 0.5mm in shade A2E and 1.0 mm in shade A2D. Specimens were polished to obtain surface gloss, in gloss units (GU), at 10GU, 20GU, 30GU, 40GU, 50GU, 60GU, 70GU, or 80GU. Seventeen observers were selected for the analyses (7 laypersons, 5 students and 5 dentists). The study was submitted to the local Institutional Review Board. Subjects compared the surface gloss of specimens in a light booth (Gti – Newburgh, NJ). Specimens were randomly placed, two at a time, in the view booth with light incidence set at 60°. Observers answered to specific questions to determine the perceptibility limit of surface gloss variations. The observers started the analyses with non-determined visualization field, followed by determined visualization field at 60^{o}. In the end, all the observers made all the observations under the two proposed conditions Data were submitted to General linear/non-linear model PROBIT and non-linear regression estimation PROBIT (5%). No statistical difference was detected between the two tested visualization fields proposed (p=0.892). The limit of perceptibility follows: 9.8GU for the non-determined visualization field; and 6.2GU for the visualization field at 60^{o}.The results show that perception of surface gloss was not influenced by de viewing angle.

Keywords: Composite resins; Optical phenomena; Visual perception.

12
Clinical / Epidemiologic study - Undergraduate Students

CHILDREN PERCEPTION ABOUT DENTISTRY
Percepção das crianças sobre a odontologia

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Constantly affected by negative images, associated with the professional and the discomfort felt before, during and after the treatment, "fear of the dentist" is undeniably rooted in society. The collective unconscious suppose that dental treatment should be something therapy exclusive that harms oral health, and does not allow the dentist to perform preventive treatment, which is considered of extreme importance. A preliminary understanding of a children's vision on the dental environment could facilitate the approach, improving overall treatment. The objective of this study was to evaluate the perception of children (6-8 years) on the dental environment, through figures and group interviews. All the registered and present children of the first and second grade, from the morning and evening classes were approached. During the evaluation, the children were divided into groups and the Visual Analogical Scale of Motta and Bussadori (EAV) was used to answer the addressed questions. Most of the children who participated in this research follow the literature evidence, in which an average of 75% from pediatric patients are shown to be cooperative at the dentist's leading, and that the dental environment associated with invasive procedures causes discomfort during the appointment. Several studies have shown that there is a direct relationship between traumatic odontological experiences in childhood with negative attitudes of the adult patient. Therefore, the pediatric dentist has a responsibility to know and understand the patient's fears and phobias, building a relationship of trust, acting to eradicate the misconception present in society that dentistry refers to pain and discomfort.

Keywords: Perception; Dental care for children; Visual analog scale.

13
Clinical / Epidemiologic study - Undergraduate Students

PREVALENCE OF NON-CARIOUS DENTAL LESIONS IN PATIENTS WITH SLEEP BRUXISM
Prevalência de lesões dentarias não cariosas em pacientes com bruxismo do sono

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Non-carious cervical lesions (NCCLs) are pathological processes routinely found of multifactorial nature. This study aimed to verify the frequency of NCCLs in patients with and without sleep bruxism and to relate the occurrence of these lesions to this habit, through the evaluation of 67 participants, aged between 18 and 70 years, who signed informed consent forms. Patients with neurological diseases and/or partial or total edentulous were excluded from the study. The diagnosis of bruxism was performed through a validated questionnaire that is based on the combination of at least two positive findings of bruxism. The NCCLs diagnosis was performed by a single calibrated examiner using clinical probe Nº 5, clinical mirror and air jet, analyzing all the faces of all teeth present in the mouth. Lesions were classified as abfraction, abrasion or erosion. Statistical analysis was performed using the Mann-Whitney U test with a significance level of 5%. Sixty participants were diagnosed with bruxism (91.3%) and seven patients (8.7%) did not have bruxism. Regardless of the gender, sixty-two participants (89.9%) had some NCCLs, 70% abfraction, 41% abrasion and none presented erosion. Only five participants (10.1%) did not present any lesions. There was significant difference between the groups with regard to the presence of NCCLs (p=0.03) It was concluded that there was a higher frequency of NCCLs in patients with bruxism compared to the group that did not present this parafunction.

Keywords: Bruxism; Tooth cervix; Tooth wear.

14

Clinical / Epidemiologic study - Undergraduate Students

LIFE QUALITY AND PERIODONTAL STATUS OF PREGNANT WOMEN WITH OVERWEIGHT AND OBESITY ASSISTED IN PRIVATE SECTOR

Qualidade de vida e condição periodontal de gestantes com sobrepeso e obesidade atendidas no setor privado

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This cross-sectional study aimed to evaluate periodontal condition of patients with obesity/overweight during second trimester of pregnancy assisted in private health sector of the city of Bauru/SP. Thirty patients were divided into two groups: patients with obesity/overweight (G1=15) and patients with normal weight (G2=15), assisted in the private sector. The groups were divided considering body mass index (BMI) before pregnancy. The adapted form of Oral Health Impact Profile (OHIP-14) was used to measure the impact of oral condition on quality of life. Periodontal evaluation was based on probing depth (PD), gingival recession (GR), gingival hyperplasia (GH), clinical attachment level (CAL), dental calculus (DC) and gingival bleeding after probing. Kolmogorov-Smirnov test was used to verify normality of the sample. After, chi-square, Mann-Whitney and t-test were adopted ($p<0.05$). There was no significant difference between groups regarding quality of life. G1 presented higher BMI ($p<0.0001$), higher PD average in buccal ($p=0.0071$), lingual ($p=0.0065$), total ($p=0.0054$) and higher prevalence of buccal sites with PD ≥ 4 mm ($p=0.0104$). No differences were found between groups regarding DC, GR and

GH. However, G1 showed higher NCI average (p=0.0109) and higher prevalence of sites with bleeding after probing (p=0.0219). It can be concluded that, although obese/overweight pregnant women assisted in private health sector does not notice the impact of periodontal condition on quality of life, this condition is more severe in these patients during the second trimester of pregnancy when compared to normal weight pregnant women.

Keywords: Periodontitis; Pregnant women; Obesity.

15
Clinical / Epidemiologic study - Undergraduate Students

RELATION BETWEEN RAS PROTEIN AND ODONTOGENIC LESIONS
Relação entre a proteína ras e as lesões odontogênicas

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Odontogenic lesions represent a varied group of lesions that generally affect the oral cavity and derived from the tissues that originate the tooth. Its mechanisms of development and progression are not known, but some studies investigate the participation of some specific proteins in these events. The objective of this study was to investigate the expression of RAS protein in these pathologies and correlate the protein expression with the behavior and prognosis. The immunohistochemistry analysis was performed in 20 cases of dentigerous cyst (DC), odontogenic keratocyst (OK) and ameloblastoma (Am) diagnosed in the Histopathology's Laboratory of the Department of Biosciences and Oral Diagnosis of the Institute of Science and Technology - Unesp São José dos Campos, totalizing 60 cases analyzed. Considering the RAS immunoexpression in the basal layer of the DC, 11 cases (55%) presented hyperexpression (score 3) and the suprabasal layer reached this score in 13 cases (65%). The same was observed in the OK analysis, the suprabasal layer obtained 8 (40%) of the cases with score 3 and basal layer reached that level in only 5 cases (25%). In relation to Am, hyperexpression was observed in 6 cases (30%). Therefore, it was concluded that RAS expression in odontogenic lesions is inversely proportional to the aggressive behavior of these lesions.

Keywords: RAS proteins; Odontogenic tumors; Immunohistochemistry.

16
Clinical / Epidemiologic study - Undergraduate Students

ANATOMIC AND STRUCTURAL EVALUATION OF THE INTRAOSSEOUS DEFECTS AND ITS CORRELATION WITH THE SUCCESS OF PERIODONTAL THERAPY

Caracterização dos defeitos intraósseos periodontais e sua correlação com o sucesso da terapia periodontal

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Odontogenic lesions represent a varied group of lesions that generally affect the oral cavity and derived from the tissues that originate the tooth. Its mechanisms of development and progression are not known, but some studies investigate the participation of some specific proteins in these events. The objective of this study was to investigate the expression of RAS protein in these pathologies and correlate the protein expression with the behavior and prognosis. The immunohistochemistry analysis was performed in 20 cases of dentigerous cyst (DC), odontogenic keratocyst (OK) and ameloblastoma (Am) diagnosed in the Histopathology's Laboratory of the Department of Biosciences and Oral Diagnosis of the Institute of Science and Technology - Unesp São José dos Campos, totalizing 60 cases analyzed. Considering the RAS immunoexpression in the basal layer of the DC, 11 cases (55%) presented hyperexpression (score 3) and the suprabasal layer reached this score in 13 cases (65%). The same was observed in the OK analysis, the suprabasal layer obtained 8 (40%) of the cases with score 3 and basal layer reached that level in only 5 cases (25%). In relation to Am, hyperexpression was observed in 6 cases (30%). Therefore, it was concluded that RAS expression in odontogenic lesions is inversely proportional to the aggressive behavior of these lesions.

Keywords: Ras proteins; Odontogenic tumors; Immunohistochemistry.

Clinical / Epidemiologic study - Graduate Students

01
Clinical / Epidemiologic study - Graduate Students

ODONTOGENIC LUDWIG'S ANGIN: ANALYSIS OF 14 CONSECUTIVE CASES
Angina de Ludwig odontogênica: análise de 14 casos consecutivos

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Odontogenic Ludwig's Angina is characterized as a serious and potentially lethal infection, which spreads rapidly through the submandibular, sublingual and submental spaces. They are classified as rare among all odontogenic infections. Through this prospective study between July 2009 and July 2017, 218 patients with a dental infection were evaluated in a tertiary hospital, of which 14 cases (6.42%) presented a clinical condition compatible with Ludwig's Angina. The aim of this study was to evaluate epidemiological profile and clinical evolution of patients affected by Ludwig's Angina with odontogenic origin. Men were affected in the proportion of 2.5:1, with

mean age of 40 years for both genders. All patients were clinically classified as immuno-competent because they did not have underlying disease with systemic impairment. Smoking was associated in 57% of cases and was always associated with alcoholic beverage. Pain and face dysphagia were common in all patients (64%) and significant trismus with moderate to severe dyspnea. As a protocol the combination of clindamycin and ceftriaxone was used on the initial antibiotic therapy. Then surgical drainage and immediate removal of cause was done. In 57% of cases there was a late modification of antibiotic therapy. Patients were hospitalized on average 21.25 days after surgical intervention, mean time to recovery was 10 days. Multidisciplinary approach was common to all patients attended. Two patients died however due to conditions not related to Ludwig's Angina.

Keywords: Odontogenic tumors; Ludwig's angina; Fascia.

02

Clinical / Epidemiologic study - Graduate Students

CLINICAL EVALUATION OF SUPPLEMENTAL PHOTODYNAMIC THERAPY IN DISINFECTION OF BACTERIA AND ENDOTOXINS IN ONE-VISIT AND TWO-VISIT ROOT CANAL THERAPY: A RANDOMIZED CLINICAL TRIAL

Avaliação clínica do efeito do pdt na suplementação da desinfecção de canais radiculares tratados nas modalidades de terapia endodôntica em única e múltiplas sessões: estudo clínico randomizado

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It is known that primary endodontic infection is polymicrobial, comprising both Gram-positive and Gram-negative bacterial species. Lipopolysaccharide (LPS), also known as endotoxin, is main virulence factor found in outer membrane of bacterial cell, exhibiting high biological activity. Despite the advances in instrumentation techniques studies preconizing one- and two-visit treatment approach failed to demonstrate an optimal disinfection of root canal system. To optimize the root canal disinfection, supplemental methods as photodynamic therapy (PDT) has been considered in last years. However, few clinical studies evaluated PDT effectiveness in the disinfection of root canal systems. The aim of this study was to evaluate the effectiveness of supplemental PDT to optimize the removal of bacteria and endotoxins from primarily infected root canals after one-visit and two-visit treatments. This randomized clinical trial was approved by the Ethics Committee under the protocol number 1.321.552. Twenty-four patients with primary endodontic infection with apical periodontitis were selected. Then randomly divided in two groups (n=12), according to the number of visits for treatment: OV (one-visit) and TV (two-visit). The photodynamic therapy optimized disinfection of bacteria from root canals only for OV but not for TV treatment, both with calcium hydroxide medication. Photodynamic therapy was effective against endotoxins only for one-visit treatment.

Keywords: Endodontic inflammation; Toxins; Microbiology.

03
Clinical / Epidemiologic study - Graduate Students

EVALUATION OF DENTAL RECORDS REGARDING PROFESSIONAL RESPONSIBILITY ISSUES
Avaliação do prontuário odontológico quanto às questões de responsabilidade profissional

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The dental chart is a set of documents that record the care given to the patient and provides data about it. Code of Ethical dentistry 2012, article 9º, section X states that it is professional's fundamental duty to "prepare and keep up-to-date patient records." The purpose of this study was to evaluate the knowledge of dentists in relation to completing dental records, and to evaluate the need in professional liability actions. This present study was approved by the Ethics Committee under the protocol number 945.193. It was carried out by sending questionnaires about dental records to 200 dentists in São José dos Campos. The interviewees were composed mainly by female gender. (59%) graduated up to 10 years (53%), where 60% used their own clinical records, 40% dental records and 12% used digital records. About 47% spent up to 10 minutes doing the anamnesis and 90% requested a patient's signature in this item, while only 35% asked for treatment evolution. A majority (82%) stated that received instruction about time needed to keep dental records during the graduation. Half of interviewees said they keep them for up to 10 years, and for 25% the term was 5 years. It is concluded that many dentists would be unprotected if they were target of legal proceedings. Therefore, the care in preparation and maintenance of dental records is important to protect professionals from possible complaints from dental treatments.

Keywords: Forensic dentistry; Dental records; Bioethics.

