O domínio da língua inglesa é um item de avaliação desta modalidade. Assim, não foram feitas quaisquer revisões ou correções, exceto as relacionadas a erros de processamento e formatação.

Knowledge of the English language is one of the items evaluated in this category. Hence the text printed here was not subjected to copyediting, except for minor corrections of processing and formatting errors.

H001 Histological, molecular and tomographic condyle analysis after mandibular advancement surgery

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This work aimed at elucidating the changes occurring in temporomandibular joint (TMJ) after surgical mandibular advancement with different fixation materials: miniplates (malleable fixation) and bi-cortical screws (rigid fixation). Twelve minipigs (Minipig BR-1) were operated and served as experimental groups; six non-operated age matched animals served as controls. Four months after the surgeries the animals were sacrificed, and all TMJs and sinovial fluid samples were collected. TMJs were histologically prepared after computerized tomography (CT) scanning, which aimed the detection of osteofite, erosion and flattening. The presence of a pro-inflammatory marker, interleukine (IL)-6, and an anti-inflammatory marker, IL-10 in sinovial fluid was assessed in ELISA experiments. Although CT revealed a tendency of bone remodelling in the rigid fixation group, the difference was not statistically significant. In the control group, the same levels of IL-6 and IL-10 were observed (83.2 pg/mL and 80.6 pg/mL, respectively), compatible with no signs of inflammation. In the malleable fixation group higher levels of IL-6 in comparison with IL-10 indicated an active inflammatory process (140.0 pg/mL and 95.6 pg/mL, respectively). In contrast, in the rigid fixation group lower levels of IL-6 compared with IL-10 were found (103.5 pg/mL and 138.9 pg/mL, respectively).

Rigid fixation evokes more pronounced signs of bone remodelling in TMJ, whereas malleable fixation promotes a more intense inflammatory activity than rigid fixation. Therefore, intrinsic features of rigid fixation seem to transmit a higher impact of postoperative masticatory forces to TMJ as compared with malleable fixation. (Support: CAPES.)

H002 Analysis of dimensional bone growth restrictions with internal rigid fixation placed through areas of rapid bone growth

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It was the object of this study to investigate the influence of intern rigid fixation on the craniofacial growth of rabbits. Twenty animals, Oryctolagus cuniculus were evaluated. In the experimental group (10), in the seventh postnatal week of life, one 1.5 mm Martin straight micro-plate with four holes was fixed transversely to the right side of coronal cranial suture. In the control group (10), at the same period of postnatal life, microscrews were placed at a distance equal to that between the outer holes of the micro-plate, one on each side of the right coronal suture. All animals were killed on the 17th postoperative week. Bone growth was evaluated through direct and indirect morphometric measures. Direct evaluation was accomplished by anteroposterior measurement in dry skulls with three different instruments. Indirect evaluation was made through three-dimensional analysis of craniofacial volumes with computerized tomography. Body mass gain evaluation was also monthly performed during the postoperative follow-up. Shortening of anteroposterior distance was noticed, both by comparing left to right side in the same specimen, as well as by comparing experimental and control groups. The right side was found to be smaller in the experimental group $p = 0{,}015$. A significant difference was also observed with volumetric evaluation $p = 0{,}01$. An increased weight gain was noticed in the animals in the control group.

It is believed that internal rigid fixation through areas of rapid bone growth in the skulls of rabbits at developing age was capable of inducing dimensional bone growth restrictions.

H003 Does folic acid have a preventive effect on dexamethasone-induced cleft palate mice?

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The purpose of the present study is to determine whether (FA) prevented cortisone-induced cleft palate (CP) in the Holtzmann mouse. Holtzmann mice were divided in 4 groups: G1- 3 pregnant mice had 3 mg/kg of Dexamethasone (Dex) intramuscularly administrated (IA) from the 14th to 17th day of gestation; G2- 3 pregnant mice had 3 mg/kg of Dex IA from the 14th to 17th day of gestation, with a daily dose of 5 mg/kg FA oral administrated (OA) from 14th to 17th day of gestation; G3- 3 pregnant mice had 3 mg/kg of Dex IA from the 14th to 17th day of gestation, with a daily dose of 5 mg/kg FA OA from day 0 until 17th day of gestation; G4- 3 pregnant mice had 3 mg/kg of Dex IA from 14th to 17th day of gestation, with a daily dose of 5 mg/kg FA OA 5 days before the fertilization until the 17th day of gestation. The pregnant animals were killed on 19th day of gestation and the fetuses head were removed and clinically examined for the presence of CP. The data was analyzed by not paired Kruskal-Wallis test, and showed statistical difference among average score values CP on groups ($p < 0.05$). The results demonstrated that 26 (96.3%) of the 27 Dex-treated fetuses (G1) had total CP, and only 1 partial CP. In the (G2), 2 (8.7%) of the 23 Dex/FA-treated fetuses showed total CP, 11 (47.8%) partial CP and 10 (43.35%) showed no CP. The (G3) showed that 1 (5.88%) of the 17 Dex/FA-treated fetuses had total CP, 15 (88.24%) partial CP and 1 (5.88%) had no CP. In the (G4), 17 (54.4%) of the 31 animals showed partial CP and 10 (32.26%) total CP. Only 4 (12.9%) had no CP.

These results indicated that FA reduces the incidence of Dex-induced cleft palate independently on the period of the administration.

H004 *In vitro* effects of transforming growth factor-β1 (TGF-β1) in human dental pulp and gingival fibroblasts

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Myofibroblasts are believed to be responsible for scar shrinking that follows granulation tissue formation by containing the cytoskeletal protein alfa-smooth muscle actin (SMA) that renders them a contractility capability. TGF-β1 has been shown to induce cultured fibroblasts to express SMA. Since pulpal fibroblasts are believed to be somewhat different from other fibroblasts, the purpose of this study was to evaluate, *in vitro*, whether pulpal and gingival human fibroblasts are induced to differentiate into myofibroblasts when TGF-β1 is added at several concentrations. It was confirmed by the immunofluorescence investigation of SMA as well as of the extracellular matrix proteins tenascin and osteonectin; the ultrastructural characteristics was also examined by transmission electron microscopy.

The results showed that SMA is expressed in both cells types although it exhibited different expression patterns. After TGF-β1 treatment, both fibroblast lineages exhibited a strong immunoreactivity for SMA, when compared to the control cells (without TGF-β1) on which the expression of SMA was less intense or absent. The ultrastructural examination in TGF-β1 induced cells revealed numerous peripheral myofilaments and a notched (indented) nucleus that is typical of myofibroblastic phenotype. Tenascin and osteonectin were only expressed by pulpal fibroblasts, with similar immunolabeling pattern for both cells incubated or not with TGF-β1. The present findings showed that TGF-β1 induces both pulpal and gingival human cells to differentiate into myofibroblasts. (Support: FAPESP - 03/06996-9.)

H005 Chemotactic effect, IL-1 beta and IL-8 production of human granulocytes induced by pulp capping materials

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The purpose of this study was to analyze the chemotactic effect and cytokine production of human granulocytes when stimulated by direct pulp capping materials. Human granulocytes obtained by Percoll® gradients were induced by calcium hydroxide (powder) – CH, bonding system – BS and mineral trioxide aggregate – MTA. Cell fresh culture media was used as control. The chemotactic effect was studied with modified Boyden chambers, with Transwell® filters (n = 12). Migrating cells were counted with a haemocytometer. Interleukin 1 beta (IL-1 beta) and interleukin 8 (IL-8) were detected and quantified by ELISA (n = 12), using the culture media obtained during the chemotaxy assay. Data of percentage of migrating cells and cytokine production were compared by ANOVA ($p < 0.05$) and Tukey test ($p < 0.05$). It was observed that all groups, including control, induced passive migration of 11% of the cells. The IL-1 beta was similarly detected in all groups (16.20 pg/ml for control, 17.13 pg/ml for CH and 13.8 pg/ml for BS) but the MTA (107.80 pg/ml) induced statistically more production of this cytokine. All materials similarly induced the IL-8 production (49.03 pg/ml for CH, 48.80 pg/ml for BS and 47.40 pg/ml for MTA), but differed from the control group (77.90 pg/ml).

