

## Sažeci 5. Međunarodnog kongresa Hrvatskog stomatološkog društva HLZ-a

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#### Pozvana predavanja

##### 11 SUDSKA PARNICA U STOMATOLOGIJI: TRENDovi I PERSPEKTIVE

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U posljednjih nekoliko godina broj parničnih predmeta među stomatolozima je porasla. Čini se da taj trend potiču pogrešna razmišljanja pacijenata kako je za neuspješno liječenje uvijek razlog neprofesionalno ponašanje. Informacije dobivene od stomatologa i njihova pacijenata pacijenta nije uvijek u mogućnosti ponovno postaviti ta očekivanja, stoga je percepcija negativna (ili nezadovoljavajuća), što može dovesti da pacijent tužiti stomatologa. Podaci koji se odnose na stomatološke parnice su rijetke i loše. Razlog tome je što institucije ili agencije ne sustavno prikupljaju podatke iz civilnih sudova, a osiguravajuća društva nisu skloni da su njihovi podaci dostupni javnosti. Cilj je prezentacije da prikaže neke podatke o stomatološkim parnicama preuzetim iz literature i iz određenih studija koje sam provela u tom području. Opći trendovi parnice i učestalosti parnice po područjima (implantologije, endodontologije, itd.) će se raspravljati, kao i najčešće navodnih pogrešaka. Važnost komunikacije između stomatologa i pacijenta najveći je razlog za izbjegavanje ili smanjivanje nastanka sudskih parnica. Rješavanja sporova izvan sudske nagodbe rezultiralo se korisnim za rješavanje sporova. Time se sprječava nastanak dodatnih financijskih troškova, skraćuje vrijeme i prevenira emocionalni stres zbog sudskih presuđivanja. Prezentacija će se bazirati i na važnosti osiguranja od profesionalne odgovornosti te preporukama osiguravajućih savjetnika.

##### 12 UPRAVLJANJE RIZIKOM U STOMATOLOGIJI

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Upravljanje rizikom u stomatološkom okruženju može biti od velike koristi uz mali trošak. Jednostavno je educirati osoblje stomatološkog tima da odmah identificiraju i istraže nastali problem. Potreba za kvalitetnu dokumentaciju i identifikaciju nastalog problema može nam pomoći da izbjegnemo tužbe od strane naših pacijenata. Iako ove metode neće uvijek spriječiti nastanak tužbi, one će pružiti najbolju obranu nastalim tvrdnjama. Koraci u upravljanju rizikom uključuju identifikiranje, ocjenjivanje, uklanjanje, smanjenje i prijenos rizika. Klinički program upravljanja rizicima treba koristiti niz sustava za identifikaciju i pružanja obavijesti o incidentima ili događajima koji se javljaju. Rano prepoznavanje takvih pojava omogućuje kliničaru da odmah istraži okolnosti incidenta, a ako je potrebno, potrebno je pokrenuti korektivne mjere kako bi se spriječilo buduće slične pojave.

#### Invited lectures

##### 11 LITIGATION IN DENTISTRY: TRENDS AND PERSPECTIVES

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In recent years the number of litigation cases involving dental professionals has risen and this trend seems fostered by the erroneous thought of the patients that any unsuccessful dental treatment invariably corresponds to professional misconduct and to the increase of expectations. The information given by the dentist to his patient is not always able to reset these expectations, and so the perception of a negative (or unsatisfactory) result of the therapy may lead the patient to sue the dentist. The data concerning dental litigation is sparse and poor since institutions or agencies do not systematically collect data from the civil courts, and insurance companies are somewhat reluctant to make their data available to the public. The presentation aims to report some data about dental litigation retrieved from literature and from specific studies that Author conducted in this specific field. The general trends of dental litigation and the prevalence of litigation per disciplines (implantology, endodontology, etc.) will be discussed as well as the most frequently alleged errors. The importance of an appropriate clinical record and the dentist-patient communication emerged as a parameter of utmost importance in avoiding or lessening the likelihood of a litigation case. The out-of-court settlement or alternative dispute resolution resulted useful and meaningful ways to resolve dental disputes, thereby the litigation is settled as soon as possible to save further financial costs, time, and emotional stress due to judicial adjudications. Furthermore the presentation will focus on the relevance of an appropriate insurance coverage for dental providers and insurance procedures based on cases handled by expert dental advisors.

##### 12 RISK MANAGEMENT IN DENTAL MEDICINE

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Risk management in a dental setting can be of great benefit for little expense. It's easy to educate a staff to promptly identify and investigate problem situations. Recognizing the need for good documentation and identification of problems can help us avoid lawsuits. While these techniques will not always prevent a claim, they will provide the best defenses to claims. The steps in managing risk include identifying, evaluating, eliminating, reducing, and transferring risk. The most common is to collect and aggregate data about problems so that patterns can be identified and action taken. The clinic's risk management program should use a number of systems to identify and provide notification of incidents. Early identification of such occurrences allows the clinic to immediately investigate the circumstances of the incident, and if necessary, institute corrective action to prevent future similar occurrences.

**13 SUDSKI POSTUPCI PROTIV DOKTORA DENTALNE MEDICINE**

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Prikazuju se primjeri iz sudsko-medicinske prakse i vještačenja u kaznenom i parničnim postupcima protiv doktora dentalne medicine. Ističe se važnost medicinske dokumentacije i informiranog pristanka pacijenta posebice u slučaju tužbe pacijent – doktor. Rad doktora dentalne medicine prema pravilima struke osnova je kako izbjeći sudski postupak.

**14 PROTEZE PODUPRTE IMPLANTATIMA: MINIMALISTIČKI PRISTUP KOMPROMITIRANIH ILI STARIJIH PACIJENATA**

Mersel A

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Liječenje starijih pacijenata specifično je, budući da osim posebnih oralnih stanja, mora u obzir uzeti i sociološke i psihološke aspekte. To predstavlja posebne zahtjeve i potrebe u odnosu na druge skupine pacijenata. Stanje općeg zdravlja ili lijekovi mogu determinirati oralnu rehabilitaciju. Sistemske bolesti često zahtjevaju posebnu njegu i sprečavaju invazivne postupke. Ključ uspjeha temelji se na definiranju prilagođenog liječenja u odnosu na dijagnozu, prognozu i prevenciju. Bezubost je i dalje najčešći status starijih i kompromitiranih osoba koji bi se mogao liječiti uz pomoć implantata. No, najteži i najzahtjevniji su pacijenti gdje postoji gubitak potpore u lateralnim područjima, obostrano ili jednostrano, a posebno kod potpuno bezubih. Često je nemoguća izrada novih fiksni nadomjestaka zbog morfoloških poteškoća ili loše kvalitete preostalih zuba. Također, anatomija i stanje kosti često nisu pogodni za ugradnju implantata. Klasičnom potpunom protezom teško je postići savršenu rehabilitaciju, posebno zbog činjenice da je adaptacija teška pa će i savršeni izgled biti neuspjeh. Razmatrajuci sve navedeno, ključna je potreba za anteriornom potporom. Dokazi upućuju da su stope uspjeha kod ovih pacijenata usporedive s onima kod mladih osoba. To bi moglo značiti da bi odabir pacijenata i kirurški postupak trebalo prilagoditi u smislu korištenja minimalno invazivnih implantata. Jedna od glavnih prepreka je raspored i smještaj implantata kao protetskih nosača. Svrha ovog istraživanja je procijeniti sigurnost minimalno traumatskog pristupa u skladu sa savršenom protetskim rehabilitacijom starijih osoba. Ovo istraživanje pokazat će da je uspjeh starenju i neuspjesima moguće, uz minimalistički pristup, imati broj neuspjeha i odbacivanja sličan tradicionalnom pristupu.

**15 UNAPREĐIVANJE ORALNOG ZDRAVLJA U BOSNI I HERCEGOVINI - MEĐUKULTURALNA PRILAGODBA**

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Uloga zdravstvenog funkcioniranja i socio-ekonomskog stanja nikada nije bila dovoljno ispitana. Pristup oralnom zdravlju u današnjoj depresivnoj ekonomiji je prepoznat od SZO (WHO) koja sugerira više ulaganja u prevenciju i promociju oralnog zdravlja, tako da SZO uskoro donosi sveobuhvatnu zdravstvenu strategiju pod nazivom Health 2020. Udruženje stomatologa BiH sa Stomatološkim fakultetom u Sarajevu je orijentirano prema javnim zdravstvenim pitanjima kroz zdravstvene projekte, istraživački rad, kontinuiranu edukaciju putem organiziranja kongresa, simpozijuma i seminara, a sve to u cilju promocije zdravlja zubi. U SAD je 2007. je napravljen model koji mjeri utjecaj oralnih stanja na kvalitet života djece koji popunjavaju roditelji pod nazivom Early Childhood Oral Health Impact Scale (ECOHIS) ili Upitnik o utjecaju oralnog zdravlja u ranom djetinjstvu. Prema ovom upitniku mi smo napravili BH-model kao dio programa prevencije oralnog zdravlja BH-ECOHIS. Udruženje stomatologa BiH je napravilo mnoge preventivne programe, u svim dijelovima zemlje, koristeći ankete kao instrument istraživanja, dok su podaci o oralnom zdravlju ispitivane djece dobiveni redovitom stomatološkom kontrolom školske djece. Mi smo saznali da djeca nemaju izgrađene pozitivne zdravstvene navike. Prijedlog za razvoj zdravstvene politike treba temeljiti na podizanju razine svijesti pojedinaca, posebno roditelja, o važnosti oralnog zdravlja djece. Ovaj zanemare-

**13 LAWSUITS AGAINST DOCTORS OF DENTAL MEDICINE**

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Examples of forensic practice and expert witness in criminal and civil lawsuits against the doctors of dental medicine are presented. The significance of medical records and informed consent of the patient especially in the case of lawsuits patient – doctor is emphasized. Dentist's work according to the rules of dental profession is the basis to avoid court proceedings.

**14 IMPLANTS SUPPORTED OVERDENTURES: A MINIMALISTIC MANAGEMENT OF THE COMPROMISED OR ELDERLY PATIENT**

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The treatment of the elderly patient must be specific, because having To cope with peculiar changing oral conditions with ageing which considered with social and psychological aspects. This creates different demands and needs compared with other cohorts. General health conditions or medications involvement in may define the oral rehabilitation. Systemic diseases are frequent needing special care and prohibiting an invasive procedure. The key of the success rely on defining an adapted treatment in relation with the diagnosis, prognosis and prevention. Edentulous remain one of the main status for the elderly and compromised patients but could be treated by implant supported dentures. Nevertheless the most difficult restorations are when there is a loss of support in the posterior areas right and left and moreover unilaterally, and especially in a total edentate situation. A new fixed prosthetic is often impossible because morphologic difficulties or poor value of the remaining teeth. Also the anatomic and bone condition are often not favorable for an implantation procedure. With a classical complete denture the dentist is never able to achieve a perfect rehabilitation. Because the difficulty of adaptation even an excellent design will fail finally. Considering all these fact, the necessity of an anterior support is crucial. However the evidence available shows success rates in these patients comparable to those of younger people. This may imply that the selection of the patients and surgical procedure should be adapted to the candidate for implants: a mini invasive implant. This may imply that the selection of the patients and surgical procedure should be adapted to the candidate for implants; a mini invasive Implant management. But one of the main obstacles is also the distribution and the location of the implants as the prosthetic attachments devices. The purpose of this study is to ascertain a secure and mini traumatic approach in conjunction with a perfect prosthodontics rehabilitation of the elderly. This survey will demonstrate that despite the ageing with a minimalistic approach the number of failures and reject are quite similar as when a traditional protocol is observed.

**15 ORAL HEALTH PROMOTION IN BOSNIA AND HERZEGOVINA - CROSS CULTURAL ADAPTATION**

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The role of the health functioning and socio-economic situation has never been adequately tested. Access to oral health in today's depressed economy is recognized by the WHO, which suggests more investment in prevention and promotion of oral health, so that WHO will soon bring a comprehensive health strategy entitled Health 2020th. Dental association of B&H, with the Dental Faculty in Sarajevo is oriented toward public health issues through health projects, research, continuing education through the organization of conferences, symposia and seminars, all in order to promote dental health. At 2007., in the U.S was made a model that measures the impact of oral conditions on quality of life of children, which filled their parents, called the Early Childhood Oral Health Impact Scale (ECOHIS) or questionnaire on the impact of oral health in early childhood. According to this survey we have made BH-model as part of a program of prevention of oral health BH-ECOHIS. Dental association of B&H made many preventive programs in all parts of the country, using the survey as an instrument of research and data on the oral health of children examined were obtained regular dental control of school children. We learn that children have not formed positive health habits. The proposal for the development of health policy should be based on raising awareness of individuals, especially par-

ni segment dječjeg zdravstvenog stanja jeste posljedica organizacije zdravstvene njege, u minimumu predviđenom zakonom, uključujući preglede kod zubara i ispitivanja oralnog zdravstvenog stanja, bez ikakve obavezne preventivne ili kurativne intervencije. Analiza stanja u državama članicama EU i susjednim zemljama pokazuje da je učestalost karijesa u djece u BiH dva do tri puta veća u usporedbi s onom u navedenim zemljama i EU.

#### 16 POSTOJI LI POVEZANOST IZMEĐU TEMPOROMANDIBULARNIH POREMEĆAJA I OKLUZIJE?

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Temporomandibularni poremećaji (TMP), engl. Temporomandibular Disorders (TMD) skupni je naziv za niz patoloških stanja koja se javljaju sa sličnim simptomima, koji dovode do poremećaja normalne funkcije stomatognatnog sustava. Većina tih stanja je kombinirane višечimbenične etiologije što otežava dijagnostiku i planiranje terapijskih postupaka. Funkcijski poremećaji stomatognatnog sustava su kompleksni i pod utjecajem brojnih čimbenika. Smatra se da je pojavnost temporomandibularnih poremećaja (TMP), poslije dentalne boli (pulpne i parodontne boli), danas najčešći uzrok orofacijalne boli. Obzirom na multifaktorijalnu prirodu temporomandibularnog poremećaja kliničar mora biti dobro upoznat sa svim dentalnim i ne-dentalnim uzrocima orofacijalne boli. Desetljećima je hipoteza u kojoj je okluzija glavni uzročnik u nastanku TMP-a (kauzalni čimbenik), bila dominantna. Istraživali su se brojni okluzijski parametri u pokušaju procjenjivanja njihovog individualnog efekta na TMP, kao što su: anteriorni otvoreni zagriz, vertikalni i horizontalni prijelom, križni zagriz, nagib inciziva, gubitak zuba, gubitak posteriorne okluzijske potpore, interferencije na radnoj strani, interferencije na balansnoj strani, simetričnost kontakta u retrudiranom kontaktnom položaju, kliz između CR-a i interkuspidacijskog položaja. Sve do danas se suprotstavljaju stavovi i argumenti o ulozi okluzije u nastanku TMP-a. Razvojem i primjenom novijih dijagnostičkih metoda i protokola mijenjaju se i stavovi o ulozi okluzije u nastanku TMP-a. Neki kliničari podupiru hipotezu smatrajući da različiti okluzijski čimbenici imaju ulogu u nastanku određenih oblika TMP-a, uglavnom kao perpetalni čimbenici.