04
Clinical / Epidemiologic study - Graduate Students

CLINICAL PERFORMANCE OF DIFFERENT SYSTEMS OF AT-HOME BLEACHING
Desempenho clínico de diferentes sistemas de clareamento caseiro

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The aim of this randomized clinical study was to evaluate the performance of at-home bleaching system using prefilled trays (PT) compared to conventional system with customized trays (CT), regarding to tooth color change. Forty-five volunteers participated in this study after signing a free and informed consent form. The volunteers were randomly divided in three treatment groups: CT with carbamide peroxide (CP) 10% and hydrogen peroxide (HP) 10%; and PT using HP 10%. The whitening treatment was accomplished 1x/day for 14 days, during 2 h for CP and 30 min for HP. Before this treatment, pumice prophylaxis was performed and initial tooth shades was registered using a shade guide Vitapan Classical, a shade guide Vita Bleachedguide 3D-Master, and a spectrophotometer (Easyshade). The color change was measured immediately after treatment and after 7 days. Two-way ANOVA (5%) was performed and there was no difference for bleaching (p=0.191 and p=0.053), time (p=0.3230 and 0.154), and interaction (p=0.376 and p=0.842) regarding to shade guide Vitapan Classical and Vita Bleachedguide 3D-Master, respectively. The same was observed for the spectrophotometer Easyshade, in which the factors bleaching (p=0.2343), time (p=0.5745), and interaction (p=0.6500) did not present significant difference. In conclusion, the color change was similar among the different bleaching systems tested, and there was no difference between tray type and bleaching gel concentration, according to the protocols tested.

Keywords: Tooth bleaching; Hydrogen peroxide; Spectrophotometry.

05
Clinical / Epidemiologic study - Graduate Students

CLINICAL PERFORMANCE OF CLASS II RESTORATIONS OF ORMOCER AND METHACRYLATE-BASED COMPOSITES: 2-YEAR FOLLOW-UP

Desempenho clínico de restaurações classe ii de resina composta à base de ormocer e metacrilato: 2 anos de avaliação

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This split-mouth double blind randomized clinical study evaluated the clinical performance of class II restorations of ormocer and methacrylate-based composites, during 2 years. Thirty patients were selected according to specific inclusion and exclusion criteria then received two restorations each (n = 60) of the following nanohybrid composites: Admira Fusion (ormocer) and GrandioSO (methacrylate), subjecting the materials to the same clinical conditions. The universal adhesive (Futurabond M+, Voco) was applied in the self-etching mode in all restorations. The restorations were confectioned using the incremental technique. The restorations were evaluated according to the FDI criteria after 7 days, 6 months, 1 year and 2 years. After 2 years, 23 patients attended the follow-up control and 46 restorations were evaluated. The Chi-square test showed no significant difference between the composites (p>0.05). Only one restoration made with Admira Fusion and another with GrandioSO presented small fractures [estimated survival rate (Kaplan-Meier): 85.7%]. Only one tooth presented fracture of remaining dental

structure. In the overall scores for esthetic, functional and biological properties, the composite Admira Fusion presented respectively 100%, 95.66% and 100% of acceptable performance; and GrandioSO presented respectively 100%, 91.31% e 95.66% of acceptable performance in the same scores. After 2 years, it was concluded that the restorations made with both composites presented excellent clinical performance in all analyzed parameters.

Keywords: Composite resins; Clinical trial; Permanent dental restoration.

06
Clinical / Epidemiologic study - Graduate Students

COMPARATIVE STUDY OF OCCLUSAL WEAR IN PATIENTS WITH POSTERIOR CROSSBITES IN PERMANENT DENTITION
Estudo comparativo do padrão dos desgastes oclusais em pacientes com mordida cruzada posterior na dentição permanente

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Posterior crossbite is a common malocclusion, with a range of prevalence between 7 and 23%. Posterior crossbite is also commonly responsible for a compensatory tilt on posterior teeth. It causes significant vestibular-lingual axial changes on the side affected by posterior crossbite. The aim of this study was to compare if patients presenting unilateral posterior crossbite show significant discrepancies in tooth crown size when compared to the unaffected side. 23 patients was selected with an average age of 23.5 years (SD=10 years) from a database of 4000 documented cases. To measure the upper and lower teeth crown, on both sides and from canine to second molar was used a digital caliper (Mitutoyo). The opposite side to the crossbite was used as control. The crowns lengths in both sides were compare using a pair student t test (5%). Statistically differences was noted to second molars (0.86mm), for first molars (0.73mm), 0.39mm for second premolars and 0.49mm for first premolars. All lower values were found on the side with crossbite. In conclusion, The presence of unilateral crossbite may be associated with posterior occlusal wear on the affected side, and may be the probable etiologic agent.

Keywords: Cross bite; Malocclusion; Orthodontics.

07
Clinical / Epidemiologic study - Graduate Students

EPIDEMIOLOGICAL PROFILE OF PATIENTS SUFFERED BY ODONTOGENIC INFECTIONS: AN 8-YEAR RETROSPECTIVE STUDY
Perfil epidemiológico dos pacientes acometidos por infecções odontogênicas: estudo prospectivo de 8 anos

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The infections that most affect head and neck region are of dental origin, whose main etiology is periapical infections caused by caries or periodontal origin by pericoronaritis. The aim of this study was to establish the epidemiological profile in patients affected by odontogenic infections treated in a tertiary hospital. A retrospective study was conducted between 2009 and 2016, and 183 patients were included. The patient's majority was male and the mean age was 30.6 years. Regarding comorbidities and habits, 6% were hypertensive, 5.4% diabetic and 26.2% reported being smokers. The most frequent signs and symptoms were volume increase (98.4%), pain (92.3%), trismus (72.7%) and the main etiology was tooth decay (57.0%). The main fascial spaces involved were buccal (65.0%) and submandibular (63.4%). In 98.0% of cases, the treatment was the immediate removal of the cause associated with drainage, antibiotic therapy and supportive therapy. Three patients (1.6%) required re-intervention to solve the infection condition. One patient died due to complications during anesthetic induction. 169 patients (92.3%) required hospitalization, with mean stay about 6.3 days. It was possible to observe that there is still a significant demand for patients affected by odontogenic infection. This reflects the lack of effective preventive and curative treatment at the primary level, especially for adult population, so it is necessary to review national oral health methods and policies.

Keywords: Infections; Epidemiology; Jaw.

08
Clinical / Epidemiologic study - Graduate Students

INFLUENCE OF PASSIVE ENDODONTIC IRRIGATION ON MICROBIAL LOAD AND ENDODOTOXIN LEVELS IN TEETH WITH PRIMARY ENDODONTIC INFECTION
Influência da irrigação endodôntica passiva na carga microbiana e níveis de endotoxinas em dentes com infecção endodôntica primária

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The aim of this clinical study was to evaluate bacterial load and endotoxin levels in teeth with primary endodontic infection (PEI) before and after endodontic treatment (ET) using passive ultrasonic irrigation (PUI). Twenty unirradicular teeth with PEI were prepared using a reciprocating system, irrigated with 2.5% NaOCl and randomly divided into 2 groups according to irrigation method: 1) PUI; 2) conventional irrigation (CNI). Samples from the canals content were collected after coronary opening (S1), after biomechanical preparation (BP) (S2) and after EDTA (S3). The collected samples were submitted to microbiological culture (colony-forming units/mL) and endotoxins were quantified using the Limulus Amebocyte Lysate assay. The results were analyzed by Mann Whitney and ANOVA ($p < 0.05$). Compared to the initial sample

(S1), PUI and CNI significantly reduced the number of species after BP. In S2, 90% of the cases in the PUI group and 20% in the CNI group showed no growth of anaerobic microorganisms. In S3, 80% in the PUI group and 30% in the CNI group showed no growth of microorganisms. Microbiological results showed differences between PUI and CNI groups in S2 and S3 ($p < 0.05$). All initial samples (S1) presented endotoxins with significant reduction in S2 and S3; there were no differences between S2 and S3 and between PUI and CNI groups. It was concluded that PUI promotes a decrease in the number of microorganisms, but does not interfere with endotoxin levels when compared to CNI.

Keywords: Ultrasonics; Microbial colony count; Endotoxins.

09

Clinical / Epidemiologic study - Graduate Students

ROTARY VS. RECIPROCATING VS. HYBRID INSTRUMENTATIONS: REDUCTION OF MICROORGANISMS AND ENDOTOXINS IN PRIMARY ENDODONTIC INFECTION

Instrumentação rotatória vs. reciprocante vs. híbrida: redução de microrganismos e endotoxinas na infecção endodôntica primária

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The microbiota of endodontic infections is highly diversified and the instrumentation systems used in endodontic treatment (ET) have evolved over time resulting in faster techniques. The aim of this clinical study was to correlate the microbiological profile and endotoxin levels (LPS) found in primary endodontic infection (PEI) with clinical signs and symptoms (CSS) and to evaluate the removal of microorganisms and LPS using rotary, reciprocating and hybrid systems in biomechanical preparation. Thirty teeth with PEI were evaluated for the presence of CSS, and randomly divided into 3 groups according to the instrumentation system (n = 10): MTWO (MTWO); Reciproc (REC); Hybrid Genius (GEN), using 24 mL of 2.5% NaOCl for irrigation. Samples were collected before (S1) and after instrumentation (S2) and submitted to microbiological culture (CFU/mL) and Checkerboard analysis. LPS was quantified using the LAL test. Statistical differences were observed in microbiological culture in the reduction of CFU/mL in the 3 evaluated systems ($P < 0.05$), but without statistical difference between groups. The most frequent species were C. ochracea (53%) and F. nucleatum (50%) in S1 and F. nucleatum (50%) and L. buccalis (50%) in S2. Regarding the reduction of LPS in S2, MTWO presented the best results (95.05%), followed by GEN (91.85%) and REC (64.68%), but without statistical differences between groups. Anterior pain, percussion pain and presence of fistula were associated with specific microorganisms ($P < 0.05$). ET with instrumentation systems studied was effective in reducing bacteria and LPS, but was not able to remove them completely from the root canals. CSS were correlated with specific microorganisms.

Keywords: Root canal preparation; Root canal infection; Endodontic infection.

10
Clinical / Epidemiologic study - Graduate Students

DIGITAL TECHNOLOGY IN ORTHODONTICS: A LITERATURE REVIEW
Tecnologia digital na ortodontia: uma revisão de literatura

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In orthodontics, the benefits of 3D virtual technology have been used in different procedures such as diagnosis, planning and treatment. In addition, 3D technology allows better interaction and communication between patient and professionals about the possibilities of interventions in this area. The aim of this study was to analyze the literature about the current state of virtual technology in orthodontics. It can be noticed in the literature that this technology allows better predictability in orthodontic treatment, minimizing problems that may arise during the course of the treatment and, thus, obtaining a more dynamic and effective result.

Keywords: Computer-Aided design; Technology dental; Intraoral scanning.

11
Clinical / Epidemiologic study - Graduate Students

SINGLE-VISIT X MULTIPLE-VISIT: SUCCESS RATE AND ITS RELATIONSHIP WITH ENDOTOXINS, MICROBIAL LOAD AND SIGNS AND SYMPTOMS
Sessão única x múltiplas sessões: sucesso após um ano de tratamento e sua relação com endotoxinas, micro-organismos e sinais e sintomas

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This clinical study was conducted to compare the success after one year follow up in single-visit (SV) versus multiple-visit (MV) endodontic treatment in teeth with primary endodontic infection evaluating: 1) periapical lesion (PL) regression by cone bean computed tomography (CBCT); 2) relationship between microbial load (UFC/mL) and endotoxin levels (EU/mL) at the beginning of treatment with signs/symptoms and PL volume after one year. Twenty teeth with primary endodontic infection were submitted to CBCT and randomly divided into two groups: SV or MV. Root canal contents were collected: after coronary opening (S1), after instrumentation with Reciproc and 2.5% NaOCl (S2), after irrigation with 17% EDTA (S3) and after intracanal medication (S4). PL volume was evaluated by Nemotec software and the contents collected were evaluated for microbiological activity and microbial culture and EU/mL levels through the LAL test. In one year follow up the PL repair was evaluated in relation to the clinical findings in

the SV and MV groups. The data were statistically analyzed. The UFC/mL and EU/mL levels decreased after PBM, meanwhile intracanal medication and EDTA did not interfere the results; PL volume was correlated with signs and symptoms, but CFU/mL and EU/mL were not related to the signs and symptoms and PL volume; there was no statistical difference between SV and MV groups after one year follow up regarding to the PL regression and the presence of signs and symptoms. It can be concluded that endodontic treatment of teeth with IEP can be performed in SV or MV since the type of intervention did not interfere in the success of the treatment.

Keywords: Endotoxins; Periapical abscesses; Cone-beam computed tomography.

12
Clinical / Epidemiologic study - Graduate Students

ASSOCIATION BETWEEN PERIODONTAL DISEASE, PRETERM BIRTH AND LOW BIRTH WEIGHT: SEEKING FOR SCIENTIFIC EVIDENCE
Associação entre doença periodontal, parto prematuro e baixo peso ao nascer: buscando evidência científica

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The aim of this study was to evaluate the prevalence of periodontal disease in pregnant women and to analyze its association with weight and prematurity of newborns, as well as to analyze an influence of socioeconomic and demographic variables on a periodontal condition during pregnancy. This study was approved by Ethics and Research Committee. Mouth exams were performed in 31 pregnant women, using the Periodontal Indexes and Periodontal Insertion Indexes, according to the World Health Organization, and interviews with other questions. Chi-square and Fisher's exact tests were used for statistical analysis (α = 5%), as well as the odds ratio (OR) for an analysis of the associations. The majority presented low schooling and unfavorable income. Regarding to the periodontal disease, a prevalence of 77.41% was observed. Prevalence and low weight were found in 43.34%. For dental caries, alcoholism and smoking a prevalence of 70%, 66.67% and 50%, respectively, were observed. There was an association between periodontal disease, preterm birth and low birth weight (p = 0.023) and OR = 5.5. For an association of preterm delivery with smoking, OR = 17.8, and with OR = 2.3. There was no association with dental caries index, diabetes, hypertension and urinary tract infection during pregnancy. It was concluded that the presence of periodontal disease in pregnant women interfered negatively, increasing the occurrence of prematurity and low birth weight infants.

