# چهارمین همایش سالیانه شاخه ایرانی انجمن جهانی تحقیقات دندانپزشکی

تهران- نهم تا دهم دیماه ۱۳۸۸

***The 4th Annual Scientific Meeting IADR Iranian Division***

***December 30,31st 2009 Iran Center for Dental Research Shaheed Beheshti University***

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**‘’In the name of the Almighty”**

Once again, the light of science is shining from Dental research.The 4th Annual congress of the IADR-Iranian Division is a clear manifestation of what you have achived during your years of Academic activities. Iran’s young Dental Research community has proved to be among professionals when it comes to research quality and quantithy. It is there here oure pleasure to invite you all distinguished research fellows, colleagues and students to this fruit ful event. We hope you could find this gathering beneficial as it is widely acknowhedged the IADR nature has the poteintial to previde the grounds for collaboratine research plans and make common points meet. Looking for ward to see you in Dec 30 th in SBMU Tehran.

**Dr. M Ghasemian pour** — **IADR- Iran Preseident**

**Dr.Ghasem Ansari** — **Comgress Chairman**

***December 2009***

**20090168**

## Evaluation of microshear bond strength of a self-etch sealant compared to conventional sealant

***M. Biria, A. Ghasemi , A. Shishehian*** *, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*

***Introduction****:* During recent years, different approaches had been developed such as using bonding or self-etching fissure sealants with the purpose of reducing technical sensitivity of using fissure sealants,.

Comparing the microshear bond strength is of the indicating routs for choosing better fissure sealant with superior systems.

The aim of this study was to evaluate the bond strength of a self-etch sealant to enamel and compare it with bond strength of conventional total etch sealant.

***Methods and Materials*****:** In this *in vitro* study, 30 third molars were used. The teeth were divided into three groups and sealants were applied on prepared buccal and lingual surfaces; in experimental group Enamel Loc® was used as a self etch pit and fissure sealant, while was Concise® used along with Concise®+Prompt-Lpop® in other groups. After 24 hours of thermal cycling, the specimens were evaluated for microshear bond strength using an Instron testing machine with speed of 0.5mm/min crosshead.

***Results:*** The Micro-shear bond strength of Enamel Loc® (5.59±0.72 mpa) was significantly lower than Concise® (14.59±1.19 mpa) and Concise®+Prompt-Lpop® (12.86±1.98 mpa).This study also showed that the micro-shear bond strength of Concise® was significantly more than Concise®+Prompt-Lpop® (12.86±1.98 mpa) (P=0.0003).

***Conclusion*****:** Total-etch system is still more reliable than self-etching system and obtains more bond strengths than other methods.

**20090169**

## Comparative evaluation of the microleakage of three different sealants

***K. Doroudgar****, Dentist,* ***M. Biria*** *, Shahid Beheshti University of Medical Sciences,Tehran,Iran.,*
***S. Najafi,*** *Dentist,* ***A. Ghasemi*** *Shahid Beheshti University of Medical Sciences,Tehran,Iran.*

***Introduction***: Anatomical pits and fissures of the teeth have long been recognized as susceptible areas for initiation sites of dental caries. The extreme vulnerability to decay of these pits and fissures on the occlusal surfaces has prompted dental scientists to seek methods of caries prevention. Various criteria are assessed in sealants evaluations such as bond strength, microleakage and marginal seal. Regarding the role of pit and fissure sealants in caries prevention, the aim of this study was to compare the microleakage of Enamel Loc® sealant, Concise® and Concise®+Prompt-Lpop® resin-based sealants.

***Methods and Materials*:** This *in vitro* study was performed using 30 extracted third molars. The teeth were divided into three groups; one was the experimental group using Enamel Loc® as a pit and fissure sealant and the others, control groups using Concise® and Concise®+Prompt-Lpop®. The teeth were kept in 2% methylene blue dye for 4 hours. The extent of dye penetration in sectioned samples was observed with stereomicroscope and scored based on Williams and Winter criteria. Data were statistically analyzed using One-way ANOVA and Post-HOC analysis called bonferroni.

***Results*:** The Enamel Loc® sealant microleakage is significantly more than two other groups. In addition, Concise® microleakage was less than and Concise®+Prompt-Lpop®, but this was not statistically significant.

***Conclusion*:** The Enamel Loc® sealant performed the least sealing ability compared to Concise® and Concise®+Prompt-Lpop® resin-based sealants.

**20090170**

# Fatigue resistance and failure mode of endodontically treated premolars with indirect composite resin restoration

***R. Aminian***, ***A. Saffari*** , *Shahid Beheshti University of Medical Sciences, Thran, Iran.*

***Introduction:*** Despite the ever increasing demand for composite restorations, there are still some controversies in scientific findings regarding the long-term application of such materials in posterior regions. Thus, the present study aimed at determination of the *in vitro* fatigue resistance and the failure mode of endodontically treated premolars using indirect composite resin restorations.

***Methods and Materials:*** In this experimental study, 84 human premolars were randomly selected and divided into seven groups of 12 teeth each. In group 1, intact teeth were used as control; group 2 included the endodontically treated teeth which were restored with indirect onlays using Z-250 composite resin; groups 3 and 4 were similar to the second group, but they were subjected to 1 and 2 million fatigue load cycles, respectively. Groups 5, 6, 7 were similar to groups 2, 3, 4, respectively; however, in these groups Tetric Ceram used as the restorative material. All specimens were loaded using a Universal Testing Machine until fracture occurred. Fracture load were recorded in Newton and the mode of failure observed with naked eye. Kruskal-Wallis and Chi-square tests were used to analyze the data ($P<0.05$).

***Results:*** All specimens withstood the masticating simulation. The mean fracture strength for groups 1-7 were 1276.92, 1269.05, 1217.80, 1188.13, 1228.97, 1127.86, 1105.58, respectively. No statistically significant differences were found between the groups in fracture strength and failure mode.

***Conclusions:*** Within the limitations of this *in vitro* study, the mean fracture resistance of indirectly restored teeth with resin composite that were subjected to 4 and 8 years aging were not significantly different from those of intact teeth.

**20090171**

# Effect of filler contents on the mechanical properties and microshear bond strength of an experimental enamel adhesive system

***M. moezzizade , M. ataie , A. Ghasemi , L. nasiri khanlar*** *,Shahid Beheshti University of Medical Sciences, Thran, Iran.*

***Introduction***: Researches and studies with the purpose of improving the properties of fillers are of great interest.

The aim of this study was to investigate the effect of the filler size and contents on the mechanical properties and bond strength of a new experimental enamel adhesive system and compare with those of Heliobond.

***Materials and Methods***: In this experimental study an enamel adhesive system was prepared by mixing the silane-treated filler with the monomers. Experimental adhesives were divided into 10 groups according to their filler contents and size. The monomer was composed of 50% Bis – GMA and 50 % TEGDMA. The Diametral Tensile Strength (DTS), flexural strength, flexural modulus and microshear bond strength were compared among groups.

***Results:*** The results showed that more filler content improve the flexural strength, DTS and microshear bond strength, but has negative effect on flexural modulus.

***Conclusion:*** The filler addition caused significant increase on the mechanical properties and bond strength of the adhesive system. Further investigations are required for improving the properties of adhesive systems.

**20090172**

# Assessment of the efficacy of a video-assisted teaching program on the knowledge of undergraduate students

***Z. Maleki, M. Mahdian*** *,Shahid Beheshti University of Medical Sciences, Tehran, Iran,* ***S. Namju****, Dentist.*

***Introduction:*** By the improving technological educations, students require opportunities for modern and new educational methods. Hence, this study was designed to compare the efficacy of a video-assisted teaching module (lecture combined with video film) versus conventional teaching module (lecture-only), regarding post exposure prophylaxis (PEP) among dental students.

***Materials and Methods:*** In this study, 58 students were volunteers to participate. They were asked to take a test about the principles of PEP prior to being taught via lecture or the video films. The test was repeated following conventional teaching module and the video-assisted teaching module. Data were analyzed using T-test and Chi-square.

***Results:*** The pre-teaching test results were indicative of low knowledge among the students regarding PEP with a mean value of 8.98± 2.99 which was significantly different compared to post-teaching test results following the lecture-only phase (11.30±3.90) and the video-assisted teaching phase (17.32±2.94), respectively (P<0.001). Moreover, this study revealed that the post-teaching test results differed significantly following the conventional teaching phase (11.30±3.90) and the video –assisted teaching phase (17.32±2.94) (P<0.001).

***Conclusions:*** This study indicated that video-assisted teaching might be an effective means of promoting persistent knowledge among students. Therefore, this method can be suggested for academic educations.

**20090173**

# The effect of different methods of using chlorhexidine mouthrinse on microbial plaque

***Omid Moghaddas*** , *Islamic Azad University (Isfahan, khorasgan branch)*

**Introduction**: Previous studies reported possible counteraction between chlorhexidine (CHX) and sodium lauryl sulfate in dentifrice. So for this reason, different methods of CHX use have been advocated. The aim of this study was to compare four different CHX application along with tooth brushing on plaque control.

**Methods and Materials:** The study was single blinded, randomized four-cell, cross over design. A 4-day plaque accumulation model was used to compare four different oral hygiene regimens with a wash out period of 7 days. Fourthy healthy volunteers were enrolled in the study and received thorough dental prophylaxis at the beginning of each 4-day test period. The regimens consist of using CHX mouth rinse before (Regimen A), immediately after (Regimen B), 30 minutes after tooth brushing (Regimen C) and only brushing (Regimen D) with SLS-containing dentifrice. At the end of each 4-day test period, plaque was scored with Turesky index. No other oral hygiene measures were allowed. Data were analyzed repeated measure of ANOVA test.

**Results:** The overall indices of regimens A,B,C,D was 0.90,0.87,0.83,0.96, respectively. There was no significant difference in plaque accumulation between four regimens.

**Conclusions:** Within the limitations of the present study it can be concluded that the anti-plaque efficacy of 0.2% CHX was not reduced in combination of tooth brushing with SLS-containing dentifrice.

**20090174**

# Oral microflora in patients with haemodialysis and renal transplantation

***A.Ahmadieh****, oral medicine specialist, Tehran, Iran,* ***M.Baharvand*** *Shahid Beheshti University of Medical Sciences,Tehran,Iran****, F.Fallah****, Shahid Beheshti University of Medical Sciences,Tehran,Iran,* ***S.Bakhtiari*** *Shahid Beheshti University of Medical Sciences,Tehran,Iran,* ***H.Djaladat*** *Hormozgan University,Bandar Abbas,Iran.*

***Introduction****:* The number of patients with chronic renal failure is increasing every year. There are some controversies about the risk of cariogenic and periodontal diseases in these patients. The aim of this study was to delineate the relationship between hemodialysis and transplant with oral microbial flora.

***Materials and Methods*****:** Staining and culturing was used for diagnosing aerobic and anaerobic bacteria. SPSS15, Chi-square test, variance test, t-test were used to compare the mean of microflora between groups. Samples were divided into three groups. Group 1 contained hemodialysis patients with at least 6 months of dialysis procedure, group 2 included transplant patients who were being transplanted for more than 2 years, and group 3 served as control with normal BUN and Creatinine.

***Results:*** *Candida Albicans* was significantly higher in dialysis group (1.29) and transplant group (1.26) comparing to controls (0.52) (P= 0.05). There was no significant difference in count of other micro organisms (streptococci, Lactobacilli, Porphyromunas) between groups.

***Conclusion:*** *Candida Albicans* was more detected in hemodialysis and transplant groups compared to control group.

**20090175**

## Evaluation of personalities in dental students in comparison with other academic fields

***S. Bakhtiari***, ***F.Anbari*** , ***S Azimi***, *Shahid Beheshti University of Medical Sciences.*

***Introduction****:* The purpose of this study was to evaluate several personality aspects of new dental students in comparison with other academic fields in Shahid Beheshti Medical and non medical Universities.

***Materials and Methods:*** In this cross-sectional study, we evaluated 397 first year students of dentistry, medicine, law, management, computer and electricity engineering. We used farsi translation of Bernreuter's Personality Inventory which consists of 125 yes/no questions and suitable to determine six dimensions of personality types including neurotism, self-sufficiency, introversion /extroversion, dominance/submission, confidence and sociability.

***Results:*** There was a statistically significant difference in self-sufficiency subscale between groups (P=0.0048). Dental students showed no difference in various subscales with other students but comparing dental students with medical students showed a statistically difference in this respect. In addition 42.3% of dental students showed neurotic tendency. Among them, 73.1% were dependent, 53.8% extrovert, 63.4% dominant and 76.9% sociable. Most of the dental students had low self-confidence.

***Conclusion:*** In this study, dentistry students were calm, dependent, extrovert, dominant and sociable, but they had low self-confidence. Students in other fields showed similar characteristics, but they were more introverts and more neurotic.

**20090176**

# The relationship between dental fear and oral health status in high school students of Tehran

***S. Bakhtiari***, ***S. Ramazanian***, ***S. Azimi***, *Shahid Beheshti University of Medical Sciences.*

***Introduction:*** Dental anxiety and fear could lead to escaping strategies which cause ignoring the necessary dental visits; this ignorance attributes into poor oral and dental health. The present study assessed the relationship between dental fear severity and oral health status of high school students in Tehran (2008-2009).