None of the materials induced active cell migration. The MTA induced more IL-1 beta production when compared to the other materials and the control group. The production of IL-8 was similarly reduced for all groups when compared to the control. (Support: FAPs - 02/10462-7.)

H006 Novel aspects on vascular modulation during pulpitis: participation of renin-angiotensin and kallikrein-kinin systems

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The renin-angiotensin (RA) and kallikrein-kinin (KK) systems play a key role in multiple pathophysiological conditions including inflammation and blood pressure regulation. Nevertheless, the participation of these systems in pulpitis is poorly explored in the literature. The aim of this study was to evaluate the role of the of RA and KK systems in a model of induced pulpitis. Therefore, Class I cavities were drilled on the oclusal surface of first molars of rats and the pulp tissue was mechanically exposed. After 3, 6, 9, 12 and 24-hour periods the teeth were extracted and submitted to histopathological, Evan's blue and RT-PCR analyses. Non-exposed teeth were used as controls. Descriptive statistics was used for histopathological analysis and ANOVA and Neuman-Keuls post-test were used for Evan's blue and RT-PCR data at 5% significance level. Evan's blue assay revealed an increase on plasma extravasation in all experimental groups as compared to control. A notable increase in the amount of dilated blood vessels associated with inflammatory infiltrate was also observed in all periods, with a peak at 9-hour-period. RT-PCR data revealed that the kinin B2 receptor and angiotensin converting enzime mRNA levels were not regulated in the experimental groups. On the other hand, the B1 kinin, angiotensin (Ang) II AT2, and Ang (1-7) mas receptors, which are related to vasodilation, were all up-regulated, with maximum mRNA levels at 9-hour period. The Ang II AT1 receptor was down regulated at 24-hour period.

In conclusion, it was evidenced that the RA and KK systems participate in pulpitis by regulating the expression levels of some receptors. (Support: CNPq - 141007/2005-2.)

H007 The death of dental pulp cells is associated with the expression of p75NTR *in vitro*

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Neurotrophins and their receptors are involved in tooth development and differentially expressed in pulps of normal and injured teeth. However, the function of these signalling molecules and receptors in pulp reaction and regeneration after tooth injury is not yet been fully enlightened. The identification of signalling pathways induced by caries or injury would maybe offer the possibility to develop new therapeutic agents targeting these signalling components. The aim of the present study was to investigate the expression of the p75NTR in cultured human pulp cells during stimulation with lipoteichoic acid (LTA) from *S. sanguis*. To this end, primary pulp cell cultures were stimulated with 0.1 and 0.5 mg/ml LTA for 48 hours. Untreated cells served as control. The amount of p75NTR expressing and death cells were counted in a flow cytometer using an antibody against p75NTR and PI staining. The expression of p75NTR increases with increasing concentration of added LTA and the amount of death cells. A positive correlation of booth data could be observed, indicating that dying pulp cells express p75NTR. This was confirmed by immunofluorescent double staining for p75NTR and PI.

The results suggest that p75NTR is involved in the regulation of programmed pulp cell death. (Support: Biomat - VV B110a.)

H008 Antibacterial efficacy of endodontic irrigants and GaAlAs laser against *E. faecalis* – an *in vitro* study

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The aim of this study was to evaluate the *in vitro* antimicrobial activity of 2% chlorhexidine gel against *Enterococcus faecalis*, compared with sodium hypochlorite in two different concentrations (1.5% and 5.25%) combined or not with the use of gallium aluminum arsenide (GaAlAs) laser. One hundred and forty lower premolars with a single root canal were instrumented, autoclaved, and contaminated for 7 days with *E. faecalis* monocultures. The roots were then divided into seven groups according to the irrigant solution and laser treatment used during the standardized biomechanical preparation. In order to evaluate the antimicrobial action of the irrigant solutions and the laser treatment, three microbial samples were taken: S1-initial (before the biomechanical preparation); S2- post-treatment (immediately after the biomechanical preparation), and S3 - final (7 days after the biomechanical preparation). The microbiological samples were plated to count the colony-forming units (CFU). The 2% chlorhexidine gel and 5.25% sodium hypochlorite significantly reduced the *E. faecalis* CFU in the post-treatment and final microbiological samples. The 1.5% sodium hypochlorite also reduced the *E. faecalis* CFU immediately after the root canal instrumentation, but the *E. faecalis* CFU increased in the final sample showing no statistical difference from the control group. The treatment with gallium aluminum arsenide (GaAlAs) laser didn't increase the antimicrobial activity of both sodium hypochlorite concentrations.

The 2% chlorhexidine gluconate gel and 5.25% sodium hypochlorite were able to keep low CFU of E. faecalis *for 7 days after the instrumentation. (Support: CAPES - BEX: 0173/05-3.)*

H009 Apoptosis may be responsible for the decreased number of alveolar bone osteoclasts in estrogen treated rats

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Estrogen is a steroidal hormone which exerts an inhibitory function on bone resorption, however, the mechanism by which estrogen acts upon skeletal tissues remains unclear. In an attempt to investigate the possibility that estrogen may inhibit bone resorption by promoting death of osteoclasts, we examined the alveolar bone of 22-day-old female rats treated with estrogen (EG) in comparison to rats treated with oil vehicle (SG) and to control rats (CG). After 8 days of the experiment, fragments containing alveolar bone were removed and processed for light microscopy and transmission electron microscopy. Sections were stained in tartrate-resistant acid phosphatase (TRAP - an osteoclast marker) and the number of TRAP-positive osteoclasts/mm of bone surface was obtained. TUNEL (detection of cell death) and TRAP methods were carried out in the same section. In EG, the number of TRAP-positive osteoclasts/mm of bone surface was significantly reduced; TRAP-positive osteoclasts exhibiting TUNEL-positive nuclei were also observed. Moreover, the ultrastructural images revealed shrunken osteoclasts exhibiting nuclei with conspicuous and tortuous masses of condensed chromatin, typical of apoptosis.

Our results showed that estrogen inhibits bone resorption by promoting reduction in the number of osteoclasts. The morphological results indicate that osteoclast from EG undergo apoptosis. Therefore, it is reasonable to suggest that estrogen stimulates osteoclasts apoptosis and may be, at least in part, responsible for the decreased number of these cells. (Support: FAPESP - 04/09898-0.)

H010 Avaliation of salivary secretion in drugs-dependent patients in recuperation

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The study aim was to compare the salivary secretion in drug-dependent patients in recuperation to patients whose didn't use drugs or medications and verify the association between salivary secretion and the time interned. Salivary secretion of 48 patients, both sexies, were examined, 24 interned in a privated clinic of psychiatry and drug-dependents in Rio de Janeiro city (Group I) and 24 persons, patients and companions, were in reception of odontogy university of UFRJ and they declared didn't use drugs or medications (Group II). Results were analysed in this study and observed in Group I, patients with salivary secretion higher or same than 0.7 ml/min were interned 5.18 weeks, while patients with salivary secretion lesser than 0.7 ml/min were interned 18.14 weeks, evidencing the hiposalivation is associated to time of patients been interned to time of recuperation.

Drugs interruption give to patients normal salivary secretion, however the prolonged time interned suggested a decrease salivary secretion draw on a prolonged use of medications by recuperation treatment.

H011 Antibacterial activity of plants extracts rich in polyphenols on bacteria related to halitosis

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The production of volatile sulfur compounds (VSC) by oral microorganisms is the main cause for halitosis. The aim of this *in vitro* study was to evaluate the antibacterial activity of plants extracts (n = 8) rich in polyphenols upon oral microorganisms able to generate VSC. The extracts were investigated for activity against *Fusobacterium nucleatum*, *Peptostreptococcus micros*, *Porphyromonas gingivalis* and *Prevotella intermedia* using agar diffusion method and broth microdilution with resazurin as an indicator of bacterial growth. Two of the plant extracts with high polyphenols content were tested in a salivary sediment system (SSS) enhanced with cysteine for their ability to inhibit the formation of VSC. The amount of VSC was measured with a portable monitor (Halimeter®) and by organoleptic test. The *Punica granatum* extract inhibited all the microorganisms tested in the agar diffusion method. In the test for minimum inhibitory concentration by microdilution method, this extract was the most effective over three of the microorganisms given the range of concentration used (50 µg/mL to 400 µg/mL). The concentrations of VSC were reduced in the SSS by the extracts of *Punica granatum* and *Caesalpinia ferrea* with mean values below 50 ppb. Organoleptic test also showed reduction in the formation of VSC when the SSS was exposed to both plant extracts.