Keywords: Premature birth; Weight birth; Periodontal diseases.

13
Clinical / Epidemiologic study - Graduate Students

PASSIVE ULTRASONIC IRRIGATION ACTION OVER MICROORGANISMS IN PRIMARY ROOT CANAL INFECTION: A CLINICAL TRIAL

Ação da irrigação ultrassônica passiva sobre microrganismos presentes em dentes com infecção endodôntica primária: estudo clínico randomizado

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The aim of this clinical study was to evaluate by microbiological culture and checkerboard DNA-DNA hybridization, the effectiveness of passive ultrasonic irrigation (PUI) after instrumentation of root canals in eliminating microorganisms found in primary endodontic infection. Twenty root canals with primary endodontic disease and apical periodontitis were selected. The root canals were instrumented and then randomly divided into 2 groups according to the irrigation method: PUI and conventional needle irrigation (CNI). Microbiological samples were collected before instrumentation (S1), after instrumentation (S2), and after flooding 17% EDTA (S3). The samples were submitted to anaerobic culture technique and checkerboard DNA-DNA hybridization analysis. A significant statistical difference was found between CNI (51.18%) and PUI (88.78%) regarding the median percentage values for the reduction of cultivable bacteria (P = 0.014). In the initial samples, the most frequently detected species were S. constellatus (50%), E. faecalis (45%), F. nucleatum (45%), P. gingivalis (45%), P. melaninogenica (45%), S. intermedius (45%). After root canal treatments using either PUI or CNI, the most frequently detected species were E. faecalis (50%), S. constellatus (45%), S. intermedius (45%), C. gracilis (45%). Both treatments significantly decreased the number of bacterial species compared with the initial sample. However, there was no statistical difference in the total microbial load between PUI and CNI groups. There was a significant reduction in the number of cultivable anaerobic bacteria using PUI; bacterial composition and number of bacterial species found after using CNI or PUI was similar.

Keywords: Endodontics; Periapical abscess; DNA Probes; Therapeutic irrigation.

01
University extension

INCLUSIVE ACTIONS IN THE GUIDANCE ON THE USE OF ICT-UNESP TOTAL PROSTHESES
Ações inclusivas na orientação quanto ao uso de próteses totais do ict-unesp

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Dental treatments in general, and in particular those involving the use of removable dental prostheses, such as a mucous-supported complete denture, depend not only on correct planning and execution, but on patient understanding regard the care in using the prosthesis to ensure health preservation. The learning of these aspects is a fundamental part of the undergraduate education in dentistry, thus, the Discipline of Complete Denture from ICT UNESP develops with students and patients an activity in which these orientations are performed through audiovisual exhibition and flyers. The proposal of a group of 3rd grade students in 2017 was to go beyond this approach, allowing this information to be also available to people with visual and hearing limitations. This presentation aimed to show how the materials that resulted in this inclusion were made and how they could serve as a basis for other preventive actions in dentistry.

Keywords: Complete denture; Orientation; Oral health.

02
University extension

SOCIAL SECURITY AND DEPRESSION: ARE THEY LIFE-QUALITY INDICATORS FOR THE ELDERLY?
Apoio social e depressão: indicadores de qualidade na terceira idade

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This study aimed to evaluate social support and depression in elderly participants of UNATI (Open University to the Third Age) of São José dos Campos /UNESP. The evaluation consisted in the application of two standardized and validated measurement instruments in our work environment: Social Outcomes Scale (MOS) and Geriatric Depression Scale (GDS-15), in this order. From 400 enrolled in this project, 40 were randomly selected, by class draw, and completed the scales (self-administered instruments) delivered after agreeing to participate in

the study and received the guidelines. It was used a descriptive and an inferential statistic by the Pearson's Correlation Coefficient and Fisher's test, with a reliability of 0.05. Regarding the results, Pearson's correlation was negative between social support and depression, however, 90% of the sample presented depression. There was presence of social support in one or more of the five dimensions evaluated by the scale (affective support 57.5%, emotional 32.5%, information 35%, positive social interaction 77.5%, and material 47.5%). The INFORMATION dimension, which identifies student access to personal resources for counseling and guidance, was the only dimension that present statistical significance, although weak and negative (0.032 < 0.05). This shows that although there is a correlation between the cited dimension and depression, it is not consistent. The study participants reported social support and positive social interaction support received the highest percentage of support. Finally, our study indicates that regardless the social support there is depression in the studied group.

Keywords: Aged; Quality of life; Social support; Depression.

03
University extension

TEAM BASED LEARNING (TBL): REPORT OF AN EXPERIENCE IN DENTISTRY
Aprendizado baseado em equipes (team based learned-tbl): relato de experiência no curso de odontologia

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This study aims to present an experience report of the application of the TBL methodology in Dentistry at the Institute of Science and Technology at São José dos Campos/ UNESP. In 2016, it was applied in the disciplines of Histology and Embryology (1st grade), to 83 students (51 - full-time and 32 - night-time course), and in the pre-clinical disciplines of Dental Materials (2nd grade), with 84 students (50 - full-time and 34 – night-time course). The TBL was implemented in the course, after the training of some teachers by CENEPP - Centre for Pedagogical Studies and Practices "Profa. Adriana Chaves" in partnership with NEAD Tis/ Botucatu. In the discipline of Histology, 88.6% of the students attributed the concept "great" and "good" to the activity. In the Dental Materials discipline, the performance of the classes was close: full-time course = 7.08 and night-time course= 7.23, what did not happen in previous years. In general, it was possible to verify that the students present difficulty in criticizing their colleagues and in self-evaluating. As positive aspects, they mentioned the dynamism, interactivity and ease of learning with the activity. Among the drawbacks, they pointed out the need of an expositive lecture before the activity, especially when the theme is complex. The TBL transforms the classroom space into a place of discussion and study, leaving behind the teacher-centered lecture model, where the student passively receives information about a topic and can contribute positively in basic and pre-clinical disciplines, building critical thinking and skills in the students for problem solving.

However, we must consider the adequacy of the TBL for some themes considered as complex and/ or difficult by the students, in order to obtain better results with the activity.

Keywords: Teaching; Learning; Dentistry.

04
University extension

HEALTH ATTENTION TO CHILDREN FROM 2 TO 6 YEARS OLD
Atenção em saúde bucal para crianças de 2 a 6 anos

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This project verified the prevalence and severity of dental caries and other diseases that affect the oral cavity of children, from 02 to 06 years, enrolled in EMEI - Municipal School of Education Infantil Cassiano Ricardo and CECOI - Social Work Célio Lemos. The children who joined the survey were examined under natural light, with wooden sticks to ward off the oral tissues. It was used the WHO index: dental caries: CPO and ceo; dental fluorosis: Dean's index; malocclusion: Dental Aesthetic Index DAÍ (12 years) and Occlusal Condition (5 years) and dental trauma. After the data collection, the classification of caries risk was calculated and the dental care needed was offered to the children, it was performed at ICT. 188 children were examined, including 116 at low risk, 27 moderate risk and 45 high risk of caries (23%). For fluorosis, 7% of alterations were observed (13 cases of mild and a case of moderate fluorosis). The central incisor upper deciduous teeth were the most affected by trauma 9%. In relation to malocclusions: 21% with posterior crossbite, 28% Overjet, 18% Overbite, 25% altered canine key. After analyzing the socioeconomic data: 47 children (25%) with income between R$ 900 and R$ 1800, 40 children between 2700 to 4500 Brazilian reais, 38 children with 1800 to 2700 Brazilian reais. In relation of the feeding's data, highlights the cariogenic diet in which 67% of children use preferably the refined sugar, 94% consuming sweetened liquids (artificial juice, carbonated drinks, yogurts) and 87% sweetened solid like biscuits, candies, chocolates.

Keywords: Dentistry; Health promotion; Pediatric dentistry.

05
University extension

EVALUTION OF THE REHABILITATOR TREATMENT BY FIXED PARTIAL PROSTHESIS CARRIED OUT IN THE AMBULATORY OF ICT-UNESP, IN 2014 TO 2016
Avaliação do tratamento reabilitador por prótese parcial fixa realizado no ambulatório do ict-unesp, no trienio 2014-16

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The aim of this study was to evaluate the oral hygiene practices and the satisfaction of patients using fixed partial dentures (FPDs) by clinical examinations, radiographic images and the application of a questionnaire. 200 patients were called and attended at the ambulatory of the São Paulo State University (Unesp), Institute of Science and Technology. Among then, only 131 patients attended to the request for the evaluation of the treatment. The data obtained by the questionnaire were submitted to descriptive statistical analysis. The chi-square test (x^2) was used for the following variables: satisfaction with the prosthesis, masticatory ability and presence of periodontal disease, being considered statistically significant the results with $p < 0.05$. The results showed that among the patients that accepted the evaluation, 66.4% were female and 33.6% male, being the mean age 42 years old. The mean longevity of the treatments analyzed was 5 years and the longest treatment was 30 years. There was a great functional and aesthetic quality of the prostheses performed in this Institution's ambulatory and among the main problems found, periodontal disease was the most frequent. It was concluded that the quality of the treatments performed and patient satisfaction was high, but presented difficulties in hygiene, evidencing the need to reinforce oral hygiene methods.

Keywords: Oral hygiene; Longevity; Fixed partial denture.

06
University extension

SHINING TEETH COMPANY
Companhia dentes brilhantes

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The purpose of this research was to show the importance of preventive dentistry, which aims to help people of all age groups prevent oral diseases through hygiene guidance, thus avoiding invasive procedures. In order to accomplish this goal, actions were carried out in elementary and high schools, as well as social groups of various ages. The Shining Teeth Company not only provided oral health guidance through plays, speeches, discussions and parodies, but also distributed hygiene kits and explanatory folders to children, adolescents and adults. Furthermore, souvenirs and lyrics of the parodies were handed out to children as positive reinforcement. Through this project, it is possible to understand the causes of oral diseases and how to prevent them, resulting in superior quality of life. Moreover, this extension project has granted individuals the ability to perform oral hygiene procedures autonomously and allowed them to recognize the importance of their daily execution as an effective manner of preventing cavity and other diseases. It is possible to conclude that toothbrushing, as with all hygiene habits, is acquired during the socialization process undergone by children. When this habit is

taught during childhood, it becomes naturally ingrained in that child's day to day activities, requiring only positive reinforcement in later years.

Keywords: Dentistry; Oral health; Pediatric dentistry.

07
University extension

DENTURES S/A: REHABILITATION TREATMENTS IN COMPLETE DENTURES
Dentadura s.a.: tratamentos reabilitadores em prótese total

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According to the Brazilian Institute of Geography and Statistics (IBGE), elderly over 60 years old represented 11% of the Brazilian population in the 2010 Census, a number that tends to grow according to their projection. As time goes by, there is a need to focus on life quality in the physical, psychological and social spheres. Among the physical alterations, there are the ones that occur in the oral cavity and related areas, which the study, diagnosis and treatment are domain areas of dentistry, phonoaudiology and related areas, as the degeneration in the stomatognathic system, which alters phonation, chewing, swallowing and consequently nutrition, such problems are also associated with tooth loss that is higher in this portion of the population, even with all the advances achieved in dentistry. Nutrition is one of the main factors that leads to longevity with life quality. However, the absence of teeth is a limiting factor in the choice of food. The treatment with removable complete dentures is one of the solutions for completely edentulous individuals that even though show some limitations, allow a significant improvement in the motor activities and associated aesthetics, raising the pleasure of an active social life. As a part of this reality, the dentures end up being a viable alternative for those who has suffered with the damages caused by the dental loss. In order to supply the large amount of cases that the university receives every year, the Extension Service "Multiprofessional approach in the treatment of complete dentures users (Dentures S/A)" from ICT - Unesp, São José dos Campos, has as main goal the promotion and improvement in the life quality of the assisted public, as well as to serve as an important tool for the students' knowledge, extolling its interdisciplinary character. It is remarkable that such a project fulfills its functions in the aspects proposed by its goal. The aim of this study was to report the extensionist character of this activity to the academic community by showing its routine, the return to society, impact on students' formation and its interdisciplinary, as well as its rich and well-coordinated multi-

professional teamwork. The proposal of this service, which has brought many benefits to the community, is exemplified by a clinical case.

Keywords: Complete denture; Interprofessional relations; Health services coverage; Mouth rehabilitation.

08
University extension

DIABETES MELLITUS X PERIODONTAL DISEASE "AND THE DEMANDS OF SOCIETY
Diabetes mellitusxdoença periodontal e as demandas da sociedade

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It is now widely accepted that periodontal disease is one of the diabetic complications. In 1993, Löe reported periodontal disease as the sixth complication of diabetes. In addition, several epidemiological studies have demonstrated a bidirectional relationship between periodontal disease and diabetes. Periodontitis is considered a risk factor for the deterioration of glycemic control over time. Thus, it is clear the need for the dentist, periodontist, in terms of health promotion and prevention in front of a community. In 2014, according to the International Diabetes Federation, the estimated number of diabetic people was 11.9 million cases in Brazil, which could reach 19.2 million in 2035. The demand for dental treatment of patients with Diabetes is great and often they do not get treatment due to this systemic condition that greatly limits the procedures. Within the project, teachers and students are better prepared to deal with this condition, as well as medical support. Since its beginning in 2013, the project has already benefited more than 100 patients from the public network and basic units. In addition to the attendance, the participating students are involved and cooperate with the technical-scientific events that take place in the UBS (s) of the municipality of São José dos Campos, such as the meetings of the "Hypertensive and Diabetic" groups and the "Multidisciplinary meetings" with a preventive approach involving physicians, nurses, nutritionists, physiotherapists, dentists and patients themselves. The main objective of the project is the reduction and control of periodontal disease, improving the individual's life quality and providing knowledge so that it recognizes the early signs of the disease and can act preventively.

