

**BALKAN JOURNAL OF STOMATOLOGY**  
**VOLUME 10 - NUMBER 3 - November 2006**  
**Abstracts**

**Comparative Analysis of Leakage Studies on the  
Sealing Ability of Root-End Filling Materials**

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**SUMMARY**

**Aim:** The aim of this study was to assess the sealing ability of different root-end filling materials by comparing the results of published leakage studies.

**Methodology:** 64 *in vitro* studies were analysed and in each instance materials were classified according to leakage measurement. Score 1 was used for the material providing the best apical seal and scores 2, 3 and 4, respectively, for the material demonstrating increasing leakage. For each study, leakage methodology was also recorded. Accumulation of the data was performed by means of 3 collective diagrams according to the leakage methodology applied. Each diagram demonstrated the percentage of materials scoring 1 and 2.

**Results:** Among the materials tested, MTA and composite resin with adhesive presented the best score in all diagrams. Fluid transport methodology revealed greater differences between the materials. On the contrary, methodology with passive tracer penetration showed smaller divergence in leakage scores.

**Conclusion:** MTA and composite resin with adhesive seem to provide the best apical seal. Leakage methodology can be an influencing factor in evaluating sealing materials.

**Keywords:** Comparison; Leakage; Root-end; Filling

# Immunological Defence Mechanisms of Dental Pulp to Carious Stimuli

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## SUMMARY

Defence mechanisms of the dental pulp involve a variety of biological reactions in which the immune system plays a very important role. Identification of pulpal dendritic cells has led to a concept of how an antigenic challenge may evoke a pulpal inflammatory response: dendritic cells identify foreign antigens and provide necessary signals to activate T-lymphocytes; in turn, they will activate other immunocompetent cells to mount the local immune defence of the dental pulp.

During the caries process, kinetics of the pulpal dendritic cells was monitored immuno-histochemically and was correlated with caries depth. Initial pulpal response was characterized by a localized accumulation of dendritic cells beneath the dentinal tubules communicating with the superficial caries. This was followed by a caries depth related increase of dendritic cells in the coronal pulp. The accumulation of these cells under the dentin was apparent with the progression of caries toward the pulp. These findings suggest that the response of pulpal dendritic cells to carious irritants triggers the defence reactions of the pulp; they respond promptly and actively to dentinal tubule derived carious stimuli. The intensity of the defence reactions may be correlated with the permeability of carious dentin.

**Keywords:** Dental Pulp; Caries; Immuno-histochemistry; Antigen-presenting Cells

# **In Vitro Evaluation of the Ability of Ray-Pex 5 to Determine the Working Length in Primary Teeth With or Without Initial Root Resorption**

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## **SUMMARY**

The aim of this study was to evaluate the accuracy of Ray-Pex 5 to determine the working length in primary teeth with or without initial root resorption. 20 recently extracted single rooted primary teeth were used for this study. Half of the teeth showed obvious signs of initial root resorption. 2 operators compared electronic *versus* direct visual measurements, and the accuracy of the electronic apex locator was evaluated within 0.5mm. Ray-Pex 5 measurements were accurate in 95% of the cases within 0.5 mm for primary teeth without root resorption. The apex locator was accurate in 90% of the cases within 0.5 mm for teeth with initial root resorption. There was no statistically significant difference between the 2 operators ( $p<0.05$ ).

**Keywords:** Primary Teeth; Root Resorption; Accuracy; Ray-Pex 5

# Effects of 18% Hydrochloric Acid + Pumice Technique on Solubility of Enamel Surfaces

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## SUMMARY

**Purpose:** Dental fluorosis occurs like chalky or brown stains on enamel when fluoride intake is more than 1 ppm daily; it is frequently seen with enamel hypoplasia. One of the most important aesthetic problems is discolouring. Discoloration of enamel should be bleached for social, psychological status. So, bleaching techniques became more important. For bleaching fluorosis stains, 18% hydrochloric acid + pumice technique has been used. It is well known that the effect of hydrochloric acid is harmful, because it is a strong acid. The purpose of this study was to determine effects of 18% hydrochloric acid + pumice technique on solubility of enamel surfaces.