***Materials and Methods:*** This descriptive and analytical study was performed on 300 students who had been selected through randomized cluster sampling. The dental fear and anxiety of participants were measure by two indices including Dental Fear Scale (DFS) and Dental Anxiety Scale (DAS). The oral health parameters included DMFT index, Plaque index (PI) and modified gingival index (MGI). The correlation between DFS and DAS scores and oral health parameters were determined by Kendall's corelation coefficient. The difference between phobic and non-phobic individuals was compared regarding oral health indicators by Mann-Whitney *U* test. The effect of different demographic factors on the DFS and DAS scores were determined by multiple regressions with stepwise method.

***Results:*** Mean DFS and DAS scores of evaluated students were 43.56 and 9.52 while 20.3% of them were identified as being phobic. Significant and direct correlations were found between DAS scores and PI and MGI indicators; all to be increased with the increasing DAS score. Also, positive significant correlations were found in DFS scores with DMFT, PI and MGI. Significant differences were found in phobic and non phobic students regarding DMFT, PU and MGI indicators. Gender, painful dental experience and anxiety in the family had significant roles to predict both DAS and DFS scores.

***Conclusion:*** Dental fear and anxiety have a direct and considerable influence on dental caries and periodontal health. So the trait disposition of dental fear and anxiety may be significant risk factors of poor dental and periodontal status.

**20090177**

## Comparing the effect of home bleaching and white strip on enamel roughness: *in vitro*

***S. Nemati Anaraki*** *Dental school ,Tehran Azad University ,* ***M. Alipanahi****, Dentist.*

***Introduction****:* Increasing enamel roughness after bleaching is one of the problems in bleaching treatments which causes side effects such as decreasing enamel microhardness, absorption of stains and tooth decay. The aim of this study was to evaluate the effect of white strip bleaching on enamel surface roughness compared to home bleaching system.

***Materials and Methods:*** In this experimental study, 30 blocks of enamel (5× 5 ×3 mm) were prepared out of 15 extracted human third molar , after mesiodistal sectioning with diamond disk under running water, they were randomly distributed into two groups of 15 each. In one group we applied Day white ACP home bleaching agent containing 9.5 % H2O2; in the other group we used crest white strip supreme which has 14% H2O2.

The roughness of each specimen was measured before and after treatment using profilometer. Then paired sample t test was used for comparing the data of each group before and after the treatment and independent sample t test was used for comparing two groups .

***Results:*** Data analysis revealed that although there is a statistically significant difference between the average pre- and post-treatment roughness (Ra) in each group ($P<0.05$), but there is no statistically significant difference was observed between Ra of two groups.

***Conclusion:*** Two studied products in this survey increase enamel roughness after treatment but there is no significant difference among two groups. So the patients should be aware of hazards.

**20090178**

# Investigating the effect of chemical surface treatments of glass fiber posts and dentin on the fracture strength of endodontically treated teeth

***F.Massoumi*** *, Zahedan University of Medical Science, Zahedan, Iran.*

***Introduction:*** Some methods have been introduced in order to improve adhesion between resin composites and FRC pos. The effects of chemical surface treatment of dentin and FRC posts on the fracture strength of endodontically treated teeth have not been evaluated, yet.

The aim of this study was to evaluate the effect of chemical surface treatments of glass fiber posts and dentin on the fracture strength in endodontically treated teeth.

***Materials and methods:*** Fifty premolar teeth were divided into 5 groups of 10 teeth each. Teeth were decoronated at the level that 2mm of ferrule was remained. After RCT, the teeth in group 1 were restored with only composite cores. Other 4 groups had FRC post with chemical surface treatment of dentin and/or post in combination with composite cores. Fracture strengths have measured and analyzed using Instron testing machine and ANOVA analysis.

***Results:*** Mean fracture strength in post-contained groups was 347 Nioton and in group 1 was 687 Nioton. There was no statistical difference between post groups, but the group without FRC post showed significantly almost twice more strength than other specimens.

***Conclusion:*** Chemical surface treatment of dentin and/or post had no positive effect on the fracture strength, but it reinforced the core buildup. Combined oblique fracture of core-dentin-root, was the dominant mode of failure.

**20090179**

# Comparative evaluation of finger toothbrush and manual toothbrushon reduction of microbial plaque

***M .Kadkhodazadeh*, *M.Saharkhizan*, *M. Nikkhah*, *L .Gholami*** , *Hamadan University of Medical Sciences, Hamadan, Iran.*

**Introduction:** The toothbrush is the most widely used tooth-hygiene tool. Numerous designs of toothbrush have been emerged and manufacturers claim superiority of their products in plaque removal. This study aimed to compare the efficacy of a tooth wipe to a manual toothbrush on reduction of microbial plaque.

**Materials and Methods:** This cross-over study was conducted on 30 dental students at two visits with one-week interval. Before each visit, individuals refrained from brushing teeth for 12 hours, had their regular meal, and then avoided to eat hard and/or soft foodstuff. All subjects were asked to brush their teeth with the allocated toothbrush (without toothpaste) using the Bass technique for 2 minutes at the first visit and with the alternate toothbrush at second visit. Pre- and post-brushing plaque was measured for total, proximal and buccolingual surfaces using the O'Leary Plaque Index. One examiner blinded to the allocated toothbrushes made all clinical measurements. Data were statistically analyzed using SPSS software. Paired t-test was used to detect differences between finger tooth wipe and manual toothbrush.

**Results:** The overall plaque indexes were significantly reduced from 39.37±20.76 to 20.62±13.42 using the finger brush, and from 35.82±16.82 to 19.70±11.15 using the manual brush (P=0.000). There were no significant differences between finger brush and manual brush for removing plaque at total surfaces (46.01±17.2% vs. 47.73±17.04%, p=0.75) and proximal surfaces (28.76±23.15% vs. 43.71±23.77%, p=0.06). However, the plaque reduction at buccolingual surfaces by finger brush was significantly higher than that by manual brush (79.37±23.54% vs. 56.83±22.33%, p=0.001).

**Conclusion:** This study indicates that the finger toothbrush is as effective as the manual toothbrush in reduction of microbial plaque. It is recommended to use finger toothbrush for oral hygiene whenever it is impossible to brush teeth by a manual toothbrush.

**20090180**

# Effect of flowable composite use as the liner in packable composite restorations on dentin bond fatigue resistance

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**Introduction:** In this study, the influence of using flowable composites as a liner in packable composite resorations in terms of dentin bond fatigue resistance was evaluated.

**Materials and Methods**: Coronal dentin of 30 intact human third molars was ground flat using 600grit SiC paper. The teeth were divided into 3 groups. Group1: FiltekFlow as liner + P60 composite, group2: P60 composite, group3: Z100composite was applied to dentinal surfaces. After 500cycle of thermocycling, case subgroup from each group were subjected to load cycling of 100.000 cycles of 50 N. Microtensile bond strength test was performed. Failure patterns were observed using a stereomicroscope.

**Results**: Before fatigue test, mean microtensile bond strength was 25.49MPa for group1, 35.63MPa for group2 and 30.61MPa for group3, which had a statistically significant difference. After fatigue test, Mean microtensile bond strength was 24.37MPa for group1, 31.36MPa for group2 and 26.87MPa for group3; this difference was not statistically significant.

**Conclusion**: Using flowable composite as a liner in packable composite restorations did not influence in bond fatigue resistance to dentin.

**20090181**

# Evaluation of blood glucose changes before and after mandibular third molar surgery under local anesthesia with lidocaine and epinephrine

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***Introduction:*** The epinephrine in local anesthetic solution induces elevation of blood glucose. Anxiety is also able to produce this effect. In this research, blood glucose changes during surgical removal of impacted third molar with use of Lidocaine and Epinephrine as a local anesthetic were evaluated.

***Materials and Method:*** In this prospective analytic-descriptive study, 21 healthy patients who needed surgery of impacted third molar were chosen. All patients had breakfast 3 hours before the surgery and did not use any drug. Then their blood glucose was measured 15 minutes before surgery, immediately before use of local anesthesia, 7 and 15 minutes after the anesthesia using Accu Check glucometer. Data were analyzed with SPSS software.

***Results:*** Blood glucose changes in 4 stages were significant ($P<0.001$). Mean of blood glucose level in stage 1 was 97.19±9.93 mg/dl which reached 107.48±15.57 mg/dl in stage 4. This level showed a slight decrease in stage 2 and then increased considerably in stages 3 and 4.

***Conclusion:*** After infiltration of local anesthesia and beginning surgical process, the level of blood glucose was increased, that is similar to Nakamura and Meechan studies. This result shows that during dental treatment (with two carpools of 2% lidocaine and epinephrine 1/80.000) blood glucose does not increase more than normal range.

**20090182**

# The influence of composite thickness on fracture resistance of direct restorations in endodontically treated teeth

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***Introduction:*** This study evaluated the influence of composite thickness (with or without fibers) on fracture resistance of direct restorations in endodontically treated teeth.
***Materials and Methods:*** Seventy intact human premolar teeth were chosen and randomly divided into 5 groups of 14 teeth each. The teeth in first group were kept intact and used as control. In other groups the teeth were root canal treated and MOD cavities were prepared afterwards. In each group the teeth were restored as follow:
*Group 1:* Intact teeth (control); *Group 2:* Composite onlay (Filtek Z-250) with cuspal coverage of 1.5 mm; *Group 3:* Composite onlay (Filtek Z-250) with cuspal coverage of 2.5 mm; *Group 4:* Composite onlay (Filtek Z-250) with cuspal coverage of 1.5 mm including fiber; *Group 5:* Composite onlay (Filtek Z-250) with cuspal coverage of 2.5 mm including fiber.
The teeth were subjected to a progressive compressive axial force in a universal testing machine with the speed of 1mm/min to the fracture point. Data were analyzed using one-way ANOVA test.
***Results:*** The mean fracture strengths and standard deviations obtained were: *Group 1:* 1148.46N±262; *Group 2:* 791.54N±235; *Group 3:* 880.00N±123; *Group 4:* 800.00N±187; *Group 5:* 1051N±345. One-way ANOVA revealed no significant difference between groups.
***Conclusion:*** Restoration of teeth with cuspal coverage of 1.5 and 2.5 mm demonstrated comparable fracture resistance to that of intact teeth and inclusion of impregnated fiber has made no statistical difference.

**20090183**

# The clinical efficacy of microabrasion with and without office bleaching in the esthetic improvement of fluorotic teeth

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***Introduction:*** Excessive amounts of fluoride used for the prevention of dental decay, is associated with the development of fluorosis characterized by stains on tooth surfaces which produce esthetic concerns for the patients. Microabrasion is the most conservative technique for the management of this disorder. The present study assessed the esthetic improvement of the fluorotic teeth after microabrasion and microabrasion with office bleaching.

***Materials and Methods:*** This before-and-after clinical trial was done on 20 fluorotic teeth. Microabrasion was performed with the application of Opalustre compound for the maximum 10 minutes until the stains will be removed following by office bleaching. Digital images of the teeth were obtained at all stages of the treatment while the esthetic improvements occurred in the teeth was determined by visual analogue scale (1-7) by two observers along with color parameters of L*a*b* and total color changes (ΔE) after microabrasion, after microabrasion plus office bleaching, and 1 week later. Data were statistically analyzed using repeated measures, LSD, Friedman and Wilcoxon Signed Ranks tests.

***Results:*** No significant differences were found between fluorotic area and non fluorotic area of teeth after different stages of microabrasion regarding L*a*b* and ΔE measures. The mean L* in these stages were 5.76, 9.03 and 14.87, mean a* were 0.31, -3.5 and -5.81, mean b* were -2.29, -6.58 and -9.62 and the mean ΔE was estimated to be 10.05, 14.51 and 20.28 respectively with significant difference being existed among these stages ($P<0.001$). Also, the mean visual analogue scores for these stages were 4.15, 5.22 and 6.36 respectively again with significant differences ($P<0.0001$).

***Conclusion:*** The present study showed that microabrasion technique significantly improved the esthetic appearance of fluorotic teeth at all stages of the treatment. The least improvement was observed after microabrasion and the most improvement was noted at 1-week later observations, while moderate results were achieved following microabrasion and office bleaching.

**20090184**

# Levels of Receptor Activator of Nuclear Factor-Kappa B ligand (RANKL) and Osteoprotegerin (OPG) in Gingival Crevicular Fluid

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***Introduction*****:** The aim of this study was to determine the levels of Receptor activator of nuclear factor-Kappa B ligand (RANKL) and Osteoprotegerin (OPG) and their relative ratio in gingival crevicular fluid (GCF) samples of untreated periodontitis patients.

***Materials and Methods*****:** GCF samples were obtained from healthy individuals (n=10), mild (n=18), moderate (n=18), severe chronic periodontitis (n=20) and aggressive periodontitis (n=20) patients with average age of 38.26± 12.96 using sterile paper strips. RANKL and OPG concentrations were measured by enzyme-linked immunosorbent assays (ELISA).

***Results:*** There were no significant differences in RANKL and OPG concentrations between groups (P=0.58 and P=0.56 respectively). There were also no significant differences in RANKL/OPG ratio between healthy controls and chronic and aggressive periodontitis patients (P=0.41).There were also strong positive correlation between RANKL concentration and clinical attachment level measures in moderate chronic periodontitis patients (P=0.04).

***Conclusion:*** Given the limited sample size of this cross-sectional study of GCF, our findings suggest that , RANKL and OPG concentrations showed no significant differences between groups, although the correlation between RANKL concentration and clinical attachment level measures in moderate chronic periodontitis patients was strongly significant. Larger scale studies particularly in active sites may shed more light on this subject.

**20090185**

# The effect of increased curing time on microshear bond strength of enamel and dentin bonding agents to enamel

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***Introduction:*** The aim of present study was to assess the effect of increased curing time on microshear bond strength using an enamel and dentin bond to enamel.