Keywords: Dentistry; Diabetes mellitus; Preventive dentistry; Periodontics.

09
University extension

NEW STUDENTS, OLD STUDY HABITS: HOW DOES THIS NEW GENERATION THINK?
Novos estudantes, antigos hábitos de estudo: como pensa essa nova geração?

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New student's generation is sometimes confronted with conservative discourses and traditional teaching, that may compromise the process between teaching and learning. In addition, the generation of teachers, called X generation (born between 1961 and 1981) or Y (born between 1981 and 2000), has characteristics and behaviors distinct from Z generation, born in the end of the 90s. There is a trend of changes in the educational paradigm, in which the student starts to have a more active role in the construction of its learning and the professor, the responsibility to create the conditions for this to happen. These changes are due to the need to adapt to the new generation of students that is part of the educational network. However, questions arise about the real profile change of this new generation. Do students currently have characteristics of Z generation? Are they learning differently? A research was carried out with the students of the graduation course of Dentistry/ICT-UNESP, 1st year of the full-time course (1I, n = 51), 1st year of the night-time course (1N, n = 32), 2nd year of full-time course (2I, n = 50) and 2nd year of night-time course (2N, n = 35). For students, studying in groups, but talking only clear up each other's doubts is in the second place for almost all interviewees: 20% of the 1I, 22% of the 2I and 23% of the 2N. A small percentage, below 10%, claims to be able to study and learn by simultaneously reading, writing and watching TV or studying in groups, but chatting at random. It is concluded that the study outside the classroom is still an individual process of the student, even though they belong to a generation connected by social medias.

Keywords: Education; Students; Learning; Intergenerational relations.

10
University extension

TUTORIAL EDUCATION PROGRAM "PET DENTISTRY": TEACHING ASSOCIATED WITH EXTENSION AND RESEARCH
Programa de educação tutorial pet odontologia: ensino aliado a extensão e pesquisa

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The present experience report has as a reason to present the "PET Dentistry" Tutorial Education Program of UNESP São José dos Campos, which continuously associates the tripod of university education: teaching, research and extension. The program allows the student to try out a new learning space, while the attending public, usually of low income, has the

possibility of access the current technologies that are often expensive when performed in a private office. Throughout the program, the graduate students perform complete and usually more complex clinical cases than what they are used to do in their day-to-day life at the university, allowing, the formation of valuable knowledge that will help them at various moments in their professional lives. From this, there is the opportunity to develop researches to fulfill the needs listed during the treatments, besides the possibility of transforming them into presentations of clinical cases, exposing the methodology used during the intervention. Another activity carried out by the PET/SJC is the elaboration of internal circulation booklets and general guidelines aimed at patients, promoting health and prevention, collaborating to reduce invasive treatments. Therefore, the program allows students to have a more complete training, increasing their skills and preparing them for the market, also provides feedback on the population's needs for teachers and researchers and provides a high-quality treatment and prevention for patients.

Keywords: Dentistry; Social responsibility; Health promotion.

11
University extension

LIVE WITHOUT CARIES PROGRAM: A 17 YEARS OF EXPERIENCE REPORT
Programa viver sem cárie: relato de 17 anos de experiência

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This work aims to present the evolution of the University Extension Project of the ICT - Unesp, Campus of São José dos Campos, "Live without Caries Program". The project has as differential the mandatory participation of the pregnant in a lecture to introduce oral health education before the baby's first dental appointment. The attendance protocol consists of three phases: 1- educational lecture with pregnant women; 2- the baby's first appointment, which happens between the 4th and 6th month of life; 3- periodic appointments until the child reaches 48 months of age. The results presented refer to the period from March 2001 to September 2017. A total of 317 children joined to the program. Among them, 30 were followed up during 35 months and 80, for 48 months. From the children accompanied by 35 and 48 months, 69 completed the development of the deciduous dentition without the presence of carious lesion and 14 developed a carious lesion, requiring a restorative treatment. The failure factors found isolated or associated are: lack or neglect in household hygiene habits; lack of control of eating habits (mainly nocturnal breastfeeding) and non-attendance to the program. Thus, 62.7% of the children who participated in the project until reaching 35 or 48 months of age reached the proposed goal successfully. The consolidation of the program was obtained due to the non-development of caries lesions in the children who followed the guidelines regarding hygiene and diet habits and were assiduous to the program.

Keywords: Pediatric dentistry; Health promotion; Oral health.

12
University extension

ONCO PROJECT: A SMILE FOR LIFE
Projeto onco: um sorriso pela vida

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Patients submitted to radiotherapy in the head and neck region and under systemic chemotherapy often present complications and needs that are not part of the ordinary scope of dentistry. The Onco program is an extension project that takes interest in continuity. The project has been running for more than 6 years, on Wednesdays, at the Ambulatory of the Department of Diagnosis and Surgery ICT - UNESP SJC. The objective of the project is to promote dental care for cancer patients, the diagnosis and treatment of tumors in the oral cavity and lips at an outpatient level. The project is also responsible for the adequacy of the oral environment of patients who will undergo bone marrow transplantation. Besides extending, teaching and researching, its function is to develop and consolidate concepts of different topics related to dentistry and oncology, with an interdisciplinary approach. It also seeks to enrich the skills of applying such knowledge in experimental studies, clinical trials and in the care of these patients. Partnerships between the coordination of the Project, the City Hall of São José dos Campos, and Pio XII Hospital guarantee a great flow of patients. The Onco Project fulfills its purpose to offer specialized dental care to cancer patients, as well as to carry out social actions to inform the population about prevention and risk factors of oral cancer. Therefore, accomplishing education, extension and research.

Keywords: Dentistry; Cancer; Treatment.

13
University extension

DEMOGRAPHIC RELATIONSHIPS VERSUS ODONTOLOGY UNIVERSITY BY STATE
Relação demográfica versus faculdade de odontologia por estado

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New dentistry graduates have doubts regarding the choice of a place to start their professional activities, such as: best place to work, number of inhabitants, proximity to the specialization

center and postgraduate courses, quality of life, number of registered professionals in the respective federal department and the predominant economic class in the state of choice. To start work, a previous analysis of all these factors is necessary. The objective of this study is to correlate demographic issues of each state of Brazil with the number of universities that offer dental courses. The data were obtained from the websites of the Federal Council of Dentistry (CFO) and the Brazilian Institute of Geography and Statistics (IBGE). In 2017, the five States with the highest number of dental schools were: São Paulo, 47 universities and 45,094.866 inhabitants; Minas Gerais, 25 universities and 21,119.536 inhabitants; Rio de Janeiro, 19 universities and 16,718,956 inhabitants; Paraná, 15 universities and 11,320.892 inhabitants; and Rio Grande do Sul, 14 universities and 11,322.895 inhabitants. The states with the lowest numbers are: Roraima, only 1 university and 522,636 inhabitants; Acre, only 1 university and 829,619 inhabitants; Amapá, 2 universities and 797,722 inhabitants; Sergipe, 2 universities and 2,288.116 inhabitants; and Alagoas, 3 universities and 3,375.823 inhabitants. We can conclude that the states with the highest number of dentists in relation to the number of inhabitants are São Paulo and Minas Gerais; and the ones with the lowest numbers are Maranhão and Ceará. New studies analyzing other aspects are necessary for giving better guidelines to new graduates in dentistry.

Keywords: Dental schools; Population; Students; Geography.

14
University extension

EVALUATION OF A PREVENTION PROJECT IN ORAL HEALTH FOR STUDENTS IN A PUBLIC SCHOOL

Avaliação de um projeto de prevenção em saúde bucal para escolares da rede pública de ensino

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The objective of this research was to evaluate the knowledge of students of the public education system on caries, periodontal disease and oral hygiene through a questionnaire and then guide them through the main educational and preventive methods in oral health. This prevention project was carried out for 6 months. 110 adolescents (with ages between 11 and 16) were evaluated. The students answered a questionnaire with 21 questions, received guidance from a professional and attended an educational video session with an approximate duration of 7 minutes on techniques of brushing, flossing and diet. All students received a toothbrush, a toothpaste and dental floss. Six months after the first orientation, the same students were evaluated using the same questionnaire to verify how much prevention content they had absorbed. The obtained data were submitted to a descriptive statistical analysis. The results showed that 45.45% of the students were female and 54.55% were male. In the first semester,

94.55% of the students presented knowledge regarding caries. In the second half of the year, this number increased to 95.45%, only 15.45% had periodontal disease knowledge and that number changed to 49.09%. More than 70% of the adolescents in both questionnaires feel that the dentists are responsible for oral hygiene instruction. The toothbrush, toothpaste and floss were considered the most used resources for oral hygiene as stated by 41.82% of respondents. Only 36.36% of the students use dental floss according to the results of the second questionnaire. In the second evaluation, there was an increase in the number of correct answers. It is possible to conclude that the dentist has a direct influence on students' knowledge regarding oral health prevention. There is the need for a continued instruction on caries and periodontal disease preventive measures reinforcing the use of dental floss in dental education programs.

Keywords: Dental caries; Oral health; Prevention.

15
University extension

THE'S DENTADOS: A FUN AND EDUCATIONAL ASSISTANCE IN THE WAITING ROOM OF THE DENTAL CLINIC

The's dentados: uma assistência divertida e educativa na sala de espera da clínica odontológica

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The aim of the project "The's Dentados", which started in 2011, is to perform recreational activities to the patients (mainly children), entertaining their companions and families in waiting rooms of ICT/SJC-Unesp dental clinics. As these activities are carried out, patients and caregivers are provided with humanized, instructive and relaxed assistance. Thus, a new significance is given to dental care, which is commonly associated with pain and discomfort to the patient. Taking the RIR proposal as a basis: Relax: loosen up the patient in the waiting room to calm him down and turn it into a more affable environment; -Inform: instructing the patient regarding methods of oral hygiene and any other pertinent dentistry subject, and Respect: understanding that each patient has their own differences. The Project involves Undergraduate and Graduate students who perform the activities by using parodies, jokes, rehearsed choreography, puppet theater and development of educational materials, such as games and drawings related to oral health. The closer contact with the community enables a proper diagnosis of their fears and expectations, which allows the development of further research studies. In this way, it provides the interaction of teaching, research and extension, reformulating concepts and practices of the University, training students with greater capacity to interact with the patients, attentive to the needs and the reality of the community in which they are inserted.

Keywords: Dentistry; Population; Universities; Prevention.

Basic Research - Undergraduate Students

01
Basic research - Undergraduate students

ANALYSIS OF CYTOTOXITY OF THE ROSMARINUS OFFICINALIS L. (ROSEMARY) EXTRACT ON MURINE MACROPHAGES (RAW 264.7)

Análise de citotoxicidade do extrato de rosmarinus officinalis l. (alecrim) sobre macrófagos murinos (raw 264,7)

Meccatti VM, Oliveira JR, Viegas DJ, Figueira LW, Sper FL, Soares CP, Camargo SEA, Oliveira LD
e-mail: vanessa.tep@hotmail.comThe study of the biocompatibility of medicinal plants is important due the possibility of their clinical and therapeutic use. The aim of this study was to evaluate the cytotoxicity of rosemary extract on murine macrophages (RAW 264.7) by metabolic and lysosomal analysis. The glycolic extract of rosemary leaves was obtained commercially (Mapric SP). Cultivation of RAW 264.7 was performed at 37 Cº (5% CO_2) in Dulbecco's Modified Eagle's Medium (DMEM) with 10% fetal bovine serum and 1% penicillin-streptomycin until subconfluence. Evaluated concentrations (100, 50 and 25 mg/mL) were prepared in DMEM and pure medium was used as control (n = 10/group). In microplates, 4 x 10^4 viable cells/well were added. After 24 h of incubation, an exposure occurred to the evaluated solutions for 5 min. For metabolic analysis, MTT solution (0.5 mg/mL PBS - phosphate-buffered saline) was used (incubation: 37°C/1 h). For lysosomal analysis, neutral red solution (0.02 mg/mL PBS) was applied (incubation: 37°C/2 h). Subsequently, microplates were taken to spectrophotometer (570 nm). Data were converted to cell viability percentage and analyzed by ANOVA and Tukey's Test ($P < 0.05$). In metabolic analysis, reduction of viability (%) was observed at 100 (40 ± 6) and 50 (87 ± 11), however at 25 mg/mL (96 ± 14) there was a similarity to the control group (100). In lysosomal analysis, 100 (31 ± 11) and 50 (72 ± 14) presented a reduction of viability and at 25 mg/mL (83 ± 27) there was a similarity to the control group (100). Thus, in analyses of metabolic and lysosomal activities, the most viable concentration for RAW 264.7 was 25 mg/mL.

Keywords: *Rosmarinus officinalis*; Macrophages; Cytotoxicity.