#### 17 ESTETSKE REKONSTRUKCIJE

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Zahtjevi pacijenata za maksimalnim estetskim riješenjima pri izradi nadomjestaka (lijepi zubi-blistav osmijeh) potakli su razvoj materijala i tehnologije za njihovu izradu. U današnje vrijeme izmijeniti postojeći oblik zuba i promijeniti, nadoknaditi dio zuba ili promijeniti boju može se postići kratkoročno s kompozitnim materijalima ili dugoročno s protetskim nadomjestkom. Pravi je izazov za doktore dentalne medicine ali i za dentalne tehničare zadovoljiti sve postulate struke i uskladiti ih sa željama i zahtjevima pacijenata. Suvremeni kompozitni materijali omogućuju savršenu mimikriju ispuna. Jedina potencijalna mana kompozitnih materijala je relativno veliko trošenje na dodirnim površinama sa zubima suprotne čeljusti. Materijali izbora za postizanje dugovječnosti nadomjestka uz postizanje savršenih estetskih dojmova su svakako keramički sustavi osobito silikatna keramika i staklokeramika. Protetska terapija omogućuju izradu estetski i funkcijski vrlo zahtjevnih nadomjestaka, a zatvaranje rubne pukotine koje nije moguće uobičajenim laboratorijskim postupcima, postiže se adhezijskim tehnikama cementiranja. Preduvjet za izradu nadomjestka koji savršeno pristaje na mjesto preparacije je precizna preparacija ležišta nadomjestka i točan otisak. Najnoviji otisni materijali i poznavanje njihovih svojstava, omogućuju vrlo točan i postojan otisak uz izbjegavanje „zamki“ otisnih postupaka ili neželjenih svojstava materijala koji se za to koriste.

#### 18 TERAPIJSKI PROTOKOLI I SUVREMENE TEHNOLOGIJE U OBRADI FIKSNOPROTETSKIH SLUČAJEVA

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U suvremenoj fiksnoprotetskoj terapiji sve se više primjenjuju potpunokeramički nadomjestci. U estetskim korekcijama ova je vrsta nadomjestaka isključiv izbor, no zahvaljujući suvremenoj tehnologiji izrade i preciznosti nadomjestaka sve se više koriste i u estetski manje važnom području bočnog segmenta. Estetske rekonstrukcije prednjeg segmenta mogu se postići minimalnim zahvatima brušenja pa čak i bez zadiranja u tvrda zubna tkiva,

about the importance of oral health of children. This neglected segment of the children's health status is a result of the organization of health care, the minimum provided by law, including check-ups at the dentist and oral health status examination, without any mandatory preventive or curative interventions. Analysis of the situation in the EU Member States and neighboring countries shows that the incidence of dental caries in children in BiH, two to three times higher compared with that in these countries and the EU.

#### 16 IS THERE AN ASSOCIATION BETWEEN TEMPOROMANDIBULAR DISORDERS AND OCCLUSION?

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Temporomandibular disorders (TMD), is a collective term for a number of pathological conditions that occur with similar symptoms, leading to disruption of normal function of the stomatognathic system. Most of these conditions are combined, and multifactorial etiology complicates diagnosis and treatment planning processes. Functional disorders of the stomatognathic system are complex and influenced by many factors. It is believed that the prevalence of temporomandibular disorders (TMD), after dental pain (pulpal and periodontal pain), today contribute as the most common cause of orofacial pain. Considering the multifactorial nature of TMD clinician must be well acquainted with all dental and non-dental causes of orofacial pain. For decades, the hypothesis that occlusion was the main cause in the development of TMD (causal factor), was dominant. Numerous occlusal parameters were explored in the attempt to evaluate their individual effects on TMD, such as anterior open bite, vertical and horizontal overlap, cross bite, tilt incisor, tooth loss, loss of posterior occlusal support, interference on working side, interference on balancing side, symmetry of contact in the retruded contact position, sliding between the CR and the intercuspal position. There are still confronting views and arguments about the role of occlusion in the development of TMD. Improvement and application of modern diagnostic methods and protocols are changing the attitudes about the role of occlusion in the development of TMD. Some clinicians support the hypothesis considering that different occlusal factors play a role in the development of certain forms of TMD, mainly as a perpetual factors.

#### 17 AESTHETIC RECONSTRUCTIONS

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Patients demands for maximum aesthetic solutions during prosthetic reconstructive procedures (beautiful teeth - dazzling smile) encourage the development of materials and technologies for their production. Nowadays, correction of tooth shape, restoration of lost tooth structure or change the colour of discolored teeth can be achieved in the short term with composite materials or a long-term fixed prostheses. The real challenge for doctors of dental medicine and for dental technicians are to satisfy all the postulates of the profession and to match them with the wishes and requirements of patients. Modern composite materials provide a perfect mimicry of fillings. Only potential drawback of composite materials is relatively extensive wear on the contact surfaces with the teeth of opposite jaw. The materials of choice for achieving longevity of restorations and perfect aesthetic appearance are certainly all ceramic systems especially silicate ceramic and glass-ceramic. Prosthetic therapy allow manufacturing of functionally and aesthetically very demanding restorations, and closure of marginal gap that can not be achieved by usually used laboratory procedures can be achieved with adhesive cementation techniques. The most important postulate to produce perfect marginal fit of the restorations is accurate preparation and dimensionally and exact impression. Newest impression materials and knowledge of their properties, enabling highly accurate and stable impression by avoiding the "pitfalls" of impression procedures or unwanted properties of impression material.

#### 18 THERAPEUTIC PROTOCOLS AND MODERN TECHNOLOGIES IN THE PROCESSING OF FIXED PROSTHODONTIC CASES

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All-ceramics constructions have been increasingly used in contemporary fixed prosthodontic treatments. However, for aesthetic corrections this kind of substitutes represents an exclusive choice. Thanks to modern production technology and precision of restorations they are increasingly used in aesthetically less important region of the lateral segment. Aesthetic reconstruction of the anterior segment can be achieved with minimal

va (Ijuske). U slučaju značajnijih korekcija ili većih defekata potrebna je primjena potpune krunice. U zbrinjavanju bočnih segmenata moguće je koristiti različite potpuno-keramičke rekonstrukcije (inlay, onlay, endokrunice, inlay mostovi, klasični mostovi). Potpuno-keramičke nadomjestke moguće je koristiti i u slučajevima kompleksnih rekonstrukcija i rehabilitacija objiju čeljusti. Posebno je važno osvrnuti se na planiranje konačnog izgleda ishoda terapije putem tehnika vizualizacije kao što su mock-up, dijagnostički navoštavanje i digitalna vizualizacija.

#### 19 PEČAČENJE KAO PREVENTIVA KARIJESA

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Značajan napredak postignut je posljednjih nekoliko desetljeća u predvidljivim, preventivnim i personaliziranim metodama liječenja pacijenata. Svejedno, usprkos razvoju preventivnih mjera, karijes i dalje ostaje glavna bolest zuba. Od 60-tih godina prošlog stoljeća općeprihvaćena je minimalno invazivna i preventivna metoda pečaćenje fisura koja može djelovati kao obrana od rasta bakterija koje dovode do karijesa. Postoje snažni dokazi koji upućuju da je pečaćenje fisura djelotvorno u sprečavanju karijesa u djece i adolescenata, a njihova učinkovitost mogla bi utjecati i na prevalenciju karijesa u populaciji. Najčešće korišteni sustavi pečaćenja su lagani materijali na bazi smole u kombinaciji s fosfornom kiselinom (PA) za jetkanje. Ispitivano je i korištenje adhezivnog sloja između materijala za pečaćenje i cakline te je jasno dokazano njegovo korisno djelovanje. No, postoji nekoliko aspekata koje bi se moglo poboljšati da bi se osigurano uspješno i dugotrajno pečaćenje. Ovo predavanje dat će pregled utjecaja jetkanja i svezivanja na sposobnost pečaćenja raznih materijala. Raspravit će o aspektima adhezije na intaktnu i brušenu caklinu. Na kraju će biti analizirana važnost ponovnog razmatranja postojećih i uvođenja novih smjernica za buduće preventivne mjere.

#### 110 EPIDEMIOLOGIJA ZUBNOG KARIJESA U DVANAESTGODIŠNJAKA U SLOVENIJI (1987. – 2013.)

Vrbič V

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Studija je poduzeta u svih devet geografskih regija Slovenije po principima Svjetske zdravstvene organizacije, WHO, 1987. godine. Reprezentativni uzorak stanovništva bio je podijeljen u uzrasne skupine 6, 12, 15, 18, 35-44 i 65+. Istraživanje je bilo ponavljano svakih pet godina, tj. 1993., 1998., 2003. i 2013. godine. U ovom izvještaju prikazano je stanje KEP-a u dvanaestgodišnjaka, s naglaskom na zastupljenosti djece bez karijesa i onih sa pečaćenim zubima. KEP je u prvoj dekadi opao sa 5,1 na 1,8 zubi i zadržao se na toj razini. U istom razdoblju, u prvoj dekadi istraživanja, postotak djece bez zubnoga karijesa porastao je sa 6% na 40%. Taj rezultat stanja zubnoga karijesa u dvanaestgodišnjaka bio je vrlo povoljan. Nažalost, u zadnjih petnaest godina postotak dvanaestgodišnjaka bez karijesa opao je na 36%. Postotak pečaćenih zubi u istom razdoblju porastao je od 6% na 90%, što je među najvišim postocima u svijetu.

#### 111 ULOGA DOKTORA DENTALNE MEDICINE U DIJAGNOSTICI I TERAPIJI ORTODONTSKIH ANOMALIJA

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Vrlo visoka učestalost malokluzija u suvremenim populacijama sve više postaje javnozdravstveni, ali i socijalni, estetski, funkcijski i psihološki problem. Značni sustav cjeli-

tooth preparation and even without touching the hard dental tissues (veneers). In cases of significant corrections or major defects the implementation of full crowns is required. In disposing of the lateral segments it is possible to use different all-ceramic reconstructions (inlay, onlay, endocrowns, inlay bridges, classic bridges). All-ceramics substitutes may also be used in cases of complex reconstruction and rehabilitation of both jaws. It is important to plan the final outcome of therapy with various visualization techniques such as mock-ups, diagnostic wax-ups and digital visualization.

#### 19 PIT AND FISSURE SEALANTS FOR PREVENTING DENTAL CARIES

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An appreciable progress in dentistry has been made in the last decades, introducing predictive, preventive and personalized patient treatment methods. Nevertheless, despite the advancements of preventive measures caries decay remains a major dental disease. Among the privileged minimal intervention and preventive methods, pit and fissure sealing is a widely accepted approach for preventing occlusal caries since 1960s. Sealants can act as barriers to the growth of bacteria that lead to dental decay. There is a strong evidence to suggest that fissure sealants are effective in preventing caries in children and adolescents when compared to no sealants and their effectiveness may be related to the caries prevalence in the population. Most commonly used systems for sealing are lightly filled or unfilled resin based materials in combination with phosphoric acid (PA) for etching. Incorporation of a bonding agent layer between the sealant material and enamel has been investigated and its beneficial effect was clearly showed. However, there are still several aspects that could be improved in order to contribute to the successful and long-lasting sealing. Therefore, the current lecture will review influence of acid etching as well as the bonding methodologies on sealing ability of various sealing materials. Considerable aspects of adhesion to intact and ground enamel will also be discussed. Finally, the importance of reconsidering dental guidelines and adopting the new concepts of preventive futuristic point of view will be analyzed.

#### 110 EPIDEMIOLOGY OF DENTAL CARIES OF 12-YEAR-OLDS IN SLOVENIA (1987 – 2013)

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Objectives: The first large-scale epidemiological survey in the Republic of Slovenia was conducted on dental caries in 1987 and repeated in 1993, 1998, 2003, 2008 and 2013 using the same methodology. The aim of the study was to obtain data on the incidence of dental caries in 12-year-olds in Slovenia. Methods: The method applied in the six surveys was the National Oral Pathfinder Survey using WHO combined oral health and treatment need assessment forms (with CPITN) from 1983. The surveys were performed in ten towns in all nine geographical regions of Slovenia. One randomly selected primary school in each town participated in the surveys; in classes containing children 12 years of age, every third pupil from the alphabetical list was enrolled. In each subject the caries experience was evaluated, using artificial light, a plane mirror and a sharp explorer. For the statistical analysis of the results, the Statistical Package for Social Sciences (SPSS) was used. Results: The mean DMFT decreased significantly from 5.1 in 1987 to less than 1.7 in 2008 ( $P < 0.0001$ ), but afterwards began to increase slowly and reached a mean value of almost 1.9 in 2013 ( $P > 0.05$ ). The reasons for such a significant decline can be found in the simultaneous and massive implementation of certain preventive measures. Conclusion: We evaluated the incidence of dental caries in children in Slovenia over the past 26 years, which was important in the planning of dental health policy. Caries preventive programme played a major role in the efficient reduction of caries prevalence in Slovenia.

#### 111 THE ROLE OF DOCTOR DENTAL MEDICINE IN MALOCCLUSIONS DIAGNOSTICS AND THERAPY

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A very high prevalence of malocclusion in modern population is increasingly becoming a public health, as well as a social, aesthetic, functional and psychological problem. The

na je koja objedinjuje zube, žvačne mišiće, temporomandibularne zglobove i složeni živčani sustav. Ukoliko jedna od sastavnica toga funkcijskog lanca nije usklađena s cjelinom dolazi do klinički izraženih poremećaja. Ortodontsko liječenje ne podrazumijeva samo fiksnu ortodontsku terapiju i ne provodi ju isključivo ortodont. Ovisno o potrebama pacijenta, u ispravljanju okluzije ili liječenju posljedica nepravilnosti žvačnog sustava sudjeluju opći stomatolozi kao i različiti specijalisti. Koliko može preventivna ortodontcija biti uspješna za našeg pacijenta? Kako možemo usmjeriti rast i razvoj? Koje su posljedice ortodontskih nepravilnosti na žvačnu funkciju? Kada je vrijeme za ortodontsku terapiju? Što ortodont mora očekivati od doktora dentalne medicine, a što možemo očekivati od ortodonta? U ovom predavanju prikazati će se samostalno i interdisciplinarno liječenje ortodontskih anomalija, preventivni i interceptivni postupci te osnovni okluzijski koncepti koji su prisutni kod ortodontskih anomalija. Svrha ovog predavanja je približiti ortodontsku dijagnostiku i terapiju svakodnevnoj stomatološkoj praksi i naglasiti ulogu doktora dentalne medicine u prepoznavanju i liječenju ortodontskih anomalija.

## 112 OZLJEDE ZUBA – OD PREVENCIJE DO LIJEČENJA

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Prevenција je uvijek najvrjedniji oblik planiranja i provođenja terapije u medicini pa tako i u dentalnoj medicini. Ujedno, prevencija ozljeda zuba uz prevenciju karijesa predstavlja možda i najvrjednije oblike prevencije u svakodnevnom radu stomatologa. Stoga svakako treba naglasiti koji su postupci mogući kako bi se izbjegla dentalna trauma s dalekosežnim negativnim posljedicama za dijete. No što kada se trauma ipak dogodi? Nakon što je napravljena točna dijagnoza i na pravilan način trauma zuba u hitnom postupku opskrbljena, dolazi se u fazu dugoročnog planiranja potrebnog liječenja kako u funkcijskom tako i u estetskom smislu. U ovoj fazi odlučuje se o trajanju i vrsti eventualno potrebne endodontske terapije te konačnoj estetskoj i funkcionalnoj opskrbi frakturirane krune zuba. Vrsta restauracije traumatiziranog zuba ovisna je prije svega o količini izgubljenog tvrdog zubnog kao i o vitalitetu zuba. Temeljem ta dva kriterija, odlučit će se da li se zub može restaurirati izradom izravne nadogradnje u ustima ili je potrebna restauracija krune pomoću nekog fiksnog protetskog nadomjeska. Koje su indikacije za pojedini postupak te koje su suvremene tehnike i materijali izbor tijekom konačnog liječenja ozljeda zuba pokušat će se predstaviti tijekom predavanja.