**Method:** The solubility of enamel has been calculated by using values obtained by determination of the inorganic phosphorus. Comparative analysis of the depths obtained in the control and in the test groups was evaluated statistically.

**Results:** The extent of enamel loss was the greatest when the 18% hydrochloric acid + pumice was applied 7 times for 5 seconds ( $p<0.05$ ), and the effect was time dependent.

**Keywords:** Bleaching; Hydrochloric Acid; Pumice; Fluorosis; Enamel

# Cleaning Effectiveness of Hero 642 Rotary NiTi Instruments Compared with Stainless Steel Hand Files

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## SUMMARY

The purpose of this *in vitro* study was to compare the cleaning ability of stainless steel K-files and Hero 642 rotary NiTi instruments in teeth with curvatures between 25-35°. Mesio-buccal canals of 30 maxillary first molars were used in the study. The microscope images of histological sections that were prepared from coronal and apical thirds and of the middle of the roots were transferred to a colour monitor. The total area of the root canal and the remained debris on each section level were estimated by point counting. Cleaning effectiveness of root canal preparation techniques were evaluated by comparing the amounts of remained debris in the root canal.

The mean debris ratio at apical level was  $10.03 \pm 7.46\%$  for Hero 642 group and  $8.76 \pm 6.1\%$  for K-file group. At mid-root sections the mean debris ratio was  $5.80 \pm 5.44\%$  for Hero 642 group and  $4.85 \pm 5.30\%$  for K-file group. At coronal level  $4.77 \pm 3.40\%$  for Hero 642 group and  $3.21 \pm 4.19\%$  for K-file group. The results of this study show that the cleaning ability of Hero 642 rotary instruments and stainless steel files were similar.

**Keywords:** Cleaning ability; Hero 642; NiTi Instruments; Debris

# Plasma Arc Polymerization of Packable and Hybrid Composites

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## SUMMARY

**Objectives:** This *in vitro* study evaluated the surface microhardness, surface roughness and wear resistance of packable composites that were polymerized by different curing systems.

**Methods:** 3 packable composites (Surefil, Alert and Solitaire) and a hybrid composite (Spectrum TPH) were prepared as cylindrical samples and divided into groups (n=5) according to polymerization types (plasma arc, 5s and 10s, and conventional halogen light 40s) and placement techniques (bulk and incremental). For statistical evaluation, paired samples t-test and Kruskal-Wallis analysis of variance were performed.

**Results:** There were significantly higher surface roughness values with plasma arc (5s and 10s) than with conventional halogen light 40s ( $p<0.0042$ ). Roughness values of hybrid were significantly lower than all packables ( $p=0.000$ ). There was no significant difference in microhardness due to sample thickness and placement techniques (2 mm, 5 mm bulk, 5 mm incremental) on the top surface of the samples ( $p>0.0042$ ). There was a statistically significant difference between bulk and incrementally polymerized samples with conventional light for Surefil, Solitaire, Spectrum TPH, with 5s plasma arc for Surefil, Solitaire, 10s plasma arc for Spectrum TPH and Solitaire at the bottom surface ( $p<0.0042$ ). The results of this study indicated that there were significant differences for rate of composite materials ( $p<0.001$ ).

**Significance:** Although plasma arcs polymerize much faster than conventional halogen light sources, they appear to be less effective in terms of surface smoothness, hardness and wear resistance.

**Keywords:** Plasma Arc; Composite Resin; Halogen Light; Roughness; Hardness; Wear

# A Clinical Survey of Damages in Removable Dentures Needing Repair

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## SUMMARY

**Objectives.** The aim of this study was to investigate the damages in acrylic complete, metal and acrylic based removable partial dentures needing repair either in denture base or in denture teeth.

**Study design.** Damages in 105 removable dentures were examined in terms of removable denture type, failure medium, localization and types of damages, age of dentures, number of recurrent repairs, and type of damage in denture teeth.

**Results.** Of the surveyed dentures, 64.75% were complete dentures, 30.5% were metal based and 4.75% were acrylic based partial dentures. 78.1% of the dentures were damaged inside mouth. Damages were mostly localized in midline as cracks (50%) in maxillary complete denture bases, and as fractures (90%) in mandibular complete dentures. Damages in maxillary and mandibular metal-based partial dentures were mostly examined in retentive meshwork (50%) and in clasp integrity (57.15%). In maxillary and mandibular acrylic based partial dentures, damages were observed only as denture base fractures (100%). In denture teeth, adhesive and cohesive failures rates were 82.7% and 17.3%, respectively. More than half of the dentures (51.43%) were damaged within 3 years of use and almost half (48.57%) of the surveyed dentures had been repaired at least once before.