02
Basic research - Undergraduate students

ANALYSIS OF IL-6 PROINFLAMMATORY CYTOKINE SERUM LEVELS AFTER IN VIVO IMPLANT SURGERY

Análise dos níveis sericos da citocina pro-inflamatória il-6 após cirurgia de implantes in vivo

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Osseointegrated implants are considered effective to rehabilitative treatment. However, although highly predictable and with a high success rate, there are still failures in implant rehabilitation for different reasons. Among other factors, a satisfactory osseointegration is associated with the health of the peri-implant tissue. Bone remodeling is an important event for maintaining the structure of this tissue, where osteoclasts reabsorb and new bone is formed by osteoblasts. For this event to occur, a coordinated action of these cells is required which is mediated by cytokines and growth factors among other molecules. The aim of this study was to evaluate the modulating effect of implant surgery on the expression of the pro-inflammatory serum cytokine, IL-6, obtained from the blood of animals submitted to surgery. Fifteen 90-day-old rats, weighing about 300g, were used in this study. The animals received a titanium threaded implant measuring 2.5 mm in diameter by 3.0 mm in length in the right and left femurs. The animals were randomly euthanized at 3 days, 2 weeks and 7 weeks after surgery (n = 5). In vivo results showed lower expression of IL-6 in the 7-week period, with a statistical difference of 3 days and 2 weeks ($p < 0.05$). It is suggested that in the 7-week period there is a tendency to resolve the surgical trauma and decrease the intense bone remodeling that occurred in the shorter periods. It is concluded that pro-inflammatory cytokine levels, IL-6, decrease over time, suggesting the resolution of the inflammatory process and the normalization of bone remodeling.

Keywords: Titanium implants; Cytokines; Osseointegration.

03
Basic research - Undergraduate students

IN VITRO BIOCOMPATIBILITY ANALYSIS OF POROUS MEMBRANES OF PLA E PLC POLYMERS
Análise in vitro da biocompatibilidade de membranas porosas de polímeros pla e pcl

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In vitro analysis of the behavior of MG-63 osteoblasts in contact with porous reabsorbable membranes of poly (lactic acid) PLA and polycaprolactone (PCL), included to calcium silicate in two different concentrations. Four study groups were operated, being divided into the following concentrations: G1-PLA + 5% calcium silicate; G2-PLA + 10% calcium silicate; G3-PCL + 5% calcium silicate; G4-PCL + 10% calcium silicate. For cytotoxic analyzes, MG-63 osteoblasts were cultured in 24 well plates and left in contact with the samples for 3 days. After this period, the staining of the viable cells was performed with the Alamar Blue® method and the optical density readings were performed in a spectrophotometer (570 nm). Genotoxicity assay was performed using the micronucleus test. Statistical analysis was performed by ANOVA and Tukey's Test (significance level 5%). PLA or PCL samples were not cytotoxic to osteoblasts at any of the concentrations (5% and 10%). There were statistically significant differences between the PLA

and PCL membranes in relation to the control group. The 5% PLA membranes obtained greater cell viability than those with 10% PLA ($p < 0.05$). The 5% PCL membranes were less viable than the 10% PCL membranes ($p < 0.05$). Genotoxicity, 5% or 10% PLA and PCL membranes were found to induce micronucleus formation similar to the negative control group ($p > 0.05$). Positive control group (EMS) presented high micronucleus formation ($p < 0.05$). It is concluded that PCA and PLA porous membranes associated with calcium silicate are biocompatible with osteoblasts in vitro as they did not cause cytotoxicity or genotoxicity thereon.

Keywords: Bone; Biocompatibility testing; Cytotoxicity; Genotoxicity.

04

Basic research - Undergraduate students

IN VIVO ANALYSIS OF BONE NEOFORMATION AROUND IMPLANTS AFTER IRRADIATION
Análise in vivo da neoformação óssea ao redor de implantes após irradiação

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Radiation therapy has been used for more than 100 years in the treatment of cancer. Approximately 80% of cancer patients require radiation therapy at some point in the treatment to achieve healing, however 60% of the irradiated patients have complications. One of the difficulties observed is the alteration of the maxillary bones and oral cavity anatomy, being reported influences in the bone neoformation and remodeling, increasing the failure rate of implants. The objective of this study was to evaluate the bone neoformation around implants inserted into femurs of rats subjected to irradiation. Titanium threaded implants were used in this study, which were inserted in twenty-four mice with 90 days, weighing about 300g. In the radiotherapy procedure, a telethermotherapy irradiator was used, with a ^{60}Co gamma radiation source. The irradiations were performed in two stages of 15Gy, the total exposure time being about 3.5 hours, resulting in a cumulative dose of 3000 Rad (3 krad = 30 Gy). After 2 weeks, the animals were euthanized and the bone tissue pieces containing the implants were submitted to the SkyScan 1172 X-ray microtomographer (Belgium), to analyze the percentage of bone neoformation (% NO). In vivo, results showed that bone neoformation was lower in the irradiated animals (37%), with statistical difference ($p < 0.05$) in relation to the control group (55%). It was concluded that irradiation promotes a decrease in bone neoformation around implants. Thus, there may be failure of implants in patients previously submitted to head and neck radiotherapy.

Keywords: Neoform bone; Titanium implants; Radiotherapy.

05

Basic research - Undergraduate students

ANTIMICROBIAL AND ANTI-INFLAMMATORY ACTIVITIES OF BARBATIMÃO GLYCOLIC EXTRACT (Stryphnodendron barbatiman)

Atividade antimicrobiana e anti-inflamatória do extrato glicoico de barbatimão

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The use of plant extracts has been growing in many areas of health, however, in dentistry its use is still very limited, and scientific studies are needed to prove its anti-inflammatory and antimicrobial action on microorganisms of interest to this area, aiming at its addition in toothpastes, mouthwashes, irrigators and intracanal medications and other drugs used to treat mouth infections. The objectives of this study were: a) to analyze in vitro the antimicrobial action of Stryphnodendron barbatiman (barbatimão) glycolic extract on planktonic culture and monotypic biofilms of Candida albicans, Staphylococcus aureus, Enterococcus faecalis, Streptococcus mutans and Pseudomonas aeruginosa, b) to analyze in vitro the anti-inflammatory action of barbatimão extract in macrophage (RAW 264.7) culture stimulated by lipopolysaccharide (LPS). To the planktonic forms, the broth microdilution method was used, and for biofilms, standardized suspensions were added in wells of microplates and after 48 h (37 °C) were treated with barbatimão extract for 5 min and 24 h. A control group (physiological solution) was included and the viability of the biofilm was evaluated by the MTT test. To analyze anti-inflammatory action, macrophages were cultured in microplates for 24 h and 3 different concentrations of barbatimão and LPS extracts of Escherichia coli (1 µg/mL/well) were added. After incubation for 24 h (37 °C and 5% CO2), the supernatant was collected and quantified nitric oxide by the Griess method. The results were analyzed statistically (ANOVA and Tukey Test, $p \leq 0.05$). In the anti-inflammatory analysis, it was observed that the groups with 2.5% (+ LPS) and 5% (+ LPS) of barbatimão extract promoted a significant reduction of nitric oxide production in relation to the LPS group without extract ($p < 0.05$). In the antimicrobial analysis, there was no growth inhibition for C. albicans, S. aureus, E. faecalis, S. mutans. In the tests of the antibiofilm action, even at the highest concentrations of the extract (50, 100 and 200 mg/mL), it was only possible to verify reduction for P. aeruginosa, without statistical difference. It was concluded that the glycolic extract of Stryphnodendron barbatiman (barbatimão) presented an important anti-inflammatory action on macrophages stimulated by LPS, promoting a significant decrease in the production of nitric oxide. On the other hand, this extract had no antimicrobial potential on C. albicans, S. aureus, E. faecalis, S. mutans and P. aeruginosa.

Keywords: Stryphnodendron barbatimam; Plant extracts; Antimicrobials; Anti-inflammatory.

06

Basic research - Undergraduate students

COMPARATIVE EVALUATION OF SCAFFOLDS OF PBAT INCORPORATED WITH CNT/NHA AND WITH NHA IN THE BONE REPAIR OF CRITICAL DEFECTS

Avaliação comparativa de scaffolds de pbat incorporados cm cnt/nha e com nha no reparo ósseo de defeitos críticos

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The objective of this study was to characterize nanofibers of PBAT incorporated with nanohydroxyapatite (nHA) in different concentrations, associated or not to carbon nanotubes (CNTs) and to compare their influence on bone repair in critical defects performed in rat tibia. Bone defects of 3 mm were made in the tibia of 30 rats, which were divided according to the filling material: a) PBAT group; B) PBAT/2%nHAp group, c) PBAT/5%nHAp group, d) PBAT/CNTsgroup+2% nHAp, e) PBAT/CNTs+5% nHAp group. The defects in the right tibia were filled with clot and in the left tibia with the experimental materials. The animals were euthanized 6 weeks after the procedure (n=5). The bone repair was evaluated by microtomography using the bone volume parameter (BV). The characterization by scanning electron microscopy (SEM) demonstrated adequate arrangement and diameter of the polymer fibers. *In vivo* results showed that scaffolds containing 5% nHAp were more effective for bone formation, than scaffolds with 2% nHAp ($p < 0.05$), independent of the association with CNT. However, in both nanofibers, the association with CNT decreased the BV obtained ($p = 0.05$). It was concluded that scaffolds made with PBAT / 5% nHAp are those that most induce bone neoformation, promoting guided bone regeneration.

Keywords: Hydroxyapatite; Nanotubecarbono; Boneregeneration.

07

Basic research - Undergraduate students

BIOACTIVITY OF STREPTOCOCCUS MUTANS CRUDE EXTRATC AGAINST CANDIDA ALBICANS

Bioatividade de extrato bruto de streptococcus mutans contra candida albicans

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The hyphae formation by *C. albicans* is an important virulence factor, especially for adhesion to the mucosa and tissue invasion. The search for secondary metabolites produced by *S. mutans* is of great importance, as it may provide new strategies to combat oral candidiasis, allowing the development of drugs capable of blocking the mechanisms of pathogenicity of *Candida* species. Here, we evaluated the effects of the crude extract obtained from *S. mutans* (UA 159) culture filtrate on *in vitro* biofilm formation and morphogenesis of *C. albicans* (ATCC 18804). The crude extract was obtained at NuBBE (Bioassays, Biosynthesis and Ecophysiology of Natural Products), and involved the cultivation of *S. mutans* in BHI broth for 24 h at 37°C, 5% CO_2. After, the

standardized suspension of *S. mutans* containing 10^7 cells/mL was inoculated in BHI broth for 4 h at 37°C, 5% CO_2, and then, the culture was centrifuged and the supernatant was filtered through a 0.22 µm membrane filter. Then, the crude extract (205 mg) was obtained by extraction with EtOAc (3x), concentrated in a rotary evaporator and lyophilized. Next, the crude extract was subjected to bioactivity assays in biofilms formed on the bottom of 96-well plates for 48h and *C. albicans* filamentation performed in 24-well plates, and showed a statistically significant reduction on hyphae formation by *C. albicans* and viable biofilm cells (CFU/mL), when in contact with the crude extract (5 mg/mL) ($p < 0.05$). These results suggest that *S. mutans* secrete bioactive compounds capable of inhibiting biofilm formation and morphogenesis of *C. albicans*.

Keywords: *Streptococcus mutans*; *Candida albicans*; Bioprospection.

08

Basic research - Undergraduate students

BICHAT´S FAT PAD: ANATOMICAL AND FUNCTIONAL CONSIDERATIONS
Bola de bichat: considerações anatômicas e funcionais

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Marie François Bichat was the first anatomist that described this encapsulated mass of fat in the face. Bichat´s fat pad is named as buccal fat pad (BFP). This important anatomical structure is located at the buccal space of the face. At this location, the BFP is surrounded by a fibrous capsule and delimitated by muscles, being crossed by important vascular and neural elements and the Stensen's duct. This complex fat pad presents six extensions: masseteric, pterygopalatine, pterygoid, superficial and deep temporal and inferior orbital. There are a lot of discussions about the functions of the BFP, but the most described in literature is the BFP's role in the movement of masticatory and mimetic muscles and the contour of the cheek. BFP has been frequently used for closing oronasal and oroantral communications and resections of tumors and herniations. Currently, in Dentistry, the BFP has been used and discussed in the called bichectomy. The removal of BFP has been done since 1988 by some surgeons aiming to improve the masticatory function and esthetic. We will go into detail about the anatomy of BFP, highlighting its components and its real function at the third middle of the face. BFP must be well known by the professionals who perform the bichectomy or others procedures that involve this important fat pad, avoiding serious complications at this region.

Keywords: Anatomy; Surgery.

09
Basic research - Undergraduate students

STUDY OF TEMPOROMANDIBULAR JOINT (TMJ) DISC AND OSTEOCONDRAL SURFACE REPAIR AFTER DISCAL DRILLING

Estudo da reparação do disco e da superfície osteocondral da articulação temporomandibular (atm) após perfuração discal

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The poor vascularity of the temporomandibular joint (TMJ) disc makes it difficult to repair, favoring osteoarthrosis. The repair of the osteochondral surface and the TMJ disc of rabbits was evaluated after perforation. Sixteen rabbits were divided into two groups: experimental (G1, n = 12), with disc perforation, and control (G2, n = 4), without perforation. The euthanasia of G1 animals occurred after 4 (G1a) and 24 weeks (G1b), and G2 at time 0. Discs and condyles were evaluated macro- and microscopically and the disc radiographically. Macroscopically, irregularities were observed near the perforation of the disc in G1a, and partial tissue neoformation and surrounding irregularities in G1b. The osteochondral surface was irregular in G1a and regular in G1b. Radiographically, the G2 and G1a discs presented a radiopaque halo around the radiolucent center. In G1b, 4 of 6 animals presented radiopacity in the central region. Histologically, there were 4 zones on the osteochondral surface of G2: fibrous, proliferative, mature and hypertrophic. In G1a, there were invaginations of the osteochondral surface, disorganization and atrophy of the fibrous and proliferative layers. In G1b, disorganization and atrophy of the layers and/or fibrous layer thickening and absence of the proliferative layer. The G1a disc presented at the edges of the perforation hyalinized and hypocellularized tissue, with spindle cells. In G1b, a dense hyalinized matrix was observed, with cells similar to chondrocytes and central calcification. Picrosirius red evidenced that type I collagen prevailed in the disks, in all groups. In the condyles, type III prevailed. It was concluded that the articular disc undergoes partial repair after perforation, sometimes accompanied by on-site calcification.