***Method and Material:*** Ninety healthy human molars' surfaces were prepared with silicone carbide paper and randomly assigned into six groups. In group 1, the enamel surfaces were etched with 37% acid etch for 30s and washed for 30s. The specimens were bonded to enamel by Heliobond after drying and light cured for 10s. In groups 2 and 3, teeth were treated as groups 1, but they light cured for 20 and 40s, respectively. In group 4, similar procedures to group 1 were performed except for Excite dentine bond use. Processes for groups 5 and 6 were similar to group 4 except for 20 and 40-seconds light curing, respectively. Microshear bond strength of the specimens were measured with microtensile tester with crosshead speed 0.5 mm/min and analyzed by one-way ANOVA, Tukey and student t-tests. Failure modes were assessed under stereomicroscope and analyzed using Chi- square.

***Results:*** The microshear bond strength of groups 1-6 were 37.69+- 6.61 Mpa , 37.91+- 2.99 Mpa, 45.59 +-3.04 Mpa, 31.54+- 4.31 mpa , 34.21+- 2.54 mpa and 40.12+- 4.76 mpa, respectively. Increased strength among specimens was significantly different by increasing the curing time into 40s with two bondings $P<0.0001$). No significant differences were observed between 10 and 20-s curing in both bondings. Failure modes were not statistically different.

***Conclusion:*** Increased curing time led to significant increased microshear bond strength of specimens bonded with both Heliobond and Excite.

**20090186**

# The Effect of using different rinsing angles on the micro-tensile bond strength of the sealant to the etched enamel

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***Introduction*:** Reinforcing and improving the bond strength of the sealant is of great concern in dental research. The purpose of the present study was to evaluate the effect of using different rinsing angles on the micro-tensile bond strength of the sealant to the etched enamel.

***Materials and Methods:*** Sixty first-premolars were randomly assigned into 6 groups based on the rinsing angle which was applied (15°, 30°, 45°, 60°, 75°, and 90°). Following etching and rinsing, a 4-mm thickness build up of sealant material was created. Bonded specimens were sectioned into sticks (1 mm × 1 mm), which were subjected to micro-tensile bond strength, testing at a cross head speed of 0.5 mm/min.

The data were analyzed by Kolmogorov-Smirnov and post-hoc Tukey test.

***Results:*** The tensile bond strength in specimens rinsed at 90° were statistically higher compared to those rinsed at 15° and 30° ($P< 0.05$), and increasing the angle from 15° to 90° was correlated with a reduction in the number of specimens with adhesive failures.

***Conclusions:*** Rinsing the conditioned enamel surface at 90° may improve the bond strength and retention of the sealant.

**20090187**

# Micro-shear bond strength of three self-adhesive resin cements to non-precious dental alloys

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***Introduction****:* Self-adhesive resin cements has advantages like simple application, reduced working time, lack of the need for acid gel washing and the reduced risk of etching and drying. This study evaluated the micro-shear bond strength of self adhesive resin cements including Panavia-F 2.0, RelyX Unicem and Maxcem to non-precious dental alloy of Verabond II.

***Methods and Materials*****:** In this *in vitro* experimental study wax disks were formed with similar dimensions and investment. They were surrounded by a material for replication; metal disks were made using casting method. The disks were grounded with sandpapers, and sandblasted by $AL_2O_3$ particles for 15sec. They were ultrasonically cleaned for 2min and were dried. The cylinders were placed on the blocks, the cements were packed into them; surfaces were abraded with cellulose strip, they were cured for 40 sec and stored in 23 °C for 1 hour. The cylinders were cut and the specimens were stored in water at 37°C for 24 hrs. Micro-shear bond strength was tested using Bisco testing machine with a cross head speed of 0.5 mm/min, Data were analyzed using One-way ANOVA and Tukey test.

***Results:*** Micro-shear bond strength was 33.82±3.85 MPa for Panavia-F 2.0, 31.42±4.52 MPa for RelyX Unicem and 16.84±3.31 MPa for Maxcem which were significantly different ($P<0.0001$). Maxcem was significantly different from Panavia-F and RelyX Unicem ($P<0.001$); while no significant differences existed between Panavia-F 2.0 and RelyX Unicem.

***Conclusion:*** The most and least micro-shear bond strength was related to Panavia-F 2.0 and Maxcem, respectively. The strength of RelyX Unicem was slightly less than Panavia-F 2.0 which is acceptable, while the use of Maxcem cements may not be recommended as a strong.

**20090188**

# Investigating the prevalence of calcified carotid artery in panoramic radiographs of post menopausal patients in Shahid Beheshti Dental Scool

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***Introduction:*** Postmenopausal women are stroke prone. This study was designed to evaluate the prevalence of calcified carotid artery in ≥50 years-old postmenopausal women among dental patients of Shahid Beheshti Denatl School.

***Materials and Methods*:** Two hundred panoramic radiographs were taken with same conditions for this descriptive study; these were related to post-menopausal women of outpatient referrals to Oral Medicine Department of Shahid Beheshti University (2007-2008). The purpose of this study was to Investigate the prevalence of calcified carotid artery and correlation between calcified carotid artery and vascular risk factors. Chi-square and exact fisher tests were used for analysis ($P<0.05$).

***Results*:** Twenty-two calcified carotid arteries were detected on radiographs. The left carotid arteries were involved in 7 cases and the right carotid arteries in the 9. In 6 cases both carotid arteries were calcified. Four individuals have no vascular risk factor (excluding age) and the others had at least one risk factor. There was significant statistical correlation between hypertension, history of MI, and hyperchlostrolemia with calcified carotid artery on panoramic radiographs. The prevalence of calcified carotid arteries is 11% of studied patients.

***Conclusion*:** Regarding the correlation between carotid calcification and other risk factors (hypertension, history of MI, and hyperchlostrolemia) we conclude that detection of calcified carotid artery on dental panoramic radiographs is important.

**20090189**

## Iranian dentists' knowledge and their attitudes towards preventive dental care

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***Introduction**:* The aim of this study was to assess iranian dentists' knowledge and their attitudes towards preventive dental care.

***Materials and Methods:*** A survey using questionnaire was conducted at two national dental congresses in Tehran, Iran (2004,2005). Dentists' knowledge was assessed based on their responses on Likert scale (0-4) of nine statements on preventive dental care. Higher scores indicated more accurate knowledge. Dentists' attitudes towards preventive dental care were rated based on responses on a Likert scale (1-7) to nine pairs of bipolar adjectives. Higher scores indicated more positive attitudes. Of 1033 responding dentists, 980 (64% men) were deemed eligible for this study. Chi-square and T-tests were used for statistical analysis.

***Results:*** Highest knowledge of dentists were related to the role of sugar consumption (Mean±SD: 3.73±0.60), sealants (3.58±0.68), and water fluoridation (3.35±0.81) in caries prevention; the lowest was about superiority of the use of fluoride toothpaste over technique of brushing (1.11±1.09). Dentists' attitudes towards preventive dental care appeared most positive regarding its usefulness (6.67±0.94), value (6.59±0.98) to the community and for its status as a scientific (6.47±1.06) subject. Overall, female dentists had more favourable attitudes towards preventive dental care.

***Conclusion:*** Preventive dentistry should be emphasised in dental education in order to update dentists' knowledge and attitudes regarding preventive dental care.

**20090190**

# Biological effect of dentin non-collagenous proteins on tissue engineering

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***Introduction:*** Dentine matrix is a reservoir of growth factors and cytokines, sequestered during dentinogenesis. The aim of this study was to extract dentin matrix proteins in order to study their effects on cultured endometrial adult stem cells.

***Materials and Methods:*** Human extracted teeth were obtained from the Oral Surgery Department of dental school (Tehran University of Medical Science). The pulps, enamel and cementum were removed; dentin was ground and placed in 10% ethylene diamine tetra acetic acid (EDTA) and protease inhibitors (pH 7.4) for 10 days. The demineralizing solution was changed every 48h and the EDTA-soluble fraction in the supernatant were collected after centrifugation at 3000 rpm for 10 min (***4°C***). The combined EDTA-soluble fractions over the 10-day period were transferred to dialysis sacs and dialyzed exhaustively at 4°C for 10 days against repeated changes of distilled water. Dialyzed extracts were lyophilized using a freeze dryer prior to electrophoresis.

***Result:*** Electrophoresis shows the banding patterns representing the different molecular weight proteins obtained from EDTA extracted sample. The profile displayed three bands between 10 and 20 kDa and three other bands, between 55 and 65 kDa. Protein fractions from dentin were separated by electrophoresis confirmed that the individual peaks demonstrated heterogeneity in their protein content.

***Conclusion:*** Reciprocal epitheliomesenchymal interactions control the terminal differentiation of odontoblasts. Since these interactions are matrix mediated, attempts have been made to understand the nature and mechanism(s) of cell-matrix interactions. In this study, we have extracted dentin matrix proteins. Afterward, we would study the effect of these proteins on the differentiation of endometrial adult stem cells to odontoblast cells.

**20090191**

## Etching of dentin using Er, Cr: YSGG laser

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***Introduction:*** This study was carried out to compare the bond strength of composite resin to dentin following laser and conventional acid etching.

***Material and Methods:*** Dentinal sections of intact human third molar teeth were prepared and divided into two groups of 25 each. In group A, samples were etched by 1 watt. Er, Cr: YSGG laser (Biolase). The samples of the group B were etched using %37 phosphoric acid and were used as control. In order to prepare samples, composite rods with dimensions of 0.7X1 mm were bonded using Single Bond. Micro-shear bond strength was evaluated and the data recorded as Mpa. Mean and standard deviation was calculated and data subjected to Student t-test for statistical analysis.

***Results:*** Micro-shear bond strength in group A was 22.44 ± 5.41Mpa, and 26.15± 4.77 Mpa in group B. Group B had significantly higher mean bond strength than group A ($P<0.05$).

***Conclusion:*** It can be concluded that laser etching is not capable of producing similar bond strength as the conventional method.

**20090192**

## *In vitro* enamel erosion of primary and permanent teeth using acidic beverages

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***Introduction:*** Dental erosion is defined as the chemical removal of minerals from tooth structure. Erosion is classified as extrinsic or intrinsic in origin. Acidic beverages are thought to increase the potential for dental erosion.
This study estimated the enamel erosion potential of some most common acidic drinks produced by Iranian factories. Also the susceptibility of the primary and permanent teeth was compared with each other.
***Materials and Methods:*** The outermost surface of 20 permanent and 20 primary teeth without erosion or caries was polished flat by using finest grade of sandpaper and water in order to facilitate proper measurements. Specimens were then prepared by cutting the teeth enamel surface in dimensions of $3\times4mm^2$. The specimens were then immersed in fresh solution of each two drinks (10 teeth per test group). This study included Group1=permanent teeth in Pepsi, Group2=permanent teeth in Miranda, Group3=primary teeth in Miranda Group4=primary teeth in Pepsi.
The micro-hardness of the specimens was measured before testing and after 5 and 10 min exposure to each of the two drinks, by Micro vicker's hardness tester.
***Results:*** Although there is significant decrease in the hardness of teeth affected by drinks, there is no statistically significant differences between enamel hardness of primary and permanent teeth ($p>0.05$). Also no significant differences was showed between the erosive capability of two beverages ($p>0.05$).
***Conclusion:*** Our data suggest that these beverages may have potential to erode enamel surface in vitro. The study was conducted in vitro, it is not possible to replicate intra-oral conditions into laboratory nor is it ethical to conduct such a study in humans.

**20090193**

# Comparative study on enamel microleakage of composite inlays using various resin-based luting cements

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***Introduction:*** This study evaluated the microleakage of composite inlays luted with one self-adhesive cement and one etch and rinse cement produced by the same manufacturer.

***Method and material:*** Standardized class II inlay preparations were prepared in twenty extracted non-carious human third molars. Twenty indirect composite inlays were made using Z100 composite resin. They randomly divided into two groups according to the cementing agents. In group 1 relyX unicem (self-adhesive resin cement-3M) and in group 2 relyX ARC (etch & rinse resin cement-3M) were used according to the manufacture's instructions as luting cement. After 24h storage in 37° C distilled water, they subjected to 500 thermal cycling. The specimens were embedded in 0.5% fushin solution for 24h and sectioned in mesiodistal direction. Dye penetration were analyzed under a stereomicroscope (magnification of ×20) using a scale of 0-3. The data were analyzed using a non-parametric Mann-whitney *U* test at a $P<0.05$ level of significance.

***Result:*** In group 1 after 24 h, 50% of specimens have no leakage and 50% showed index 1, the results for group 2 were 80% and 20% respectively. The difference of leakage degree in two groups was not statistically significant ($p=0.28$).

***Conclusion:*** Within the limitation of this *in vitro* study, self-adhesive cement and etch&rinse resin cement produced by the same manufacturer showed same microleakage in enamel after 24h.

**20090194**

# The effect of repeated bondings on shear bond strength of orthodontic brackets

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***Introduction:*** Bracket failure is one of the problems of orthodontic treatments. As a result, a large number of brackets have to be rebounded. On the other hand, there are controversies on effects of repeated bondingson brackets' bond strength. The purpose of this study was to evaluate the effect of repeated bonding on the shear bond strength (SBS) of stainless steel orthodontic brackets.