The findings of this study showed that the extracts of Punica granatum *and* Caesalpinia ferrea *inhibit bacteria related to the formation of VSC and may have potential for treating halitosis.*

H012 Physiologic and genetic characterization of clinical isolates of *Streptococcus mutans*

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The aim of this study was to evaluate physiologic and genetic traits of *S. mutans*, the primary etiological agent of human dental caries. We used UA159 as control and 3 clinical isolates of *S. mutans* (C2, C5 and C32). Cells grown to steady state in continuous cultures were assessed for glycolitic profile, acid tolerance, ATPase and PTS activities. Real Time quantitative RT-PCR was used to investigate the transcriptional levels of DnaK, F-ATPase and PTS related enzymes. Biofilm formation was assayed by growing the cells in microtitre plates. Chemostat cells grown at pH 5.0 were able to decrease the pH through glycolysis to higher extent than pH 7.0 grown cells. When the cells were subjected to acid killings, 3 strains, UA159, C5 and C32, became acid adapted, whereas C2 was not able to resist and survive under acid conditions as well as UA159. The PTS activity for glucose, fructose and mannose was higher in cells grown at pH 5.0 for strain C2, and this strain also presented the highest PTS activity. The strains UA159, C5 and C32 presented higher glucose-PTS activity at pH 7.0; fructose-PTS at pH 5.0; and mannose-PTS activity was higher at pH 5.0 for UA159 and at pH 7.0 for C5 and C32. The strains UA159, C5 and C32 presented the same pattern of ATPase activity with optimal pH 6.0. C2 had the highest ATPase activity among the tested strains. The ability to form biofilm in BM with sucrose was similar for all strains. However, cells grown in BM with glucose showed different patterns.

Altough the studied strains share physiological properties, each strain behaves as unique, presenting peculiar characteristics and genetic expression. (Support: CAPES - BEX0715/05-0.)

H013 From the past to the future: the experience of the elderly with oral health

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This study has fundamental contributions for public health due to some points: the people are becoming elderly and the reality of the unsatisfactory oral health of the Brazilians elderly. The desire to realize the present study came from the interest in comprehending the experience of elderly residents in the municipality of Botucatu, SP around their own oral health during the course of life, and also to develop and validate a representative theoretical model of the experience of this elderly person. Data collection was realized by means of non-structured interviews, of a focused type recorded on cassette tapes. Fourteen persons aged 60 or more were interviewed. The Grounded Theory was utilized as the referential methodology while Symbolic Interactionism was used as the theoretical reference. Three phenomena emerged from the data: selecting the socioeconomic condition and family habits as determinants of oral health; evaluating the practice and access to odontological service throughout the 20th century, and perceiving the condition of oral health in old age and the necessity of changes. starting from these phenomena, it was possible to identify the central category - from the past to the future: the experience of the elderly with oral health. Theoretical representative model of oral health experience of the elderly was represented by a bicycle.

This comprehension enabled researchers to understand the perceptions together with the experiences of the elderly from the present study, as well as their actions in the presence of circumstances that will be able to guide Public Health Politics, relative to oral health in humans, during the entire life cycle.

H014 Spatial analysis of the risk for edentulism in an elderly population in Botucatu-Brazil

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Considering Epidemiology the study of relationships between exposure and damage, the spatial distribution of these elements becomes fundamental for the understanding of health-disease process. Within the various health areas, oral health is in a precarious situation. From this, the objective of this study was to identify the spatial distribution of the risk for edentulism in the over sixties. Spatial case-control study was accomplished. A random sample was used with 363 sixty years and over individuals from the urban area of Botucatu-SP, in 2005. The cases were 230 individuals with edentulism found in that sample, being controls the remaining 133 individuals. For cases and controls were obtained referring information of the dwelling spatial location, as well as sex, age, education level, ethnic group, number of rooms and access to health services. The spatial distribution of the edentulism risk in the city was esteemed through the adjustment of a general addictive model semi-parametric, with a bidimensional spline non parametric of the geographical coordinates of cases and controls as spatial component no linear, and including above as linear component the other variables mentioned. As result, in a digital cartographic base of the city, maps were generated where great variation of the edentulism risk was observed in function of the location in the urban space.

Depending of the location in the urban space, critical locations was found, mainly in the outskirts areas of the city, where interventions are priorities. The spatial expression of events of oral health-disease and of actors involved in this process, strengthens the importance of territory to Collective Oral Health. (Support: FAPESP - 04/03629-8.)

H015 The noise of the high speed handpieces used by professionals in Dentistry

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The existence of generated noise sources in doctor's offices has decreased life quality of the professionals, thus, speeding up the deterioration of the auditive organ. This fact has worried the Surgeons Dentists, mainly, with regards to the environmental noise in theirs workplaces. The objective of the present study was to analyze the sound pressure levels of three different marks of high rotation instruments and to identify which one was the least harmful to the professional. The measurement device was a calibrated sound level meter that is a sound analyzer doted with a 1/1 of eighth bands filter. For the evaluation of the generated noise sources was made a series of 30 seconds thirty dosimetrics readings for each mark and, so one, in each one of the 1/1 of eight standardized frequencies had been carried through an audiometric cabin, totalizing 740 measures. The results of the noise surveys had been provided an average value of 72.1 dB for B handpiece, 79.8 dB for C and of 80,8 dB for the A, respectively, not exceeding the "threshold limit value" of 85 dB for 8 hours per workday, according our real Brazilian law the NR-15 of Safety and Work Medicine and, therefore, not being compulsory the use of the auditive protectors as personal protection equipments for the Surgeons Dentists. However, all obtained values had been above 65 dB, in compliance with acoustic comfort from the Registered Standard named as NBR-10152 regulated by ABNT.

It is concluded, then, that the C handpiece revealed less harmful, therefore presented a minor general average value as well as did not disclose elevated variations between others values found within 1/1 of eighth bands frequencies. (Support: CAPES.)

H016 Frequency and factors associated with breastfeeding among infants up to 12 months of age, Araçatuba, Brazil

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Human breast milk is the optimal food for newborn infants. The benefits of breastfeeding include positive effects on the development of an infant's oral cavity. The absence of normal and frequent sucking function can be related in the etiology of oral habits. The aim of this study was to evaluate the prevalence of breastfeeding in the first year of life and to identify weaning-related factors in Araçatuba, Brazil. In this cross-sectional study, a random sample of 100 mothers of children up to 12 months of age were interviewed during the National Vaccination Day in 2005. Frequency of breastfeeding was calculated using the survival analysis technique and the association between weaning and independent variables was assessed through statistical analyses ($p \leq 0.05$ considered significant with interval at 95%). Breastfeeding prevalence was 75% for under one year old children. The medium length of exclusive breastfeeding was 3.65 months. Prevalence of exclusive and total breastfeeding, at 6 and 12 months, was 22.2% and 65%. The variables associated to weaning were the use of bottle (χ^2= 35.843; $p < 0.0001$) and pacifier (χ^2= 14.667; $p = 0.0001$). The absence of sucking habits (χ^2= 12.943; $p = 0.0003$) was considered as a breastfeeding protecting factor.

The prevalence of breastfeeding was satisfactory; however the exclusive breastfeeding rates were low, being far from World Health Organization recommendation. Pacifiers and bottle use increased the risk of early weaning. The government, media and health professionals must improve effective actions to promote breastfeeding. (Support: CAPES - 33004021074P1.)