**Conclusions.** Because of the high risk of damages in removable dentures, even within 3 years of use, elimination of the factors that cause damage should be considered during clinical and laboratory adjustments.

**Keywords:** Prosthetic Dentistry; Denture, survey; Complete Denture; Removable Partial Denture; Denture, failure; Denture, repair; Denture Base

# **Lip Position in Patients with Class II Division 1 Malocclusion**

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## **SUMMARY**

The overall facial proportions and satisfying function and aesthetics are the foundation of this approach. Starting from the fact that the incisors have an influence in the formation of the facial aesthetic, we aimed to determine the average distance between the upper and lower lip from aesthetic line, to identify gender differentiation regarding the position of the lips, to observe the profile of the face of individuals with irregularity of II/1. To accomplish stated goals, 35 subjects, aged 10-14 years, from both sexes, with Class II Division 1 have been examined. They were compared with a control group of 25 subjects of the same age, with normal occlusion.

Analysis showed that the investigated malocclusion group is having a more convex soft-tissue profile, the lips are closer to the aesthetic line, the upper more then lower; the length of the upper lip was smaller.

**Keywords:** Aesthetic line; Malocclusion

# **Biometrical and Morphological Analysis of the Mandibles in the Ancient Anatolian Communities**

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## **SUMMARY**

In this study, mandible was assessed both metrically and morphologically. 39 mandible that we employed in our study belonged to the communities from different settling regions. Mandibles were provided from the collection of the Palaeontology Department of the Ankara University. Out of these mandibles, 31 were single, 8 being coupled with maxillae.

In Anatolia in the Contemporary and Middle Ages; it was established that there was not a direct relation between the medio-lateral condylar length, antero-posterior condylar length, mandibular length and the age. Condylar morphology was detected to tend to flatten proportionally with age at the horizontal and frontal planes. Attritional patterns of the teeth revealed the fact that they were generally fed on soft food.

**Keywords:** Mandible; Mandibular Condyle; Morphological Analysis; Biometrical Analysis; Anatomy

# Dental Health Education: Assessing Knowledge Following 2 Different Educational Techniques

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## SUMMARY

**Objectives:** To compare the effectiveness of traditional and active teaching techniques of oral health education (OHE) by 3 audiovisual materials (slide, acetate and data-show) among school children to improve dental health knowledge.

**Methods:** 578 children (11-13 years old) were randomly selected from a primary school located in low socioeconomic region of Izmir. The sample group was divided into 3 test groups: group (1) - slide; group (2) - acetate; group (3) - data-show. The lecture was presented by slides in a traditional way of teaching in group (1) and in the other groups the lectures were given by active participation of the school children. The effectiveness of OHE program was evaluated by a questionnaire after 2 weeks on 516 school children. Statistical evaluation was performed by Chi-square test and factorial variation analysis.

**Results:** The mean of correct answers in group (1) was statistically lower in comparison with the other 2 groups ( $p < 0.05$ ). The mean number of correct answers was found as  $10.2 \pm 2.4$  for the whole group, and there was no gender effect. Age was an impact factor; 11 years old children exhibited statistically the most unsuccessful results ( $p < 0.05$ ).

**Conclusion:** The active participation of the students were found to be statistically significant in improving the dental health knowledge than the traditional method.

**Keywords:** Oral Health Education; Acetates; Slides; Data-Show; Active Participation; Traditional Education

# Complexity of Factors Affecting Treatment and Prognosis of Avulsed Teeth

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## SUMMARY

The aim of this study was to investigate some important factors associated with tooth avulsion, type of the treatment, possibilities of replantation, and onset of complications after replantation. The sample consisted of 39 patients suffering avulsion of 50 permanent incisors, whose treatment had been undertaken during the period 1998-2005 at Clinic of Dentistry, Faculty of Medicine, Novi Sad, and Paediatric Dentistry Clinic, Faculty of Dentistry, Belgrade. The study design was prospective, recording history of the accident, data concerning the act of replantation, postoperative treatment of replanted teeth and onset of complications. Observation period ranged from 6 months to 5 years.