## 113 ODNOS PARODONTNIH BOLESTI I SISTEMSKOG ZDRAVLJA

Plančak D

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Sve je više dokaza koje govore u prilog povezanosti kroničnih upalnih bolesti čovjeka s oportunističkim infekcijama u parodontologiji. Parodontne bolesti, posebice uznapredovali parodontitis, postale su predmet mnogobrojnih istraživanja s obzirom na učestalost i mikrobiološku etiologiju. Parodontitis predstavlja veliku infektivnu opasnost za cijeli organizam jer otpuštajući mikroorganizme, njihove produkte te medijatore upale u krvotok može djelovati na udaljene organe i tkiva. Navedena činjenica smanjila je granice između medicine i stomatologije te je promjenom razmišljanja došlo do razvoja potpuno novog područja u parodontologiji koje je nazvano „parodontna medicina“. Tijekom prošlog desetljeća sve veći broj znanstvenih činjenica upućuje na snažnu povezanost parodontnih bolesti i sistemskih stanja i bolesti kao što su: ateroskleroza, kardiovaskularne i cerebrovaskularne bolesti, prijevremeni porodaj, dijabetes i plućne bolesti. Najviše istraživanja bilo je usmjereno na povezanost između parodontitisa i ateroskleroze s obzirom da imaju mnogo zajedničkih, potencijalnih patofizioloških mehanizama, kompleksne su etiologije te dijele brojne rizične faktore, među kojima je najznačajniji status pušača. Pronađeni su dokazi koji povezuju parodontitis s povećanim rizikom za aterosklerozu i tromboemboličkim zbivanjima. Parodontitis trudnica može povećati rizik za prijevremeno rođenje i smanjenu porođajnu težinu djeteta. Uloga dijabetesa kao faktora rizika od parodontitisa razrađena je ranije, ali određen broj studija upućuju da možda postoji i dvosmjerni odnos, u skladu s koncepcijom da infekcija može doprinijeti oslabljenoj metaboličkoj kontroli dijabetesa. Rezultati mnogobrojnih studija i razvoj parodontne medicine doveli su do plodonosne suradnje s kolegama u medicini i otkrili mnoga nova saznanja koja potvrđuju da je usna šupljina integralni dio ljudskog tijela te da sistemsko zdravlje mora uključivati oralno i parodontno zdravlje.

masticatory system is an ensemble consisting of teeth, chewing muscles, temporomandibular joints and the nervous system. The divergence of one of the components of the functional chain may lead to various disorders. Orthodontic treatment is not only a treatment with a fixed orthodontic appliance and is not only administered by orthodontists. Depending on the malocclusion, treatment can include general dentists and various dental specialists. Is preventive orthodontic treatment successful? How can we influence growth and development? What are the consequences of orthodontic anomalies for masticatory function? When is the ideal time for orthodontic treatment? What should the orthodontist expect from general dentists, and what can be expected from orthodontists? This lecture will constitute an interdisciplinary approach to the treatment of orthodontic anomalies, preventive and interceptive procedures and basic occlusal concepts including cases of both normal occlusion and malocclusions. The purpose of this lecture is to bring orthodontic diagnosis and treatment to everyday dental practice and to emphasize the role of dentists in identifying and treating orthodontic patients.

## 112 DENTAL TRAUMA - FROM PREVENTION TO TREATMENT

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Prevention is always the most valuable form of planning and implementing therapies in medicine as well as in dentistry. At the same time, prevention of dental injuries and the prevention of dental caries are perhaps the most valuable forms of prevention in the daily work of the dentist. Therefore, we must emphasize which preventive procedures are available in order to avoid dental trauma with far-reaching negative consequences for the child. But what when trauma does happen? When the correct diagnosis is made and the proper emergency care of dental trauma is done, next step is a phase of long-term treatment planning in both ways, to insure long lasting function and good aesthetic. At this stage we also make a decision for the type and duration of eventual endodontic therapy and the final aesthetic and functional crown reconstruction. Type of permanent restoration of traumatized teeth depends primarily on the amount of lost hard dental tissue as well as the pulp vitality. Based on these two criteria, it will be decided whether the tooth can be restored by direct composite restoration or we need a fixed prosthodontics restoration. What are the indications for each procedure and what are the modern techniques and materials for the final treatment of dental trauma will be presented during the lecture.

## 113 RELATIONSHIP BETWEEN PERIODONTAL DISEASE AND SYSTEMIC HEALTH

Plančak D

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There is an increasing body of evidence in periodontology that speaks in favor of the association between human chronic inflammatory diseases and opportunistic infections. Considering their frequency and microbiological etiology, periodontal diseases, especially severe periodontitis, have become subjects of many studies. Periodontitis is a major infectious threat to the whole organism, since it can affect distant organs and tissues by releasing microbes, their products and mediators of inflammation into the bloodstream. This fact has reduced the boundaries between medicine and dentistry, but the change in thinking has developed an entirely new field of periodontology, also known as "periodontal medicine". Over the past decade a growing body of scientific evidence shows a strong connection between periodontal disease and systemic conditions and diseases such as atherosclerosis, cardiovascular and cerebrovascular diseases, premature birth, diabetes and respiratory diseases. Most of the research has been focused on the relationship between periodontal disease and atherosclerosis since they have many common, potential pathophysiological mechanisms, including complex etiology, and share many risk factors, especially smoking history. There is data linking periodontitis with an increased risk for atherosclerosis and thromboembolic events. Periodontitis in pregnant women may increase the risk for preterm birth and low birth-weight. The role of diabetes as a risk factor for periodontal disease has been investigated earlier, but a number of studies suggest that there may be a two-way relationship, in accordance with the concept that infection may weaken metabolic control of diabetes. The results of numerous studies and the development of periodontal medicine have led to productive cooperation with colleagues in medicine, and discovered many new evidences that suggest that the oral cavity is an integral part of the human body, and that systemic health must include oral and periodontal health.

**114 NEKI ASPEKTI PROFESIONALNE STRATEGIJE ORALNOG ZDRAVLJA U SLOVENIJI**

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Oralno zdravlje sastavni je dio općeg dobrog osjećanja, a dobro oralno zdravlje temeljno je ljudsko pravo. Uloga doktora dentalne medicine u tom polju je pomoći stanovništvu i zakonodavcu u postizanju tog cilja. Šire gledano, oralno zdravlje može biti i cilj i sredstva postizanja tog cilja. Slovensko udruženje za dentalnu medicinu, dobrovoljna nevladina stručna udruga, izradila je strategiju postizanja tih ciljeva, a uz pomoć i interaktivnu suradnju s drugim medicinskim i civilnim partnerima sličnih pogleda moguće ju je i ostvariti optimizacijom oralnog zdravlja čitave populacije, prepoznavanjem profesionalnog mišljenja doktora dentalne medicine u društvu, poboljšanjem obrazovanja te informiranjem i pružanjem neprestane potpore našim članovima.

**115 NOVI MODEL UGOVARANJA DENTALNE MEDICINE U PRIMARNOJ ZDRAVSTVENOJ ZAŠTITI**

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Dentalna zdravstvena zaštita (polivalentna), sastavni je dio primarne zdravstvene zaštite Republike Hrvatske, uključena u mrežu javne zdravstvene službe i financirana iz sredstava obveznog zdravstvenog osiguranja. U ukupnim troškovima primarne zdravstvene zaštite sudjeluje s udjelom od 26%. Doktori dentalne medicine pružaju primarnu zdravstvenu zaštitu kao koncesionari ili zaposlenici domova zdravlja osiguranim osobama koje su ih izabrale. Financiranje timova dentalne medicine provodi se temeljem ugovornog odnosa s Hrvatskim zavodom za zdravstveno osiguranje. Na osiguravatelju je da racionalno koristi sredstva i usmjerava ih u one postupke i programe koji će u najvišje pridonijeti zdravlju i kvaliteti života populacije. Kako bi dentalna zdravstvena zaštita činila temelj oralnog zdravlja populacije, uveden je novi način financiranja (plaćanja) dentalne zdravstvene zaštite.

Dosadašnji način financiranja putem glavarina, koja je činila gotovo 100% prihoda, doveo je do nezadovoljavajućeg oralnog zdravstvenog stanja populacije. Očekuje se da će novim načinom financiranja ponajviše potaknuti prevencija, te stimulirati poželjno ponašanje doktora dentalne medicine. To će se postići kroz višeslojno financiranje, kojeg čine plaćanje hladnog pogona, glavarine, koja sada čini samo manji prihoda, te smanjuje ovisnost doktora o pacijentu, dijagnostičko-terapijskih postupaka, te stimulativni dio kojeg čine pokazatelji uspješnosti (učinkovitosti) – KPI, i pokazatelji kvalitete – QI, uz financiranje posebnih oblika rada ili posebnih postupaka. Novim modelima financiranja Hrvatski zavod za zdravstveno osiguranje, kroz praćenje i vrednovanje pokazatelja uspješnosti, utječe na promjenu ponašanja pružatelja zdravstvenih usluga usmjeravajući ih na pružanje učinkovite i kvalitetne zdravstvene zaštite, te zadovoljstvo kako pružatelja tako i korisnika zdravstvenih usluga.

**Posterske prezentacije****P1 UTJECAJ TEMPERATURE PRIPREMANJA ČAJA NA OTPUŠTANJE FLUORIDA**

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Poznato je da čajevi sadrže veliku količinu fluorida i da konzumacija čaja može značajno doprinijeti ukupnome unosu fluorida u organizam. Biljka od koje se rade svi zeleni, crni i bijeli čajevi (*Camellia sinensis*) apsorbira fluoride iz zemlje procesom pasivne difuzije tijekom životnoga vijeka biljke. Postoji nekoliko metoda pripremanja čaja koje se razlikuju u vremenu pripremanja ili u temperaturi vode kojom se priprema čaj. Postoje istraživanja koja su promatrala utjecaj vremena pripremanja čaja na otpuštanje fluorida iz čaja, ali ne postoji studija koja je pokazala na koji način utječu različite temperature vode kod pripremanja čaja na otpuštanje fluorida iz čaja. Materijali i metode: Ispitivano je 7 komercijalno dostupnih čajeva u filter-vrećicama (4 zelena čaja, 1 bijeli čaj i 2 crna čaja). Čajevi su pripremani vodama koje su imale tri različite temperature: 100°C (grupa A), 60°C (grupa B) i 30°C (grupa C). Vrijeme pripremanja u sve tri grupe bilo je 5 min. Za pripremanje čajeva korištena je vodovodna voda poznate količine fluorida (ispod 0.01 mg/L). Analiza uzoraka napravljena je ion-selektivnom fluoridnom elektrodom. Rezul-

**114 SOME ASPECTS OF PROFESSIONAL STRATEGY OF ORAL HEALTH IN SLOVENIA**

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Oral health is an essential part of the general well being and good oral health is a basic human right. The role of dentists, as the most trained professionals in the field of oral health is to help the population and decision makers to achieve good health through oral health. In this widened scope, oral health can be taken as a goal and as a means to achieve this end. The Slovenian Dental Association, as a voluntary non-government professional association, has formed a strategy to reach these goals and with the help of which and with the interactive cooperation with other medical and civil partners with similar viewpoints these following visions can be fully realized by: optimization of oral health for the entire population, recognizability of professional opinion of dentists in the society, improvement of education and informing and to offer continual support to our members.

**115 NEW MODEL OF CONTRACTING DENTAL MEDICINE IN PRIMARY HEALTHCARE**

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Dental healthcare is a part of the primary healthcare of the Republic of Croatia, it is included in the public healthcare network and is financed from the obligatory health insurance. In the total expenditure for primary healthcare it takes 26%. Doctors of dental medicine work as concessionaries or employees of the healthcare centers. Financing of dental medicine teams is based on the contract with the Croatian Health Insurance which should use the financial funds optimally for those procedures and programs that will contribute to health and quality of life the most. In order for dental care to be a base for the oral health of the population, we introduced a new model of financing dental healthcare. The former model comprised of per capita financing that made up almost 100% of the income; it has led to the unacceptable oral conditions of the population. We expect that the new model will encourage prevention and it will stimulate the dentists. It will be achieved through multilayered financing that include the payment of the basic requirements, per capita enumeration (now to a reduced amount), diagnostic and therapeutic procedures, and a stimulative amount that is measured by efficacy factors (KPI – key performance indicators) and quality indicators (QI), with additional financing of particular working procedures or special procedures. New models of financing enable the Croatian Health Insurance Fund to track and value the efficacy factors, thus changing the attitude of medical professionals by guiding them to yield efficient and quality healthcare, to the satisfaction of both providers and users of medical services.

**Poster Presentations****P1 INFLUENCE OF BREWING TEMPERATURE ON FLUORIDE RELEASE FROM TEA**

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It is known that tea contains high amount of fluoride and that tea consumption can contribute significantly to total fluoride intake. The tea plant (*Camellia sinensis*), from which all black, green and white teas are made, absorbs fluoride from acid soil by passive diffusion which is accumulated in the leaves during the plant's life span. There are different brewing techniques, mainly focused on different brewing time and temperature. While influence of brewing time on fluoride release from teas was examined in many studies, there are no data on influence of different brewing temperature on fluoride release from teas. Materials and methods: In this study we evaluated 7 commercially available filter bag teas (4 green teas from different manufacturer, 1 white tea and 2 black teas – English breakfast tea and Chai). All teas were prepared on different brewing temperatures: 100°C, 60°C and 30°C and assigned to groups A, B, and C, respectively. Brewing time in all groups was 5 min. Water used for brewing was tapped water with known fluoride content (below 0.01 mg F / L). Analyses were performed in duplicate with the use of ion-

rati: Raspon koncentracije fluorida u grupi A (100°C) bio je 0.70-1.33 mg/L, u grupi B (60°C) 0.42-0.84 mg/L i u grupi C (30°C) 0.32-0.61 mg/L. Zaključak: Rezultati ovog istraživanja pokazali su da viša temperatura vode kod pripremanja čaja utječe na veće otpuštanje fluorida iz čaja.