***Material and Method***: Eighty freshly extracted human premolars were collected and stored in a normal saline solution. They were cleaned, polished, and etched with 3M 37% phosphoric acid gel for 15 seconds. The brackets were bonded with no-mix adhesive and cured for 160 seconds (40 seconds for each side of bracket). The teeth were bonded 2 times with the same orthodontic adhesive. At each time, all teeth were debonded with Zwick/Roell zo20 machine within 24 hours after rebonding. The mean and standard deviation were calculated for SBS. Variance test was used to analyze the data.

***Result:*** The analysis of variance indicated a significant difference between SBS for all 2 debonding sequences ($P<0.001$). There was a significant decrease between 1st and the 2nd debonding sequences (22.88±4.08) (19.63±4.54) which was significant.

***Conclusion***: Although the 2 amount of the achieved SBSs are sufficient for clinical bonding adhesives, rebondings of the orthodontic brackets showed a decrease in SBS after each debonding.

**20090195**

# Periodontal status and oral soft tissue lesions of toxic veterans referred to Oral Medicine Department of Mashhad Dental Faculty

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***Introduction:*** The effects of chemical gases on tissue exposed to environment depends on the amount of poison and duration of contact and some areas such as skin folds and parts with thin epidermis are more sensitive to gas.
Considering the importance of oral lesions evaluation and treatment in toxic veterans and since non keratinized mucosa of the larynx are histologically similar to some of the oral regions such as soft palate and floor of the mouth, this study was conducted to determine delayed oral complications of mustard gas poisoning in toxic veterans referred to Oral Medicine Department of Mashhad Dental Faculty.
***Materials and Methods:*** In this descriptive cross-sectional study, 37 of the toxic veterans referred to Oral Medicine Department of Mashhad Dental Faculty, were orally examined during a six month period in 2009. The patient's data including demographic data, duration of oral lesion presence, history of medications, the type of chemical gas involved and disability percentage were recorded.
We also used periodontal indexes to assess periodontal and oral health status of patients including: Bleeding on probing, Pocket depth, and Attachment level, Plaque index, recession, and finally CPITN. The data were descriptively assessed through SPSS statistical software.
***Results:*** The most common findings were mucositis, different kinds of candidiasis, respectively. Most of the patients complain was xerostomia. According to periodontal and oral health indexes, almost all patients had low oral hygiene level and periodontal involvement to some extent.
***Conclusion:*** Presence of highly frequent oral soft tissue lesions in Iranian toxic veterans compared to general population necessitates periodical oral soft tissue examinations by oral medicine specialists.

**20090196**

# Knowledge and diagnostic skill of dental students and medical interns of Mashhad Medical University about Oral Common Diseases

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***Introduction****:* Physician should have reasonable information about diagnosis and treatment of oral disease; this is because they are involved with diagnosis and treatment of oral diseases.
According to Osler research in medical studies, importance of oral health has been neglected and it is just considered in clinical examination. One of the dentistry post graduation fields,- which is in close relation to teaching and practice with medical science- is oral medicine and could be a reliable source to cooperation of medical and dental societies.
The goal of this study was subtle and exact evaluation of knowledge and skill of Medical intern and dental students about oral common diseases, and assessing the need of the presentation of this field (oral medicine) in medical training.
***Materials and Methods*:** In this analytical cross-sectional study knowledge and diagnostic skill of 100 dental students and medical interns of Mashhad Medical University were assessed. Data gathering tool in this research was illustrated as a questionnaire.
***Results:*** Of 100 subjects, the least score of knowledge was 1.47 and the maximum score was 4.The least score in diagnostic skill was 0.2 and the maximum score was 0.8.
***Conclusions:*** Knowledge and diagnostic skill was lower than acceptable rate, so it is recommended to enter oral medicine course to medical educational curriculum.

**20090197**

## Knowledge and diagnostic skill of dentist in Khorasan about oral diseases

***J. Sarabadani, A. Pakfetrat, Z. Delavarian****,Mashhad University of Medical Sciences, Mashhad, Iran.*

***Introduction:*** Oral mucosa is affected by general health. Some systemic disease manifestations presents in oral mucosa. Late diagnosis of oral disease could result in serious morbidity or even death. The aim of this research was to evaluate knowledge and diagnostic skill about common oral disease in general dentist.

***Materials and Methods:*** In this study, knowledge and diagnostic skill of 100 general dentists, working in Khorasan were assessed. Data gathering tool in this research was illustrated as a questionnaire.

***Results:*** Among one hundreds of subject, 94 subjects accepted to take part in this research, 69 subjects were graduated from Mashad University of Medical Science, 25 graduated from other Medical University.

Among 69 subjects the least knowledge score rate was 1.67 and the most one was 4 (2.809 ± 0.4730). The least diagnostic ability score rate was 0.1 and the most was 0.7 (0.4343±0.1486).

Among 25 subjects, the least knowledge score rate was 1.75 and the most was 4 (1.99±0.49). The least score of diagnostic ability was 0.11 and the best score was 0.9 (0.5024±0.2056).

***Conclusion:*** There was no difference in knowledge and diagnostic ability score rate between Mashad and other Medical Universities of Khorasan (P=0.139).

Considering low knowledge and diagnostic skill score, schedules for more reeducation workshops are recommended.

**20090198**

# In vitro evaluation of Catalase enzyme and 10% Sodium Ascorbat on micro-tensil bond strength of composite to bleached teeth

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***Introduction****:* There are many studies reported a significant decrease in bond strength of composite to enamel after bleaching.
Sodium ascorbat has been reported to be effective in increasing the bond strength after bleaching. Catalase enzyme is another reductive and antioxidant agent. No comparison has been made between Sodium ascorbat and Catalase enzyme; therefore, the aim of this study was to compare the reduction effect of sodium ascorbat and catalase enzyme on micro tensile bond strength of composite to bleached enamel.
***Materials and Method:*** Fifteen intact human 3rd molars with grinded buccal surfaces, divided into 3 groups of 5 each. All teeth were bleached for 45 minutes using 35% carbamid peroxide. A composite cube was bonded in buccal surface at different times. The pilot group was restored after 2 weeks. Group 1: after treating by catalase enzyme for 10 minutes, teeth were restored immediately. Group 2: after treating by 10%sodium ascorbat for 10 minutes, samples were restored immediately. Then all teeth were sectioned by thin sectioning machine, and were tested for microtensile strength by microtensile tester machine.
Samples were tasted by stereomicroscope for evaluating the failure mode (Cohesive, Adhesive and mix). ANOVA and LSD tests were used for analysis.
***Results*:** There was no significant difference between 3 groups.
The most adhesive fracture was in group 2 and the less fracture was in group 1.
***Conclusion:*** It is recommended to use catalase instead of sodium ascorbat.

**20090199**

## Comparison of two power bleaching technique

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***Introduction:*** The aim of this study was to compare the teeth whitening efficacy of two agents in office bleaching products: pola office (35% Hydrogen peroxide) with contrastam (22% Hydrogen peroxide) and associated hypersensitivity.

***Materials and Methods:*** Eleven participants took part in this single-blind, clinical study. Each jaw was bleached with one of the products as manufacturer's instructions. Color evaluated with digital photography before bleaching and 2 hour and 1 week after it by using $\Delta E$ index. Color change ($\Delta E$) was calculated and hypersensitivity was assessed with questionnaire. Data were analyzed using paired t-test.

***Results:*** $\Delta E$ before and 2 hour after bleaching for pola office was 7.1 $\pm$5.7 and was 5$\pm$2.3 for contrastam. $\Delta E$ before and 1 week after bleaching for pola office was 5.1$\pm$4.2 and was 3.7$\pm$1.5 for contrastam. Two hours after bleaching and 1 week after bleaching $\Delta E$ for pola office was 3.5$\pm$1.5 and was 3.7$\pm$1.5for contrastam. Three of participants showed no sensitivity and 8 person reported sensitivity just in the first day.

***Conclusions:*** Both studied products were considerably effective in tooth whitening, but there was no statistical difference between them in color change and hypersensitivity. Also both products showed remarkable color relapse which was not statistically different between two.

**20090200**

# Preparing an experimental bonding agent containing doxycycicline as matrix metalloproteinase and evaluating its release

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*,Iran*

***Introduction****:* In spite of the advances achieved in the field of dentin adhesives, the longevity of bond to dentin is still a challenge. According to recent studies, clarifying the role of matrix metalloproteinase inhibitors can help increase clinical longevity of bonding, decreasing leakage and promoting service time of restorations. The aim of this study was to evaluate the amount and pattern of doxycycline release from an experimental adhesive containing this substance.

***Method and material****:* In this experimental study, samples containing 0.25 and 0.5 loading percent of doxycycline in an experimental monomer were prepared in cylindrical moulds of 12mm diameter and 2mm thickness. The adhesive monomer contained 12w% Bis-GMA,10 w% TMPTMA, 28w% HEMA and 50w% ethanol. Camphorquinone and amine were used as initiator.

***Results****:* Adding 0.25 and 0.5w% doxycycline showed linear release in both groups. More release was observed with increasing the loading. The release was continuous during the experiment.

***Conclusion****:* Doxycycline release was observed from the experimental adhesive. Further studies are needed to prepare adhesive systems with more clinical longevity.

**20090201**

# Prevalence and factors affecting patient satisfaction in Shahid Beheshti dental school (2008-2009)

***M. Nouri*, A. Nourian**, *Shahid Beheshti University of Medical Sciences, Tehran, Iran.*

***Introduction:*** In spite of the fact that in many countries dental care has reached a high standard, much can still be improved in regard to optimal care for patients. Patient satisfaction is a multidimensional concept that is influenced by differences in attitudes, beliefs and social backgrounds.
The purpose of this study was to evaluate factors affecting patients' satisfaction in Shahid Beheshti Medical University, Dental School (2008-2009).
***Materials and Methods*:** In this cross-sectional descriptive pilot study, we wanted to adopt the standard questionnaire introduced by Imanaka to iranian dental schools and added few questions based on the differences between the two school systems. A total of 101 patients were participated the study. The questionnaire had two parts: demographic and 26 questions about 4 factors which were treatment, communication, facilities and appearance which were considered based on a 5-point Likert scale ranging from completely satisfied to completely dissatisfied. To confirm the reliability of inter-item correlations cronbach's alpha ($\alpha$=0.92) were calculated for each of the item. The results were analyzed using t-test and ANOVA. Higher means indicated better patient satisfaction.
***Result:*** The mean total satisfaction was 2.5±0.5. The factor with the highest satisfaction rate was related to appearance (3.1±0.7) and the least was for facilities (2.1±0.7). Those who only finished high schools were more satistified from the services than those with higher education (P=0.026). The patients' satisfaction had no correlation with their gender, age, marital status and inhabitant. 82.2 percent of the patients would like to attend the services in future and recommend the dental school to others.
***Conclusion:*** Overall patient satisfaction was average. For improvement of patient satisfaction facilities were more important and satisfaction of the patients with higher education was more demanding.

**20090202**

## Bacteriological evaluation of anesthesia syringes before and after injection

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***Introduction:*** One of the most important parts of infection control in dentistry is instruments' sterilization. According to the criteria of instrument classification (critical, non-critical and semi-critical) the practitioner decides about the necessity of sterilization of them. But there are ambiguities about the exact place of some instruments such as dental injection syringe, in this classification. The purpose of this study was to evaluate the bacterial contamination of these syringes during local anesthesia.

***Methods:*** Before injection, samples from operator's gloves, tray, carpule, needle adaptor and inner surface of the syringe were taken. The samples from the needle adaptor, inner surface and barrel of the syringe were taken after the procedure.

***Results:*** Bacterial culture before injection was negative in all of samples. Fifty percent of the syringes were contaminated in the contact area with diaphragm of the carpule, 40% in the barrel and 23.3% in needle adaptor. The bacteria found in the samples were coagulase negative staphylococcus, coagulase positive staphylococcus, stereptoccocus, corryne bacterium, diphteroid and serratia.

***Conclusion:*** The real rate of syringes contamination after injection was measured from 62.1% to 84.5%. The probability of contamination was greater at the surfaces in contact with carpule's diaphragm and in syringes used for block injections. In addition, the prevalence of bacteria from normal flora of skin and oral mucosa was more than pathogen bacteria.

**20090203**

## An investigation on the retention of two different core materials to FRC posts

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***Introduction**:* The ability of a dowel/core restoration to survive masticatory loads depends on retention of FRC to core material. If the dowel and/or the core material fail, the crown will ultimately fail. The aim of this study was to compare the effect of two core materials on their retention to FRC posts.

***Materials and methods:*** This experimental study was performed on 30 translucent FRC posts (RTD®); samples were divided into 2 groups (n=15) according to their core material.

A cylandric plastic matrix (for premolar teeth) was placed around the sailanized post and posts were centered and filled with the restorative resin composite. Each sample was loaded to failure under tension at a cross head of 0/5 mm/min. One-way ANOVA and t-tests were used for statistical analysis.

***Results:*** Greatest dowel-head retention values (Mpa) of tested core materials (Mean+SD) was related to Core Max π (291/54± 8) and crystalline (240± 8/165) respectively. The findings revealed significant differences between the core material groups (P<0/001).

***Conclusion:*** The bond strength between core Max π and FRC posts is higher than that of crystalline.

**20090204**

# Comparing the retention of carbon fiber posts and cast posts with composite packed into canals in endodontically treated teeth

***E. Amin Salehi***, ***Z. Moosavian Jahromi,*** *Tehran Branch of Azad University*

***Introduction:*** The aim of this study was to compare the retention of carbon fiber posts, cast posts, and composites which had been packed into canals in endodontically treated teeth, in vitro.