Keywords: Osteoarthritis; Temporomandibular dysfunction; Regeneration; Tissue repair.

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Basic research - Undergraduate students

CYNARA SCOLYMUS EXTRACT (ARTICHOKE) - ANTIMICROBIAL ACTION ON ANAEROBIC BACTERIA OF DENTISTRY IMPORTANCE

Extrato glicolico de cynara scolymus (alcachofra) - ação antimicrobianos sobre bactérias anaerobios de importância odontológica

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The use of plant extracts with antimicrobial action can bring numerous benefits to dental therapy, however, there are few studies evaluating this action on anaerobic microorganisms involved in oral infections. The aim of this study was to evaluate *in vitro* the antimicrobial action of glycolic artichoke extract (*Cynara scolymus*) on the anaerobic bacteria *Porphyromonas gingivalis*, *Porphyromonas endodontalis*, *Parvimonas micra*, *Prevotella intermedia* and *Fusobacterium nucleatum*. For the planktonic form, the microdilution broth method is used, according to the Clinical and Laboratory Standards Institute (CLSI) to determine the minimum inhibitory concentrations (MIC) and minimal microbicidal (CMM). For biofilms, standardized suspensions (10^7 cells/mL) were added to the microplate wells and after 48 h at 37°C (anaerobic chamber) under agitation they were treated with the extract for 5 min and 24 h. A positive control (physiological solution, NaCl) and a negative control groups (chlorhexidine 0.12%) were included, totaling six groups (n=10) analyzed for each bacteria. Then, the biofilms were broken using an ultrasonic homogenizer. The suspensions were diluted and plated on Reinforced Clostridial Medium (RCM). After 48 or 72 h (37 °C in an anaerobic chamber), the colony forming units were counted per milliliter (CFU/mL) and the values were converted to $\log_{10}$. The data was statistically analyzed by ANOVA and Tukey tests (p=0.05).

Keywords: Dentistry; Antimicrobial; Anaerobic microorganisms; Artichoke.

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Basic research - Undergraduate students

GIMENA SYLVESTRE: ACTION AGAINST PERIODONTAL DISEASE BACTERIA AND TOXICITY ON HUMAN GENGIVAL FIBROBLASTS (FMM-1)
Gimena sylvestre: ação contra bactérias da doença periodontal e toxicidade sobre fibroblastos gengivais humanos (fmm-1)

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The objectives were to evaluate the antimicrobial action of *Gimena sylvestre* glycolic extract on planktonic cultures of *Porphiromonas gingivalis, Fusobacterium nucleatum* and *Micromonas micra* and cytotoxicity on human gingival fibroblasts (FMM-1). For the antimicrobial action it was applied the broth microdilution test, protocol M11-A7A, using *P. gingivalis* (ATCC 33277 and W83), *F. nucleatum* (ATCC 25586) and *M. micra* strains. It was made serial dilutions of*G. sylvestre* extract in 100 µl of the enriched Brucella broth (BBE), followed by the addition of standardized microorganism suspensions at 0.5 by the Mac Farland scale. After 48 h, the presence of MIC (Minimum Inhibitory Concentration) was verified and from this, aliquots were seeded in agar determining the CMM (Minimum Microbicidal Concentration). Cytotoxicity was assessed by the MTT test, where cells cultured in DMEM medium supplemented with 10% FBS were exposed to 10 concentrations of the *G. sylvestre* extract for

5 min and 24h. Statistical analysis was performed by ANOVA supplemented by the Tukey test (P <0.05). The results indicated MIC for *P. gingivalis* at 25 mg/mL and 50 mg/mL for *F. nucleatum* and *M. micra*. The CMM was obtained for *P. gingivalis* with 100 mg/mL of extract, *M. micra* obtained CMM with 50 mg/mL, whereas for *F. nucleatum* it did not obtain CMM. Cytotoxicity showed a higher percentage of cell viability with 52.3, 72.0 and 74.9% for the concentrations of 1.56, 0.76 and 0.39 mg/ml after 24 h exposure to the extract. In conclusion, the extract of *G. sylvestre* showed antimicrobial action on the strains *P. gingivalis*, *F. nucleatum* and *M. micra* and the cytotoxicity on the FMM-1 strain varied according to the extract concentration.

Keywords: Phytotherapy; Periodontal disease; Antimicrobials.

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Basic research - Undergraduate students

IMPORTANCE OF ENTEROCOCCUS FAECIUM AND ENTEROCOCCUS FAECALIS IN THE FORMATION OF BIOFILME IN DENTINA RADICULAR

Importância de enterococcus faecium e enterococcus faecalis na formação do biofilme em dentina radicular

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E. faecalis and *E. faecium* have a high relevance in hospital infections because they are easy to acquire resistance to antibiotics. *E. faecalis* also present high prevalence in endodontic infections; however, the importance of *E. faecium* for dentistry still needs to be clarified. Thus, the objective of this study was to compare clinical strains of *E. faecium* with strains of *E. faecalis* in relation to the capacity of biofilm formation in root dentin and penetration into the dentin tubules. In order to perform this study, clinical strains were used, prior to treatment, isolated from root canals with endodontic infections and identified by multiplex PCR. Among the isolated strains, 4 strains of *E. faecalis* and 2 strains of *E. faecium* were selected. Firstly, the formation of the monotypic biofilms of the strains of *E. faecalis* and *E. faecium* on root dentin of bovine teeth was carried out. The biofilms were formed in microtiter plates at different times: 2, 4, 6, 24, 48, 72, 96 and 120 hours. The biofilms formed were then analyzed by counting viable cells (CFU/mL) and analyzed by Scanning Electron Microscopy (SEM) to observe the penetration of *E. faecalis* and *E. faecium* cells into the dentin tubules. The results of CFU/mL showed that the strains have the capacity to form biofilm in root dentin, and their apex happens in 72 hours. In relation to the SEM, we observed that these cells have the capacity to penetrate and to fix in the dentinal tubules and after 120 hours there is a mature and well-structured biofilm. With this, we concluded that both species of *E. faecalis* and *E. faecium* presented great capacity to form biofilms in root dentin and have the penetration capacity into the dental tubules in root dentin.

Keywords: *Enterococcus faecalis; Enterococcus faecium;* Dentin Radicular; Microbial interactions; Biofilm.

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Basic research - Undergraduate students

INTERRELATION BETWEEN PARASYMPATHETIC NEUROMODULATION AND EXPERIMENTAL PERIODONTAL DISEASE: A MICROTOMOGRAPHIC STUDY
Inter-relação da neuromodulação parassimpática e doença periodontal experimental: um estudo microtomográfico

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Periodontal disease (PD) is one of the most common human infections and is characterized by the destruction of the dental support tissues, including alveolar bone. Among several factors that regulate the bone remodeling, such as hormones, mechanical factors and the presence of certain minerals, recently the action of the Autonomic Nervous System (ANS) was discovered. ANS has two subdivisions, that act in antagonistic ways - the parasympathetic via is related to the bone accrual whereas the sympathetic one stimulates bone resorption. The aim of this study was to verify, by the administration of an acetylcholinesterase inhibitor, the effect of parasympathetic neuromodulation on induced PD. Thirty male mice were used, divided into 3 groups: (1) Donepezil Group: Ten animals with induced PD and treated with 2 mg/kg/day donepezil, (2) Ligature group: ten animals with induced PD and (3) Control Group. Induction of PD was performed with an insertion of cotton yarn around the lower first molars and the treatment lasted 42 days. After the sacrifice, the removed jaws were submitted to microtomography analysis for quantification of bone volume fraction (BV/TV), thickness (Tb.Th) and trabecular separation (Tb.Sp), number of trabeculae (Tb.N) and total bone porosity (PO.tot%). There was a statistically significant difference in all parameters analyzed only between the control group and the other groups with PD, indicating the success of PD induction. We conclude that donepezil, in dose and period used, did not influence the pathogenesis of PD.

Keywords: Periodontal disease; Acetylcholine; Acetylcholinesterase inhibitors.

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Basic research - Undergraduate students

BIOLOGICAL AND MICROBIOLOGICAL INTERACTIONS OF THE TI-35NB-7ZR ALLOY: IN VITRO STUDY
Interações biológicas e microbiológicas da liga ti-35nb-77r: estudo in-vitro

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The objective was to evaluate *in vitro* the Ti-35Nb-7Zr alloy and its basic elements effect on the osteoblastic activity and on the monotypic biofilms formation. The samples were composed by: titanium (Ti), Ti-35Nb-7Zr Alloy (L), niobium (Nb) and zirconium (Zr) that were characterized by Scanning Electron Microscopy (SEM) and Energy Dispersive Spectroscopy (EDS). Mesenchymal cells from mouse femurs, differentiated into osteoblasts were cultured as samples. After performing cytotoxicity tests, alkaline phosphatase activity (ALP), total protein (PT) production, formation and quantification of nodules of mineralization, adhesion and cell proliferation were evaluated. For analysis of monotypic biofilm formation, standardized suspensions (10^6 cells/mL) with *S. aureus* and *P. aeruginosa* microorganisms were cultured for 24 hours on the samples and then submitted to MTT assay. Ti produces a higher amount of PT and mineralization nodules; but, it exhibited lower ALP and higher *P. aeruginosa* biofilm. The alloy exhibited increased cell viability and less cell proliferation. The Nb obtained greater cellular proliferation and smaller biofilm of *S. aureus* and *P. aeruginosa*. The Zr obtained higher alkaline phosphatase, lower PT and mineralization nodules, and, higher *S. aureus* biofilm. Cellular spreading was observed in all samples. The Ti-35Nb-7Zr alloy had a positive influence on the osteoblastic activity of the *in vitro* tests and on the microbiological evaluation of the biofilms formation, which could be indicated for biomedical use. It is suggested that the decrease in the amount of biofilm observed is due to the action of the niobium element, whereas zirconium may have aided in cell differentiation.

Keywords: Ti-35Nb-7Zr alloy; Biofilm; Osteoblasts.

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Basic research - Undergraduate students

CHORDA TYMPANI: ANATOMY-CLINICAL CONSIDERATIONS
Nervo corda do tímpano: considerações anatomo-clínicas

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The chorda tympani nerve (CTN) is a branch which originates of the facial nerve (VII cranial pair), in its intrapetrous path. In this path, the CTN passes too close to the tympanic membrane which gives the name of the nerve. It emerges from the crane through the petrotympanic fissure in the non-articular region of the mandibular fossa. It's a nerve related to the gustative function of the tongue since vehicles the gustatory afferent fibers to the anterior two-thirds of the tongue. Besides this gustatory function, this nerve is responsible for the parasympathetic innervation of the submandibular and sublingual glands by means of their visceral efferent fibers. To perform its important function the CTN adds its fibers to the fibers of the lingual nerve, a branch of trigeminal mandibular nerve. Many medical and dental surgeries cause injuries to CTN generating serious and dangerous complications to patients. Patients who have CTN injuries can be treated mistakenly, for example, they could show gustatory sweating syndrome. Specifically,

in dentistry, trauma or lesions on the lingual nerve can cause serious consequences. In this work, it was discussed meticulously all this path of CTN, the main and important functions and mainly the clinical signs arising from its injuries. It also was addressed the possible forms of treatment. The professional must know well all the territory of innervation of CTN in order to effectively treat problems arising from its injury.

Keywords: Chorda tympani nerve; Facial nerve; Lingual nerve: Facial neuralgia.

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Basic research - Undergraduate students

IN VIVO BIOLOGIC EVALUATION OF THE TI-35NB-7ZR ALLOY
Avaliação biológica in vivo da liga ti-35nb-72r comparada ao ti-cp

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The commercial pure titanium (Ti-Cp) is the material often chosen for the manufacture of implants. Despite its adequate biological and physic-chemical characteristics, it has a high modulus of elasticity, which can lead to implant loss due to mechanical incompatibility. Aiming to solve this problem, Ti alloys with the modulus of elasticity similar to cortical bone are searched. The objective of this study was to compare the influence of Ti-35Nb-7Zr alloy for Ti-Cp on osseointegration in rabbits. For evaluation - in vivo analysis - the Ticp and alloy-based threaded implants (3.75x10.0 mm) were installed in rabbit tibiae. After 5 weeks histological and histomorphometric analyzes were performed to evaluate the neoformed bone tissue. In the histological analysis, the interface bone tissue exhibited similar aspects between the groups and, in histomorphometry, no statistical difference was observed ($p > 0.05$). It was concluded that the Ti-35Nb-7Zr alloy has great potential to be used as a biomaterial since it has been shown to influence cell activity in vivo in a similar manner to Ticp. These results associated with the lower elasticity modulus of this alloy indicate its use for medical and dental applications.

Keywords: Titanium alloy; Osseointegration; Dental implants.