Traffic accident was the cause of tooth avulsion in 24% cases. Prevalence of avulsion was 7.7%. Average age of patients was 10.7 years. 26 of 50 avulsed teeth could not be replanted. Only 5 replanted teeth were held under wet conditions. The time until replantation ranged between 15 minutes and 9 hours. In one case revascularisation occurred. Timing of detection of complications varied from 3 months to 2 years. Complications had been noticed in 70.8%, and 4 teeth had been extracted.

Contemporary treatment of an avulsed tooth is under strong influence of factors that cannot be predicted and that seriously compromise the outcome of replanted teeth.

**Keywords:** Avulsion; Replantation; Traumatic Injury; Root Resorption

# Oral Lichen Planus and Chronic Liver Disease

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## SUMMARY

In recent years, it has been suggested that there may be a relation between lichen planus and hepatic disease, but still relation remained questionable. Some researchers recommend that patients with lichen planus should be observed carefully for an underlying hepatic disease. 35 patients, who were diagnosed as OLP, clinically and histopathologically, were included in our study in order to investigate possibility of hepatitis B by measuring AST and ALT levels. It has been determined that serum AST and ALT levels have been within normal limits and no significant difference has been established as compared to control group. Hepatitis B antigens are found to be negative.

**Keywords:** Oral Lichen Planus; Liver disease; ALT; AST

# **Schwannoma of the Gingival Papilla: A Case Report**

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## **SUMMARY**

Schwannomas are solitary benign neurogenic tumours which are observed rarely and originating from peripheral, cranial or autonomic nerve cells. They originate from Schwann cells in sympathetic nerve sheath. Between 20% and 58% of head and neck schwannomas arise in the oral cavity. They most often occur on the tongue and buccal mucosa, followed by floor of mouth, palate, lip, and gingiva in the oral cavity. Although they occur at all ages, but are most common in person between the ages of 20 and 50 years. A rare case of schwannoma on the gingival papilla in a 5-years-old child and its histopathologic examination will be presented in this case report.

**Keywords:** Schwannoma; Gingiva

# **Retention for a Titanium Hollow-Bulb Obturator**

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## **SUMMARY**

Patients with intraoral defects due to partial maxillectomy for neoplasm form a highly heterogeneous group. Each situation requires individual assessment of the most appropriate protocol for rehabilitation. The obturator prosthesis has been used to restore masticatory function and improve speech and cosmetics for patients with maxillary defects. The basic design of obturator prostheses uses the available tooth and bearing tissue to achieve maximum retention and stability. Successful prosthetic rehabilitation needs excellent retention and stabilization of the obturator. Quite plan must be parallel to defects walls and teeth. Teeth next to the defect area have to be splinted. In addition, obturator mobility should be stopped. The other factors have a important role in retention of the obturator growing the well muscle central, stabilization of the undercut area near the cavity, and that direct retention that are proved by teeth. The primary goals of the obturator prosthesis are to preserve the remaining teeth and tissue, and provide comfort, function and aesthetics to the patients.

**Keywords:** Hollow-bulb Obturator; Titanium; Retention

# Identification of Missing Children Using Dental Tag

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## SUMMARY

The rising number of missing children all around the world can be described as an alerting phenomenon. Dentistry can play a vital role in positive identification of missing children. Since 1980, various methods have been proposed. The purpose of this case report is to introduce a method that uses a metallic dental tag called “TruDent I.D. tag”. The tag is a combination of a letter and numbers (of small dimensions). The dental tag is undetectable to the eye, but clearly visible in X-rays. If the child is reported as missing, the code will be published in dental publications. If a dentist would discover a dental tag during a routine x-ray, he would check the published list and inform both the company and the police. Thus, a positive identification could be easily established even after a change in the bodily characteristics of an individual.

The tag was placed on the buccal surface of the first upper left molar of a 10-year-old boy of Greek origin living in the USA, after the written consent of his parents and it was covered with composite resin. The code number was secured in the company’s database.

**Keywords:** Identification; Dental Tag