***Materials and Methods:*** Thirty extracted human premolars were decoronated at 2-mm coronally level of CEJ and were then treated endodontically. Samples were divided into three groups. Post space preparation was performed; in group 1, carbon fiber posts and in group 2, cast posts were placed in prepared root canals. In group 3, composite was put incrementally in 4-mm coronal of the root canals. The specimens were then placed in the universal testing machine for retention evaluation.

***Results:*** Means of tensile loads to failure was about 367.00 (N) for carbon fiber posts and 132.00 (N) for cast posts. All composites packed in root canals were detached at the coronal parts of the teeth (2-mm coronal to the CEJ) from lower part, after tensile load.

***Conclusion:*** The carbon fiber posts had significantly greater retention than cast posts and inserting composite into root canal had no tensile resistance.

**20090205**

# Fatigue resistance and failure mode of *endodontically* treated premolars with direct composite restorations

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***Introduction*:** This study evaluated the fracture resistance and failure mode of direct composite onlays (buccal and palatal cusp-coverage) in endodontically treated premolars.
***Materials and Methods:*** Eighty-four premolars were randomly divided into 7 groups of 12 each. Group1: Intact teeth as control, Group 2: endodontically treated teeth restored with direct composite onlays using Z-250 composite, Groups 3 and 4 were similar to group 2, but were subjected to 1 and 2 million thermo-mechanical load cycles in an artificial mouth; (frequency =3 HZ , F=50N ). Groups 5,6,7 were similar to groups 2,3,4, however, were restored by Tetric Ceram.Subsequently. All specimens were loaded occlusally in a Universal Testing Machine. Peak load to fracture was recorded and the failure mode observed with naked eye. One-way Anova and Tukey's HSD tests were used to analyze the data of onlay groups. Kruskal-Wallis and Mann-Whitney tests were used for comparison between onlay groups and control group.
***Results:*** All specimens withstood the masticating simulation. The mean fracture strength for groups 1 to 7 were 1276.92, 1373.47, 1269/70, 1256/35, 1254/12, 1130/49, 1113/79 Newton, respectively. No statistically significant differences were found in strength between different groups. Most of fractures in restored specimens ended at the level below the CEJ.
***Conclusion:*** The results of this study suggest that direct resin composite onlays are suitable restorations in root filled premolars; because of their ability to withstand 1 and 2 million cycles of masticatory fatigue loading (equivalent 4 and 8 years mastication). In addition, Filtek Z250 – apart from number of cycles – exhibited higher fracture strength than Tetric ceram. Clinical trials are required to verify these *in vitro* results.

**20090206**

# Comparison between Organoleptic method and Sulphide monitoring in evaluating oral malodor

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***S .Mohammadi*** *Dentist.*

***Introduction:*** Researches and studies about halitosis require meticulously planned schedule. Since Organoleptic and Sulphide monitoring methods have shown their relative efficiency, comparison of these two methods can be of great importance.

***Materials and Methods:*** In this descriptive study, Sulphide monitoring and Organoleptic methods were performed on 117 volunteers (66 females, 51 males) selected from professors, students, clerks and patients of Shahid Beheshti Dental School. Organoleptic method was conducted by 3 instructors who were calibrated beforehand. The Kendall`s (tau-b) correlation analysis was used to calculate correlation coefficients between sulphide monitoring and organoleptic scores.

***Results:*** The Kendall`s correlation coefficients between sulphide monitoring and organoleptic scores was 0.493 ($p<0.001$). Sensitivity and specificity were assessed to be 61.1% and 87.8%. Positive predictive value (PPV), negative predictive value (NVP), and intra-class correlation coefficient were calculated to be 81.5%, 72% and 97% respectively.

***Conclusion:*** Due to the small size and simplicity of handing, sulphide monitoring apparatus can be used as a suitable method to differentiate patients without halitosis (cases of pseudo halitosis and halitophobia) and halitosis screening; however, the probability of misdiagnosis in evaluation of halitosis intensity should be considered(false negative results).

**20090207**

## Knowledge of Dentists about Chemical Disinfectants Tehran in 2006

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***Introduction:*** Choosing appropriate disinfectants has become confusing for many dental professionals because of exaggerated manufacturer claims and misleading assays reported in the literature. Dentists should be aware of guidelines that assist in the selection of appropriate chemicals. This study was conducted to evaluate the level of knowledge and attitude of general dental practitioners (GPD) who work in private clinics in Tehran in 2006 about chemical disinfectants.

***Materials & methods:*** This study was a cross-sectional descriptive study.446 GDPs were selected by a random cluster sampling method and evaluated by using a questionnaire consisting of 20 knowledge and 14 attitude questions. Content validity was confirmed by 4 specialists in oral medicine and 6 general practitioners. sperman-borwn`s reliability was 0.66.

***Results:*** The mean correct answers were 8.6±3.0 (95% CI: 8.3, ranged from 2 to7) of maximum 20. Using multilinear regression formula showed that only age had negative relation with correct answers. The most difficult questions were concerned with provision of particularis.

***Conclusion:*** Knowledge level of GDPs about chemical disinfection was low. It seems that traditional educational methods should be changed to new methods (reform).60.5% of the population were keen to receive information from retraining programs and 46% wished to benefit from educational leaflets.

**20090208**

# Atomic absorption spectrophotometric determination of calcium in bone after surgical procedure of gonadectomy in rats

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***Introduction:*** The aim of this study was to determine the level of calcium by atomic absorption spectrophotometry in rats after surgical procedure of gonadectomy.

***Materials and Methods:*** Forty, one-month years old Wistar rats comprised the sample. Tewenty male rats were divided into two groups of 10 each including experimental group with orchidectomy and control group with sham-operation; twenty female rats were also divided in the same way into two groups of 10 each including experimental group with ovariectomy and control group with sham-operation. These rats were sacrificed six months after the surgery. Percentage of calcium in tibia bone of rats was determined by atomic absorption spectrophotometry. Data were analyzed using Mann-Whitney-Wilcoxon test in statistical package of SPSS.

***Results:*** Body length and weight were significantly lower in the orchidectomy group relative to the male sham-operated group ($P<0.05$). No significant difference in calcium percentage was observed between groups.

***Conclusion:*** The calcium level of bone will not be affected by elimination of gonadal hormones. The quality of bone from calcium mineral aspect is maintained but the amount of bone growth from the quantitative aspect will be affected by the elimination of testosterone.

**20090209**

## Immediate tooth movement following augmentation of extraction sites

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***Introduction****:* The aim of this study was to determine the effects of extraction site augmentation on the immediate tooth movement.

***Materials and Methods:*** Twenty four sites in three dogs were investigated as an experimental study. Crushed DFDBA was used as the graft material. The posterior defect was made by the extraction of 3rd premolar and the anterior defect made as a 5mm tunnel shaped canal between the canine and 1st premolar by a high speed handpiece. On one side of each jaw, the defects were preserved as the experimental group by bone substitute (DFDBA); the other side defects left opened as the control group for secondary healing. Simultaneously, the adjacent teeth to the defects pulled together by a NiTi coilspring. After 8 weeks, radiographs were taken and the orthodontic tooth movement (OTM) was measured by comparing the changes of space between the adjacent teeth. Immediate tooth movement on control site and augmented sites were compared by analysis of varience.

***Results:*** No statically significant difference was observed (P<???).

***Conclusion:*** After using augmentation of sockets or other defects, tooth movement can be immediately begun with no need for the healing of the recipient site. Using a bone alloplast graft for its approved effects on ridge preservation has become common in today's practice. The possibility of immediate orthodontic treatment helps the patient to gain its aesthetic and function as soon as possible.

**20090210**

## Comparing the effect of the Laser bleaching and Plasma arc bleaching on alteration of the human tooth color

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***Introduction:*** "In-office" bleaching techniques are popular methods of tooth whitening. The purpose of this study was to compare the alteration of tooth color after Plasma arc and Laser bleaching.

***Materials and Methods:*** Thirthy freshly extracted human mandibular central incisors were selected, embedded in Rose wax and polished with pamis powder; samples were then randomly divided into 2 groups of 15 each including Plasma arc bleaching group and Laser bleaching group. Color of all specimens was evaluated by Spectrophotometer 7000A. The specimens were evaluated for color before treatment as a control group.

The Plasma arc bleaching group was bleached with Ever Brite gel which was activated by Plasma arc machine according to the company introduction, then stored in normal saline. The Laser bleaching group were bleached with Laser smile (35% H2O2), which was twice activated by 810nm Diode Laser in one visit for 7 and 4 minutes. Samples were then stored in normal saline. All of the specimens reevaluated for color alteration after treatment.

***Results:*** Both techniques can change and vary tooth color into white and reduced yellowness ratio; i.e. Delta E decreased 1.73 in Laser bleaching and 2.86 in Plasma arc, so Plasma arc bleaching change tooth color 1.65 times more than Laser Bleaching.

***Conclusion***: Although both Laser and Plasma arc bleaching can vary tooth colors, after Plasma arc bleaching the alteration of tooth color is more than Laser bleaching. According to this study, the Plasma arc bleaching is more effective than Laser bleaching with Diode laser for in-office bleaching.

**20090211**

## Effect of propolis on dentin regeneration in Guinea pig

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***Introduction:*** Preservation of vital pulp is preferred to root canal therapy which is an extensive, complex and time consuming treatment. In an ideal condition for direct pulp capping, there is high chance for the tooth to remain vital. By submitting the stem cells of dental pulp to a bioactive and biocompatible material, dentin regeneration can be achieved. The aim of this study was to evaluate the effect of propolis on stem cells and its ability to regenerate reparative dentin and rate of regeneration.

***Material and Methods*:** Forthy-eight incisor teeth from 12 male adult Guinea pig were used in this study. The teeth have been decoronated by surgical disk from 1mm above the level of gingival; 2-2.5mm-depth cavities were prepared in the center of canal with surgical round bur size #1 in order to expose pulp. Teeth were randomly capped with propolis and Dycal and sealed with self cure glass-inomer. Animals were sacrificed within the intervals of 10, 15, 30 days and samples been collected. Samples were stained by *H&E* and evaluated using light-microscope.

***Results:*** There has been no significant difference between propolis and dycal groups in stimulation and absorption, as well as presence of odontoblasts, pulp vitality, and pulp congestion. The quality of dentin in these intervals was different, propolis was able to produce irregular tobular dentin in greater cases, but dycal produced osteodentin (low quality dentin).

***Conclusion:*** Propolis did not cause pulp inflammation, infection, necrosis and it is capable to promote regeneration of tobular and qualified dentin which is the best bridge compared to any restorative material microbial leakage prevention. We can say propolis is a successful material in direct pulp capping.

**20090212**

# Investigating the effect of Emdogain on periodental ligament stem cells differentiation to osteoblasts, in vitro

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***M. Dalband iraj Amiri, S. Soheilifar, M. Bidgoli****, hamedan university of medical science.*

***Introduction:***Stem cells play important role in maintainance of tissue homeostasis. The aim of this study was evaluating human PDL stem cell differentiation to osteoblast in standard osteogenic medium and comparing the results with cells cultured in osteogenic medium supplemented with Emdogain.

***Materials and methods*:** After extraction of teeth under sterile condition, the periodontal ligament tissues attached to the middle third of the root surfaces were removed. Cells were cultured and at the 2nd passage, those in the developing adherent layer were used for osteogenic differentiation and adding emdogain. Osteogenic differentiation was evaluated by Alizarin Red Staining, Alkaline Phosphatase (ALP) activity and calcium content tests.

***Results:*** Quantitative analysis of ARS demonstrated that mineralized nodule formation was highest in the EMD+DEX group. Results of 14th day showed that the maximum amount of ALP activity was in EMD group. The amount of calcium related to different times was the lowest in the control group and highest in EMD+DEX group.

***Conclusion:***The effect of 100 µg/ml emdogain on osteogenic differentiation of human PDL stem cells is considerable.

**20090213**

# Evaluating the effect of Simvastatin on periodental ligament stem cells differentiation to osteoblasts, *in vitro*

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***M. Dalband, iraj Amiri, S. Soheilifar, M. Bidgoli****, hamedan university of medical science.*

***Introduction:***One of the primary characteristics of periodontium is regenerating periodontal structure in response to destructive factors; this can be carried out by stem cells which differentiate into the cells or tissues which are very similar to the periodontium. In this study we evaluated differentiation of human PDL stem cells which were cultured in osteogenic medium supplemented with Simvastatin.

***Materials and Methods:***After extracting the teeth under sterile condition, the periodontal ligament tissues attached to the middle third of the root surface were removed. Cells expanded in the culture and at the 2nd passage, cells in the developing adherent layer were used for osteogenic differentiation and adding simvastatin. Osteogenic differentiation was evaluated by Alizarin Red Staining, Alkaline Phosphatase (ALP) activity and calcium content tests.

**Results:**Quantitative analysis of ARS demonstrated that mineralized nodule formation was highest in the Statin+DEX group as well as maximum ALP activity on $7^{th}$ day. The lowest and highest amount of calcium was observed in the "control" and "Statin and DEX+Statin groups", respectively.

**Conclusion:** Simvastatin has an effect comparable to $10^{-8}$ dexamethasone on PDL stem cells differentiation to osteobllasts.