H017 Chemical, morphological and thermal effects of 10.6 μm CO_2 laser and fluoride on the reduction of enamel demineralization

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This *in vitro* research aimed: 1. to establish safe parameters of a pulsed 10.6 μm CO_2 laser and evaluate its effects on chemical and morphological features on oclusal surface; 2. to assess the combined effects of the same laser with fluoridated dentifrice and mouthrinse on the reduction of artificial caries lesion progression. In study 1, intrapulpal thermal temperature was evaluated during enamel irradiation with 1.5-11.5 J/cm². Chemical and morphological changes were assessed by FT-Raman Spectroscopy (FTRS) and Scanning Electron Microscopy (SEM), respectively. The teeth were submitted to pH-cycling and the mineral loss was determined by cross-sectional microhardness (CSM). In study 2, demineralized dental enamel slabs were randomly assigned to 9 groups (n = 10), either treated with CO_2 laser or not, with/without fluoridated dentifrice, and with/without fluoridated mouthrinse. After pH-cycling, polarized light analysis and CSM test were performed to determine mineral changes. Study 1 showed that intrapulpal temperature changes were below 3°C in all groups. FTRS and SEM indicated that fluencies as low as 6.0 J/cm² induced chemical and morphological changes on enamel. Laser effects on oclusal surface demineralization reduction were observed with 10.0 and 11.5 J/cm². In study 2, all treatments decreased mineral loss, compared to control group. Except for laser + mouthrinse association, all combined treatments caused enamel remineralization.

The laser fluency able of producing enamel demineralization reduction without pulp damage was 10.0 J/cm². Carbon dioxide laser alone or combined with fluoride produced an effective protection against demineralization progression on enamel. (Support: FAPs - 03/10713-2.)

H018 Ultimate microtensile cohesive strength of enamel and dentin of human and bovine teeth, varying bovine teeth age

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The aim of this study was to compare the ultimate microtensile cohesive strength of enamel and dentin of human and bovine teeth, varying bovine teeth age and the direction of the applied force in relation to enamel prisms or dentin tubules. Five groups of teeth were studied: human (H) third molars from young adults and bovine teeth with 20 (B20), 30 (B30), 38 (B38) and 48 (B48) months of age. Hourglass shaped enamel (E) and dentin (D) samples were tested parallel (PA) and perpendicular (PE) to enamel prisms and dentin tubules, respectively, with a crosshead speed of 0.5 mm/min in a universal testing machine. Data were recorded in MPa and statistically analyzed by ANOVA following Tukey test showing (different letters mean statistical significant differences with $p < 0.05$): E-PA (B48: 30.99a; H: 26.39ab; B38: 23.34b; B30: 22.61b; B20: 21.49b), E-PE (H: 17.27a; B20: 8.74b; B48: 8.0b; B30: 7.31b; B38: 6.27b), D-PA (H: 71.44a; B48: 54.39ab; B38: 39.34b; B30: 38.1b; B20: 33.89b), and D-PE (B20: 84.24a; B30: 83.48a; H: 77.03ab; B48: 65.92b; B38: 65.52b).

Enamel fractures more easily when tested perpendicular to prisms direction than parallel to it; perpendicular tested bovine enamel is weaker than human one irrespective of teeth age but parallel tested bovine enamel is similar to human one. Parallel tested bovine dentin is similar to human one just in teeth with 48 months of age. Perpendicular tested bovine dentin is similar to human one. Bovine teeth age seems to be an important factor when they are used as a substitute for human teeth.

H019 Thermal expansion of human and bovine teeth hard tissues

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To evaluate the thermal expansion behaviour of human and bovine tooth hard tissues. Fifteen human and fifteen bovine teeth were cut from freshly extracted third molars and divided into three groups (G1, G2, G3) of dentine (nominal 6 x 5 x 2 mm). The thermal expansion behaviour of G1 was determined in dry conditions and G2 was determined in wet conditions. Group 3 was stored in a desiccator at 100°C for 3 days and then measured under dry conditions. Linear thermal expansion of specimens was measured with a thermo-mechanical analyser in the temperature range 20 to 100 at 15 min^{-1}. The specimens were weighed before and after the heating process. Results in % of dimensional and weight change was obtained. Fresh dentine contracted on heating under dry (Human(H)= -0.49 ± 0.27/Bovine(B)= -0.22 ± 0.16) condition. Under wet conditions only human teeth showed contraction (H = -0.05 ± 0.04/B= 0.00 ± 0.03). The contraction was significantly greater under dry conditions. Contraction of human and bovine wet specimens was accompanied by a significantly ($p < 0.05$) lower weight loss (H =-1.87 ± 0.67/B= -2.12 ± 0.38) than dry specimens (H = -0.35 ± 0.15/B= -0.45 ± 0.20). The desiccated dentine (H = 0.02 ± 0.01/B= 0.01 ± 0.02) expanded on heating without obvious weight changes (H = 0.00, B= 0.00). Fresh tooth structures contracted on heating so that the coefficient of thermal expansion (CTE) is not a suitable parameter to describe the thermal behaviour of tooth tissue.

Simple evaluation of the thermal expansion behaviour of tooth structure by its CTE value may not be appropriate to a meaningful consideration of the effects on the tooth-material interface. (Support: CAPES - BEX 3427/04-8.)

H020 *In vitro* study of fracture strength, fracture pattern and finite element analysis of ceramic crowns

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This *in vitro* study investigated the fracture strength, fracture pattern and finite element analysis of ceramic crowns. Six groups (n = 8) were compared: 1-(CMC) conventional metal-ceramic (Noritake); 2-(MMC) modified metal-ceramic (Noritake); 3-(EMP) lithium di silicate reinforced ceramic (IPS Empress II); 4-(CERG) leucite reinforced ceramic (Cergogold); 5-(SIGN) leucite fluoride-apatite reinforced ceramic (IPS d.Sign); 6-(TARG) ceromer (Targis). Standardized crowns were fixed over bovine roots with metal posts and cores, luted with a dual resin cement and submitted to compressive loads. Results were submitted to statistical analysis (a = .05). Then the specimens were investigated under a stereomicroscope (20 X) to determine the failure mode. A finite element analysis (FEA) was made to evaluate the stress concentration area and its correlation with the fracture pattern. Mean values (N) for all groups were: CMC-1,383 (± 298)a; MMC-1,691 (± 236)a; EMP-657 (± 153)b; CERG-546 (± 149)bc; SIGN-443 (± 126)c; TARG-749 (± 113)b. Statistical results showed differences among groups ($P < .05$), represented by lowercase letters. Most of the metal-free specimens presented a fracture mode involving underlying structure. All ceromer crowns presented fractures involving the teeth. FEA showed that fracture patterns were compatible with stress concentration areas.

The fracture strength of crowns made using reinforced ceramic and ceromer was significantly lower than metal-ceramic systems. Metal-free restorative systems presented sufficient resistance to support normal occlusal forces, but the risk of tooth fracture with metal-free crowns was extremely high, mainly for ceromer crowns. (Support: FINEP.)

H021 Influence of additives on the properties of Bis-GMA/Bis-GMA analog comonomers and copolymers

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Polymerized resins contain unreacted double bonds and backbone functional groups. Certain additives could be incorporated to the monomer system to react with and connect some of these functional groups, thereby improving polymer properties. This study aimed to evaluate the effect of two additives: Aldehyde and Diketone on the properties of Bis-GMA (Bisphenol glycidil dimethacrylate) diluted with TEGDMA (Tritylene glycol dimethacrylate) or the synthesized Bis-GMA analogs, CH3Bis-GMA and CF3Bis-GMA. Nine experimental comonomers were prepared combining Bis-GMA and either TEGDMA, CH3Bis-GMA or CF3Bis-GMA, with aldehyde (32 mol%) and diketone (32 mol%). Photopolymerization was effected by using Camphorquinone (0.2 wt%) and N,N dimethyl-p-toluidine (0.2 wt%). Experimental comonomer viscosity (Brookfield), polymerization shrinkage (gravimetrical), degree of conversion (FTIR) and contact angles (Goniometer) were determined. Comonomer and copolymer glass transition temperatures (Tg, DSC/Fox equation) were also evaluated. Data was analyzed by analysis of variance and Tukey test ($\alpha = 0.05$). Bis-GMA/CH3Bis-GMA and Bis-GMA/CF3Bis-GMA with additives exhibited lower viscosities ($p < 0.01$). Inclusion of additives to the comonomer systems did not produce significant increase in polymerization shrinkage ($p > 0.05$). A significant increase in degree of conversion was shown for Bis-GMA/TEGDMA and Bis-GMA/CH3Bis-GMA with additives ($p < 0.01$). Additives reduced contact angle and comonomer Tg values, whereas the corresponding copolymers showed an increase in Tg.