## P2 CIVILNE ŽRTVE DOMOVINSKOG RATA

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U Domovinskom ratu (1991-1995) koji se vodio na teritoriju Republike Hrvatske nastradalo je kao žrtve usmrćenja, ranjavanja, seksualnog zločina oko 8 000 civila. Od ratnog djelovanja poginulo je 402 djece, dok ih je 1260 ranjeno s većim ili manjim postotkom invaliditeta. Minski sumnjivi prostor obuhvaća 12. Županija i 96 gradova, te je u srpnju 2013. još 650 km<sup>2</sup> minski opasnih površina. Procjenjuje se da je u Hrvatskoj prisutno 75.000 minsko-eksplozivnih sredstava. Nakon 18 godina od završetka rata razminirano je 440 km<sup>2</sup> minski sumnjivih površina, što iznosi nešto više od jedne trećine ukupnog prostora. Od samog početka rata 1991. godine u 1348 nesreća od mina je stradalo 1965 osoba od čega 508 smrtno. Ograničavajuća financijska sredstva jedini su razlog sporog postupka razminiranja teritorija Republike Hrvatske. Nacionalnim programom koji je u rujnu 2009. donio Hrvatski sabor predviđeno je da se razminiranje završi do 2019. godine. Obitelji usmrćenih ili teško ranjenih u ratu, podnijele su tužbe na hrvatskim sudovima. U 89 posto slučajeva izgubile su parnicu, te danas plaćaju visoke parnične troškove između 5 i 110 tisuća kuna. Pacijentica u dobi 42 godine, nastradala je 01.05.2003. pri eksploziji PMA-2 protupješačke mine koja se aktivirala kada je grabljama čistila okućnicu u području Velike Gorice. Budući da mina nije aktivirana nagazom ozljede su atipično zahvatile prsni koš, trbuh i ruke, a najviše donju desnu stranu lica i donju čeljust. Veći dio korpusa i angulusa raznesen je eksplozijom u sitne dijelove a izubila je sve donje desne molare i premolare. Hitno je zbrinuta u Klinici za traumatologiju Zagreb, učinjena je traheotomija, torakalna drenaža, operacija abdomena te revizija rane lica s premoštenjem defekta angulusa i korpusa rekonstruktivnom pločom i primarna rekonstrukcija defekta lica lokalnom mobilizacijom tkiva. Postignuta je uredna okluzija preostalih zuba. U rujnu iste godine učinjena je u Klinici za kirurgiju lica, čeljusti i usta KB Dubrava rekonstrukcija koštanog defekta dijelom velikog krila crijevnice na mikrovaskularnoj peteljci reznjem DCIA pripojenim na krvne žile vrata. 2005. godine rekonstruktivna je ploča odstranjena, učinjene su korekcije ožiljaka lica i pacijentica upućena na definitivnu stomatološku protetsku rehabilitaciju. Mikrovaskularni reznjevi zlatni su standard u rekonstrukciji većih defekata kostiju čeljusti. Manji defekti mogu se rekonstruirati slobodnim avaskularnim presadcima ali je stupanj resorpcije visok. Najčešći reznjevi za rekonstrukciju mandibule su fibularni i ilijačni reznj (DCIA flap). Strijelne i eksplozivne ozljede mandibule u usporedbi s mirmodopskim ozljedama imaju znatno veći udio prijeloma s značajnim gubitkom kosti i zuba. U inicijalnom liječenju rijetko je moguća imedijatna rekonstrukcija zbog gubitka mekih tkiva i kontaminacije rane pa je inicijalni postupak stabilizacija okluzije i premoštenje defekta a osteoplastika se vrši nakon solidnog cijeljenja rane. Najčešći vid protetske rehabilitacije u takvim slučajevima opisanim u literaturi je usađivanje dentalnih implantata koji se mogu usaditi imedijatno u vrijeme osteoplastike ili nakon sraštavanja transplantata. Nažalost zbog nemogućnosti pokrivanja troškova implantata velika većina ozljeđenika iz Domovinskog rata nisu implantološki protetski opskrbljeni već klasičnim protetskim radovima koji su adaptirani uvjetima ožiljnih promjena na mekim tkivima i promijenjenim koštanim uvjetima rekonstruiranog grebena. Uspjeh terapije ostvaren je, unatoč skromnim financijskim mogućnostima. Civilne žrtve Domovinskog rata individualno ostvaruju svoja socijalna i materijalna prava jer nažalost njihov status još uvijek nije zakonski reguliran.

## P3 MLIJEČNI OČNJAK U SREDNJOJ NOSNOJ ŠKOLJCI UZROČNIK VIŠEGODIŠNJE BOLI U PODRUČJU LICA

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Ovaj slučaj opisuje povijest 32-godišnje žene koja je imala tri mjeseca intenzivne kontinuirane bolove u području desne strane srednjeg lica, uz korijen nosa i između očiju. Zbog bolova nije spava, bila je iscrpljena, smršavila je nekoliko kilograma, zanemarila je naj-

selective fluoride electrode. Results: Range of fluoride concentration in group A (100°C) was 0.70-1.33 mg F/L; in group B (60°C) was 0.42-0.84 mg F/L and in group C (30°C) was 0.32-0.61 mg F/L. Conclusion: Results of this study showed that higher brewing temperature enhances fluoride release from teas.

## P2 CIVILIAN CASUALTIES DURING THE HOMELAND WAR

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During the Homeland war (1991-1995) 8 000 civilian casualties were injured, killed or sexually abused on the ground of the Republic of Croatia. 402 children were killed by war activity, and 1260 was injured with higher or lower percentage of disability. After the war 637.9 square kilometres of Croatia territory are still covered with mines (data of year 2013). It is estimated that 75 000 landmines are present 18 years after the ending of war. Only 440 km<sup>2</sup> of Croatian land is cleared of mines, what is 1/3 of mines polluted area. As of 4 April 2013, 509 people had been killed and 1,466 injured by land mines in Croatia since the war. Limited financial funds are only reason for so slowly mines cleansing of Republic Croatia territory. In September of 2009 Croatian Parliament presented National program for mines, and it is expected that mines sweeping will end in 2019. Civilian casualties or their families rise lawsuits on Croatian courts, but in 89% they lost cases and they forced to pay high law costs. As an example we present a case of 42 years old house wife wounded by military explosive device PMA-2 (blast antipersonnel mine) in 2003 during the cleaning of her courtyard in Zagreb surrounding. The usual wounding by PMA-2 is foot injury as it occurs by footstep overpressure, but this mine was activated during work with a hay rake. Due to a bending from the waist body position the mine particles wounded her arm, thorax and abdomen (although these wounds were small pneumothorax, and the perforation of the colon occurred). The greatest defect was on the right side of the face: 30x40 mm irregular defect of the soft tissue in the masticatory and cheek region and the comminution of the complete angle and body of the mandible with teeth loss (all right lower molars and premolars) and bone loss (angle and most of the body). The initial surgery included wound cleaning from the device particles and free bony and teeth particles. The remaining mandible parts were reduced into occlusal position and fixed by the reconstructive plate bridging the defect. The wound was closed primarily, a mild dehiscence healed. Four months later the mandibular reconstruction was performed by the "L" shaped 14 x 5 cm bone transplant harvested from the iliac crest vascularized by deep circumflex iliac artery and vein. The graft was adapted to the mandible defect and fixed to the refreshed stumps by reconstructive plate. The occlusion of remaining teeth was completely preserved. No major complications or donor site morbidity occurred. A year later the reconstructive plate was removed and minor outer scar correction was performed in 2005. At the follow up scans no bony resorption was observed and the fusion with the mandible was uneventful. The restoration of teeth loss was performed by partial denture although dental implants would be more appropriate but patient could not afford the expenses.

## P3 PRIMARY MAXILLARY CANINE TOOTH IN THE MIDDLE NASAL TURBINATE AS A CAUSE OF PERENNIAL FACIAL PAIN

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This case describes the history of the 32-year-old female who has had three months of intensive continuous pain in the right side of the middle of the face, the root of the nose and between the eyes. Because of pain, she did not sleep well, she was exhausted, she lost

bliže, gotovo nekontrolirano je uzimala analgetike koji joj nisu smanjili bolove. Imala je dojam da će joj se lice rasprsnuti. Obitelj i liječnik joj nisu vjerovali. Iz povijesti smo saznali kako je doživjela prijelom nosa te dentalnu traumu u dobi od 9 godina. Gornji mlječni očajnik u nosnom prostoru nije dijagnostificiran od strane liječnika na prvom pregledu u Hitnoj pomoći. Kao posljedica unosa zuba u nosnu šupljinu i dodatnog utisnuća u srednju nosnu školjku tijekom repozicije i prednjeg tamponiranja nosa kod pacijentice se javljala dugogodišnja, povremena bol u području lica. Uvidom u cjelokupnu medicinsku i dentalnu dokumentaciju i povijesti bolesti je vidljivo da je uzrok tog boli bio pogrešno dijagnosticiran i protumačen od strane specijaliste otorinolaringologije, neurologa, psihijatra, doktora dentalne medicine i obiteljskog liječnika. Nakon 23 godine od dentalne traume, MSCT je prikazao dislocirani mlječni gornji očajnik u srednjoj nosnoj školjki okružen učahurenim nekrotičnim upalnim sadržajem. Nekrotično tkivo i zub je uklonjen iz srednje nosne školjke jednostavnim endoskopskim kirurški pristupom. Adekvatnom dijagnostikom i liječenjem nakon 23 godine od traume, prestala je agonija jer je bol lica u potpunosti nestala.

#### P4 UZ 50-TU OBLJETNICU: POVIJEST ZDRAVSTVENE KULTURE KROZ REKLAMNE OGLASE KALODONT PASTE ZA ZUBE

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Recepte za praške i paste za zube nalazimo još u spisima drevnih naroda. S razvojem društva razvila se trgovina pa tako i potreba za oglašavanjem proizvoda za zubnu higijenu. U drugoj polovici 18. stoljeća u Europi se pojavilo oglašavanje putem slika, a u 19. stoljeću u formatu plakata. U 20. stoljeću marketinški stručnjaci počeli su upotrebljavati suptilnu psihologiju kako bi utjecali na podsvijest potrošača. Članovi Zadruga hrvatskih stomatologa na znanstvenoj su osnovi razvili recepte po kojima su se u Zagrebu od 1904. do 1916. godine pripremali prašak i pasta za zube Sanator. Kalodont pasta za zube poznata je europska marka podrijetlom iz Austrougarske. Godine 1887. tvrtka F.A. Sarg's Sohn&Co iz Beča prva u povijesti počinje Kalodont puniti u tube. Kalodont se kontinuirano oglašava od tog doba, pa tako i u Hrvatskoj, gdje ga i danas proizvodi Saponia Osijek. Godine 1962. Saponia proizvodi Kalodont extra s Na-N-lauril-sarkozinatom, koji je pasti dodan kao tenzid, za poboljšanje pjenjenja. Danas se sarkol više ne koristi u zubnim pastama jer može stvarati nitrozo-spojeve te bi, ukoliko se proguta, djelovao kancerogeno. Kalodont extra se na početku proizvodnje oglašava stripom a 1963. godine, u tjedniku Vjesnik u srijedu (VUS), izlazi serija reklamnih oglasa „S Kalodontom extra kroz povijest kulture“. Oglasi su se sastojali od ilustracije preuzete iz nekog povijesnog izvora, poruke koja iz ilustracije proizlazi, te opisa same ilustracije i značenja za povijest zubarstva. Autori oglasa bili su Boro Pavlović, Darko Venturini i Branko Močan. Dok povijesno-medicinsku tematiku sporadično nalazimo u novinskim oglasima te na poštanskim markama, ovo je jedinstveni primjer edukativnog serijala koji svojim sadržajem iz povijesti stomatologije obuhvaća vremenski raspon od drevnih civilizacija do Pierra Faucharda. Ovaj prikaz posvećen je autorima povodom 50. obljetnice reklamne kampanje.

#### P5 ORTODONTSKO-KIRURŠKA TERAPIJA VISOKO POZICIONIRANOG LATERALNOG SJEKUTIĆA SA PRAVOKUTNO ZAVIJENIM APEKSO

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Značajna resorpcija dužine korijena zuba je prisutna u 3-5% ortodontskih pacijenata. Zubi podložniji resorpciji korijena poput gornjih lateralnih inciziva, u prosjeku gube 2mm dužine korijena zuba tijekom fiksne ortodontske terapije. Gubitak dužine korijena zuba moguće je izbjeći ili smanjiti upotrebom vrlo slabih sila. Upotrebom takvih sila moguć je pomak zuba s izuzetno zavijenim korijenom.

Pacijentici starosti 16 i pol godina postavljena je fiksna ortodontska naprava. Imajući u vidu starost pacijentice, položaj razvijenoga gornjeg desnog lateralnog sjekutića i pravokutno zavijen vršak korijena, prognoza terapije je bila nepovoljna. Cilj terapije je bio ho-

weight a few kilograms, started to neglect her family. She was taking, almost uncontrollably, the painkillers, but those pills did not reduce her pain. She had the impression that her face will burst. Her family and family doctor did not believe her. From medical history we learned that she suffered a nose fracture and dental trauma at the age of 9 years. The upper primary canine tooth in the nasal area has not been diagnosed by a doctor at the first examination in the emergency room. As a result of presence of the tooth in the nasal cavity and its' additional imprint in the middle turbinate during reposition and anterior tamping of the nose, patient had long-time, intermittent facial pain. After we reviewed entire medical and dental history, we concluded the cause of the pain was misdiagnosed and misinterpreted by ENT specialists, neurologists, psychiatrists, dentists and family doctor. After 23 years of dental trauma, MSCT showed dislocated primary upper canine tooth in the middle nasal conch, surrounded by encapsulated necrotic inflammatory content. Necrotic tissue and the tooth were removed from the middle turbinate by simple endoscopic surgical approach.

Adequate diagnostics and treatment after 23 years of trauma, stopped agony and facial pain completely disappeared.

#### P4 THE 50<sup>TH</sup> ANNIVERSARY: HISTORY OF HEALTH CULTURE IN THE ADVERTISEMENTS FOR KALODONT TOOTH PASTE

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Recipes for tooth powders and toothpastes can be found already in the inscriptions of ancient peoples. Development of the society led to development of trade and need for advertising products for dental hygiene. In Europe advertising using illustrations emerged in the second half of the 18th century while in the 19th century poster form was used. In the 20th century marketing professionals started to use subtle psychology to influence consumers' subconscious perceptions. From 1904 till 1916 tooth powder and toothpaste Sanator were produced in Zagreb according to recipes developed on the scientific basis by the members of the Association of Croatian Dentists. Kalodont is the famous European toothpaste brand originating from Austria-Hungary. In 1887 F.A. Sarg's Sohn & Co. started to fill Kalodont toothpaste in collapsible tubes as the first in history. Kalodont is advertised continuously from that time, including in Croatia where it is produced also today by Saponia Osijek. In 1962 Saponia produces Kalodont extra with Na-N-lauryl-sarkosinate, surfactant additive for enhancing foaming. Today sodium-lauryl-sarkosinate is no longer used in toothpastes because it can be nitrosated and, if swallowed, can have carcinogenic effect. Kalodont extra is first advertised in comics and in 1963, in weekly magazine "Vjesnik u srijedu" (VUS), the series of advertisements is published under the title "With Kalodont extra through the history of culture". The advertisements consisted of illustration taken from some historical source, message coming out of it, description of the illustration and its significance for the history of dentistry. The authors of advertisements were Boro Pavlović, Darko Venturini and Branko Močan. While historical medical themes are occasionally present in newspaper advertisements and on postage stamps, this is unique example of the educational series that in its contents encompasses time span from the ancient civilisations to Pierre Fauchard. This presentation is dedicated to the authors in the occasion of the 50th anniversary of the campaign.

#### P5 ORTHODONTIC-SURGICAL THERAPY FOR HIGH POSITIONED LATERAL INCISOR TOOTH WITH RECTANGULAR CURVED APEX

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A significant resorption of the length of tooth root is present in 3-5 % of orthodontic patients. Teeth more susceptible to root resorption, such as upper lateral incisors, on average, lose 2 mm length of the tooth root during fixed orthodontic treatment. Loss of tooth root length can be avoided or reduced by using very weak force. Using such forces, there is possibility of tooth shift with extremely curved root.