**20090214**

# Comparing the width of natural maxillary anterior teeth with 3 different denture teeth

***M. H. Dashti,*** ***M. Elyasi,*** *Islamic Azad university, Tehran,Iran.*

***Introduction*:** Selecting an appropriate tooth shape and size for a denture in the case with no remained natural teeth relies on clinical judgment together with the individual's aesthetic preferences for tooth selection. The aims of this study were to investigate existence of any significant difference in six maxillary anterior teeth width (6MATW) in two gender with natural dentition, in order to evaluate the proper size, compatible with the gender of the denture wearers and also investigating available choices of suitable sizes of denture teeth in different manufacturer's products that have an appropriate width for Iranian population requirements.

***Materials and Methods*:**Data were obtained from 6MATW in natural dentition of individuals with age range between 40-60 and denture teeth molds of 3different manufacturers (Ivoclar vivadent - Polydent- Ideal Makoo) with digital caliper.

6MATWs were compared by gender, and then evaluated with respect to the availability of size-matched denture teeth of 3 different manufacturers.

***Results:***1. There is significant difference in 6MATW of natural dentition, between two genders at the age of 40-60.

2. The significant difference existed between the width of the 6MATW in natural dentition and denture teeth, with natural teeth being predominantly larger.

***Conclusion:***It seems that majority of available molds for 6MATW in denture teeth are predominantly smaller in their size distribution than that of the Iranian population who need them. In addition, the available larger size molds do not adequately reflect the variable sizes which exist in Iranian populations.

**20090215**

# Effect of multiple adhesive coating on microshear bond strength of resin to primary tooth dentin

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***Introduction:*** The aim of this study was to evaluate the effect of multiple consecutive adhesive resin coatings on the microshear bond strength (μSBS) of composite resin to primary tooth dentin utilizing a filled (Adper Single Bond Plus) and an unfilled (Adper Single Bond) adhesive resin.

***Materials and Methods:*** Thirty extracted primary canines were randomly allocated into two groups according to the adhesive used. Dentin occlusal surfaces were exposed and further polished on 400, 600 and 800-grit silicon-carbide paper. The surfaces were divided into two halves in the labial-lingual orientation. After acid etch, the adhesives were used either in double coats, or in 4 coats on the halves of the same tooth, followed by air evaporation before light curing. Cylinders of resin composite (0.7 mm diameter; 1 mm high) were bonded to the dentin surfaces. After 24 h storage in 37°C distilled water, shear bond testing was carried out using a universal testing machine with a crosshead speed of 0.5 mm/sec. Two-way ANOVA, Student t test, and paired t test were used for statistical analysis ($\alpha$= 0.05).

***Results:*** No significant differences in bond strength were found between the double coated specimens versus those receiving 4 coatings with both adhesives (P>0.05). Micro SBS values of Single Bond double coated specimens were significantly higher than Single Bond Plus (P=0.02). For 4 coated specimens, there were no significant differences between Single Bond and Single Bond Plus (P=0.26).

***Conclusion:*** Applying 4 coats of adhesive was not able to improve the μSBS to primary tooth dentin.

**20090216**

# The effectiveness of an educational program on knowledge and attitude of dentistry students regarding oral health of children and infants

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***Introduction :*** The aim of this study is to evaluate the effectiveness of an infant oral health education program on knowledge and attitude of dental students of Shaheed Beheshti Dentistry School.

***Methods:*** Knowledge and attitude of 59 dentistry students were assessed through a questionnaire which was completed immediately before and after a 40 minute lecture. After 1 week follow up all students participated in the second post test. The educational intervention was a power point presentation and a booklet on role of nutrition and primary care on infant`s oral health. AAPD and NHS guidelines were used to produce the educational intervention content. The 39-question questionnaire was based on the information presented in the lecture and booklet. Validity and reliability tests had been done in order to make the questions standard.

***Results:*** There was a significant difference between the pre-test and post test scores. ($p<0.001$) . The mean score on the pre-test was 39.36% and the mean score of the first post test was 79.15% and on the second post test was 75.72%. There was no significant correlation between age , gender and year of dentistry training with pre and post test scores . Fifty four (93%) of the students reported great willingness toward the presented information.

***Conclusion:*** Dental students knowledge regarding infants` oral health was insufficient. Power point presentation and booklet were effective educational intervention for training dentistry students regarding the role of nutrition and primary care on infants` oral health.

**20090217**

## Effect of different concentrations of tetracycline Hydrochlorid for Smear layer removal

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***Introduction*:** Dentin surface demineralization with tetracycline hydrochloride or citric acid enhances attachment and growth of gingival fibroblasts on the dentin surface so indicated its potential usefulness in regenerative periodontal procedures.

***Materials and Methods***: The scanning electron microscope was used to evaluate the smear layer removal capacity of periodontally diseased teeth subjected to concentrations of 10mmg/ml and 25mg/ml of tetracycline hydrochloride for one and three minutes, respectively. Thirty-six teeth were divided into 3 equal groups. Groups 1 and 2 were burnished with tetracycline hydrochloride for 1 and 3 minutes with the following concentrations 10mg/ml and 25 mg/ml, respectively. Group 3 was burnished with cotton swab saturated in distilled water and served as the control.

***Results:*** Results showed that the control group exhibited a smear layer. No significant difference was found between the experimental groups in relation to timing.

***Discussion:*** Tetracycline hydrochloride irrespective of the concentration and timing was effective in removing the smear layer. The 1 and 3 minutes application of tetracycline hydrochloride with a concentration of 25mg/ml revealed widely exposed dentinal tubules.

**20090218**

# Evaluating the different tips of ultrasonic instruments for retropreparation in respect to microcrack formation

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***Introduction:*** Ultrasonic tips have been specifically designed for endodontics surgery to facilitate a more ideal and conservative root canal preparation with minimal bevels. This study evaluated differences among various ultrasonic instruments tips in the development of root-end cracks following retropreparation of endodontically treated teeth.

***Materials and Methods*:** Three ultrasonic tips were compared including stainless steel, zirconium nitride and diamond. Fifty-seven single rooted extracted teeth were cleaned, shaped and obturated. Their crowns were removed. A 3-mm resection of the root-tip was completed using a straight fissure bur.

The teeth were examined under a light microscope. The teeth that developed cracks after resection were discarded. The teeth were divided into three groups of 19 teeth each and a retropreparation was completed with one of the ultrasonic tips for each group. Teeth were reexamined under a light microscope. The photomicrographs of the teeth before and after were compared.

***Results:*** Examination of the specimens revealed that in the stainless steel group, 26% (5/19) of teeth developed cracks, in the zirconium nitride group, 10.5% (2/19) of teeth developed cracks and in the diamond group,10.5% (2/19) of teeth developed cracks. The differences in crack formation among the three groups were not statistically significant.

***Conclusion:*** The results of the study suggested that more cracks may be evident microscopically in root ends prepared with stainless steel ultrasonic instruments although this was not statistically significant.

**20090219**

## Relationship between eugenol-based root canal sealers and retention posts with resin cement

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***Introduction:*** Root canal filling materials or other sealer ingredients was used in obturation may interfere with the cement used to lute posts into prepared canals and hence affect the results. This study evaluated the effect of two different eugenol-based root canal sealers on the retention of prefabricated metal posts luted with adhesive resin cement.

***Materials and methods:*** Thirty prefabricated ParaPosts randomly divided among three groups of 10 each were luted into extracted single-rooted teeth with adhesive resin cement. Two of the groups had been obturated with Gutta–Percha and one of two eugenol-based root canal sealers (Endofil and Tubli-Seal),respectively. The third group was not obturated and served as the control. The forces required for dislodgment of posts from their prepared post spaces were recorded using a universal testing machine. Data were statistically analyzed using one-way ANOVA ; Tukey's multiple range test was used to determine the mean differences.

***Results:*** Endofil and Tubli-Seal groups demonstrated significantly reduced retention compared to the unobturated (control) group ($P<0.05$).

***Conclusion:*** Eugenol-based sealers significantly reduced the retention of prefabricated posts luted with adhesive resin cement.

**20090220**

# Apical migration of crestal bone: an energy analysis using Finite Element method

***A. Geramy ,H. sadrhaghighi,****Tehran university of Medical science.*

***Introduction****:* The number of adult patients seeking orthodontic treatment has increased and the esthetic demand is a much more important factor for this group. Periodontal problems and loss of alveolar bone crest could occur frequently in adult patients and bone loss is one of the important factors that could influence treatment outcome. The aim of this study was to evaluate the effects of bone loss on tooth movement mechanics and also to analyze the PDL energy input change in various alveolar bone heights when trying to produce bodily movement concerning M/F ratio using finite element method.

***Methods:*** Nine 3D computer models of a central incisor were designed. Models were the same except for the alveolar bone height that ranged between normal and 8 mm of bone loss. Bodily movement was produced and the strain energy changes, distance of center of resistance (CRes) to the alveolar crest, moment to force ratio (M/F) increase and the changes in distance of CRes to cemento-enamel junction (CEJ) were analyzed.

***Results****:* The center of resistance shifts from 7.295 mm to the crest in normal bone height to 2.872 mm to the crest in 8 mm of bone loss.An increase of 12% in 1 mm of bone loss to a 49% of increase in 8 mm of bone loss was shown necessary to maintain bodily movement. The distance of CRes to CEJ decreases from 7.295 mm in normal bone height to 10.827 mm in 8 mm of bone loss. An increase of energy input was also shown from 0.027 mJ to 0.035 mJ in normal and 8 mm of bone loss respectively.

***Conclusion***: The result of this study revealed that in alveolar bone loss, the M/F ratio to produce bodily movement increased. There is an increased input energy in PDL of cases with more than 3 mm of bone loss when following M/F ratio increase to produce bodily movement. Decreasing the force magnitude as a method of reducing the energy input is also suggested.

**20090221**

# Anchorage preservation in canine retraction: an energy analysis using finite element Method

***A. Geramy*** ***,H. sadrhaghighi****,Tehran university of Medical science.*

***Introduction:*** Canine retraction is an important part of orthodontic treatments and should be coincided with preservation of posterior anchorage. The strain energy input of different appliance designs in teeth PDL is assessed.

***Materials and methods***: Eight 3D finite element (FE) models of upper right maxillary molars and second premolar were designed. The models contained teeth, their PDL, and bone with their attachments. Combinations of wire cross section(round and rectangular), force application on the first or second molar, including or excluding the second molar, and adding the second molar to the system via ligature wire is considered in different models. The strain energy input to the PDL of different teeth was evaluated.

***Results:*** Engagement of all teeth, force application to the second molar resulted in 0.00017129 mJ and shifting toward applying force to the first molar resulted in 0.00017398 mJ. When the second molar was free from wire but laced; this energy finding was 0.00014499 mJ which increase to 0.0003991 mJ when the second molar was really out of the system. Findings for the rectangular wire were 0.00000084, 0.000001148, 0.0001026, and 0.0002929 respectively.

***Conclusion:*** Rotation prevention of the second molar is the key point in using its anchorage value.

**20090222**

# A survey of Information Technology Management at Iranian Dental Schools

***MH .Khoshnevisan****,A.Ebn-Ahmadi,* ***N .Heidari*** *Shahid Beheshti University of Medical Sciences. Tehran, Iran.*

***Introduction:*** Application of Information Technology (IT) is rapidly increasing in medical and dental education, research and delivery of health services. IT can assist competence development in dental students by using simulations, e-learning and distance learning approaches. Effective use of internet searching tolls and e-mails together with other aspects of IT are value-added procedures compared to traditional education methods. Other potential uses of IT can be administrative, curricular, and clinical functions in dental schools. Depending on the allocation of adequate resources, computer hardware and software the outcomes may greatly vary in different schools. The purpose of this investigation was to assess how IT was implemented and managed in Iranian Dental Schools.

***Materials and Methods***: A survey questionnaire was used for data collection. The survey focused on the application of IT across a broad spectrum of functions, such as admissions management, curriculum delivery, management of student and faculty practices, grading and student evaluation. The survey also analyzed the types of software packages used for these purposes, as well as website development, maintenance, and preclinical multimedia as well as simulation methods.

***Results:*** Analysis of data showed that Iranian dental schools are handling the IT management in great different ways. Only few schools reported allocation of direct funding and employment of trained personnel for IT department. Majority of students reported that IT does not play a major role in their competence development.

**Conclusion**: Although, IT will always remain exciting for every user due to its ever changing nature, proper planning and implementation of its principal can be highly effective in advancement of dental trainings. The results of this survey may assist dental schools in better planning and improvement of IT abilities at their institutions in order to better prepare students for challenging future.

**20090223**

# Comparison of psychological maladjustment in Dental students compared to Art students of Azad University, Tehran, Iran

***Abdoli Sereshki***, *H.,Dentist.*

***Introduction***: Psychological maladjustment can imply the whole mental health, to some extent. Having a precise attitude towards such disorder can be beneficial for diagnosis of intellectual health. The aim of this study was to investigate maladjustment in dental students of Azad University, and also compare it with that of Art students in same university.

***Materials and Methods:*** This descriptive study was performed on 120 dental students and 60 art students of Azad University, Tehran. Students assessed according to College Maladjustment Scale (CMs). All studied students were asked to fulfill the Minnesota multiphasic personality inventory (MMPI).

***Results:*** This study showed that in dental students, 18.3% showed maladjustment with clinical signs and 35% with subclinical level. The results for art students showed that these two were 47% and 40% respectively. These differences between two groups of students were statistically significant ($P<0.05$).

***Conclusion:*** Under the limitations of this study, we investigated the prevalence of maladjustment in two groups of students; further studies about clarifying of disorders, stimulating factors of maladjustments in universities, and their treatments are required.

**20090224**

## Particle size of a new endodontic cement compared to MTA and Portland cement

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***Introduction:*** We aimed to analyze particle size of three different materials including white MTA (WMTA), new endodontic cement (CEM cement), and white Portland cement (WPC).