Use of novel comonomer systems with the addition of aldehyde and diketone should be considered for the improvement of resin composite properties. (Support: CAPES - BEX 3401049.)

H022 Influence of surface treatment on microtensile bond strength of different adhesive systems to dentin

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The current trend toward minimal invasive dentistry has introduced alternative cavity preparation techniques. The purpose of this study was to assess the null hypotheses that: (1) both conventional and alternative cavity preparation techniques are equally receptive to adhesion; and (2) bonding effectiveness of mild adhesives is not influenced by smear layer (SL) interposition. Eighty sound human molars were divided into 20 groups according to adhesive and cavity preparation technique. Flat mid-occlusal dentin surfaces were prepared with regular diamond bur (DB), scalpel blade (SB), CVDentus bur in high-speed turbine (CB), CVDentus tip in ultrasound (CT), and Er,Cr:YSGG laser (L). One etch&rinse (Optibond FL (OB)) and three self-etch systems (Adper Prompt L-Pop (AP), Clearfil SE Bond (SE) and Clearfil 3S Bond (3S)) were employed. Specimens were built up with Z100/3M ESPE composite. Microtensile bond strength (μTBS) test was determined after 24 h of storage in water at 37°C. Additional samples were processed for SEM evaluation regarding surface treatment, SL thickness, and fracture mode in each situation. Adhesive interactions were examined using both SEM and TEM. Kruskal-Wallis test ($p < 0.05$) determined that groups prepared with CB, CT and L presented lower μTBS values than the control groups (DB and SB), and that adhesives with lower acidity (SE and 3S) were more effective when applied on fractured surfaces (SB).

It was concluded that the use of alternative techniques for cavity preparation caused damages to dentin surface, compromising the adhesion to this substrate. Moreover, the bonding effectiveness of mild adhesives was improved by SL absence. (Support: CAPES - BEX3098/04-4.)

H023 Chemical and mineral evaluation on sound and early caries enamel submitted to different bleaching treatments

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Since little is known about the effects of carbamide peroxide (CP) containing fluoride (F) or calcium (Ca) on enamel, this study aimed to evaluate the effects of CP bleaching agents with or without F and Ca on sound and demineralized enamel. Sound and artificial caries-like lesion enamel slabs were randomly divided into six groups (n = 10): (NC)Negative control (pH 7.1); (W)Whiteness (10%CP, pH 7.3); (O)Opalescence F (10%CP, pH 6.8); (PN)Pola Night F(10%CP, pH 6.9) and experimental CP gels (F)10%CP+0.5%F (pH 7.2) and (Ca)10%CP+0.2%Ca (pH 6.9). The samples were submitted to gel applications 6 h/day for 14 days and stored in remineralizing solution after each treatment. During bleaching, concentrations of F, inorganic phosphorus (Pi) and Ca were measured in the gel rinsing water by means of ion-selective electrode, spectrophotometer and atomic absorption spectrometry analysis. Surface microhardness and Fourier Transformed Raman Spectroscopy (FTRS) were performed before and after bleaching. The data of mineral change (KHN, median) were analyzed (Kruskal-Wallis, $p < 0.05$) for sound [(NC)423ab; (W)227.1c; (O)387.5ab; (PN)346.5bc; (F)356.3bc; (Ca)453.8a] and demineralized enamel [(NC)95.4ab; (W)47.4c; (O)69.8ab; (PN)75.2ab; (F)66.8ab; (Ca)66.5b]. The concentrations of F, Pi and Ca in the rinsing water increased during bleaching and Raman spectrum of the irradiated enamel showed a decreased in the organic matrix/phosphate ratio for both sound and demineralized bleached enamel ($p > 0.05$).

In conclusion, both sound and demineralized enamel were susceptible to mineral changes during and after CP treatments and the addition of F and Ca in the bleaching agents helped control enamel mineral loss. (Support: FAPESP - 03/07900-5.)

H024 Effect of curing mode on the degree of conversion and on bond strength to dentin and of dual-cured cementing systems

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This study evaluated the microtensile bond strength (MTBS) and degree of conversion (DC) of dual-cured cementing systems (CS) when components were light-activated or left in the uncured state prior to cementation of indirect composite restoration. Occlusal dentin surfaces of forty human third molars were flattened. All Bond2/Duolink (AB/Bisco) and Optibond Solo/Nexus2 (SOLO/Kerr) were applied to the diamond surface of an attenuated-total-reflectance unit (FTS-40/Bio-Rad) for DC analysis and to the dentin surfaces (D). The resin cements were applied to pre-cured composite discs (shade A2/2 mm thick/Z-250/3M ESPE), which were fixed to the surfaces (FTS/D) containing adhesive resin in cured (LP) or uncured states (SP). The restored teeth were light-activated (LRC - XL3000/3M ESPE) or allowed to self-cure (SRC), and were stored in water for 24 h (37°C) and sectioned to obtain beams (1.2 mm² in cross-sectional area) for MTBS (n = 5). The DC was calculated using standard techniques of observing changes in aliphatic-to-aromatic peak ratios pre- and post-curing. Data (n = 5) were analyzed by ANOVA (1- or 2-way) and Tukey's test ($p = 0.05$). The adhesive interface was analyzed by Confocal Laser Scanning Microscopy (CLSM) to investigate the interaction between CSs and dentin. AB/LP/LRC and AB/LP/SRC showed lower MTBS than AB/SP/LRC and AB/SP/SRC. No differences were noted between SOLO/LP and SOLO/SC. All SRC CSs showed lower DC than the LRC ones. CLSM showed resin cement components at the entrance of dentin tubules but not within the hybrid layer.

The SP curing mode of adhesives may affect DC without decreasing MTBS depending on the CS. (Support: FAPESP-03/03645-0; CAPES - BEX-0184/05-5.)

H025 Influence of estrogen receptor alpha polymorphism in Brazilian women carrying TMD

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Temporomandibular dysfunction (TMD) is caused by a group of severely debilitating conditions that involves inflammatory process and pain in the temporomandibular joint (TMJ) and associated structures. Estrogen through its alfa receptor can act in parts of brain to modulate pain perception. The objective was to test the hypothesis that single-nucleotide polymorphisms (SNPs) in estrogen receptor alfa gene might be related to higher prevalence of signs and symptoms of TMD in women. Throughout Research Diagnostic Criteria for Temporomandibular Disorders, 300 women were divided in 3 groups: TMD with chronic pain, TMD without chronic pain and control group and all subjects were not using contraceptives. The A-351G and T-397C SNPs (intron1) of estrogen receptor alfa gene were analyzed by restriction fragment length polymorphism of PCR products. The analysis of genotype frequencies of XbaI polymorphic site showed a borderline significant difference ($p = 0.0556$) when the groups carrying TMD were compared to control group. In fact individuals with GG genotype at A–351G locus seemed to be 2.28 times more susceptible to TMD when compared with individuals AA/AG ($p = 0.0305$, OR= 2.28, 95% CI= 1.12-4.64), but samples must be increased to confirm this data. The GG genotype of A-351G locus was significantly more prevalent in TMD with pain group. This genotype seemed to increase susceptibility to pain in women with TMJ disarrangements (odds ratio= 2.55).

Specific genotypes and SNPs in ER gene are associated with susceptibility to pain related to disarrangements of TMJ in Brazilian women.