Sixteen and a half years old patient is presented. We set to her a fixed orthodontic gadget. Bearing in mind the age of the patient, the position of developed upper right lateral incisor and rectangular curved tip of the root, the prognosis of therapy was unfavorable. The



rizikalni pomak uz vertikalno apliciranje sile u ciljanom smjeru te postava zuba na svoje mjesto u luku. Napravljena je otvorena kortikotomija i postavljena je ortodontska bravica. Kontrole su bile česte, svakih 7 dana. Inicijalni pomak je ostvaren ortodontskom blok žicom promjera 0,2 mm pričvršćenom na blok centralnih gornjih sjekutića. Horizontalna komponenta sile je ostala 2 mjeseca nakon aktiviranja vertikalne komponente, zbog rizika za uspjeh terapije pomaka korijena lateralnog gornjeg sjekutića. Nakon 8 mjeseci zub je uspješno pozicioniran u zubni luk s neoštećenim korijenom.

#### P6 ORTODONTSKO-KIRURŠKA TERAPIJA VISOKO POZICIONIRANOG LATERALNOG SJEKUTIĆA SA PRAVOKUTNO ZAVIJENIM APEKSOM

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Značajna resorpcija dužine korijena zuba je prisutna u 3-5% ortodontskih pacijenata. Zubi podložniji resorpciji korijena poput gornjih lateralnih inciziva, u prosjeku gube 2mm dužine korijena zuba tijekom fiksne ortodontske terapije. Gubitak dužine korijena zuba moguće je izbjeći ili smanjiti upotrebom vrlo slabih sila. Upotrebom takvih sila moguć je pomak zuba s izuzetno zavijenim korijenom.

Pacijentici starosti 16 i pol godina postavljena je fiksna ortodontska naprava. Imajući u vidu starost pacijentice, položaj razvijenoga gornjeg desnog lateralnog sjekutića i pravokutno zavijen vršak korijena, prognoza terapije je bila nepovoljna. Cilj terapije je bio horizontalni pomak uz vertikalno apliciranje sile u ciljanom smjeru te postava zuba na svoje mjesto u luku. Napravljena je otvorena kortikotomija i postavljena je ortodontska bravica. Kontrole su bile česte, svakih 7 dana. Inicijalni pomak je ostvaren ortodontskom blok žicom promjera 0,2 mm pričvršćenom na blok centralnih gornjih sjekutića. Horizontalna komponenta sile je ostala 2 mjeseca nakon aktiviranja vertikalne komponente, zbog rizika za uspjeh terapije pomaka korijena lateralnog gornjeg sjekutića. Nakon 8 mjeseci zub je uspješno pozicioniran u zubni luk s neoštećenim korijenom.

#### P7 MOGUĆNOSTI PRIMJENE OPTIČKE TRODIMENZIONALNE DIGITALIZACIJE U ANTROPOMETRIJSKOJ ANALIZI TEMPOROMANDIBULARNOGA ZGLOBA

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Zbog specifičnosti i složenosti građe i funkcije temporomandibularni zglob je još uvijek predmet mnogih znanstvenih i kliničkih istraživanja. Mjerenja anatomskih struktura temporomandibularnog zgloba doprinose istraživanjima o mogućem utjecaju raznih patoloških stanja, gubitka zubi ili pak konzumiranje različite vrste hrane (npr. kroz ljudsku povijest) na promjenu biomehaničkih uvjeta u stomatognatnom sustavu i samom zglobu. Dosadašnja, uglavnom dvodimenzionalna, mjerenja su provedena različitim tehnikama: kranimetrijska mjerenja, radiografska mjerenja (mjerne točke je često teško precizno definirati), mjerenja na sadrenim modelima zglobne kvrčice i jamice (zbog površinskog trošenja sadre mjerne točke postaju nejasne), mjerenja na digitalnim snimkama u odgovarajućim kompjuterskim programima. Danas dostupna trodimenzionalna snimanja i mjerenja bi trebala ukloniti, odnosno minimalizirati, nedostatke prethodno navedenih tehnika. Jedan od sustava za trodimenzionalnu digitalizaciju objekata je i ATOS sustav (GOMmBH, Braunschweig, Njemačka) koji omogućava bilježenje oblika izuzetno kompliciranih objekata snimanja. Prednost je i što se može prilagoditi veličini mjernoga objekta, te se uspješno trodimenzionalno digitaliziraju objekti od svega desetak milimetara pa do desetak ili više metara. Ugodan za snimanje malih objekata, ATOS stvara mrežu mjernih točaka s razmakom od svega 0.05 mm, odnosno i do 400 točaka po kvadratnom milimetru. Svaka se točka mjeri s točnošću od nekoliko mikrometara. Na taj se način precizno bilježi oblik objekta uključujući sve detalje, čak i one nevidljive prostim okom. U ovom istraživanju optički sustav ATOS korišten je za digitalizaciju silikonskog otiska (Optosil, Kulzer, Hanau, Njemačka) zglobne kvrčice i jamice napravljenog na lubanji staroj oko 1000 godina. Digitaliziran objekt prostorno je orijentiran pomoću koordinatnog sustava te su zadane referentne ravnine. Napravljeno je ukupno 5 presjeka objekta (među-

goal of therapy was a horizontal shift along the vertical application of force in the targeted direction and setting the tooth in its place in the arch. Open corticotomy was performed, and the orthodontic bracket was set up. Controls were frequent, every 7 days. The initial shift was achieved by orthodontic block wire which was 0.2 mm in diameter, attached to a block of the central upper incisors. The horizontal component of the force remained 2 months after activation of the vertical component, because of the risk for the success of therapy shift of the roots of the upper lateral incisors. After eight months the tooth was successfully positioned in the dental arch with undamaged roots.

#### ORTHODONTIC-SURGICAL THERAPY FOR HIGH POSITIONED LATERAL INCISOR TOOTH WITH RECTANGULAR CURVED APEX

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A significant resorption of the length of tooth root is present in 3-5 % of orthodontic patients. Teeth more susceptible to root resorption, such as upper lateral incisors, on average, lose 2 mm length of the tooth root during fixed orthodontic treatment. Loss of tooth root length can be avoided or reduced by using very weak force. Using such forces, there is possibility of tooth shift with extremely curved root.

Sixteen and a half years old patient is presented. We set to her a fixed orthodontic gadget. Bearing in mind the age of the patient, the position of developed upper right lateral incisor and rectangular curved tip of the root, the prognosis of therapy was unfavorable. The goal of therapy was a horizontal shift along the vertical application of force in the targeted direction and setting the tooth in its place in the arch. Open corticotomy was performed, and the orthodontic bracket was set up. Controls were frequent, every 7 days. The initial shift was achieved by orthodontic block wire which was 0.2 mm in diameter, attached to a block of the central upper incisors. The horizontal component of the force remained 2 months after activation of the vertical component, because of the risk for the success of therapy shift of the roots of the upper lateral incisors. After eight months the tooth was successfully positioned in the dental arch with undamaged roots.

#### P7 APPLYING POSSIBILITIES OF OPTICAL THREE-DIMENSIONAL DIGITALIZATION METHOD IN ANTHROPOMETRIC ANALYSIS OF TEMPOROMANDIBULAR JOINT

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Due to the complexities in structure and function, human temporomandibular joint is still a focal point for number of scientific and clinical investigations. The measurement of temporomandibular joint's anatomical structures contributes in understanding how different pathological conditions, tooth loss, and the type of diet (throughout human history) can affect the change of biomechanical conditions in masticatory system and in the temporomandibular joint. So far, mainly two-dimensional measurements were carried out using various techniques: craniometric measurements, radiographic measurements (measuring points is often difficult to define precisely), measurements on the plaster models of the articular eminence and the fossa (due to the wear of plaster surface measuring points become unclear), and digital images measurements using adequate computer software. Today available three-dimensional digitalization and measurements should completely remove, or minimize, disadvantages of above mentioned methods. One of the system for three-dimensional digitalization of objects is the ATOS system (GOMmBH, Braunschweig, Germany), which allows digitalization of objects with very complicated form. One of the advantages is the possibility to adjust the system to the size of the measuring object and successfully three-dimensional digitalization of only ten millimeters up to ten or more meters big objects. Adjusted for digitalization of small objects, ATOS creates a network of measuring points with a distance of only 0.05 mm, and up to 400 dots per square millimeter. Each point is measured with an accuracy of a few micrometers. Therefore, the shape of the object is digitalized accurately including all the details, even those invisible to the naked eye. In this study, an optical system ATOS was used to digitalize the silicon impression (Optosil, Kulzer, Hanau, Germany) of the articular eminence and the fossa made on the human skull with an average age of 1000 years. Digitalized

sobno udaljena 4 mm) te se provelo mjerenje nagiba stražnjeg zida zglobne kvrčice prema dvije metode, visine zglobne kvrčice odnosno dubine zglobne jamice i duljine zakrivljene linije mjerene od najviše do najniže točke zglobne kvrčice. Prikazani postupak trebao bi doprinjeti preciznosti istraživanja u ovom području.

Kongres Hrvatskog stomatološkog društva

#### P8 SEDACIJA U DENTALNOJ MEDICINI – TIMSKI PRISTUP

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Posljednjih godina postignut je veliki tehnički napredak na području dentalne medicine, no strah pacijenata i dalje ostaje veliki problem. Prema međunarodnim smjernicama, primjerice: Smjernice ADA (American Dental Association), ANZCA (Australian and New Zealand College of Anesthetists; Royal Australasian College of Dental Surgeons), primjena lokalne anestezije uz sedaciju definira se kao jedna od metoda kontrole straha i boli. Sedacija je tehnika u kojoj se koriste lijekovi koji deprimiraju središnji živčani sustav uz očuvan verbalni kontakt s pacijentom tijekom čitavog perioda sedacije, te uz moguću amneziju za perioperativno razdoblje. Dva su glavna cilja sedacije: povećati udobnost pacijenta te smanjiti strah i tjeskobu. Prvenstveno je namijenjena za veće i dulje zahvate (implantologija, oralna kirurgija), te za fobične pacijente. Dentalna fobija prisutna je u oko 15 % pacijenata i od velikog je utjecaja na kvalitetu života tih ljudi. Točno su predviđene potrebne vještine, monitoring i oprema potrebna za sigurno provođenje samog postupka. Prije samog postupka iznimno je važan pažljiv odabir pacijenta što uključuje procjenu zdravstvenog statusa, jakost dentalne fobije te obimnost planiranog zahvata. Oni pacijenti koji zadovoljavaju kriterije, te spadaju u skupinu zdravih ljudi ili pacijenata s dobro kontroliranom sistemskom bolešću (The American Society of Anesthesiology, ASA I i II), mogu iskoristiti prednosti sedacije. Veličina anksioznosti procjenjuje se primjenom upitnika (Corahs Dental Anxiety Scale). Sigurnost primjene sedacije dokumentirana je u kako u kliničkim ispitivanjima tako i u svakodnevnoj praksi, no valja strogo poštovati međunarodne smjernice kako u postupku, tako u opremi i izboru pacijenata. Zbog sve opsežnijih dentalnih zahvata, kao i velikog broja pacijenata s dentalnom fobijom, sve je veća potreba za primjenom sedacije u dentalnoj medicini. Sedacija značajno povećava udobnost pacijenta tijekom zahvata. Sve bolje poznavanje farmakokinetike i farmakodinamike lijekova čine sedaciju učinkovitom i sigurnom, dok će razvoj novih načina primjene lijekova dodatno unaprijediti učinkovitost sedacijskog postupka.

#### P9 PERIAPEKSNA UPALA: POMISLITE I NA METASTAZU

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Usna šupljina i orofarinks vrlo su neobična mjesta za razvoj metastaza iz primarnih karcinoma drugih organa i čine samo oko 1-2% malignih tumora usne šupljine. Vjerojatni uzrok da doktori dentalne medicine ne pomisle na mogućnost pojave metastaze u usnoj šupljini je pogrešna interpretacija metastaza kao odontogene upale. Prema literaturi, najčešća primarna ishodišta oralnih i/ili orofaringealnih metastaza su pluća, bubrež i prostata u muškaraca, te dojka, spolni organi i bubrež u žena. Metastatski tumori dvostruko su češći u kostima čeljusti, nego u mekom tkivu. Većina pacijenata umre u roku od 1 godine od postavljanja dijagnoze, a petogodišnje preživljenje procjenjuje se na 10%. Prikazujemo bolesnika koji se liječio od primarnog karcinoma pluća, a u našu ambulantu došao je zbog otekline bukalnoga dijela alveolarnoga grebena. Radiološki je utvrđena periradikalna transparentcija i promjena je pogrešno dijagnosticirana kao odontogena upala. Zub je ekstrahiran, a rana nije cijelila. CT obradom dokazano je opsežna osteolitičko žarište alveolarnoga grebena. Citološkom punkcijom dokazane su maligne stanice, a patohistološka dijagnoza biopsije potvrdila je da se radi o metastatskom tumoru. Ovaj slučaj naglašava potrebu da se prepozna i pomisli da naizgled benigne ili upalne lezije mogu predstavljati metastaze udaljenih malignih tumora.

object was spatially oriented using a coordinate system and the reference planes were determined. A total of five sections through the object were made (with 4 mm distance between each section). It was measured the inclination of the posterior wall of the articular eminence by two methods, the height of the articular eminence (glenoid fossa depth) and the length of curved line measured from the highest to the lowest point of the articular eminence. The present method should contribute to the precision of measurement and researches in this area.

#### P8 USE OF SEDATION IN DENTISTRY - TEAM APPROACH

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Although great technical advances have been achieved in dentistry during recent years, the problem of patients' fear and anxiety during dental treatment is still a primary concern in everyday work. There are many patient who cannot have regular dental treatment due to their fear. For the treatment of phobic patients and for long lasting dental procedures (implantology, oral surgery), sedation can be the method of choice. According to the international guidelines (American Society of Anesthesiologists, ASA), the term 'conscious sedation' is used for sedation for therapeutic or diagnostic procedures, and 'monitored anaesthesia care' for sedation to supplement local or regional anaesthesia. Sedation can be described as a drug-induced state during which the patient responds normally to verbal commands, cognitive function and coordination may be impaired, but the ventilatory and cardiovascular functions are unaffected. This kind of balanced sedative techniques should only be used after careful consideration of patient profile, specially in outpatient settings. The benefits include general patient comfort, freedom from specific discomfort, and some amnesia for dental procedure. There are many available sedative agents including benzodiazepines, intravenous anesthetic induction agents, narcotic analgesics and  $\alpha$ -adrenoreceptor agonists. Good knowledge of the pharmacology of sedative agents, including pharmacodynamic and pharmacokinetic properties, is crucial for their useful clinical application. The ideal sedative agent would be the one with rapid onset, easy titration, and high clearance. The development of new modes of administration would improve the quality of sedation.