***Materials and Methods:*** The analyses were performed twice. For each analysis, 0.05 mg of test material was experimented using particle size analyzer model HELOS and disperser CUVETTE. Distribution of particles in different ranges in addition to cumulative percentage and the mean of particle size were calculated. Data were analyzed using one-way ANOVA, Tukey, and Chi-square tests.

***Results:*** No significant differences were observed between the cumulative percentages of particle size in test materials. However, means of particle size were significantly different between WPC and WMTA ($P<0.001$). Among different investigated ranges of particle size distribution, the range of =30 μm showed significant difference between three tested materials ($P<0.05$). Data also shows that the most distribution of smallest range of particles was related to CEM cement.

***Conclusion:*** More presence of small particles may result into more effective seal via penetrating through dentinal tubules and also favorable physical properties i.e. decrease of setting time and film thickness in addition to increase of flow and adaptability. Regarding high percentage of small particles in CEM cement, effective sealing ability and satisfying physical properties of this material can be explained.

**20090225**

# Assessment of anti-plaque efficacy of the Hajji's spry®: a randomize double-blind controlled trial

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***Introduction:***. The aim of this investigation was to evaluate the efficacy of a new Formula named Hajji's spry® in controlling periodontal problems in comparison to the Chlorhexydine mouth wash.

***Materials and Methods.*** This randomized, double-blind, placebo-controlled, parallel design, employing two 5-day trial periods was adopted without mechanical oral hygiene intervention. Twenty-six patients (mean age 22±2.3 years) were subjected to the tests*:* Active control were subjected to 0.2% CHX, While Hajji's spry®, (0.12% CHX) was used in case group twice daily. A 7-day washout–period was used between trial periods. Tukey modification of Quigly and Hein index was used to assess plaque formation.

***Results.*** 0.2% CHX has no significant higher anti-plaque effect compare to that of Hajji's spry® (*P*= 0.305).

***Conclusion.*** Hajji's spry® can be used as an adjunct or even short-term replacement for mechanical plaque control during Ihram period.

**20090226**

# An overview on the student's awareness on oral hygiene at guidance school

***M. Moslemi, A. Bahari,H****. Homeyri,Shahid Beheshti medical university*

***Introduction:*** In order to solve the society health problems and reduce the costs of consequential treatment, the dentist and other concerned responsible authorities should take measures to develop people's awareness and individual response, particularly students, who are in age of physical growth and mental, cultural development. In this regards, it is required to obtain necessary information about their degree of awareness. The aim of this study was to determine the degree of students' knowledge of Amol's guidance school about oral hygiene (1381-1382).

***Materials and Methods:*** This descriptive study was based on gathering the information by means of self pace questionnaires including 23 questions, and multistage random sampling.

Samples of this study were 445 guidance school students which have been selected randomly from 49 state and private schools of Amol city. The students have been selected by stratified sampling in each school.

***Results:***This research shows rather good awareness of Amol's guidance school students about oral hygiene and their high awareness about brushing the teeth and its influence on oral hygiene. Awareness was not dependent to gender.

This study showed that parents' education does not influence their children's' knowledge, also no difference was observed between students of state and private schools.

***Conclusion:***The study concluded that the level of students' information about oral hygiene is reasonable. But still it is required for both students and their parents to be trained theoretically and practically to complete, improve and convert their potential information in to actually action.

**20090227**

# Abnormal temporomandibular joint radiographic findings in patients referred to Shahid Beheshti Dental School

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***Introduction:*** TMJ disorders are relatively frequent in different societies. The purpose of the present study was to determine abnormal TMJ radiographic findings in patients referred to Department of Oral and Maxillofacial Radiology, Shahid Beheshti Dental School (2007-2008).

***Materials and Methods:*** This descriptive cross-sectional study was performed on 400 patients (55% females and 45% males, aged 20-95 years old with the mean age of 38, and with no marked symptoms of TMJ disorders who met the criteria of the study. Data was collected through patient's history, clinical evaluations while the panoramic radiographies were taken in standard conditions which were observed by means of back-colored sheets. The incidence of abnormal radiographic findings was reported by frequency and percentage. Chi-square and exact Fisher tests were used for analysis.

***Results:*** Flattening of TMJ was the most observed abnormal finding with 16.3% incidence. Erosion was observed in 17.5% of patients, condylar hypoplasia in 4.3%, concavity in 1.7%, bifid condyle in 1.5%, condylar hypoplasia and sclerosis each one in 1.3%, osteophyte in 1% and subcortical cyst in 0.8% of the patients. There was no significant difference in the incidence of abnormal findings regarding the patient's gender, dental statue and occlusion; but the prevalence of abnormal radiographic findings was significantly increased as the age of the patients increased ($P<0.05$). The mean number of abnormal findings per patient was 0.49 with the range of 0-4.

**Conclusion:** The results demonstrated the incidence of abnormal radiographic findings in 34% of the patients referring to the center studied which shows a relatively higher prevalence

**20090228**

## Evaluating the knowledge about radiation in general dentists of Tehran

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***Introduction:*** Radiation protection is one of important aspects of radiology. Unfortunately, numerous surveys in different countries have shown considerable defect of knowledge towards this concept. However, we have no recent national statistic about this subject.

***Materials and Methods:*** This survey conducted as a cross-sectional method. We evaluated 437 general dentists (58.8% males), via a cluster random sampling method. A questionnaire was prepared, consisted of 18 true-false questions. Obtained data were analyzed using ANOVA and multivariable regression model.

***Result:*** Mean correct answers were 9.3 (95%CI: 9.0-9.7). This score has negative correlation with age (β=-0.097) and education in governmental universities in Tehran (β=-0.104). Dentists who had radiographic device at their private offices had higher scores (β=-0.229)

***Conclusion:*** Our observations showed low knowledge of general dentists in Tehran about radiation protection. We suggest continuous training courses with special views to these items.

**20090229**

# Assessment of lower incisor extraction quality using IOTN and PAR index

***SMR. Safavi***,*AH Namazi, Shahid Beheshti University of Medical Sciences,Tehran,Iran.*

***Introduction***: The purpose of this study was to determine the degree of occlusion improvement in a group of patients treated with one lower incisor extraction.

***Materials and Methods:*** Pre- and post-treatment dental casts of 14 patients treated with one lower incisor extraction were included in the study. All dental casts were scored with index of orthodontic treatment need (IOTN) and peer assessment Rating index. Seventy percent of reduction in PAR index as well as 2 grade reduction in IOTN were considered as good improvement.

***Results:*** The mean pre-treatment PAR index of patients were 9 (ranges between 4-17) which had been reduced to 1.5 (max. 5 and min 0). After the treatment, PAR index showed more than 70% decrease in 11 out of 14 patients (the range was between 60%-100%). Ten out of 14 patients were in IOTN grade 4; these showed at least 2 grades of decrease after the treatment.

***Conclusion:*** Lower incisor extraction should be considered as an acceptable treatment modality when indicated.

**20090230**

# Evaluation of hyoid bone position and pharyngeal airway after mandibular setback surgery

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***Introduction:*** Treatment of dentofacial deformities with jaw osteotomies affects the upper airway morphology, and therefore, mandibular setback surgery has the potential to diminish airway size and alter the hyoid position. The purpose of this study was to evaluate the effect of mandibular setback on the pharyngeal airway size, and hyoid bone position.

***Materials and Methods:*** This study included pre- and post-operative (3-4 months) lateral cephalograms of 28 individuals (16 females and 12 males) who were ≥17 years-old and had undergone vertical ramus ostetomy setback surgery to correct skeletal class III discrepancies. Cephalograms were traced and then magnitudes of 11 linear variables were calculated. A paired-sample t-test was used to evaluate the difference between pre- and post-operative measurements. In addition pearson's coefficient correlation was calculated to reveal the association between the amount of setback in relation to the change in airway size.

***Results:*** Statistical analysis revealed that hyoid's vertical and horizontal position and hyoid-mandible distance do not change significantly after the surgery. However, hyoid-2$^{nd}$ cervical vertebra and hyoid-pogonion distances reduced to an amount, which was statistically significant (P=0.036 and P=0.000 respectively). In the case of upper airway indicators, the width of pharynx was calculated at 4 different levels. In all 4 levels, statistical analysis revealed significant reduction but the correlation of reduction in the size of pharynx versus amount of setback is not significant (respectively from the most superior width to the most inferior one r=0.15, r=0.13, r=0.09, r=0.19).

**Conclusion:** Mandibular setback surgery decreases the pharyngeal airway size, but hyoid's vertical and horizontal positions in addition to hyoid-mandible distance do not change significantly.

**20090231**

# Comparing BOP and PPD indices in restored posterior teeth with composite P60 (3M) and intact teeth.

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***Introduction:*** The aim of this research was to investigate biocompatibility of posterior composite with periodontal tissue by means of PPD and BOP indices in teeth which have been restored with composite and intact ones.

***Materials and Methods:*** This is a clinical trial research and a kind of case-control in which 40 teeth of 20 patient (15 male and 5 female) were selected, the case group has class II caries in posterior teeth (4-7) and the outline of preparation was near or 0.5 mm coronal to gingiva which were restored with composite resin (P60).

PPD index (based on ranking of 1-4 mm) and BOP index (based on Muhlemann category) were measured and recorded before operation and 3-6 months later. The results were analyzed using SPSS software.

***Results:*** There was no significant difference between BOP indices in case and control groups exactly before operation and in 3 months after operation; but a significant difference was found between them at 6-months follow up.

Furthermore, there was no significant difference between PPD indices in case and control groups in any following visits.

***Conclusion:*** Regarding biocompatibility of new generations of posterior composite resin such as P60, they have not been able to compete with intact surface of tooth.

**20090232**

# Oral health status among diabetes mellitus patients in UAE

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***Introduction***: The aim of this study was to evaluate the oral health status of a group of diabetic patients refer to AUST dental school during Jan 2007 to Jun 2007.

***Material and Method:*** The oral health status of 100 metabolically controlled adult diabetic patients attending the Dental Clinic of Faculty of Dentistry, Ajman University of Science and technology, was prospectively assessed over six months and compared with that of 100 non-diabetics acting as controls.

***Results:*** The mean duration of diabetes was 100.5±85.1 months. The difference in periodontal status of patients and control, assessed using the community periodontal Index of Treatment Need (CPITN) which was not statistically significant (P=0.08). The degree of hypo salivation between the two groups was, however, statistically significant ($p<0.05$). No Significant difference was observed in the altered taste, burning month sensation, angular cheilitis, glossitis, and stomatitis status of the two groups.

***Conclusion:*** With adequate metabolic control, the oral health status of a diabetic may not be significantly different from that of a non-diabetic except from xerostomia.

**20090233**

## Fracture resistance of teeth restored with microfill composite

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***Introduction***: The aim of this study was to assess the influence of microfill composite restoration on fracture resistance of intact maxillary premolars.

***Materials and Method:*** Thirty intact maxillary premolars were selected and divided into 3 groups (n=10); MOD cavities were prepared with constant depth (MOD slot) and converged walls to the occlusal surface. Group A: Positive controls without preparation, Group B: Negative controls with preparation, Group C: Prepared and restored.

Samples were thermocycled (500 cycle between 5-55℃), then they placed under compressive load of Universal Testing Machine, and the curves were drawn with a soft-ware called Test Xpert $V_{10\text{-}11}$.

***Resuls:*** There was no significant difference in fracture resistance between studied groups.

***Coclusion:*** Microfill composite restoration can increase the fracture resistance of restored teeth at the level of intact teeth.

**20090234**

# Evaluation of load-deflection characteristics of superelastic nickel-titanium orthodontic wires using modified bending test

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***Introduction:*** Regarding numerous beneficial characteristics of NiTi wires, this alloy is being widely used as an alignment arch wire in orthodontic treatment. Most of the published results about the behavior of these wires are based on the mechanical laboratory 3-point bending tests that study load-deflection characteristics. In this research, a special 3-point bending fixture was designed to simulate the arch form of the upper and lower jaws. The purpose of this study was to investigate super-elasticity changes of orthodontic nickel-titanium wires in simulated clinical condition.

***Material and Methods:*** In this experimental study, the load deflection characteristics of three kinds of 0.016 super-elastic NiTi wires (n=10) including Sentalloy (GAC), Force I (American Orthodontics) and Truflex (Orthotechnology) were studied through 3-point bending test. In order to simulate clinical conditions, a phantom model was designed so it could have a similar arch inside mouth and each NiTi wire was engaged inside a set of brackets that was welded on model. The apparatus of Zwick050 was used for performing the test. Then by means of one load-cell (2.5 K-Newton) and the speed of 1mm/min in buccolingual direction, the wire was under the process of loading and unloading. Data from selected points on the unloading phase of the generated graphs were used for analysis.

***Results:*** The study of all types of wires in all cases showed that Sentalloy had the lowest level, while Truflex and Force I wires had a higher level of load.

Comparing the average load showed that during the process of increasing the deflection, none of the wires followed a specific pattern.

***Conclusion:*** The results of this study showed that there are a few tested wires that have optimal physiologic load.

**20090235**

# Reasons of patients' referral for dental treatments under general anesthesia at Mofid Pediatric Hospital, Tehran in 2008-2009

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***P. Kheirieh,** Dentist.*

***Introduction:*** General anesthesia is indicated when the child cooperation is not achieved with routine behaviour control techniques. This is a useful technique to perform dental treatments and is the only way some times. It reduces the risk of hazardous events for patients with systemic diseases undergone dental treatments. Due to the recently introduced dental procedures under general anesthesia, the present study assessed the reasons of referring patients for dental treatments under general anesthesia in Mofid Pediatric Hospital (2008-2009).