H026 Temporomandibular joint assessed at magnetic resonance imaging in asymptomatic volunteers

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The study of the relationship between the head of mandible, the articular disc, the mandibular fossa and articular eminence is necessary for the assessment of TMJ (Temporomandibular joint) disorders and for the treatment planning in orthodontics and occlusal reconstruction. This assessment in asymptomatic individuals, regarding the wide opening phases remains controversial. Magnetic Resonance Imaging (MRI) minimizes subjectivity, allowing the visualization not only of hard, but also of soft tissues and the relationship between them in a non-invasive and reproducible manner. In this study the objective was to determine the position occupied by the head of mandible regarding the mandibular fossa and articular eminence in the wide opening mouth positions (WOP) in asymptomatic volunteers using magnetic resonance image. Seventy articulations of thirty five asymptomatic randomized voluntaries were examined in the WOP using MRI and positional diagrams. In the wide opened position, 60% of the heads of mandible were positioned beyond the articular eminence vertex, 6% at the vertex, 11% at the back of the vertex eminence and, in 23% of the images visualization was not possible.

Anatomical variability must be considered for the diagnosis and treatment plans because in the wide opened position, most of the heads of the mandibles were ahead of the vertex of the articular eminence.

H027 Effectiveness of microwave disinfection of complete dentures on the treatment of *Candida*-related denture stomatitis

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The effectiveness of microwave disinfection of complete dentures on the treatment of *Candida* related denture stomatitis was evaluated. Sixty patients with denture stomatitis were divided into 4 treatment groups: G0 (control)-cleansing the dentures with soap and soaking it in water overnight; G1-microwave irradiation (650 W/6 min) of upper denture 3 X/week for 30 days; G2-treatment of G1 plus topical application of miconazole 3 X/day for 30 days; G3-same course of antifungal drug of G2. Smears and quantitative cultures were taken from the tissue side of upper dentures and the palatal mucosa of patients before, during (15 days) and immediately after treatment (30 days) and during the follow-up periods (60 and 90 days). Chi-square statistical test was used to detect differences among groups ($\alpha = .001$). Dentures and palates of G1 and G2 patients did not exhibit mycelial forms and colonies of *Candida* on days 15 and 30. Although the mucosa of G1 and G2 patients showed no mycelial *Candida* on days 60 and 90, few mycelial forms were observed on 33.33% of the dentures from G1 and 40% from G2. For G1 and G2, the denture age was higher ($P < .001$) in patients with recurrence of mycelial *Candida* (39.4 years) than in those without re-infection (15.1 years). In G1 and G2, a continuous decrease of inflammation was seen throughout the clinical trial. Although topical miconazole (G3) caused amelioration of palatal inflammation, mycelial *Candida* was not eradicated. Microbial and clinical analysis of G0 demonstrated no evident decrease in inflammation during the 90-day period.

Microwave disinfection was effective for the treatment of denture stomatitis and reduced the re-infestation of the dentures. (Support: FAPESP - 03/05705-5.)

H028 *In vitro Candida* adherence on acrylic resins: influence of surface free energy, surface roughness, saliva and bacteria

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Since factors such as surface roughness (Ra) and surface free energy (SFE) together with the presence of saliva and bacteria appear to play a major role in yeasts adhesion in the development of candidosis, this study aimed to determine whether these factors produced differences in the adherence of *C. albicans* and *C. glabrata* to denture materials. Samples (2.5 x 1.2 x 0.2 cm) of two acrylic resins and two denture liners were prepared and had their Ra and SFE measured. Specimens were randomly divided according to their exposure to the following factors: saliva, bacteria (*S. mutans* and *A. naeslundii*) and *Candida* species and assayed in a flow chamber connected to a peristaltic pump for bacteria perfusion culture plus one *Candida* species culture or only one *Candida* culture (control). Adhesion was determined by count under light-microscopy (400 X). Data were analyzed by Kruskal-Wallis and ANOVA ($p = .05$). The soft liner exhibited the roughest surface, followed by the hard liner, whereas the acrylic resins exhibited the smoothest surfaces ($p < .0001$). SFE values of all materials were similar except for the soft liner ($p < .0001$). *C. albicans* and *C. glabrata* adhesion to the materials ranged from 3.2 to 564.4, and 3.2 to 1400.4 cells/mm respectively, with significant differences ($p < .05$) in some cases. The soft liner exhibited the highest adhesion levels. The overall colonization was significantly decreased by saliva ($p < .05$), while bacteria increased the adhesion in the presence of saliva.

These results suggest that initial Candida *species adhesion was affected by Ra but not by SFE. Additionally, the presence of saliva and pre-colonization with bacteria seems to influence yeasts adhesion. (Support: FAPESP - 04/05279-4.)*

H029 Thermo and load cycling on titanium-ceramic bond strength

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The aim of this study was to evaluate the shear bond strength between commercially pure titanium (Ticp, Tritan – Dentaurum) and specific ceramics (Triceram – Dentaurum, Super Porcelain TI22-Noritake, Vita Titankeramik- Vita Zahnfabrik), submitted to thermo- and load- cycling; and to compare to control group with gold alloy (Olympia) and ceramic (Omega 900- Vita Zanhfabrik). Nineth-six specimens were prepared and divided into four groups (n = 12): G1- gold alloy+Omega 900 ceramic; G2 - Ticp+Triceram ceramic, G3 - Ticp+Super Porcelain TI22 ceramic, and G4 - Ticp+Vita Titankeramik ceramic. Half of the samples of each group was thermo-cycled (6,000 times, 5°/55°C ± 1), before load-cycling (2 x 104 times, 50 N). The shear bond strength mechanical assay was performed in universal test machine (EMIC) with capacity of 500 kg and velocity of 0,5 mm/min. The interfaces of representative fractured specimens in each group were examined with scanning electron microscope (SEM) and energy dispersive spectrometer (EDS). For no cycled groups (MPa): G1= 61,28 (± 8,4), G2= 63,71 (± 11,5), G3= 42,91 (± 8,9) and G4= 42,74 (± 5,2); and cycled groups G1= 60,68 (± 13,7), G2= 52,32 (± 10,5), G3= 33,38 (± 4,2) and G4= 32,11 (± 4,8). The statistical analysis (ANOVA and Tukey's test) showed significant difference between G1 and G2 values, higher when were compared to G3 and G4. The SEM analysis indicated adhesive fractures for the groups of Ticp.

Considering the mechanical test used and the results obtained it can be concluded that the decrease of the shear bond strength dependent on load-and thermo-cycling in the commercially pure titanium/ceramic interface. (Support: Fundo UNESP.)

H030 Craniofacial and dental aspects in Williams syndrome

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Williams syndrome is a rare genetic disorder caused by hemizigous micro deletion of chromosome 7 (7q11.23). The syndrome is associated with dysmorphic facies, mild to moderate mental retardation, friendly personality, idiopathic hypercalcaemia, and cardiac abnormalities. Facial dysmorphology is considered to be an important diagnostic feature and include full prominent cheeks, wide mouth, long philtrum, depressed nasal bridge, heavy orbital ridges, and dental abnormalities. The aim of this study was to describe dental characteristics, cephalometric analysis and general disorders implicated in dental clinical management in 14 unrelated individuals with Williams syndrome, seen at Special Care Dentistry Center. The data obtained during anamnesis and clinical examination was compiled in a file designed for this study. Anamnesis included data about psychomotor development and systemic disorders. The clinical findings included caries index, periodontal status, type of occlusion and developmental dental abnormalities. Cephalometry was performed in order to evaluate the cephalometric parameters. Hypodontia was present in 71% of the patients, 36% had dental fusion, 36% dilaceration, 93% had midline diastema e 78% biprotusion. Patients exhibited a prevalence of Class II and III occlusions, open and deep bites and anterior cross bites.

We concluded that agenesis of permanent teeth in combination with aberrations in tooth size and morphology may affect dental esthetics and complicate orthodontic treatment. The management of sistemic complications must be individualized depending on the severity of the disease.