#### P9 PERIAPICAL INFECTION: THINK OF METASTASIS TOO!

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The oral cavity and oropharynx are very unusual place for the development of metastases from primary cancers of other organs and make up only about 1-2 % of malignant tumors of the oral cavity. Probable cause that dentists do not think the likelihood of metastases in the oral cavity is a misinterpretation of metastasis as odontogenic inflammation. According to the literature, the most common primary origin of oral and/or oropharyngeal metastases are the lung, kidney and prostate in men and breast, kidney, and genital organs in women. Metastatic tumors are twice as common in the bones of the jaw, than in the soft tissue. Most patients die within one year of diagnosis, and five-year survival rate is estimated at 10%. We report a patient who was treated for primary lung cancer, and came in our outpatient department because of the swelling of the buccal portion of the alveolar ridge. Periradicular transparency was radiologically determined and change was misdiagnosed as odontogenic inflammation. The tooth was extracted, and the wound has not healed. CT scan revealed extensive osteolytic focal area of the alveolar ridge. Cytological analysis found malignant cells, a histological diagnosis of biopsy confirmed that this was a metastatic tumor. This case highlights the need to recognize and think that even seemingly benign or inflammatory lesion may represent distant metastasis of malignant tumor.

#### P10 KARIJES PREVENTIVNI UČINAK FLUORIDA TIJEKOM ORTODONTSKE TERAPIJE

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Topikalno primijenjeni fluoridi mogu smanjiti pojavu demineralizacija tijekom fiksne ortodontske terapije. Karijes preventivna učinkovitost različitih fluoridnih tretmana, s obzirom na kombinacije s drugim preparatima i različite načine primjene fluorida, još nije jasno utvrđena. Cilj ovog istraživanja bio je utvrditi učinkovitost preparata topikalnih fluorida u sprečavanju nastanka demineralizacija tijekom fiksne ortodontske terapije na temelju objavljenih kliničkih ispitivanja u posljednjih deset godina. Pretražena je baza podataka PubMed (US National Library of Medicine, National Institute of Health) s ključnim riječima karijes, fluoridi i ortodontski, preko mrežnih stranica baze, za literaturu objavljenu od siječnja 2005 do studenog 2013. U bazi su tražena randomizirana kontrolirana ispitivanja (RCT) ili klinička kontrolirana ispitivanja (CCT) objavljena nakon zadnjeg Cochrane sustavnog pregleda baze podataka o ovoj temi (Benson 2004). U istraživanje su uključeni radovi s prisutnosti ili odsutnosti demineralizacija na kraju fiksne ortodontske terapije kao primarnim ishodom, kao i sa tretmanima fluoridima, kombinacijama s drugim preparatima i različitim načinima primjene fluorida. Dva recenzenta su neovisno pročitali i analizirali objavljene radove, i izvukli podatke kojima su procijenili metodološku kvalitetu, rezultate i zaključak svakog istraživanja. Pregledavanjem naslova i sažetaka odabrano je 111 radova. Analizom metodologije i dizajna studija među njima je utvrđeno 7 RCT ili CCT istraživanja, 5 prospektivnih studija, dvije presječne studije, jedna opisna i jedna opservacijska studija. Sve studije su bile usmjerene na fiksne ortodontske pacijente, preparate fluora, bez usporedbe liječenje/placebo učinak, te su imale demineralizaciju ili prirast karijesa kao glavni ishod. Topikalni fluoridi primijenjeni na različite načine, uz korištenje zubnih pasti, smanjuju pojavu demineralizacija u pacijenata sa fiksnom ortodontskom terapijom, ali bez dokaza da je bilo koji način bio učinkovitiji u odnosu na druge. Postoji potreba za kvalitetnim kliničkim istraživanjima o različitim načinima primjene fluorida kako bi se utvrdila valjanost i klinički značaj buduće primjene topikalnih fluorida za ortodontskog pacijenta.

#### P11 UČINAK FLUORIDA, KAZEIN FOSFOPEPTIDA I AMORFNOG KALCIJ FOSFATA NA REMINERALIZACIJU RANIH KARIJESNIH LEZIJA

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Uvod: Topikalni fluoridi mogu smanjiti demineralizaciju cakline i remineralizirati rane karijesne lezije sa ograničenim uspjehom. Cilj ovog istraživanja bio je utvrditi učinkovitost preparata topikalnih fluorida i/ili kazein fosfopeptida (CPP) s amorfnim kalcij fosfatom (ACP) u liječenju demineralizacija cakline kao ranih karijesnih lezija, na temelju objavljenih kliničkih ispitivanja u posljednjih deset godina. Metode: Pretražena je baza podataka PubMed (US National Library of Medicine, National Institute of Health) s ključnim riječima fluoridi, kazein fosfopeptid, amorfnim kalcij i rane karijesne lezije preko mrežnih stranica baze, za literaturu objavljenu od siječnja 2003 do studenog 2013. U bazi su tražena randomizirana kontrolirana ispitivanja (RCT) ili klinička kontrolirana ispitivanja (CCT). U istraživanje su uključeni radovi s prisutnosti ili odsutnosti remineralizacije ranih karijesnih lezija kao primarnim ishodom, kao i sa tretmanima fluoridima, te preparatima s kazein fosfopeptid - amorfnim kalcijevim fosfatom. Dva recenzenta su neovisno pročitali i analizirali objavljene radove, i izvukli podatke kojima su procijenili metodološku kvalitetu, rezultate i zaključak svakog istraživanja. Rezultati: Pregledavanjem naslova i sažetaka odabrano je 18 radova. Analizom metodologije i dizajna studija među njima je utvrđeno 11 RCT ili CCT istraživanja, jedna opservacijska studija, jedna longitudinalna, jedna presječna studija te 5 studija koje su uključivale i in vitro pokuse. Među RCT i CCT studijama 5 ih smatra preparate CPP - ACP u kombinaciji s topikalnim fluoridima u remineralizaciji ranih karijesnih lezija boljima u odnosu na primjenu samo fluorida ili placeba. Također, drugih 6 RCT i CCT studija zaključuju da nema značajne razlike između kliničkog učinka CPP -ACP i učinka fluorida protiv demineralizacije. Zaključak: Preparati topikalnih fluorida i/ili CPP-ACP smanjuju veličinu površine demineralizacije cakline, ali bez dokaza da je bilo koji preparat učinkovitiji od drugih. Postoji potreba za novim kvalitetnim kliničkim istraživanjima o različitim načinima primjene fluorida i/ili CPP-ACP kako bi se utvrdila valjanost i klinički značaj buduće primjene topikalnih fluorida u remineralizaciji ranih karijesnih lezija.

#### P10 CARIES PREVENTIVE EFFECT OF FLUORIDES DURING ORTHODONTIC TREATMENT

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Topical fluorides may reduce demineralization during fixed orthodontic treatment. The caries-preventive effectiveness of different fluoride treatments, combinations with other preparations and different modes of fluoride delivery is not yet clearly identified. The aim of this study was to determine the effectiveness of topical fluoride preparations in preventing demineralization during fixed orthodontic treatment based on published clinical trials in past ten years. The search with keywords caries, fluoride and orthodontic, was reached through PubMed website (US National Library of Medicine, National Institute of Health) for the literature published from January 2005 to November 2013. The database was searched for randomized controlled trials (RCTs) or clinical controlled trials (CCTs) published since last Cochrane database systematic review on this topic (Benson 2004). Trials with the presence or absence of demineralization at the end of fixed orthodontic treatment as the primary outcome, as well as with the fluoride treatments, combinations with other preparations and different modes of fluoride delivery, were included. Two reviewers independently read and analysed the papers, and extracted data assessing the methodological quality, results and the conclusion of each trial. There were 111 articles identified by screening titles and abstracts. Analysis of the methodologies and study designs revealed that 7 reports were RCTs or CCTs, 5 prospective studies, two were cross-sectional, one descriptive and one observational study. These studies were focused on the fixed orthodontic population, fluoride preparations, no treatment/placebo comparisons, and had demineralization or caries increment as the main outcome. Topical fluoride in different modes, additionally to fluoride toothpaste, reduced the incidence of demineralization in fixed orthodontic population, but without evidence that any method was superior to other. There is a need for high quality clinical research on the different modes of delivering fluoride to enhance the validity and clinical relevance of future topical fluoride use for the orthodontic patient.

#### P11 EFFECT OF FLUORIDES, CASEIN PHOSPHOPEPTIDES AND AMORPHOUS CALCIUM PHOSPHATE ON WHITE SPOT LESION REGRESSION

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Introduction: Topical fluorides may reduce enamel demineralization and reverse white spot lesions at limited success. The aim of this study was to determine the effectiveness of topical fluoride and/or casein phosphopeptide (CPP) amorphous calcium phosphate (ACP) preparations in treating enamel demineralization as white spot lesions, based on published clinical trials in past ten years. Methods: The search with keywords fluoride, casein phosphopeptide amorphous calcium, and white spot was reached through PubMed website (US National Library of Medicine, National Institute of Health) for the literature published from January 2003 to November 2013. The database was searched for randomized controlled trials (RCTs) or clinical controlled trials (CCTs). Trials with the presence or absence of white spot lesion improvement as the primary outcome, as well as with the fluoride treatment and casein phosphopeptide-amorphous calcium phosphate treatments, were included. Two reviewers independently read and analysed the papers, and extracted data assessing the methodological quality, results and the conclusion of each trial. Results: There were 18 articles identified by screening titles and abstracts. Analysis of the methodologies and study designs revealed that 11 reports were RCTs or CCTs, one observational, one longitudinal and 5 studies included in-vitro experiments as well. Among RCTs and CCTs there were 5 trials supporting CPP-ACP preparations combined with fluorides superior in white spot regression when compared to fluorides only or placebo. Also, other 6 RCTs and CCTs found no significant clinical differences between CPP-ACP and the fluoride groups against demineralization. Conclusion: Topical fluoride and/or CPP-ACP preparations reduced the size of enamel demineralization, but without evidence that any preparation was superior to other. There is a need for high quality clinical research on the different modes of delivering fluoride and/or CPP-ACP to enhance clinical relevance of future topical preparation use for white spot lesion treatment.

### P12 FORMIRANJE JEDNODIMENZIJSKOG UPITNIKA ZA EVALUACIJU ŽVAČNE FUNKCIJE OD STRANE PACIJENTA I TESTIRANJE NJEGOVIH PSIHOMETRIJSKIH SVOJSTAVA

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Svrha: Formiranje jednodimenzijalnog upitnika za evaluaciju žvačne funkcije od strane pacijenta i testiranje njegovih psihometrijskih svojstava. Materijali i metode: Grupa od 7 stomatologa i 15 pacijenata nakon završene protetske terapije je formirala 30 relevantnih pitanja vezana uz funkciju žvakanja. Dodatno je ista grupa eliminirala 9 pitanja te je provedeno pilot istraživanje, nakon kojeg su eliminirana još 4 pitanja. Ispitanici su na pitanja morali odgovoriti procjenjujući zadovoljstvo žvakanja na Likertovoj skali od 0 do 4. Preliminarna verzija upitnika od 17 pitanja testirana je na 200 ispitanika (100 ispitanika sa prirodnim zubima i 100 pacijenata sa mobilnim protezama). Pomoću faktorske analize se ispitala dimenzionalnost novoformiranog upitnika te je konačno formiran upitnik od 10 pitanja za procjenu funkcije žvakanja. Konvergentna i diskriminativna valjanost te pouzdanost upitnika žvakanja testirane su na 200 ispitanika. Test-retest analiza provedena je kod 60 ispitanika, a primjerenost kod 24 ispitanika, koji su dobili novi protetski nadomjestak. Rezultati: Faktorskom analizom preliminarnе verzije upitnika utvrđeno je da su se pitanja raspodijelila na 3 različita faktora (dimenzije). Stoga su pitanja koja su korelirala sa većim brojem faktora eliminirana iz upitnika kao i pitanja sa većem stupnjem korelacije na drugom i trećem faktoru. Eliminacijom 7 pitanja, formiran je upitnik od 10 pitanja, a primjenom faktorske analize izlučio se samo jedan faktor. Konvergentna valjanost potvrđena je postojanjem statistički značajne povezanosti ( $p < 0,001$ ) između pacijentove vlastite procjene općim zadovoljstvom žvakanjem i ukupnog zbroja bodova upitnika. Diskriminativna valjanost pokazala je da postoji statistički značajna razlika između pacijenata sa mobilnim protezama i ispitanika sa prirodnim zubima ( $p < 0,001$ ). Test-retest analiza pokazala je da ne postoji statistički značajna razlika između dva testiranja ( $p > 0,05$ ). Unutrašnja konzistentnost je pokazala visoke vrijednosti koeficijenta Cronbach's alpha (0.934). Primjerenost je potvrđena postojanjem statističke značajne razlike između zbroja bodova upitnika prije i poslije terapije ( $p < 0,001$ ). Zaključak: Novoformirani jednodimenzionalni upitnik za procjenu funkcije žvakanja pokazao je zadovoljavajuća psihometrijska svojstva u hrvatskoj populaciji te je prikladan za procjenu funkcije žvakanja od strane pacijenta.

### P13 STAVOVI I ZNANJE LIJEČNIKA DENTALNE MEDICINE O MJERAMA PROFILAKSE INFEKCIJSKOG ENDOKARDITISA

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Niz dosadašnjih istraživanja pokazao je nepoznavanje i nepravilno provođenje mjera profilakse infektivnog endokarditisa (IE). Ovim istraživanjem smo željeli provjeriti stavove i znanja hrvatskih liječnika dentalne medicine o principima profilakse IE. Istraživanje je provedeno u Splitu, 26. veljače 2011., tijekom održavanja dvodnevnog tečaja trajne edukacije za liječnike dentalne medicine „Stomatologija danas, 2011.“, u organizaciji Hrvatske komore dentalne medicine, podružnica Split. Upitnik se sastojao od 14 pitanja koja su uz opće, demografske, podatke o ispitanicima (dob i spol ispitanika, godina diplomiranja i broj godina rada u kliničkoj praksi) obuhvatila tri tematske cjeline: 1. upućenost o smjernicama za profilaksu IE i stavovi o važnosti provođenja mjera profilakse IE prije zahvata u usnoj šupljini, 2. poznavanje kardioloških entiteta i postupaka u usnoj šupljini koji zahtijevaju profilaksu IE, 3. antibiotici izbora za profilaksu IE u pacijenata bez i s alergijom na penicilin te način njihove primjene. Rezultati našeg istraživanja pokazuju značajan nerazmjer između pozitivnih stavova o potrebi poznavanja i važnosti provođenja profilakse IE i znanja o indikacijama i načinu provođenja profilakse IE. Mogući uzrok je nedostatak trajne medicinske izobrazbe liječnika dentalne medicine u srodnim za njihovu kliničku praksu izrazito značajnim područjima.