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Basic research - Undergraduate students

BONE REPAIR OF CRITICAL EFFECTS TREATED WITH (BIO-OSS®) AND LOW-LEVEL LASER THERAPY. PARTIAL RESULTS
Reparação óssea de efeitos críticos tratados com bio-oss e laser de baixa intensidade

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This study aimed to investigate the effects of low-level laser therapy (LLLT) associated with Bio-Oss®, on critical defects of 24 adult rats, performed in the calvaria's bone with 5 mm diameter. The animals were randomly divided into 4 groups: G1-bone defect + blood clot, G2-bone defect + Bio-Oss®, G3-bone defect + LLLT, G4-bone defect + Bio-Oss® + LLLT. One surgical defect, located laterally to the sagittal suture, was performed per animal and randomly assigned to the experimental conditions. Then the calvaria was removed for analysis histological and histomorphometric. The data were analyzed statistically by ANOVA, complemented by the Tukey test. The descriptive analysis was presented by the Means and Standard Deviation, analyzing the proportions of bone neoformation (%). The independent variables were the treatment groups during the period of 60 days. Significant statistical differences among treatments were tested by ANOVA one-way. (Fdf (3;19) = 13.36; P= 0.001< 0.05) and Tukey test (5%): (C: 0.37A ± 0.09; B: 0.19B ± 0.07; L: 0.51A ± 0.14; B+L: 0.19B ± 0.05). It was possible to conclude that the application of LLLT 660nm at 45 J/cm², promoted the highest proportion of neoformation bone area in 60 days in the G3. The G2 presented a similar proportion of bone neoformation to the G4. The association of the effects of LLLT 660nm, at 45 J/cm² to Bio-Oss®, did not demonstrate a significant increase of the neoformation bone area when compared to the other groups of the study.

Keywords: Biocompatible materials; Bone regeneration; Bone transplantation; Lasers.

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Basic research - Undergraduate students

ANTIMICROBIAL ACTIVITY OF EXTRACT AND FRACTIONS OF STREPTOCOCCUS MUTANS ON CANDIDA ALBICANS IN GALLERIA MELLONELLA MODEL

Atividade antimicrobiana do extrato e frações de streptococcus mutans sobre candida albicans em modelo de galleria mellonella

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In vitro studies have shown that *Streptococcus mutans* can produce metabolites capable of inhibiting *Candida albicans*. In this study, we evaluated the antimicrobial and immunomodulatory effects of the metabolites produced by *Streptococcus mutans* on experimental candidiasis in *Galleria mellonella* model. The supernatant metabolites of *S. mutans* culture were filtered and extracted with ethyl acetate (3 times). After that, it was concentrated on a rotary evaporator and lyophilized to provide the crude extract. The extract was fractioned in a C-18 derived silica column (150 g, Φ = 3.5 cm) using different solutions of MeOH:H_2O as eluent and yielded 5 fractions. The prophylactic and therapeutic effects of the crude extract and fractions were evaluated on experimental candidiasis in *G. mellonella* by survival curve test, as well as by the quantitation of *C. albicans* cells in the hemolymph of larvae. In the survival rate

analysis, 100% of the larvae died within 48h after inoculation of *C. albicans.* The larvae treated with the crude extract and F2 fraction (therapeutic study) showed an increase of 25% in survival rate (p=0.0039 and p=0.0004 respectively). However, the group with prophylactic treatment did not exhibit improvement in survival rate, demonstrating that the extract was not able to stimulate the immune system. These findings were confirmed by the CFU/mL counting, in which it was observed a reduction in the *C. albicans* number for the crude extract and F2 fraction compared to the control group. The results of this study suggest that *S. mutans* can produce metabolites capable of inhibiting *C. albicans* with a potential to be used as a therapeutic agent for *Candida* infections.

Keywords: *Streptococcus mutans*; *Candida albicans*; Candidiasis; *Galleria mellonella*.

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Basic research - Undergraduate students

NEURALGIA OF THE INFRAORBITAL NERVE: BIBLIOGRAPHIC REVIEW
Neuralgia do nervo infraorbital: revisão bibliográfica

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The infraorbital nerve, a branch of the maxillary nerve (V2 - trigeminal nerve), after passing through the floor of the orbit in the infraorbital canal emerges on the face through the infraorbital foramen along with the artery of the same name. This nerve is responsible for innervating the lower eyelid, nose, upper lip, vestibular gum from incisors to upper premolars. Infraorbital neuralgia (ION) is a disease classified as a trigeminal neuralgia (TN), as it affects one of its peripheral branches. Although ION patients are treated in the same way as those with TN, depending on some of the characteristic signs and symptoms of ION, these patients should receive a specific treatment. Usually, ION is characterized by paroxysmal or constant pain, chronic or intermittent, throughout the territory of infraorbital nerve distribution. The trigger point of the pain is usually located in the region of the infraorbital foramen. The possible causes of ION can be iatrogenic, traumas and degenerative diseases, among other factors. The treatment may be clinical, using drugs, or surgical, in more severe cases, when nerve ablation is required. In this review of the literature, the diagnosis, prevalence, and treatments of ION will be thoroughly examined. This type of neuralgia should be recognized by dental surgeons since they must act by diagnosing and treating possible neural pain present on the face of their patients.

Keywords: Trigeminal nerve diseases; Maxillary nerve; Trigeminal neuralgia.

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Basic research - Undergraduate students

EVALUATION OF IN VITRO CELL METABOLIC ACTIVITY ON DIFFERENT TITANIUM ALLOY SAMPLES FOR BIOMEDICAL APPLICATIONS

Avaliação da atividade metabólica celular in vitro sobre diferentes amostras de ligas de titânio visando aplicações biomédicas

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In the last decades, there has been an increase in the life expectancy of the population, which resulted in an increase in the use of metallic implants, both dental and orthopedic. The materials used to manufacture these implants, besides being biocompatible, need to present adequate modulus of elasticity and resistance to corrosion. Titanium (Ti) and its alloys are the most used materials for this purpose since they exhibit such characteristics, and their elasticity can be controlled by the confection of pores and the material from which the implant is manufactured. The surface topography, as well as the surface energy of the material, affect the biological mechanisms of bone-implant interaction and their inflammatory responses. Therefore, the main objective of this study was to evaluate the metabolism and cellular differentiation of osteoblasts against porous samples made with different titanium alloys, Ti-6Al-4V, Ti-35Nb, pure Ti grade 2, Ti-35Nb-13Zr and Ti-35Nb-7Zr-5Ta. Porous samples prepared by powder metallurgy were used, which were divided into 5 groups: a) group 1: Ti-6Al-4V; b) group 2: Ti-35Nb alloy (niobium); c) group 3: pure Ti alloy grade 2; d) group 4: Ti-35Nb-13Zr alloy (niobium, zirconia); e) group 5: Ti-35Nb-7Zr-5Ta alloy (niobium, zirconia, tantalum). Cells obtained from the MG63 cell line were cultured for 10 days on the samples to determine cell viability (MTT) and to evaluate the production of TNF-α and IL-1β cytokines. Quantification of total protein and alkaline phosphatase (ALP) activity was performed in the 3, 7 and 10 day periods, while quantification of mineralized matrix nodules was performed 14 days after cell plating. All biological assays were performed in three independent experiments. The GraphPad Prism software (GraphPad, San Diego, CA) was used to perform the statistical analyzes, and the ANOVA test was used and, when necessary, comparisons were made through the Tukey test. The level of significance adopted was the conventional value of 5%. The results of the in vitro tests showed that the samples independent of the material are not cytotoxic, exhibiting similar values of cell viability when compared to the pure Ti and allowed the formation of mineralization nodules. The total protein content of the Ti-35Nb porous sample was higher when compared to the content produced by the cells in contact with the other samples at all periods. In the 3-day period, the values showed a statistically significant difference ($p < 0.05$) between the samples, and the highest protein production was observed in Ti-35Nb and Ti-13Nb-13Zr porous samples, following Ti, 6Al-4V, and Ti-35Nb-7Zr-5Ta. However, total protein content was similar among all alloys in the 7 and 10 day periods. The alkaline phosphatase (ALP) activity of the Ti-13Nb-13Zr and Ti-35Nb-7Zr-5Ta porous samples were the highest and were similar, exhibiting a statistically significant difference ($p < 0.05$) compared to the other samples (G1, G2, and G3) in both the 3-period and the 7-day period. The ALP values did not show a statistically significant difference ($p > 0.05$) in the 10 day period. The evaluation of the production of IL-1β and TNF-α cytokines, the Ti-6Al-4V samples showed higher value with statistical difference ($p < 0.05$), indicating that this alloy induces the production of pro-inflammatory cytokines. Similar results were observed in the production of

nitric oxide but did not show a statistical difference. Thus, the results obtained show that the samples made with the experimental alloys have a better influence on the in vitro behavior of osteoblasts and lower cell stress, being promising materials for the dental and orthopedic clinic.

Keywords: Cytokines; Cytotoxicity tests; Titanium alloys; Porosity; Osteoblasts.

Basic research - Graduate students

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Basic research - Graduate students

ANTIINFLAMATORY ACTIVITY OF THE GLYCOLIC EXTRACT OF CAMELLIA SINENSIS (L.) KUNTZE IN LPS-STIMULATED MACHROPHAGES (RAW 264.7)
Atividade anti-inflamatória do extrato glicoilico de camellia sinesis (l.) Kuntze em macrófagos (raw 264,7) estimulados por lps

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Plant extracts can be a source of diverse biologic activities. Among them, anti-inflammatory action is an interesting characteristic for mouthwashes, toothpastes and intracanal medication. Leaves of Camellia sinensis properly stabilized compose the vegetable drug: green tea. Known by traditional Chinese medicine, it belongs to the Theaceae family, presenting active principles such as caffeine, theophylline, tannins, B vitamins and minerals. This study aimed to evaluate anti-inflammatory activity of the glycolic extract of Camellia sinensis (L.) Kuntze (green tea) in LPS-stimulated murine macrophage cells (RAW 264.7). For this, after an exposure time of 5 min or 24 h to the extract, supernatants of LPS-stimulated RAW 264.7 cultures were collected to quantify pro-inflammatory cytokines IL-1β and TNF-α by immunoenzymatic test (ELISA). The results were evaluated with statistical analyses ANOVA and Tukey test, with statistical significance of $p \leq 0.05$. Green tea extract showed anti-inflammatory potential evidenced by the decrease of IL-1β and TNF-α production ($p \leq 0,05$) for both exposure times. Most significant results were observed with 12.5 mg/mL concentration when compared to 3,13 mg/mL ($p \leq 0.05$). These results indicate promising immunomodulatory effects of green tea. The plant extract presents itself as an interesting alternative to be inserted in medical or oral products or even as a source of active compounds.

Keywords: Inflammation; *Camellia sinensis*; Immunomodulation; Macrophages.

02
Basic research - Graduate students

ANTIBACTERIAL ACTIVITY AND CYTOTOXICITY OF BARBATIMÃO GLYCOLIC EXTRACT
Atividade antibacteriana e citotoxicidade do extrato glicolico de barbatimão

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Popularly known as barbatimão, Stryphnodendron barbatiman is known for its anti-inflammatory potential1, but other biological effects such as the antifungal and antimicrobial action against oral bacterias2 have also been credited to this tree. The objective of this work was to evaluate the antimicrobial action of S. barbatiman glycolic extract on Porphyromonas gingivalis, Fusobacterium nucleatum and Micromonas micra strains, as well as the cytotoxicity of the extract on human gingival fibroblasts (FMM-1). The evaluation of the antimicrobial activity was performed on the standard strains of P. gingivalis, F. nucleatum and M. micra through the broth microdilution test, protocol M11-A7. In 96-well plates serial dilutions of barbatimão extract, diluted in 100 µl of enriched Brucella broth (BBE), were prepared. Later on, the microorganisms standardized suspensions were added at 0.5 by the Mac Farland scale. After 48h, the presence of MIC (Minimum Inhibitory Concentration) was verified and from this, aliquots were seeded in agar determining the CMM (Minimum Microbicidal Concentration). The cytotoxicity of the extract over the FMM-1 lineage was verified by the MTT test. The cells cultured in DMEM medium supplemented with 10% FBS were transferred to a 96 well plate and exposed to 10 concentrations of the S. barbatiman extract for 24h. Statistical analysis was performed by the ANOVA test, supplemented by the Tukey test with 5% significance (P <0.05%). The antimicrobial analysis showed that the extract had an inhibitory effect (MIC) on the growth of the four strains tested, but the microbicidal action (CMM) was verified only on M. micra. Cytotoxicity showed that concentrations below 25 mg / ml achieved cell viability above 50%. The extract of S. barbatiman showed antimicrobial action, obtaining MIC for the strains of P. gingivalis, F. nucleatum and M. micra. Concentrations below 25 mg / ml were not toxic to the FMM-1 lineage.

Keywords: Stryphnodendron; Porphyromonas; Bacteria.

03
Basic research - Graduate students

EVALUATION OF THE PROBIOTIC EFFECT OF CLINICAL STRAINS OF LACTOBACILLUS SPP. WITH SPECIES OF CANDIDA IN INVERTEBRAL MODEL GALLERIA MELLONELLA
Avaliação do efeito probiótico de cepas clínicas de lactobacillus spp. Com espécies de candida em modelo invertebrado galleria mellonella

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The objective of this study was to evaluate the antimicrobial action of clinical strains of Lactobacillus paracasei, L. fermentum and L. rhamnosus on the clinical species of Candida albicans, C. krusei and C. tropicalis. Strains of Lactobacillus spp. isolated from the oral cavity of caries-free individuals and Candida strains isolated from lesions of oropharyngeal candidiasis (previously identified by multiplex PCR), were used. The effects of Lactobacillus on Candida

species were tested in vivo using the experimental infection model Galleria mellonella. Lactobacillus and Candida strains were inoculated in the larvae and experimental infection development was evaluated by the survival curve of these invertebrates for 7 days. Five groups were evaluated, containing 15 larvae each: Control of Candida, Lactobacillus and PBS, Prophylactic and Therapeutic group. In the Prophylactic group, the standard suspensions of Lactobacillus spp. (106 cells/ larvae) were inoculated 24 hours before and then the Candida suspension (107 cells / lethal larvae in 24h) was inoculated into these animals. In the therapeutic group, suspensions of Candida (107) were inoculated 30 minutes before and then the suspension of Lactobacillus spp. (106) was inoculated. We verified that the L. paracasei strain 28.4 increased the survival of larvae infected with a lethal dose of C. tropicalis, C. albicans and C. krusei, respectively, compared to the control group ($P < 0.0001$). The L. fermentum 20.4 strain also increased the survival of larvae infected mainly with C. albicans. We conclude that the clinical isolates of Lactobacillus spp. are capable of providing protection against infection by C. albicans, C. tropicalis and C. krusei, increasing the survival of these animals significantly.