***Materials and Methods:*** This descriptive study was performed on 100 patients undergone dental procedures under general anesthesia in 2008-2009. A questionnaire was developed to record the parents' responses on the treatment day. Data were analyzed by SPSS software ver.12.0 using Student t test and ANOVA.

***Results:*** Among all patients, 67% aged under 4 years, 29% 4-8 years, 1% 8-12 years and 3% aged 12 years and over. 58% were male and 42% were females. Patients' lack of cooperation was the mostly observed reason (46%) which was followed by systemic diseases (33%), fear and severe tooth caries (13% and 8% respectively). 25% of <4-years old patients, 38% of 4-8 years old and 100% of patients aged 8-12 years and >12 years reported history of general anesthesia for dental treatments.

***Conclusion:*** Indication of general anesthesia was related to fear, systemic diseases, child's lack of cooperation and teeth with severe caries. Furthermore, patients <4 years old showed the most frequency of referrals (67%).

**20090236**

# Knowledge and attitude of parents about general anesthesia in patients referred to Mofid Pediatric Hospital, Tehran in 2008-2009.

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***Introduction:*** Extensive dental treatments, particulary in children with lack of cooperation, necessitates general anesthesia as a safe and effective method. Due to the inadequacy of such experience in Iran, some aspects of this sort of dental treatment protocol remained unidentified. The present study aimed to assess the knowledge and opinion of parents regarding dental treatment under general anesthesia in patients who were referred to Mofid Pediatric Hospital, Tehran in 2008-2009.
***Materials and Methods:*** This descriptive and cross-sectional study was performed on 100 parents of children (64 males, 36 females) received dental treatment under general anesthesia using a questionnaire. It was designed to assess mother's knowledge regarding the reasons for general anesthesia, its advantages and disadvantages, post-treatment complications and the changes in dental health habits during 3 days after the treatment. Data were reported by descriptive statistics method and analyzed by Spearman coefficient ratio.
***Results:*** The mean patients' age and DMFT was 4.27 and 12.15, respectively. Poor child cooperation was the reason for the general anesthesia in 56% of the patients and aggression was found as the most negative behaviour following general anesthesia (31%). The anesthesia complications were found in 77% (24% sore throat, 23% lip and tongue swelling, 18% nausea and 11% fever). 70% agreed to use this method again for their children. 92% reported an improvement in dental health practices while 98% were concerned about their children health in the procedure.
***Conclusion:*** The study demonstrated positive attitudes of mothers whose children underwent general anaesthesia. They exhibited a suitable knowledge regarding advantages and disadvantages of the general anaesthesia. Furthermore, improvement in dental health practices was being reported.

**20090237**

# Evaluating the effect of a newly introduced pulp capping material on human pulpal response

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***Introduction:*** When pulpal exposure occurs, direct pulp capping with biocompatible materials that can stimulate formation of dentinal bridge becomes an important goal. The aim of this clinical study was to evaluate the effect of a newly introduced pulp capping material on human pulpal response and formation of dentinal bridge and comparing it with the standard method.

***Materials:*** In this randomized single blind clinical trial, 8 patients were selected according to their orthodontic treatment plan that would necessitate the extraction of at least two premolars. The teeth were intact and had no clinical signs and symptoms. The buccal pulp horn of each tooth was exposed through an occlusal cavity according to ISO 7405. The teeth were divided into two groups according to the direct pulp capping method. Group A (control, n=8): calcium hydroxide-light cure Glass ionomer, Group B (n=8): Multical (liner)-Limelite (base). All the cavities were restored with composite resin. After 6 weeks, the teeth were extracted and evaluated according to the pulpal response and dentinal bridge formation.

***Results:*** Group B showed significantly more pulpal inflammation and less dentinal bridge formation than group A ($P<0.05$).

***Conclusion:*** according to this study Multical and Limelite cause more negative pulpal responses so can not suggested for direct pulp capping.

**20090238**

# Influence of training sterilization on the performance of dental assistants in Karaj

***Z. Maleki , B. Taheri, A.M Tavakol, H. Kaseb ghane, R. Maleki,*** *Shahid Beheshti University of Medical Sciences,Tehran,Iran.*

***Introduction*:** One of the basic principles of infection control in dentistry is sterilization of instruments for which dental assistant is responsible. The aim of this study was to determine the outcomes of sterilization instruction to dental assistance in dental care centers of Karaj.

***Materials and Methods:*** In this experimental study, 75 dental centers in 3 urban areas of Karaj, Iran were selected randomly. The efficacy of nurses' performance in sterilization procedures was evaluvated by standard questionnaire before and after instruction. The efficacy of autoclaves was also assessed by using biologic test before and after instruction. The instructor was the senior resident of oral medicine and instruction was performed theoretically and practically. Data were analyzed by non parametric statistic test (Willcoxon and McNemar).

***Results:*** Before the instruction, immediate irrigation of instruments after their use was done just in 16% of cases and this percentage was increased to 25% after instruction. Daily replacement of solution of container before irrigation was done in 5.3 % of centers before instruction and this was changed to 55.6 after instruction. Pre-sterilization packaging of instruments increased from 32% to 56.7% of centers. 34.7% of centers were equipped with monitoring system before instruction that increase to 65.3% after instruction.

Sterilization failure according to biologic tests was observed in 9 and 1 centers before and after instruction respectively.

***Conclusion:*** It was concluded that nurses' instruction was effective in improving their performance and it is effective in sterilization outcomes, as a result.

**20090239**

# Relationship Between Periodontitis, Obesity and Glucose Tolerance

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***Introduction:***Recent studies have reported a relationship between obesity and periodontal disease. Obesity is the strongest risk factor for type 2 diabetes and for periodontal disease, in turn. The aim of the present study was to determine the relationship between obesity & periodontal diseases and to clarify whether or not periodontal disease prone the individual to impaired glucose tolerance.

***Materials and Methods*:**The number of 166 patients who sought dental Care in Tabriz Dental Faculty was studied. Their age range was between 35-59 years old. 83 subjects with periodontitis according to NHANES III index as test group and 83 health individuals as controls, participated in this study. Body weight, height and waist circumference were measured for all the patients and Glucose Tolerance Test was performed

The data for BMI and waist circumference was analyzed by SPSS software , and Mini Tab software was used to analyse the data from glucose toleranee Test.

**Results:** Body Mass lndex (BMI) in the test group was significantly higher than the controls ($p<0.05$) Our results revealed that there is a significant relationship between preiodontitis and impaired glucose tolerance ($P<0.05$) but this relationship was not significant for impaired fasting glucose. ($P>0.05$)

**Conclusion:**Obesity may predispose individuals to periodontitis. Furthermore, periodontitis can be a risk factor for diabetes.

**20090240**

## Prevalence of needlestick injury among Dental Student During year 2009

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***Introduction***: Dentist and dental students are prone to occupational exposure to blood and sharp objects. The aim of this study was to assess the prevalence of needlestick and occupational exposure in dental Students.

***Materials and Methods***: We design a questionnaire for this survey that was completed by 272 dental students of Tehran.

***Result***: About 70% of dental students have experienced needlestick and 75% faced occupational exposure. Most of these exposures had been occurred during endodontic treatments.

***Conclusion:*** Sharp injures and occupational exposures are serious and common hazards among dental students.

**20090241**

# Comparison of the skeletal vs. Tooth borne expansion devices In maxillary constrictions by Finite Element Analysis

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***Introduction***:The aim of this study is to compare the effects of skeletal vs. tooth borne expansion devices in maxillary constrictions by finite element analysis.

***Methods and Materials:***In this study, C.T scans of the skull of an 11 year old girl, the hyrax, the smile distractor, the soft tissues of the soft palate and the buccal alveolar mucosa of maxilla was constructed as 3 dimensional finite element models. The expansion devices were placed in 3 different situations for 2 kinds of models; (with & without cuts for surgically assisted rapid palatal expansion) Applying a 0.25 mm expansion in each screw in these 12 different models, the displacement of teeth, midface structures, median palatal suture, maxillary dental arch and the stress in the PDL of teeth first premolar and molar were compared.

***Results and Conclusions:***In application of transverse forces, the expansion in frontal view was an inverted V in all the models, but the expansion of the midpalatal suture was not the same in them and the skeletal effects of the smile distractor in frontal view in alveolar regions and zygomatic buttresses was higher than in hyrax models and in the infraorbital rims and zygomaticofrontal sutures in smile distractor, constriction happened. By changing the position and the type of the expansion devices, the pattern of displacement distribution and stress in dental and skeletal components and in the suture differs.

**20090242**

# Prevalence of Gingival Stippling in 3-5 years of age in Kindergartners of Rasht- 2008

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***Introduction***: Stippling, one of the signs of healthy gingiva, is assumed to be an adaptation providing gingival strength. The present study was designed to investigate the status of stippling in 3-5 years of age kindergartners in the city of Rasht.

***Materials and Methods:*** Thiswas a descriptive ,cross sectional study, carried out as two –stage random sampling . The anterior part of jaws were examined for stippling .Those children with mental retardation ,systemic disease, history of chronic medication, and also rampant caries and/or multiple abscesses and gingivitis were excluded.

***Results:*** Among 164 subjects, stippling was found in in 76 subjects (46.3%), from which 39 were males(51.3%)and 37 females(48.7%).Regarding age there were stippling in 32.8% of 3-4 years age and 67.2% of 4-5 years children ,p<o.o5(.Fisher exact test) . The46.1% of occurrence was found in upper ,11.8% lower and 42.1% .Chi square test revealed no significant relationship between age and gender in either jaw .

**Conclusion:** Occurrence of stippling had similar significant relationship with age and jaw in both sexes.

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# Effects of fixed splinting of the periodontally compromised abutments on load transfere by RPDs utilizing 3-D finite element method(FEA)

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***Introduction***: Fixed splinting of abutments can alter the stress distributing characteristics of removable partial denture (RPD). Periodontally compromised abutments complicates the treatment plan of distal extension RPD . The purpose of this study was to determine the effects of fixed splinting of periodontally compromised abutments on load transfer by removable partial denture.

***Methods and Materials:*** 3-D finite element models of mandibular first and second premolars and their PDL and surrounding bone was designed. In this study 3 models were used : 1. both teeth had no periodontal involvement, 2. first premolar was healthy and second premolar had periodontal involvement (C/R=1) and 3. both teeth had periodontal involvement (C/R=1). Then two situations were defined for each model : before and after fixed splinting. Finally we insert a 50 N load and the Von mises stress in the surrounding bone was analysed.

***Results*:** In all three models the maximum Von mises stress was found in the apical area of teeth and the minimum Von mises stress were seen near the mesial crest of first premolar and distal crest of second premolar. After splinting teeth together, a reduction of stress was observed in the interdental crest area while model 1 and 2 showed an increase in the stress of apical area.the greatest assistance by fixed splinting was noted in model 2 where a periodontally compromised tooth was splinted to a healthy one.

**Conclusions:** fixed splinting of periodontally compromised teeth can reduce the stress concentration in the interdental crest area and improve the stress distribution in surrounding bone.

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# Recycling of used super elastic NiTi orthodontic wires via electromechanical treatment

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***Introduction***: NiTi orthodontic wires are used to arrange teeth. Super elastic property of these wires creates a permanent and continues force and cause the increase in the efficiency and decrease in the period of treatment. The desired mechanical properties of NiTi orthodontic wires cause to use these for twice or more time. The goal of this research is the evaluation of mechanical properties of used NiTi orthodontic wires under electromechanical treatment.

***Methods and Materials:*** First, estimated the electrical resistance and the transformation temperatures by the electrical resistance test. Then, we compare the raw wire to the wires that exposed the electromechanical treatment by tensile test.

***Results:***The results indicated the decrease in the super elastic properties in the wires that exposed the electromechanical treatment.

**Conclusions:**It could be possible to use this method to control the amount of force to teeth in the period of treatment.

**2009245**

# Frequency of maxillary lateral incisors absence among students (boys) aged between 12-15 years in Qazvin middleSchools : 2008-2009

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**Background:** Dental absence causes functional and esthetic outcomes in the involved patients so that the diagnosis and decrease of these complexities are of main concerns. Furthermore, maxillary lateral incisors absence develops the esthetic problems than other teeth.

**Objective:** The aim of this study was to evaluate the prevalence of absence of maxillary permanent lateral incisors in 12-15 years-old students of guidance schools in Qazvin during 2008-2009.

**Methods:** In this descriptive-cross-sectional study, 1512 students of guidance schools in Qazvin city were selected via simple cluster sampling and underwent initial examinations was done in classrooms under daylight. Students, doubtful for maxillary lateral incisors absence, were referred for a detailed analysis to Qazvin Dental School, then they were examined by radiographic assessments and further analyses were performed on them. The data were reported by frequency and percentage indices.

**Findings:** The congenitally absence of maxillary lateral incisors was observed in 16 students (1.058%) of the total populations: 7 cases (43.8%) occurred in the right side, 2 cases (12.5%) in the left side and 7 cases (43.8%) were bilateral. 11 samples (68.8%) had permanent dentition and 5 students (31.3%) were in mixed dentition. No case of supernumerary teeth and scar of lip, pre maxilla and palate.

**Conclusion:** The prevalence of maxillary lateral incisors in the 12-15 years-old students of Qazvin city compares with the other reported values in the studied populations.