### P12 DEVELOPMENT OF A NEW CHEWING FUNCTION QUESTIONNAIRE AND TESTING IT'S PSYCHOMETRIC PROPERTIES

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Objectives: To develop a unidimensional questionnaire for self-assessment of a chewing function (chewing function questionnaire: CFQ) and to test its psychometric properties. Methods: A focus group of 7 dentists and 15 patients generated a pool of 30 relevant items to describe chewing function. The Likert 5-point scale was used. A focus group reduced some redundant items and 21 items remained for pilot testing after which additional 4 items were eliminated. Then the 17 item questionnaire was tested on a larger sample (200 participants, 100 removable denture wearers (RDWs) and 100 individuals with natural teeth (NT)). Factor analysis was obtained to investigate the dimensionality of the questionnaire. Finally the ten items unidimensional questionnaire was formed. Discriminative validity was tested between the RDWs and the NT group. Convergent validity and internal consistency were tested in a group of 200 participants. Test-retest reliability was tested in 60 subjects. Responsiveness was tested in 24 patients who received prosthodontic treatment: new removable dentures. Results: The 17- items questionnaire was further item reduced because the items had been grouped in 3 dimensions. By eliminating items with complexities greater than one or those items with much larger correlations in the second or the third component, additional 6 questions were eliminated. One more item with the lowest correlation was further eliminated. The final questionnaire included ten items. Discriminative validity showed significant differences between the NT group and the RDWs, as predicted ( $p < 0,001$ ). Convergent validity was confirmed by the significant association between the CFQ summary score and the self-reported chewing difficulty ( $p < 0,001$ ). Test-retest reliability showed high intraclass correlation and no significant differences between the two administrations of the CFQ ( $p > 0,05$ ). The Internal consistency showed high Cronbach alpha values (0.934). Responsiveness was confirmed by a significant difference between the baseline and the follow-up score ( $p < 0,001$ ). Conclusions: The newly developed chewing function questionnaire (CFQ) provides standardized assessment of a chewing function Psychometric properties of the CFQ are satisfactory meaning that the instrument is suitable for the assessment of a self-perceived chewing function

### P13 ATTITUDES AND KNOWLEDGE OF DOCTORS OF DENTAL MEDICINE ABOUT PROPHYLACTIC PRECAUTIONS OF INFECTIOUS ENDOCARDITIS

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A series of previous studies showed a lack of knowledge and improper conduct of prophylactic precautions of infective endocarditis (IE). In this study we wanted to check out the views and knowledge of croatian doctors of dental medicine on the principles of IE prophylaxis. The study was conducted in Split, February 26th 2011., during the two-day course of permanent education for doctors of dental medicine "Dentistry Today, 2011.", organized by the Croatian Chamber of Dental Medicine, a Split branch. The questionnaire was consisted of 14 questions which are, in addition to general, demographic information about examinees (age and sex, year of graduation and the number of years of work in clinical practice) included three topics: 1. examinee's knowledge about guidelines for IE prophylaxis and attitudes about the importance of implementation of IE prophylaxis before surgery procedures in the oral cavity, 2. knowledge about cardiac entities and procedures in the oral cavity that require IE prophylaxis, 3. antibiotics of choice for prophylaxis of IE in the patients with and without allergy to penicillin, and the manner of their application. Our results show a significant discrepancy between positive attitudes about the need for knowledge and the importance of implementing IE prophylaxis and knowledge about the indications and methods of prophylaxis of IE. Probable cause is a lack of permanent medical education for doctors of dental medicine related to their extremely important clinical practice areas.

**P14 ORALNO ZDRAVLJE I NAVIKE PACIJENATA S ORALNIM PIERCINGOM**Sabalić M<sup>1</sup>, Schoener JD<sup>2</sup>, Barac Furtinger V<sup>1</sup><sup>1</sup> *Privatna ordinacija dentalne medicine, Zagreb, Hrvatska*<sup>2</sup> *Ordinacija dentalne medicine zračne baze Incirlik, Zračne snage SAD-a,**Adana, Turska*

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Nošenje piercinga u usnoj šupljini sve je popularnije među mladima. Iz dentalne perspektive, to nije samo bezopasni modni trend, već ga se povezuje s različitim lokalnim, ali i sistemnim komplikacijama. Cilj istraživanja bio je ispitati navike pacijenata vezano uz piercing u usnoj šupljini, utvrditi postojanje eventualnih komplikacija nakon postavljanja i posljedice nošenja piercinga te informirati pacijente o rizicima vezanim uz oralni piercing. Istraživanje se sastojalo od ankete s pitanjima o karakteristikama piercinga ispitanika, navikama i oralnom zdravlju te kliničkog pregleda. U istraživanju je sudjelovalo 24 ispitanika (22 žene i 2 muškarca) od 17 do 32 godine starosti s ukupno 32 piercinga u usnoj šupljini. 8 ispitanika je podvrgnuto kliničkom pregledu. Prosječni broj godina postojanja piercinga u ustima bio je 3,1, najzastupljeniji je bio piercing jezika (53,1%) i najčešći materijal igranja bio je kirurški čelik. U 87,5% slučajeva piercing je postavila stručna osoba, 95,8% ispitanika je prethodno bilo upoznato s rizicima, a jednu ili više komplikacija navelo je 25% ispitanika. Najčešće dugoročne komplikacije su otkrnuće zuba (12,5%) i povlačenje zubnog mesa (6,3%). Povećanu količinu sline navodi 25% ispitanika. Svi ispitanici navode da čestaju zube barem dvaput dnevno i 79,2% ih redovito posjećuje stomatologa te koristi dodatna sredstva za oralnu higijenu. 91% ispitanika je imalo ili ima štetnu naviku igranja s piercingom (grickanje, kuckanje, dodirivanje jezikom), 83,3% su pušači i 20,8% ih nikad ne čisti piercing. Kliničkim pregledom kod pacijentice koja 8 godina ima piercing na jeziku nađena je recesija gingive (5mm) s lingvalne strane donjeg središnjeg sjekutića. Samo 16,7% ispitanika je dobilo upute o oralnoj higijeni vezano uz piercing od svog stomatologa, a 29,2% je bilo upozoreno na negativne aspekte nošenja piercinga od strane stomatologa. Rezultati upućuju na potrebu informiranja pacijenata o rizicima piercinga za oralno i sistemno zdravlje. Kako je većina ispitanika dobila upute o rizicima i održavanju od strane osoba koje su postavile piercing, očita je nedovoljna informiranost stomatologa, koje je potrebno educirati jer učestalost nošenja piercinga nije zanemariva.

**P15 MLADI U DENTALNOJ MEDICINI DANAS – MOGUĆNOSTI I IZAZOVI**Sablek A<sup>1</sup>, Sabalić M<sup>2</sup><sup>1</sup> *Antun Sablek, student završne godine Stomatološkog fakulteta Sveučilišta u Zagrebu*<sup>2</sup> *Maja Sabalić, dr. dent. med.*

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U sklopu 5. Međunarodnog kongresa Hrvatskog stomatološkog društva HLZ-a, u petak, 6. prosinca održala se panel rasprava, Forumu mladih doktora dentalne medicine i studenata pod nazivom "Mladi u dentalnoj medicini danas: mogućnosti i izazovi". Cilj događanja je bio okupiti predstavnike institucija koje kreiraju i provode zdravstvenu politiku, planiraju razvoj profesije, predstavnike iz javnog i privatnog sektora, te nove i buduće članove profesije kako bi zajedno diskutirali o aktualnim temama, izazovima i prilikama za mlade stomatologe u Hrvatskoj te pozicioniraju na europskom i globalnom tržištu. Na forumu je sudjelovalo pedesetak studenata i doktora dentalne medicine te gosti: Lidija Hrastić-Novak, dr.med., savjetnica ministra, Ministarstvo rada i mirovinskog sustava, prof.dr.sc. Hrvoje Brkić, dekan Stomatološkog fakulteta, dr.sci. Većeslav Bergman, dr.med.dent., ravnatelj Doma zdravlja Zagrebačke županije, mr.sc. Vesna Barac Furtinger, dr.med.dent., privatna ordinacija dentalne medicine, predsjednica Women Dentists Worldwide pri Svjetskoj dentalnoj organizaciji (FDI), doc.dr.sc. Tomislav Lauc, dr.med.dent., ravnatelj Stomatološke poliklinike Apolonija i predsjednik Hrvatskog društva ortodontata Hrvatskog liječničkog zbora, Zrinka Hercigonja-Matković, dr.med.dent. i Igor Matković, dr.med.dent., privatna ordinacija dentalne medicine. Najaktualnijim pitanjima pokazali su se ona o pripremi za stručni znanje i vještinama te zapošljavanju mladih stomatologa u Hrvatskoj i inozemstvu. Zaključci rasprave bit će smjernice za djelovanje novoosnovane Sekcije mladih doktora dentalne medicine pri Hrvatskom stomatološkom društvu Hrvatskog liječničkog zbora.

**P16 INCIDENCA ATRICIJE ZUBA KOD PROFESIONALNIH SPORTISTA**

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UVOD: Sportske aktivnosti su odgovorne za mnoge traumatske i netraumatske povrede. Povrede u predjelu stomatognatnog sistema su relativno česte posebno kod onih osoba koje se bave kontaktnim sportom. Stomatognatni sistem čine: zubi kao mastikatorni organ u

**P14 ORAL HEALTH AND HABITS OF PATIENTS WITH ORAL PIERCING**Sabalić M<sup>1</sup>, Schoener JD<sup>2</sup>, Barac Furtinger V<sup>1</sup><sup>1</sup> *Private dental practice, Zagreb, Croatia,*<sup>2</sup> *United States Air Force, Incirlik Air Base, Adana, Turkey*

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Oral piercing has become popular among young people. From the dental perspective it is not just a fashion trend but it is associated with local and systemic complications. Aim of the study was to investigate oral health habits of patients with oral piercing, prevalence of complications upon piercing placement, long-term effects as well as to inform patients about risks associated with oral piercing. A questionnaire including questions about characteristics of respondents' piercings, oral health and habits was used for the survey. Twenty four respondents (22 female and 2 male) between 17 and 32 years of age and with the total number of 32 oral piercings participated in the study. Eight respondents underwent clinical examination. The respondents had oral piercings for 3.1 years on average, the most common was tongue piercing (53.1%) and the most common material used was surgical steel. In 87,5% respondents oral piercing was performed by a trained piercer, 95,8% were aware of risks and one or more complications were reported by 25% of respondents. The most common long-term complications were tooth chipping (12,5%) and gum recession (6,3%). Increased saliva flow was reported by 25% of respondents. All participants brush their teeth at least twice a day, 79,2% see dentist regularly and use additional oral hygiene products. A bad habit of "playing" with an oral piercing was reported by 91% of participants. 83,3% of participants were smokers and 20,8% do not clean their piercing. Clinical examination revealed a gingival recession (5mm) at a lingual side of lower central incisor in a patient who had tongue piercing for 8 years. Only 16,7% had previously received oral hygiene instruction and advice related to oral piercing from a dentist and 29,2% was warned about potential negative effects of oral piercing by a dentist. The results suggest that patient need to be informed about risks of piercing for oral and systemic health. Since the prevalence of oral piercing is not negligible and the majority of respondents received instructions about the risks and daily maintenance of piercing from piercers, the need for further education of dentists about oral piercings is evident.

**P15 YOUNG PROFESSIONALS IN DENTAL MEDICINE OF TODAY: POSSIBILITIES AND CHALLENGES**Sablek A<sup>1</sup>, Sabalić M<sup>2</sup><sup>1</sup> *final year dental student, School of Dental Medicine, University of Zagreb*<sup>2</sup> *doctor of dental medicine*

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As part of the 5th International Congress of the Croatian Dental Society of the Croatian Medical Association, a panel discussion for young dentists and dental students entitled "Young professionals in dental medicine of today: possibilities and challenges" was held on Friday, 6th December. Aim of the event was to bring together representatives of institutions which create and implement health policies, plan development of the profession, representatives of public and private sectors as well young and future dental professionals in order to discuss relevant topics, challenges and opportunities in Croatia as well as at European and global labour markets. Around fifty students and young dentists participated in the forum. Guests of the forum were: Dr. Lidija Hrastić-Novak, advisor of minister at the Ministry of Labour and Pension System, Professor Hrvoje Brkić, Dean of the School of Dental Medicine, University of Zagreb, Dr. Većeslav Bergman, PhD, Director of Zagreb County Health Centers, Dr. Vesna Barac Furtinger, MSc, owner of a private dental practice and president of the Women Dentists Worldwide section of the World Dental Federation (FDI), Dr. Tomislav Lauc, PhD, director of Apolonija polyclinics and president of Croatian Orthodontic Society of the Croatian Medical Association, Dr. Zrinka Hercigonja-Matković and Dr. Igor Matković, owners of a private dental practice. Most relevant topics were about dental foundation training, knowledge, skills and employment of young dental professionals in Croatia and abroad. Conclusions of the panel discussion will be guidelines for further activities of the newly founded Section of young dentist of the Croatian Dental Society – Croatian Medical Association.

**P16 TEETH ATTRITION INCIDENCE AMONG PROFESSIONAL ATHLETES**

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Introduction: Sports activities are responsible for many traumatic and nontraumatic injuries. Stomatognathic system injuries are more frequent for those who practice contact sports. This system consists of teeth as a masticatory organ, upper and lower jaw, mastic-

užem smislu, gornja i donja vilica, mastikatorni mišići, pomoćni mastikatorni mišići, vilični zglobovi, meka tkiva i žlijezde te odgovarajući dio živčanog, krvnog i limfnog sistema. Aktivnost stomatognatnog sistema možemo podijeliti prema vrijednosti na funkcijske i parafunkcijske. Parafunkcijske krenje su uglavnom nesvjesne radnje, koje zavise od karaktera same osobe i dnevnih aktivnosti pojedinca. U parafunkcijske aktivnosti ubrajamo stiskanje i škripanje zubima te čitav niz aktivnosti kojih osoba nije ni svjesna: npr. grickanje jezika, obraza i usne, sisanje prsta, grickanje olovke, grizenje noktiju, držanje telefona bradom, stiskanje vilica i ritmične kontrakcije značnih mišića tokom sna (bruksizam). Sve veći broj ljudi podržava da je bruksizam poremećaj sna koji je povezan sa emocionalnim stanjima (Rugh et al., 1984). Pretpostavljamo da to može biti stres koji se akumulira tokom dana ali najviše dokaz upućuje na to da je bruksizam povezan sa iščekivanjem stresa (Rugh, 1983; Finch and Gale, 1980). Zajedničko za sve parafunkcije je to da oni opterećuju mišiće, zube, zglob i gingivu. Preterano struganje zubima je najučestalije i najdesturktivnije okluzalno stanje. Prekomjerna upotreba mišića uzrokuje pacijentu bol u vratu i uhu te jake glavobolje. Glavni cilj ovog istraživanja je da odredi količinu i lokaciju atricije na zubima kod osoba koje se bave profesionalno sportom. Također da istraži apsolutnu prisustvo parafunkcija kod profesionalnih sportista. Ono što će također biti istraženo u ovom radu je moguća veza između prisustva parafunkcija i disfunkcija TMZ i poremećaja okluzije. METODA: Učesnici (n=45) ove studije su osobe muškog spola, starosti od 18-25 godina, koji su dobrovoljno pristali da učestvuju u istraživanju. Podjeljeni su u tri grupe: ispitanici koji se bave borilačkim sportovima (n=15), ispitanici koji se bave ostalim sportovima (n=15) i ispitanici koji se ne bave sportom (n=15). Svi ispitanicima je data anketa, koja se sastoji od 22 pitanja na koja su ispitanici samostalno odgovarali. Zatim im je urađen pregled mastikatornih mišića (palpacija i prekusija), pregled pokretljivosti mandibule i pregled TMZ. Intraoralni pregled obuhvata status zuba, prisustvo atricije i pregled okluzije u frontu i bočno. REZULTATI: Biti će prikazano poređenje kvalitativnih i kvantitativnih parametara u ove 3 grupe. Prevalenca prisustva parafunkcija kod kontrolne grupe iznosi 26% (n=5), kod ispitanika koji se bave neborilačkim sportovima iznosi 60% (n=9) i kod ispitanika koji se bave borilačkim sportovima iznosi 66,6% (n=10). Što se tiče prisustva atricije prevalenca je veća kod ispitanika koji se bave neborilačkim sportovima i iznosi 73% a kod borilačkih sportova 66,6%.