H031 Functional gene polymorphisms IL-1β, IL-6, IL-10 and TNF-α in individuals with recurrent aphthous stomatitis

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Recurrent aphthous stomatitis (RAS) is an oral lesion characterized by recurrent episodes of oral ulceration. Some reports in the literature indicate that RAS may have immunological, psychological, genetic, and microbiological bases. Genetic polymorphisms of cytokines are associated with diverse inflammatory, neoplasic, auto-immune and infectious diseases of the oral mucosa. The purpose of the present study was to investigate the association between the functional IL-1β +3954 (C/T), IL-6 -174 (G/C), IL-10 -1082 (G/A) and TNF-α -308 (G/A) genetic polymorphism and RAS. Sixty-four patients with RAS and 64 healthy control subjects were included in the study. Both groups were matched by age and sex. A logistic regression analyses was used. The results demonstrated a significant increase in the IL-1β and TNF-α heterozygous genotypes in the group with RAS in the univariate analysis ($p = 0.03$ and $p = 0.04$). In the multivariate model, adjusted for age and gender, the same genotypes of IL-1β and TNF-α were associated with an increased risk for RAS development (OR 2.40 and 3.07, respectively).

Our findings demonstrate that polymorphisms of IL-1β and TNF-α were associated with an increased risk for RAS development. Our data also give additional support to a genetic basis for RAS pathogenesis. (Support: CNPq.)

H032 A method to prevent earlier changes in the maximal mandibular opening for irradiated patients

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Radiation therapy to head and neck cancer may produce side effects in the human body, such as a limited mandibular opening or trismus. This study intends to verify if there is an early reduction in the maximal mandibular opening (MMO), due to the action of radiation therapy, and to evaluate if a masticatory stimulus would be able to prevent this side effect. Thirty-two patients were analyzed, 16 in the control group and 16 in the experimental group, who performed a masticatory stimulus, 3 times daily during the whole period of the radiation therapy. The MMO was measured before, during and immediately after the treatment. There was no significant reduction in the MMO with average of 0.5 mm for patients of the experimental group, but this occurred in the patients of the control group, when a reduction in average of 2.46 mm was seen ($p < 0.05$).

Considering these results, it was possible to suggest that the limitation of MMO seems to be an early side effect in patients undergoing head and neck radiation therapy and that a masticatory stimulus seems to be able to prevent a reduction in the maximal mandibular opening.

H033 Comparison of peri-implant bone level assessment in digitized conventional radiographs and digital subtraction images

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The aim of the present study was to examine, *in vivo*, the difference of linear measurements in digitized radiographs (DR) and digital subtraction images (DSI) around endosseous implants and the interobserver variability. The bone height around 30 implants in 22 patients was assessed by 5 observers. Standardized periapical radiographs were obtained just after the surgery and four months later. The radiographs were digitized and manipulated by means of EMAGO® software and linear and logarithmic digital subtraction images were produced. Furthermore, the logarithmic subtraction was enhanced with the use of a filter. The observers had the digitized radiographs and three methods of subtraction to assess bone height. ANOVA statistical procedures were applied to analyze differences between the observers in the four assessed images and the Tukey test was used to evaluate the difference between the images. Comparison of the bone height assessments indicated significantly ($p < 0.05$) higher values in the DR than the three methods of DSI. The observers also had a statistically significant variability in this assessment ($p = 0.00003$).

Digital subtraction images demonstrated lower vales of linear measurements of the bone height around endosseous implants, compared to digitized conventional radiograph. Interobserver variability should be considered when comparing values from follow-up studies. (Support: CAPES.)

H034 *In situ* hybridization for EBV and HPV in drug-induced gingival hyperplasia from renal transplant patients

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In order to prevent organ rejection in transplants, is necessary the use of immunosuppressive drugs, such as cyclosporin, that has several side effects, including gingival hyperplasia (GH). GH is associated to calculus and plaque scores and recently to Epstein-Barr Virus (EBV) and Human Papilloma Virus (HPV). The aim was to evaluate GH score in renal transplant patients (RTP), identify EBV and HPV in GH from RTP and correlate GH, plaque score, presence of calculus, EBV and HPV in RTP. Fifteen RTP under dental treatment at the CAPE-FOUSP. We collected demographic data, medical history, drugs in use and dental history. In intra-oral exam we observed plaque score, GH score and presence of calculus. GH were removed and sent to Oral Pathology Department. GH was compared to a control group (CG) composed by 20 cases of inflammatory gingival hyperplasia. Both groups were submitted to routine exam emphasizing the presence of koilocytes; and to *in situ* hybridization for EBV (EBER and Lytic probes) and HPV (wide spectrum and 6/11, 16/18, 31/33 subtypes). Most RTP presented GH score 1 and 2, koilocytes were presented in 100% of study group (SG) and in 80% of CG. HPV were presented in 20% of the SG and in 10% of the CG. EBV was presented in 100% of SG and in 90% of CG, but in SG it could be observed in deeper areas of the epithelium and in a more pronounced expression.

Most RTP presented a discrete to moderate GH. All RTP presented EBV in GH, characterizing an opportunist infection. The presence of HPV in RTP GH was similar to those in normal population. There were no correlation between GH, plaque scores, presence of calculus and presence of EBV and HPV. (Support: FAPs - 04/03200-1.)

H035 Beta-catenin expression and its correlation with different signaling pathways in head and neck squamous cell carcinoma

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Head and neck squamous cell carcinoma (HNSCC) is responsible for almost 400,000 deaths per year, however its signaling pathways are not completely understood. The beta-catenin protein has an important role in cancer due to its involvement in signaling pathways such as EGF and Wnt. Free cytoplasmic beta-catenin binds to LEF/TCF to form a complex that migrates to the nucleus where it activates several target genes such as cyclin D1. Using immunofluorescence and western blotting techniques, this study analyzed the expression of beta-catenin, cyclin D1 and PTEN in three different HNSCC cell lines (HN6, HN30 and HN31). HaCat, an immortalized keratinocyte, was used as a control. Cells were previously treated with Wortmannin (50 nm) and EGF (10 mg/ml). Upon treating the cell lines with EGF, immunofluorescence results showed a presence of nuclear beta-catenin in the metastatic cell line (HN31). After Wortmannin treatment, immunofluorescence demonstrated almost 100% translocation of nuclear cyclin D1 to the cytoplasm. Concomitantly, western blotting showed a decrease in nuclear beta-catenin in most cell lines.

In conclusion, beta-catenin appears to be an important prognostic marker as it is involved in the most aggressive cases. Moreover, its pathway is related to several other signaling pathways, such as PTEN, that inhibit cell proliferation. (Support: FAPESP - 04/03486-2.)

H036 Validation of an analytical model for determination of rotational freedom between abutment and implant

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The rotational freedom angle between the implant and abutment hexagons interferes in the screwed joint stability of single prostheses. The aim of this study was to validate an analytical model comparing the theoretical with the experimental rotational freedom, between the implant and abutment hexagons. It had been used external hexagon implants: Internal Torque (IT – Neodent Implante Osteointegrável), Brånemark System MK III (NO – Nobel Biocare) and conventional External Hexagon (EH – Neodent Implante Osteointegrável). The theoretical rotational freedom had been determined by means of an analytical model developed in the MATLAB program (The MathWorks, Inc.), from mathematical expressions. The experimental rotational freedom had been determined in a device fabricated for the test. The results had been submitted to Student t test ($P < .05$). The averages of the experimental and theoretical results were, respectively: IT – 3.30 ± 0.17° and 3.34 ± 0.18°, NO – 2.58 ± 0.35° and 2.81 ± 0.39°, EH – 3.31 ± 0.41° and 3.62 ± 0.48°. No statistically significant difference could be found between the experimental and theoretical results for each type of implant evaluated. The relative error between the averages of theoretical and experimental rotational freedom was lesser than 10% for all implants analyzed.

Therefore, the analytical model used in the MATLAB program is valid to determine the theoretical rotational freedom angle of each sample, without the need to realize the measurements of rotational freedom angles in the experimental device.