Keywords: Lactobacillus; Candida; Probiotic.

04

Basic research - Graduate students

EVALUATION OF THE ELASTIC MODULUS AND BIOLOGICAL PERFORMANCE OF NEW TITANIUM ALLOYS

Avaliação do módulo de elasticidade e da performance biológica de novas ligas de titânio

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The objective of this study was to characterize dense core samples integrated into the porous surface made with different titanium alloys and to compare the new bone formation around them. This study was approved by the REC of the Institute of Science and Technology - Unesp under protocol 018/2010. The samples, prepared by powder metallurgy, were divided into 5 groups: G1: commercially pure Ti, G2: Ti6Al4V, G3: Ti13Nb13Zr, G4: Ti35Nb, G5: Ti35Nb7Zr5Ta. Five samples of each group were evaluated for modulus of elasticity and then G1, G2 and G3 were inserted into the right tibia of the rabbits and G4, G5 into the left one. Five rabbits were euthanized 2 and 4 weeks after the surgery. Quantification of bone neoformation was analyzed by means of computerized microtomography (µCT), histology and histomorphometry. The lowest modulus of elasticity was observed in G4 and the largest in G2, but without statistical difference between groups ($p>0.05$). The µCT showed a gradual increase in most of the bone volume (BV) values, number of trabeculae (Tb.N) and in the proportion between bone and trabecular volume (BV/TB). G5 exhibited the highest rates in all analyzes, with a statistically significant difference ($p<0.05$). Osseointegration was observed in all samples after 4 weeks of surgery and, in the histomorphometric analysis, greater bone neoformation during the 2-week

period in the experimental alloys, with a significant statistical difference ($p<0.05$). It is concluded that the Ti35Nb7Zr5Ta alloy associates the low elastic modulus with high BV, Tb.N and BV/TB indices and that experimental titanium alloys have a better influence on osteoblasts in the initial healing period, favoring osseointegration.

Keywords Alloys; Elastic modulus; Osseointegration; X-Ray.

05
Basic research - Graduate students

CANDIDA TROPICALIS AFFECTS THE BIOFILM FORMATION, MORPHOGENESIS AND TRANSCRIPTOME OF CANDIDA ALBICANS

Candida tropicalis interfere na formação de biofilme, na morfogenese e na expressão de genes de virulencia de candida albicans

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Biofilm formation is an important virulence factor for pathogenic fungi. The *Candida albicans* is an oral commensal microorganism, occurring in the oral cavity of 50–70% of healthy individuals. Its effect on oral ecology has been studied using dual species models, especially when associated with bacteria. Few studies have reported the association of C. albicans with non-albicans species in the oral biofilms. Thus, the aims of this investigation were to evaluate the effects of C. tropicalis on biofilm formation and morphogenesis and also to analyze the transcriptome of Candida albicans. In mixed biofilms in vitro for 48h, C. tropicalis reduced the morphogenesis and biofilm formation of C. albicans by decreasing viable cell counts (CFU/mL), metabolic activity and hyphal growth. The decrease in the numbers of biofilm cells was confirmed visually by scanning electron microscopy. C. albicans in mixed biofilms exhibited fewer hyphae and a profuse distribution of blastospores compared with the reference monospecies C. albicans biofilms. Regarding the transcriptome analysis, in mixed biofilms associated with C. tropicalis, all C. albicans genes (BCR1, CPH1, EFG1, UME6, HWP1, ALS3, SAP5 and PLB2) were downregulated and showed significant differences ($p=0.0001$) compared with the monotypic biofilm. In conclusion, the results showed that C. tropicalis not only exerts inhibitory effects on the biofilm formation and morphogenesis of C. albicans but also interferes with its transcriptome profile.

Keywords: *Candida albicans*; *Candida tropicalis*; Biofilms.

06
Basic research - Graduate students

RESISTANT STRAINS OF KLEBSIELLA PNEUMONIAE (KPC): BIOFILM REDUCTION WITH PHYTOTHERAPY

Cepas resistentes de klebsiella pneumoniae (kpc): redução do biofilme com fitoterápicos

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Due to high resistance rates, *Klebsiella pneumoniae* was considered to be the third highest priority bacterium in the development of a new drug according to the World Health Organization. Hence, the aim of this study was to evaluate the antimicrobial activity of Gymnema sylvestre, Hamamelis virginiana, Juglans regia, Persea americana, Pfaffia paniculata, Rosmainus officinalis, Stryphnodendron barbatiman and Thymus vulgaris on 3 clinical strains and 1 ATCC (4352) of K. pneumoniae. Initially, the broth microdilution test, protocol M7-A9, was used. After that, extracts with Minimal Microbicidal Concentration (CMM) were selected for biofilm tests for 48 h. Treatments were carried out for 5 min using concentrations of 25 and 50 mg / ml. The biofilms were measured by the biomass and MTT tests and analyzed statistically by the ANOVA test supplemented by Tukey ($p < 0.05\%$). The biomasses of ATCC and 400381 strains obtained reductions with statistical significance ($p < 0.05\%$) with the extracts of P. paniculata and R. officinalis, with percentage reductions of 37.7 and 44.3% for the ATCC strain, clinical isolate presented values of 50.0 and 50.5%. The isolate 386546 obtained a reduction of 29.7% ($p < 0.05\%$) after the action of R. officinalis. The extracts promoted damage to metabolic activity (MTT) in all resistant strains of K. pneumoniae, promoting at least one reduction with statistical significance ($p < 0.05\%$) per strain. In conclusion, all the extracts showed antimicrobial potential on the resistant strains of K. pneumoniae, exhibiting minimal inhibitory concentrations, emphasizing the extracts of J. regia, P. paniculata and R. officinalis for promoting antibacterial actions in biofilms.

Keywords: *Klebsiella pneumoniae*; *Gymnema sylvestre*; Biofilm.

07
Basic research - Graduate students

ROSEMARY EXTRACT PRESENTS ACTION ON STAPHYLOCOCCUS AUREUS IN PLANKTONIC CULTURE AND BIOFILM

Extrato de alecrim apresenta ação sobre staphylococcus aureus em cultura planctonica e biofilme

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Rosemary is a plant used as a condiment and also for medicinal purposes. Some biological activities have been reported as antimicrobial. Thereby, the aim of this study was to analyze the antimicrobial effect of rosemary extract on S. aureus (ATCC 6538), in planktonic culture and biofilm. Firstly, the minimum inhibitory concentration (MIC) of the extract was determined by

the broth microdilution method, verifying concentrations from 50 to 0.09 mg/mL. Then, the extract was evaluated on biofilm formed for 48 h in a 96-well plate. To do so, the biofilm was exposed to the extract (200 mg/mL) or saline solution (0.9% NaCl) for 5 min, with n = 10/group. Washes were performed to discard cells affected by the treatment. The antibiofilm effect was verified by colorimetric test with MTT assay. MTT solution (0.5 mg/mL of phosphate-buffered saline) was added to the biofilm (100 µL/well). After incubation (37°C/1 h), the supernatant was discarded and dimethyl sulfoxide (100 µL/well) was added. The microplate was incubated for 10 min and then agitated for the same period. In a spectrophotometer (570 nm) the absorbance of the wells was read, and the values were converted into percentage reduction. The results were statistically analyzed by T-Test ($P \leq 0.05$). On the planktonic culture the extract presented MIC of 25 mg/mL while on the biofilm there was a significant reduction of 48 ± 13%, compared with the control group. Thus, the rosemary extract presented a significant effect to control S. aureus, showing action on planktonic culture and a significant reduction of biofilm viability.

Keywords: *Rosmarinus officinalis*; Biofilm; *Staphylococcus aureus*.

08
Basic research - Graduate students

TISSUE INVASION BY TREPONEMA DENTICOLA. A LITERATURE REVIEW
Invasão tecidual por treponema denticola

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Treponema denticola is a pathogen characteristic of advanced periodontal disease, but it demonstrated the ability of tissue invasion which may alter not only its location but its pathogenicity. Thus, a literature review is carried out with the aim of disseminating research results on this problem, as well as stimulating new studies and encouraging the fight against periodontal disease and its various consequences. Recent studies were analyzed to obtain updated information, so it was possible to observe that studies with cell culture, animal model and also with humans demonstrated the ability of tissue invasion by the species. There were also some studies that presents a possible influence in atherosclerotic diseases after the invasion, in which the pathogen was identified in atherosclerotic plaques, aortic and cardiac tissue, which should be highlighted due to the medical importance of atherosclerosis. It is necessary to emphasize that there were also negative results, leading to the conclusion that even with the demonstration of tissue invasion, new studies must be developed so that the possible consequences of this colonization beyond the oral cavity are investigated and understood so that one can also fight them.

Keywords: *Treponema denticola*; Bacterial Infections; Atherosclerosis.

09
Basic research - Graduate students

PEPTIDE LL-37 IS BIOCOMPATABLE AND MAY ACT IN PROLIFERATION AND DIFFERENTIATION OF DENTAL PULP STEM CELLS

Atividade anti-candida spp. E anti cryptococcus spp. De farmacos comercialmente utilizados como não-antifúngicos

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The aim of this study was to evaluate the biocompatibility of 5 and 10 µg/mL of the antimicrobial peptide LL-37 in vitro, as well as its possible effect on the differentiation of human dental pulp stem cells (hDPSCs) into odontoblasts-like cells. For this, it was evaluated the cell viability, genotoxicity, nitric oxide production, cell cycle, dentine sialophosphoprotein (DSPP) production and DSPP gene expression. It was observed that the concentrations 5 and 10 µg/mL of LL-37 were not cytotoxic neither genotoxic, and generally increased cell viability, especially on third day ($p<0.05$). There was no statistically significant difference in nitric oxide production. Cell cycle analysis showed higher number of cells in the phase G0/G1 at 10 µg/mL of LL-37 compared to control group ($p<0.05$), which showed higher number of cells in G2 and M (mitosis) than those treated with 5 and 10 µg/mL of LL-37 ($p <0.05$). A greater number of cells in S (synthesis) compared to the group treated with 10 µg/mL of LL-37 ($p <0.05$). The expression of DSPP protein and gene was higher in the group treated with 10 µg/mL of LL-37 ($p <0.05$). Based on these results, it is concluded that LL-37 was biocompatible at 5 and 10 µg/mL and increased the number of viable cells, especially during in the initial period. Moreover, the 10 µg/mL concentration arrested the cell cycle and increased expression of the DSPP protein and gene, which indicates that this peptide may act in odontoblastic differentiation.

Keywords: Antimicrobial Cationic Peptides; Biocompatibility; Cell differentiation.

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Basic research - Graduate students

PEPTIDE LL-37 IS BIOCOMPATABLE AND MAY ACT IN PROLIFERATION AND DIFFERENTIATION OF DENTAL PULP STEM CELLS

O peptídeo ll-37 é biocompatível e pode atuar na proliferação e diferenciação de células-tronco da polpa dentária

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The aim of this study was to evaluate the biocompatibility of 5 and 10 µg/mL of the antimicrobial peptide LL-37 in vitro, as well as its possible effect on the differentiation of human dental pulp

stem cells (hDPSCs) into odontoblasts-like cells. For this, it was evaluated the cell viability, genotoxicity, nitric oxide production, cell cycle, dentine sialophosphoprotein (DSPP) production and DSPP gene expression. It was observed that the concentrations 5 and 10 μg/mL of LL-37 were not cytotoxic neither genotoxic, and generally increased cell viability, especially on third day ($p<0.05$). There was no statistically significant difference in nitric oxide production. Cell cycle analysis showed higher number of cells in the phase G0/G1 at 10 μg/mL of LL-37 compared to control group ($p<0.05$), which showed higher number of cells in G2 and M (mitosis) than those treated with 5 and 10 μg/mL of LL-37 ($p <0.05$). A greater number of cells in S (synthesis) compared to the group treated with 10 μg/mL of LL-37 ($p <0.05$). The expression of DSPP protein and gene was higher in the group treated with 10 μg/mL of LL-37 ($p <0.05$). Based on these results, it is concluded that LL-37 was biocompatible at 5 and 10 μg/mL and increased the number of viable cells, especially during in the initial period. Moreover, the 10 μg/mL concentration arrested the cell cycle and increased expression of the DSPP protein and gene, which indicates that this peptide may act in odontoblastic differentiation.

Keywords: Antimicrobial cationic peptides; Biocompatibility; Cell differentiation.

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Basic research - Graduate students

PROTOTYPAGE IN ODONTOLOGY: A BRIEF HISTORICAL
Prototipagem em odontologia: um breve histórico

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Prototyping is a technology that has been widely used in health area. Highly regarded in industrial area, it is nowadays more accessible to the most diverse branches of medical and dental area. Allowing the construction of physical models of components and biomodels, exact copies of structures or biological systems. It allows the construction and visualization of diverse models, of noble structures, injuries and etc, allowing the professional to plan with precision surgical procedures, prosthesis, implants. The prototyping technique allows the conversion of three-dimensional virtual data obtained by tomographic equipment, through Computer-Aided Design (CAD) programs, into real three-dimensional models through Stereolithography (SLA), Selective Laser Sintering (SLS), Modeling By Fusion and Deposition (FDM) and three-dimensional printing (3DP), these being the most used methods by dentistry. The aim of this study was to review the literature on prototyping in the dentistry area, its history and main uses. It was concluded that prototyping was and continues to be a great advance in dental area, and its knowledge allows for more accurate diagnosis and more thorough and safe treatment.

Keywords: Computer-aided design; Printing; Three-dimensional; Technology; Dentistry.

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