#### P17 USPOREDBA PARODONTNOG ZDRAVLJA I ODRŽAVANJA ORANE HIGIJENE STUDENATA STOMATOLOŠKOG I FARMACEUTSKO-BIOKEMIJSKOG FAKULTETA

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Uvod: Studenti dentalne medicine u pravilu imaju pozitivan stav i osviještenost prednostima navika održavanja oralne higijene. Utjecaj edukacije na njihov stav, ponašanje i oralnu higijenu tijekom studija se očituje u njihovom ponašanju prema oralnom zdravlju i njegovom očuvanju. U našem istraživanju, pokušali smo ispitati i usporediti navike održavanja oralne higijene i zdravlja usta studenata dentalne medicine napram studenata biomedicinskih znanosti. Materijali i metode: Ukupno je dobrovoljno sudjelovalo 228 studenata, od čega 111 farmaceutsko-biokemijskog fakulteta i 117 studenata dentalne medicine. Ispunili su opći upitnik o oralnoj higijeni uključujući i pitanja o učestalosti pranja zubi, odlaska stomatologu, korištenju zubnih pasta s fluoridima, zubnog konca i vodica za ispiranje usta. Svaki ispitanik je bio parodontološki pregledan, te su parametri zabilježeni kao Indeks parodontne zajednice (CPI). Rezultati: Studenti dentalne medicine bili su bolji u održavanju oralne higijene od studenata farmaceutsko-biokemijskog fakulteta. Razlika u učestalosti pranja zubi nije postojala. Sve ostale varijable oralne higijene statistički su bile značajno različite (p 0,001). Nije postojala statistički značajna razlika u CPI indeksima između dvije skupine studenata. Zaključak: Ovo istraživanje je pokazalo da su studenti dentalne medicine bolji u provođenju oralne higijene od studenata farmaceutsko-biokemijskog fakulteta. Parodontno zdravlje je bilo jednako u obje grupe, neovisno o razlikama u provođenju oralne higijene, vjerojatno zahvaljujući mladim godinama ispitanika.

#### P18 STUDIJ STOMATOLOGIJE - ZAŠTO?

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Studij stomatologije je jedan vrlo zahtjevan studij. Uprkos činjenici da mladi stomatolozi relativno dugo čekaju na odgovarajući posao u struci, interes za upis studija stomatologije je i dalje vrlo velik. Svrha ovog rada je dobiti uvid u razloge zašto maturanti upisuju studij stomatologije, te koja su njihova očekivanja od studija i profesije. 63 studenata 1. semestra

tory muscle, additional masticatory muscles, temporomandibular joint, soft tissue and glands, as well as corresponding part of nervous, blood and lymph system. Its activities are divided in two different parts, functional and parafunctional. The parafunctional moving are mainly unconscious actions depending on the character of the person and the daily activities of the individual. It includes squeezing and crumpling of teeth, biting tongue, cheeks and lips then nibbling the pencil, nails, holding phone with the chin as well as jaw clenching and rhythmic contractions of the masticatory muscles during sleep (bruxism). An increasing number of people consider that bruxism is a sleep disorder that is associated with emotional state (Rugh et al., 1984). We suppose it may be the accumulation of stress during the day, but most evidence suggests that bruxism is associated with the anticipation of stress (Rugh, 1983, Finch and Gale, 1980). It is common that parafunctional condition may load muscles, teeth, TMJ and gingiva. Excessive scraping of teeth is the most common and most destructive occlusal condition. Over use of muscles causes the patient pain in the neck and ear and severe headaches. Main goal of this investigation was to determine degree and localization of teeth attrition in professional sportsmen population. We also wanted to investigate the absolute presence of parafunction in professional athletes. What will also be explored in this paper is a possible link between the presence of parafunction and dysfunction TMJ and disorders of occlusion. Method: Participants (n = 45) of the study were male gender, age 18-25 years, who voluntarily agreed to participate in research and they were divided into three groups. Group (n=15)- Participants who are engaged in martial arts; Group (n=15)- Participants who are engaged in other sports; Group (n=15)- Participants who didn't train anything. All participants had to answer on 22 questions in questionnaire individually. After that, they were examined (masticatory muscle, lower jaw and TMJ). Intraoral examination included the status of teeth presence, the presence of attrition and view of occlusion in the front and side. Results: A comparison of qualitative and quantitative parameters in these three groups will be shown. So, parafunctional state prevalence in control group is 26% (n=5), while its value is 60% (n=9) in the second group and that value is 66,6% (n=10) in the third subjects group. As for the presence of attrition prevalence is higher among the participants who are engaged in contact sports and it is 73%.

#### P17 COMPARISON OF PERIODONTAL STATUS AND ORAL HYGIENE HABITS BETWEEN STUDENTS OF DENTAL MEDICINE AND PHARMACY AND BIOCHEMISTRY STUDENTS

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Introduction: Dental students in general have been found to have a positive attitude toward oral health. The impact of education on the attitude, behavior and oral hygiene of dental students have an influence on their behavior towards maintaining their dental health. In our study we tried to investigate it and compare oral hygiene habits and oral health of dental students with biomedical sciences students. Materials and methods: There were in total 228 students, 111 farmaceutski and 117 dental medicine students that voluntarily encompassed study. They filled a structured questionnaire with general information about oral hygiene habits including questions of brushing frequency, dental office visits, usage of toothpaste with fluorides, flossing frequency and mouthwash rinses usage. Clinical examination included the assessment of periodontal health and was recorded as Community periodontal index (CPI). Results: Students of dental medicine had better oral hygiene habits than student of pharmacy and biochemistry. There were no differences between the groups in frequency of teeth brushing. All other variables of oral hygiene habits (dental office visits frequency, usage of fluoridated tooth paste, mouth rinses and dental floss) were statistically different (p 0,001). Nevertheless, there were no statistically significant differences in CPI index between the two groups of students. Conclusion: Our study showed that students of School of Dental Medicine University in Zagreb are better in oral hygiene habits than students of Faculty of Pharmacy and Biochemistry. Periodontal health was same in both groups, regardless differences in oral hygiene habits, probably due to young age of students."

#### P18 WHY STUDY DENTAL MEDICINE?

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Study of dental medicine is very demanding. Despite the fact that it is hard to find an appropriate employment for young dentists, the interest for the study is still very big. This research aims to get insight why high school graduates choose this study and what they

studija dentalne medicine na Stomatološkom fakultetu Sveučilišta u Zagrebu ispunili su dobrovoljno i anonimnu anketu. Više od 30% studenata je studij stomatologije upisalo jer im je to bila želja i prvi izbor, dok je oko 17% studenata studij upisalo jer očekuju da mogu lako i brzo dobiti posao po završetku studija. Na trećem mjestu, studenti navode činjenicu da kao stomatolozi mogu imati i obiteljski život. Više od 38% studenata namjerava raditi u vlastitoj privatnoj stomatološkoj ordinaciji. Za uspješan završetak studija i uspješno bavljenje stomatologijom studenti kao najvažnije navode dobre i kvalitetne kliničke vještbe s pacijentima, dobra i kvalitetna predavanja, motivirane nastavnike, te suvremenu stručnu literaturu na hrvatskom jeziku. Ovo istraživanje daje zanimljive informacije što studenti očekuju od studija, te od stomatološke profesije nakon završetka studija. Dobiveni podaci mogu poslužiti u svrhu prilagodbe i usavršavanja nastavnog procesa, te poboljšanja nastavnih planova.

#### P19 MAGNETSKA REZONANCIJA U DIJAGNOSTICI POREMEĆAJA TEMPOROMANDIBULARNOGA ZGLOBA BOLESNIKA S PRETHODNO DOŽIVLJENOM TRAUMOM

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UVOD Temporomandibularni poremećaji su skup dijagnoza mišićno-koštanih bolesti, od kojih su najčešće anteriorni pomak diska i osteoartritis temporomandibularnog zgloba. Etiopatogeneza poremećaja je nedovoljno istražena, a podrazumjeva uključivanje više faktora, od kojih je jedan i makrotrauma stomatognatskog sustava. U pravilu, takva trauma ne podrazumjeva frakture kostiju lica i čeljusti te veće ozljede zubi i pripadajućih mekih tkiva. Svrha rada bila je analizirati anamnestički podatak prethodno doživljene traume u bolesnika s kliničkim simptomima poremećaja temporomandibularnog zgloba. ISPITANICI I POSTUPCI U epidemiološkom istraživanju poremećaja temporomandibularnog zgloba prikupljeno je 148 bolesnika (prosječna dob±standardna devijacija (SD) 32,3±15,3 godina, raspon dobi od 12 do 84 godine; 17,6% udio muškog spola). Svi pacijenti su imali kliničke znakove i simptome poremećaja temporomandibularnog zgloba. Bolesnici su ocijenili intenzitet bolova u zglobovima pri prvom pregledu na analogno-vizualnoj skali (VAS-T0) od 0 (nema bolova) do 10 (najjača bol ikad doživljena). Prikupljen je podatak prethodno trpljenim bolova prije prvog pregleda (u mjesecima). Svim pacijentima postavljena je definitivna dijagnoza pomaka diska temporomandibularnog zgloba pomoću magnetske rezonancije. Bolesnici su i liječeni (okluzijska udlaga i/ili fizioterapija po Schulte) te je u periodu od najmanje 6 mjeseci utvrđen učinak terapije na bolnost temporomandibularnog zgloba (bol na VAS-T1). REZULTATI U ukupnom uzorku bolesnika, njih 28 (n=28 bolesnika ili 18,9% svih bolesnika, raspon dobi od 12 do 84 godine; 25% udio muškog spola) postojao je anamnestički podatak prethodno doživljene traume (trajna ozljeda vrata, udarac u području stomatognatskog sustava bilo kao posljedica pada ili nasilja). Ostatak bolesnika (n=120, raspon dobi od 12 do 71 godine) negirao je doživljenu traumu orofacijalnog sustava, kao i trajnu ozljedu vrata. Utvrđena je statistički značajna pozitivna korelacija (korelacijska analiza s p<0,05) za odnos dobi bolesnika i boli VAS u periodu T0 samo za bolesnike bez traume. Za bolesnike sa traumom značajnost je bila u korelaciji njihove dobi sa bolovima u periodu T0 i T1. U podskupini bolesnika s doživljenom traumom (n=28), evidentiran je posebno podatak o doživljenoj sportskoj traumi, koja je utvrđena u 7 (25%) bolesnika. Pokazala se je značajnost korelacije samo za podskupinu bolesnika s doživljenom drugom vrstom traume (n=21) za varijable boli u periodu T0 i periodu T1, dok u podskupini s doživljenom sportskom traumom nije bilo značajnog koreliranja varijabli. Unutar bolesnika s doživljenom traumom (n=28) pokazao se povećani udio muških bolesnika koji su doživjeli neki oblik sportske traume (n=7). Ostali bolesnici (n=21) iskazali su anamnestički podatak doživljene traume nevezano za sportsku aktivnost, ali pri tom treba istaknuti i anamnestički podatak nasilnog ponašanja osoba muškog spola nad bolesnicima ženskog spola. ZAKLJUČAK Makrotrauma pretpostavljano, može uzrokovati anteriorni pomak diska ili inicirati kliničke znakove u osoba koje su imale asimptomatski pomak diska. U ovom istraživanju pokazalo se da veća bol na početku terapije implicira i veću bol (slabiji učinak terapije) u svih podskupina bolesnika, osim u dijela bolesnika s doživljenom sportskom traumom, u kojoj prevladavaju muški bolesnici. Bolesnici sa svim vrstama traumi trpili su dulje bol i postigli slabiji analgetički učinak terapije nego oni bolesnici koji nisu doživjeli prethodnu traumu.

expect from the study and dental profession. 63 students of the 1st semester of the dental study at the School of Dental Medicine University of Zagreb filled a voluntary, anonymous questionnaire. For more than 30% of students study of dental medicine was the first choice and about 17% of students enrolled this study because they expect that they can find an appropriate job easy and very soon after the end of the study. On the third place, students highlight the possibility of having normal family life as doctors of dental medicine. More than 38% of students expect to work in their own private dental practice. For successful study and professional work students highlight the importance of clinical exercises with patients, quality of lectures, motivated teachers and contemporary literature on Croatian language. This research gives interesting clues what dental students expect from their study and profession. Obtained data can be used for the further improvement of the dental study curriculum and teaching process.

#### P19 MAGNETIC RESONANCE IN DIAGNOSTICS OF TEMPOROMANDIBULAR JOINT DISORDERS IN PATIENTS WITH PREVIOUS TRAUMA

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INTRODUCTION Temporomandibular disorders are a group of musculoskeletal diagnoses with anterior disc displacement and osteoarthritis of the temporomandibular joint as the most common ones. The etiopathogenesis of the disorders has not been sufficiently investigated and it implies including several factors, one of which is macrotrauma of the stomatognathic system. As a rule, such trauma does not imply facial and jaw bone fracture or major dental and accompanying soft tissue trauma. The aim of the paper was to analyse the medical history data of previous trauma in patients with clinical symptoms of temporomandibular joint disorder. SUBJECTS AND METHODS There were 148 patients (average age±standard deviation (SD) 32.3±15.3 years, age ranging from 12 to 84; 17.6% male) collected in the epidemiological study of temporomandibular disorders. All the patients had clinical signs and symptoms of temporomandibular joint disorder. At the first examination the patients rated the pain intensity in the joints on an analogue-visual scale (VAS-T0) from 0 (no pain) to 10 (strongest pain ever experienced). The data on previously experienced pain prior to the first examination (in months) were collected. All the patients had the definitive diagnosis of temporomandibular disc displacement made by magnetic resonance. The patients were also treated (occlusal splint and/or physical therapy according to Schulte) and in the period of 6 months the effects of treatment on temporomandibular joint pain were determined (pain on VAS-T1). RESULTS From the total sample of patients, 28 of them (n=28 patients or 18.9% of all patients, age range from 12 to 84; 25% male) had medical history of previous trauma (whiplash neck injury, blow to the stomatognathic system region as a consequence of fall or violence). The rest of the patients (n=120, age range from 12 to 71) denied any trauma of the orofacial system as well as whiplash neck injuries. A statistically significant positive correlation (correlation analysis with p<0.05) was determined regarding the relationship between the patients' age and pain on VAS in the period T0 for trauma-free patients only. For patients with previous trauma the significance was correlated with their age and pain in the period T0 and T1. In the subgroup of patients with previous trauma (n=28), the experienced sports trauma was specifically noted in 7 patients (25%). The correlation was only significant for the subgroup of patients with other types of trauma (n=21) regarding pain variables in periods T0 and T1 whereas in the subgroup with sports trauma there were no significant correlations of variables. Among the patients with previous trauma (n=28) there was an increased share of male patients with sports trauma (n=7). Other patients (n=21) reported a medical history of trauma unrelated to sports activities. However, attention should also be given to the medical history of violent behaviour suffered by female patients from men. CONCLUSION Macrotrauma may cause anterior disc displacement or initiate clinical signs in individuals with asymptomatic disc displacement. This study revealed that greater pain at the beginning of treatment also implied greater pain (lesser treatment effects) in all subgroups of patients, apart from the patients with sports trauma with predominantly male patients. Patients with all types of trauma suffered pain for longer periods of time and had lesser analgesic effects of treatment than those patients who had no previous trauma.