H037 Characterization and biocompatibility of new osseointegrated implant surfaces – a pilot study

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Novel implant surfaces have been developed and may have important function on the success and maintenance of osseointegration. Various studies have been done to understand the relationship between osseointegrated implant surfaces and osteoblasts. Another science that had emerged nowadays is the nanotechnology that deals with particles of an atomic scale, building atom by atom what we need and this could be important for proteins adsorption and for bone cells adhesion. The purpose of this study was characterize titanium discs surfaces with a thin nano-structured film and verify tissue response after discs implantation in Wistar rats subcutaneous connective tissue. Titanium discs with different surface treatment have been used: I-titanium discs (Ra= 87.16 nm); II-acid etched discs (Ra= 387.31 nm); III-titanium oxide discs – anatase (Ra= 162.11 nm); IV-titanium oxide discs – rutile (Ra= 59.42 nm); V- aluminum oxide discs (Ra= 61.91 nm). The animals were evaluated after 7 and 14 days to verify inflammatory response and putative osteoblastic phenotype genes expression: Osteocalcin, CBFA1 and BMP2 by RT-PCR. The qualitative analysis did not show any difference in inflammatory response in surfaces III, IV and V compared to surfaces I and II during initial healing time as well as no gene expression was verified for the cited genes.

Nano-structured surfaces showed to be biocompatible and did not induced bone formation in subcutaneous tissue after 14 days.

H038 Smoking and diabetes *mellitus* modulate bone destruction in periodontal disease through a similar mechanism

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The mechanism by which smoking and diabetes *mellitus* (DM) affect the periodontium is not fully understood. This study separately evaluated the effect of smoking and DM on gene expression of gingival biopsies that were divided into 4 groups according to their periodontal and systemic status: Control: sistemically and periodontally healthy subjects; Periodontitis: systemically healthy subjects with chronic periodontitis; Smoking: systemically healthy subjects with chronic periodontitis who smoked; and Diabetes: type 1 controlled diabetic subjects with chronic periodontitis. Quantitative PCR was used to detect the expression of the following genes: TNF-α, IL-1ra (receptor antagonist), IL-1β, IL-6, IL-8, IL-10, IFN-γ, RANKL e OPG. Data analysis demonstrated that, except for OPG, all factors were increased by inflammation ($P < 0.001$). IL-1β, IL-1ra, IL-6, IL-8, and RANKL levels were higher in smokers with periodontitis as compared to the control, whereas IL-10 and OPG levels were lower ($P < 0.001$). Smoking lowered IL-1β, IL-8, IL-10, TNF-α and OPG and increased IL-6 and IL-1ra in sites with comparable type of periodontitis ($P < 0.001$). Additionally, IL-1β, IL-1ra, IL-6, IL-8, INF-γ and RANKL were higher in the diabetic group as compared to the control group ($P < 0.05$), whereas IL-10 and OPG were lower ($P < 0.05$). Diabetes lowered IL-1β, IL-8, IL-10, TNF-α, RANKL and OPG in sites with comparable type of periodontitis ($P < 0.001$). Finally, for both smoking and diabetes groups increased RANKL:OPG and IL-6:IL-10 ratios were found.

It was concluded that smoking and DM modulate bone destruction in periodontal disease through a similar mechanism by favoring a pro-inflammatory and pro-osteoclastogenesis response. (Support: FAPs - 04/02436-1.)

H039 Effect of supragingival plaque control on subgingival microbiota in smokers and never-smokers: Real Time PCR evaluation

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The effect of supragingival plaque control on subgingival microbiota is a disputed issue. An inhibitory effect would be clinically relevant, as it would reinforce the need of better plaque control. This may be particularly relevant in smokers as this is a known risk factor for periodontitis. The present study evaluated the effect of a strict supragingival plaque control in the subgingival microbiota of smokers (S) and never-smokers (NS). Chronic periodontitis patients (24 NS and 21 S) were selected. They received supragingival debridment at start and weekly oral hygiene instructions for 180 days. Visible Plaque Index, Gingival Bleeding Index, Periodontal Probing Depth (PPD), Bleeding on Probing and subgingival microbial sampling were performed at baseline, 30, 90 and 180 days. Real Time Polymerase Chain Reaction quantified *Porphyromonas gingivalis* (Pg), *Micromonas micros* (Mm), *Dialister pneumosintes* (Dp), *Actinobacillus actinomycetemcomitans* (Aa) and total bacteria. Statistical analysis used adjusted linear models and Wald tests for comparisons ($p = 5\%$). Significant reductions, similar for S and NS, were observed in all clinical parameters. At baseline, Dp and Mm were in higher numbers in S. After 180 days S and NS showed significant reductions in all investigated bacteria with no differences between groups. Sites with initial PPD 6+mm, having reduced to 3-5 mm after 180 days, harbored fewer bacteria than did at start those with PPD 3-5 mm.

In conclusion, an adequate supragingival plaque control, that determined a marked reduction in plaque and inflammation, significantly reduced the subgingival microbiota counts in both smokers and never-smokers in a similar degree. (Support: CAPES - 0550/04-3.)

H040 Periodontal attachment loss in adolescents and young subjects: occurrence and risk indicators

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The present study describes the periodontal attachment loss (PAL) in a Brazilian population of adolescents and young subjects, and performs a risk assessment of demographic, socioeconomic, and behavioral exposures. A multi-stage probability cluster sampling strategy was used to draw a sample representative of Porto Alegre, Brazil. A total of 1,586 subjects were examined, of which 612 subjects (14-29 years of age, 291 males/321 females) were used in this study. Participants were interviewed using a structured questionnaire and had a full-mouth clinical examination of 6 sites per tooth, excluding third molars. Subjects with PAL ≥ 3 mm in proximal sites were classified with chronic periodontitis. A multiple logistic regression analysis, taking in consideration the study design, was used to model the relationship between the outcome and exposures. Subjects diagnosed with aggressive periodontitis were excluded of the present analysis (n = 28). In average, approximately 56% and 20.3% of subjects and 11.7% and 1.5% of teeth had PAL ≥ 3 mm and PAL ≥ 5 mm, respectively. After adjusting for age, gender, socioeconomic status and smoking, subjects with chronic periodontitis had statistically more supragingival plaque, marginal bleeding and supragingival calculus. In the multivariable analysis, chronic periodontitis was associated with age (20-24 e 25-29 years: odds ratio/OR= 2.6 e 7.2, respectively), low socioeconomic status (OR= 1.9), heavy smoking (OR= 1.7) and supragingival calculus (OR= 1.7).

In conclusion, PAL is very prevalent in this population, but affects a limited number of teeth. Health promotion programs should be implemented to reduce the occurrence of PAL in this population. (Support: CAPES - 1614/99-1.)

H041 Long term results for intrabony defects treated with Emdogain. Split-mouth randomized double blinded, controlled trial

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The objective was to compare the clinical effect of the treatment of intrabony defects with open flap debridement (OFD) combined or not with enamel matrix proteins (EMP). Ten volunteers with at least 2 intrabony defects were selected (probing pocket depth, PPD ≥ 6 mm). Subjects received oral hygiene instructions, scaling and root planning. Participants received the two treatment modalities, so test sites were treated with OFD and EMP, and control sites with OFD alone. At 24 months, a significant reduction in PPD was observed for both groups (EMP: 6,20 ± 0,91 mm to 1,90 ± 0,65 mm; $p < 0,001$; OFD: 6,00 ± 0,90 mm to 2,70 ± 1,30 mm; $p < 0,001$). A significant gain in relative clinical attachment level (RCAL) was observed for EMP (13,3 ± 2,00 mm to 7,10 ± 2,20 mm; $p < 0,001$) and OFD (13,20 ± 1,70 mm to 8,00 ± 1,40 mm; $p < 0,001$). A significant increase in gingival recession (R) was observed for EMP (1.0 mm; $p = 0.007$), but not for OFD (0.9 mm; $p = 0.06$). However, no significant differences were observed between groups regarding PPD ($p = 0.70$), RCAL ($p = 0.57$) and R ($p = 0.89$).

In conclusion, treatment of intrabony defects with EMP did not result in better clinical outcomes than OFD alone. (Support: FAPESP - 00/12285-0.)